
Integrated Marine Management:

**Managing Multiple Jurisdictions
and the Environment in the
Exclusive Economic Zone**

by

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DECLARATION

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ABSTRACT

The 1992 international agreement known as Agenda 21 represents a paradigm shift away from sectoral management towards more comprehensive management approaches. A key tenet of Agenda 21 is the need for 'integrated management and sustainable development of coastal and marine areas, including exclusive economic zones' (Agenda 21, Programme Area A). Despite calls for integrated management at all levels of government, however, sectoral management prevails due to such factors as entrenched mind-sets, administrative fragmentation and political expediency. This thesis investigates the argument that sectoral management is unable to deal with complex, cross-linked issues and that integrated management is an appropriate, alternative method for approaching environmental management, particularly within the Exclusive Economic Zone (EEZ).

Comparative analysis is used to assess 17 case studies of integrated marine management within Australia, Canada and the United States of America. Comparison is structured on a series of ten common criteria distilled from the literature, and which in their entirety comprise a generic process of integrated management. Given these criteria, case studies are examined to determine whether management objectives and outcomes are really *integrated*, and whether the lessons of practice transcend the limitations of their unique (federal) contexts.

Analysis demonstrates that despite structural differences, the *concept* of integrated management advocated by the three nations is very similar. Furthermore, aspects of integrated management have been pursued with some success, indicating that the process has the capacity to address cross-linked issues. However implementation of integrated marine management remains a significant hurdle and there are few marine management programs which can claim to be fully integrated in *practice*. Future application of integrated management within the federal EEZ requires policy and management to be approached from the perspective of issue aspects rather than isolated activities. It also requires: a consistent set of policy principles on which to base management; adequate and assured resources; a 'level playing field' for the reconciliation of sectoral interests; a 'two track' (top-down and bottom-up) approach to management; strategic planning; mechanisms for coordination and harmonisation; and explicit processes to allow for institutional learning.

The thesis concludes that marine conservation may no longer be treated as a separate concern within itself but must be incorporated within comprehensive policy and management arrangements. Integrated marine management is one means for balancing environmental and development interests and presents a potentially feasible management option for resolving complex issues in the EEZ.

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**Where ocean rolls his mighty
flood,
Where billows rise and fall,
Wisdom and power are infinite,
And God is all in all.**

Old Humphrey's Observations, 1856

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PART I

INTRODUCTION

In our interdependent, technological civilisation, the cause and effect system through which human policies and actions are translated into their real world consequences is systemic in nature and global in scale. The processes of governance through which we seek to manage these issues are clearly inadequate. There is no need for world government. But there must be a more systemic relationship amongst each of the various levels of government than now exists if our civilisation is to be secure and sustainable through the twenty-first century...There can be no permanent escape from the realities of interdependence through a retreat into narrow nationalism and parochialism, as tempting as this may be (Strong 1995).

As the world becomes more interdependent in both function and perception, so the concept of the 'global community' becomes more real. With a recognition of the increasing internationalisation of the planet, a return to environmental management based on ecosystem principles has begun within which interdependence of natural global systems and human activity is highlighted. At the same time however, demand for natural resources is escalating and the effects of human activity on the natural environment is becoming increasingly severe. Notwithstanding a proliferation of environmental regulation and policy worldwide, the natural environment is being degraded, even within those areas once thought to be resilient to human impact.

Integrated management is a concept that has been discussed and developed as an answer to environmental concerns since the 1970s. By acknowledging the interdependence and complexity of ecosystems, integrated management offers a management perspective which is holistic and multi-sectoral, and which incorporates linkages and externalities within decision-making processes. The first substantive work relating integrated management to the *marine* context was published in 1980 (Underdal 1980). Since then, worldwide attention has increasingly turned towards the oceans due to resource access issues and growing concern over their health. Recognition and understanding of the complexity of ocean systems and the essentially interdependent nature of the marine environment has also grown, and as a result, interest in *integrated marine management* has flourished. However, integrated management is within itself a complex and multi-faceted process, and though essentially congruent with ecological reality, it is rarely congruent with political reality, particularly within the federal context.

Australia, Canada and the United States are three federations which have embraced the concept of integrated management. All were party to the United Nations Conference on Environment and Development in 1992 and all three have accepted and signed Agenda 21, the international environmental instrument arising from the Conference. Chapter 17 of Agenda 21 represents an agreement amongst its signatories on goals and means towards sustainable development. Integrated management is articulated as a means of achieving sustainable development of the marine environment, and particularly within the 200 n. mile boundary of ocean jurisdiction known as the Exclusive Economic Zone (EEZ). Australia, Canada and the United States all claim an EEZ under the ocean governance regime established by the United Nations Convention on the Law of the Sea. By doing so, all three countries have become responsible for the management of three of the largest maritime jurisdictions in the world.

The concept of integrated management forms the basis to much contemporary environmental policy and practice in Australia, Canada and the USA, and it is widely regarded as a remedy to marine environmental concerns. Furthermore, a great deal of financial and other resources are being directed at the development of integrated approaches to coastal management. Yet understanding of integrated management remains confused. Critical assessment of the concept is lacking and the practical feasibility of integrated management within the marine realm is yet to be proven.

Research Aims

By examining theoretical developments worldwide and the practical experience of Australia, Canada and the United States, this study seeks to identify the process of integrated marine management, and to assess the practical advantages of and limitations to it. Through analysis of the success (or otherwise) of integrated management in resolving complex marine issues, the aim is to determine the feasibility of the process, particularly as it relates to the EEZ. Specifically, the aims of this research are to:

- identify integrated management as a concept and practice;
- assess the success of integrated management as a means of resolving complex marine issues; and
- determine the feasibility of integrated management within the context of the Exclusive Economic Zone.

Study Rationale

The marine environment is distinguished by its interconnectedness yet conventional approaches towards management have tended to be narrowly focused and activity specific on a sector-by-sector basis. As a consequence of the limitations of sectoral management in resolving inter-sectoral issues, there has been increasing criticism of its capacity to provide for the ecologically sustainable development of the marine environment. This has led to the development of alternative, comprehensive management approaches that attempt to break down barriers created by political boundaries and administrative practice. Integrated management is one of these alternatives.

Integrated management is widely advocated as a solution to piecemeal marine environmental attrition. It differs from other management approaches in that it is both cross-sectoral and multi-jurisdictional, it has the capacity to recognise linkages, and maintains a comprehensive perspective. At the highest political level, Agenda 21 promotes integrated management as a process for achieving sustainable development in the context of the EEZ, and the process has also been incorporated in policy and law around the world. However the literature and experience indicates that definitions and many operational aspects of integrated management differ markedly. Moreover, the success of this widely endorsed, yet seemingly little understood process of management in dealing with complex marine issues is yet to be tested in any rigorous sense.

Australia, Canada and the USA are three federal nations which face complicated management questions within three of the largest maritime jurisdictions in the world. All three endorse integrated management of their coastal and ocean areas, and all have been at the forefront of the development of integrated policy and practice. Yet while the *concept* of integrated management advocated and described by each of the three countries is largely similar, the *structure* and *practice* of integrated management initiatives is considerably different. There is a clear need to determine whether marine management objectives and outcomes really are *integrated* and whether the lessons of practice transcend the limitations of unique (federal) contexts.

This research is not the first effort at examining the theory and practice of integrated management. With different purposes and within varying national and international settings, a number of surveys and analyses of integrated management have been conducted. Notable work includes: Kenchington 1990; Sorensen & McCreary 1990; Clark 1991; Chua & Scura 1992; Clark 1992; Sorensen 1993; Boelaert-Suominen & Cullinan 1994; IPCC 1994; UNEP 1995; GESAMP 1996; and Cicin-Sain & Knecht 1998. Many of earlier studies are largely descriptive, reviewing approaches taken by various nations to address coastal issues. Later studies tend to be more prescriptive, drawing on coastal management experiences to devise guidelines and recommendations for the planning and implementation of integrated management. All of these studies, however, are primarily focused on the *coastal* zone (and often terrestrial management practice), and none of them state how case evidence has been characterised or assessed. Furthermore, none of this research discusses the justification or *feasibility* of integrated management in anything more than a cursory fashion. To date, there exists no comprehensive or critical assessment of the practicality of the process against a defined conceptual framework, and very little analysis of the implications of the process in the wider context of EEZ management. This study builds on (and aims to extend) earlier and ongoing work by conducting a critical assessment of the feasibility of integrated *marine* management against a defined analysis framework. This framework of analysis is presented in the following chapter.

Research Methodology

This research has relied on information from a combination of sources. First, an extensive review of the literature was conducted: academic reviews, government reports, non-government analyses, and many unpublished documents were reviewed. This literature review forms a basis to discussions and critique on integrated marine management as a concept and paradigm, contained within Part II of this thesis.

Second, in order to collect information for the assessment of integrated management in practice, coastal and ocean management initiatives around the world were identified. Three nations, namely Australia, Canada and the USA, were found to offer the most extensive experience in the application of integrated management. Not only are they responsible for management of three of the largest national maritime zones, but arguably the most renowned examples of integrated management (the Great Barrier Reef Marine Park, the Coastal Zone Management Program and the Canada Oceans Act for example) may be found within their waters. Furthermore, all face similar problems in oceans and coastal management and all offer considerable potential for capacity building and development as well as conservation assistance around the world.

Initial investigation of the three federal nations involved a comprehensive scoping exercise where government officials, managers, non-government organisations, academics, private consultants and local industry groups and/or representatives involved in coastal and ocean management initiatives were identified. Contact was initiated (via mail, fax and/or electronic mail and occasionally telephone), requesting information on the nature and scope of marine management initiatives within their range of expertise and experience. After ascertaining programs which appeared *not* to be sector-specific, targeted (though extensive) field-work was conducted throughout the three nations during 1994 and 1995, during which information, first hand knowledge, and case material was obtained through interviews, visits and discussions. Questions asked during field-work sought to elicit what experience existed in the development and operation of integrated marine management, and the perceived success of the process in light of that experience. A great deal of primary and secondary data was collected during this time, and it appeared that most who were involved in management of the marine environment believed their program to be

'integrated' in one way or another. Consequently, mindful of the aim to determine the feasibility of integrated management within the context of the EEZ, only initiatives which *specifically* claim to be integrated management *and* which focus predominantly on the *marine* context were selected. Seventeen programs were ultimately identified for further analysis. It was decided that a broad focus on general integrated management experience was necessary in order to draw general conclusions about the success and future of the process, rather than in depth critique of a small number of examples.

Using the literature review conducted earlier and information obtained during field-work, a framework of analysis was devised. This framework (presented in Chapter 1) essentially consists of ten criteria which, in their entirety, represent a generic form of integrated management. It provides the focus of analysis and has been used to test for and assess the process of integrated management within the selected case studies. As it quickly became apparent that theory did not always match practice in a number of programs, the analysis framework was adapted to specifically identify criteria of integrated management both from the perspective of program *objectives and outcomes*.

Where information was found to be deficient and/or required updating, additional material and data was obtained through primary contacts wherever possible, otherwise through secondary sources. In compiling data for each case study, inaccuracies were avoided by cross-checking accounts with those of others and with documented evidence wherever possible. Case studies are all reviewed from their inception to early 1998, and analysis is mostly based on objectives and management outcomes as at late 1997/early 1998. Analysis of individual case studies is presented on a country-by-country basis in Part III of this thesis, and Part IV comprises comparative analysis of the case material.

Despite concern about the gap between the comparative study of politics and policy (Ashford 1983), comparative analysis has been chosen as a means to verify or falsify whether generalisations of the process of integrated management hold across the cases to which they have been applied (Sartori 1991). To the extent that Australia, Canada and the United States are federal nations, and that the selected case studies are all based on principles of integrated management, they are comparable (Sartori 1991). However differences in geography, culture, socio-economic structures, and history among other things, arguably make each integrated management case study unique to the circumstances it has been designed to address. Therefore, using the common analysis framework presented in the next chapter (within the context of a 'most different' comparative approach as defined by Roberts (1978)), *similarities* in management approaches are identified amongst the case evidence. Wood (1995: 11) describes three objectives which may be achieved in using the comparative method. First, by placing cases and processes within their context it becomes possible to explain them more clearly than by studying a single example on its own merits and in isolation. Second, as some systems or arrangements work better than others, step-by-step comparative analysis helps to highlight factors which are essential to the success of a program. Finally, comparative analysis of approaches towards solving problems can lead to valuable and practical suggestions to improve the effectiveness of the processes examined. Hence, in using comparative case analysis the intention of this research has been to aggregate integrated marine management experience into valid generalisations having some predictive value.

Limitations

There are at least four major limitations to this research. First, as the process of integrated management is only a relatively recent approach (when compared to sectoral management for example), this study is necessarily introductory in nature. Sufficient developments (including programs such as the United States Coastal Zone Management Program initiated in 1972) have occurred within Australia, Canada and the United States on which to base a first cut at analysis of the nature and achievements of integrated management. However, many integrated management initiatives are currently under development and/or are yet to be implemented. In many cases therefore, it is too early to judge practical outcomes. As the practice of integrated management develops, it will be imperative to further study the operation of different approaches that have been adopted. In the meantime, given experience and information available to date, the analysis presented here is intended to provide *preliminary* insight in to the feasibility of integrated management and the potential it holds for future management of the EEZ.

Second, though theory and practice of integrated management has advanced substantially in recent years there is still some confusion as to what the concept means and entails. Significance also tends to be given to different elements of integrated management depending on the discipline and perspective of the individual. This is most clearly demonstrated by the inconsistency of terms that are employed within the literature (see Chapter 3). As a result, one program might be termed 'integrated' which bears little semblance to another integrated management program. Similarly, principles of integrated management might be employed without necessarily being termed as such. Some problems with consistency and correlation have therefore been encountered within this research, though ultimately the identification of generic criteria within a common analysis framework (see Chapter 1) has been found to overcome most inconsistencies.

Third, it must be emphasised that this research is limited to a 'snapshot in time', and that conclusions are likely to be very different given dynamic and constantly changing political, environmental and technological circumstances. Furthermore, much of the evidence and information available on the operation and scope of integrated management programs is general and qualitative. Certain indicators such as formal participatory planning processes and established monitoring programs may be used to define structural characteristics of integrated management. However, the more informal aspects of integrated management are difficult to quantify. As a largely *philosophical* approach, the future of integrated management lies as much in the *belief* that it is an appropriate and effective way to approach management, as in the demonstration of its operational success. Therefore, this thesis, while drawing heavily on formal reports and official information has also specifically incorporated more subjective evidence in order to gauge the influence of integrated management on the prevailing mind-set (though wherever possible, qualitative information has been cross-checked to avoid inaccuracies, see Methodology above).

Finally, given the aims of this research, general conclusions regarding the operation and future of integrated management have been sought. The focus has therefore been on the breadth of integrated management experience across contexts rather than on exhaustive critique of a small number of case studies. In addition, only those programs which explicitly claim to be integrated, and those which are focused on the *marine* context (see Definitions and Concepts below) have been selected for analysis.

Definitions and Concepts

Integrated management is a relatively new and evolving field. Accordingly there tends to be as yet no general agreement about common terms and phrases. For clarification, frequently used terminology within the context of this thesis is defined and briefly discussed below.

The environment

The concept of 'the environment' assumes not only 'surrounding things', but that which is surrounded, namely humans. That is, the environment is considered to include not only the aggregate of things, conditions or influences surrounding us, but us as well (Caldwell 1963).

Management

Management refers to the attempt to provide order and to influence human behaviour to achieve certain ends (Juda & Burroughs 1990). Management is also a concept which is defined by the human activity to which it refers. *Environmental* management therefore concerns the influence of human behaviour in order to achieve *environmental* objectives. From the perspective of this thesis, management is also understood to be continuous, dynamic and iterative activity which embraces the full spectrum of planning, analysis, decision-making, implementation and review.¹

Ecologically sustainable development

Using the definition suggested by the Australian Commonwealth Government, ecologically sustainable development is understood to be 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased' (Commonwealth of Australia 1992: 6). Based on this definition, two main features are argued to distinguish an ecologically sustainable approach to development, namely:

- 'we need to consider, in an integrated way, the wider economic, social and environmental implications of our decisions and actions for Australia, the international community and the biosphere; and
- we need to take a long-term rather than short-term view when taking those decisions and actions' (Commonwealth of Australia 1992: 6).

The coast

The coast is usually perceived as 'the land next to the sea; the sea shore' (Macquarie Library 1981). Invariably, the coast is predominantly a sub-national concern and most often pertains to terrestrial activities. The coast is also frequently referred to as a 'zone', particularly from the perspective of management. Such use of the term 'coastal zone' implies that a coastal area has been defined as a geographic unit apart from, yet between, the ocean and the land' (Sorensen & McCreary 1990: 5), however definitions of the area vary and tend to reflect the emphasis placed by different user groups on various coastal resources (Pernetta & Elder 1993). For the purpose of this research, the coast is understood as the land-sea interface, the breadth of which is dependent on the issue or purpose under consideration.

¹ See, for example, Bower, Ehler et al. 1994.

The ocean

In the most literal sense, the ocean is 'the vast body of salt water which covers three fourths of the earth's surface' (Macquarie Library 1981). In contrast to the coast, oceans are traditionally thought of as part of the public domain, beyond the ownership or benefit of any one group or person (Cicin-Sain & Knecht 1998). With the introduction of the concept of the Exclusive Economic Zone however, national ocean jurisdiction has been established. Thus 'the area covered by ocean management can extend from the inland limit of national jurisdiction out to the ocean extent of its most seaward claim' (Sorensen & McCreary 1990: 19). Sorensen and McCreary (1990: 19) suggest that the simplest way to distinguish a *coastal* management program from an *ocean* management program is whether or not a terrestrial zone is included within a program's control. Ocean management is therefore primarily a national concern though sub-national and local governments, and even international interests may have responsibilities and/or interest in management of the ocean area.

Marine

Consistent with the definition 'of or pertaining to the sea' (Macquarie Library 1981), the *State of the Marine Environment Report for Australia* classifies the marine environment as 'the maritime area extending, in the case of watercourses, up to the freshwater limit and including intertidal zones and the shoreline, estuary, bay, harbour, nearshore and offshore waters' (Zann 1995). *Marine management* may therefore include a terrestrial component, a consideration of the effects of terrestrial activity on adjacent waters, or it may pertain to issues entirely beyond the terrestrial limits. In short, marine management often incorporates a combination of both *coastal* and *ocean* concerns, but is generally characterised by its multi-jurisdictional nature; that is sub-national/national, national/international but always with a *national* component.

Integrated management

Integrated management is a concept which has been defined and explained by many with varying emphases and with varying objectives. A definition of integrated management has been used within the context of this thesis that represents a common understanding of the concept derived from a comprehensive review of the literature and discourse.² Thus integrated management is understood to be: *a continuous, dynamic and holistic process for achieving ecologically sustainable development. It encompasses a multi-sectoral approach to management in which issue linkages and externalities are explicitly recognised. It is guided by long-term, common-purpose objectives, and embraces stakeholder involvement in all aspects of policy design, development and implementation.* The term integrated management is used within this analysis, furthermore, with specific reference to *marine* areas.

² See for example, Underdal 1980; Ahmad & Muller 1982; Muller 1982; Maheswaran 1985; Lang 1986c; Mitchell 1986; Levy 1988; Olsen, Hale et al. 1989; USAID 1989; Sorensen & McCreary 1990; Watt 1990; Clark 1991; Smith & Vallega 1991; Clark 1992; DEA 1992; Scura, Chua et al. 1992; Grinlinton 1992; Hayes 1992; Hildebrand & Norrena 1992; Miles 1992; OECD 1992; Vallejo 1992; World Bank 1992b; Chua 1993; Cicin-Sain 1993a; Dahl 1993; Ehler & Basta 1993; Jansen, Klein et al. 1993; Kenchington & Crawford 1993; OECD 1993; Olsen 1993; O'Riordan & Vellinga 1993; Osborn 1993; Pernetta & Elder 1993; Pitts 1993; RAC 1993b; Simpson P. & Associates 1993; Sorensen 1993; Vallejo 1993; Vallega 1993; Weide 1993; Winsemius 1993; World Bank 1993; Boelaert-Suominen & Cullinan 1994; Bower, Ehler et al. 1994; Craik 1994; Copp 1994; IPCC 1994; Brown 1995; Ehler & Bower 1995; MacDonald 1995; NOAA 1995b; Robadue 1995; GESAMP 1996; Olsen 1996; and Cicin-Sain & Knecht 1998.

Integrated marine management

At the risk of adding to the confusion of terms already employed, the term 'integrated marine management' is used throughout this thesis. As a progression in the evolving scope of the concept, integrated *marine* management acknowledges the broad focus of integrated management in coastal *and* ocean areas, and particularly the EEZ, but is characterised by a prevailing *national* interest.

Policy

Policy generally may be defined as a set of guiding principles or procedures designed to influence the actions and decisions of individuals or user groups (Levy 1988: 328). Policy is mostly directed towards long-term goals rather than short-term objectives. *National ocean policy* is therefore a set of goals, directives, and procedures having some relationship to the ocean environment. It includes all activities relating to the uses of the ocean by a nation, how decisions are made, and how the nation organises itself to make those decisions.

Regime

'The rules and procedures that define the limits of acceptable behaviour on various issues...(regimes) often include formal organisations, but are not limited to them. Regimes are institutions in a broader sense: recognised patterns of practice that define the rules of the game' (Keohane & Nye 1985).

Format of Thesis

This dissertation is divided into four major parts. Part I constitutes the Introduction to the thesis and Chapter 1, which presents the framework of analysis on which this research is based. Part II provides a background to marine management as a concept and paradigm and traces the evolution of integrated management in relation to the marine environment. Specifically, Chapter 2 discusses the characterising features of the oceans and looks at ocean governance in terms of the opportunities and limitations arising from freedom of the seas and ocean enclosure. Chapter 3 traces the key themes and issues related to integrated management as a concept and paradigm. Part III comprises an evaluation of 17 case studies of integrated marine management. It is divided into three separate chapters, one for each country examined: Chapter 4 Australia; Chapter 5 Canada; and Chapter 6 the USA. Chapter 7 consists of a detailed comparative analysis of the case experience in all three countries. Part IV considers the future directions of integrated marine management in relation to the literature and experience. The final chapter, Chapter 8, presents the conclusions and recommendations of this thesis, and the feasibility and prospects of integrated marine management are discussed.

Chapter 1.

FRAMEWORK OF ANALYSIS

1.1 INTRODUCTION

The Introduction to the Thesis presents the scope and aims of this study. This chapter establishes the analysis framework on which this study is based. The distinguishing characteristics and fundamental criteria of integrated management are identified. The basis for selection of case studies is also discussed and a summary of case studies selected for analysis is presented. Discussion of many of the concepts, issues and principles introduced in this chapter may appear overly cursory, but considerable analysis and critique is presented in the following two chapters. This framework constitutes the core of this study and it has been designed to enable a comparative and empirical evaluation (as far as is possible) of the concept and practice of integrated management in the marine environment.

1.2 INTEGRATED MARINE MANAGEMENT

Integrated management is a nebulous concept and its operational form would seem to be dependant upon the *issue* and *context* in which it is applied. The very range of strategies and guidelines outlined by different advocates highlights that integrated management is as much a *state of mind* about problem-solving as it is a *technical* process. That is, integrated management is as much a *method* for management of the environment, as it is a philosophical *approach* towards the management of human activities within the scope of their effect.

The perceived need for integrated management is essentially derived from the premise that conventional sectoral management is inadequate to address *linkages*, whether administrative or ecosystemic. There are a number of defining characteristics which may be seen to distinguish integrated management, no matter how it is put in operation. First, integrated management is characterised by formal processes which aim to bridge boundaries, and which allow for the incorporation of a diversity of values in decision-making. Second, integrated management demonstrates informal processes which seek to engender improved communication, cooperation, broadscale participation, and long-term changes in attitude towards problem-solving. Third, integrated management provides an ecosystem or holistic approach to environmental management whereby linkages between sectors and the 'spillover' effects of sectoral activity are acknowledged. In short, integrated management may be distinguished from other forms of management as it is:

- multi-sectoral;
- holistic; and
- it explicitly recognises linkages and externalities.

Thus, integrated management moves beyond sectoral management by using ecological understanding in order to guide management and improve outcomes. However, integrated management is *not a replacement for sectoral management* in most cases. Neither is it a static end within itself, nor a perfect model of comprehensive rationality. Instead, integrated management is a supplementary and potentially more powerful long-term approach towards collective decision-making.

1.3 TESTING FOR INTEGRATED MARINE MANAGEMENT

As a process which is comprehensive, strategic and capable of accommodating multiple perspectives, integrated management has been called for in reaction to narrowly-focused, ad hoc management. It is pursued around the world as a means for attaining sustainable development, and is also widely promoted as a solution to marine environmental degradation. As a *concept*, there is broad agreement on the general nature and characteristics of integrated management. As a *practice*, however, given the widely differing contexts and environments in which it has been applied, integrated management can not be characterised by any one fixed approach or method. Therefore in order to identify (and thus to determine the feasibility of) integrated management, it is important to be able to recognise distinguishing features of the process.

In various forms, literature on guidelines, principles, and processes of integrated management have been published.¹ Despite some inconsistency integrated management is defined as essentially embodying three major features. These features may be summed up as follows.

Coordination

referring to the combination of issue elements, sectoral interests and administrative arrangements under a common purpose. Coordination may have a *vertical* as well as a *horizontal* dimension²; the vertical aspect referring to accord *between* management elements, and the horizontal dimension referring to accord *within* elements of management. Central to coordination are procedural mechanisms for ensuring that the rules and norms applied by different sectors, institutions, and at different levels of government or administrative hierarchy, are consistent (Ahmad & Muller 1982; Boelaert-Suominen & Cullinan 1994). The coordinative element of integrated management is often considered to embrace strategic planning and management³ in so far as formal objectives and/or shared goals should be strategically consistent with the process towards their achievement.

Comprehensiveness

entailing the identification of all relevant issue elements, and delimiting the spatial, temporal and substantive scope of the issue and its management effort. The process of striving towards comprehensiveness has sometimes been referred to as the systems approach.⁴ Comprehensiveness has also been measured along at least four dimensions:

¹ See Sorensen & McCreary 1990; Scura, Chua et al. 1992; World Bank 1992a; OECD 1993; Pernetta & Elder 1993; Simpson P. & Associates 1993; World Bank 1993; Boelaert-Suominen & Cullinan 1994; IPCC 1994; Ehler & Bower 1995; GESAMP 1996; and Cicin-Sain & Knecht 1998.

² For further discussion on vertical and horizontal coordination refer to Underdal 1980; Grinlinton 1992; Pitts 1993; Vallega 1993; and Cicin-Sain 1995.

³ For further discussion on strategic planning and management within the context of integrated management see Lang 1986c; Clark 1992; Davis & Weller 1993; Pitts 1993; RAC 1993a; and Simpson P. & Associates 1993.

⁴ The systems approach to planning and management is discussed within Sorensen & McCreary 1990; Clark 1991; World Bank 1992b; Chua 1993; Kenchington & Crawford 1993; Sorensen 1993; and Boelaert-Suominen & Cullinan 1994.

- *temporal* - the degree to which long-range planning is balanced with short-term management objectives, and the time-scale of a management strategy is defined by the issue under consideration;
- *geographical* - the breadth of interrelationships and interdependencies considered between geographical, political, and/or administrative boundaries;
- *political/technical* - the opportunity for involvement of a diversity of actors, interests, and multi-disciplinary information within decision-making processes; and
- *multi-sectoral* - the extent to which significant interrelationships between various human uses of marine areas and resources, and associated economic interests and values are taken into account.

Dynamism

in which iterative refinement of policies and procedure, monitoring, evaluation and review are embraced within management arrangements.⁵ Simpson and Associates (1993) define dynamism within integrated management in terms of consistent but flexible planning and implementation approaches, incorporated feedback mechanisms, and strategic objectives which are capable of expression in performance standards (rather than set assessment criteria or hard and fast rules). Not only does dynamic aspect of integrated management help to determine whether an initiative is meeting its goals, but it can also provide some insight in to new ways of doing things given changing environmental, technological, socio-economic and political circumstances.

Clearly these features may be (and are) operationalised in a number of different ways. Nevertheless in practice, a number of distinguishing *process* elements of integrated management may be found to be essentially remain the same. These elements are provided in Table 1. Based on the above features, the literature, and the rationale identified in Table 1, ten common elements have been identified for the purposes of this thesis, as a framework against which to test for integrated management. These elements are:

- multi-sectoral planning and management;
- holistic focus;
- broad, transparent, and collaborative decision-making;
- 'top-down' and 'bottom-up' planning and management;
- commitment to planning and implementation;
- strategic planning and management (focused planning and management vision);
- coordination and harmonisation;
- problem solving and dispute resolution;
- action oriented planning and management (a focus on implementation and clearly defined ends and means); and
- provision for monitoring, evaluation and review (principles of policy learning).

Each element *should not* be considered discreetly, as on its own each separate element is not necessarily integrative. Together however, as the major and definitive elements of the process, they form a framework against which to test for integrated marine management. Thus for marine management initiatives to be considered as fully representative of integrated management, they must satisfy, to a greater or lesser degree, each and all of the suggested elements above.

⁵ For discussion on the dynamic element of integrated management see, for example, Ahmad & Muller 1982; Grinlinton 1992; World Bank 1992b; Kenchington & Crawford 1993; Simpson P. & Associates 1993; Bower, Ehler et al. 1994; and NOAA 1995b.

Table 1. Rationale for the Selection of Elements of Integrated Management

Element	Rationale
Multi-sectoral planning and management	The purpose of integrated management is to allow multisectoral development to progress with the fewest unintended setbacks and the least possible imposition of long-run social costs (Scura, Chua et al. 1992: 22); effective management of coastal and marine areas should be based not only on an analysis of individual activities and their impacts, but also on the combined effects of sectoral activities on each other and on coastal resources (UNEP 1995: 3)
Holistic focus	Effective strategies for the management of the marine environment require a special ability to think beyond traditional sectoral divisions between fisheries, water management, land-use planning, wildlife management, mining, and many others (Boelaert-Suominen & Cullinan 1994: v); the environment is best 'managed' from a holistic perspective in which parts are considered to be interdependent. Similarly, sound use of marine resources is inherently holistic in that it considers myriad ecological relationships involving land, air and water (Hildebrand & Norrena 1992).
Broad, transparent, and collaborative decision-making	As the one of the most important users and potential 'impactors' on the marine environment, it is particularly important that interested or affected parties are involved and consulted in making marine policy and certain decisions, if true integration and resolution of resource use conflicts is to occur (Boelaert-Suominen & Cullinan 1994: 39); Article 17.6 of Agenda 21 emphasises that integrated management 'should include consultation as appropriate, with the academic and private sectors, non-governmental organisations, local communities, resource user groups, and indigenous people'; integrated management programmes should encourage an interdisciplinary analysis of the major social, institutional, and environmental issues and options affecting a selected area followed by a decision on the issues that should be addressed within a given period (GESAMP 1996: 3)
'Top-down' and 'bottom-up' considerations	The intrinsic nature of integrated management implies bringing top-down and bottom-up management approaches together in a synergistic framework (UNEP 1995: 20); a combination of national and provincial or local authorities is needed to carry out integrated management, though the extent to which 'top-down' and 'bottom-up' approaches are emphasised will vary (Cicin-Sain & Knecht 1998: 57).
Commitment to planning and implementation	Recognition of the need for integrated management can develop in a number of venues - the national government, the local community, the NGO community, a donor agency or development bank - but wherever it first emerges, it must find its way to and be accepted by both the national and local levels of government, since both generally have important roles to play in its implementation; above all there must be political, administrative and stakeholder will and commitment to implement an integrated strategy (Kenchington & Crawford 1993: 126); the long-term success of integrated management depends on the support of those groups and individuals whose interests will be affected by the implementation of the program (Clark 1991: 115).
Strategic planning and management; focused planning and management vision	Successful integrated management requires 'integration over time' with short-term management objectives being coordinated with long-term policy goals (OECD 1993: 25); to achieve integrated management, a viable strategic process is required which attains broad goals with meaningful local consequences (Davis & Weller 1993: 34); to be successful integrated management has to be a distinct process focusing on distinct issues. Its goals must be clear and unambiguous (Clark 1992: 9).
Coordination and harmonisation	Coordination is essential to maintain overall integrity in integrated management. To be effective management plans should be integrated with development plans, and implemented in a coordinated fashion (Scura, Chua et al. 1992: 11, 22); sharing, cooperation and coordination of the multitude of legitimate interests associated with different resource sectors is a necessary component for integrated management (Mitchell 1986: 16).

Problem solving and dispute resolution mechanisms	Because one of the fundamental goals of integrated management is to reduce conflicts between different sectors and levels of government, any institutional structures established as part of an integrated management initiative should be designed with this objective in mind (Boelaert-Suominen & Cullinan 1994: 24); integrated management is a problem-solving programme...the integrated management process has an important mediating role that should not be played out sector against sector - rather, the mediating entity must look at all sectors and legitimate interests to find the most broadly compatible solutions (Clark 1992: 103, 142, 144).
Action oriented planning and management	There is a need to enlarge the scope of anticipatory decisions involved in the planning process, and to introduce proactive and anticipatory responses that monitor and anticipate change, avoid conflict and prevent environmental damage, thus maximising economic and environmental benefits derived from multiple-use activities (Vallejo 1993: 168, 176); essentially an integrated approach to management aims to bridge the gap between planning and implementation (Lang 1986c: 32 - 33).
Provision for monitoring, evaluation and review	Integrated management is a process that continues over considerable time. It is a dynamic program that requires continual updating and amendments. Integrated management is not a one time project (Sorensen & McCreary 1990: 17); integrated management programmes require continuous improvement of the information base, ongoing assessment of policies, administrative arrangements and options for problem resolution, and a robust administrative system. Such learning and adaptation requires the sustained monitoring and evaluation of trends in the condition and use of the ecosystems in question as well as the effectiveness of governance responses in order to periodically refine the design and operation of the programme (GESAMP 1996: 4).

1.4 TESTING FOR INTEGRATED MARINE MANAGEMENT IN AUSTRALIA, CANADA AND THE USA

Australia, Canada and the USA have been chosen as the basis of comparison within this study. All are signatories to Agenda 21, they all face similar problems in the management of their ocean and coastal areas, and all having to come to terms with a post-UNCED maritime agenda in three of the largest EEZs in the world. Australia, Canada and the USA are federal nations, and each has responsibility for an administratively complex maritime jurisdiction. All have significant interests in, and involvement with integrated management capacity building initiatives in the Asia-Pacific region, and as significant powers within maritime regions, all three nations offer considerable potential for conservation assistance and development at the bilateral, regional and global levels. Furthermore, all three have embraced the concept of integrated management and have applied it at the national, regional, and local levels.

The United States is argued to possess the first integrated management initiative (Clark 1991) and many marine management problems now facing Canada and Australia have been apparent in the United States for many years. Examination of the United States' experience thus has the potential to provide some insight for initiatives in Australia and Canada. Equally, there are many ways in which Australian and Canadian experience can provide example to other nations confronting implementation of Agenda 21. However, while Australia, Canada and the USA display many similarities, *differences* between *and within* each nation (in administrative arrangements, history, culture, population and socio-economic characteristics among other things), preclude any assumption that the nature of integrated management in each nation, or indeed in each case, will be the same.

In order to determine common lessons of experience, an analysis framework based on ten essential elements of integrated management has been identified. By way of this framework, (presented in Section 1.3), policy and management responses towards integrated management *within and between* Australia, Canada and the USA will be compared. Individual case studies within Australia, Canada and the USA have been selected on the grounds that they expressly claim to be integrated management. Given that the focus of this thesis is on the marine context, and specifically the EEZ where national interests prevail, case studies have also been selected on the basis that they are directed primarily at multi-jurisdictional concerns on the 'wetside' of the coastal interface. Thus, in summary, case studies have been selected on the grounds that they:

- specifically claim to be *integrated management*;
- are focused on the *marine* environment (and fall within the boundaries of the EEZ and the inland limit of the 'coast'); and
- that they involve a *national* interest.

Seventeen initiatives have been identified from within Australia, Canada and the USA (see Table 2.) which satisfy the above criteria. All 17 have been selected for further analysis in order to assess the breadth of experience across a range of contexts. In the case studies examined within this thesis are as follows.

- Australia's Coasts and Clean Seas Initiative (1997)

A (principally) federally funded program package aimed at tackling degradation of coastal and ocean areas resulting from the impacts of human activities. The Initiative comprises a number of new and established programs emphasising partnerships between and among governments and stakeholder interests, one of the most significant of which is the development of a national Oceans Policy which is aimed at providing 'an integrated and strategic platform for better planning and management of our oceans' (Commonwealth of Australia 1997).

- The Great Barrier Reef Marine Park (1975)

The largest multiple-use marine protected area in the world, as well as a World Heritage Site. Management of the Great Barrier Reef Marine Park is conducted by both State and Commonwealth authorities including the Great Barrier Reef Marine Park Authority, which attempts, as one its principle aims, 'to achieve integrated management of the Great Barrier Reef through active leadership and through constantly seeking improvements in coordinated management' (GBRMPA 1994).

- Ningaloo Marine Park (1987)

Encompassing both Australian Commonwealth and State waters, as well as land adjacent to the water. Though each component of the Park operates under its own management plan, the area is intended to be managed as one integrated unit, with the specific management objective being 'to integrate management and development...to achieve maximum effectiveness and optimum allocation of resources' (CALM 1989: 36).

- The Great Australian Bight Marine Park (1998)

The second largest marine park in Australia and the world, extending from the South Australian coastline out to the boundary of the EEZ. The Marine Park is to be managed for multiple use by State and Commonwealth governments, though management plans for the region are still under development. As proposed, the Great Australian Bight Marine Park 'is primarily aimed at managing in an integrated way the ecosystems and human activities in this world significant biogeographic region...' (Andrews 1994: 27).

- The Canada Oceans Act (1997)

A federal Act which came into force in 1997 and which provides for the comprehensive management of Canada's oceans and ocean resources through a national Oceans Strategy. Implementation of the *Oceans Act* is intended to be based in large part on the principle of 'integrated management of activities in estuaries, coastal waters and marine waters that form part of Canada or in which Canada has sovereign rights under international law' (Canada Oceans Act 1996, Sec.30(b)).

- The Federal Marine Protected Areas Program

Established by the three Canadian federal departments (Fisheries and Oceans, Canadian Heritage, and Environment Canada) with mandated responsibilities for the conservation and protection of marine areas. The system comprises three separate components all of which are intended to be complementary. All are targeted at the maintenance of the health and integrity of Canada's estuarine, coastal and marine waters and include the following three components:

- *National Marine Conservation Areas (1994)*, administered by Canadian Heritage (Parks Canada) which targets 'the establishment of integrated management systems which, ideally, should help to coordinate the management of marine and terrestrial areas well beyond the boundaries of a national marine conservation area' (Parks Canada & Canadian Heritage 1994);
- *Marine Wildlife Areas (1994)*, administered by Environment Canada; and
- *Marine Protected Areas (1997)*, an initiative administered by Fisheries and Oceans that is intended to be 'developed and established within a context of integrated management planning' (DFO 1998a).

- The Atlantic Coastal Action Program (1991)

A regional, community based, cooperative arrangement between the Canadian Federal and Atlantic provincial governments. The Atlantic Coastal Action Program is based on 'an integrated approach to developing environmental plans' (ACAP 1993).

- Coastal 2000

A proposed cooperative arrangement between the Federal and Nova Scotia governments. Coastal 2000 is based on the notion that 'the province of Nova Scotia will embrace sustainable coastal zone development through coastal integrated resource management' (Canada 1994).

- A Marine Protected Areas Strategy for the Pacific Coast of Canada (1997)

Under development by the governments of British Columbia and Canada, the Strategy is intended to serve as a mechanism for the 'delivery of a coordinated and integrated approach to the implementation of...an oceans management regime for the Pacific coast' (MPA Steering Committee and Work Group 1997).

- The British Columbia/Washington State Environmental Initiative (1992)

An international agreement between the United States and Canada concerning the environmental management of the shared marine waters of Puget Sound and the Georgia Basin. The Agreement is intended to provide a 'bilateral mechanism for integrated and coordinated action on environmental matters of mutual concern and interest' (Anon 1993).

- The United States Oceans Act (1998)

Currently under development in order to provide a policy basis for the comprehensive management of the United States' coastal and ocean resources. Legislation initially introduced to create the *Oceans Act* specified that 'the President shall...plan and implement an integrated program of ocean and coastal activities including, but not limited to, oceanography, stewardship of ocean and coastal resources, protection of the marine environment, and marine recreation and tourism' (Oceans Act of 1997 Sec.4(a)(B)).

- Coastal America (1992)

A collaborative federal/state arrangement which attempts to 'integrate...federal capabilities with state, tribal, local and non-government efforts' in the United States (Coastal America 1995: i).

- The Coastal Zone Program (1972)

A national system of State Coastal Management Programs established under the United States federal *Coastal Zone Management Act 1972*. Most States in the USA now participate in the voluntary Program, and the operations, focus and effectiveness of each Program differs markedly, for example:

-*Hawaii Ocean and Coastal Management Program (1995)* consists of a number of elements, one of which, the Hawaii Ocean Resources Management Plan, 'sets forth guiding principles and overall recommendations for the State to achieve comprehensive and integrated ocean and coastal resources management' (Hawai'i Ocean and Marine Resources Council 1991: 1);

-*Oregon Ocean and Coastal Management Program (1995)* is based on the belief that 'governments at all levels must step up efforts to develop more integrated and imaginative ocean management approaches to prevent ecological collapse...' (Oregon Coastal Management Program undated); and the

-*California Ocean and Coastal Management Program (1997)* which has established a management process that 'represents a start to integrate and make more efficient methods for protecting and safely using our ocean resources' (The Resources Agency of California 1995: 2).

- The National Estuarine Research Reserve System (1972)

The initiative operates as a partnership between the US Federal government and participating States. Though the management focus is on estuaries, coastal habitats and associated watersheds, one of the five goals of the Program is to 'operate the NERRS as a national program contributing to informed, integrated management of the Nation's coastal ecosystems' (NOAA 1995a: 25).

- The National Marine Sanctuary Program (1972)

A collaborative federal/state program aimed at establishing a system of marine sanctuaries in the US marine environment. To date 14 marine sanctuaries have been declared and each operates under its own administrative system, priorities and management principles. Three National Marine Sanctuaries, the Florida Keys, Monterey Bay, and the Flower Garden Banks National Marine Sanctuaries, are examined in detail.

- The National Estuary Program (1987)

Developed on the basis of the need to provide a framework for partnerships between and within levels of governments, and between governments and local communities in the United States. The Program is focused on marine water quality problems and has evolved into a 'model for integrated, water-shed based, stakeholder oriented, water resource management' (United States Environmental Protection Agency 1998: 1).

- The Agreement on the Marine Environment of the Gulf of Maine (1989)

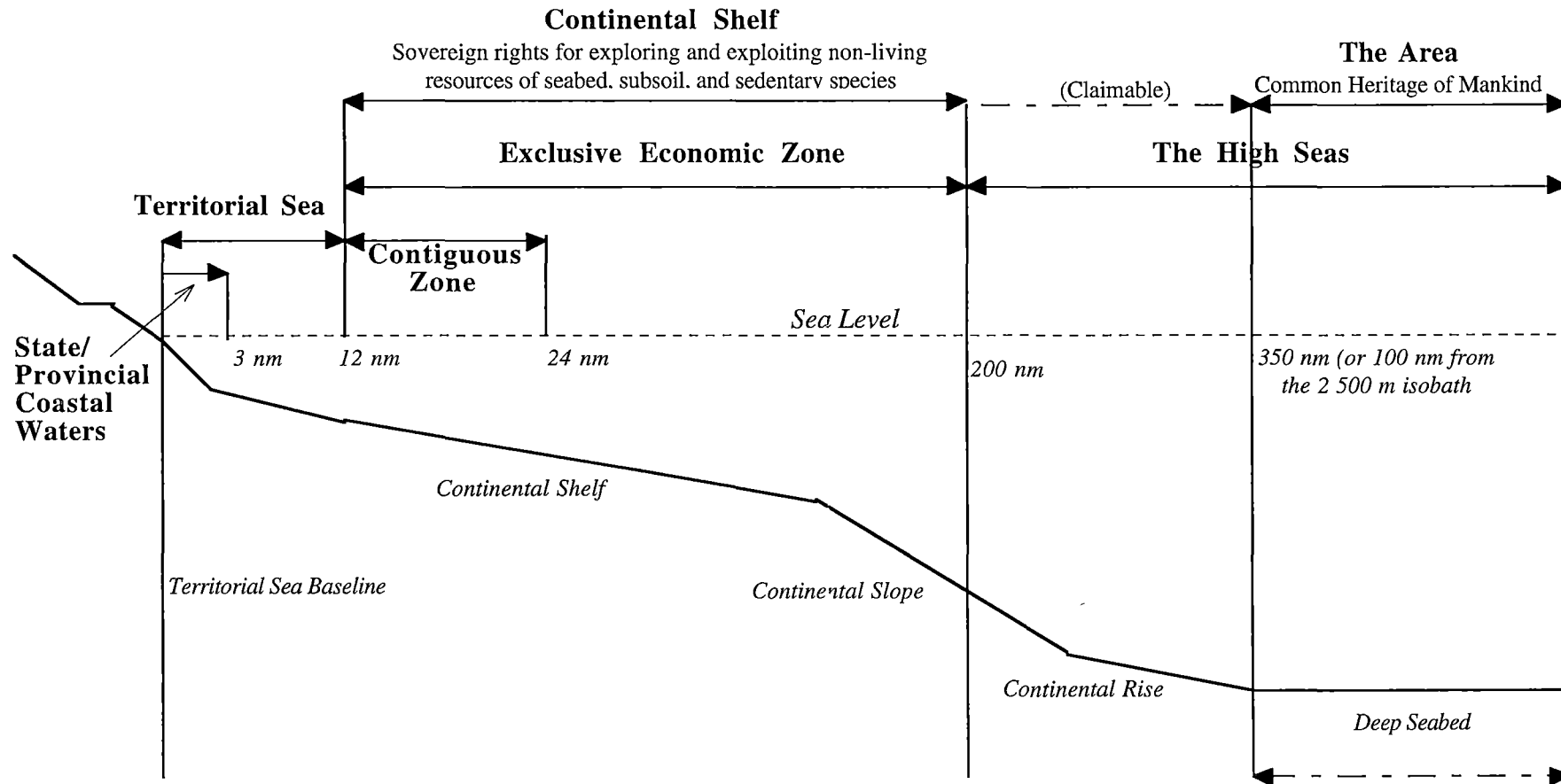
An international Program of cooperation between the USA and Canada. The Agreement is broadly comprehensive in its scope and its focus is 'to foster an integrated approach to protection and sustainable use of Gulf of Maine habitats' (Gulf of Maine Council on the Marine Environment 1991: 24).

As 'snapshots in time', the case studies discussed above depict integrated marine management efforts in Australia, Canada, and the USA, in various stages of development and implementation. Although characterised by their federal context, the case studies potentially offer useful insights in to the feasibility and future of integrated management across a range of circumstances and contexts. This research does not attempt to document the entire integrated management experience in Australia, Canada and the USA or to exhaustively examine isolated case studies. Rather, it seeks to identify the success or otherwise of the process of integrated management within the case studies selected, and thereby draw *general* conclusions as to the prospects of integrated management as a concept and a practice within the realm of the EEZ.

Table 2. Summary of Management Initiatives in Australia, Canada and the USA: Tested for Integrated Management Objectives and a Marine Focus

Management scope	Country	Management Initiative	Claims to be Integrated?	Marine Focus?
National	<i>Australia</i>	Coasts and Clean Seas Initiative	Yes	Yes
	<i>Canada</i>	Canada Oceans Act	Yes	Yes
	<i>USA</i>	Coastal America	Yes	Yes
		United States Oceans Act	Yes	Yes
Regional	<i>Australia</i>	Great Barrier Reef Marine Park	Yes	Yes
		Great Australian Bight Marine Park	Yes	Yes
		Ningaloo Reef Marine Park	Yes	Yes
	<i>Canada</i>	Marine Wildlife Areas	Yes	Yes
		Marine Protected Areas	Yes	Yes
		National Marine Conservation Areas	Yes	Yes
		Atlantic Coastal Action Program	Yes	Yes
		Coastal 2000	Yes	Yes
		Coastal Resources Strategy for the Pacific Coast	Yes	Yes
		Fraser River Estuary Management Program	Yes	No
		Atlantic Coastal Zone Information Steering Committee	Yes	Yes
		Atlantic Accord on Integrated Management of the Coastal Zone	Yes	Yes
	<i>USA</i>	Coastal Zone Program	Yes	Yes
		Hawai'i Ocean and Coastal Management Program	Yes	Yes
		Oregon Ocean and Coastal Management Program	Yes	Yes
		California Ocean and Coastal Management Program	Yes	Yes
		National Marine Sanctuary Program	Yes	Yes
		National Estuarine Research Reserve System	Yes	Yes
		National Estuary Program	Yes	Yes
International		Torres Strait Marine Strategy	No	Yes
		British Columbia/Washington State Environmental Initiative	Yes	Yes
		Agreement on the Marine Environment of the Gulf of Maine	Yes	Yes

Diagram 1. Maritime Zones as Defined by the United Nations Convention on the Law of the Sea



after Commonwealth of Australia, 1997.
(Note, 'nm' refers to nautical miles)

PART II

INTEGRATED MANAGEMENT AS A CONCEPT AND PARADIGM

Chapter 2.

THE MARINE ENVIRONMENT

2.1 INTRODUCTION

The Introduction and Chapter 1 introduced the scope and aim of this study and established the analysis framework against which the objectives and outcomes of integrated marine management case studies in Australia, Canada and the United States will be assessed. As a background to a critique of the process of integrated marine management presented in the next chapter, this chapter presents a discussion and analysis of the marine environment and its management.

2.2 THE NATURE OF THE MARINE ENVIRONMENT

The world's oceans are fundamental to the existence of human society, and they play a significant part in the regulation and functioning of planetary processes, including the circulation of minerals, nutrients and energy, assimilation of waste products, regulation of chemical balances, and maintenance of biological diversity (WCED 1987; GESAMP 1990). However, the pressure being exerted on the oceans is escalating, and effective management of human activity in the ocean realm is becoming increasingly critical for the ongoing productivity and integrity of the marine environment and its resources.

2.2.1 The Land and the Sea

On land, the nature of linkages in many ecosystems is often limited, and the occurrence of locally endemic species generally high. This permits the protection of relatively small and discrete areas which are nevertheless large enough to preserve some degree of integrity and diversity (Kenchington & Agardy 1990). Ocean space, however, is essentially continuous and indivisible. Marine biogeographic regions tend to be very large, fluid and imprecise, and ecological interactions usually bear no similarity to politically imposed zones. This means that unlike terrestrial pollution for example, which often remains localised, marine pollution can spread far beyond contamination sites, often unpredictably due to lack of detailed knowledge about currents and tidal influences, and most often beyond the direct control of any one authority or government. Moreover, unlike the land which is most often governed under some kind of private property rights, the ocean is largely common property. Nevertheless, conventional management practices with respect to the marine environment are typically derived from land-management practices, and have borrowed heavily from principles of terrestrial ecology. Preservation, wilderness

and recreation concepts developed within terrestrial national parks and protected areas for instance, have often merely been extended to adjacent marine areas.¹

Apart from coastal developments and influences and the exploitation of fishery resources, the effects of human activities on the ocean are relatively small over time compared to those experienced by terrestrial ecosystems. Thus concern for, and interest in the consequences of human impact on the marine environment have been slow to evolve. Encouraged by difficulties in scientific research and monitoring (Corwin 1979), as well as such recent and authoritative reports as the United Nations State of the Marine Environment Report (GESAMP 1990), a perception that oceans remain relatively untouched by (or are at least more tolerant to) human activities has prevailed since early European history (Friedheim 1979a). This perception has had important policy ramifications: based on the notion that they are so vast that they can neither be appropriated, depleted, or degraded to the point of irreversibility, the oceans have been treated as a 'global commons' with little concern for their health (Hardin 1968; Hardin & Baden 1977).

In view of the 'openness' of marine ecosystems and the high degree of connectivity within the marine environment (as well as between it and terrestrial activities), preservation of the integrity of the oceans requires an understanding of systemic linkages. Conventional approaches based on narrowly focused terrestrial conservation and management have therefore come under criticism.

2.2.2 Environmental Degradation

Environmental degradation where there is a loss or alteration to the composition and structure of natural systems and/or habitat, and consequently a reduction in the capacity of ecosystems to function productively in perpetuity.² The sources of, or reasons behind, marine environmental degradation are many. They may be direct or indirect and may result in consequences which are physically, economically, socially, and ecologically erosive. A list of activities influencing *marine* environmental degradation might include:

- recreation - such as trampling of coral, collection of fish and shells, game fishing, boating;
- introduction of exotic species - for example, ballast water contaminated with flora and fauna;
- land sourced pollution - for example, urban/ agricultural run-off;
- dredging, mining, extractive activities - through erosion/ sedimentation/ spills/ introduction of pollutants;
- clearance of mangroves, in-filling, and wetland damage;
- vessel sourced pollution - through dumping, spills and accidents; and
- over-exploitation of living resources.

Furthermore, the effects of these activities on the marine environment are subject to complex cycles of energy, climate, marine living resources, and are increasingly influenced by growing coastal populations and rapid coastal development. As Chua (1993: 81) discusses, the effects of marine degradation are often cross-sectoral in nature wherein the activity of one sector adversely affects the development of others, and most often result in resource-use conflicts:

¹ For further discussion on the application of terrestrial management practice within the marine realm see Ray & McCormick-Ray 1987; Kenchington 1991; Bowers & Vandermuelen 1994; and Boelaert-Suominen & Cullinan 1994.

² Environmental 'degradation' refers to the alteration of natural ecosystems and habitats due to 'erosion and sedimentation, habitat destruction, and the use of harmful technology and fishing practices...as well as harmful substances' entering the environment (IUCN 1995). Refer also Agenda 21 (United Nations 1993).

coastal management issues have become a major threat to economic sustainability and environmental quality; intensifying use conflicts, creating social unrest and destabilising the national economy. The need for an alternative but effective management system is obvious.

- Environmental degradation is a relative concept, and many problems arise with its definition and assessment. There is generally scant information or baseline data for example, from which to determine relative changes in environmental functioning. In addition, the full ramifications of environmental degradation are generally not understood very well as effects are often cumulative, and therefore mostly long-term and unpredictable. Despite a proliferation of agreements and policy concerned with the marine environment, the bulk of evidence suggests that degradation is ongoing and *not* being adequately addressed by conventional approaches towards management.³

2.2.3 Freedom and Enclosure of the Seas

The doctrine of *mare liberum*, or freedom of the seas, has been the dominant organising idea behind access to and use of ocean areas and resources for more than 300 years.⁴ First consolidated by Hugo Grotius in his justification of the rights of the Dutch East India Company in 1609, the doctrine of *mare liberum* forms the basis of the notion of the oceans as a commons, and the rights of individuals to ocean resources and open access.⁵ The concept of 'the commons' however, if justifiable at all, is justifiable only under conditions of low population density where dispersal of the impacts of degrading human activities prevent cause for immediate concern (Hardin 1968; Hardin & Baden 1977). Contemporary evidence suggests that steadily growing human populations are impacting increasingly heavily on the ocean particularly through exploitation of living and non-living resources, disposal of industrial and domestic wastes, and through significant effects of land-based activities on the marine environment.⁶ As with the land, therefore, human exploitation of the sea cannot be without some impact or cost. The greater this impact and/or cost, the greater the potential for resource scarcity and thus the greater the incentive to develop rational structures for property rights and incentives. For this reason, there have been important historic parallels between the conversion of communal ownership towards private property rights on land, and the movement away from comprehensive resource and access freedom towards enclosure and jurisdictional rights in the oceans.⁷

³ See, for example, Clark 1992; OECD 1993; IPCC 1994; and UNEP 1995.

⁴ See, for example, Friedheim 1979a; Pardo 1979; and Wang 1992.

⁵ See Brown, Cornell et al. 1977; Eckert 1979; Friedheim 1979c; Pardo 1979; Lamson 1991; and Wang 1992.

⁶ See Moorcroft 1972; Andresen, Skjaerseth et al. 1993; Dahl 1993; Jackson-Davis 1993; Ludwig, Hilborn et al. 1993; Cicin-Sain 1993a; and May 1994.

⁷ See, for example, Gold 1976; Eckert 1979; Friedheim 1979c; and Wang 1992.

Since 1930, three international conferences on the Law of the Sea have attempted to agree on how to resolve the apparently contradictory principles of freedom of the seas, and increasingly contentious claims to territorial sovereignty. The first of these conferences, the Hague Conference of 1930, arose from tensions that had built up between those nations that adhered to the concept of free use of the sea, and those that wanted to expand further the enclosure, or division of the ocean.⁸ Ongoing conflicts over territorial sea claims and exclusive fishing rights constituted virtually the sole subject of debate of the following two conferences - the first and second United Nations Conferences on the Law of the Sea which took place in Geneva during 1958 and 1960 respectively. However, none of the three conferences did much to clarify ocean governance issues or conflicts over claims to resources, and by 1960 the international situation was one of even 'greater confusion than before' (Gold 1976: 21).

Territoriality issues remained a dominant focus of Law of the Sea consultations during the 1960s. However emerging concerns over transboundary pollution of the sea by oil and air, worldwide depletion in fisheries, trouble over the disposal of nuclear waste, and placement of nuclear weapons on the sea-bed also began to encroach on international negotiations in the following years (Wang 1992). Concern about the transportation and dispersion of marine pollution and the pollutant effects on marine organisms for example, played a significant catalytic role in the declaration of the International Decade of Ocean Exploration (IDOE) which occurred throughout the 1970s. IDOE projects included studies in ocean chemistry, pollutant transfer and effects, and baseline studies. The IDOE also coincided with the third United Nations Conference on the Law of the Sea.

The substantive work of the third United Nations Conference on the Law of the Sea began in 1974 and concluded in 1982. The lengthy and multifaceted process of the Conference required states to systematically consider their interests within the ocean domain, and consequently had a significant influence in developing international awareness of a need for comprehensive regulation of human activities in the marine environment. The third Conference of the Law of the Sea also finally found a compromise between open access and enclosure of the oceans. The Conference reached agreement on territorial claims including a 12 n. mile territorial sea, a contiguous zone of up to 24 n. miles from shore, jurisdiction over a 200 n. mile Exclusive Economic Zone (EEZ), and potential jurisdiction over continental margins of up to 350 n. miles (see Diagram 1.). All areas beyond these territorial claims remain as 'high seas' and therefore beyond the claim of any one nation. An international agreement arising from the Conference, the United Nations Law of the Sea Convention (LOSC), ultimately entered into force on 16 November 1994 after more than 30 years of development. The LOSC is widely accepted as the strongest and most comprehensive global agreement ever negotiated on the marine environment, and it is consequently of major significance when considering issues related to the preservation and protection of the oceans.⁹

⁸ Though *mare liberum* dominated ocean activity for around 300 years, states have customarily claimed exclusive sovereignty and control over narrow belts of varying distances from their coasts. The concept of national claim in adjacent waters (known as the territorial sea, historically designated at 3 n. miles from the coast based on the range of coastal canon defence) later expanded to contiguous zone claims for customs, immigration and sanitation purposes. Subsequent concerns about rights to fisheries resources led to demands for fishing zones extending around 200 n. miles from the coast. 200 n. miles represents the demands of the west coast Latin American states in response to the Truman Proclamation of 1945, the first modern attempt of a nation to appropriate ocean resources. The 200 n. mile figure was chosen because it was said to be the maximum extent of the Humboldt Current, which sustains coastal fisheries (Gold 1976; Wang 1992).

⁹ See, for example, Friedheim 1979a; Commonwealth Group of Experts 1984; WCED 1987; Gold 1991; and SEAPOL 1994.

2.2.4 The Exclusive Economic Zone

The concept of the EEZ is one of the major outcomes of the Law of the Sea Convention (Vallejo 1992; Shearer 1994). With agreement on the concept of the EEZ through the LOSC, a common geographical boundary encompassing all marine resources in an extended ocean area was created for the first time in international law. As defined (LOSC Art. 56), the EEZ is a zone where, while most international navigational freedoms are protected, a coastal state may claim sovereign rights over all living and non-living resources found within the water column, seabed and subsoil of the declared area. As well as the opportunity for coastal states to explore, exploit, and control resources within an EEZ, however, the LOSC also creates a general duty to protect and preserve the marine environment (LOSC Art. 61 and Part XII), and a requirement that international regulations to protect the marine environment from all sources of pollution be enforced (LOSC Part XII). The LOSC also places parties to it under obligation to enforce generally accepted international rules and standards established in other maritime conventions, *even if they are not parties* to such conventions (LOSC Part XII, Section 6).

Inherent in the concept of the EEZ is the 'enclosure' of the seas (Friedheim 1979a), and thereby arrangements for the national management of ocean space and resources. As most available living marine resources and almost all exploitable oil and gas lie within this region¹⁰ establishment of the EEZ has provided an institutional setting that has the potential to lead to better management, given that single governments may be expected to sustainably manage resources over which they have sole control. Thus, not only do governments have an international obligation to implement sound resource management practice within their EEZ, but they have the legal power and potentially the self interest to do so. As at early 1998, 127 nations had ratified the LOSC, and around 92 had proclaimed an EEZ.¹¹

It has been suggested that the LOSC represents a major step towards a comprehensive management regime for the oceans primarily through its confirmation of the EEZ¹², and that ratification of the convention is consequently one of the most significant actions a nation can take in the interests of the conservation of the oceans (WCED 1987). However, rather than simplifying matters, the EEZ has introduced complexity and fragmentation. Particularly within the federal context where the responsibilities of multiple tiers of government come into play, the EEZ is characterised by multiple layers of interests, responsibilities, and competing authorities. Boundaries have been drawn on the oceans to separate remaining common high sea areas from national jurisdiction, but as common and claimed waters form interlocked ecological and economic systems, the health of one is dependant on the health of the other. Similarly, the dichotomy between predominantly terrestrially based coastal management and predominantly ocean area management has been accentuated with the introduction of the EEZ, since management initiatives tend to be designed and implemented independently for coastal *or* ocean areas under national jurisdiction (Vallejo 1991). Thus, establishment of the EEZ has confirmed administrative boundaries which are largely incongruent with the functioning of political *as well as* ecological systems.

¹⁰ See Nadelson 1992.

¹¹ Though having been given legal legitimacy through the LOSC declaration of an EEZ in not necessarily dependant on a State being a signatory to the LOSC. The United States, for example, is not a signatory to the LOSC but has declared an EEZ. Instead, the EEZ falls within the realm of customary law, and as such is recognised as an institution within itself. For further discussion of the EEZ as a customary institution. See, for example, Shearer 1994.

¹² Customary law assures management and conservation responsibilities within a region declared as an EEZ despite the fact that the LOSC has not been ratified by a number of coastal states. Customary international law arises when nations confer their actions to a consistent pattern of action because of a collective feeling that they are obliged by law to act in such a manner (Wang 1992: 51).

The EEZ comprises an area of responsibility in which the sovereign rights of the coastal state and the freedoms of other states coexist. It has created the potential for better enforcement of measures for environmental management. However the EEZ is an *economic* zone, not a biogeographical or a political one, and as such, the declaration of an EEZ *alone* does not, and can not, guarantee ecologically sustainable development.

2.3 MARINE ENVIRONMENTAL MANAGEMENT

Given the oceans' vastness, mobility and interdependence, and because of our limited knowledge of ocean systems, the problems created by multiple interests and resource use concerns are frequently defined as a 'wicked', not in the sense of their evilness, but in the sense of their troublesome complexity. Mason and Mitroff (1981) describe 'wicked problems' as being characterised by:

- *interconnectedness* - where connections link one issue or problem to other issues;
- *complicatedness* - where there are numerous important elements and diverse relationships;
- *uncertainty* - where dynamic and often unpredictable natural environments create risk, and often incalculable risk;
- *ambiguity* -- where the perspective of the individual influences perceptions of issues and problems;
- *conflict* - associated with differing value systems of multiple users and interests; and
- *societal constraints* - whereby political, social, technological and economic realities influence solutions to problems.

Therefore, in order for marine management to be successful in resolving wicked problems and achieving ecologically sustainable development, it must meet multiple objectives - environmental, social, technological, and economic. Yet 'most environmental decision making has proceeded by way of segmented and only loosely coordinated, if not conflicting, attacks on specific issues and problems' (Bartlett 1990: 235). That is, conventional management of the marine environment has been largely sectoral.

2.3.1 Sectoral Management: the Features and Benefits

Conventional sectoral management is a management method which combines forecasting and implementation of mechanisms for capital investment, resource planning, and infrastructure needs for specific sectors of the national economy (Sorensen & McCreary 1990). It is similar to national economic planning in that it involves setting prescriptive goals for each sector of the economy affecting the allocation of such things as labour, investment capital and land use. However unlike national economic planning, sectoral management places emphasis on specific management activities and uses, rather than the production of economic goods (Sorensen & McCreary 1990).

Under pressures created by growing use of the oceans over time, 'sectoral' management has inevitably dominated management practice¹³: as individual problems have arisen, nations have assigned duties and responsibilities, and thus created administrative structures to deal with problems in an ad hoc and fragmented manner, and governments have tended to specialise in discrete policy areas based on functional division of activities or uses. The division of government sectors has tended to create separate agencies which are highly specialised in the management of their policy area, and which are responsible for the regulation and use of only one type of resource or activity to the exclusion of virtually all other activities. Based on the belief that the economic dimensions of management issues are best handled by the industry, or sector concerned, efficiency has been implicit in this specialisation. Management approaches have, in turn, evolved as narrowly-based, incremental and opportunistic, each interest having its own rules, decision processes and institutions.

Today, virtually every contemporary system of government divides responsibility for policy making and management planning into a range of sectoral agencies or departments.¹⁴ Based on this policy division, conventional *environmental* management practices have also been structured according to the traditional scientific approach to problems (Muller 1982); that is, environmental issues have been seen as separable, discrete, and technical involving such things as species preservation or exploitation, water quality, waste disposal, and mineral extraction. In the marine context, specialisation has focused on policy areas such as fisheries, tourism, ports and harbours, non-living resource extraction and so on. Most marine *conservation* initiatives have followed the same sectoral approach, whereby the terrestrial conservation model of designating sites or areas for their special biological, aesthetic or heritage values has been applied in the creation of the marine equivalent of national parks.¹⁵

A benefit of a sectoral approach is that specialists may focus on well-defined problems with clearly identified, and generally very supportive, clientele (Mitchell 1986). Sectoral management is congruent with political reality and administrative organisation and therefore allows for rapid reaction to changed situations, to seizing of opportunities, and for dealing with problems as they arise¹⁶. Sectoral management approaches also tend to be formal, strongly legislatively based, and can therefore result in quick action through the use of familiar mechanisms and tools, while avoiding high initial costs of planning. Furthermore, the isolation, reduction and separation of issues or problems into disciplines, and uses which work more or less competitively can provide a level of efficiency and coherence in the management of specific activities.

The principal advantage of the sectoral management approach, as identified by the Ecologically Sustainable Development (ESD) Working Group in the development of an ESD strategy for Australia, is that it 'forces issues down from a level of abstraction and general principle to where decisions in practice have to be taken' (Commonwealth of Australia 1992c: 1). Based on the belief that perfect competition among self-interested actors within a market economy will lead to overall efficiency and perfect rationality from the broader perspective of the society at large, it has consequently been argued that sectoral management, structured on the concept of sustainable development, can be sufficient to maintain the functional integrity of

¹³ Smith (1994: 6) synthesises the evolution of sectoral management and concludes that historic patterns of development 'provide the key to the first and most enduring stage of management - sectoral management'.

¹⁴ See Juda & Burroughs 1990, Watt 1990.

¹⁵ See, for example, Kenchington & Agardy 1990; Kenchington 1991; Mondor 1992a; and Ottesen & Kenchington 1994.

¹⁶ For more discussion on the benefits of sectoral management see, Lang 1986a; Krier & Brownstein 1992; and Kenchington & Crawford 1993.

marine systems (Underdal 1980; World Bank 1992a). Yet while sectoral management is appropriate in many situations, marine problems resulting from unsustainable use are being encountered world-wide, resource conflicts are escalating, and degradation of environmental systems is of growing concern. It has become clear that especially in terms of marine management, 'something is missing' (Devall & Sessions 1985: 61). As Hildebrand and Norrena (1992: 94) argue:

there is growing evidence that traditional sectoral approaches to the management of resources and activities...are inadequate. Despite best efforts in many cases, natural coastal systems continue to degrade, resource use conflicts are mounting and social and economic benefits which could be derived from the natural resources...are being lost...

2.3.2 The Constraints and Limitations to Sectoral Management

Contemporary marine problems that stem from human activities are almost always based on conflict between resource uses and users. With a growing world population, and the majority of that population living in coastal areas, such conflicts can be expected to increase: increasing pressure to exploit coastal and ocean environments for such things as industry, tourism, aquaculture, and fisheries will intensify competition for resources.¹⁷ As the type and number of ocean uses has grown furthermore, so problems have been increasingly recognised in the capacity of sectoral management to solve wicked problems.

A growing body of literature and research has widely criticised sectoral management, for its inability to deal with such issues as:

- increasing degradation of natural marine environmental systems;
- conflicts over, and competition for, access to space and natural resources among user interests;
- increase in the size of management areas and environmental responsibility with the designation of EEZs;
- recognition of social as well as economic developmental objectives in planning and management;
- jurisdictional discontinuities at the land/sea interface, as well as throughout the EEZ, particularly within the federal context; and
- impacts of sea level rise and other effects related to global climate change.

Analysis of the literature¹⁸ shows that sectoral management is constrained by its philosophical foundations in at least three ways, particularly within the marine context. First, marine policy and management is subject to complex administrative arrangements which involve a multiplicity of government and non-government actors having diverse and overlapping interests. Furthermore, interdependence and dynamic change tend to characterise ocean ecosystems. Yet sectoral management is based on the consideration of discrete and separable problems. Conservation of the marine environment is not a sectoral activity, but a process that requires cross-sectoral and multi-jurisdictional consideration. Due to the specialised focus of sectoral management arrangements however, consideration of the consequences of overlapping sectoral activities tend not to be incorporated into decision-making processes.

¹⁷ See Olsen 1993; Weide 1993; and IPCC 1994.

¹⁸ See, Brown, Cornell et al. 1977; Underdal 1980; Muller 1982; Lang 1986a; Knecht, Cicin-Sain et al. 1988; Juda & Burroughs 1990; Scura, Chua et al. 1992; Grinlinton 1992; Graham 1992; Hildebrand & Norrena 1992; Knecht 1992; Vallejo 1992; Levy 1993; Chua 1993; Dahl 1993; Kenchington & Crawford 1993; OECD 1993; Olsen 1993; RAC 1993e; BC/WA ECC MSP 1994; Bowers & Vandermuelen 1994; Boelaert-Suominen & Cullinan 1994; McKinnon 1994; Ottesen & Kenchington 1994; Anon 1995; UNEP 1995; Zann 1995; GESAMP 1996; and Cicin-Sain & Knecht 1998.

Second, sectoral management is based on specialised, technical knowledge of the resource or activity it is designed to manage. However, our understanding of ocean systems and their functioning lags far behind that of terrestrial systems, and is likely to continue to do so due to the logistics, cost, and technology required for undertaking research in the marine environment. Terrestrially based ecosystem theory is currently inadequate to explain most environmental processes, and rates of change associated with many marine ecological processes involve relatively little time compared to terrestrial ecosystems.¹⁹ Furthermore, information that is available on the oceans tends to be along purely disciplinary lines, so that knowledge of systemic effects and linkages tend to be ignored or overlooked. Consequently, the costs of sectoral activity both on the community and the environment are most often unable to be incorporated within decision-making even where there is an attempt to consider them. Sectoral management also involves problems in the *utilisation* of data and knowledge. Promoted by bureaucratic reluctance to assimilate information which challenges conventional procedures and policies, advances in scientific information are frequently not incorporated within planning processes such that a significant time-lag evolves between contemporary knowledge and policy formation.²⁰

Third, and most importantly, environmental management is largely about the management of *people*, rather than the environment. However sectoral management tends to be targeted at one type of *resource* or *activity* and the *technical* aspects of its management. Establishment of the EEZ has confirmed movement away from exploitative use of the oceans to a phase of rational use, the sustainable use of which is more a matter of broad-based management of human uses and their impacts over time and space, than is usually the case on land (Kenchington 1990). Given the scale and interdependency of marine environments, management policy must incorporate multiple interests, values and objectives reflecting essentially political and social considerations (Mann Borgese 1972; Ludwig, Hilborn et al. 1993).

Evidence shows that government policies to reduce or arrest marine degradation have produced only limited results, and this is widely believed to have much to do with the fact that they have been largely based on the sectoral approach.²¹ Given its responsiveness to specialised management requirements, sectoral management is appropriate and necessary within its own field of influence. Critics argue, however, that a lack of coordination, entrenched bureaucratic parochialism, and above all else, the failure of sectoral management to consider environmental externalities which is resulting in continuing degradation of the marine environment. Indeed, it is argued that many of the issues now facing the marine environment are caused directly by conflicting sectoral interests, or are indirectly related to the spillover effects of sectoral development.

Sectoral management is limited by a number of factors. Major limitations arise from the location and sectoral fragmentation of marine-related activities within separate government departments. O'Riordan and Vellinga (1993: 409) state that:

in most countries both governmental structures and management responsibilities criss-cross over space and resource use in a complicated and often contradictory manner. This is mostly because the organisational element of coastal management responds to the differing levels of government in a highly fragmented way, with widely differing perspectives on what and how to manage, how to budget, and how to communicate and coordinate.

¹⁹ Refer to Ray & McCormick-Ray 1987; Kenchington 1991; Bowers & Vandermuelen 1994; and Boelaert-Suominen & Cullinan 1994.

²⁰ See Juda & Burroughs 1990; GESAMP 1996.

²¹ See Ward & Dubos 1976; Brown, Cornell et al. 1977; McBurney 1978; Salm & Clark 1984; Kenchington & Agardy 1990; Vallejo 1991; Mondor 1992a; Graham 1992; Couper 1992; Jackson-Davis 1993; Boelaert-Suominen & Cullinan 1994; and Anon 1995.

Due to a general absence of political attention to, or understanding of the oceans, marine affairs have often been located within government departments whose functions are not traditionally associated with ocean activities. Provincial marine issues, for example, are mostly dealt with by the Land Use Coordination Office in British Columbia, Canada, and national ocean affairs are located within the federal Department of Commerce in the United States. Administrative problems emerge when each government agency, charged with the implementation of its own policy mandate, pursues priorities and objectives through a network of administrative agents. Specialists tend to view management problems only from the perspective of their sectoral interest so that values and interests may be overlooked where they fall outside the mandate of their particular organisation. The differentiation and specialisation of functions in each sector increases the potential for fragmentation, overlap and duplication, as well as difficulties in decision-making. Administrative problems and inefficiencies are further exacerbated in federal countries, especially in the absence of effective mechanisms to coordinate varying levels of responsibility and governance: 'in the same way that much effort is expended within the federal and state governments among departments, agencies and legislative committees to protect their "turfs", so too is it expended on shaping the balance of power and authority in ocean management between the two levels of government' (Juda & Burroughs 1990: 33).

Problems with sectoral management are associated with the capacity of national institutions to make effective decisions and to resolve multiple demands and expectations: 'at one level, many administrative and legal arrangements are poorly designed to deal with interdependent problems. At another level, well-established and powerful groups have vested interests in keeping policies and programs handled on a sector-by-sector basis' (OECD 1989: 10). Given the nature of the marine environment, environmental management needs to provide a framework for the resolution of multiple interests and interdependent issues. Procedures to resolve conflict and to acknowledge the implications of cross-sectoral overlap and linkages are also required. Conventional sectoral-based however, tends not to provide a forum for the identification and evaluation of benefits and costs. It also tends to be rigid, and does not allow for the consideration of interconnections between activities, uses, and the priorities of users.

Limitations also arise from the tendency of sectoral management towards the status quo, and ad hoc or crisis responses in policy making and implementation. Innovative approaches towards problem-solving tend to be disregarded. Incremental or piecemeal actions are generally aimed at symptoms while neglecting systemic effects, and environmental objectives are frequently beyond political time-frames so that ad hoc management tends to be motivated more by politically salient short-term objectives. Where the cumulative effects of isolated sectoral decisions become counter-productive to long-term interests - what has been coined as the 'tyranny of small decisions'²², or the collective result of partial perspectives (Simpson P. & Associates 1993: 25) - environmental degradation and conflict is likely to result.

Thus, the basic challenges to effective management of the marine environment may be summed up as:

²² The tyranny of small decisions was first coined by Kahn (1966) with regards to the economic consequences of small, individual transactions. He concluded that "'large" changes are affected by a cumulation of "small" decisions' (Kahn 1966: 45). The Australian House of Representatives Standing Committee on Environment, Recreation and the Arts subsequently used the term, 'tyranny of small decisions', in their Report examining the environmental degradation of the Australian coastline, *The Injured Coastline. Protection of the Coastal Environment* (House of Representatives Standing Committee on Environment 1991: 46 - 48). The term was used in this report in reference to the cumulative effects of isolated decisions and small developments on resources and the natural environment.

- the need to maintain environmental integrity;
- the need to replace ad hoc management approaches and exclusively short-term decision-making;
- the need to incorporate consideration of the interactions and linkages between sectors, resources, interests and policy as decision-making premises;
- the need to integrate environmental objectives within the development policies of sectoral agencies;
- the need to break down rigid separation between government units with environmental management responsibilities; and
- the need for practical implementation of ecologically sustainable development principles.

Existing institutions historically developed to implement sector specific policy objectives may well be best suited to manage certain elements of coastal and marine areas. What is evident, however, is that sector-specific mandates of management bodies can preclude wider consideration of interdependencies between sectors, management authorities, and other resource users. Furthermore, inter-sectoral conflict, externalisation of costs, and the lack of far-sighted action makes sectoral management incompatible with principles of ecologically sustainable development. Realistically, management actions are probably best implemented by various specialised agencies but it is evident that a more comprehensive approach to management of human activity is essential to maintain environmental integrity. As Vandermeulen (pers. comm 1995) argues:

ecology has long ago shown us that the sum of the system is much greater, and more integrated than the sum of the parts. Simply calling together representatives from (various government departments), or from two or three levels of government is not going to answer our problems - because we are then still defining our problems in terms of sectoral interests.

2.3.3 Beyond Sectoral Management

A growing body of literature contends that environmental systems in general and marine systems in particular are too complex to be managed through sectoral policies alone and that effective management necessitates a break-down in sectoral isolation²³. 'Broad-scope sectoral planning' has been suggested as one means by which an agency can broaden its horizons to assess the full range of impacts associated with its projects (Sorensen & McCreary 1990). It represents a marginal change from the status quo, and since institutions tend to make only marginal adjustments when confronted with a need to change, it is therefore a strategy that has a high probability of acceptance. The major disadvantage of broad-scope sectoral planning, however, is in its perpetuation of non-integrated, single purpose programs (Sorensen & McCreary 1990).

The goals of marine management are essentially equivalent to those adopted for environmental policy in general: to prevent, as far as possible, further environmental deterioration, to restore already deteriorated parts of the environment, and to safeguard and maintain ecological integrity (Nurmi 1988). The essential challenge therefore in the context of effective management of the world's oceans is one of governance. Devall & Sessions (1985: 61) argue that:

²³ See for example, Ward & Dubos 1976; McBurney 1978; Salm & Clark 1984; Kenchington & Agardy 1990; Vallejo 1991; Mondor 1992a; Graham 1992; Couper 1992; Jackson-Davis 1993; and Boelaert-Suominen & Cullinan 1994.

while accepting the best of reformist environmentalism, many people have sensed that something is missing. They are asking deeper questions. They understand that the environmental/ecology movement needs an articulate philosophical approach grounded upon assumptions which are different from those of the dominant worldview.

Given the close dependency of each economic marine sector on a healthy natural resource base, a consideration of habitat and environmental quality factors must be integrated with other aspects of planning and management to make the effort ecologically sustainable (Sorensen & McCreary 1990). Given the nature of the marine environment, furthermore, ecologically sustainable development also requires an understanding of the multiple extrinsic and intrinsic linkages within and across sectors.

Until the 1980s integration, as a concept, was well established in the business management field generally, and in other fields such as psychology and mathematics, but little attention had been given to the concept as it applied to natural resource management. Closely associated with moves towards greater globalisation of ocean governance has been discussion of the need for more holistic approaches to, and integration of, environmental management.

The case for a comprehensive approach towards management of the oceans derives from the premise that many ocean resources have become scarce, yet remain essentially indivisible. A number of alternative, comprehensive management arrangements have evolved in response to the perceived inadequacies of conventional sectoral approaches to environmental protection and resource allocation. Approaches towards reform have variously focused on regional modelling, the scope of administrative processes, structural reform, and the information basis of decision-making (such as ecosystem boundaries). Comprehensive approaches that have evolved within the terrestrial context include the following.

- Integrated pollution control

which achieved greatest prominence within the US Environment Protection Agency (EPA) when, during the 1980s, EPA officials sought methods to control pollution before the 'end of pipe', across air, land and water boundaries. With the aim of controlling or preventing pollution in ways that reduce total risk to the environment, integrated pollution control is concerned with institutional changes in decision-making and coordinated regulation (Bartlett 1990; Krier & Brownstein 1992).

- Holistic resource management

focused on the attainment of broad environmental goals, derived by specific 'quality of life' statements developed by resource managers (Savory 1988). Despite its name, the holistic resource management model has been developed primarily with regard to the management of terrestrial resources alone. Other than realising that terrestrial activities have the potential to affect marine areas, the model has generally not been applied to the marine environment.

- Adaptive environmental management

based on an interactive processes that employ techniques to integrate environmental, economic, and social understanding (Holling 1978). Relying on continual assessment and adjustment, repeated revision of management decisions is at the core of adaptive management approaches. This approach is seen as an

integral part of the Biosphere Reserve concept, by which a framework for resolving uncertainty or lack of knowledge about the status and function of ecosystems is incorporated within a bioregional framework (Brunckhorst & Bridgewater 1994).

- The Biosphere Reserve concept

seeks to promote management regimes based on a long-term understanding of ecosystems and the belief that humans form an integral component of natural systems (Kenchington 1990). The concept was established in 1971 as part of the Man and the Biosphere (MAB) program of the United Nations Educational, Scientific and Cultural Organisation (UNESCO). As originally envisioned, Biosphere Reserves would consist of designated protected areas regulated through zoning arrangements aimed specifically at preserving representative examples of ecosystems. Based on stewardship fostered through 'grass roots' approaches towards management, a reserve was also to provide a framework within which effective resource management could be achieved through broad-based cooperation. The Biosphere Reserve concept was originally developed for the terrestrial environment, however it has more recently been widely considered within the marine context.²⁴ A Biosphere Reserve Action Plan for example, devised by the Australian Nature Conservation Agency with support from UNESCO, promotes the application of Biosphere Reserves in Australian ocean waters. Joint efforts between UNESCO and other organisations have also targeted coastal and ocean specific management considerations. Notwithstanding, a number of major problems with adapting the principles and guidelines for biosphere reserves to marine areas have been identified: 'how does one adapt the zonation of the biosphere reserve - core, buffer and transition area - to the three dimensional, moving water environment of the coastal zone?' (UNESCO 1993: 4).

- Ecosystem management

which focuses on the interaction between organisms, and between organisms and their natural environment, within specific geographic areas (Juda & Burroughs 1990). It is a system of management bounded by the extent of an ecosystem as determined by decision-makers based upon what they are attempting to achieve. In some instances, ecosystem management is also conceived as a means of integrating social and economic goals such that both a sustainable economy and a sustainable environment are promoted (Interagency Ecosystem Management Taskforce 1995).

- Integrated catchment management

which is a management method based on a perceived need to address interlocking land and water management problems, sometimes including coastal and ocean areas.²⁵ Integrated catchment management generally aims to provide a framework for fostering cooperation and coordination between landholders, resource users, government and non-government interests involved in the use and management of land and water resources within a definable, physical water 'catchment' boundary.

²⁴ See for example, Kenchington 1990; Kenchington & Agardy 1990; Clark 1991; Kenchington, Agardy et al. 1992; and UNESCO 1993.

²⁵ See for example, Queensland Government 1991.

- Integrated Local Area Planning (ILAP)

an initiative funded by the Australian Commonwealth Government aimed at building skills and creating linkages between the three spheres of government in Australia. It is concerned with broad-based planning and seeks to balance 'top-down' policy driven approaches with a greater emphasis on 'bottom-up' implementation processes (ALGA 1993). ILAP also aims to develop broad objectives and policy for a local community areas based on joint cooperation between the community and various spheres of government (Simpson P. & Associates 1993). ILAP is argued to offer a regional forum for interaction without requiring additional boundary delineation (Simpson P. & Associates 1993), and it has received widespread support, particularly from local authorities (RAC 1993a). Brown (1995), in her report entitled *Turning the Tide, Integrated Local Area Management for Australia's Coastal Zone*, concludes that conventional coastal management is a major contributor to the continuing degradation of the coast, and that ILAP is an approach towards effective resolution of coastal problems.

Comprehensive management approaches that have evolved with a predominant focus on the marine environment include the following.

- Large Marine Ecosystems (LMEs)

a concept which evolved during the 1970s and 1980s, based on notions of ecological rationality. LMEs are ecological classifications and have been defined as 'extensive areas of ocean space, measuring about 200 000 sq. km or greater, and characterised by distinct hydrographic regimes, submarine topographies, productivity, and trophically dependent populations' (Ray & Hayden 1993: 175). They may extend to watersheds and rivers, and have been identified within (and occasionally beyond) the boundaries of the EEZs of coastal nations. Nearly 95% of the useable annual global biomass yield of living marine resources is produced within 49 designated LME areas (Sherman 1994). As biogeographic classifications, however, LMEs do not constitute management regimes within themselves, but form a component of a broader management system from which sound fisheries management initiatives may arguably be developed.²⁶

- Ocean Management

a concept that evolved from *sea-use planning* discussions during the 1970s/1980s (Vallejo 1991), as well as the Pacem in Maribus Conferences begun in Malta in 1970 by the International Oceans Institute.²⁷ Ocean management recognises centralised control on a regional scale, a multiple-use focus and the need for policy integration.²⁸ It also attempts to elicit balance between and among the uses and users of ocean space.²⁹ Fabbri (1992) argues that ocean management can *only* stem either from international multilateral agreements and

²⁶ See Ray & Hayden 1993; Vicuna 1993; Sherman 1994.

²⁷ The concept of ocean management has conceptual precursors in the Pacem in Maribus Conferences started in Malta in 1970 by the International Oceans Institute. The Conferences provide a forum where the challenges of ocean space can be considered in their interconnectedness. Twenty-six such conferences have been held to date and they have become respected as important events in understanding threats to the world's oceans.

²⁸ See Couper 1992; and Peet 1992.

²⁹ Refer to Juda & Burroughs 1990; and Ottesen & Kenchington 1994.

forms of coercion, *or* from supranational forms of government. Nevertheless, there is some confusion, both in the literature and in policy, regarding the distinction between coastal and oceanic areas and thus the distinction between and scope of coastal and ocean management.³⁰

- Multiple-use management

a term which defines the continuous and/or contiguous operation of several uses within a defined area (Ray 1976). Multiple-use management involves spatially based management arrangements (most often in the form of zoning systems), to enable use-specific objectives to be met (Sainsbury, Haward et al. 1997). The concept has evolved from resource management principles. Recent analysis of multiple-use management suggests the approach embraces notions of ecosystem integrity, wealth generation, equity considerations, and participatory decision-making processes.³¹

- Coastal management or coastal zone management

refers, in its broadest sense, to any program established for the purpose of utilising or conserving a coastal resource or environment bounded by a defined geographic coastal unit.³² The United Nations Regional Sea Program defines coastal management as an 'adaptive process of resource management for sustainable development in coastal areas' (UNEP 1995: vi). A coastal management program can consist of just one type of activity such as aquaculture, or one type of environment such as estuaries. *Integrated* coastal management programs more often target several types of resources and environments. The concept of coastal management has broad application and strong advocates³³, and is known by various terms. Terms for coastal management include the following.

- Coastal area management³⁴
- Integrated coastal area management³⁵
- Coastal zone management³⁶
- Cross-sectoral, integrated coastal area planning³⁷
- Integrated coastal and marine areas management³⁸
- Integrated coastal zone management³⁹

Integrated coastal zone management (ICZM) is a term which is often used interchangeably with the term coastal management and is frequently considered as one and the same concept.⁴⁰ However, ICZM differs from coastal management in that it attempts a more holistic approach to management by

³⁰ See Sorensen & McCreary 1990; and Vallejo 1991.

³¹ See Sainsbury, Haward et al. 1997, for an extensive analysis of contemporary understanding of multiple-use management.

³² See Sorensen & McCreary 1990; and Levy 1993.

³³ See Sorensen & McCreary 1990; Hildebrand & Norrena 1992; World Bank 1992a; and OECD 1993.

³⁴ For example, Vallejo 1991; Scura, Chua et al. 1992; and Chua & Scura 1992.

³⁵ For example, Boelaert-Suominen & Cullinan 1994.

³⁶ For example, Sorensen & McCreary 1990; Clark 1992; and OECD 1993.

³⁷ For example, Pernetta & Elder 1993.

³⁸ For example, UNEP 1995.

³⁹ For example, Hildebrand & Norrena 1992; World Bank 1992a; IPCC 1994; and Cicin-Sain & Knecht 1998.

⁴⁰ Refer to Sorensen & McCreary 1990; IPCC 1994; and Cicin-Sain & Knecht 1998.

'taking into account all sectoral activities that affect the coastal zone and its resources and dealing with economic and social issues as well as environmental/ecological concerns' (World Bank 1993: 1). As such, ICZM is a concept which is often seen to mark a transition between sectoral management and sustainable development strategies at a wider level.⁴¹ Despite differences in terminology however, coastal management is defined by its *policy* scope within a defined geographical area, namely the 'coast', and is therefore generally targeted at the landward edge of the interface between the terrestrial and ocean environment.

What characterises the methods identified above is that each is focused specifically on *coordination* across geographic, administrative, resource *or* technical boundaries. None of them however, within themselves constitutes a regime of environmental management that is targeted at the marine context in an entirely comprehensive sense. A need for a new approach to management of human activities is now perceived, one that *comprehensively* addresses complex issues in, and degradation of, marine areas, and specifically the EEZ.

2.4 SUMMARY

There are a number of significant characteristics which must be considered in the management of ocean space: 'in short, the ocean is quintessentially a realm of material *interdependence*... Thus, an ocean regime, to be durable, will need to provide substantial coordination and management on both international and *intersectoral* bases' (Brown, Cornell et al. 1977: 100, emphasis added). The LOSC has introduced and legitimised the EEZ as an organising principle on which individual nations can focus development of offshore management and policy. Yet while a *legal* framework of governance has thereby been established, there is a clear inadequacy of the EEZ to provide an effective *management* unit. Coordinative, comprehensive management is nevertheless arguably inherent in the regime design of the LOSC which imposes an obligation on states to holistically treat the gamut of ocean uses and exploitation in which they are engaged (Miles 1995). As such, application of the EEZ boundary poses no *legal* impediment to comprehensive management approaches or the application of integrated management.

From the perspective of marine policy, conservation has tended to be limited to that which directly and explicitly focuses on the natural environment, often to the exclusion of humans and their activity. However policies that influence the causes of environmental effects such as agriculture, transportation, fisheries, and development policies, are themselves often the cause of environmental degradation and thus potentially the most significant environmental policies of all. In this way nearly all problems related to human activity can be seen as environmental problems. It is necessary, therefore, to extend the principles of conservation and ecological sustainability of oceans beyond the boundaries of marine protected areas, narrowly defined notions of the 'coastal zone', and such strictly biogeographic concepts as Large Marine Ecosystems and Biosphere Reserves. Given the proliferation of existing environmental policy and law, however, this is not necessarily a need for more law. Nor is it a need for more technical tools such as zoning or impact assessment.⁴² Instead, due to the perceived inadequacy of conventional sectoral management methods in dealing with complex marine issues, analysts have argued that there is a fundamental need to modify entrenched patterns of behaviour and to improve institutional arrangements, planning, policy design, and implementation.

⁴¹ See, for example, Vallejo 1993; UNEP 1995.

⁴² Refer to Johnston 1988; Kenchington 1991; and Miles 1995. In contrast to these authors, Jackson-Davis (1990) argues that greater legal regulation and control are required.

Chapter 3.

INTEGRATED MARINE MANAGEMENT

3.1 INTRODUCTION

Resource use conflicts most often stem from different values being held by different users, or from different emphasis being given to values that are shared by all. Sustainable development is a concept which incorporates the notion that all values associated with resources and their use should be taken into account in order that a balance be reached between protection of the environment, and promotion of development (WCED 1987). Sustainable development therefore entails processes of decision-making in which economic development decisions are made with regard to environmental considerations, and in which multiple objectives are met. However there remains no consensus on how to best resolve ecological and developmental values. Given the complexity of marine issues and the diversity of environmental and governance situations, it is clear that no single strategy will in itself be sufficient to deal with multi-faceted environmental problems.

In Chapters 1 and 2, it was asserted that the predominance of sectoral management, while appropriate within its sphere of influence, has been inadequate in arresting degradation of the marine environment. Given a number of limitations inherent within sectoral management, environmental, administrative and policy linkages are difficult, if not impossible to address. Consequently, management approaches which are comprehensive, broadly focused and which acknowledges linkages have been called for. This chapter presents a conceptual framework for one such comprehensive management approach - integrated management. The evolution of the concept of integrated management is briefly discussed, and the philosophical basis to the concept is considered. Different aspects of integrated management are examined, including terminology and notions of comprehensiveness, and a general conceptual framework, applicable to a range of contexts, scales, and issues is presented.

3.2 A SYSTEMS VIEW OF THE MARINE ENVIRONMENT

As discussed in Chapter 2, the marine environment, characterised by its complexity and the growing potential for conflict between user groups, is being degraded by unsustainable development and management practice. In order to bridge the gap between development and the environment, a common methodology is required through which different value systems may be assuaged.

A number of analysts argue that General Systems Analysis is the most appropriate tool to structure the interactions between user values¹. A system is: 'a schematisation of reality by means of a set of elements and their interactions' (Weide 1993: 131). General Systems Theory is consequently defined as 'a level of theoretical model building which lies somewhere between the highly generalised constructions of pure mathematics and the specific theories of the specialised disciplines' (Boulding 1956).

¹ See for example, Stark & Pomeroy 1983; Cicin-Sain 1993a; Vallega 1993; Vallejo 1993; and Weide 1993.

General Systems Theory is a method of thought which was introduced in the 1950s to facilitate cooperation between scientists (Weide 1993). It gained prominence from this time until the early 1970s², and has recently received a resurgence of interest with growing recognition of comprehensive management arrangements. General Systems Theory evolved as an attempt to overcome the paradox between ever increasing specialisation necessitated by enormous amounts of data, complexity of techniques and the theoretical structures within every field, and the concurrent evolution of similar problems and issues in widely differing fields. Systems Analysis seeks to integrate form and process and take account of the consequences of any behaviour. Unlike structuralist theories which represent a search for unity and are based on the reduction and categorisation of phenomena, General Systems Theory places an emphasis on dynamic situations and systems interactions which are themselves fundamental considerations in the understanding of integration.

General Systems Theory presents a 'problem solving strategy aimed at understanding rather than explanation' and it is 'synoptic rather than analytic in that it moves outwards from the problem to its contexts rather than inward to its parts' (Walmsley 1972: 25). As such, Systems Analysis affords a process in which available knowledge and resources can be integrated 'in a manner which can allow for an effective macroscopic view of the system for managerial purposes' (Stark & Pomeroy 1983). Yet the precise definition of the term remains disputed. Furthermore, the approach is attacked as a philosophical framework on the grounds that it attempts comprehensiveness which is unattainable, that it 'over-extends itself' (Walmsley 1972: 35), and that 'as an absolute ideal, comprehensive environmental decision-making is unrealistic, not doable' (Bartlett 1990: 235).

Despite these criticisms, 'the idea of comprehensive decision making cannot be so easily dismissed, in part because of the persuasiveness of the case made for comprehensiveness' (Bartlett 1990: 236). Proponents believe that by moving beyond conventional structuralist methods towards a process that strives to integrate ecosystem functioning, human activity, and administrative arrangements, 'logical' and coherent decision-making may occur.³ Furthermore, it is argued that Systems Analysis offers a 'useful expedient to model complex natural and socio-economic processes' (Weide 1993: 130), particularly within the marine context where it is a conceptual method that is 'closely aligned to what actually transpires between the many actors, uses and institutional arrangements that characterise the (marine) area' (Vallega 1993: 155). Thus the use of General Systems Theory widens the possibility for developing ecologically sustainable development-inspired environmental management programs (Vallega 1993).

The shift from sectoral perspectives towards more comprehensive approaches towards sustainable development has required a system in which the relationships between social and natural elements are considerably more harmonious than those which have characterised limited use frameworks (Vallega 1993). As scarcity of natural resources has created the need for more controlled resource allocation, Systems Theory has emerged as a theoretical basis for the development of comprehensive, *integrated* approaches towards environmental management.

² See Bertalanffy 1950; Boulding 1956; Hall & Fagen 1956; Easton 1965; Black 1968; Walmsley 1972; and Bertalanffy 1973.

³ See Black 1968; Walmsley 1972; and Cicin-Sain 1993a.

3.2.1 A Brief History of Integrated Management

The first discussion of 'integrated planning and action' was published in 1963 when Lynton Caldwell blamed 'fragmented action' and ad hoc 'policies affecting natural resources', for waste, confusion and lack of public action regarding the environment. He discussed the inadequacies of 'segmented decision-making' and linked the term 'environment' to the terms 'policy' and 'administration', stating that ecological principles should be part of any decision-making that might impinge on the ecological basis of human life. Caldwell also used the term 'integrated planning' for the first time, though as a specific process it received little elaboration.

The notion that social objectives should be considered with regards to economic growth developed during the 1970s. At the international level, the United Nations Development Strategy for the Second Development Decade (1971) called for a comprehensive and integrated view of development and placed emphasis on social considerations that went beyond conventional economic concerns (Vallejo 1993). Though the term was not recognised as such, the foundations of the concept of integrated *environmental* management were first discussed at an international level during the 1972 United Nations Conference on the Human Environment (UNCHE). The Stockholm Declaration adopted at the UNCHE, a declaration of non-binding principles, reflects political and moral commitments of a non-legal nature. Principle 13 of the Declaration (United Nations 1972) explicitly states that: 'in order to achieve a more rational management of resources and thus improve the environment, States should adopt an integrated and coordinated approach to their development planning so as to ensure that development is compatible with the need to protect and improve the human environment for the benefit of their populations'. The Stockholm Declaration is argued to have set the tone for subsequent policy formulation around the world, and is widely regarded as the foundation of modern international environmental law.⁴

Following the UNCHE, the United Nations General Assembly established the United Nations Environment Program (UNEP) whose Governing Council designated the oceans as a major area of emphasis. One of the first references to integrated *marine* management may be found within the Regional Seas Program of UNEP. The Mediterranean Action Plan, for example, begun as part of the Regional Seas Program, defined 'integrated planning and coastal management' as a priority action from its very inception (Pavasovic 1994). Created in 1974, the Regional Seas Program is designed to address the consequences and causes of degradation of the marine environment on a regional basis through 'comprehensive, integrated, results oriented' management approaches (Verlaan 1994). A number of agreements and documents arising from the operation of the regional Seas Program have been important catalysts in the subsequent development of integrated management tools and techniques.⁵

Vallejo (1993) characterises the 1970s and 1980s as an era when economic crisis together with political, socio-economic and technical changes influenced management aimed at alleviation of short-term resource allocation and political decisions to address immediate problems. However Bartlett (1990) argues that the 1980s was also a time of growing realisation that, particularly with respect to pollution, 'end of pipe' solutions in one medium (air, land or water) were not fully successful and were in some ways compounding environmental problems. Given this growing awareness, UNEP commissioned the development of *The World Conservation Strategy* during 1980 in an attempt to further principles of natural resource management within a more comprehensive framework. The World Conservation Strategy is the first international document to give currency to the term 'sustainable development', and principles of

⁴ See, for example, Springer 1988; Pallemmaerts 1993; and Vallejo 1993.

⁵ Refer to Deiana 1994, Pavasovic 1994, Borgese et al 1994. Phase I of the Mediterranean Action Plan, for example, lead to a complex Phase II focusing on integrated planning. Phase I, through the Blue Plan and the Priority Actions Program is probably one of the first attempts at consideration of integrated management on a regional basis.

integrated management are articulated within the text. Paragraph 6 of the Introduction (Anon 1980), for example, states that 'conservation is a process - to be applied cross-sectorally - not an activity sector within its own right'. Specific reference is also made to marine areas, though given the wide-scale concerns about access to and depletion of fisheries resources ensuing within the international context at the time, most attention is focused on marine living resources. Paragraph 4 of Chapter 11 (Anon 1980), for example, states that 'the need for cross-sectoral coordination is particularly important in the case of...the conservation of marine living resources'.

Notwithstanding the achievements of the UNCHE and the World Conservation Strategy, expectations in manifesting an environmental governance agenda were not seen to be met, and a second attempt to draw up a world charter for environmental management was undertaken in 1982.⁶ The resulting *World Charter for Nature* (adopted by the United Nations General Assembly in October 1982) affirms general principles of sustainable use and environmentally responsible conduct for states and individuals. It nevertheless remains limited to management principles for the conservation and use of living natural resources and does little to develop principles of conservation and resource management. However, the concept of broader integration of environmental management was picked up by the UNESCO consultative Panel of Coastal Systems which operated during the mid 1980s. The term 'integrated management' featured prominently within the Panel's terms of reference (UNESCO 1986a; UNESCO 1986b), and formed the basis for collaborative efforts between UNESCO, the Scientific Committee for Oceans Research, and the International Association for Biological Oceanography which operated during this time.

The first substantive work characterising integrated management in the marine context was written by Arild Underdal in 1980. Drawing on theory of comprehensive rationality, Underdal explores the meaning of integrated policy, particularly integrated marine policy, and determines why and how policy should be integrated. The influence of Underdal's analysis in marine management research and literature has been significant. Contemporary understanding of integrated management can be seen as an extension of Underdal's (1980: 162) central premise of integrated policy; namely that 'a policy is integrated to the extent that it recognises its consequences as decision premises, aggregates them into an overall evaluation, and penetrates all policy levels and all government agencies involved in its execution'.

Ahmad and Muller followed with an *Ad Hoc Expert Meeting on Integrated Physical, Socio-Economic and Environmental Planning* conducted in Paris during September 1981. An edited collection of papers generated by the meeting was published in 1982 (Ahmad & Muller 1982). Though the volume of papers examines an integrated approach to management which is not specific to the marine context, it serves as a benchmark in the critical evaluation of the concept. Another significant contribution to the development of integrated management, is Lang's volume of contributed papers arising from seminars held in 1983 and 1985, entitled *Integrated Approaches to Planning and Management* (Lang 1986a).

The World Commission on Environment and Development (WCED) Report, *Our Common Future*, was released in 1987, heralding a growing awareness of the integrated nature of the global environment and economic development. The Report discusses the necessity for comprehensive approaches towards environmental management. The WCED (1987: 9) also criticise sectoral management as inappropriate to meet the challenges of interlocked ecological and economic systems on the basis that:

⁶ See Pallemmaerts 1993; Cuellar 1991; and Cicin-Sain & Knecht 1993.

the objective of sustainable development and the integrated nature of the global environment/development challenges pose problems for institutions, national and international, that were established on the basis of narrow preoccupations and compartmentalised concerns...most of the institutions facing those challenges tend to be independent, fragmented, working to relatively narrow mandates with closed decision processes.

Integrated approaches to management are consequently advocated by the WCED (1987: xii) as a method by which sustainable development might be achieved: 'together...we should formulate an interdisciplinary, integrated approach to global concerns and our common future'.

During July 1989, the Coastal Area Management and Planning Network (comprising 30 professionals from 20 countries) convened a workshop which sought to assess the status of Integrated Coastal Zone Management (ICZM) on a global scale (Clark 1991). The report arising from this workshop suggests that at that time, difficulties in the 'widespread use of ICZM appear to be more related to a failure in political will and the mechanisms of implementation, than to the supply of ICZM technology and systems' (Clark 1991: 1). The report concludes that up until 1989, no ICZM program existed as a working model. Nevertheless, attention has continued to turn towards integrated management, and during the 1990s the concept has been central to a number of international meetings and agreements.

Most prominent this decade has been the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro during 1992. Agreements arising from UNCED negotiations have been designed to 'embody the rules and principles of a general and universal nature to govern the future conduct and cooperation of states' (Pallemaerts 1993: 1). Building on the background of earlier declaratory instruments, sustainable development forms the basis of all the agreements arising from UNCED, namely the:

- Framework Convention on Climate Change;
- Convention on Biological Diversity;
- Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests (Statement of Principles on Forests);
- Rio Declaration on Environment and Development (Rio Declaration);
- and
- Agenda 21.

Agenda 21 is considered by some as the 'chief product' of UNCED (Johnston 1996). Within Agenda 21, integration is put forward as a governing paradigm of environmental management, and marine environmental management in particular. Chapter 17 of Agenda 21 (United Nations 1993), for example, is introduced with the notion that what is required are 'new approaches to marine and coastal area management and development, at the national, subregional, regional and global levels, approaches that are integrated in content and are precautionary and anticipatory in ambit' (United Nations 1993: para. 17.1). Also *'Integrated Management and Sustainable Development of Coastal and Marine Areas, Including EEZs'* is one of 5 principle Program Areas contained within Chapter 17.

Agenda 21 is not a binding instrument in that it merely represents an agreement between the signatories on a holistic approach towards the management of numerous, inter-related threats to the environment. Agenda 21 has been described as 'an aspirational instrument, attractive to enthusiasts and idealists to the extent that it captures the ethos of contemporary environmentalism' (Johnston 1996: 15). However, despite the intention that Agenda 21 provide a comprehensive framework of measures for planning and management of the environment, the language of the document is neither rigorous nor its definitions clear, and Program objectives only

very broadly outline the nature and process of integrated management. Furthermore, Chapter 17 incorporates a series of sectoral programs and activities that lack an integrative framework for action. Pernetta and Elder (1993: 34) suggest that Agenda 21 provides little guidance for the integrated management of marine areas at all, and that integrated approaches require models of successful national management for their development. By advocating integrated management at an international level Agenda 21 is nevertheless a landmark in a shift away from ocean governance based on sectoral, narrowly based environmental management, towards a more comprehensive, integrated approach based upon minimisation of human impact on the marine environment.

A number of subsequent workshops and conferences conducted during the 1990s have reinforced integrated management as a governance paradigm. The World Coast Conference, for example, held in the Netherlands during 1993 is notable for its development of a set of guidelines for integrated management (World Bank 1993) as well as a comprehensive analysis of the concept (IPCC 1994). Other prominent meetings, both on a regional and international scale, where integrated management has served as a guiding principle include the Regional Workshop on Coastal Zone Planning and Management in ASEAN (Scura, Chua et al. 1992), Coastal Zone Canada '94, '96, and '98⁷, and the Conference on the Protection of the Marine Environment From Land Based Activities 1995.⁸ In 1995, at the second meeting of the Conference of the Parties to the Biodiversity Convention held in Jakarta, signatories to the International Convention on Biological Diversity committed themselves (under the auspices of what has come to be known as the Jakarta Mandate), to examining the conservation of coastal and marine biodiversity in general, and to the need for integrated coastal and marine management in particular (Sainsbury, Haward et al. 1997). And in 1998, the International Year of the Ocean, the United Nations resolved that the future health of the oceans is dependent on 'an integrated approach...based on the premise...that all issues are interrelated and must be considered as a whole' (United Nations 1998).

Academic critique of integrated management has also advanced during the 1990s, highlighted by the OECD publication, *Coastal Zone Management: Integrated Policies*. (OECD 1993)⁹, and a special issue of the international journal of Ocean and Coastal Management (Cicin-Sain 1993b).¹⁰ A Task Force, formed in 1994 under the auspices of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, has also specifically concentrated on the critique of integrated coastal management, and produced a document entitled *The Contributions of Science to Integrated Coastal Management* (GESAMP 1996). Most recently, an extensive guide to the application and implementation of integrated management was authored by Cicin-Sain and Knecht (1998). This book examines the concept and practice of integrated coastal and ocean management, and though it provides little *critique* of the concept, represents a growing acceptance of integrated management principles at an international level.

⁷ See, for example, Wells & Ricketts 1994.

⁸ Paragraph 15 of the Introduction of the Global Plan of Action for the Protection of the Marine Environment from Land-based Activities, the international agreement arising from the 1995 Conference, states: 'the Global Program of Action reflects the fact that States face a growing number of commitments flowing from Agenda 21 and related conventions. Its implementation will require new approaches by, and new forms of collaboration among, governments, organisations, and institutions with responsibilities and expertise relevant to marine and coastal areas, at all levels - national, regional and global'.

⁹ Recommendation of the Council on Integrated Coastal Zone Management (adopted on 23 July 1992) recommend that, 'to help achieve the goals of ecologically sustainable development and integrated resource management, strategic planning and integrated management of coastal zones should be developed and implemented...' (OECD 1993: 7).

¹⁰ The Special Issue seeks to present 'a variety of perspectives on the meaning, forms, methods, and experiences in integrated coastal management' (Cicin-Sain 1993b: 1).

By far the greatest indication of the broad recognition of integrated management, however, is the proliferation of both national and international marine initiatives which claim to be integrated. Initiatives include such diverse agreements and policy as the international Convention on Biological Diversity 1992, Canada's Oceans Act 1997, and Australia's proposed Oceans Policy. Similarly a number of international and regional bodies call for integrated management in their marine management strategies. These bodies include the World Bank¹¹, the Organisation for Economic Cooperation and Development (OECD)¹², the United Nations Commission on Sustainable Development¹³, the International Panel on Climate Change¹⁴, the Food and Agriculture Organisation of the United Nations (FAO)¹⁵, as well as the United Nations Environment Program (UNEP).¹⁶ The Global Environment Facility in its role as a funding mechanism for UNEP, World Bank, and the United Nations Development Program, is also argued to be committed to integrated marine management at the international level (Sherman pers. comm 1995).¹⁷

In April 1996, the United Nations Commission for Sustainable Development reviewed progress achieved on the management of oceans and coasts since UNCED. It found that some progress has been made, in particular the adoption of a number of binding agreements and the Global Program on Protection of the Marine Environment from Land-Based Activities (GPA). Integrated management is explicitly advocated as a strategy within the GPA, the logic advanced by the Program being that in order to address issues relating to impacts on the marine environment from land-based activities, integration across environmental, economic, and planning on different

11 In response to global warming concerns and subsequent threats of rising sea levels, the World Bank in collaboration with United Nations departments have developed a number of sets of guidelines for the application of integrated coastal zone management (World Bank 1992a; World Bank 1993).

12 For example, the Third International Conference on the Protection of the North Sea recommended that parties 'accept the implications of the concepts of sustained use and sustainable development, and the integrated ecosystem approach, as indicated by the WCED' (OECD 1990: 4), and also that 'it is essential that an integrated and comprehensive approach to the protection of the North Sea marine environment and its living resources is applied' (OECD 1990: 31). The OECD (1992: 2) has further recommended that 'coastal zones and the oceans (are) areas where improved policy integration through integrated resource management strategies and comprehensive land use planning is required'.

13 At an international workshop held in London during Nov/Dec 1995, attended by representatives from 32 national governments and 12 international agencies, also representatives from 23 non-government organisations, to consider environmental science, comprehensiveness and consistency in global decision-making on the oceans, the Commission for Sustainable Development stated that 'coordination should take account of the recommendations in Chapter 17 of Agenda 21 for the integration of national policy towards the marine environment' (CSD 1995: 2).

14 'ICZM has been identified as the most appropriate process to address current and long-term coastal management issues, including habitat loss, degradation of water quality, changes in hydrological cycles, depletion of coastal resources, and adaptation to sea-level rise and other impacts of global climate change' (IPCC 1994: 10).

15 'If coastal systems are to remain productive, their management requires a holistic and comprehensive approach...a multi-sector management program must be devised so that all stakeholders and all affected government agencies are involved...' (Clark 1992: 5).

16 'Integrated management of coastal areas is required to lay the foundation for sustainable development which will reduce or eliminate pollution, rectify other impacts, and prevent these occurring in the future' (UNEP 1995).

17 The Global Environment Facility (GEF) was originally set up as a pilot program in 1991 and was restructured and replenished with around US\$2 billion in 1994 to cover the costs of global environmental activities in four areas: climate change, biological diversity, international waters, and stratospheric ozone. Both the international Framework Convention on Climate Change and the Convention on Biological Diversity have designated the GEF as their funding mechanism on an interim basis. GEF projects and programs are managed through 3 implementing agencies: the UNDP, the UNEP and the World Bank. In order to be eligible for funding, GEF projects must be country driven, incorporate consultation with local communities and involve non-government organisations in project implementation.

scales is required.¹⁸ Marine environmental degradation and other international cross boundary issues (such as global climate change), have ensured continued discourse regarding the application of integrated management in the marine context.¹⁹

The most challenging global contemporary policy decisions we face in order to protect the health of our oceans are arguably land-based sources of marine pollution and atmospheric pollution, both exacerbated by an escalating world population and increasing coastal population densities. That these issues do not constitute problems which lend themselves to solution via binding legal agreement²⁰, has prompted some analysts to claim that integrated management approaches are the only 'adequate' response (Miles 1995; Cicin-Sain & Knecht 1998). Despite widespread advocacy and commitment to the concept at an international level, however, integrated management remains an elusive process, and there little consensus on what it means in operation.

3.2.2 The Concept of Integrated Marine Management

Understanding integrated management requires careful scrutiny of the term itself and its ambitions towards 'comprehensiveness'. First, as the concept of integrated management has developed, a range of terminology has evolved. As single sector environmental management has increasingly come under criticism, the term 'integrated' has been introduced to coastal management. As 'the potential for conflict in areas further out to sea has become more of a reality with the increasing interest of coastal states in the economic exploitation of the EEZ' (Levy 1988: 338), and with agreement on the International Convention on Biological Diversity and Agenda 21, the term 'integrated marine and coastal area management' has also come into use. Various other terms for integrated management include:

- integrated marine policy;²¹
- integrated planning;²²
- integrated resource management;²³
- integrated ecosystem approach;²⁴
- integrated coastal management;²⁵
- integrated sea-use management;²⁶
- integrated coastal area management;²⁷ and
- integrated coastal and marine areas management.²⁸

¹⁸ A principal implementation mechanism of the GPA is UNEP's Regional Seas Program on the basis of the Program's focus on national and regional programs of action. Some criticism has been levelled at the GPA (refer to Williams 1998) because of its reliance on the Regional Seas Program for implementation, as well as on the lack of recognition within the GPA of existing management initiatives directed at the control of marine pollution. Cicin-Sain also notes a 'disquieting trend' now emerging; 'the beginning of a tendency to undo the careful job of aggregation done in Chapter 17 of Agenda 21 - to desegregate the integrated framework into discrete areas of biodiversity, land based sources, and so forth...' (Cicin-Sain & Knecht 1998: 302).

¹⁹ See, for example, IPCC 1994.

²⁰ This point was argued at the UNEP Intergovernmental Meeting on the Pollution of the Marine Environment from Land Based Activities, the final preparatory session of which was held in Reykjavik, Iceland during March 1995. Participants of this meeting agreed that instead of a legally binding instrument, the objectives of the meeting would be better served through the development of an effective 'Program of Action'. See also Kimball 1995; and Williams & Davis 1995.

²¹ For example, Underdal 1980; Watt 1990; and Vallejo 1992.

²² For example, Ahmad & Muller 1982.

²³ For example, Lang 1986a; Olsen, Hale et al. 1989; and Grinlinton 1992.

²⁴ For example, OECD 1990.

²⁵ For example, Sorensen & McCreary 1990; Clark 1991; Scura, Chua et al. 1992; OECD 1993; and IPCC 1994.

²⁶ For example, Smith & Vallega 1991.

²⁷ For example, Boelaert-Suominen & Cullinan 1994.

²⁸ For example, UNEP 1995.

As discussed within the Introduction to this Thesis, the term '*integrated marine management*' (IMM) may be seen as a broader application of integrated management principles beyond the limits of the coastal zone: though the same principles of management apply, integrated *marine* management programs are distinguished by their *issue* scope within the context of marine environment as a comprehensive whole.

Second, given that IMM is about 'comprehensiveness', the question arises: what does comprehensive mean? As discussed in Chapter 2, the perceived need for comprehensive decision-making is based on the argument that the marine environment is characterised by interconnectedness and that environmental problems thus need to be considered from a holistic perspective. That is, as Bartlett (1990: 235) states:

the idea that policy should somehow take account of the environment *comprehensively* is implicit in the modern use of the word *environment* to focus understanding and problem solving...numerous writers and thinkers argued that this term could be used to conceptualise the world as a complex interrelated whole, thereby filling a need that had been inadequately served by such terms as *pollution*, *conservation*, *natural resources*, *preservation*, *public health*, or even *ecology*. Real solutions to problems that were truly environmental were not possible if segmented and fragmented thinking was the basis for decision making. Integrated comprehensive decision making, in which problems would be considered with regard to their interrelated, interconnected totality, was required by the nature of the environment itself.

However 'comprehensiveness' is a deceptively straightforward term. As evidenced by a distinct lack of agreement amongst the literature²⁹, its perceived success or failure rests with how the concept of comprehensiveness is defined.

General Systems Theory provides the foundation for the notion that the order and organisation within and between isolated parts and processes of ecosystemic and human management systems is just as important to determine as examination of the parts themselves (Bertalanffy 1973). That is, comprehensive 'environmental management is not about ecology, but rather, how ecological understanding can be used to improve management and to guide development' (Holdgate 1980). From a management outlook, comprehensiveness is most often used to refer to the antithesis of administrative fragmentation, or sectorally divided environmental management and policy. Comprehensiveness, however, can refer to a whole state or process, to 'everything', or to degrees, types, or portions of a whole. The limits to comprehensive decision-making are thus far more restrictive for some meanings than others. As Bartlett (1990: 245-246) argues:

if we have in mind discrete decisions that each deal with everything at once, then clearly comprehensive decision-making is impossible. If, on the other hand, we think of decisions as social processes involving many people over time, and of comprehensiveness as referring to greater degrees of consideration of matters of importance, then comprehensive decision-making is possible and may be desirable.

Integrated marine management moves beyond conventional sectorally oriented management, and seeks to manage marine areas in a holistic way. At its simplest, integrated management involves comprehensive ecosystem management of natural environments and of the anthropocentric activities therein. In an operational sense, the process attempts to characterise and prioritise relevant management issues that should be addressed to enable the development of a long-term strategy, as well as provide a framework for analysis and identification of interdependent factors at work in any particular socio-economic and environmental situation. Underlying this approach is the view that when these aspects are considered in an integrated way, the process of decision making will be more 'effective'.

²⁹ See for example, Warren 1981; Belsky 1986; Savory 1988; Bartlett 1990; Juda & Burroughs 1990; and CSD 1995.

Drawing on General Systems Theory, the feasibility of integrated management is questioned largely on the premise that it 'over-extends' itself: 'because everything is interconnected, the whole environmental problem is beyond our capacity to control in one unified policy...it is silly to conclude that we are compelled to treat the environment as a whole, because this is impossible' (Krier & Brownstein 1992: 125). Based on Lindblom's critique of comprehensive rationality³⁰, Krier and Brownstein (1992) find serious flaws with the concept of integrated management in its attempts to treat environmental issues within a holistic perspective. They argue that reform of conventional approaches are costly, difficult to put into effect, and likely to fail given the breadth of institutional biases against it and the dynamics of administrative change. Krier and Brownstein (1992: 126) also state that 'fragmented institutions and segmented problem solving reflect the way that reality shapes institutions and procedures', so that 'obstacles are not as much problems for integrated management, but problems with it'. Based on the belief that political change occurs almost entirely through small-scale incremental adjustments, and not by drastic change which upsets the status quo³¹, Johnston (1996: 18, 19) suggests that nations 'will often be reluctant to accept the costs of implementing ambitious undertakings which are holistically conceived and would require unprecedented feats of coordination and integration among all levels of national government and indeed of society'.

For those who condemn integrated management for its allegedly 'irrational' attempts at comprehensiveness however, there are many others who criticise conventional sectoral approaches which most often fall within the category of incremental opportunism. Incremental opportunism is a 'pragmatic approach which has the flexibility to respond to changing circumstances in contrast to the weaknesses imposed by the rigidity of rational comprehensive planning' (Kenchington & Crawford 1993: 116).³² It is also an approach which is characterised by ad hoc responses to short term considerations and as such presents problems from the perspective of ecologically sustainable management. That is, environmental problems tend to be poorly structured, and the end result of iterative fixes may frequently be worse than the initial condition. By their very nature, environmental concerns require a degree of protection against the 'tyranny of small decisions': 'it does not follow that if the lesser jobs are pursued with diligence, the greater ones will take care of themselves' (Caldwell 1963: 139). The most pertinent argument for pursuing study of integrated management therefore, is the prevailing perception that the consequences of inaction or maintaining the status quo pose significant enough consequences that alternative management methods must be sought.

Furthermore, while 'everything is interconnected', not every part of human or environmental systems are connected *intimately*. Instead connections are selective, and as such there is 'no need to measure everything' (Holling 1978). Though a truly ubiquitous agreement on ocean management is most likely impossible, it is also undesirable in practical terms due to national ideological differences and politics, environmental considerations, and difficulties involved with many nations attempting to reach broad agreement on a diverse range of issues. Hence, advocates claim that integrated management is not an attempt to include every conceivable aspect of ocean use within perfectly integrated policy.³³ Rather it is a method which seeks to establish a 'dynamic balance between firm, long-term, integrated policy, and responsive, coordinated management. The basis of policy is to establish a common purpose through a vision and objectives which must be achieved in order to realise that

³⁰ 'Believing...that everything is interconnected, we fall into the logical fallacy of believing that the only way to improve these interconnections is to deal with them all at once' (Lindblom 1979).

³¹ See, for example, Lindblom 1959; Lindblom 1979; and Krier & Brownstein 1992.

³² See also Section 2.3 of this thesis.

³³ 'Fully integrated planning is...the dream of a perfectionist, and as such, it contains the risk of becoming a cumbersome and slow process...it needs to remain a flexible and adaptive approach to society's demands and not to become a dogmatic, overambitious attempt at comprehensiveness' (Ahmad & Muller 1982).

common purpose' (Kenchington & Crawford 1993: 125). For each situation there is therefore considered to be an appropriate level at which comprehensive management should be aimed, or as Caldwell (1963: 137) describes it, 'a common-sense balance between the too-often uninformed, expedient, piecemeal methods now generally pursued and a perfectionist effort to take into account absolutely everything relevant to a contemplated environmental change'. Integrated management is thus seen as *not* equivalent to perfect comprehensive rationality, but one means by which a greater *degree* of comprehensiveness may be pursued.³⁴

Given that integration is about the development of whole management systems from parts, and not an attempt at unlimited comprehensiveness, a second major question arises: why should resources be devoted to new management approaches if at the expense of improving existing management arrangements? Comprehensiveness is not an answer within itself and decision-making at any level can arguably be highly comprehensive without providing any benefit to the environment. Bartlett (1990: 249) warns against the quest for comprehensiveness that will 'provide the key to the universe and solve all problems', and Sorensen (1993: 66) argues that 'if the initiation of new projects for preparing plans is done at the expense of supporting the implementation of plans already prepared, it definitely is a counter-productive approach'.

Zimmerman (1982: 37) dooms integrated management because of its huge data requirements, the complexity of environmental problems and the process itself, the lack of discretion in political decision making within the process, and the preponderance of 'ineffective' institutional structures. Mitchell (1986) doubts the feasibility of integrative processes due to the commitment and lengthy time required in view of the need for constant communication among participants. Lang (1986c) emphasises that integrative planning assumes the existence of common ground upon which contending interests may find agreement and that, as such, integration is not always needed, and more to the point, will not always work. A number of other analysts³⁵ question the practicality of the concept, due to significant problems with its implementation³⁶, Peet (1992) going so far as to suggest that it is doubtful whether integrated management can *ever* be put into practice. Shepherd (1991) also submits that in certain situations, attempts at integrated management may even be detrimental in so far as it may lead to confusion, or long-term rejection of alternative 'novel' management approaches in general.

Thus there is some concern that 'attempts to achieve complete comprehensive rationality divert attention from the manageable task of improving incremental decision making in a 'strategic' way that moves toward comprehensiveness without striving all the way to get there' (Krier & Brownstein 1992: 128). Put simply, 'just because incremental methods are inadequate in some situations does not mean that they have to be done away with, it just means that they should be done *better*' (Lindblom 1979: 521).

In answer to these concerns, it is important to stress that undue rationalisation is not expected by most advocates of integrated management, and demands for integration are not just invitations to apply comprehensive management indiscriminately. Rather, a number of critics are quick to point out that not every situation requires the development of integrated management. The World Bank (1992a: 2), for example, argues that:

³⁴ See Bartlett 1990; and Peet 1992.

³⁵ See Vallejo 1991; Peet 1992; Levy 1993; Sorensen 1993; Vallejo 1993; and Weide 1993.

³⁶ Chua and Scura (1992: 11) for example, believe that existing political and administrative realities make integrated management implementation difficult, if not impractical in some cases.

in areas where...ecosystems are not threatened by present or potential use, there is no urgent need to develop (integrated management) programs. Existing sectoral development with adequate planning and management based on the concept of sustainable development is sufficient to maintain the functional integrity of the resource systems.

In most cases integrated management is not argued to be a strategy to supplant sectoral management, but an approach which *supplements*, and in some respects, *incorporates* and *improves* sectoral management.³⁷ Vallejo (1991: 21) argues for example, that integrated management strategies do not have to displace conventional marine management practices, but can instead:

infuse in them a multiple-use philosophy of resources and space management, which emphasises sustainable use of the resource base and implies measures and mechanisms and mechanisms for the anticipation, resolution or accommodation of conflicts among competing users of the coastal and ocean areas.

The World Bank states that the *main* function of integrated management is to integrate sectoral and environmental needs, and that integrated management sets a legal and institutional framework in which sectoral management can be strengthened and harmonised (World Bank 1992b; World Bank 1993). Kenchington and Crawford (1993) argue that as inter-sectoral differences preclude coordination, the establishment of integrated management has the potential to resolve relative precedence between management agencies and provide for legitimised management action. Thus the advantages of integrated marine management, according to its advocates lie in its capacity to address the 'big picture', long-term aspirations and cumulative effects. Indeed, as a result of its comprehensive perspective, general consensus amongst the supporting literature³⁸ suggests that integrated management can:

- minimise delays in implementation;
- minimise damage to the marine environment and its resources;
- minimise loss to users;
- make the most efficient use of available infrastructure, information and technology; and
- reduce resource use conflicts.

Advocates defend the theoretical foundations of the process and place it within the context of 'democratic problem-solving'.³⁹ Certainly an orientation that potentially provides for recognition of diverse values, linkages between sectors, more effective communication, and coordination has much to offer.

³⁷ 'Improved sectoral management is dependant on better understanding of the multiple extrinsic and intrinsic linkages within and across sectors. These environmental, economic and social linkages and the spillover effects of unsustainable sectoral development should no longer be ignored as in the past but must be addressed in formulation of (integrated management) programs' (World Bank 1992a). See also Kenchington 1991; Grinlinton 1992; OECD 1992; Chua 1993; Kenchington & Crawford 1993; Olsen 1993; Cicin-Sain 1993a; and Cicin-Sain 1995.

³⁸ See Underdal 1980; Maheswaran 1985; Lang 1986a; Levy 1988; OECD 1989; Smith & Vallega 1991; Clark 1991; Clark 1992; DEA 1992; Scura, Chua et al. 1992; Grinlinton 1992; Hildebrand & Norrena 1992; Miles 1992; World Bank 1992b; Chua 1993; Cicin-Sain 1993a; Dahl 1993; Ehler & Basta 1993; Jansen, Klein et al. 1993; O'Riordan & Vellinga 1993; OECD 1993; Pernetta & Elder 1993; Boelaert-Suominen & Cullinan 1994; Haward 1995; GESAMP 1996; Olsen 1996; and Cicin-Sain & Knecht 1998.

³⁹ See for example, Clark 1992; Chua 1993; and IPCC 1994.

In summary, integrated marine management seeks the resolution of complex problems in the marine environment within a holistic framework. By virtue of its comprehensive perspective, IMM attempts to take into consideration all relevant issues to the management focus, and to provide the necessary arrangements for identification and evaluation of the benefits and costs associated with those issues. IMM is not a substitute for sectoral management, however. As an approach which attempts to reduce resource-use conflicts, to coordinate interests, and to maintain the functional integrity of marine ecosystems, IMM is but one means for moving towards ecologically sustainable development. Nevertheless, despite growing acceptance of integrated management as a solution to ongoing marine management concerns, there is some scepticism as to the practicality of the process, given a number of constraints and basic obstacles to it.

3.2.3 Integrated Marine Management: the Paradigm

While significant developments have occurred internationally in marine protection, conservation and management, sectoral management of marine areas prevails. A number of reasons for this have been identified. Weide (1993) lays blame with political and legislative constraints and limited public awareness of the process. Vallejo (1993: 171) believes that integrated management has not been able to obtain full support because it has largely evolved in isolation from mainstream development processes, and has therefore been left out of national development plans and not commanded institutional or financial commitment. Most impediments to integrated management, as discussed in Chapter 2, stem largely from the entrenchment of sectoral decision-making arrangements and mind-sets and include such factors as:

- the predominance of narrowly-focused, disciplinary scientific information;
- poor understanding of marine resources, ecosystem processes and opportunities;
- uncoordinated policy at various levels of government, and rigid separation of government units with environmental protection responsibilities;
- absence of an environmental mandate in the development policies of sectoral agencies;
- diverse and conceptually isolated decision-making arrangements for allocation and use of resources;
- rigidity and resistance to change or the development of shared responsibilities; and
- the familiarity of proven sectoral management arrangements and methods.⁴⁰

Integrated management is markedly different to conventional planning and management arrangements, and represents a very different way of viewing and approaching resource development and human management. Its implementation therefore requires, amongst other things, a significant change in attitude about societal and environmental problems. Perhaps even more importantly, however, the future of IMM lies in its ability to deal with the challenges identified above in an efficient and cost-effective manner. As Underdal (1980: 165) argues, to establish that integration can in theory lead to some gross benefits for society is not a compelling enough reason to turn resources and attention towards integration efforts.

IMM is not an end, however, but an ongoing *process*, and some analysts suggest that we are in a transition period away from single-use towards more comprehensive style management approaches. Vallejo (1991: 23), for example, states that:

⁴⁰ Refer to USAID 1989; Grinlinton 1992; Chua 1993; and Vallejo 1993.

we are reaching the beginning of a new phase, as indicated by strong technical, economic, social, and political patterns that presage changes, and with them the appearance of political, institutional and planning decision-making directed to the effective incorporation of the EEZ within the framework of national development planning.

Nevertheless the focus of integrated management to date has generally been the coast, and particularly terrestrial issues on the coast.⁴¹ Management of the marine environment seaward of the coast is arguably a simpler prospect given the reduced complexity of jurisdiction and responsibilities the further seaward one goes (World Bank 1992b; Cicin-Sain 1993a). However, there is temptation to assume that as integrated *coastal* management has proven difficult, integrated *marine* management will also be difficult to implement, and indeed evidence (explored at some length in the following chapters) suggests that the 'take off from theory to practice' is yet to occur.

3.3 SUMMARY

Due to concern about current levels of environmental degradation and multiple-use conflicts, there is growing demand for alternative, comprehensive environmental management arrangements. Integrated marine management is one approach that incorporates a comprehensive perspective, and which is therefore promoted as a means to achieve ecologically sustainable development. IMM is based on the integration of interests, information, values, legal and administrative processes within decision-making arrangements. Consequently, integrated management has been argued by some as an irrational, impossible attempt at managing *everything*. The ongoing prevalence of sectoral management and major impediments to integrated management that have been identified by a number of analysts, furthermore, raise serious questions about whether the concept has or can be put into practice.

IMM may be seen as an alternative, supplementary method of dealing with complex, essentially human management issues in the marine environment. The practical feasibility of the concept, however, remains to be determined. The following four chapters incorporate an analysis of integrated marine management in practice with respect to identified case studies in three federal nations, namely, Australia, Canada and the United States. Based on an analytical framework comprising ten criteria of integrated management identified in Chapter 1, case studies are analysed and presented country-by-country. Chapter 7 provides an overview of comparison within and between countries, also on the basis of the common analytical framework. While the *concept* of integrated management identified in this chapter may be seen to be broadly similar across the literature, the next four chapters explore the widely divergent *practice* of IMM across a range of contexts.

⁴¹ See, for example, Clark 1991; Sorensen 1993; Boelaert-Suominen & Cullinan 1994; IPCC 1994; and Cicin-Sain & Knecht 1998.

PART III

INTEGRATED MARINE MANAGEMENT IN PRACTICE: SELECTED CASE STUDIES IN THREE FEDERAL NATIONS

Introduction

Chapters 2 and 3 examined integrated management as a concept and paradigm within the marine context. The following chapters present a critical appraisal of integrated marine management in practice. An introduction to federalism is presented below, followed by a brief summary of the nature of federal marine jurisdiction and management in Australia, Canada and the USA. An analysis of seventeen case studies (see Table 3) throughout Australia, Canada and the USA respectively, follows

Table 3. Summary of Integrated Management Case Studies in Australia, Canada and the USA

Country/Program	Year Initiative Commenced
AUSTRALIA	
Coasts and Clean Seas Initiative	1997
Great Barrier Reef Marine Park	1975
Ningaloo Reef Marine Park	1987
Great Australian Bight Marine Park	1998
CANADA	
Canada Oceans Act	1997
Federal Marine Protected Areas Program	in development
Atlantic Coastal Action Program	1991
Coastal 2000	in development
Marine Protected Areas Strategy for the Pacific Coast	in development
British Columbia/Washington State Environmental Agreement	1992
USA	
United States Oceans Act	in development
Coastal America	1992
Coastal Zone Program	1972
National Marine Sanctuary Program	1972
National Estuarine Research Reserve System	1972
National Estuary Program	1987
Agreement on Conservation of the Marine Environment of the Gulf of Maine	1989

By way of background information for each country, the division of powers with respect to the marine environment is briefly discussed. The legal regime (defined by the courts) is distinguished from the political regime (developed by government negotiations), and a brief history of marine management in each nation is introduced. Case studies are assessed (on the basis of the ten criteria of integrated management identified in Chapter 1) within the context of their national or regional significance, and from the point of view of program *objectives* as well as *outcomes*. Relying on the information and analysis presented in the next three chapters, Chapter 7 compares and contrasts this case evidence.

It should be emphasised that the data and information analysed in the following chapters was collected between 1993 and 1998. As at early 1998, a number of initiatives remained under development or were yet to be implemented, and considerable changes are like to have occurred since this time. The analysis presented in the following three chapters is therefore necessarily preliminary in nature and ongoing work is required to assess the outcomes of integrated marine management initiatives over time.

Federalism in the Marine Context

National government systems may be broadly categorised as either unitary or federal. In unitary systems governmental authority rests with the central government which ultimately has the full capacity to determine governmental priorities and policies. In a federal system, power is constitutionally divided between the central government and sub-national government units. In the marine context this tends to result in the federal government and sub-national government units sharing responsibility for the management and regulation of coastal and offshore areas and activities (Juda & Burroughs 1990: 33). It also tends to result in fragmentation of responsibility, complex administrative arrangements and therefore an increased potential for overlap, duplication and conflict.

A number of contemporary studies have examined the role that federalism plays with respect to environmental management.¹ The interplay between and within national, sub-national, regional and local levels of government, has the potential to significantly influence the nature of environmental management arrangements. This is particularly so within the marine context where the full hierarchy of responsibilities and interests converge. Fragmented, uncoordinated decision-making has often been symptomatic of federal government systems (Harrison & Parkes 1983), and as resource scarcity and concern over environmental health has grown, the potential for government units to clash in authority and responsibility has increased.

Given these concerns, there have been a number of appeals for review of federalism.² However federal government is unlikely to change in the short-, or even long-term, and arguments for a *new* system of government are outweighed by the potentially more attainable argument for *coordination* within the federal government system.³ Furthermore, federalism allows for the participation of many different groups, jurisdictions and concerns within the policy making process, and it therefore has the potential to reduce the probability of policy failure.⁴ Haward (1996) argues that a federal division of powers can promote increased innovation, heightened responsiveness to different contexts and conditions, and the solution of regional problems. Thus while federalism may create some difficulties in defining coordinated or 'nationwide' policy, it has the advantage that institutional arrangements can be created to meet a wide variety of particular needs.

¹ See for example, Warren 1981; Stephen 1987; Lester 1990; Davis 1991; Galligan & Fletcher 1993; Simonis 1993; Kay 1995; Fitzgerald 1996; Holland, Morton et al. 1996; Kellow 1996; Morton 1996; Rothwell & Haward 1996; Saunders 1996; Skogstad 1996; and Caldwell & Bartlett 1997.

² Refer to Saunders 1996.

³ See, for example, selected authors in Holland, Morton et al. 1996.

⁴ See Warren 1981; Galligan & Fletcher 1993; and Caldwell & Bartlett 1997.

Australia, Canada and the USA

Australia, Canada and the USA are three federal nations which delegate responsibilities and powers between national and sub-national levels of government. Yet all three countries have unique histories, a broad range of physical characteristics, and divergent socio-economic and political structures, all of which influence patterns of utilisation and marine based activities. Australia and Canada are also middle powers pursuing national interests within a regional setting. Both are responsive to a changing political climate, both have comparatively small populations, and environmental degradation has often been much slower and less intense in Australia and Canada than in other parts of the world such as the USA. The USA in contrast, is characterised by its international political dominance, a large population, and widespread marine environmental degradation and pollution. The EEZs of the Canada, Australia, and the USA rank respectively as the world's first, second and fourth (see Table 4.). However maritime boundaries in all three nations have been determined by historical events and practices predating ecosystems and biogeographic zones as organisational concepts: maritime boundaries have been predominantly arbitrarily determined (from both a political and an ecological perspective), raising significant issues for comprehensive, coordinated marine environmental management.

Table 4. Comparison of Selected Variables in Australia, Canada and the USA.

	AUSTRALIA	CANADA	USA
<i>Population</i>	18 million	30 million	268 million
<i>Percentage of population living along the coast</i>	75%, primarily in major cities within 50 km of the shore	23%, within 60 km of the shore	60%, in small coastal towns
<i>Land area</i>	7 686 000 sq km	9 976 000 sq km	9 629 000 sq km
<i>Coastline length</i>	36 700 km	243 800 km	19 800 km
<i>No. of states/provinces;</i>	States/territories: 8	Provinces: 12	States: 52
<i>No. of coastal states/provinces</i>	Coastal states (and territories): 8	Coastal provinces: 10	Coastal states: 21
<i>Surrounding oceans</i>	Pacific Indian Southern	Pacific Atlantic Arctic	Pacific Atlantic
<i>LOSC signed:</i> <i>LOSC ratified:</i>	signed: 10/12/1982 ratified: 05/10/1994	signed: 10/12/1982 not ratified	not signed not ratified
<i>EEZ declared</i>	01/08/1994	31/01/1997	10/03/1983
<i>EEZ area</i>	14.8 million sq. km	16.8 million sq. km	8.8 million sq. km
<i>Constitutional arrangement</i>	federal powers listed; residual powers to states	provincial powers listed; residual powers to federal government	federal powers listed; residual powers to states

Source: VanderZwaag, Davis et al. 1996; CIA 1997; Cicin-Sain & Knecht 1998.

Major national reports and inquiries in Australia, Canada and the USA⁵ concur that each nation faces, to a greater or lesser extent, declining fisheries, degraded foreshores and polluted coastal waters. While the greatest impact of these problems have been identified in *nearshore* areas, the nature of the marine environment means that such issues are not isolated or confined to the coast. There is some consensus as to the challenges to effective management of marine areas. These challenges include:

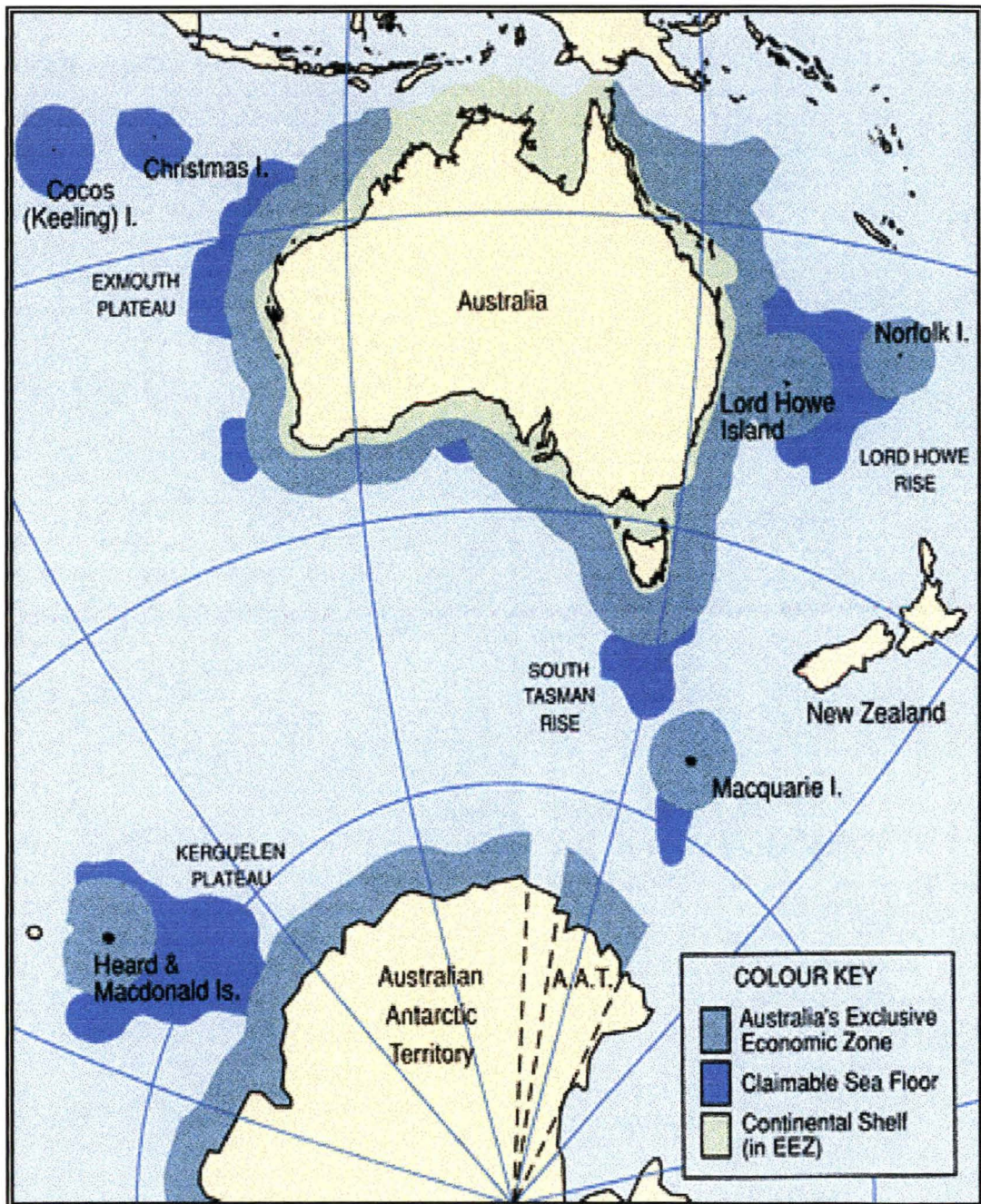
- conflicting political and ecological boundaries;
- overlapping areas of human use and activity;
- unresolved arguments regarding the role of the federal government in decision making and the degree of federal intervention which should occur, especially at the management level;
- lack of communication and coordination between and within differing levels of government, and between government decision makers and other stakeholder interests;
- reluctance of management agencies to relinquish management powers or responsibility;
- continuing environmental degradation; and
- inappropriate management approaches.⁶

Shared problems do not however, always result in similar management outcomes. The Constitutions of the USA, Canada, and Australia were written long before environmental degradation became a salient public issue: indeed, the 'environment' as a concept, is not directly referred to in any of the documents. Kellow (1996) argues that this is not so much due to oversight but because 'environmental' concerns were not issues of the time. The formal constitutional division of power in all three countries has altered little since their writing though the political system has adapted to the emergence of environmental concerns by allocating roles and responsibilities for sub-national and national governments concurrently. Nevertheless, there are some important differences between the three countries in question, in the nature and extent of national and sub-national government responsibilities. As will be explored in the following chapters, the impact of federalism, differences in constitutional and jurisdictional division of powers, and divergent geographic, political and socio-economic contexts have the potential to significantly influence the process of integrated marine management.

⁵ In Australia there have been a number of major inquiries conducted between 1980 and 1998, all of which have reached the same general conclusions about pressures on the marine, and particularly the coastal environment. Canada has not been so prolific in its analysis of the marine environment and management. The most comprehensive investigations undertaken by Canada have been federal and regional *State of the Environment* Reports which include reference to ocean and coastal areas (see, for example, Canada 1991; Eaton, Gray et al. 1994). In the United States the 1969 Stratton Commission Report (Commission on Marine Science Engineering and Resources 1969), is the major inquiry conducted which includes comprehensive analysis of the management of US maritime jurisdictions (see Appendix I of this Thesis).

⁶ See, for example, Commission on Marine Science Engineering and Resources 1969; Canada 1991; House of Representatives Standing Committee on Environment 1991; RAC 1993a; Eaton, Gray et al. 1994; and Zann 1995.

Map 1. Map Showing Exclusive Economic Zone of Australia



Source: Zann 1995

Chapter 4.

AUSTRALIA

4.1 INTRODUCTION

Compared to the United States and Canada, Australia has a small number of states, *all* of which have coastal concerns. Australia's coastline is the longest ice-free coastline in the world at 25 800 km and most of the population of 18 million live in comparatively large, coastal cities. The coast is an important icon in the Australian identity, while the oceans beyond the coasts have provided the means for transportation, communication and trade essential to the island nation. Hildreth (1992: 166) argues that given comparison between populations, industry, coastal recreation, and tourism, Australia is the most 'coastal oriented' of Canada, the United States and Australia. Nevertheless marine environmental management and protection has lagged far behind that of the land¹, though due to changes in resource use, international developments and environmental concern, the Australian maritime jurisdiction has come under increasing scrutiny both for its resource potential and management responsibilities.

4.1.1 The Constitutional Division of Powers in Australia

The Australian Constitution was drafted in the 1890s when there was little appreciation of the importance of the natural environment, or of ocean and coastal affairs (Rothwell 1996). Following the conclusion of World War I, Australia and other Dominions such as Canada began to take a greater interest and role in foreign relations. This activity culminated in the *Statute of Westminster 1931* which provided full powers to the then Dominions in making laws having extraterritorial operation (Rothwell 1996). Adoption of this statute also allowed Australia to take a more active role in its offshore areas.

From the time of federation in 1901, the Australian Constitution has enumerated the powers of the federal government (Sec. 51), leaving all the residual powers to the States. The Australian Constitution does not refer explicitly to the environment, or allocate powers specifically for its governance. However, principally through its powers to legislate with respect to corporations (Sec 51(20)), external affairs (Sec 51(29)), and control in fiscal matters with regard to state spending (Saunders 1996)², the Commonwealth Government has, as a consequence, very extensive powers to regulate and otherwise influence activities that affect the environment. In accordance with these powers, a range of legislation³ has been established that enables the Commonwealth Government to perform certain functions in the national interest in

¹ For example, the terms of reference for a 1993 report by the House of Representatives Standing Committee on the Environment, Recreation and the Arts on the role of protected areas in the maintenance of Australia's biodiversity, retains a terrestrial focus: 'the adequacy of Australia's current system of terrestrial parks and reserves to sustain biodiversity and adaptive evolutionary processes...' (House of Representatives Standing Committee on Environment 1993).

² Unlike the USA and Canada, the power to make grants to the States is specifically conferred on the Australian Commonwealth government by the Australian Constitution, Section 96. Through such designation of funding, the Commonwealth may exert some control or influence in program structure and designs of State government.

³ Examples of Commonwealth legislation enabling the Commonwealth to perform functions of a national interest include the *Environment Protection (Impact of Proposals) Act 1974*, *Australian Heritage Commission Act 1975*, and the *World Heritage Properties Conservation Act 1983*.

relation to such matters as land use, identification of places with National Estate values, and environmental protection (RAC 1993f). Particularly with regard to its constitutional power to make and implement international treaties, the Commonwealth Government has become increasingly active in enacting legislation in the environmental area. However, due largely to the State ownership of, and responsibility for, public lands, for the most part environmental matters have become a State concern under the Australian Constitution.

Problems associated with the allocation of powers over the environment in Australia became a prominent concern when a number of international developments began to draw attention to environmental jurisdiction and rights particularly within the offshore area. Commonwealth-State negotiations in relation to the legislative basis for offshore mining, for example, began during the 1960s. These negotiations resulted in a common mining code enacted by the *1967 Offshore Petroleum Agreement* which sought to avoid problems with the constitutional division of powers rather than alter them. However, a report issued in response to the *Offshore Petroleum Agreement* by the Senate Select Committee on Offshore Petroleum Resources concluded that the national interest was *not* served by leaving the extent of State and Commonwealth authority unresolved. Passage of the *1973 Seas and Submerged Lands Act* subsequently followed asserting sovereignty in right of the Commonwealth (as against the States) over the continental shelf. In an attempt to clarify matters constitutional matters further, the High Court upheld the Commonwealth sovereignty in right of the Commonwealth over the territorial sea in *New South Wales v. Commonwealth* (1976). The High Court decision did not completely resolve complications, however, as States were found to continue to have power to regulate offshore activities such as coastal fisheries.⁴ A reordering and readjustment of Commonwealth and State powers and responsibilities was found to still be required and an agreement known as the *Offshore Constitutional Settlement* was developed to resolve matters.

Offshore Constitutional Settlement (1979)

The Offshore Constitutional Settlement (OCS) arose from continuing uncertainty over offshore jurisdiction, and the need for cooperation in legal aspects of offshore areas. It was adopted at a Premier's Conference in June 1979 and includes a range of 'agreed arrangements' governing Commonwealth-State relations relating to the management of marine resources. Agreed arrangements cover sectoral interests such as oil and gas, other sea-bed minerals, fisheries, marine parks, historic shipwrecks, ship sourced marine pollution, shipping and navigation, and crimes at sea. In a practical sense the OCS results in State sovereignty and jurisdiction over adjacent offshore areas out to 3 n. miles, and it provides an administrative and regulatory framework for national cooperation (RAC 1993a). Enabling legislation of the Settlement are the *Coastal Waters (State Powers) Act 1980* and the *Coastal Waters (State Title) Act 1980* which in essence give each State the same powers with respect to the territorial sea (including the sea bed) as it would have if the waters were within the limits of the State.

The legislative design of the OCS overcomes some of the problems of jurisdictional fragmentation by enabling the establishment of cooperative inter-governmental arrangements. It also provides an important framework for Australian marine policy and its impact has been considerable. For example, the Settlement guarantees that State and Territorial laws extend seaward of the high-water mark. Rothwell (1996: 51) argues that the OCS also ensures that a 'federal cooperative approach will continue to be adopted with respect to the management of the Australian offshore'. However, the agreed arrangements reinforce a narrow, sectoral basis to marine resource

⁴ The ruling of the High Court in *Pearce v. Florenca* (1976) 135 CLR 507, for example, upheld application of State fisheries laws in the territorial sea.

management, and a number of jurisdictional issues, particularly with regards to the management of the marine environment, still remain unresolved.⁵

4.1.2 The Jurisdictional Division of Powers in Australia

An Australian Fishing Zone (AFZ) extending 200 n. mile offshore was declared in 1978 under the federal *Fisheries Act 1952*. An Exclusive Economic Zone (EEZ), also extending 200 n. miles offshore, was declared by Australia on 15 August 1994 under the *Maritime Legislation Amendment Act 1994*. The EEZ has not replaced the AFZ, however, and amendments to the *Fisheries Act* provide that the AFZ is now defined consistently with the EEZ. Ratification of the United Nations Convention on the Law of the Sea by Australia on 5 October 1994, confirmed Australia's control and management responsibilities over its EEZ, an area larger than the total land mass of Australia (see Map 1.).

Australian policy directed at the management of its marine areas is shaped by political, legislative and administrative overlap between the Commonwealth, State and local governments. Problems with the allocation of *responsibilities* between the Australian national and State governments emerged in the 1980s reflecting a growing international awareness for, and a concern over, environmental matters. Clarification of roles and rationalisation of environmental responsibilities is now seen as the most 'pressing current issue' facing Australian governments (Saunders 1996).

The Australian Constitution favours a centralised model of federalism, and moves towards greater centralisation of powers have been favoured by successive Commonwealth Governments. Many non-government conservation groups have also argued for greater Commonwealth powers and more national legislation on coastal and ocean management (Krockenberger 1992). However, State interest in coastal areas remains strong, and the Commonwealth has ultimately most often taken a coordinative role rather than one of leadership. A commitment to a 'new federalism' in Australia announced in 1990 for example, detailed an approach to environmental management whereby rather than *coercion* of the States by the Commonwealth, *cooperation* between the two levels of government would be sought (Holland, Morton et al. 1996). The most significant result of this initiative to modernise the operation of the Australian federal system was the signing of the *Intergovernmental Agreement on the Environment* (IGAE) in 1990 which finally came into effect in May 1992 after intense negotiations between the Commonwealth, all States and Territories and the Australian Local Government Association.

The Intergovernmental Agreement on the Environment (1990)

The Intergovernmental Agreement on the Environment (IGAE) is a culmination of discussions conducted at a Special Premier's Conference in October 1990. At this Conference it was agreed to develop a mechanism by which to facilitate:

- a cooperative national approach to environment;
- better definition of roles and responsibilities of respective governments;
- reduction in duplication of effort;
- reduction in conflict;
- making total costs and benefits of decisions explicit and transparent;
- greater certainty for government and business; and
- improved environmental protection.

⁵ The OCS has not conclusively resolved jurisdictional issues in the marine environment, particularly where a conflict of law and policy arises, such as in the case of inshore and offshore fisheries, energy exploration rights, oil and gas royalties and a variety of conservation and development proposals. See, for example, Rothwell & Haward 1996; and Rothwell 1996.

A number of subsequent initiatives such as ministerial councils and other inter-governmental agreements have reinforced moves towards cooperative partnerships between Australian governments (RAC 1993a), but the IGAE stands as a major watershed in Australian Commonwealth-State relations over the environment.

The IGAE is designed to 'improve intergovernmental coordination of environmental management' and as such to 'provide better environmental protection' (Commonwealth of Australia 1992b). It defines a framework for integrating Commonwealth, State and local government policy, and establishes some general principles to guide environmental policy. The IGAE also reaffirms that States hold major responsibility for the environment, but that the Commonwealth Government is an important facilitator in the development of national environmental standards and guidelines (Krockenberger 1992). The Agreement makes specific reference to marine and coastal management, and has significant impact in such issues as stock-based fisheries management, and joint management of marine parks which transcend the territorial sea limits (such as the Great Barrier Reef Marine Park). However, the Agreement does not encompass the wider global agenda of the EEZ and high seas, and there are no legal mechanisms specified for ensuring adherence to national standards.

Krockenberger (1992) argues that the Agreement can be viewed as the Commonwealth taking a more 'hands off' attitude towards environmental protection. Notwithstanding, as a result of disputes over a number of issues including control over environmental and land rights concerns, Western Australia withdrew from the IGAE at the end of 1993. This partial collapse of the IGAE is argued to have hindered the development of national environmental standards (Kellow 1996). It has also significantly constrained national responses to cross-jurisdictional issues such as pollution control, though the Agreement has rarely been tested in either policy or law.

4.1.3 Marine Management in Australia

During the period between 1950 and 1990, Australia's oceans policy was largely domestic and 'very much a testing ground of jurisdiction and management between the Commonwealth and the States' (Davis 1996: 36). A wider global ocean perspective has emerged in recent years, encouraged by the advent of the United Nations Convention on Environment and Development (UNCED) in 1992, and the entry into force of the Law of the Sea Convention (LOSC) in 1994. The decision to create an Australian EEZ in 1994, however, occurred with little apparent regard for management implications. Given fiscal and political restraints, the Commonwealth Government is only just beginning to grapple with the concept of new responsibilities and priorities, and thus the need to finally resolve institutional and management arrangements in one of the largest maritime jurisdictions in the world.

The need for a comprehensive review of Australia's marine programs, policy and initiatives has been discussed for some years.⁶ One of the first attempts to coordinate government activity with regards ocean and coastal management in Australia was the creation of the Council of Nature Conservation Ministers (CONCOM) during the 1970s, and a technical working group since renamed the Australian and New Zealand Environment and Conservation Ministerial Council (ANZECC). Two other administrative arrangements have subsequently evolved to tackle issues such as inter- and intra-governmental coordination in coastal and ocean affairs. These arrangements are the *Heads of Marine Agencies (HOMA) Group*, which pursues broad governmental coordination, and the *Council of Australian Governments (COAG)*, which was established in 1991 as a means of resolving policy issues applicable to all Australian governments, including local government. COAG's Intergovernmental Committee on Ecologically Sustainable Development has considered ocean management issues specifically and was assigned an important role in managing the development of the Australian Commonwealth Coastal Policy (see Section 4.2.1).

⁶ See, for example, Suter 1983; and Bergin 1986.

Box 1.**National Water Quality Management Strategy (1992)**

The Australian and New Zealand Environment and Conservation Council (ANZECC) and the Australian Water Resources Council (AWRC) have developed a national water quality management strategy that seeks to manage Australia's water resources on a sustainable basis (ANZECC 1992). The national Water Quality Management Strategy aims to provide the information and tools to help communities manage their water resources to meet current and future needs. It details policies, a process and a series of national guidelines for water quality management and is part of the *National Program for Ecologically Sustainable Development*. States and Territories are to develop appropriate action plans for the waters of their region. These action plans are intended to flow from the national policies and guidelines after taking local conditions and community needs into account. A number of principles to water quality management guide the approach to achieving the Strategy's objectives. These principles include: an integrated approach to water quality management; ecologically sustainable development; community involvement in setting water quality objectives and developing management plans; and government endorsement of the water quality objectives.

National Strategy for the Conservation of Australia's Biological Diversity (1996)

Australia ratified the international Biodiversity Convention on 18 June 1993 and both Commonwealth and State governments have since begun to address the issue of conservation of marine biodiversity within the Australian EEZ. The National Strategy for the Conservation of Australia's Biodiversity is the means by which the International Biodiversity Convention is to be implemented domestically, and it recommends, among other things, implementation of a marine conservation strategy for Australian coastal waters and the EEZ (Commonwealth of Australia 1996). The Strategy highlights deficiencies in knowledge and data, the inadequacy of the protected area system, and the lack of resourcing and coordination. It also calls for 'greater consistency in approaches between governments and improved information flows between all sectors of the community' (Commonwealth of Australia 1996). The Strategy was produced in the spirit of cooperation fostered by the IGAE, and meets the requirements of the *National Strategy for Ecologically Sustainable Development*.

National Strategy for Ecologically Sustainable Development (1992)

The National Strategy for Ecologically Sustainable Development (ESD) was developed because of the perceived significance of threats to the environment and economy if action was not taken to address resource management issues at the regional, national and international levels. It is intended as a framework by which all stakeholders, governments and community groups can work together to achieve 'integrated economic and social goals' (Commonwealth of Australia 1992a). The primary goal of the National Strategy is 'development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends' (Commonwealth of Australia 1992a). This goal is supported with a statement of objectives which include considerations of equity, biological diversity and the well-being of individuals and communities. Seven guiding principles form the crux of the Strategy and are intended as the foundation upon which resource and environmental management in Australia are to be based (Commonwealth of Australia 1992a). The Strategy has important implications for marine environmental management in that it requires the maintenance of marine ecosystem functioning, a large-scale or 'systems' approach to marine management, the maintenance of water quality, designation of marine protected areas, and monitoring of marine systems because of scientific uncertainty.

The concept of a national approach to marine management in Australia has been discussed for many years, and large number of major reports have called for national policy whether directly or indirectly (see Appendix I for a full listing of reports and inquiries since 1970). Though at a national strategic level some major difficulties remain⁷, numerous management initiatives, as well as a number of broad-based agreements provide a strong basis for comprehensive marine management in Australia.⁸ These include the National Water Quality Management Strategy, and the National Strategy for the Conservation of Australia's Biological Diversity, and above all, the National Policy on Ecologically Sustainable Development (see Box 1.).

4.2 NATIONAL INITIATIVES

4.2.1 Coasts and Clean Seas Initiative (1997)

Despite many repeated calls for an Australian national oceans policy Australia has only recently begun concerted development of a national approach to the management of its resources. On 8 December 1995, the Commonwealth Government announced agreement to the development of a coordinated framework of management for Australia's coastal and ocean areas. This announcement made in conjunction with momentum generated by a Commonwealth Coastal Policy, an Ocean Rescue 2000 program, and Australia's ratification of the United Nations Law of the Sea Convention in 1994. A change of national government in March 1996 slowed the progress of negotiations. However the new government affirmed its intention to develop a national marine management framework and a program package known as the Coasts and Clean Seas Initiative was subsequently announced.

The Coasts and Clean Seas Initiative (CCSI) is an Australian Commonwealth Government initiative comprising a host of repackaged coastal and ocean management programs many of which were established by the previous government. One of these programs, the Ocean Rescue 2000 program, was launched in August 1991 and may be seen as a major catalyst of the CCSI and of the development of a national approach to marine environmental management in Australia as a whole.

⁷ For an assessment of problems associated with the development of coordinated, comprehensive and effective approaches to marine environmental management in Australia, see House of Representatives Standing Committee on Environment 1991; RAC 1993a; and Zann 1995.

⁸ Land sourced marine pollution, for example, has become a significant concern for Australian governments in recent years, prompting Australia, among 109 other States to adopt a Global Program of Action for the Protection of the Marine Environment from Land-based Activities. This Program of Action provides a strong basis for domestic and regional implementation of international pollution standards, see, for example, Williams & Davis 1995; MacDonald 1995.

Box 2. Coasts and Clean Seas Initiative Sequence of Events

1980s	Increasing political recognition of the importance of environmental protection and conservation.
1989	(July) Prime Minister's statement 'Our Country, Our Future' referred coastal zone management to the newly established Resource Assessment Commission (RAC).
1990	(28 Nov) Prime Minister's statement on the environment 'Our Country. Our Future' confirms recognition of the importance of marine protected areas at the IUCN 18th General Assembly.
1991	'Injured Coastline' report released, acting as a catalyst for the development of a Coastal Policy; RAC commissioned to conduct an inquiry into the management of building, tourism and mariculture and associated development in the coastal zone, enabling the Coastal Zone Inquiry to formally begin; (20 Aug) Ocean Rescue 2000 launched; 1991 - 1992 financial year A\$660 000 was allocated to state/territory agencies for 17 Ocean Rescue 2000 Marine Protected Area (MPA) projects.
1992	The National Strategy for Ecologically Sustainable Development released, providing further impetus for the national coastal policy; (Nov) Resource Assessment Commission's Coastal Zone Inquiry research program began; (Dec) Draft Commonwealth Coastal policy released for public comment; (Dec) Further recognition of marine conservation needs within the Prime Minister's statement on the environment, 'Australia's Environment; A Natural Asset', including commitment to provide approximately \$3m additional funding for the Ocean Rescue 2000 (OR2000) program over the next four years; 1992 - 1993 A\$894 000 was allocated to state/territory agencies for 12 Ocean Rescue 2000 MPA projects.
1993	(April) Marine and Coastal Community Network launched; (Nov) Coastal Zone Inquiry Final Report released recommending a National Coastal Action Program, Coastal Resources Management Act, and a National Coastal Management Agency 1993 - 1994 A\$626 800 was allocated state/territory agencies for MPA initiatives.
1994	(March) Implementation and Performance Plan for OR2000 released; (June) Commonwealth government responded to RAC report by forming an Intergovernmental Coastal Working Group.
1995	Announcement in 1995/96 commonwealth budget of \$53m package of measures relating to improving Australian coastal management; (13 Feb) State of the Marine Environment Report 'Our Sea, Our Future' (Zann 1995) launched; (28 May) Commonwealth Coastal policy released; (8 Dec) Commonwealth agreed to a proposal for the development of a coordinated policy on the management of Australia's marine resources.
1996	(2 March) Change of government; (6 June) Minister appointed coordinator for the development of an oceans policy.
1997	(3 March) Prime Minister announced development of Australia's Ocean Policy and launched public consultation processes; (March and May) Initial public process inviting submissions and comment on a consultation paper concerning a new National Oceans Policy; (22 July) 'Coasts and Clean Seas Program' officially launched; (2 - 3 Dec) Oceans Policy Forum convened.
1998	The Australian Oceans Policy in development.

Ocean Rescue 2000 (1991)

In response to increasing threats to Australia's marine environment, criticism of the piecemeal approach towards marine protected areas, and the lack of ecological criteria used in the development of marine protected areas, the Commonwealth Government announced its intention to work towards the expansion of Australia's marine reserve system (Hawke 1989). Aimed as a principle mechanism by which the government intended to implement this commitment, the 10 year Ocean Rescue 2000 (OR2000) program was introduced in 1991 (de Macedo 1995). Given its basis for development, OR2000 originally focused on the designation of marine protected areas. However the scope of the initiative quickly broadened to include conservation and sustainable use of the marine environment of Australia as a whole. Six inter-related elements were ultimately devised within the context of OR2000 to provide a comprehensive framework allowing for integration with existing programs, and a coordinated approach to marine conservation in Australia.

A number of important achievements were made by OR2000. These achievements include promotion of the importance of public education, an increase in environmental awareness amongst communities, and contribution towards a knowledge of marine environments. Two elements of OR2000 in particular remain as cornerstones in the ongoing development of a marine management framework: the Marine and Coastal Community Network, a non-government, community-based network which acts primarily as a forum for consultation and dissemination of information between government and non-government sectors⁹; and the State of the Marine Environment Report (SOMER) for Australia (Zann 1995), which provides the first comprehensive scientific description of Australia's marine environment and external territories. SOMER concentrates primarily on coastal and continental shelf areas as well as the issues within coastal catchments that affect the marine environment. It also identifies a number of key factors contributing to poor management of Australia's marine environment.¹⁰ The top 5 concerns identified by the SOMER (Zann 1995) are:

- declining marine and coastal water/sediment quality, particularly as a result of poor catchment land use practices;
- loss of marine and coastal habitat;
- unsustainable use of marine and coastal resources;
- lack of marine science policy and lack of long-term research and monitoring of the marine environment; and
- lack of strategic, integrated planning in the marine and coastal environments.

Administration of OR2000 was directed principally by the Commonwealth Government through powers to grant States financial assistance, and financial support during the Program's initial development was broad and generous.¹¹ Designation of marine protected areas through OR2000 was nevertheless slow, and many of the proposed elements of the program have never been implemented. Criticism of OR2000 has targeted such issues as lack of established stakeholder consultation processes, poor recognition of personal efforts within the structure of the initiative (Chircop pers. comm 1995), and an absence of performance indicators and time-

⁹ See Zann 1995; Kriwoken & Cote 1996; and Marine and Coastal Community Network 1996.

¹⁰ 'Australia does not have a clear direction or agreed national strategy for managing its marine or coastal environments. The lack of strategic planning in the coastal zone has been identified as a major problem in a number of Commonwealth and State inquiries...Coastal zone management must consider the high degree of connection of land and sea...the many human activities which span the land/sea interface, the wide dispersal of marine organisms and pollutants by currents, and the different administrative jurisdictions involved' (Zann 1995: 94).

¹¹ Funding for the OR2000, was boosted in 1992, for example, from A\$1.8 to A\$4.8m primarily to target areas of significance for marine conservation and to expand the consultation process within the program (Haward 1995).

frames (Kriwoken & Cote 1996). OR2000 has also suffered from a lack of strategic process¹², as well as problems arising from a lack of leadership in the question of how to approach complex marine jurisdictional questions. Since the change in Government in 1996 and subsequent reshaping of the Australian marine management framework, many of the constituent elements of Ocean Rescue 2000 have been modified or abandoned. The principle function of OR2000 has been confined to designation of marine protected areas, though the identity of the program as such appears to no longer exist.

Another major factor which has contributed to the development of a national approach towards marine environmental management in Australia is the Commonwealth Coastal Policy.

Commonwealth Coastal Policy (1995)

The Commonwealth Coastal Policy articulates the role of the Commonwealth Government in Australian coastal matters (DEST 1995). It also provides a framework within which Commonwealth activities that may have impact on the coastal zone might be developed and managed. The Policy seeks to provide a basis for cooperation in the management of coastal areas, and with its release in May 1995, the Commonwealth government expressed a commitment to the achievement of a number of overarching aims, including:

- sustainable resource use;
- resource conservation;
- community consultation and participation; and
- knowledge and understanding of the coastal zone.

The Commonwealth Coastal Policy picks up a key thrust of a Coastal Zone Inquiry conducted by the Resource Assessment Commission (RAC 1993a); namely that the best way to bring about integrated, strategic decision-making is through the development of regional coastal management strategies. To this end, the Coastal Policy outlines the links that exist between it and Agenda 21, outcomes of the 1993 World Coast Conference, and many other domestic initiatives and agencies with responsibilities in the coastal zone. However, the Coastal Policy rejects recommendations for the development of new comprehensive coastal legislation (RAC 1993a), and instead emphasises that existing coastal initiatives should be retained but that links should be established or strengthened between them as necessary (DEST 1995).

As originally designed, the Commonwealth Coastal Policy was to be implemented by means of a program known as the Coastal Action Program. This implementation program consisted of more than 30 interrelated elements based on Commonwealth legislation supported by a participatory, community-based model of coastal management (Haward & Davis 1994). The Commonwealth Coastal Policy and its budget forecasts have been largely maintained (Hill 1996a). However since the change of government in 1996, the Coastal Action Plan has been replaced with the Coasts and Clean Seas Initiative.

Coasts and Clean Seas Initiative (1997)

The Coasts and Clean Seas Initiative (CCSI) is a major component of the National Heritage Trust, a funding mechanism established during 1996. The Trust consists of a total of around A\$1.25 b in funding, to spent over 5 years on initiatives based on five environmental themes: native vegetation; land; biodiversity; water resources; and coasts and seas. Of the total A\$1.25b available, A\$125m are targeted at the CCSI.

¹² Despite the release of an *Implementation and Performance Plan for OR2000* in March 1994, it remained unclear as to what the program hoped to achieve in the 10 years of its existence.

The CCSI is intended to tackle coastal and marine pollution, threats to marine biodiversity and habitat degradation, and promotion of the sustainable use of marine resources. The Initiative is also designed to link closely with the National Heritage Trust's native vegetation, land, biodiversity and river programs in order to ensure a comprehensive approach to conservation and sustainable use. Programs embraced by the CCSI include the following.

- The Clean Seas Program - targeting reduction in pollution of coastal and ocean environments. The program has two major components: a Commonwealth component for problems of a national scale, and a local component for smaller projects assessed through State Assessment Panels.
- The Marine Species Protection Program - targeting the protection of marine species at risk from impacts of human activity.
- The Fisheries Action Program - to support action to restore and protect fisheries habitats and promote sustainable fishing in estuarine and marine areas. This component is intended to complement the *Marine Species Protection Program* and is to be administered by the Department of Primary Industries and Energy in cooperation with States, Territory governments, and community groups.
- The Introduced Marine Pests Initiative - with a focus on ship ballast water and technical solutions to the introduction of exotic pests.
- Oil Spill Atlas - to assist in response to contaminating spills. The Australian Maritime Safety Authority, as managing agency for the *National Plan to Combat Pollution of the Sea by Oil*, administers this component of the CCSI.
- Marine Protected Areas Program - focused on establishing a National Representative System of Marine Protected Areas. The Program is being developed to include areas representative of marine biogeographic regions around Australia, and is proceeding on the basis of cooperation between the Commonwealth, State and Territory governments. The contribution of each State and Territory in establishing its *own* system of marine protected areas is the basis for the creation of the national system.
- Coastcare - initially established under the Coastal Action Program. Now a significant element of the Coasts and Clean Seas Initiative, Coastcare provides as a means by which community involvement (whereby the 'community' is viewed as anyone who has an interest in the coast) in the CCSI can occur. The Program focus is primarily on publicly owned or managed coastal environments, where activities are designed to complement existing (traditionally private-land based) 'Landcare' community management programs.
- Coastal and Marine Planning Program - aimed at strategic planning and development of the coastal zone. Key objectives of the program are to 'minimise the impacts of ad hoc and uncoordinated development in the coastal zone', and to 'minimise the impacts of land-based marine pollutants, particularly those arising from ad hoc development, stormwater, and sewage discharges' (Commonwealth of Australia 1997: 8). The Program is also designed to contribute to Australia's international marine environmental obligations, including the implementation of UNEP's Global Program of Action for the Protection of the Marine Environment from Land-based Activities.
- Capacity Building Initiative - involving education, training and information exchange programs so that decision-makers have sufficient expertise to ensure that coastal resources are used wisely. The Program is directed towards dissemination of information through the Internet, development of industry codes of practice, and professional development and training.

- Coastal Monitoring and Vulnerability Assessment - a program aimed at evaluating and improving management approaches through monitoring coastal and marine environments and to manage potential coastal impacts of climate change.
- Australian Coastal Atlas - originally initiated as part of the Coastal Action Program. The Coastal Atlas has been maintained as an interactive, electronic internet service that provides access to a range of coastal information, as well as networking the combined data holdings of the Commonwealth.
- Development of National Oceans Policy - which is intended as a comprehensive, integrated framework for the management and ecologically sustainable use of Australia's marine jurisdiction and the resources it contains (Environment Australia 1998a). The Oceans Policy is a major element of the CCSI and the Government has committed to provide \$106 million from the National Heritage Trust to support its creation. Development of the Policy was announced in March 1997 and by mid 1998 it remained under development in consultation with interest groups, government, industry and environment organisations. A Marine Science and Technology Plan is being developed in conjunction with the Oceans Policy.

Coasts and Clean Seas Initiative: An Analysis

The CCSI is a framework of programs targeted at coordinated and comprehensive management of marine areas on a national scale. As the Initiative was launched only in July 1997, it is too early to assess its practical operation or implementation outcomes. The objectives, however, of the individual CCSI programs have mostly been established and formalised, and provide the basis of the following analysis.

The component programs of the CCSI support multiple-use, embracing potentially all human activities in, and uses of, the marine environment. There is nevertheless, a strong focus on fisheries, and certain other economic sectors are targeted specifically for management consideration, such as oil and gas exploration, and exploitation.

The CCSI is not limited to Commonwealth waters but covers all jurisdictions within the Australian EEZ. It emphasises comprehensive planning and management, specifying such considerations as: the ecological and physical linkages between ocean and terrestrial systems; taking all values into account in decision-making processes; involving all stakeholders and specifically indigenous interests in planning and management processes; and regional cooperation. Community participation is encouraged through such measures as the Coastcare Program, the Marine and Coastal Community Network, and through information sharing mechanisms such as the Coastal Atlas and the Coastal Monitoring and Vulnerability Assessment Program. Coastcare, in particular, supports a wide range of community-based activities including protection and rehabilitation of sensitive coastal areas, identification of natural and cultural heritage resources, monitoring of coastal environments, and implementation of management plans. Notwithstanding participatory decision-making objectives however, development of the Oceans Policy has been criticised as restricted to certain stakeholders, rather than the community at large (Westcott 1996). Furthermore, consultation processes are focused more on the design of *implementation strategy* rather than *policy formulation* at the national level.

There is some evidence of attempting a balance between top-down and bottom-up planning and management considerations. Morvell, (pers. comm 1994), believes that although policy is largely directed at the national level, management principles mandated by the Commonwealth Coastal Policy represent a growing recognition in Australia of the need for a greater 'bottom-up' approach to environmental management. Earlier calls for the establishment of a lead authority with

comprehensive responsibility for coastal and ocean management¹³ have been abandoned by the CCSI. Instead, the CCSI, and the Australian Oceans Policy in particular, has been designed to build on existing sectoral arrangements and marine management responsibilities. Given that the current administrative framework is argued as one of the principle hurdles to effective marine management in Australia¹⁴, the decision to retain arrangements as they are suggests that the Australian Oceans Policy will provide a poor foundation for integrated marine management. This view is shared by some members of the Ministerial Group on Oceans Policy (Environment Australia 1998a), who suggest that some restructuring of administrative responsibility is necessary for cross-sectoral integration within the marine context.

Government constituency for the development of a national marine management framework in Australia is indicated by the production of numerous major reports and inquiries into management of coastal and marine areas, all of which have implicitly or explicitly called for a comprehensive approach to marine environmental policy and/or management in Australia (Westcott 1996). Both the Commonwealth and State governments have demonstrated financial commitment to the development of the CCSI through allocation of funding and resources to individual CCSI programs.¹⁵ Nevertheless, there is no indication as to how the CCSI will be funded beyond 5 years, or what the future of the component programs will be after this time. Dedicated and non-political (particularly *long-term financial*) support of the CCSI is noticeably lacking, and there is some concern that funds allocated for *environmental* programs from the National Heritage Trust are being spent primarily to assist Australian *industry* concerns, at the expense of environmental protection (Lunn 1997).

Individual components of the CCSI generally lack a strategic process of management to achieve policy objectives (Morvell pers. comm 1994), though there is some consideration of long-term impacts and long-term community benefit. The concept of sustainable development is put forward as the foundation of management, but the concept neither provides a strong visionary drive for management arrangements, nor direction for shorter-term implementation measures. The concept of integrated management nevertheless pervades many of the CCSI programs. Haward (1996), for example argues that the Coastal Action Plan as it was originally proposed, tackled the issue of integration between and within various levels of government in Australia, and that the Commonwealth Coastal Policy stands as a blueprint for achieving integrated management in Australia. It is interesting to note, however, that the federal government of Australia does not view Agenda 21 as a binding international commitment, 'but as a collection of worthwhile proposals that governments at all levels should address and adopt according to their circumstances and priorities' (Campbell 1996).

Coordination is stated as the basis of the CCSI, and is proposed to be delivered through 'coastal memoranda of understanding' between State/Territory, and local governments, and the Commonwealth under National Heritage Trust partnership agreements.¹⁶ Cooperation is a term that tends to be used interchangeably with coordination within the CCSI, and to this end, CCSI program objectives promote *prevention* of conflict and facilitation of communication between stakeholders. That is, the focus of problem solving is 'shared responsibility' and negotiation, rather than the exercise of power. Performance standards, means of evaluation, time-frames for implementation, and processes for review at the conclusion of the initial 5 year funding period, have mostly not been incorporated within the CCSI.

¹³ See McKinnon 1989; House of Representatives Standing Committee on Environment 1991; and RAC 1993a.

¹⁴ See RAC 1993a; and Zann 1995.

¹⁵ See Commonwealth of Australia 1997.

¹⁶ Specifically, the Portfolio Marine Group has been allocated responsibility for coordination of all coastal and ocean programs delivered by Environment Australia, the environment portfolio of the federal Department of Environment, Sport and Territories.

The CCSI incorporates a range of management programs which attempt to comprehensively address most issues and concerns in the Australian marine environment. Principles of integrated management form the basis of many of the CCSI program objectives, however there has been little consideration as to how these principles might be realised in practice. Now that specific programs and some resources have been identified, the real test of the CCSI, and particularly the Australian Oceans Policy, will come during the next few years, when means of making many of the proposed programs operational will need to be developed.

Table 5. Coasts and Clean Seas Initiative Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?*	Comments
multi-sectoral	Yes		No activities excluded from the policy focus
holistic focus	Yes		Land - sea interface acknowledged; not limited to Commonwealth waters
broad, transparent, collaborative decision-making	Partially		Little non-government involvement in policy development
top-down and bottom-up considerations	Partially		Federal - state cooperation; some non-government/community based initiatives
commitment to planning and implementation	Partially		Short-term funding allocated; long-term support lacking
strategic planning and management	Partially		CCCI designed to be in operation for 5 yrs only though some long-term impacts considered
coordination and harmonisation	Partially		Linkages with some existing policies and programs to be made; little innovation in mechanisms for coordination
problem solving/dispute resolution	Partially		Negotiation rather than exercise of power; conflict avoidance rather than resolution
action oriented planning and management	No		
monitoring, evaluation and review	No		

* Given that many components of the Coasts and Clean Seas Initiative are yet to be fully developed, management outcomes as a whole are not able to be assessed.

4.3 REGIONAL INITIATIVES

4.3.1 Great Barrier Reef Marine Park (1975)

The Great Barrier Reef Marine Park is the world's largest multiple-use Marine Protected Area (at 343 800 sq km). The Reef extends some 2 200 km along the east coast of Australia (though much of it lies many kilometres offshore), and it is one of Australia's, if not the world's, most significant coral reef systems. The population of the adjacent lushly vegetated coastline is distributed amongst a number of comparatively small cities and towns. However visitation of the region is estimated to be in the order of around 2 million each year (Zann 1995).

The Marine Park was established in 1975 in response to growing public concern over impacts of petroleum exploration and production, mining, commercial fishing, development of the tourism industry, impacts of terrestrial activity on the Reef, and the need to address the resultant environmental threats to the Reef¹⁷. Jurisdictional responsibility for the Great Barrier Reef is divided between the Commonwealth and State of Queensland governments and since the mid-1960s management of the Great Barrier Reef region has been characterised by ongoing dispute between these two governments in terms of jurisdiction and control over maritime space. Before the introduction of broadscale management in the area, management was conducted largely on the basis of uncoordinated regulation of specific activities or interest groups. However, the scale and scope of the Great Barrier Reef has prompted development of a comprehensive planning and management approach with few, if any, direct precedents anywhere in the world.

¹⁷ See Wright 1977; and Kriwoken 1991.

Box 3. Great Barrier Reef Marine Park Sequence of Events

- 1922** Great Barrier Reef (GBR) Committee formed including representatives for Queensland, the rest of Australia and overseas, supporting reef research.
- 1959** Oil drilling began in the Reef region with the Humber Barrier Reef 1 well.
- 1960** Development of the Queensland agriculture industry (mainly sugar cane production), and increasing public concern within Australia and overseas about the future health of the GBR.
- 1965** The crown-of-thorns starfish first reported on the GBR.
- 1967** An application to mine Ellison Reef was rejected by the Innisfail mining Warden's Court following opposition by conservation groups.
- 1970** The *Oceanic Grandeur* ran aground in Torres Strait discharging 1 000 tonnes of oil raising considerable concern over protection of the GBR region;
A moratorium on oil drilling was imposed and a joint Commonwealth/Queensland Royal Commission established to investigate the issue.
- 1972** The House of Representatives Select Committee on Wildlife Conservation recommended a conservation program for the Reef and establishment of a marine national park.
- 1973** The Committee of Inquiry into the National Estate recommended a marine national park and a joint Commonwealth/Queensland managing authority.
- 1974** The joint Royal Commissions into oil drilling produced a majority recommendation that petroleum exploration of the Reef could be conducted without unacceptable risk but the Chairman of the Commission considered the risk of oil spills too great.
- 1975** The *Great Barrier Reef Marine Park Act* was passed by the Commonwealth government.
- 1976** The first members of the Great Barrier Reef Marine Park Authority and the Great Barrier Reef Consultative Committee were appointed.
- 1978** *GBR Marine Park Amendment Act* passed.
- 1979** Agreement between the Commonwealth and Queensland governments was reached on jurisdictional issues via the *Emerald Agreement*;
The Great Barrier Reef Ministerial Council was established to coordinate policy;
Capricornia Section of the Great Barrier Reef Marine Park proclaimed by Governor-General.
- 1980** The first Zoning Plan (for the Capricornia Section) endorsed by the Ministerial Council and tabled in the Commonwealth and Queensland parliaments;
(1 Aug) Day-to-day management agreement (*The Basis of Agreement*) endorsed by the Commonwealth and State governments.
- 1981** The Great Barrier Reef inscribed on the World Heritage List;
Cormorant Pass and Cairns sections of the Park proclaimed by the Governor-General.
- 1982** The Great Barrier Reef Region and Islands were included in the Register of the National Estate.
- 1983** The Far Northern, Central, Southern, Townsville and Inshore Southern Sections of the Marine Park were proclaimed by the Governor-General;
GBR Marine Park Amendment Act passed.
- 1984** Construction of road from Cape Tribulation to Cooktown through the Daintree Rainforest began.
- 1986** A Queensland Government proposal to revoke the National Park status of Lindeman island and sell it to East-West Airlines was dropped following public opposition.
- 1988** Zoning of all Sections of the Great Barrier Reef Marine Park completed;
(10 May) *Emerald Agreement* replaced by the *Main Agreement* (which extends the 1980 *Basis of Agreement* to the entire Park);
(7 July) GBRMPA, the Queensland Department of Primary Industries, and the Queensland Fish Management Authority executed an Memorandum of Understanding (MOU) on Fishing and Collecting in the GBR Marine Park, to establish roles and guidelines on the pursuits of the mission of each agency and to identify areas of cooperation and coordination in promoting activities such as research and education;
GBR Marine Park Amendment Act passed.
- 1990** (Nov) The International Maritime Organisation declared the GBR region a 'Particularly Sensitive Area';
GBR Marine Park Amendment Act passed.
- 1991** Australian government introduced compulsory pilotage of large vessels in the GBR region;
GBR Marine Park Amendment Act passed.
- 1992** Release of a *25 Year Draft Strategic Plan for the Great Barrier Reef World Heritage Area*.
- 1993** *GBR Marine Park Amendment Act* passed;
Cooperative Research Centre for Ecologically Sustainable Development of the GBR established.
- 1994** Final *25 Year Strategic Plan for the Great Barrier Reef World Heritage Area* released.
- 1998** (Jan) Gumoo Wojobudee Section added to the GBA Marine Park;
Mining interests proposed exploitation of oil shale deposits adjacent to Marine Park boundaries.

The genesis of the Great Barrier Reef as a managed region was the establishment of the Great Barrier Reef Committee in 1922. This Committee comprised representatives from Queensland, the rest of Australia and overseas, and it sought to promote and support research on the Great Barrier Reef coral reef system. Debate over offshore jurisdiction of the Great Barrier Reef began with concerns over fisheries activities and the passing of the *Australian Fisheries Act* in 1952, heightened subsequently by the discovery and exploitation of minerals and hydrocarbons.¹⁸ However it was the grounding of the *Oceanic Grandeur* in 1970 (which discharged 1000 tonnes of oil in the Torres Strait region), growing pressures from increased tourism, and the discovery of the coral eating crown-of-thorns starfish, that raised concerns over adequate protection and management of the Great Barrier Reef (GBR) region.

In light of these concerns, the Australian Conservation Foundation, non-government organisations such as the Wildlife Preservation Society of Queensland and the Australian Littoral Society, and a number of overseas conservation interests, were successful in bringing effective management of the GBR region into political focus at both the State and Commonwealth levels. Pressure exerted by the environment movement was ultimately largely responsible for a moratorium of further oil drilling declared in 1970 and establishment of a royal commission to inquire into the issue of exploratory and production drilling for hydrocarbons in the vicinity of the GBR.¹⁹ Recommendations of the Royal Commission published in 1974, stated that no further exploration for oil, or renewal of exploration permits should be granted, until the long- and short-term effects of the activity were known. A short time later, a Committee of Inquiry into the National Estate proposed establishment of marine park in the GBR region, joint responsibility between the Commonwealth and Queensland governments for its management, and administration of the region to be conducted by a statutory authority. Passage of the *Great Barrier Reef Marine Park Act* followed in 1975, establishing the Great Barrier Reef Marine Park Authority and the Great Barrier Reef Consultative Committee. Formal relations between the Commonwealth Government and Queensland did not begin however, until a cooperative arrangement for offshore jurisdiction - the *Offshore Constitutional Settlement* (OCS) - was passed as part of the Commonwealth Government's policy of cooperative federalism in 1979.

Despite many jurisdictional issues within the GBR Marine Park being resolved by the OCS²⁰, conflict over remaining ambiguities prompted the drafting of an agreement by the GBRMPA, the Commonwealth and the Queensland governments. That agreement, known as the Emerald Agreement, was signed in 1979 securing cooperation on management responsibilities in the region. It also resulted in the establishment of State/Commonwealth Ministerial Council and the enactment of separate legislation by the Queensland government to complement cooperative management of the Great Barrier Reef region (Kriwoken 1991).²¹ Day-to-day management of the Capricornia Section of the Marine Park was finalised through an agreement known as the Basis of Agreement, endorsed by the Commonwealth and State governments in 1980. In 1988 however, the Emerald Agreement was replaced by the *Main Agreement* extending the 1980 *Basis of Agreement* to the entire Marine

¹⁸ For example, the Humber Barrier Reef 1 oil well began production in 1959, and in 1967 an application was lodged to mine Ellison Reef for coral to be used in the production of agricultural lime.

¹⁹ See Wright 1977; Kriwoken 1991.

²⁰ Under the OCS, the *Great Barrier Reef Marine Park Act 1975* asserts control over the entire Great Barrier Reef region as defined in the Act. Queensland is responsible for areas landward of the low-water mark and islands under original State claims. Commonwealth owned islands and areas seaward of the low-water mark are the responsibility of the Commonwealth. The Great Barrier Reef Marine Park Authority is responsible for marine areas from the low-water mark on the mainland or around islands owned by Queensland.

²¹ The *Queensland Marine Parks Act* was passed in 1982 to complement the Commonwealth *GBR Marine Park Act* and to provide consistency of management of areas adjacent to the Reef.

Park. As a result of this Main Agreement, day-to-day management of the Marine Park is undertaken primarily by staff of the Queensland Department of Environment and Heritage, for which 50 percent of the funds are provided by the State Governments and Commonwealth Government, and 50 percent are provided by the Authority itself via a trust. One hundred percent funding of capital expenditure is provided by the Great Barrier Reef Marine Park Authority.

Legislative authority for management of the Great Barrier Reef Marine Park is provided by the *Great Barrier Reef Marine Park Act 1975*, and the *National Parks and Wildlife Conservation Act 1975 (Commonwealth)*²², a cornerstone of Commonwealth marine protected area legislation (Kriwoken 1991). Section 66 of the *GBR Marine Park Act* enables the Governor-General to make a very wide scope of regulations for carrying out or giving effect to the Act, including with regards to activities beyond the boundaries of the Act (Sec 66(2)(e)). Section 66 (6) allows a regulation made under the Act to have 'full force and effect notwithstanding that it is inconsistent with a law of the Commonwealth made before or after the commencement of this Act' (Commonwealth of Australia 1975). The only exceptions to this rule are matters covered by international treaties and matters where compliance with the regulation would involve contravention of Commonwealth law relating to navigation or flying.

There are at least six coordinating mechanisms involving the State and Commonwealth governments in the administration of Reef matters as follows (Stephen 1987).

- The Prime Minister and Premier both in their role as leaders of their governments and through the Premiers conference.
- Great Barrier Reef Marine Park Authority
- Consultative Committees
- Ministerial Council
- Day-to-day management coordinating committee
- Other liaison between agencies relating to funding, legal, tourism and scientific matters.

The Great Barrier Reef Marine Park Authority (GBRMPA or the Authority) was established in 1975 under the *Great Barrier Reef Marine Park Act 1975*. It is a statutory body consisting of a full time Chairman and two part-time members, one of whom is nominated by the Queensland government. The Authority is the principal adviser to the Commonwealth Government on the care and development of the Great Barrier Reef Marine Park. The GBRMPA also delegates management and funding responsibility for the region.

The Great Barrier Reef Consultative Committee, also established in 1975 under the *Great Barrier Reef Marine Park Act*, is intended as an independent advisory body for both the Minister and the Authority. The Committee is composed of members who are appointed for a three year term by the Minister and a member of the Authority (appointed by the Authority), who represent a wide cross-section of interests. Its functions are to advise the Commonwealth Minister on matters relating to the operation of the Act and, on request, to advise the Authority on Marine Park matters. In 1991 the Queensland government established (not under legislation) a Queensland Marine Parks Consultative Committee in order to enhance communication between parties involved in State marine park issues, as well as to provide advice to the Queensland Minister and Department of Environment and Heritage on Queensland marine parks. In practice, membership of this State Committee has been the same as that of the Great Barrier Reef Consultative Committee and it has functioned as a joint body with separate consideration of matters occurring only when those matters relate only to *either* the GBRMP or to Queensland Marine Parks.

²² The *National Parks and Wildlife Conservation Act 1975* (Commonwealth) established the Australian National Parks and Wildlife Service and provided for the establishment and management of parks (including Marine Parks) and reserves in Commonwealth Territories.

The Great Barrier Reef Ministerial Council was established in 1979 as part of the Emerald Agreement. The Ministerial Council's purpose is to coordinate policy on the Reef between the Commonwealth and the Queensland governments at the Ministerial level. The Council now comprises four Ministers, two from each Government, and is an important focal point for cooperation between the Commonwealth and Queensland.

World-wide recognition of the unique environment of the Great Barrier Reef led to its declaration as the world's first Particularly Sensitive Sea Area under the provisions of the international MARPOL Convention, in 1990. International acknowledgment of the value of the Great Barrier Reef region's outstanding natural, cultural and historic features, and its ecological integrity has also been the basis of its declaration as a World Heritage Area. Inscription of the Great Barrier Reef on the UNESCO World Heritage List occurred on 26 October 1981, but it was not until May 1994 that a strategic plan for the World Heritage Area, the *25 year Strategic Plan for the Great Barrier Reef World Heritage Area*, became operational.

The 25 year Strategic Plan for the Great Barrier Reef World Heritage Area (1994).

The Great Barrier Reef World Heritage Area includes the Great Barrier Reef Marine Park (93%), Queensland waters not in the Park (2%), and islands (5%), and it covers an area of 348 700 sq. km. The *25 Year Strategic Plan for the Great Barrier Reef World Heritage Area* arose from a perceived need for a comprehensive overview strategy of the GBR region and is believed to be a world first in joint decision-making.²³ It was developed through extensive consultation processes involving the GBRMPA together with over 60 stakeholder groups (including user and interest groups, government agencies and Aboriginal and Torres Strait Islander communities).

The Strategic Plan describes a 25 year vision for the GBR World Heritage Area, in conjunction with long- and short-term (25 and 5 year) objectives and strategies to achieve this vision. The Strategic Plan sets the context for the goals and aims of GBRMPA, and it is also intended to provide direction and guidance for other organisations with responsibilities in the region. The objectives of the Plan are: a healthy environment; sustainable multiple use; maintenance and enhancement of values; integrated management; knowledge-based but cautious decision making in the absence of information; and an informed, involved, committed community (GBRMPA 1994b). The legal basis for the Plan is provided by the various Acts and Regulations (such as the *Great Barrier Reef Marine Park Act 1975*, and the *Great Barrier Reef Marine Park Regulations*) that are used to implement the specific strategies contained in the Plan.

Great Barrier Reef Marine Park: An Analysis

The Great Barrier Reef Marine Park is a very large area with a comparatively small (though increasing) human population impacting on its ecosystems. Compared to many other areas in the world (the Florida Keys in the United States for example), the history of excessive exploitation, degradation and pollution within the Great Barrier Reef waters has been brief, and many areas remain largely unaffected by direct human activity due to their geographical isolation. Management of the Great Barrier Reef region is guided by the concept of ecologically sustainable development and 'integrated management of the Great Barrier Reef' appeared as an explicit goal of the Great Barrier Reef Marine Park Authority in 1994 (GBRMPA 1994a). Due largely to its provision for the conservation and management of an entire region of recognised conservation significance, the GBR Marine Park is considered by many to be one of the best examples of operational integrated management in the world.²⁴

²³ See, for example, Briggs 1993; Woodley, Craik et al. 1993; and Barber 1994.

²⁴ Refer to Morris 1983; Cocks 1984; Woodley 1985; Valentine 1986; Kriwoken 1991; Hildreth 1992; Marsh 1992; Craik 1994; Pitts 1993; Pfund 1994; and DFO 1997c.

As distinct from a conservation focused National Park, the Great Barrier Reef is managed as a 'multiple use protected area' with specific management, regulatory arrangements, and requirements applied to designated regions through zoning and management plans. Apart from drilling or mining, which have been expressly prohibited by the *Marine Park Act*, for the purposes of planning within the Marine Park any 'use' is interpreted to be reasonable unless it can be demonstrated otherwise. As such, planning moves beyond a strict conservationist perspective, though given that responsibility for conservation is not coupled with economic optimisation of the use of resources, it is possible for conservation, rather than development, to remain a priority (Craik 1991).

The large geographic area of the Great Barrier Reef Marine Park enables a range of management strategies to be employed and tested as appropriate to the situation. It also provides opportunities for planning and management to be undertaken in a holistic and proactive (rather than piecemeal and reactive) manner (Craik 1991). Legislative supremacy provided by Sec 66 (6) of the *Marine Park Act* has 'enabled an otherwise economically powerless arm of government to prevail in persuading powerful interests to accept long-term conservation measures that may have conflicted with their short-term economic intentions' (Kenchington 1992: 53). Largely due to the philosophy of allowing any use that does not derogate any other purpose of a zone however, fragmentation and resource access conflicts have occurred throughout the region. Tourist and recreational activity for example, have been in conflict with conservation zoning (Valentine 1986), and incompatible activities may be (and have been) carried out in estuaries and inshore waters immediately adjacent to the Marine Park.²⁵ Furthermore, activities within each zone are largely managed in isolation from each other zone through individual Zone Management Plans *without* a broad overview of management of the GBR as a whole. Though the *Marine Park Act* is responsible for the majority of the GBR ecosystem and (if necessary) may prevail over conflicting legislation, it gives no indication as to the area declared as the Great Barrier Reef Marine Park, and does not define any other goal other establishment of the Marine Park.

The 25 Year Strategic Plan does go some way in fulfilling an overview role for the management of the GBR. Lead agencies and key players are identified by the Plan, particularly where joint and/or multiple responsibilities between government agencies exist with regards implementation of the Strategy. Also, in so far as the GBR World Heritage Area was considered together with other areas beyond its boundaries (such as the adjacent mainland coast and Torres Strait), a system-wide view of the World Heritage Area is arguably incorporated within the Strategic Plan (Woodley, Craik et al. 1993). Nevertheless the Strategic Plan provides little guidance on organisation or management within the Marine Park in its entirety.²⁶ Implementation details are weak, and there is no dedicated financial support for operation of the Plan.²⁷ Furthermore, organisations which have participated in and agreed to the Strategic Plan are under no legal obligation to adopt or implement its objectives.

The formal management regime for the GBR is essentially based on the Commonwealth maintaining legislative powers while defining Commonwealth and State responsibilities, and sharing or delegating some of those responsibilities where appropriate. However the management system in reality amounts to self regulation of the GBR by the people who use and depend on it. Notwithstanding, the widespread *perception* of the Great Barrier Reef Marine Park is that it is successful and largely effective as a management regime. This perception has as much to do with grassroots

²⁵ See, for example, Kennedy 1994; Kennedy 1995; and Kriwoken 1991.

²⁶ For example, the proportion of the region that should remain under strict conservation, and the levels of fishing effort allowed throughout the marine park are not stated.

²⁷ Funding for the WHA Strategic Plan is derived from cooperative arrangements between governments, user-pays monies, as well as Commonwealth funding programs such as the Marine Protected Areas Program.

support for conservation and management of the GBR region, as with the political savvy and dedication of Authority officers and managers.²⁸ Kelleher (1993) argues that the GBR Marine Park shows that it is 'possible in an educated and active society to create a general awareness of the interconnectedness of human concerns and the natural environment and of their elements, *provided that there is an agency which is committed to this*' (emphasis added).

The Great Barrier Reef Marine Park Authority has widely promoted the notion that the Reef is *Australian* rather than just *Queensland* property, and it has fostered public support of and interest in the region's management through a commitment to not only participation, but *collaboration* in decision-making processes. Recent amendments to the *Marine Park Act*, for example, provide for representation of adjacent Aboriginal and Torres Strait Islander communities within GBRMPA (DEST 1995). A number of community based Marine Resource Advisory Committees have also been established by the Authority along the Queensland coast.²⁹ Decision-making processes are inclusive, and the lack of preferential powers provided any particular use or interest within the context of conservation objectives precludes the GBRMPA becoming captive to any one single interest group (Pfund 1994). Due to the enormous size of the GBR and resultant surveillance and enforcement difficulties, effective management of the region largely depends on users and visitors voluntarily adopting a code of behaviour that is compatible with zoning plans and regulations of the Park. Major public education and public outreach programs therefore form a significant component to the Authority's operations. There is a clear focus within the activities of the Authority on imparting awareness, knowledge and understanding of the Reef, and to encourage a 'caring' attitude on the part of users. Not only is it hoped that greater compliance with regulations will be promoted in this way, but also support for continuance of the Authority itself, and ultimately conservation of the nationally significant Reef and surrounding areas.³⁰

Research is a statutory function of GBRMPA, though the Authority undertakes little research in itself. Instead, GBRMPA commissions research efforts directed towards specific functions of the Authority, and emphasis is placed on research programs which are integrated, coordinated and/or networked with parallel organisations and existing data bases. In recent years, a large proportion of GBRMPA funds have been directed towards what is regarded as one of the most serious management issues in the Marine Park - Crown of Thorns starfish outbreaks. Authority funds have been channelled into long-term, multi-disciplinary research programs to determine the causes of the outbreaks (Zann 1995). Overall, however, there is a general shortage of information from which to make decisions. Furthermore, the Authority has little hands on management experience and therefore a lack of direct management feedback for planners.

²⁸ For more information on these aspects of GBRMPA operations see Stephen 1987; Kelleher 1990; Craik 1991; Kenchington 1992; Osborn 1993; and Kelleher 1994.

²⁹ During 1993/1994 GBRMPA facilitated the establishment of a series of Marine Resource Advisory Committees along the Queensland coast in major regional centres. Feedback received by tourist operators during the 'User Pays' workshops demonstrated that formalised communication channels between management agencies and user groups were required, and that the Authority needed to be made more aware of local issues affecting individual regions. Advisory Committees comprise all local marine user-groups. They belong to, and are controlled and operated by the local community and are run on a consensus basis to avoid control by dominant groups. These groups, however, have no formal legislative powers and act in a purely advisory role. They have, nevertheless, been beneficial in conflict resolution (Stonehouse 1995).

³⁰ 'In Australia, the major determinant of administrative survivability of organisations like the Authority is public support...it seems clear that the groundwork has been well established in the Act through the formal requirements for public participation, the provisions for a Consultative Committee, the composition of the Authority itself and its functions, as well as the ability to perform those functions in association with Queensland or its agencies' (Kelleher 1990: 4).

The *Great Barrier Marine Park Act* has been described as the foundation of a 'coordinated approach to the protection and management of this nation's natural resources' (House of Representatives Standing Committee on Environment and Conservation 1985). Arrangements entered into by the Commonwealth and Queensland governments are now argued to be a landmark in cooperative intergovernmental relations both in Australia and around the world (Kriwoken 1991). Though established by Commonwealth legislation, the GBRMPA, in effect, reports to both the Queensland and Commonwealth Governments. GBRMPA is therefore unique in that it was created by an Act of Parliament to effect intergovernmental governance and bureaucratic coordination for the management of the GBR in order to accommodate multiple uses. Power sharing arrangements between Queensland and the Commonwealth are built into the *Marine Park Act* and for the most part appear to contribute towards the smooth administration of the Marine Park. Broader coordination of effort and harmonious relationships with other management bodies are promoted by the GBRMPA through complementary initiatives, matching parallel strategy as well as protocols, official communication networks, and formal Memoranda of Understanding. Policy coordination (or at least consistency) is also pursued: the *Marine Park Act* has force in the event of inconsistency with other laws of the State or Commonwealth, and the Main Agreement provides for Queensland legislation to be changed to match the *GBR Marine Park Act*. Consistency is also sought between the Zoning Plans themselves.³¹

There is strong emphasis on coordination between stakeholders, administrative agents, policy and legislation throughout the Strategic Plan for the World Heritage Area. Objective 5.1 of the Strategic Plan for example, provides for the establishment of a regionally based mechanism for integrating existing legislation and initiatives such as Integrated Catchment Management, *Landcare*, public utilities, local authorities, and other government agencies. Coordination between GBR management and the Queensland Coastal Management Strategy, Cape York Peninsula Land Use Study, and Queensland Catchment Management Coordinating Committee is also an aim. Objective 5.2 of the Strategic Plan requires planning for the Great Barrier Reef World Heritage Area to be coordinated with the Torres Strait Protected region and the Australian Fishing Zone (and now the EEZ). Objective 8.1 mandates streamlined, complementary legislation to be put in place, and Objective 8.3 attempts to resolve differences between the *Marine Park Act* and World Heritage Area policy (GBRMPA 1994a).

Despite these objectives and extensive intergovernmental arrangements, jurisdictional and zoning incongruities continue to confuse institutional responsibility. There are problems with constitutional interpretation of low water mark around cays, a lack of unity between Commonwealth and Queensland Marine Parks in the region, and inconsistent boundaries between the Great Barrier Reef Marine Park and the World Heritage Area. A number of issues have also been raised by activities beyond the Marine Park borders. Mining interests for example, have recently sought permission to mine three oil shale deposits on the northern coast (all of which extend into the marine environment) immediately adjacent to the Great Barrier Reef Marine Park (Reynolds & Tarte 1998).³² Article 15 of the *Torres Strait Treaty* places a 10 year

³¹ For example, associated with the Cairns Section of the GBR Marine Park is Queensland's Cairns Marine Park which covers tidal lands and tidal waters. This Marine Park, declared under the *Queensland Marine Parks Act 1982*, lies within or adjacent to the Cairns Section of the GBR Marine Park and extends to several estuaries and tidal rivers. The Cairns Zoning Plan Review recommends that the GBR Zoning Plans should maintain consistency with zoning plans drawn up under Queensland Marine Parks legislation (GBRMPA 1988: 8).

³² Section 38 of the *Great Barrier Reef Marine Park Act 1975* states that 'no operations for the recovery of minerals shall be carried on in the Marine Park'. However, there is concern that this prohibition might not apply to oil shale because of a recent Federal Court ruling that oil shale is not a petroleum product for the purposes of the *Tax Act*. Furthermore, the oil shale deposits are located outside of the Marine Park boundary so that they are not directly protected by the *Great Barrier Reef Marine Park Act 1975*.

moratorium on any mining/drilling activity of the sea bed in this area, but there are concerns as to what should occur if the moratorium is not extended in the future (Mulrennan & Pollard 1994). Land-sourced pollution and the effects of agricultural land management in the coastal region have been cause for considerable concern over water quality within the Marine Park.³³ There has been little integration of land and water management issues, and the control of land-based activities impacting on the Marine Park remains one of the most significant management problems in the region (Craik, Kelly, Kenchington, Muir, Saenger pers. comm 1994). Furthermore, the low water mark boundary on the mainland is followed for less than one third of the coastline such that most of the coastal environments and all of the terrestrial environments are beyond the *direct* control of the Marine Park Authority. Indeed, Morvell (pers. comm 1994) suggests it has been suggested that the model of integrated management established by GBRMPA is not applicable to terrestrial issues, which may in part explain the lack of coordination across the land-sea interface .

The Authority has begun to tackle issues of coordination by initiating networking and collaboration with local interests (Simpson P. & Associates 1993). In their role as mediators, GBRMPA staff have also heightened efforts to achieve agreement and consensus between users and the government. However, the significant potential for the Authority to influence activities and interests outside its own jurisdiction, via provisions within the *Marine Park Act* (Sec. 66 (2e)) and the Strategic Plan have not been used despite calls for their enforcement.³⁴ Threat to the cooperation between the State and Commonwealth Governments has been actively avoided by the Authority, given an apparently overriding commitment to good relations between the two governments. Formal management arrangements, particularly with regards zoning plans, have also been designed along the 'path of least resistance': zoning has been designated in such a way that it minimises the alteration of existing uses and activities. As such the Great Barrier Reef management regime, though it has the necessary powers, may be seen to have in some cases sought ongoing operational harmony at the expense of conservation objectives.

Operating within the perspective of ecosystem conservation planning³⁵, management objectives for the GBR are established, and evaluation and adaptation of management actions is provided for. On the basis of inflexible zoning plans, for example, GBRMPA operates a 3 year rolling program of day-to-day management which is noted and endorsed by the Ministerial Council each year. The Strategic Plan also seeks to set objectives and targets by which 'effectiveness' of management operations may be judged. Annual reports requiring an evaluation of progress towards Plan objectives, and a continuing 5 year review cycle process are mandated by the Strategic Plan. Implementation of these requirements has nevertheless been poor. Performance indicators tend to be non-specific and therefore, in reality, very difficult to measure or determine. A number of people, both around Australia and the world regard the Strategic Plan very favourably, and have recommended it as a process that 'could be applied to any natural resource management issue' (Craik pers. comm 1994). Others, however, have criticised the Strategic Plan as being a 'motherhood' document that has little relevance to practical management in the region (Saenger pers. comm 1994). Certainly without means and support for its implementation, the Plan provides little other than an exercise in participatory decision-making and indeed there has been little practical outcome in terms of World Heritage Area management in the GBR region to date.

³³ See Hopley 1988; Walker, Bell et al. 1991; Kennedy 1995; and Lloyd & Wachenfeld 1998.

³⁴ In the case of conflict over a proposed road through the Daintree region for example, it was argued that it would 'not be appropriate' to use the Act's external powers to regulate the development as this could lead to irreparable damage of the delicate cooperative arrangements between the Commonwealth and Queensland governments (House of Representatives Standing Committee on the Environment and Conservation 1984).

³⁵ See Craik 1991; and ACIUCN 1993

Integrated marine management of the Great Barrier Reef Marine Park may be seen to have evolved in an experimental and iterative sense. The *Marine Park Act* does not legislate for integration as such, or even define arrangements for intergovernmental relations or management strategies for the region. Indeed, much of the 'integrated' nature of management in the region is not mandatory or stated, and administrative arrangements have been largely applied on a trial and error basis. Much of the success of the program is defined by a 'spirit of cooperation' that has been established between levels of government and management authorities (Saenger pers. comm 1994), and by the 'community of interest' that has been established (Kenchington pers. comm 1994). At the operational level, nevertheless, there remains confusion as to who controls funding, responsibilities, and regulatory authority, as well as a lack of coordination between State and federal policy and practice (Kelly, Muir pers. comm 1994). Notwithstanding, the multiple-use planning and management approach developed by the GBRMPA has reduced traditional opposition to marine protected areas from industry groups, particularly the fishing industry, and it is also argued to have increased acceptance of Marine Protected Areas as a legitimate marine conservation management tool (Bleakley, Ivanovici et al. 1994). Management experience and assistance, especially as it relates to the multiple-use of large ecosystems has also become available. Indeed the experience and expertise gained through management of the Great Barrier Reef Marine Park, and the notion of integrated management that it represents, has been used to guide development of marine management arrangements around the world.³⁶

Table 6. Great Barrier Reef Marine Park Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Partially	Some uses/activities excluded
holistic focus	Yes	Partially	Multi-jurisdictional; provision for influence over terrestrial activity not applied
broad, transparent, collaborative decision-making	Yes	Yes	Multi-disciplinary/multi-jurisdictional involvement in decision making
top-down and bottom-up considerations	Yes	Yes	Strong grass roots support; strong government involvement at all levels
commitment to planning and implementation	Yes	Partially	Implementation of Strategic Plan weak; strong public support; financial resources declining
strategic planning and management	Yes	Partially	Strategic framework has evolved but is poorly implemented
coordination and harmonisation	Yes	Partially	Poor coordination of management across land/sea interface; complementary legislation in place
problem solving/dispute resolution	Yes	Yes	Conflict avoidance promoted; information sharing and 'path of least resistance' employed
action oriented planning and management	Yes	Partially	Measures for management performance identified; implementation weak
monitoring, evaluation and review	Yes	Yes	Dynamic ongoing often experimental planning and management processes

³⁶ See Pfund 1994; and Anon 1995.

4.3.2 Ningaloo Reef Marine Park (1987)

At around 5000 sq. km Ningaloo Reef Marine Park was jointly declared by the Commonwealth and Western Australian Governments as a Bicentennial initiative in 1987. Managed for multiple-use, it encompasses both Commonwealth and State waters as well as terrestrial areas, with respective parts declared under both Commonwealth and State legislation. It is one of Australia's largest Marine Protected Areas and Ningaloo Reef itself is Australia's largest fringing coral reef. Unlike much of the Great Barrier Reef, Ningaloo Reef is easily accessible from the shore, and the adjacent terrestrial areas are arid and sparsely populated (Osborne 1995). Despite the apparent isolation of the region however, marine recreation and tourism are rapidly developing in the area, and the Ningaloo Reef plays an important role in both the regional and local economies in terms of fishing, diving, tourism, recreation and minerals exploitation (CALM 1994; Wilson 1995). Ningaloo Reef therefore provides a valuable opportunity for comparative studies with the more heavily visited and populated coral reefs of Australia's wet tropics on the east coast.

Box 4. Ningaloo Reef Marine Park Sequence of Events

1964	Cape Range National Park established.
1972	Australian Marine Sciences Association (Western Australia Division) proposed the Ningaloo Reef be reserved.
1974	Conservation Through Reserves Committee proposed Ningaloo Tract Reserve as part of a report and recommendations to the Environment Protection Authority (EPA) on the establishment and management of conservation reserves in Western Australia.
1975	EPA reviewed Reserve proposal and developed recommendations contained within the Report ' <i>Conservation Reserves in Western Australia</i> '.
1978	National Parks Authority convened a Working Group to formulate draft management proposals for a proposed Ningaloo Marine Park and review EPA recommendations.
1981	(Aug) Coastal Planning Steering Committee recommended that a senior level coordinating body be formed to oversee coastal planning and management.
1982	(Sept) Coastal Management Coordinating Committee established.
1983	Report of the Marine Park Working Group proposing that a much larger area be reserved in order that ecological integrity be maintained through 'holistic and integrated management', released for public comment.
1985	Cabinet endorsed EPA recommendations; Prime Minister and Premier agreed joint declaration and management of marine reserve; Ningaloo Marine Park Advisory Committee appointed by Minister for Conservation and Land Management (CALM).
1986	Foreshore Reserve (Recreation Management) at Coral Bay vested with National Parks and Nature Conservation Association (NPNCA).
1987	(April) Ningaloo Marine Park (State Waters) gazetted under provisions of CALM Act; (May) Ningaloo Marine Park (Commonwealth Waters) gazetted under provisions of <i>National Parks and Wildlife Conservation Act 1975</i> and vested with the Australian Nature Conservation Agency (ANCA); (July) Reserve No. 40079 - coastal land (Ningaloo Marine Park) (560 ha) gazetted under provisions of the <i>Land Act 1933</i> ; (Dec) Ningaloo Marine Park gazetted.
1988	(Oct) two areas of coastal land adjacent to Marine Park reserved for purpose of Recreation and Coastal Management - CALM and Exmouth Shire Council.
1989	Foreshore Reserve (Recreation Management) at Coral Bay proposed as 'Marine Park' <i>Ningaloo Marine Park (State Waters) Management Plan 1989 - 1999</i> came into operation.
1994	(June) Report of the Marine Parks and Reserves Selection Working Group released; (July) Western Australian Government placed a ban on drilling for, and production of petroleum in the State waters of Ningaloo Reef; (Oct) MOU between ANCA and CALM and WA Fisheries setting out responsibilities and agreement over joint management for the Ningaloo Marine Park, signed and came into effect; (Nov) Government of Western Australia released the document, <i>New Horizons in Marine Management</i> , detailing commitment to the conservation of marine areas in the State.
1995	<i>Ningaloo Marine Park (Commonwealth Waters) Management Plan</i> came into operation.
1997	(Aug) <i>Acts Amendment (Marine Reserves) Act 1997</i> came into operation; A Marine Parks and Reserves Authority established as part of Marine Reserves legislation.
1998	(June) Marine Conservation Strategy, <i>New Horizons - the Way Ahead in Marine Conservation and Management</i> launched.

Attention was first drawn to the need for conservation of Ningaloo Reef by the Australian Marine Sciences Association (Western Australian Branch) in 1972, which recommended the area be declared as a marine reserve. In 1974, the *Conservation Through Reserves Committee* prepared a report for the Environment Protection Authority (EPA) and included the need for the establishment of a marine park to protect Ningaloo Reef among its recommendations. In 1975, after public consultation, the EPA presented an amended report to the State Cabinet recommending the Ningaloo Reef tract as an aquatic reserve vested in the National Parks Board, and in 1976 the State Cabinet endorsed EPA recommendations despite there being no legislation in place to enable the creation of aquatic reserves (CALM 1989). Ningaloo Reef was listed on the Register of the National Estate in 1978, and later that same year, the Western Australian Government formed a Marine Park Working Group to give further consideration to declaration of a marine park in the area and to produce a draft management plan for the region (May, Lenanton et al. 1983). The resultant draft plan, published in 1983, included recommendations that the reserve be a marine park, and that the boundaries of the proposed reserve be substantially extended on the basis of securing 'the integrity of the proposed Marine Park as a viable ecological unit...necessary for holistic and integrated management' (May, Lenanton et al. 1983: 17). Among their other recommendations was extension of the priority involvement held by the Minister of Fisheries, to *all* stakeholders in the *planning and management* of marine protected areas. The recommendations were adopted in principle by the Western Australian government in 1985 (CALM 1994; Evans 1996).

With passage of the state *Conservation and Land Management (CALM) Act* in 1984, the Department of Conservation and Land Management (CALM) came into being and provision for the declaration of marine parks in Western Australia became available for the first time³⁷. In 1985, a Ningaloo Marine Park Advisory Committee was appointed by the Minister for Conservation and Land Management, with a mandate to assist in the preparation of a management plan for Ningaloo Marine Park and to provide a means of communication with the local community. The inner (State) portion of the Ningaloo Marine Park was subsequently gazetted under the *CALM Act 1984* in 1987. Later in the same year, the outer (Commonwealth) portion of the Marine Park was declared under the Commonwealth *National Parks and Wildlife Conservation Act 1975*, though three portions of the Commonwealth component that were subject to petroleum leases at the time of gazettal were not included in the Park since they could not be reserved in accordance with the requirements of the Act³⁸. Also in 1987, a strip of land extending 40 metres above high water mark adjacent to the Ningaloo Reef tract was reserved under the *Land Act 1933*³⁹. Comprising an area of about 5.6 sq. km, the terrestrial reserve was gazetted as a Marine Park and vested in the National Parks and Nature Conservation Authority. Thus the Ningaloo Marine Park in its entirety includes waters under State and Commonwealth jurisdiction covering Exmouth Gulf, protected lagoon waters inside the Reef and deep oceanic waters, as well as terrestrial areas adjacent to the Reef tract.

³⁷ Under the *Conservation and Land Management (CALM) Act*, the National Parks and Nature Conservation Agency is legislated as the controlling body for marine parks in Western Australia, and the Department of Conservation and Land Management (CALM) is designated as the management agency.

³⁸ Three portions of the Commonwealth Waters (a total of around 700 sq. km) originally recommended for inclusion in the Park were subject to petroleum exploration permits at the time of gazettal. Under the provisions of the Act, marine areas where interests are held by others apart from the Commonwealth, may not be declared under the Act. Consequently the areas subject to petroleum leases were excluded from the Marine Park. However, the northernmost petroleum lease has since been relinquished and has now been included in the Park as part of Stage 2 developments (Australian Nature Conservation Agency undated).

³⁹ Land adjacent to the Ningaloo Reef tract includes the Cape Range National Park, two coastal reserves jointly managed by CALM and the Shire of Exmouth, Crown Land leased for pastoral use, Commonwealth defence land and two small townsite areas. The Ningaloo Reef Marine Park incorporates the Cape Range National Park and the coastal reserves.

Agreement was reached following joint declaration of Ningaloo Marine Park, between the Prime Minister and the Premier of Western Australia, that the whole Marine Park would be jointly managed by the Western Australian Department of Conservation and Land Management. The (then) Commonwealth Australian Nature Conservation Agency (ANCA) and the State Department of CALM subsequently began negotiations for the development of a memorandum of understanding (MOU) for the management of the Ningaloo Marine Park in 1983. Among the issues under consideration within the MOU was the appropriate contribution from the Commonwealth to CALM for operational expenses in administering the Commonwealth waters component of the Marine Park⁴⁰. Given protracted negotiation over these considerations it was not until 1994 that the MOU came into effect, establishing agreement between CALM, ANCA, and State Fisheries that the Park would be managed as one unit under arrangements provided by the *Offshore Constitutional Settlement* and the *Sea and Submerged Lands Act 1973*. As signed, the MOU proposes that staff employed by State agencies to manage the State waters of the Marine Park also manage Commonwealth waters, and that ANCA provides annual grants of funds to meet day-to-day operational costs for the Park's management. The MOU also prescribes a liaison body known as the Ningaloo Marine Park Advisory Committee to be made up of two ANCA representatives, two CALM representatives, and one representative from the Western Australian Fisheries Department.

During this time, a report was published by the Marine Parks and Reserves Selection Working Group, reviewing the characteristics of Western Australian coastal waters, and recommending some modifications to existing reserves as well as the declaration of new marine parks and reserves in Western Australia (CALM 1994). Among the recommendations of the Working Group was further extension of Ningaloo Marine Park boundaries to include the full length of the Ningaloo Reef. Further restructuring of the West Australian approach to Marine Protected Areas management occurred during 1994 with the release of a policy statement entitled *New Horizons in Marine Management* (Government of Western Australia 1994). The policy mandates coordination of the management of proposed and existing marine reserves in Western Australia within one statutory framework, and thus the development of a standardised approach to the conservation of marine areas for the State. The policy statement is given legislative effect by amendments to the *CALM Act 1984* and five other Acts through the *Act Amendments (Marine Reserves) Act* introduced in 1997.⁴¹ Establishment of a separate vesting authority for marine reserves - a Marine Parks and Reserves Authority - is a key component of the Act and is intended as a principal means by which the objectives of the *New Horizons* Policy are to be achieved.⁴² The Act replaces a two category system with a three tiered system⁴³ of marine protection categories. It also requires the agreement of the Minister for Mines, in addition to the Minister for Fisheries, before publication of notice of intent to reserve a marine area.

⁴⁰ Letter from Hon Ros Kelly MP to Conservation Council of WA Inc. 28 Sept. 1983.

⁴¹ The *Acts Amendment (Marine Reserves) Act* came into operation in August 1997. It amends six State Acts, namely the *Conservation and Land Management Act 1984*, the *Mining Act 1978*, the *Petroleum Act 1967*, the *Petroleum (Submerged Lands) Act 1982*, the *Fish Resources Management Act 1994*, and the *Pearling Act 1990*.

⁴² The Authority comprises seven appointed members 'based on knowledge, experience and interest rather representative of organisations and interest groups' (Edwardes 1997). It is designed to advise the Environment Minister, develop policies and oversee the preparation and implementation of management plans for marine reserves. A seven member scientific advisory committee is intended to advise the Environment Minister and the Authority on scientific matters.

⁴³ This system comprises Marine Nature Reserves which hold the highest level of conservation, Marine Parks which cater for multiple uses including commercial fishing and hydrocarbon exploration and production, and Marine Management Areas which are aimed at preservation of marine areas for recreation, scientific, and commercial uses.

Following declaration of Ningaloo Marine Park in 1987, separate management plans were prepared for the State and Commonwealth components of the Marine Park, and independently approved by the respective State and Commonwealth authorities. The management plan for State waters was prepared by and is being implemented through CALM with the assistance of the Ningaloo Park Advisory Committee. The Minister responsible for the *CALM Act 1984* approved the State Waters Management Plan in 1989, and it is to be fully reviewed in 1999. Preparation of the Management Plan for the Commonwealth waters within the Ningaloo Marine Park was the responsibility of the Australian National Parks and Wildlife Service (now Environment Australia). A draft Management Plan for the Commonwealth waters component of the Marine Park was made available for public comment in 1990 and came into operation in 1995. The Commonwealth management plan is also intended to cease in 1999 (at the same time as the State Waters Management Plan), pending review.

The principal aim of Ningaloo Marine Park is to provide for the conservation of the marine environment with recreational use to the extent that it is compatible with conservation of its natural environment. Management goals include conservation, education and recreation as well as to 'ensure integrated management of marine reserves with adjoining mainland and island conservation areas' (CALM 1989). Despite separate Management Plans and responsible authorities, the Ningaloo Marine Park encompassing the Cape Range National Park and the coastal reserves as well as both Commonwealth and State waters, is intended to be treated as one integrated unit.

The offshore areas of the Ningaloo Marine Park are zoned for general use, while the Reef and lagoon are divided into recreation and sanctuary zones. Management zones were first gazetted in 1991 under the *CALM Act* and later in 1991 complementary legislation was developed under the *Fisheries Act 1905*. The Minister of the Environment must obtain consent from the Minister of Mines before creating *any* marine reserve in Western Australia that would exclude mineral extraction activities. The Minister of Fisheries' concurrence is also a prior condition for any marine protected area proposal in Western Australia, and Marine Park Management Plans are subject to the satisfaction of the Fisheries Minister before proceeding to approval. Thus commercial and recreational fisheries activity remain the responsibility of the Fisheries Department within Ningaloo Marine Park, and the *Fisheries Act 1905* retains precedence in the event of any conflict between it and the purposes of the Park.

Ningaloo Reef Marine Park: An Analysis

As originally enacted, the *CALM Act 1984* did not contemplate resource exploitation or use within marine parks in Western Australia (Evans 1996). The increasing pursuit of commercial activities in the waters off Western Australia, however, has led to a redefining of purpose of marine parks under the Act. In reality, the strict conservation perspective of marine parks, as originally provided for by the *CALM Act 1984*, has been substantially changed and multiple-use marine management is now promoted (Evans 1996). Introduction of the marine protected area policy document, *New Horizons* (Government of Western Australia 1994), has reinforced moves towards multiple-use management of the marine waters in Western Australia. Evans (1996) argues that this new reserve type will marginalise the role of strictly conservationist marine parks in Western Australia, which may even become redundant in the revised Marine Protected Area scheme.

Consistent with these developments, Ningaloo Reef Marine Park is managed as a multiple-use area, though drilling and production of petroleum are not allowed (apart from those where petroleum leases currently exist) in the Marine Park.⁴⁴ Commercial fishing is also intended to be phased out in both the State and Commonwealth portions

⁴⁴ A ban on drilling for and production of petroleum in the state waters of Ningaloo reef was declared by the Western Australian Government in July 1994.

of the Park during 'Phase 2' of management (post 1999). Multiple-use of the region is approached principally through zoning, as well as regulations which apply to the management of each zone, promulgated, due to the absence of overriding Marine Park legislation, under the *Wildlife Conservation Act 1951*, the *Conservation and Land Management Act 1984* and the *Fisheries Act 1905*.

Management of the Ningaloo Marine Park is largely based on a holistic view of resource management in that marine and adjacent terrestrial areas, as well as intertidal areas have been incorporated within the Marine Park boundaries (ACIUCN 1986). Despite the argument that water quality in the region is *not* greatly influenced by terrestrial activity⁴⁵, easy access and the relatively enclosed lagoonal waters of Ningaloo Marine Park make it vulnerable to impacts from recreational activities and coastal developments. Provisions for management of the land are consequently contained within the management scheme for the region. There are nevertheless a number of regions which have *not* been included within management considerations, namely much of the Pilbara waters which are said to be important to the biological communities of the Ningaloo Reef, and areas covered by established mining leases. These 'holes' within the Ningaloo Marine Park have created a number of problems, particularly with regards consistency of management practice across the region as a whole (McGinnity pers. comm 1994).

The management plans for Ningaloo Reef Marine Park embrace a very narrow view of 'stakeholders': only the local 'communities' (rather than broader user and/or interest groups) are perceived as having right to involvement in participatory decision-making processes. Ningaloo Reef is managed under the philosophy that users are ultimately the managers of the Park (CALM 1994), and education is consequently a principal goal. Nevertheless, surveillance and regulatory enforcement are seen as the primary factors inducing compliance with management regulations in the region. Indeed, planning and management of the Ningaloo Marine Park has been largely driven by government interests in conjunction with certain economic interests, namely the Fisheries sector, which has received preferential attention in both policy and management considerations for Ningaloo Marine Park. Boycott powers are held by the Minister of Fisheries as well as the Minister of Mines, and as the same discretionary privileges are not extended to other sectoral interests, fisheries and minerals interests consequently have considerable influence in planning processes. There is a general lack of quantitative baseline information, and poor understanding of ecological processes within the Ningaloo Reef area. Thus a scientific basis for decision-making in light of economic interests is lacking, and there is no indication that this will improve given problems associated with the remoteness and expense of conducting research and investigation in the region.

Ningaloo Marine Park is an important recreational resource and a primary attraction for the tourist industry, and as such there is strong community support for the Ningaloo Marine Park.⁴⁶ Some funding was provided to Ningaloo Marine Park under the *Ocean Rescue 2000* program, primarily for the development of education and interpretation initiatives in the area. Political commitment at a State or Commonwealth level to the effective management of Ningaloo Marine Park, however, has been largely absent, given that there has been no ongoing funding or resources dedicated specifically to the management of the Park.

Management of the Ningaloo Marine Park is not guided by a vision statement or guiding principles. There is little focus on administrative arrangements or the incorporation of stakeholder interests within planning and management, and the legislative basis for management remains complicated and confusing. Though there was emphasis from the early development stages of the Marine Park on the necessity

⁴⁵ Since very little rain occurs in the region it is argued that there are minimal implications of runoff into Ningaloo Marine Park. Also, due to the tenure of the adjacent land, agricultural and industrial activity are largely absent.

⁴⁶ See, for example, CALM 1994; Marine Parks and Reserves Selection Working Group 1994.

of considering the land and marine components of the Park as one integrated whole (May, Lenanton et al. 1983), there has been some difficulty in achieving this in practice. Each component of the Park - whether the State or Commonwealth waters, or the land - has a separate Management Plan, and apart from the MOU, there is very little guidance as to how coordinated management of these areas should proceed. In addition, Ningaloo Marine Park has been established in isolation from existing (or proposed) marine reserves in Western Australia. This has led to an inconsistency in the establishment of Marine Parks in the State, as well as conflict, particularly in the setting of reserve boundaries.

Management Plans largely form the basis of agreement between the Commonwealth and Western Australia: complementary management between the two governments is sought within the management plans via shared zoning arrangements and designation of parallel areas, as well as through common management objectives for the region. The management objectives of sectoral interests, however, have been expressly separated between Commonwealth and State waters within the management plans. The Commonwealth government is far behind the State Government with regards devising management arrangements for Ningaloo Marine Park largely because of wrangling between the two about joint management. The State and Commonwealth Waters Management Plans, both designed with a 10 year life span, were originally intended to be released simultaneously in 1989. Following the introduction of the State Waters Management Plan in 1989, it was only in 1995 that the Commonwealth Waters Management Plan was released due to the fact that the two plans had to be declared under different State and Commonwealth legislation. Furthermore, Ministerial approval was required to allow for Commonwealth officers to have powers in the Marine Park, and conflict over responsibility for the Ningaloo region being passed from the Canberra office to the Darwin office of Environment Australia during 1996 caused additional delays (Pyke pers. comm. 1996). Both Plans are still due for reappraisal in 1989, notwithstanding the tardiness of the federal government, and this has prompted criticism that there has been much effort on behalf of policy makers and managers, for little ultimate gain (Pyke pers. comm 1996).

Conflict management has been approached in the limited sense of conflict *avoidance* within Ningaloo Marine Park. Zoning plans for the Park have been designed on the basis of the least disturbance to, and accommodation of, human activities already being undertaken in the area. It has been argued that reconciliation of conflicts and management of the area would be significantly improved with greater baseline data on the area (Evans undated). However, development interests, particularly fisheries and mining, continue to play a large part in the design of management arrangements. Though coordination, communication, and information exchange is advocated by management policy for the region, there is little indication how this might be operationalised. There are also no plans of action, performance criteria or any measurable goals on which evaluation and review of the management system for the Ningaloo Reef Marine Park might be based. Management prescriptions are outlined, and a commitment to flexible planning arrangements is made, however no implementation framework or evaluation strategies are provided.

Integrated marine management provides a philosophical basis for management of Ningaloo Reef Marine Park in that linkages between terrestrial and sea management, as well as coordinated administrative approaches between governments have been promoted and considered in the formulation of management arrangements. However, the concept of integrated management is perceived narrowly in terms of *comprehensiveness*, specifically comprehensive management across boundaries, whether political or geographic. Practical IMM of the Ningaloo Reef Marine Park is mostly unrealised, since broad statements of concern and intent are backed with few statements of action towards these ends or guidance towards practical implementation strategy.

Table 7. Ningaloo Reef Marine Park Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Partially	Multiple-use management approach; some activities excluded
holistic focus	Yes	Partially	State - Commonwealth waters; exclusion of certain areas
broad, transparent, collaborative decision-making	Yes	Partially	Boycott provisions held by some interests; lack of research and info. on area; narrow view of 'stakeholders'
top-down <i>and</i> bottom-up considerations	Partially	Partially	Largely government driven policy and management
commitment to planning and implementation	Partially	Partially	No dedicated funding; inconsistent commitment to development of management plans
strategic planning and management	Partially	No	Objectives stated but no strategic framework set
coordination and harmonisation	Partially	Partially	Conflicting objectives of some sectoral interests; complementary management between levels of government
problem solving/dispute resolution	Partially	No	Conflict <i>avoidance</i> ; no mechanisms for communication established
action oriented planning and management	Partially	No	Prescriptions of management outlined but no implementation framework
monitoring, evaluation and review	Partially	Partially	10 year review cycle; commitment to flexible planning arrangements; no mechanisms detailed

4.3.3 Great Australian Bight Marine National Park (1998)

The Great Australian Bight (GAB) Marine National Park is South Australia's first marine park and Australia's second largest marine park after the Great Barrier Reef. It covers more than 34 000 sq. km of State and Commonwealth waters and is recognised as a significant seasonal habitat for many species of rare and endangered marine mammals (Andrews 1994). State waters of the Park about the Nullarbor Conservation Area and Aboriginal Title Land, and the Commonwealth component of the Park is bounded to the south with the EEZ boundary. As a whole, the Marine Park is primarily aimed at managing existing and future human activities and uses of the GAB within a regime of multiple-use management. Protection of critical breeding sites of the endangered southern right whale is also a focus of the Marine Park.

Box 5. Great Australian Bight Marine Park Sequence of Events

1989	Initial proposals for the management of the Great Australian Bight developed; (Sept) South Australian (labour) government announced its intention to protect southern right whale breeding areas within a Marine Park.
1991	<i>Fisheries Act 1982</i> was amended to include provisions for the constitution of marine parks.
1992	(April) Ministers for Fisheries, and Environment and Planning restated an intention for the declaration of a Marine Park in the Great Australian Bight (GAB).
1994	(June) Acting State Premier advised the Wilderness Society that the government supported the Great Australian Bight Marine Park proposal.
1995	(May) Great Australian Bight Whale Sanctuary proclaimed.
1996	(26 September) GAB Marine Park proclaimed in coastal waters (out to 3 n. miles).
1997	(Jan) Draft Management Plan for the State waters of the GAB released after a 3 month consultation period; (Oct) Director of National Parks and Wildlife indicated his intention to submit a report recommending proclamation of a Marine Park in the Commonwealth waters of the GAB.
1998	(17 April) Proclamation of the Commonwealth component of the Great Australian Bight Marine Park approved.

Proposal for a Great Australian Bight Marine Park was first put forward in 1989 by the former South Australian Department of Environment and Planning, and National Parks and Wildlife Service. This proposal incorporated substantial (land) additions to the west of the existing terrestrial Nullarbor National Park, an area of crown land to the north, consideration of World Heritage nomination for the region, and a portion of the Great Australian Bight waters to be given conservation status in parallel with land-based proposals. In September 1989, the South Australian government announced its intention to protect the critical breeding areas of the southern right whale by establishing the first marine park in the State, the Great Australian Bight Marine Park. With a change in government in 1990 however, the proposal stalled on the grounds that there was no 'strong public support' for proclamation of a marine park in the GAB region.

In December 1991 the State *Fisheries Act 1982* was amended to include provision for the constitution of Marine Parks⁴⁷, and in April 1992 a commitment to proclamation of the GAB Marine Park, as originally proposed, was restated by the State Government. However further delays in the proclamation of the Park occurred as result of conflicts between conservation and development interests, particularly over a statement released in 1994 (by the then Acting Premier) that the Marine Park would be subject to a joint proclamation in order to allow for continued exploration and mining of the region (Daw 1994).

The South Australian government finally proclaimed the Great Australian Bight Marine National Park in September 1996 under the State *National Parks and Wildlife Act 1972*. The State waters portion of the Marine Park is managed by the State Department of Environment and Natural Resources, and Primary Industries South Australia/ Fisheries. Formal consultation began in November 1996 into the feasibility of establishing a Commonwealth component to complement the State Marine National Park (Hill 1996b). Declared separately under the Commonwealth *National Parks and Wildlife Conservation Act 1975*, the Commonwealth component of the GAB Marine Park was ultimately declared in 1998. At around 23 000 sq. km (or 80 percent of the

⁴⁷ The control and administration of South Australian Marine Parks under the State *Fisheries Act 1982* rests with the Minister of Primary Industries. The Minister must propose a plan of management in relation to a Marine Park within 2 years of its constitution, and must include public consultation and the consideration of adjacent marine reserves in the development of that management plan. Once a Marine Park is constituted in South Australia, the State *Mining Act 1972*, the *Petroleum Act 1940*, and the *Petroleum (Submerged Lands) Act 1982* do not apply, though scope for exploration and mining within a Marine Park is provided under section 48f(2) of the South Australian *Fisheries Act 1982*, whereby the Governor may grant rights of entry, exploration or mining of areas within a Marine Park.

total park area) the Commonwealth portion of the GAB Marine Park is largely within the responsibility of the federal agency of Environment Australia, and it has been established under a management framework allowing a number of existing uses. Indeed, the Great Australian Bight Marine National Park as a whole has been constituted as a multiple-use marine reserve and is additional to the existing Great Australian Bight Whale Sanctuary which was proclaimed in May 1995.

A plan for the management of the State waters of the GAB Marine Park, originally funded by the federal Ocean Rescue 2000 Program, has been signed off by the South Australian government. The final Plan is intended to be published during 1998. Regulations for the Management Plan's implementation were still being written during 1998 but the zoning framework for the State waters component is intended to include a Sanctuary Zone and a Conservation Zone. Development of the Commonwealth waters management plan was only in its very early stages during early 1998 (Neverauskas pers. comm 1998). The Commonwealth has given some indication of the management arrangements that are proposed for the 'general-use' zoned area: 'existing commercial activities are accommodated' (Environment Australia undated), a Marine Mammal Protection Area (aimed at the protection of marine mammals, principally whales) extending 3 824 sq. km along the coastline is incorporated, and a Benthic Protection Area (designed to protect a sample of benthic flora and fauna) extending (in a narrow strip 20 n. miles wide, from 3 n. miles offshore to 200 n. miles) over a total area of around 13 300 sq. km, is proposed.

Great Australian Bight Marine Park: An Analysis

The Great Australian Bight is one of only a few areas where whales may be observed closely by the public from the shore, and the area at the Head of Bight is regarded as the most significant breeding and calving areas for the southern right whales in the world (Andrews 1994). As such, conservation values of the GAB are considered to be of both national and international significance. The management plans for both the State and Commonwealth components of the GAB Marine Park are yet to be finalised, and it is therefore far too early to assess management outcomes of the initiative. The following preliminary analysis examines management objectives for the region as they have been proposed by Environment Australia with regards to the Commonwealth waters of the Marine Park, and as provided within the Draft State Waters Management Plan (Andrews 1994).

Management of the GAB Marine Park has been modelled on the Great Barrier Reef Marine Park: a multiple-use area managed through a suite of zones which allow and prohibit various types of uses. Unlike the Great Barrier Reef Marine Park, however, the Great Australian Bight Marine Park embraces all sectoral interests in the region and in this sense may be seen as a truly inclusive multi-sectoral management arrangement. Industrial and economic interests have had a significant influence in the development of management arrangements for the region: management arrangements have been developed to accommodate the interests of existing commercial activities, and most (including fisheries, mineral exploration, and tourism) have not been modified or restricted in any significant way in the area.⁴⁸ Furthermore, as the *management* planning process for the State component of the Marine Park preceded the *declaration* of the Park, interest groups (principally economic interests) were able to influence the boundaries of the Park through political pressure (Grady 1998; Prideaux, Horstman et

⁴⁸ Zoning arrangements are argued to have been developed with regards the conservation values of the GAB. Specifically, access by boats to the Marine Mammal Protection Area will not be permitted except by permit between 1 May and 31 October, and activity that disturbs the sea floor is not permitted in the Benthic Protection Area. Closer reading of the proposed provisions of the zones, however, shows that though mining and petroleum exploration is to be prohibited during the duration of the first management plan, all other exploitative and extractive activities other than trawling are potentially allowed (Environment Australia undated).

al. 1998).⁴⁹ Environmental protection is intended as a prime objective of the GAB Marine Park and it is argued that the largest totally protected marine reserve in Australia is incorporated within its boundaries (Neverauskas pers. comm 1998), though the strength of the reserve's conservation status is questionable.

Comprehensive management of regional waters from the coast to the boundary of the EEZ has been provided for with the declaration of both State and Commonwealth components of the Great Australian Bight Marine Park. Though there are no management plans in place for any of the adjacent land areas it is envisaged that with appropriate agreements between the Aboriginal community and State agencies, the total area of the Great Australian Bight marine Park, including the land component, may be managed as one integrated unit (Andrews 1994).

Environment Australia has strongly advocated stakeholder involvement in the planning and management of the GAB Marine Park (Environment Australia 1998b). Incorporation of stakeholder interests within a 'multiple use management regime' is also stated to be fundamental to the Commonwealth's policy on the management of Commonwealth waters in the region, as well as for long-term ecological and economic sustainability of the oceans as a whole (Environment Australia 1998b). Public consultations began during the planning stages of the GAB Marine Park. Despite some internal conflict (Flaherty pers. comm 1995) consensus amongst the five main resident aboriginal groups was achieved early in the initial planning stages, particularly with regards the need for a Marine Park and the importance of integration between land and marine based management in the region. Mines and energy interests operating in the GAB, despite pushing for a system of multiple use zoning that would accommodate existing activities, also accepted very early the notion that critical areas for the breeding of southern right whales should not be impacted upon, and that a Sanctuary for their protection was required (Flaherty pers. comm 1994, 1995). Nevertheless, though a considerable 'ground-swell' of community support for the Marine Park has existed since the proposal was first put forward (Flaherty pers. comm 1994), concerted campaigning towards the Park's designation efforts took a great deal of time to be mobilised. There has been some concern voiced by a number of community groups that they were excluded from negotiations, though a general apathy from community interests in attending consultation processes has also been noted (Flaherty pers. comm 1995).⁵⁰

In contrast, a strong, well connected *anti*-park lobby has operated from Ceduna and Adelaide since the notion of a Marine Park for the region was first proposed. Based on the view that declaration of the GAB Park would be the 'thin end of the wedge', there has been considerable pressure and lobbying from the fishing industry, particularly the Rock Lobster industry, against any marine park proclamation in the Great Australian Bight (Flaherty pers. comm 1995).⁵¹ Considerable delays in establishing the Marine Park resulted from ongoing conflict between the Government, economic sector and some environmental interests, in conjunction with a lack of precedent with regards ecosystem-based management in South Australia (Flaherty pers. comm 1994). Indeed the GAB Marine Park as it now exists appears to have satisfied neither conservation groups nor fishing interests given that 'attempts to highlight the Park's role in conserving representative and important areas for the Bight's ecosystem have been lost in a debate focussed on existing uses and their interaction with the whales' (Foster 1995). Much of the opposition to the GAB

⁴⁹ For the purposes of the Great Australian Bight Marine Park proposal, the Commonwealth Government has during the designation stages, provided information on the management intentions for the Park as they relate to commercial and public access and use of the Park. By providing this information, the Commonwealth Government has hoped to 'provide certainty to industries operating in the Great Australian Bight and allow more informed comment from stakeholders on the proposal' (Environment Australia 1998b). It has also provided an opportunity for users to comment on and influence the designation of Park boundaries.

⁵⁰ See also Flaherty 1994.

⁵¹ See also Anon 1995; and Foster 1995.

Marine Park has been attributed to the misinterpretation of the management role of multiple-use marine parks (Flaherty pers. comm 1995; Neverauskas pers. comm 1998).

The South Australian government is said to be serious about effective management of the Great Australian Bight Marine Park, and a number of breaches of existing regulations within the region have been successfully prosecuted (Neverauskas pers. comm 1998). Integrated management has been mandated by the State government as a principal means towards effective management and specifically as a framework for coordination and reconciliation between conservation and development interests. However, while it is proposed that ecosystems and human activities be managed in an integrated way, there is little indication as to how this might occur. There is an in-principle agreement between the responsible State and Commonwealth agencies for cooperative management of the marine Park as a whole, though this agreement has not been formalised and it remains to be seen what administrative arrangements will be devised to facilitate this cooperation. There is some indication that consistency with existing legislation and management regimes for the GAB Marine Park areas will be sought via the management plans for the region (Environment Australia 1998b).

An economic assessment of the GAB Marine Park proposal for the Commonwealth waters has been carried out, concluding that establishment of the Marine Park would have minimal adverse impact on existing industry (Environment Australia 1998b). Other impact studies or performance criteria for the management of the GAB Marine Park have not been developed. A dynamic planning and management approach is promoted by Environment Australia and the South Australian government, one of the proposed management objectives of the State Waters Management Plan being 'to be capable of evolving in the light of new information' (Andrews 1994). The *National Parks and Wildlife Conservation Act 1975* provides for a plan of management to be in force for a period of up to 10 years. In most instances, however, the first plan of management is set for 5 years in order to test management arrangements, though the fishing industry has made representation to Environment Australia calling for the 'greatest amount of certainty possible about future management arrangements' (Environment Australia 1998b). In order to allow both plans to run concurrently, and therefore to promote consistency, it has been proposed that the duration of the Commonwealth Waters Management Plan will be set to coincide with the expiry of the State Waters Management Plan, however this has not been confirmed (Environment Australia 1998b).

Marine management within the Great Australian Bight Marine Park is pursued multi-sectorally and across jurisdictional and geographic boundaries. In this respect it represents an important case study where all major interests have participated in negotiation processes and where a regime of multi-purpose management has been established over a very large area. However the aims of the existing management program are largely ambiguous and there has been little balance between conservation and economic objectives in the region. As a consequence, the application of IMM within the Great Australian Bight has, to this time, had little influence on the *status quo*, on existing administrative arrangements or management philosophy, and essentially amounts to a formal recognition of the region as a 'managed area'. Notwithstanding, research from the Great Australian Bight has been used by scientists, environmental managers and industry representatives in the United States, in preparing a blueprint for the global management of large-scale marine ecosystems (Environmental News Network 1998).

Table 8. Great Australian Bight Marine Park Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?*	Comments
multi-sectoral	Yes		All regional interests potentially embraced
holistic focus	Yes		Multi-jurisdictional; cross-geographical
broad, transparent, collaborative decision-making	Yes		Emphasis on participatory processes in planning stages
top-down and bottom-up considerations	Partially		Largely government driven planning, but strong grass-roots support for proposal
commitment to planning and implementation	Yes		Ongoing funding of management planning for the region; successful prosecution of unlawful activities
strategic planning and management	No		
coordination and harmonisation	Yes		Coordination of management mandated
problem solving/dispute resolution	Yes		Reconciliation of interests, and identification of priorities for the allocation of available resources a main objective
action oriented planning and management	No		
monitoring, evaluation and review	Yes		A cycle of review proposed for Management Plans

* As management plans for the Great Australian Bight Marine Park are yet to be published and as the Park has only very recently been designated, management outcomes are unable to be assessed.

4.4 SUMMARY

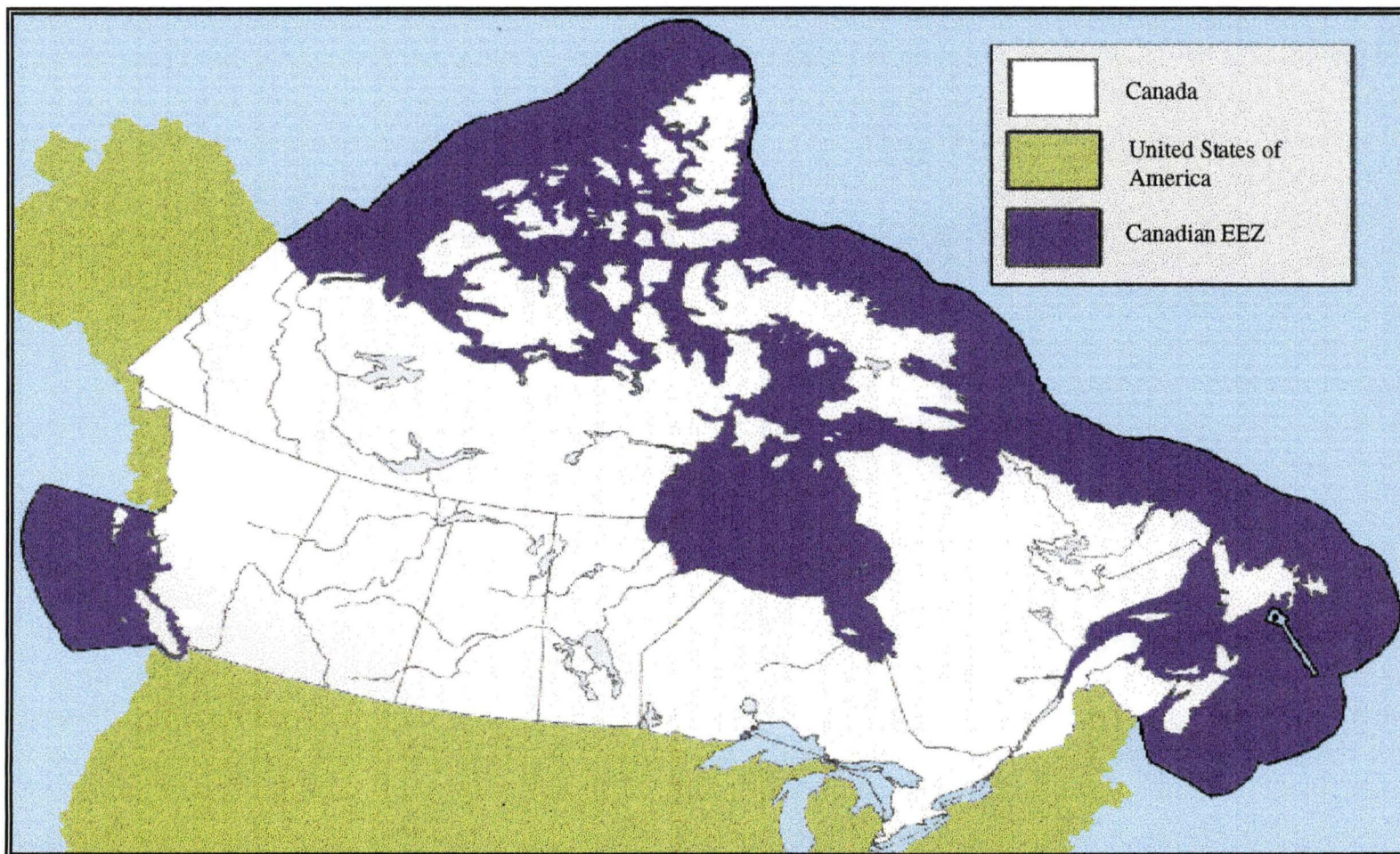
The need for coordinated, comprehensive responses to marine environmental management in Australia has been established through reports and inquiries dating from the 1970s. Australian ocean governance, however, has been shaped by Commonwealth/State tensions, and ad hoc collaborative efforts between multiple levels of government in a largely domestic setting. With introduction of the *Great Barrier Reef Marine Park Act* in 1975, the foundations for IMM of Australia's marine environment began to be laid, and a number of large-scale, regional marine management initiatives (under development and underway) now specifically incorporate many integrated management principles. Coordination across administrative boundaries, for example, is promoted within the Great Barrier Reef Marine Park, and coordination in the sense of cross-geographical concerns has been applied within Ningaloo Marine Park. The Great Australian Bight Marine Park has incorporated all relevant interest groups and users in management negotiations and seeks integration in the sense of cross-sectoral and cross-jurisdictional concerns. The proposed Australian Oceans Policy, currently under development, is intended as a *national* framework for inclusive management and use of ocean resources, and IMM is specifically targeted within the document at the national and sub-national levels. With respect to administrative responses towards integration, negotiations between the States and the Commonwealth have also resulted in comprehensive agreements for the management of marine resources and the environment; particularly the Offshore Constitutional Settlement (OCS) and the Intergovernmental Agreement on the Environment (IGAE). Environmental non-government organisations (ENGOS) have

similarly played a significant role in shaping means towards striking a balance between environmental and economic interests, but have had varying influence in marine management concerns generally. Organisations such as the Australian Conservation Foundation and the Australian Marine Conservation Society (formerly the Australian Littoral Society) for example, have contributed to the development of the proposed Oceans Policy and have had considerable influence in the designation and design of initiatives such as the Great Barrier Reef Marine Park. Support for marine management concerns beyond the Great Barrier Reef have been slow to evolve within the mandates of other prominent ENGOs however, given the political prominence of many terrestrial issues and the absence of a constituency focused on the marine environment.

Despite progress towards the establishment of comprehensive, coordinated marine policy and management framework in Australia, a number of constraints to integration remain. The administrative basis to environmental management in Australia - principally the IGAE and the OCS - has neither completely resolved jurisdictional complexity and dispute, nor provided innovation in terms of resolving multi-sectoral issues. The Great Barrier Reef, the Great Australian Bight and Ningaloo Marine Parks are all large multiple use managed areas that attempt to introduce and put into operation the concept of IMM, though the emphasis and implementation strategy of each of these initiatives differs markedly. All three Marine Parks have been declared in the absence of a national strategy and each has tackled the concept of 'integration' in different and mostly narrowly focused ways.⁵² Despite integrated management criteria forming an explicit foundation to a number of major marine management programs in Australia, implementation and practical operation of these criteria is a major problem in all of the case evidence examined.

⁵² The National Strategy for the Establishment of a System of Marine Protected Areas currently under development (Environment Australia 1998c) does little to resolve differences in application of integrated management principles within the Marine Park system, or even provide a consistent set of principles for the management of future Marine Protected Areas in Australia.

Map 2. Map Showing Exclusive Economic Zone of Canada



Chapter 5.

CANADA

5.1 INTRODUCTION

Canada is a federal state with ten self-governing Provinces and two Territories controlled by the central government. Despite the longest coastline in the world at around 243 800 km, only around 23 percent of Canada's total population live in coastal communities. Most of the country's vast coastline is very sparsely populated, and the greatest proportion of Canada's population (approximately 23 percent) live in a band about 150 km wide immediately north of the US border. As a result, political focus has been largely inland where terrestrial priorities have dominated the environmental agenda and Canada has traditionally directed little attention towards the ocean in terms of policy and management. Similar to Australia however, the coasts and oceans surrounding Canada play a very significant role - they have helped to forge a Canadian sense of identity and have provided a primary means of transport, trading, communications, and subsistence. Canada, for example, is a world leader in fish exports and controls some of the potentially largest offshore oil and gas deposits in the world (Hildreth 1991). Since the 1970s changing patterns in resource exploitation, jurisdictional issues, and escalating marine environmental degradation have risen in political salience in Canada, as around the world, prompting increased interest in the resource potential and management responsibilities of the ocean territory.

5.1.1 The Constitutional Division of Powers in Canada

The Canadian Constitution, drafted in the 1860s, differs from the US and Australian Constitutions in that it lists the powers of the *Provinces*, leaving the residual powers to the *federal* government. Federal powers are overriding, and by virtue of its power to legislate for the 'peace, order and good government of Canada' the Canadian federal government plays a significant role in protecting the environment. Two landmark judicial decisions, namely *R. v Crown Zellerbach* (1988), and *Friends of the Oldman River* (1992), attest to this influence and signify the potential scope of federal influence and/or control over environmental matters. Federal leadership in Canada has been evident in the development of a number of procedural and substantive frameworks for cooperative environmental management arrangements. This has included provision of the legislative basis for coordination or delegation of environmental management functions and the setting of standards to be met by provincial regimes. Nevertheless, the Provinces own their resources, have total responsibility for a variety of functions including municipal affairs, and tend to be proportionally physically large and politically strong. Other than with respect to lands owned by the federal government, furthermore, most terrestrial environmental management is a provincial concern. A significant feature of Canada's federal system therefore, is the *coexistence* of politically and jurisdictionally strong national and Provincial governments (Skogstad 1996).

5.1.2 The Jurisdictional Division of Powers in Canada

Federal jurisdiction in Canada is specified by the *British North America Act 1867* (and from 1982, the *Constitution Act 1867*), and includes responsibility for navigation and shipping, lands reserved to First Nations people, and national concerns relating to peace, order and good government.¹ The federal government also has primary jurisdiction over submerged lands below the low-water mark and offshore as well as general jurisdiction over the marine environment, marine resources, and certain activities such as coastal and inland fisheries. Constitutionally, the Provinces own their own resources down to the low-water mark and have full jurisdiction over their use and management. Matters unaddressed in the constitutional distribution of powers are subject to competitive or cooperative exchanges between the federal government and the provinces. Introduction of the federal *Canada Oceans Act* in 1997 marked Canada's claim of an EEZ and replaced the Canadian Fishery Zone declared in 1977 (see Map 2.). Introduction of the *Oceans Act* also confirmed a 12 n. mile territorial sea and a 24 n. mile contiguous zone. Provincial waters (out to 3 n. miles) are generally not claimed by Canada, though mirror legislation exists between the federal government and some Provinces (such as Labrador, Newfoundland and Nova Scotia) that affords provincial responsibility over territorial waters adjacent to the coastline (McCallum pers. comm 1995).

Canada is the only federation of Australia, Canada and the USA where the provinces play the *primary* role in environmental regulation, and it has therefore been necessary for the federal government to tailor its environmental initiatives around provincial legislation with well-established Constitutional bases (Morton 1996). Most often, the resolution of offshore issues has been approached on a province-by-province basis and consultation is ongoing between the federal and provincial governments for certain offshore sectors. Most attention has been directed towards offshore oil accords and agreements between the federal government and certain provinces, where substantial offshore oil revenues have prompted issues of shared management authority. In other sectors, where the potential for revenue sharing is less, there appears to have been little attention directed towards resolving jurisdictional complexities, despite strong provincial and territorial desires for shared management authority (Hildreth 1991).

Changing priorities, resource use patterns and political interests have influenced intergovernmental relations in Canada particularly over the last decade. As environmental degradation has become more serious, and as international pressures for governments to formulate environmentally sustainable policies have become more pronounced, all levels of government in Canada - federal, provincial, territorial and, increasingly, regional, municipal and aboriginal governments - have become involved in environmental management. As a result, much of the recent discussion of marine and coastal zone management in Canada has focused on the question of the division of national and sub-national responsibilities, the structure and functioning of existing institutions, and the need for some form of coordinative mechanisms to deal with environmental issues.

A *Statement on Inter-jurisdictional Cooperation on Environmental Matters* was endorsed by Canada's environment ministers in 1990. This Statement recognises the authority of the federal and provincial governments with respect to the environment, and stresses the need for cooperation in the harmonisation of environmental legislation, regulations, policies, and programs. However the harmonisation initiative was officially suspended in 1995 due to concerns over 'excessive' delegation and decentralisation, and because of criticism from the federal Environment Minister, non-government organisations and others concerning the role of the federal government in environmental policy-making (Kennett 1997).

¹ See Harrison & Parkes 1983; Cornwall, Higgins et al. 1988; and Kennett 1997.

Harmonisation of provincial and federal environmental policies was also identified as a top priority by the Canadian Council of Ministers of the Environment in an agreement known as the *Environmental Management Framework Agreement (EMFA)*. Modelled on the Australian *Intergovernmental Agreement on the Environment*, the EMFA was released in December 1994 (Kennett 1997). It is intended to provide a comprehensive framework for addressing boundary issues in Canadian federalism, as well as direction on more specific issues such as monitoring, environmental assessment, compliance, licensing, and international agreements. The general objective of the EMFA is to establish principles for harmonising environmental regulation as well as for the clarification of federal and provincial roles and responsibilities (Kennett 1997).

Introduction of the *Canada Oceans Act* in 1997 has to some degree expanded the federal government's role in environmental regulation and management. Coordination and integration is advocated specifically within the Act to ensure 'efficiency', 'complementary management', and to 'maximise protection of...oceans'. Harmonisation initiatives have been approached largely through centralisation of powers with the federal Department of Fisheries and Oceans, though jurisdictional complexities have not been entirely resolved by the Act (see Section 5.2.1).

5.1.3 Marine Management in Canada

Canadian environmental policy has been significantly shaped by Canada's federal system; namely a strong national and ten provincial governments, each with strong legal and political resources (Skogstad 1996). Policy activity in the marine domain has generally been in response to international events which have called into question Canada's sovereignty and threatened its marine environments and/or resources (Hildebrand 1995). Marine problems and the need for marine management have long been recognised in Canada, but until recently, there has been an absence of an integrated legislative approach to coasts and oceans, and marine initiatives have tended to evolve in the absence of comprehensive federal and provincial policy.

Some interest was shown in developing a comprehensive approach to marine issues in Canada with passage of the *Coastal Zone Management Act* in the United States during 1972 (Hildebrand 1989). However degradation of marine areas in Canada was not perceived to be of urgent concern and the need for comprehensive responses to ocean policy could not be elevated to political significance.

The real need for coastal and ocean management was first recognised in Canada through a series of workshops and government studies, particularly a major Shore Zone symposium sponsored by the federal/Provincial Canadian Council of Resource and Environmental Ministers in 1978. Consensus was reached at this Symposium on the need for a joint national approach to the planning and management of the Canadian coastal zone and a set of principles for coastal management aimed at coordinated planning and management was produced (Haward 1996). Based on the recommendations from this symposium, the federal government established a Federal Shore Zone Program in 1980 with the objective to develop and implement policies that would ensure coordination of federal activities and the participation of Provinces in the planning of shore zone areas where federal responsibilities were involved. An Interdepartmental Committee on Oceans (CI) was established to coordinate and guide marine programs and policies in Canada.² However the program was otherwise

² At the federal level, coordination of the 15 primary departments and agencies administering or utilising the 75 programs relating to the oceans was initiated in the early 1980s through the Interdepartmental Committee on Oceans (CI). Functioning as an information disseminating mechanism to improve coordination of ocean activities at the federal level, the Commission is chaired by the Deputy Minister of Fisheries and Oceans and has representation from all departments with ocean programs, as well as from those departments requiring services from such programs (Cote, Lamson et al. 1990).

poorly supported at the federal level, and the provinces were given little incentive to pursue development of their own coastal programs. The Federal Shore Zone Program ultimately lapsed within three years, though the CI has continued to remain in operation.

By the 1990s it was clear that Canada's marine environment required urgent attention, and in 1991, Canada's *State of the Environment Report* (Canada 1991) noted that many threats to the marine environment required immediate action. A resurgence of interest in marine issues was heralded with the emergence of the Fraser River Action Plan in 1985, an initiative designed to provide a framework for holistic and cooperative management of the Fraser River and its estuary.³ In 1987, an *Oceans Policy for Canada* (DFO 1987) was released aimed at providing a comprehensive framework for the management of Canada's oceans. And in 1990, cooperative efforts by the federal and Provincial governments to develop conservation and sustainable development strategies for land, marine and heritage resources were enhanced with the release of the 10 year initiative known as *Canada's Green Plan for a Healthy Environment*.

Canada's Green Plan for a Healthy Environment (1990)

Workshops and consultations involving contributions from over 10 000 people took place nationwide in the preparation of Canada's Green Plan (Canada 1990), though it was the federal cabinet that ultimately determined the Plan's fundamental features (Skogstad 1996). The Plan attempts to address pollution, resource use and conservation as well as public information and education through the promotion and funding of environmental programs across government departments. A number of community-based initiatives such as the Atlantic Coastal Action Program (see Section 5.3.2) have been established under the auspices of the Green Plan, and it has had some influence, particularly in its early years, in generating important advances in environmental management in Canada. The Plan focuses on eight key areas:

- clean air, water and land;
- sustainable use and renewable resources;
- protection of special spaces and species;
- an Arctic environmental strategy;
- global environmental security;
- environmentally responsible decision making;
- federal environmental stewardship; and
- minimising the impact of environmental emergencies.

The philosophy of the Green Plan is sustainable development of natural resources and particular emphasis is placed on the long-term sustainability of fisheries resources. A market oriented approach and participatory decision-making are promoted to realise the Plan's goal of sustainable development. Sectoral linkages and ecological interdependencies, however, are not recognised within the Plan (Choudhury 1994) and it has now been largely abandoned given a lack of political commitment to its implementation.

³ The Fraser River Action Program is a federal-Provincial program involves a diversity of agencies, representatives and interest groups in managing the Fraser River and its estuary as one comprehensive system. An Estuary Management Plan provides a framework aimed at integrating environmental protection and economic development, and an Action Plan defines a multi-year program focused on improving the health and productivity of the Fraser River (FREMP 1994; Environment Canada 1995b).

Though not marine specific, the National Round Table on the Environment and the Economy (NRTEE) initiative was created as a statutory body⁴ in 1988 as a broad attempt at coordination of environmental policy in Canada. A network of Round Tables initiated by the program offer a forum for representatives of government, industry, environmental groups, and Aboriginal peoples to discuss inter-relationships between the environment and the economy, and to recommend institutional reforms. There are currently 25 appointed members of the NRTEE, representing a broad range of regions and interests across Canada. Other Round Tables on the Environment and the Economy have been established at the Provincial, Territorial and national levels so that there are now more than 150 Round Tables in operation in Canada at all political levels and in varying circumstances. The success of the various round tables has differed substantially. In some cases however, Round Tables have been very effective (Roots pers. comm 1995), though their influence on marine related matters has been minimal.

At the same time that the NRTEE was being established two mechanisms were introduced in Canada that seek to provide the legislative basis for comprehensive management of the environment. The *Canadian Environment Protection Act 1988*, and the *Canadian Environmental Assessment Act 1992*, though also not specifically directed at marine affairs, both consolidate a number of environmental management responsibilities and have an important influence on marine management (see Box 6).

⁴ The National Round Table on the Environment and the Economy was established as an independent agency of the federal government under the *National Round Table Act*.

Box 6.**The Canadian Environment Protection Act (1988)**

The *Canadian Environment Protection Act* (CEPA) is Canada's broadest environmental legislation at the federal level. It was enacted in 1988 and replaced, amended or incorporated parts of six other federal statutes, including the *Clean Air Act*, the *Environmental Contaminants Act*, and the *Ocean Dumping Control Act*. The preamble and prescribed duties of the Canadian government suggest a comprehensive approach to environmental regulation. However CEPA, in effect, addresses a series of separate topics. These topics include: research; monitoring; establishment of codes of practice; regulatory regimes for toxic substances; regulation of substances to prevent the eutrophication of lakes and rivers; regulation of international air pollution; regulation of ocean dumping; enforcement mechanisms; and offences. In practice, CEPA provides for federal authorities to regulate and control toxic substances which had otherwise been predominantly controlled by the Provinces.

Given the potential for overlapping federal and Provincial environmental regulation, and provincial hostility to federal 'intrusion' into areas traditionally within their authority, the Act raises a number of jurisdictional, inter-provincial and international boundary issues (Kennett 1997). In order to address these issues, CEPA provides for three mechanisms for federal/Provincial cooperation; namely an intergovernmental advisory committee⁵, equivalency agreements⁶, and administrative agreements.⁷ Agreements envisaged under CEPA therefore tend to be on a bilateral basis, though rather fragmented and issue specific. A major review of the CEPA in 1995 issued 141 recommendations for change of the CEPA including incorporation of the precautionary principle (House of Commons Standing Committee on Environment and Sustainable Development 1995). The review also recommended that an ecosystem approach be adopted as a guiding principle for the Act. However it did not provide substantive provisions to implement these concepts⁸, and consequently provides little advancement in the management of inter-provincial pollution concerns or the management of transboundary ecosystems in Canada.

⁵ The federal/Provincial Advisory Committee (FPAC) is the principle consultative mechanism of CEPA. It is established by s. 6(1) of the Act to create a framework for national action, facilitate inter-governmental cooperation on environmental matters, and avoid conflict between, and duplication of federal and Provincial regulatory activity.

⁶ The equivalency agreements are established by s. 34 (5),(6) of CEPA and mean that a CEPA regulation ceases to apply in a Province where an equivalent or more stringent provision has been formally recognised by the Province. These provisions were included in CEPA as a response to concerns about perceived jurisdictional encroachment (Kennett 1997). As of 1995 only one equivalency agreement had been signed and Kennett (1997: 140) argues that this is largely because of difficulties in establishing the meaning of equivalency, entrenched regulatory regimes, and a reluctance to conclude agreements that tacitly support federal standard setting.

⁷ A provision for administrative agreements (s. 98) is designed to share responsibilities, eliminate overlap and duplication, and provide a one-stop-shop approach to regulation. Topics addressed in these agreements include inspection, enforcement, monitoring, reporting, and information sharing.

⁸ For more discussion on this aspect of the CEPA see Haward & VanderZwaag 1995; and Kennett 1997.

Box 6 continued.**The Canadian Environmental Assessment Act (1995)**

The *Canadian Environmental Assessment Act* (CEAA) establishes the federal environmental assessment process in Canada over areas of federal jurisdiction including the Exclusive Economic Zone. The Act was introduced in an attempt to resolve problems associated with the costliness and delay of projects where both federal and Provincial impact assessments were required. It was adopted in March 1992 replacing non-legislated provisions for environmental assessment from 1974, though it only came into effect in 1995 largely due to strong objections put forward by Quebec regarding the federal role in provincial resource management decisions (Skogstad 1996).

The CEAA requires that the federal government consider environmental consequences when making development decisions. Though the process is purely advisory, in that final decisions are ultimately made by the federal authorities, departments or agencies responsible for the authorisation of a project (Kennett 1997). The CEAA also creates a statutory obligation for a compulsory federal environmental impact assessment for development projects. A project triggers the CEAA process when a federal authority becomes involved with financial assistance, nomination or responsibility for a project, or when the project is to occur within federal jurisdiction. Once the process is triggered, the appropriate level of environmental assessment effort has to be determined.⁹

Cooperative mechanisms are established by CEAA with a view to coordinating environmental assessment responsibilities between governments, as well as a delegation of powers and creation of joint panels to avoid duplication of public hearing processes. As with CEPA, the CEAA involves federal assertions of environmental jurisdiction, including federal standard setting and the possibility of unilateral action. Similar to CEPA therefore, the federal CEAA system raises jurisdictional, inter-provincial and international boundary issues because of the possibility that projects may have influence beyond the realm of the federal government.

In 1991, a project known as the Atlantic Coastal Zone Information Steering Committee was established (see Box 7.). Development of the Steering Committee indicates a growing momentum in Canada over recent years towards comprehensive regional approaches to problem-solving.

In 1992, as a participant in the United Nations Conference on Environment and Development, Canada made a commitment to support principles of integrated coastal and ocean management. In a priority-setting exercise conducted during 1993, the Canadian Council of Ministers of the Environment (CCME) subsequently identified the need to develop a domestic response to integrated coastal zone management in recognition of international commitments inherent in Chapter 17 of Agenda 21. During this time, a regional coastal zone management workshop was held in Atlantic Canada. The workshop resulted in a consensus among representatives of all three levels of government, non-government organisations and community groups that a regional accord on integrated coastal resource management was needed as a matter of priority.

⁹ A fundamental problem associated with the CEAA is that though it is intended as an early planning tool, the Act is not triggered until a permit has already been issued. There are also a number of problems with overlap between federal and Provincial environmental review assessment, and with coordination between government departments which have the ability to trigger the Act (Burgess pers. comm 1995).

Box 7.**Atlantic Coastal Zone Information Steering Committee (1991)**

The Atlantic Coastal Zone Information Steering Committee was established in 1991, following a workshop designed to further the process of cooperation on a regional basis. Workshop participants recommended the establishment of a Steering Committee to address a need for a coordinated regional response to coastal zone information management, and in January 1992 the Atlantic Coastal Zone Information Steering Committee (ACZISC) became operational. The Steering Committee, as an information management project, does not attempt to undertake decision-making or environmental planning. The goals of the project are to:

- foster the implementation of information management;
- provide a forum for coastal zone projects;
- minimise duplication;
- identify funding sources and opportunities;
- link with other relevant groups; and
- assist alliance creation.

Membership on the ACZISC is drawn from the four Atlantic provinces plus Quebec, seven federal government departments and agencies, two key industry groups, and four other national and regional agencies. The Committee has a number of core activities including development and maintenance of an electronic directory of coastal data and information, a coastal information technology architecture project, coastal standards, and coastal mapping. The Committee itself also serves as a focal point for information exchange, and the development of partnerships and cooperative ventures.

A major focus of the ACZISC has been the East Coast of North America Strategic Assessment Project, a data synthesis project involving the United States National Oceanographic and Atmospheric Administration's Strategic Environmental Assessments Division, and several Canadian agencies. An ACZISC Working Group was established in 1992 to provide a Canadian focus for the joint Canada/US Strategic Assessment Project. Several members of ACZISC also participate in Working Groups and Committees of the Gulf of Maine Council on the Marine Environment (see Section 6.4.1). Linkages are similarly in place between ACZISC and the Atlantic Coastal Action Program (see Section 5.3.2), the Oceans Institute of Canada, the Council of Maritime Premiers, the Conference of Atlantic Premiers, and the Interdepartmental Committee on Oceans among others.

To this end, statements of political intent to develop Provincial coastal zone management programs were made by Nova Scotia and New Brunswick, and a Structural Concept (Copp 1994) for an accord was prepared in 1994.¹⁰ Nova Scotia upheld its statement of intent and in 1994 became the first Canadian jurisdiction to develop a draft policy for the integrated planning and management of its coastal zone with the release of its *Coastal 2000* discussion paper (Canada 1994). Around this time, Canada also began to take a leading role in tackling cross-jurisdictional environmental issues, particularly with regard to international standards and controls for land-based marine pollution, and fisheries. In March 1994, controversial legislation was enacted to grant the government of Canada authority to take action to conserve straddling stocks beyond the 200 n. mile EEZ, and in June 1995 Canada hosted an experts meeting to review the Montreal Guidelines as a step towards the development of a Global Program of Action to Protect the Marine Environment from Land-Based Activities (Haward & VanderZwaag 1995). Outcomes from this meeting are now feeding the development of a National Program of Action for the Protection of the Marine Environment from Land-based Sources of Pollution.

¹⁰ The concept for the Atlantic Accord on Integrated Management of the Coastal Zone was conceived in a multi-disciplinary workshop in New Brunswick in November 1993. Consensus was reached among the representatives of the three levels of government, non-government organisations and community groups, that an integrated approach to the management of the coastal zone was required as a matter of priority. Statements of political intent to develop Provincial coastal zone management programs in Nova Scotia and New Brunswick were made, and a call for the development of a regional coastal zone management accord was agreed to. The goal of the proposed Accord is to 'achieve a major contribution toward the sustainable economic recovery of the Atlantic provinces by the integrated management of the coastal zone of the Region' (Copp 1994). The proponents of the Accord have tried, unsuccessfully, to generate government support for its implementation.

Drawing on the *Oceans Policy* document released in 1987 (DFO 1987), and a report published by the National Advisory Board on Science and Technology in 1994 (NABST 1994), enthusiasm for development of a comprehensive approach to the planning and management of the marine environment was consolidated in 1997 with the development of a national *Oceans Act*. The Canada *Oceans Act* seeks to overcome many of the problems of fragmentation of ocean responsibilities by consolidating powers with the federal Department of Fisheries and Oceans. The Act must be seen as one of the most significant landmarks in Canadian marine management to date.

5.2 NATIONAL INITIATIVES

5.2.1 Canada Oceans Act (1997)

In 1997, with the coming into effect of the *Canada Oceans Act*, Canada became the first country in the world to have a single piece of national legislation governing overall management of its ocean activities and resources. The Minister's Speech introducing Bill C-98 states that the *Oceans Act* is based on the belief that marine management efforts in Canada have traditionally been fragmented and that multiple, conflicting interests predominate in the ocean environment (DFO 1995b). As such, the Act is intended to provide Canada with 'legislative tools to start working on oceans management holistically rather than sectorally', without eroding government responsibilities (DFO 1995b: 4).

Box 8. Canada Oceans Act Sequence of Events

1957	National considerations of a Canada Oceans Act following from the 1957 International Geophysical Year.
1987	Oceans Policy for Canada, recommends formation of a Canada Oceans Act.
1988	Multi-Year Science Plan prepared by the Department of Fisheries and Oceans (DFO) under direction from the Interdepartmental Committee on Oceans, to serve as an essential instrument in achieving the goals of the 1987 Oceans Policy for Canada.
1994	(Spring) National Advisory Board on Science and Technology Report on Oceans and Coasts ' <i>Opportunities from Our Oceans</i> ' released; (Sept) Minister of Fisheries and Oceans issued a press release announcing new oceans initiative.
1995	(April 1) Merger of the Canadian Coast Guard with the DFO came into effect; (June 14) Minister of Fisheries and Oceans introduced Bill C-98, the proposed Canada Oceans Act in the House of Commons; (Sept 26) Minister of Fisheries and Oceans lead second reading debate of the proposed Canada Oceans Act in House of Commons; (Dec 8) An amended Canada Oceans Act Bill reported to the House.
1996	(Feb 2) Prorogation of the House, and Bill C-98 abandoned; (March 4) Motion to reinstate government bills already reviewed by Parliamentary Review Committee, is adopted; (April 17) Minister of Fisheries and Oceans reintroduced a proposed Canada Oceans Act, as Bill C-26, in House of Commons at report stage; (June 12) Bill C-26 completes Reports Stage; (Oct 21) Bill C-26 passes Third Reading by the House of Commons; (Nov - Dec) Bill C-26 reviewed by Senate Committee on Fisheries; (Dec 18) The Canada Oceans Act passed.
1997	(Jan 31) The Canada Oceans Act came into force; (Feb) Release of a discussion paper on an approach to the establishment and management of Marine Protected Areas under the Canada Oceans Act.
1998	(April) Public consultations began on a draft policy and framework for a national Marine Protected Areas program, established under the Canada Oceans Act.

The conceptual foundation of the *Canada Oceans Act* is a document released in 1987 entitled the *Oceans Policy for Canada* (DFO 1987). The 1987 *Oceans Policy* is based on a need to meet major federal priorities, and aims at providing a framework to ensure coordination of federal oceans policies and programs. Due to the large extent of Canada's ocean territory, the Policy recommends development of legislation to clarify legal frameworks and to simplify operations and planning. Central to the *Oceans Policy for Canada* is the generation of economic wealth and the assertion of ocean sovereignty. Its goals include thriving ocean industries, thriving science, technology and engineering, and sound ocean management. The Minister for Fisheries and Oceans was charged with the responsibility for coordination of an action plan to implement the Policy, and to create a 'Champion of Ocean Issues' out of the Department of Fisheries and Oceans by building on the department's residual powers (NABST 1994). A Multi-Year Marine Science Plan was prepared by the Department of Fisheries and Oceans (DFO) under direction from the Interdepartmental Committee on Oceans to serve as a tool for the implementation of the *Oceans Policy*, but conflict over the maritime boundaries of two adjacent French Islands, Saint Pierre and Miquelon, became a complicating factor in further development of implementation arrangements. At the request of the Department of Foreign Affairs and International Trade, progress on the Oceans Act was halted while negotiations with France regarding the territorial sea in the region were ongoing (Meltzer pers. comm. 1995).¹¹ Subsequently other priorities prevented the DFO from proceeding with the Act, and most of the specific initiatives of the Oceans Policy were discontinued or abandoned.¹²

The virtual demise of the Atlantic groundfish fishery during the 1990s spawned a serious reassessment of management tools and policies and a debate over future management approaches (Bergin et al 1996).¹³ This and a series of recommendations put forward by the National Advisory Board on Science and Technology (NABST 1994) on the status of Canada's ocean management and resources also prompted a rejuvenation of enthusiasm for the development of an Oceans Act during the mid 1990s.

¹¹ See also NABST 1994.

¹² During delays over the development of an Oceans Act under the jurisdiction of the DFO, discussion evolved over the development of an Oceans Act under the control of Environment Canada through changes to the *Canadian Environmental Protection Act (CEPA)* (Morris pers. comm 1995). Environment Canada put forward a paper examining the potential for and the means of strengthening the *CEPA* as a means of supporting coastal zone management in Canada. With calls for a comprehensive Coastal Zone Management Act, and a strengthened role of Environment Canada under powers provided by the *CEPA*, the paper proposed an arrangement for comprehensive marine legislation alternative to that provided by previous developments of the DFO. Despite these deliberations, Morris (pers. comm 1995) suggests that there was no real wrangling between the DFO and Environment Canada about allocation of responsibilities for comprehensive management of the coasts and oceans; Environment Canada is traditionally responsible for fresh water concerns in Canada, and the DFO is responsible for oceans, so that comprehensive oceans policy considerations 'naturally fell' within the DFO mandate. Others argue nevertheless, that Environment Canada should have retained a key role in the development and implementation of the Oceans Act, given the comprehensive management experience the Department has gained in areas such as ocean dumping negotiations (Novaczek pers. comm 1995).

¹³ Canadian catches of Atlantic groundfish declined drastically between 1991 and 1996 due to a severe depletion of the resource base. Given that fisheries in the Atlantic region are one of the principal sources of employment and earning, the collapse of the Atlantic fishery has been the cause of major social and economic displacement. The causes of the crisis are not well understood, though it is certain that many complex and interrelated issues have contributed (Bergin et al 1996)

***Report of the National Advisory Board on Science and Technology:
Opportunities from our Oceans (1994)***

The National Advisory Board on Science and Technology (NABST) report, *Opportunities From Our Oceans* (NABST 1994) is based on extensive consultation in all of Canada's coastal regions, as well as an analysis of past ocean policy initiatives. The Report identifies approximately 30 pieces of legislation and 25 distinct program areas spread amongst six federal departments with, at that time, some influence on the management of coastal and ocean resources in Canada.

The NABST Report recommends building on opportunities resulting from the coming into force of the UN Law of the Sea Convention, and mandates a comprehensive national strategy for ocean science, management, and technology development to achieve sustainable economic benefits. The key recommendations of the Report include the development of an Oceans Act in order to establish sovereignty over an EEZ, the creation of an ocean science management system that maximises and encourages regional innovation, and the advancement of international cooperation in scientific research to protect ocean resources.

In response to the NABST report, a Ministerial Statement was issued by the Department of Fisheries and Oceans in November 1994. The statement presented a vision for oceans management in Canada. It confirmed the need for an Oceans Act to provide a 'common focus', as well as a 'plan of action' to resolve conflict and achieve sustainable development in Canada's marine environment and it announced that the development of such an Act would begin. At this time the Canadian Coast Guard, as recommended by a federal government 'Program Review', merged with the DFO essentially doubling the size of the DFO and significantly increasing the Department's ocean responsibilities¹⁴. This relocation of responsibilities also made the DFO the major player in federal oceans related activities, and resulted in approximately 70% of ocean-related expenditure being concentrated in one department.

A great deal of work was done internally during 1995 in devising what form the Oceans Act should take.¹⁵ Consultations with stakeholders began, and a draft *Oceans Act* was finalised and introduced into the House of Commons as Bill C-98, in June 1995. Following a second reading of Bill C-98, it was referred to the Standing Committee on Fisheries and Oceans in September of the same year, and in December, an amended Bill was reported to the House. During February 1996 Bill C-98 died on the order paper during prorogation of the House, but in March a motion was adopted to re-instate bills already reviewed by the Parliamentary Review Committee. In April 1996, a renumbered Canada Oceans Act, Bill C-26, was reinstated at the report stage. In October the Bill passed Third Reading by the House of Commons and during November and December, Bill C-26 was reviewed by the Senate Committee on Fisheries. Finally, in December 1996, Bill C-26 was granted Royal Assent and on January 31 1997, the Canada Oceans Act came into force. The *Canada Oceans Act* consists of three parts, as follows.

¹⁴ The merger of the DFO and the Canadian Coast Guard increased the DFO's responsibilities to include not only hydrography, fisheries management, oceanography, biological sciences, marine ecosystems conservation, habitat, small craft harbours, fisheries research, and aquaculture, but also search and rescue operations, marine communication, lighthouses, environmental response, ice-breaking, marine traffic services, and shipping responsibilities among many other responsibilities (Skillon pers. comm 1998).

¹⁵ Michaela Huard, then Director of Oceans Programs, Habitat Management and Environmental Science at the DFO, is attributed with developing much of the structure of the Oceans Act (Morry pers. comm 1995).

Part I - Recognising Canada's Oceans Jurisdiction: which contains important stipulations on jurisdiction, notably the full application of provincial laws offshore. It formalises Canada's jurisdiction over its ocean areas through affirmation of a Territorial Sea extending 12 n. miles from the low water mark, a contiguous zone extending 12 n. miles from the outer edge of the Territorial Sea, and an Exclusive Economic Zone extending 200 n. miles adjacent to Canada.

Part II - Oceans Strategy: which provides the legal framework for implementation of the *Oceans Act* based on the principles of ecosystem based integrated management, sustainable development of ocean resources, and the precautionary approach. Planning for the construction of the Oceans Strategy began with a series of national consultation processes in February 1998, and the Strategy is intended to be finalised by the year 2000.¹⁶

The Oceans Strategy, as proposed, has several objectives:

- conserve and protect the oceans' environment, the ecosystems and the resources they contain;
- establish a framework and guidelines to manage the oceans resources, both renewable and non-renewable, on an economically sustainable and environmentally acceptable basis;
- enhance, focus, disseminate and coordinate Canada's scientific, environmental and management information relating to oceans and their resources;
- assert and enforce Canada's sovereign rights and responsibilities over its ocean resources and areas; and
- establish a clearly identifiable lead federal agency accountable for oceans management.

The Oceans Strategy also mandates that the Minister develop specific implementation strategy in three key areas, namely:

- integrated management of coastal and ocean waters;
- marine protected areas; and
- marine environmental quality indicators.

First, a specific strategy for the integrated management of Canadian coastal and ocean waters is in the first stages of development, and the policy framework was opened for public consultations during mid 1998. A discussion paper released in 1996, *A Strategy for Achieving Integrated Management* has also proposed a pilot project for 'staged, or stepwise, implementation of Integrated Resource Management' to be coordinated by the DFO (Meltzer Research and Consulting 1996). The discussion paper suggests that a 'Model Coast' pilot program be established in the Maritime region on the basis of experience gained through the Atlantic Coastal Action Program (see Part 5.3.2 below).

¹⁶ As at May 1998 consultations with provincial and territorial government representatives and discussions with Aboriginal organisations were being finalised. Once they are finalised, an 11 member national oceans panel is intended to be assembled by the Minister of Fisheries and Oceans from a number of people submitted as 'opinion leaders' in the oceans sector. This panel will be split up into 3 different sub-groups representing the Pacific Ocean coast, the Atlantic Ocean coast, and the Arctic Ocean coast, and is intended to be in operation by Autumn 1998. The Oceans Strategy will only then begin to be drafted once public consultations on the discussion appear *Toward Canada's Ocean Strategy* (DFO 1998d) have been carried out (Skillion pers. comm 1998).

Second, a discussion paper was released in February 1997 outlining an approach to establishing and managing Marine Protected Areas (MPAs) in Canada. This discussion paper has undergone a 90 day public review and the DFO is beginning to draft a policy and a national framework for establishing MPAs. Both the draft policy and the national framework will undergo a 60 day public consultation phase beginning in April 1998 and ending in June 1998. Once this second public consultation phase has ended, the DFO will work towards establishing MPA pilot projects to test the strategy in a 'learn-by-doing' approach (see Section 5.3.1).

Third, the importance of Marine Environmental Quality (MEQ) indicators was first promoted in 1992, when the deputy Ministers of Environment Canada, and Fisheries and Oceans secured the endorsement of 13 other federal departments and agencies for a Federal Framework for the Management of Marine Environmental Quality (MEQ) in Canada. The Inter-departmental Committee on Oceans established a MEQ Steering Committee of Directors General and a Working Group of Experts to develop and implement a National Framework and Action Plan for the conservation and protection of Marine Environmental Quality in Canada. Momentum on the initiative was lost, however, until the Canada *Oceans Act* redirected focus towards a new MEQ regime. Development of Marine Environmental Quality parameters, crucial to both the MPA and Integrated Management strategies, has nevertheless only just begun again given that it is more technically complex than other components of the Oceans Strategy and 'less in the public eye' (Morry pers. comm 1998).

Part III - Consolidation of Federal Responsibilities for Canada's Oceans: identifies the Minister for Fisheries and Oceans as the lead federal authority responsible for oceans. It identifies his or her ocean-related duties, powers, and functions, and stipulates that the minister has a duty to consult and coordinate with respect to management of the oceans. It also regroups key federal ocean related statutes under the *Oceans Act*.

Canada Oceans Act: An Analysis

The *Canada Oceans Act* is largely a defensive response to a series of issues, particularly the political pressures stemming from the collapse of the Atlantic fisheries. nevertheless, the *Canada Oceans Act* has the potential to be a progressive and vital agreement with the capacity to be a comprehensive coordinating mechanism for disparate and fragmented marine management efforts. It has been a positive step in ocean governance in Canada, since it has placed coastal and ocean management issues prominently on the national agenda. It also allows the Minister of Fisheries and Oceans to enter into collaborative agreements and partnerships with ocean stakeholders to implement a far-reaching oceans management regime.

Despite being located with the federal Department of Fisheries and Oceans, the *Oceans Act* has a multi-sectoral as well as a multi-jurisdictional focus. Part II of the *Canada Oceans Act* provides the legislative framework for a management based on 'ecosystem' principles. The DFO, prior to the enactment of the *Oceans Act*, was primarily focused on fisheries management and its associated sectoral responsibilities. Introduction of the *Canada Oceans Act* however, has therefore shifted the focus of the DFO from species management to ecosystem management, embracing protection and conservation of ocean space and the management of both coastal and ocean activities. However, internal policies, procedures and programs have not been constructed to undertake this role, and discussions to date regarding cross-sectoral considerations have 'taken place in a fairly superficial manner' with few, if any new direction or policy statements resulting (Morry pers. comm 1998).

The *Oceans Act* provides for a broad scope management of activities in *or affecting* estuaries, coastal and ocean waters. However integrated management is being targeted for the present time on 'coastal' areas alone rather than the broader 'marine' environment given that 'most resource management conflicts occur (in the coastal zone) and because it is important to establish a functioning model based on more tractable challenges first' (DFO 1998e). Another interesting point to note is that despite its push towards representativeness, rivers and lakes are excluded from the scope of the *Oceans Act* raising questions as to whether watershed approaches towards integrated management can be supported by the legislation. Integrated management is a prominent concept of the Marine Protected Areas component of the *Oceans Strategy*. Within the MPA component, integrated management is defined primarily in the narrow sense of bringing 'affected interests' together for agreeing on 'common goals, plans and policies' (DFO 1997c), reflecting the strong commitment to participatory decision-making stated within the *Oceans Act*. Criticism has nevertheless been levelled at the DFO in the planning and development of the *Oceans Act*, due to a perceived lack of formal consultation with Provinces and local interests, and lack of acknowledgment of the leading role that provinces play in marine affairs in Canada (Hildebrand, Montgomery, Novaczek, VanderZwaag pers. comm 1995). There is also a perception amongst some ocean interests in Canada (particularly fisheries and a number of NGOs) that the *Canada Oceans Act* is 'a package *given* to those affected who have had little or no say in what it should contain' (Novaczek pers. comm 1995).

The vision of the DFO - to 'be a world leader in oceans and marine resource management' - has guided development of the *Oceans Act*. The Act defines a centralisation of ocean responsibilities with the DFO, and places other government agencies in an advisory role. The large degree of discretionary power provided to Minister of Fisheries and Oceans under the Act has caused a great deal of concern to some (Novaczek, VanderZwaag pers. comm 1995), though these discretionary powers are limited to some degree by the Minister's concurrent duty to 'consult and coordinate' with respect to oceans management. The Minister, amongst other things, must facilitate marine scientific research relating to fisheries resources and their supporting habitat and ecosystems. The Minister is also given the power to make regulations, establish marine protected areas and prescribe measures for the conservation and protection of fishery resources and fish habitat within protected areas. While major issues concerned with the collapse of Atlantic fisheries have required the federal government to adopt a more comprehensive approach to managing marine resources, it is still too early to determine whether the *Oceans Act* represents a truly national framework. A set of coastal and ocean management principles contained within the *Oceans Act*, for example, are intended to be interpreted and operated at the Provincial level (Hildebrand pers. comm 1995) and in this respect, Truscott (pers. comm 1995) argues that the Act forces marine management to be directed towards the regional and local scale.

Enactment of the *Canada Oceans Act* testifies to a political will to address ocean management issues, as well as a strong public pressure to resolve ongoing marine resource use conflicts. Development and approval of the *Oceans Act* has also defined a broad strategy for marine planning and management, a fact which is argued to 'support Canada's firm desire to ensure that decisions on oceans management issues are based on the principle of integrated resource management' (Bellfontaine pers. comm 1995). The Act, notwithstanding, is largely enabling. It provides little innovative leadership in the resolution of governance of marine issues and contains few detailed procedures or binding commitments. The *Oceans Act* is 'constitutionally clean' in that it contains little specific direction on marine policy, or Provincial concerns (Butler pers. comm 1995). No additional statutory responsibilities have been assigned to the DFO, and the current development of the *Oceans Strategy* provides little indication that institutional arrangements or administrative processes will be modified in any way. As the *legislative* basis for ocean responsibility has preceded development of *policy* towards the management of coastal and ocean areas, policy is now having to be developed within the limitations already established by the Act.

Coordination has been a principal goal of the DFO in the design of the *Canada Oceans Act*. The Act has been designed to be compatible with international principles on the management of the marine environment (DFO 1995b), as well as international provisions for the establishment of an EEZ under the *Law of the Sea Convention*. A number of overlapping Canadian federal Acts and legislation with marine related responsibilities have been consolidated by the *Canada Oceans Act*, without encroaching on responsibilities held by other government departments and ministries. The *Canadian Territorial Sea and Fishing Zones Act* as well as the *Canadian Laws Offshore Application Act*, for example, have been incorporated in Part I of the *Canada Oceans Act*, though responsibility for these two incorporated Acts remains with the Minister of Foreign Affairs and International Trade, and the Minister for Justice respectively. Consolidation of the Canadian Coast Guard, fisheries management, and science fleets into a multiple purpose fleet has also been completed with entry of the *Oceans Act* (DFO 1997b).

Some new ocean policy and management arrangements are being constructed under the auspices of the *Oceans Act*. The DFO and Environment Canada, for example are currently working to ensure that the *Canadian National Program of Action for the Protection of the Marine Environment from Land Based Activities* is being developed in accordance with the international Washington Declaration and standards set by the Global Program of Action. The Oceans Strategy is also intended to provide a framework for shared stewardship and cooperative management of coasts and oceans by accommodating existing strategy and programs in a 'one window approach' to ocean governance (Mageau pers. comm 1995). Nevertheless, there remains little indication how the *Oceans Act* will mesh with *existing* provincial coastal and ocean management efforts in reality. The federal legal framework for Marine Protected Area designation in particular, remains fragmented (see Section 5.3.1).

The *Canada Oceans Act* acknowledges a need for information dissemination, raising awareness, education, and conflict resolution through arbitration, particularly within the Integrated Management Strategy. However other than a cursory overview, there is little indication as to what the implementation strategy for the Act should contain, how it should be prepared, or how it should be enforced (Haward & VanderZwaag 1995). The DFO is to assume the federal lead role in the development of the Oceans Strategy, though how this leadership is intended is unclear. A departmental strategic framework adopted by the DFO incorporates 'expected results', with funding estimates, costs, plans and priorities, though action plans and time lines are still needed. A system of Marine Environmental Quality standards is also to be developed as part of the Oceans Strategy in order to judge performance in achieving effective ecosystem based management (DFO 1997a). The proposed MEQ Strategy outlines 'norms' to be used for evaluation, monitoring and impact assessment, and these norms are to be worked out cooperatively. There is a commitment to flexibility within the proposed Oceans Strategy, and the Integrated Management Strategy. The Marine Protected Areas Strategy is to be based on a 'learn-by-doing' approach that is intended to adapt to meet changing regional and stakeholder needs, though has been little detail given to how this adaptation will occur.

IMM is central to the *Canada Oceans Act*, and the document provides a strong basis for the comprehensive management of Canada's marine jurisdiction. Previously disparate and often overlapping marine management responsibilities have been consolidated with the introduction of the *Canada Oceans Act* and existing complex legislative arrangements for the management of marine resources and environment have been rationalised. This has provided some progress in overcoming institutional barriers which have complicated marine management in Canada in the past.

While the *Canada Oceans Act* has achieved a certain integration of all *responsibility* for ocean management within one federal department, there has been less consideration given to the integration of ocean *governance* at the federal level. Indeed, it remains to be seen how the concept of integrated management will be put into practice. If a meaningful national regime for integrated marine management is to be developed, it will be critical to resolve the remaining jurisdictional and institutional fragmentation that continues to frustrate development and implementation of marine management in Canada.

Table 9. Canada Oceans Act Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Yes	Sectoral interests to operate within a multi-sectoral framework
holistic focus	Yes	Partially	Moves towards 'ecosystem based' management; current focus on integrated <i>coastal zone management</i>
broad, transparent, collaborative decision-making	Yes	Partially	Strong commitment to stakeholder involvement; poor provincial involvement in policy formation
top-down <i>and</i> bottom-up considerations	Partially	Partially	Largely government driven; some consideration given to stakeholder groups leading <i>Integrated Management strategy</i>
commitment to planning and implementation	Yes	Partially	Demonstrated public and political pressure to create a national oceans policy; little innovative leadership provided by the Oceans Act
strategic planning and management	Yes	Partially	Vision oriented; strategic framework incorporating goals and priorities
coordination and harmonisation	Yes	Partially	Coordination mandated but no direction as to how this should happen
problem solving/dispute resolution	Yes	Partially	Conflict resolution through arbitration; means of communication not established
action oriented planning and management	Yes	Partially	Strategic framework incorporates 'expected results'; MEQ standards as a performance indicator
monitoring, evaluation and review	Yes	Partially	Partly 'learn by doing' approach for MPA designation; commitment to flexibility

5.3 REGIONAL INITIATIVES

5.3.1 Federal Marine Protected Areas Program

Traditionally, conservation of the marine environment in Canada has been through the extension of existing adjacent terrestrial national parks, and as such, has been subject to terrestrially focused management approaches and strategy. Until the late 1980s, Canada had no targeted program and little tradition of designating Marine Protected Areas.

Table 10. Federal Marine Protected Areas Program

Responsible Agency	Legislation	Protected Areas Program
Canadian Heritage, Parks Canada	<i>National Parks Act 1930</i>	National Marine Conservation Areas
Environment Canada	<i>Canada Wildlife Act 1973</i>	Marine Wildlife Areas, National Wildlife Areas
Fisheries and Oceans	<i>Canada Oceans Act 1997</i>	Marine Protected Areas

In 1988, however, the first of two different systems for designation of Marine Protected Areas became available at the federal level: amendments to the *National Parks Act* allowed for marine areas to be set aside and protected; and in 1994 the second system of marine protected area designations was introduced with amendment of the *Canada Wildlife Act* providing for the establishment of Marine Protected Areas out to the 200 n. mile boundary. With passage of the *Canada Oceans Act* in 1997, a third means for designating Marine Protected Areas was introduced (see Table 10.). Each of these Programs is discussed separately below.

Box 9. Federal Marine Protected Areas Program Sequence of Events

1979	Parks Canada announced its intention to establish national marine parks.
1986	Ministerial approval received regarding Parks Canada's Marine Protected Areas Policy - the ' <i>National Marine Parks Policy</i> '; (Sept) Parks Canada's <i>Marine Parks Policy</i> released after 24 years of consultation, identifying 29 distinct marine areas in Canada.
1987	(July) Agreement to establish Fathom Five, the first National Marine Park; (Sept 26) Minister for the Environment approved the National <i>Marine Parks Policy</i> .
1988	Agreement signed in British Columbia calling for the creation of Gwaii Haanas National Marine Conservation Area Reserve off the Queen Charlotte Islands; Amendments to the <i>National Parks Act</i> approved to allow for establishment of national marine parks.
1990	Agreement signed to examine feasibility of establishing a joint federal/ Provincial Marine Park at Saguenay; Canada's <i>Green Plan</i> called for 12 percent of the country to be set aside as protected space and for 5 marine parks to be identified by the year 2000;
1991	House of Commons passed Unanimous Resolution calling for protection of 12% of Canada in a network of protected areas.
1992	Canadian Council of Ministers of the Environment committed themselves to protection of areas representative of Canada's marine natural regions.
1993	Liberal election promise to develop a National Marine Park Action Plan.
1994	National Marine Conservation Areas (NMCAs) Policy released by Parks Canada
1995	(July) National Marine Conservation Areas System Plan released by Parks Canada.
1996	(Oct) At the IUCN World Conservation Congress, the Prime Minister announced the federal government's intention to introduce new legislation for establishment and management of NMCAs.
1997	(Jan 31) the <i>Canada Oceans Act</i> came into force; (Feb) Release of a discussion paper on an approach to the establishment and management of Marine Protected Areas under the <i>Canada Oceans Act</i> ; (Dec) A joint federal/Provincial-Saguenay-St. Lawrence Marine Park established in Quebec.
1998	(April) Public consultations began on a draft policy and framework for a national Marine Protected Areas program, established under the <i>Canada Oceans Act</i> .

National Marine Conservation Areas (1994)

The foundation of Canada's National Marine Park Program was established in 1986 with approval of the *National Marine Parks Policy* after 24 years of discussion. The delay in establishing a marine parks regime in Canada has been attributed to the landward orientation of Canadians, the climatic limitation of marine recreation, and the fact that temperate waters are perceived to be less spectacular than tropical waters generally resulting in less interest in their preservation (Marsh 1992). Despite the delay in its implementation the Marine Parks Program was based on little practical experience and it has taken further study and consultation to clarify the marine park concept and differentiate it from terrestrial national parks. Renamed the National Marine Conservation Area (NMCA) Program in 1994, the Program is administered by Parks Canada. The NMCA Program is conservation oriented, and it provides for the protection of representative examples of natural and cultural heritage.¹⁷ The NMCA Program also specifies the legal priority of ecological integrity, and outlines the need for developing and maintaining integrated data bases, as well as monitoring programs.

In 1988, minor amendments were made to the *National Parks Act* to provide a legal basis for the establishment of NMCAs and to authorise the proclamation of the first NMCA, Fathom Five National Marine Park. Further amendments were made in 1997, including 'housekeeping' amendments and the incorporation of provisions allowing for the establishment of Gwaii Haanas National Marine Conservation Area Reserve. These amendments are viewed as an interim measure only, since the *National Parks Act* was never developed to respond to the specific legislative requirements of protected areas in marine environments (Parks Canada & Canadian Heritage 1997). Indeed, many complications still exist within the *National Parks Act* that create a convoluted process for the establishment of Marine Conservation Areas.¹⁸

¹⁷ The traditional federal approach Canada has taken for the designation of protected areas has been to divide the country into areas of biogeographic classification. One of the first *marine* classification schemes developed especially for a national network of Marine Protected Areas was published in 1970. This *National Park Marine Natural Regions* classification was used by the Canadian Parks Service as a basis for selecting marine oriented national parks between 1970 - 1986 (Mondor 1992b). A number of limitations were revealed in the classification however, which reduced its effectiveness for this purpose. Only physical criteria were used in defining regions for instance, so that significant biological discontinuities often occurred within a region. The development of the 1986 *National Marine Parks Policy* by the Canadian Parks Service provided an opportunity to revise the classification scheme. A redefined natural regions framework specified by the Policy incorporates 29 biogeographic regions (including five in the Great Lakes) mostly along the country's marine fringe out to the 200 n. mile limit. Each marine region is relatively homogenous in terms of climate, seabed geology, ocean currents, water characteristics (temperature and salinity), sea-ice distribution, coastal landforms, marine plants, seabirds and marine mammals, or contains recurring patterns of these characteristics. The goal is to establish a NMCA within each marine region so that all Marine Parks together represent a whole.

¹⁸ For federal legislation to apply, it is a constitutional requirement that lands are federal property. Therefore in terms of the *National Parks Act*, if jurisdiction of the seabed is within Provincial responsibility, a federal/Provincial agreement is necessary to stipulate the terms and conditions under which the Province will transfer control of the area to the federal government. Where lands are subject to a land claim by aboriginal people, a new National Marine Park can be established as part of a negotiated claim settlement, or a National Marine Park 'Reserve' can be created pending the resolution of the outstanding claim. Once agreement has been reached on the federal control and administration of the proposed Marine Park area, the Marine Park must be formally established by legislation so that the *National Parks Act* will apply. In the case of a National Marine Park Reserve, the Act applies but the status of the area is subject to final resolution of the aboriginal claim.

At the IUCN World Conservation Congress held in October 1996, the Canadian Prime Minister announced the government's intention to introduce new legislation to establish a network of marine conservation areas which comprehensively represent Canada's marine regions. A discussion paper was issued in February 1997, and work is now underway to develop legislation specific to the establishment and management of NMCAs.¹⁹

Principles and policy direction for the National Marine Conservation Area Program are set out in a document released by Parks Canada in 1994, *Guiding Principles and Operational Policies* (Parks Canada & Canadian Heritage 1994). A National Marine Conservation Areas System Plan, *Sea to Sea to Sea* (Parks Canada & Canadian Heritage 1995b), was released in July 1995 to provide a strategic framework for the growing system of NMCAs. It sets out Parks Canada's approach for the design of a finite network of protected areas. It also summarises the characteristics of 29 identified biogeographic marine regions and the status of planning work in each region. Establishment of new NMCAs is guided by the System Plan, and it is intended that NMCAs will ultimately serve as models for a more holistic approach to the planning and management of marine environments in Canada (Parks Canada & Canadian Heritage 1995b).

Five of the 29 marine biogeographic regions identified in Canadian waters are currently represented: two by Gwaii Haanas, one by Fathom Five, one by Saguenay - St. Lawrence, and one by the marine component to the Pacific Rim National Park Reserve. Most of these so-called *marine* parks, however, are really only *coastal* parks with only a limited sea component, and all fall within Canada's internal waters or Territorial Sea. Despite its name, Fathom Five National Marine Park is located far from the ocean (in the Great Lakes) and comprises the freshwaters surrounding the Bruce Peninsula National Park in Ontario. The marine component of the Pacific Rim National Park Reserve is around 200 sq. km and only provides partial representation of the Vancouver Island Shelf Natural Region. The Saguenay-St. Lawrence Marine Park is located in the confluence of the Saguenay Fjord and the St. Lawrence estuary. The only Park dominated by its marine characteristics is at Gwaii Haanas off the Queen Charlotte Islands, British Columbia. A number of other areas are under consideration for designation as marine conservation areas. These areas include an area adjacent to Terra Nova National Park in Newfoundland which could be the first site located beyond Territorial waters (McBurney pers. comm 1995), however planning processes have only recently been initiated and little progress has been made.²⁰

National Marine Conservation Areas: An Analysis

National Marine Conservation Areas focus on both conservation and resource use on a sustainable basis rather than more stringent protection objectives associated with terrestrial National Parks. The practical management approach employed by the NMCA Program is a three class, flexible zoning system: two protected core segments,

¹⁹ In 1998, legislation was introduced to establish a new Canadian Parks Agency. The proposed new federal agency is intended to remain fully accountable to the Minister of Canadian Heritage and Parliament and will retain responsibilities associated with National Parks, national historic sites and related protected heritage areas. The new Agency, among other things, is anticipated as being required to hold a biennial forum to involve all interested parties in setting the management direction for national reserved areas (Parks Canada & Canadian Heritage 1998).

²⁰ Other areas are also being considered for designation as Marine Conservation Areas. In 1992 for example, the Inuit community of Clyde River proposed that the Isabella Bay area on the north-eastern coast of Baffin Island known as Igaliqtuuq, be protected. Negotiations for its protection have been underway ever since, and it is expected that the area will be legally protected in 1998. In 1997, the DFO, in cooperation with the Canadian Wildlife Service and Canadian Heritage, also initiated a planning process that is hoped will culminate in the development of a conservation strategy and management plan for the Sable Island/Gully area near Nova Scotia.

and a multiple-use conservation segment. The use of temporal and/or vertical zoning systems is also encouraged and elaborated within the Marine Parks Policy (Canadian Parks Service 1986). Non-renewable resource extraction and ocean dumping are prohibited throughout NMCAs, though commercial fishing is permitted in multiple use zones. Resource use within NMCAs is administered and controlled by the Minister responsible for the *National Parks Act*, with the exception of fisheries and marine transportation.²¹ Fishing continues to be regulated by the Minister of Fisheries and Oceans under the *Fisheries Act* in accordance with Fishery Management Plans. Marine transportation is regulated under the *Canada Shipping Act* in accordance with MOUs between Environment Canada and Transport Canada (Marsh 1992; Mondor 1992b). The Marine Parks Policy (Parks Canada & Canadian Heritage 1994) states that the management of NMCAs must be directed towards conservation as defined by the *World Conservation Strategy*, whereby focus is on a wide range of human activity, preservation, sustainable use, and restoration of the marine environment. Use management within NMCAs is therefore stated as being based on principles of ecosystem management though linkages between management arrangements across the land - sea interface are not developed, and requirements for federal control over NMCAs presents problems with cross-jurisdictional declaration.

Partnerships and voluntary assistance are two fundamental elements within the Marine Park Policy. Based on a partnership approaches to management, community 'stewardship' of NMCAs is sought. Recognising that human activities in adjacent areas have the potential to deleteriously affect NMCAs, management in cooperation with others responsible for those activities is also advocated. There is evidence that community support for NMCAs does exist²², and accountability and transparency are built in to the process of Marine Park declaration (McBurney pers. comm 1995). Nevertheless, Paisley (1992:16) observes that there is much less public participation in the establishment and maintenance of provincial MPAs in Canada than elsewhere, such as the United States or Australia. Proposal and designation of NMCAs are largely driven by federal government forces. The Marine Park Policy places very little emphasis on community participation in the early stages of planning²³, and it states that First Nations and Local Governments only 'may' have roles in the management of protected marine areas (Parks Canada & Canadian Heritage 1995a: 8). The Policy also provides little guidance on mechanisms for interaction and cooperation, or how community participation should be achieved. Fishers and the transportation industry have significant advantage in negotiating processes, thereby undermining the objectivity of public consultation. There is no clear direction provided, furthermore, on how inter-governmental agreements should be prepared, and in which stage of the planning process (Mondor 1992a). The Policy does advocate the establishment of joint advisory committees for NMCAs, but it does not indicate the range of information or issues that these committees should address (Graham 1992).

²¹ The National Marine Park Policy stipulates that prior to the creation of a Marine Park there is a requirement to:

- prepare a Marine Park Fisheries Management Plan (MPFMP) in consultation with affected fishers;
- to negotiate an agreement for the regulation of marine transportation within the Marine Park in consultation with the affected transportation industry; and
- to prepare a park management concept which clearly sets out the park purpose and objectives, guidelines for protection and public use of park resources and summarises the various cooperative management agreements made with other governments and agencies.

²² A poll conducted during May 1997 by the World Wildlife Fund, suggests that almost 80% of people in Atlantic Canada support protection of the marine environment, and particularly the establishment of Marine Protected Areas (WWF 1997).

²³ Sections 1.1.2 and 1.2.4 of the Marine Parks Policy (Canadian Parks Service 1986) call for consultation with a broad range of stakeholders in the identification and selection of MPAs. There is very little within the Policy, however, which advocates involvement of stakeholders or government coordination in subsequent stages of marine protected area planning or management processes.

As well as public support for the creation of Marine Parks in Canada, the Canadian Marine Parks Policy has been well received by a number of government and non-government agencies. The World Wildlife Fund (Canada), for example, launched an Endangered Spaces Campaign in 1989 with the aim of completing a national network of marine areas by 2010. In 1990, the federal government announced plans to create an additional four NMCAs by 2000, and in 1991, the House of Commons passed a Unanimous Resolution to assist in the completion of a protected areas network comprising at least 12 percent of Canada.²⁴ The Canadian Council of Ministers of the Environment also announced a commitment to protection of areas representative of Canada's natural regions in 1992.²⁵ Notwithstanding, in the 10 years of its operation, only five marine bioregions in Canada are represented and management arrangements for declared NMCAs remains incomplete. Three Marine Conservation Areas are discussed in Box 10, outlining some of the more significant problems and benefits that have resulted from their designation. Despite pledges to create at least three more new Marine Parks by 2000, and that funding will be directed towards appropriation and establishment of new parks (Parks Canada 1996a), Marine Protected Areas do not feature as a priority in Parks Canada's mandate. Parks Canada's *Mandate for Change* (Parks Canada 1996a) makes neither specific mention of increases in the size or number of marine parks, nor discusses direction for future marine parks legislation. Drastic cuts to the Parks Canada budget²⁶ do not bode well for this issue which has received little directed political attention in the past.

Box 10.

Fathom Five National Marine Park

Fathom Five is the first National Marine Park to be designated in Canada. Contrary to its name, it is a *freshwater* Park located adjacent to the Bruce Peninsula in the Great Lakes. Fathom Five Provincial Park began operations in 1973 as an underwater park managed by the Province (McClellan 1992). Canada and Ontario agreed in July 1987 to establish Bruce Peninsula National Park and to transfer Fathom Five Provincial Park to federal administration at the same time. The authority to proclaim Fathom Five as a NMCA is contained in the 1988 amendments to the federal *National Parks Act*. However as the Park lake bed and waters have not as yet been transferred to the federal government, the Park itself has not yet been fully established (Parks Canada 1995).

Memoranda of Understanding with regards to marine transportation (between Parks Canada and the affected transportation industry), and a Marine Park Fisheries Management Plan (between Parks Canada and affected fishermen) were prepared when the federal/Provincial agreement was negotiated during the establishment of Fathom Five National Marine Park (Mondor 1992a). A Park Advisory Committee was formed as part of the planning arrangements for the Marine Park and it has acted as a means for issue identification and response (Graham 1992). As such, despite the absence of marine characteristics, Fathom Five has provided experience in implementing the Marine Park policy and in management of aquatic reserves.

²⁴ House of Commons, *Unanimous Resolution*, June 17, 1991: 'That, in the opinion of this House, the government should consider the advisability of preserving and protecting in its natural state at least 12 percent of Canada by working cooperatively with the provincial and territorial governments and assisting them to complete the protected area networks by the year 2000'.

²⁵ Canadian Council of Ministers of the Environment, Canadian Parks Ministers' Council, Wildlife Ministers' Council of Canada, *A Statement of Commitment to Complete Canada's Networks of Protected Areas*, 1992; 'Council members will make every effort to complete Canada's network of protected areas representative of Canada's land-based natural region by the year 2000 and accelerate the protection of areas representative of Canada's marine natural regions'.

²⁶ Parks Canada funding has been reduced by C\$98m between 1994/95 and 1998/99. As well as direct reductions in programs, there has also been around 24% reduction in corporate functions providing financial, human resources, administrative and related support services.

Box 10 continued**Gwaii Haanas/ South Moresby National Marine Park Reserve**

At 3400 sq. km, the Gwaii Haanas/ South Moresby National Marine Park Reserve is the first Marine Park to be dominated by its marine characteristics. The Gwaii Haanas Marine Park Reserve comprises a sanctuary of 138 islands, one of which (Anthony Island) is a World Heritage Area. Declaration of the Marine Park was initially delayed due to the requirement of an offshore mineral and energy resources assessment (Yurick 1992). Further delays have resulted from ongoing negotiation over the status of First Nations land and sea claims in the affected area (Paisley 1992). If and when declared, the one site will represent both Hecate Strait and the Queen Charlotte Island Natural bioregions identified by Parks Canada.

A mineral and energy resources assessment has been completed for the area, and in March 1997 four Canadian oil companies signed over their exploration rights to the Gwaii Haanas Marine Reserve. Ministerial correspondence has confirmed the boundaries proposed in a 1988 agreement, and Parks Canada is currently working with the DFO to develop a Fisheries Management Plan for the Marine Conservation Area. Research programs are also being developed (Parks Canada & Canadian Heritage 1995a). The Gwaii Haanas region has however, demonstrated significant ecosystem stresses particularly as a result of commercial fishing in the region (Parks Canada & Canadian Heritage 1995a: 36). Despite this, in March 1998 the federal Minister of Fisheries and Oceans authorised a re-opening of a herring roe fishery in the proposed Park despite conservation concerns expressed by the Haida Nation, WWF, and the Canadian Parks and Wilderness Society (WWF 1998). Notwithstanding the strong support of the Haida Nation and the relinquishment of mineral drilling rights in the area by four oil companies, the area has still not been afforded any official protection.

Saguenay - St. Lawrence Marine Park

In April 1990, the governments of Canada and Quebec signed a federal/Provincial agreement providing for the establishment of Saguenay Marine Park at the confluence of the Saguenay River and the St. Lawrence Estuary. The agreement states that both levels of government will work towards the area's protection, taking into account existing laws applicable to the Marine Park. A key element of the Agreement, however, stipulates that the seabed and subsoil remains under Provincial jurisdiction while management of activities in the super-adjacent waters (notably navigation and fisheries) is a federal responsibility. At 1138 sq. km, Provincial and federal governments agreed on park boundaries in 1993. It was not until February 1996 however, that a Park Management Plan (Canadian Heritage 1995) was released during the first meeting of the Marine Park's Coordinating Committee, following extensive public consultations (Fillion pers. comm 1996). During December 1996 the Quebec and federal governments each tabled parallel legislation to establish and administer the Park. An Act to establish the Marine Park finally received the Royal Assent in December 1997 on proclamation of the federal bill and came into effect in June 1998. The Saguenay - St. Lawrence Marine Park is the first Marine Park created jointly by the federal government and a Provincial government without any transfer of land, and where both governments continue to exercise their jurisdictions in the Park's territory.

Integrated management is pursued by Parks Canada within the NMCA system (Parks Canada & Canadian Heritage 1994: 48) primarily as a mechanism for coordination of management across the land - sea interface:

establishment of integrated management systems which, ideally, should help to coordinate the management of marine and terrestrial areas well beyond the boundaries of a national marine conservation area.

Though linkages between terrestrial areas and declared NMCAs are strong geographically, there is little coordination in terms of management. NMCAs are still often designated in terms of 'convenience' (that is because they are adjacent to existing coastal national parks) rather than for their environmental significance. Despite some refinement of the Marine Parks Policy, it is not based on practical experience or on a

particular model of marine management (Parks Canada & Canadian Heritage 1994), or even with the specific requirements of marine management in mind. Furthermore, methods for compiling and updating marine park information and data continues to be derived (inappropriately) from terrestrial models. There has been little focused direction to the federal marine conservation initiatives of the Canadian government in general, and this has become apparent particularly in the implementation and operation of the NMCAs program.

Amendments to the *National Parks Act* providing for the establishment of NMCAs have sufficed in the short term for the purpose of establishing Canada's first National Marine Parks. With time and implementation experience however, it has become clear that the needs for marine management are very different to those of terrestrial management in Canada. It is acknowledged within the Marine Parks Policy itself that new legislation with new regulatory capabilities are necessary in the long term to meet the management and operational requirements of a National Marine Park system.²⁷ New legislation has the potential to serve as a companion to the *National Parks Act*, providing a legal and regulatory framework designed specifically for the establishment and management of NMCAs by Parks Canada (McBurney pers. comm 1995). Major political obstacles, however, will have to be overcome in the design of legislation for the designation of NMCAs. Current federal Marine Park Policy requires that the federal government owns the seabed where the Park is situated, and a special Act of Parliament is consequently required for the declaration of every new federal Marine Park. Establishing jurisdiction over the seabed and water column under current legislative arrangements is therefore clearly problematical.

There has been some attempt at fostering linkages between the Marine Parks Policy of Canada and international marine parks policy. The 1991 *IUCN Guidelines for Establishing MPAs*, for example incorporates Parks Canada's approach to systems planning. In keeping with the 1994 IUCN call for coastal nations to establish representative systems of MPAs, the Canadian NMCA system is also based on protection of marine areas representative of Canada's marine environment. However classification of the 29 biogeographic marine regions is argued to have been made partly on the basis of political factors (McBurney pers. comm 1995), and once a Park has been designated as 'representative' of a particular region or area type, similar sites are considered unnecessary or (even if they are eligible) they are not given priority (Paisley 1992).

Other than commitment to the creation of three new NMCAs by 2000, no specific performance standards have been designed for the NMCA system. Designation and management methods for NMCAs tend to be established on a case-by-case basis, and mechanisms for conflict resolution and communication are similarly ad hoc. The principal approach towards conflict management has been via conflict *avoidance* and through the designation of NMCAs in areas with minimal 'potential conflicting factors'. The Marine Parks Policy states that Parks Canada will develop an Action Plan which will be updated periodically to describe activities that must be undertaken to establish new Marine Parks. However, there is no indication of when and how updates and reviews should be undertaken. There is an absence of time-lines and priorities, and inadequate implementation strategy.

The NMCA system is not a remarkably successful system of marine management in Canada given its lack of momentum and an absence of formal management arrangements. The reservation process for NMCAs is complex and slow - so slow that a number of provinces have established Marine Protected Area programs of their own due to frustration with the progress of the national system (see Section 5.3.4). IMM is pursued in principle but not in practice, and there is no strategic approach to planning, designation, and management of Marine Conservation Areas. Valuable experience has been gained nevertheless, in multi-sectoral management arrangements, and in terms of top-down driven management policy. Requirements for federal

²⁷ See Henwood 1988; and Parks Canada & Canadian Heritage 1994.

control have prompted consideration of federal/Provincial jurisdictional issues, and ways of tackling cross-jurisdictional concerns. With development of new legislation and the introduction of a Marine Protected Areas mandate within the context of the *Canada Oceans Act*, it remains to be seen whether integrated management is pursued in a more deliberate sense, and whether implementation processes and management arrangements will be restructured and further refined.

Table 11. National Marine Conservation Areas Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Partially	Partially	Exclusion of some activities within zoned areas
holistic focus	Yes	Partially	Ecosystem management focus; land - sea linkages not strong
broad, transparent, collaborative decision-making	Yes	Partially	Broad base consultation encouraged; some bias in economic sector involvement in decision-making
top-down <i>and</i> bottom-up considerations	Partially	Partially	Stewardship principle pursued; largely top-down driven designation and management processes
commitment to planning and implementation	Yes	Partially	Strong community support; funding reductions over recent years; goals for designations not met
strategic planning and management	No	No	
coordination and harmonisation	Partially	Partially	Cumbersome designation arrangements; some moves towards federal - provincial cooperation
problem solving/dispute resolution	Partially	No	Designation and management methods established on a case-by-case basis; ongoing dispute over some designations
action oriented planning and management	No	No	
monitoring, evaluation and review	Partially	Partially	Periodic review of management plans advocated; no implementation processes outlined

Marine Wildlife Areas (1994)

Environment Canada has three designations available under the *Canada Wildlife Act* for protecting ocean and land areas and to conserve significant habitats and wildlife resources: Migratory Bird Sanctuaries; National Wildlife Areas; and Marine Wildlife Areas. All three designations are directed towards the protection of nationally significant habitats and wildlife resources, especially migratory birds.

With approval of Bill C-24 in 1994, the role of the *Canada Wildlife Act 1973* expanded to protection of the marine environment. Amendments to the Act enabled the Canada Wildlife Service to establish Marine Protected Areas beyond the territorial sea to the 200 n. mile limit (Environment Canada 1996a).²⁸ Amendments to the *Canada Wildlife Act 1973* have also broadened and expanded the definition of 'wildlife' so that it is consistent with recommendations of the *Wildlife Policy for Canada*. Wildlife is now defined to include all wild animals, plants and other organisms (rather than just non-domestic animals) which allows for research and the establishment of protected areas based on an ecosystem approach.

Since changes to the *Canada Wildlife Act 1973* were made in 1994 the concept of Marine Wildlife Areas has been effectively abandoned by Environment Canada. Nevertheless, with the coming into force of the *Canada Oceans Act*, and prompted by negotiations regarding the 'cooperative federal response' to marine protected areas, Environment Canada, (specifically the Canadian Wildlife Service) has redirected interest towards establishing a Marine Protected Area program within the context of the Department's broader marine habitat conservation program. Negotiations have only just begun, and little information exists concerning the intended role or scope of the program, but a course of action will most likely involve a collaborative response with the DFO and Parks Canada, towards designation of sites of 'mutual interest' (Hildebrand pers. comm).

Marine Protected Areas (1997)

The development of a policy for the establishment of Marine Protected Areas under the authority of the DFO is one of the first initiatives to be launched under the *Canada Oceans Act* (DFO 1997d). It is also one of the key provisions of the Oceans Strategy currently under development (WWF 1996). The *Oceans Act* authorises the Governor-in-Council to establish Marine Protected Areas in internal waters, the territorial sea and the EEZ.

Before introduction of the *Canada Oceans Act*, the DFO did not have a program or policy to establish protected areas. The DFO did take some marine conservation action through species-specific management and area closures, though few areas were ever closed to all harvesting specifically for the purpose of conserving an ecosystem (BC Marine Protected Areas Working Group 1995a). It has also been noted that the DFO has not always been cooperative in preventing the take of shellfish and fish in Marine Protected Areas established by other agencies (Lewis 1995). Part of the problem in designating effective MPAs in Canada in the past has therefore been attributed to the 'conspicuous absence of the DFO in building MPA strategy' (Paisley 1992: 6). With

²⁸ The *Canada Wildlife Act 1973* always allowed for the establishment of National Wildlife Areas on Canada's lands, internal waters and territorial sea out to 12 n. miles. However, with extension of the National Wildlife Area concept out to the boundaries of the EEZ, the *Canada Wildlife Act* became the first federal legislation with a clear authority to establish Marine Protected Areas beyond the territorial sea (McBurney pers. comm 1995). On land and out to the 12 n. mile territorial sea, protected areas are known as National Wildlife Areas. Beyond the territorial sea they are known as Marine Wildlife Areas. New regulations, however, for the management of Marine Protected Areas beyond the territorial sea need to be drafted as the Wildlife Area Regulations do not apply beyond the 12 n. mile limit (Zurbrigg pers. comm 1995).

introduction of the Marine Protected Areas provisions under the *Canada Oceans Act*, the DFO has taken a new lead in the establishment of conservation focused, 'no-take' MPAs in Canada.

In February 1997 a discussion paper was released outlining an approach to the establishment and management of MPAs in Canada. The discussion paper has undergone public comment, and a policy (DFO 1998a) and a national framework (DFO 1998b) for Marine Protected Areas in Canada is being drafted for review. The *National Framework for Establishing and Managing Marine Protected Areas* (DFO 1998b) is being developed as a general approach towards designation of Marine Protected Areas across Canada. Within the framework, specific program details concerning the conservation, protection and the use of the marine environment and its resources are intended to be developed at the regional level. Individual management plans for specific MPAs are to be developed by the DFO in conjunction with local interests and stakeholders based on principles of integrated management including stakeholder collaboration, comprehensiveness and coordination. However Marine Protected Areas within the DFO framework are not necessarily intended to be established in perpetuity: in the long term it is expected that MPAs may be 'dis-established' if they have achieved the purpose they were designated for (DFO 1998a). Once a second public consultation phase for both the national framework document and policy has ended (sometime during 1998), the DFO intends to work towards establishing pilot sites for MPA projects in a 'learn-by-doing' approach (DFO 1998c).

The national system of Marine Protected Areas is purportedly being developed in coordination with the other federal agencies responsible for protected area management in Canada's waters (DFO 1998a). A senior management level Steering Committee has been created with a role to ensure communication between the responsible federal departments. Linkages between the Marine Protected Area system developed by the DFO however, and existing marine protected areas programs in Canada has not been resolved. The *Oceans Act* contains neither a clear process for the establishment MPAs nor clarification as to how these powers mesh with existing Marine Protected Areas legislation administered by Canadian Heritage (Parks Canada) and Environment Canada. The Department of Canadian Heritage has suggested that the MPA provisions within *Oceans Act* complement the existing NMCA program by providing a comprehensive network of Marine Protected Areas, by taking an integrated approach to management of marine tourism and Canada's marine heritage, and by providing increased protection for marine areas in general (DFO 1997c). However, the *Oceans Act* avoids any suggestion of how coordination should proceed, and leaves incumbent on federal agencies the coordination of their approaches, objectives and resources, despite the fact that the three federal MPA programs in Canada are in different stages of development (DFO 1997c).

While the department of Canadian Heritage is experienced at comprehensive type management, it administers a very cumbersome approach to the declaration of marine parks (Comfort pers. comm 1995). The DFO, in contrast, is more experienced at specific use management. With further development of a nationally coordinated marine protected areas strategy in Canada it has been argued that a 'family of marine protected areas' may be established with separate government agencies fulfilling complementary and coordinated management roles (Comfort pers. comm 1995). The Marine Protected Areas Policy and Framework remain under development. Suggested objectives and management principles have been put forward, but consultation and development processes remain underway. It is therefore far too early to critically analyse the proposed Marine Protected Areas system with respect to integrated management criteria.

5.3.2 Atlantic Coastal Action Program (1991)

Established in 1991, the Atlantic Coastal Action program (initially known as the Atlantic Hot Spots Program) was developed as a demonstration project by Environment Canada to meet requirements under the federal *Clean Water Act* (Swan, K. pers. comm 1995). C\$10m over a six year period was committed to the Program by the federal government through the Green Plan (see Section 5.1.3) in order to create a project exploring the effectiveness of solving environmental problems through community generated solutions (ACAP 1993). Renamed the Atlantic Coastal Action Program (ACAP) soon after its approval in 1991, ACAP targets the development of management plans and actions in harbours and estuaries throughout the Atlantic provinces of Nova Scotia, Newfoundland, Prince Edward Island, and New Brunswick.

Box II. Atlantic Coastal Action Program Sequence of Events

1990	(Oct) Clean Annapolis River Project signed Letter of Understanding with Environment Canada; (Nov) Pictou Harbour Environmental Protection Project signed Letter of Understanding with Environment Canada; (Dec 11) Canada's Green Plan released and C\$10m ACAP launched.
1991	Beginning of the ACAP planning period.
1992	(Feb) Humber Arm Environmental Association Ltd. joined ACAP; (April) St Croix Estuary Project Inc. signed Letter of Understanding with Environment Canada; (May) Bedeque Bay Environmental management Association signed Letter of Understanding with Environment Canada; (June) Saint John Inc. signed Letter of Understanding with Environment Canada.
1993	(Jan) ACAP - Cape Breton Inc. officially joined ACAP; (April 1) Miramichi River Environmental Assessment Committee became part of ACAP; (April 1) St John's Harbour ACAP Inc. signed Letter of Understanding with Environment Canada.
1994	(Sept) Evaluation framework for ACAP prepared.
1997	End of ACAP planning and funding period; (June) Phase 1 of external evaluation of ACAP published.

ACAP is a process oriented management initiative which strives for effective planning based on four principles:

- scoping - consultation, identification of stakeholders;
- communication - collaboration (incorporate input), ongoing education/awareness;
- legitimacy - hands on involvement, balance, information access; and
- flexibility - review and adjustment.

The intention of the Program is to involve all stakeholders in partnership arrangements, to prepare plans, and to undertake actions to address identified community issues in the Atlantic coastal zone. The Program, while operating with the assistance of the federal department of Environment Canada is effectively within the control of stakeholder groups who operate as the managers of ACAP sites. Stakeholder groups provide a community based forum for reconciling interests within a consensus backed agenda (Ellsworth 1994) and comprise members from the community, business and other interests including all three levels of government. These stakeholder groups initially form a committee which then becomes incorporated into a non-profit organisation. Once incorporated, the stakeholder groups become eligible for ongoing core funding and project funding from Environment Canada and other government agencies. A signed Letter of Understanding between the stakeholder group and Environment Canada commits Environment Canada to provide

money to help run an office, hire a coordinator, implement pilot projects and carry out environmental quality assessments of the ACAP site. It also commits the stakeholder group to developing a Comprehensive Environmental Management Plan (CEMP) for the targeted site.

Four components are required of a CEMP:

- community based vision and defined objectives;
- environmental quality assessment;
- a suite of remedial/conservation/enhancement measures; and
- implementation schedules/time-lines/designated responsibilities.

Stakeholder groups currently work in 13 sites²⁹ which represent a diversity of coastal communities, environmental issues, and populations. Provincial representatives sit on the Board of Directors for each site, and a local facilitator (paid by the Environment Canada) is also nominated by each local stakeholder group.

A three phase review of the program began in 1994, with the first phase being completed in 1997 (Moir 1997). Concurrent with the Program review an investigation has also been undertaken as to the possibility of extending the term of ACAP and/or designing a new program to continue the efforts of ACAP. The results of this investigation were unavailable at the time of writing, though the formal operation of ACAP has continued to 1998.

Atlantic Coastal Action Program: An Analysis

A comprehensive report on ACAP's operations conducted by S.B. Moir Consulting in 1997 (Moir 1997) provides a very detailed appraisal of many aspects of ACAP planning, management and implementation. The detail provided in the report provides an important background to much of the following analysis, and should be referred to for more information.

At its inception, ACAP was largely concerned with water-quality issues in harbours and estuaries. The focus of the Program has evolved however, and now targets coastal watersheds, whereby the integral links between coastal areas and watersheds are emphasised (Eaton, Gray et al. 1994). A broader concern for air, wildlife, terrestrial and marine environmental concerns has also been coupled with a management approach which attempts to take social, economic *and* environmental factors into consideration. ACAP sites usually comprise large terrestrial watersheds which contain several municipalities though the Program has broader marine management objectives.

Initially introduced as the 'Atlantic Hot Spots Program', ACAP began with few specific objectives towards community based management approaches. Given a change in name and introduction of stewardship objectives very soon after it was accepted, ACAP initially experienced varying degrees of success due to a number of political and social factors, not the least of which was scepticism over the pursuit of such radical management processes (Donaldson 1994; Moir 1997). With effective implementation of the Program, however, ACAP has become widely regarded as a notable and successful example of government-community partnerships (Meltzer pers. comm. 1995). Collaboration and the involvement of the community in all aspects of management planning and implementation provides a fundamental basis for ACAP operations. Furthermore, ACAP redefines the notion of community based environmental management, such that the 'community' is interpreted as a 'community of interest' (Ellsworth, Swan, K. pers. comm 1995). Government interests are also

²⁹ In addition to the 13 formal ACAP sites, there are what are commonly referred to as 'affiliate sites'. These sites have no formal letter of understanding with Environment Canada, but wish to pursue community-based environmental management using the ACAP process.

intended to participate in management processes as stakeholders as well as facilitators, though there has been some difficulty in achieving this in practice (Moir 1997). Environment Canada stipulates a common process of management as well as a set of management principles on which to structure all ACAP initiatives. However *practical* management frameworks have largely been developed by community stakeholder groups responsible for their implementation, and there is a strong focus within ACAP in employing individuals with the appropriate commitment, knowledge and enthusiasm to drive management action. Indeed, the momentum that has been established by ACAP may in large part be attributed to the enthusiasm and dedication of individuals who have established and undertaken program planning and management. Ellsworth and Karen Swan (pers. comm 1995) also suggest that a principle factor in ACAP overcoming 'bureaucratic protectionism' has been 'turning the management umbrella upside down'. Stakeholder involvement has nevertheless varied for each site, and there has been some difficulty in ensuring the participation of a comprehensive range of stakeholders in some areas (Moir 1997).

It has taken some time for the ACAP concept of management to infiltrate through the bureaucratic system to the point where governments have understood the need for, and have accepted, a certain loss of control as inevitable (Donaldson 1994). As Ellsworth (1994: 698) argues:

the program is unique and considered leading edge in terms of its community base and cooperative nature - not a normal position for government to be in, and one which imposes uncertainty and risk on a bureaucracy used to status quo or control.

Community interests have in some cases now taken the greatest leadership role in ACAP management initiatives, and the government role has diminished in some cases to facilitator only (Ellsworth, Swan, K. pers. comm 1995). Success at the community level has also posed other challenges for Environment Canada: ACAP has raised community expectations and there has been some concern that the Program may not be able to deliver in response to these expectations (Coastal Community News 1997). In Nova Scotia, unemployment is increasing, populations are declining and government services are diminishing. Voluntary involvement in ACAP initiatives to date has been high, but as government funding has declined, volunteers have faced new and increasing demands on their resources, and volunteer 'burnout' has begun to become a real issue (Coastal Community News 1997).

Further difficulties have been encountered with financial support for ACAP. The initial \$10 million dollar Green Plan commitment to ACAP has been reduced to \$6.4 million limiting funding available for research and action projects at most ACAP sites (Moir 1997). Notwithstanding, there have been some attempts to redirect resources towards the Program to ensure its continuance.³⁰ ACAP groups have responded to government funding cuts by generating resources for themselves to the point where they now lever approximately four times as much as Environment Canada provides in cash, and in-kind support (Swan, K. pers. comm 1995).³¹ ACAP participants have also demonstrated remarkable dedication and the Program as a whole has gained a reputation for completing ambitious projects on time and on budget (Ellsworth 1994). By 1996 (only 5 years after its commencement), progress in meeting overall program objectives was well advanced: environmental quality assessments had been completed in 13 sites; remedial options identified and evaluated in 11 sites; 11 CEMPs completed in 1996/97 and 2 remaining in 1997/98; creation of artificial wetlands in 2 sites; restoration of 230 km of streams; stabilisation of 70 km of stream banks; protection of 65 hectares of wetlands; and many people from diverse backgrounds and interests had been employed (Environment Canada 1996a).

³⁰ During 1995, at a time when Environment Canada was cutting funding to many initiatives and programs, ACAP was judged as 'tremendously successful', and funding was largely maintained for the most vital areas of the program. Funding reductions to ACAP were confined to cutting back special project funding and internal administrative costs (Environment Canada 1995a).

³¹ See also Environment Canada 1996a.

ACAP is approached as a regional strategy for implementation of Agenda 21, and operates with a vision and a mission statement, guiding principles and objectives (ACAP 1993). These statements of management philosophy and implementation strategy have been valuable touchstones, enabling concerted efforts at marketing the Program and attracting new participants, as well as providing a solid basis for designing practical management arrangements. As a result, ACAP is recognised for its success in getting disparate interests working together to achieve a common goal.

No formal administrative agreements (interdepartmental or federal/Provincial) support ACAP, and there is little formal coordination with other environmental policy in the region. No rigid management framework or 'governance model' is defined by the Program as each case situation is intended to be approached according to the circumstances and conditions which characterise it. This has resulted in some difficulties and misunderstandings as to the roles of different participants in decision-making (Moir 1997). There has also been variation in the degree to which individual sites have been able to bring about coordination between and within non-government and government sectors. Furthermore, the priorities of Environment Canada and ACAP sites have not always coincided, particularly since a number of ACAP sites have taken on a 'life of their own' (Moir 1997). This has often put Environment Canada program coordinators in a difficult position where they have had conflicting priorities to resolve. Nevertheless, approaches piloted in ACAP have been incorporated in to *Coastal 2000*, the draft coastal management policy of Nova Scotia (see Section 5.3.3). ACAP has also been recommended as a successful example on which to base a network of integrated management initiatives developed in response to the *Canada Oceans Act*. It is uncertain, given the apparent success of the Program, whether formalised linkages would hamper the efficiency of the Program rather than aid it.

Perhaps the greatest impact ACAP has had is in setting a precedent in establishing a vision of stewardship based on principles of integrated management, particularly with regard collaboration, coordination, trust, and faith in deliverables (Butler, Hildebrand pers. comm 1995). A more tangible factor in ACAP's success, has been the requirement for practical management arrangements within Community Environmental Action Plans to be based on actions which are scientifically defensible, economically feasible and publicly supported. Specific management methods are discussed within ACAP guidelines, and there is careful consideration given to details such as means of communication, appointment of dynamic individuals in key roles, and the design and organisation of meetings, workshops and conferences. Environment Canada has also stressed the need for broad scoping of management issues in the preliminary stages of planning, in order to preclude the need for extensive conflict resolution in later stages.

Given a common *framework* of management provided by Environment Canada, it has been the prerogative of each ACAP site to design management arrangements appropriate to the prevailing circumstances. Identified objectives remain the same for the duration of the planning and management effort of each site, but annual work plans and frameworks are revised as necessary. An evaluation framework was set up only *after* ACAP came into operation, but it is argued that this was an appropriate course of action to take in so far as once the Program was established, an evaluation framework could be designed to assess the *actual* practical functioning of ACAP (Ellsworth pers. comm 1995). The framework provides guidelines and information necessary for the analysis of ACAP's impacts and effects, attainment of its objectives and the effectiveness of its outcomes (Moir 1997). A major challenge however, has been incorporation of flexibility within management arrangements, in order to have the ability to respond to changing circumstances (Ellsworth, Swan, K. pers. comm 1995).

ACAP is one of five ecosystem management programs presently undertaken by Environment Canada.³² As a community-based initiative it is now largely supported (in spirit) by all levels of government and its success is recognised. Nevertheless, ACAP was designed as a pilot program only (Donaldson 1994), and as designed, it was limited to the life of the *Green Plan* which came to a conclusion in 1997. During 1996/97 or 1997/98, reference has neither been made to ACAP within the Program Strategies for Environment Canada (Environment Canada 1996b; Environment Canada 1997), nor has priority been given to marine initiatives in Environment Canada's budget or focus. The momentum that the Program has generated, however, has carried it beyond the life of the *Green Plan*, though the future shape of ACAP remains undefined³³. Given the essentially terrestrially based focus to the Program, its applicability to the broader management of the EEZ is questionable, but as an essentially pragmatic, well organised and outcome effective management initiative, ACAP stands out as a valuable demonstration of many principles of IMM in action.

Table 12. Atlantic Coastal Action Plan Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Partially	Broadly multi-sectoral but strong focus on terrestrial activities and issues
holistic focus	Yes	Yes	Multi-jurisdictional; land-sea interface recognised; management areas based on watershed boundaries
broad, transparent, collaborative decision-making	Yes	Partially	Management based on community collaboration; some difficulty in maintaining comprehensive stakeholder involvement
top-down and bottom-up considerations	Yes	Yes	Top down coordination, bottom-up implementation action
commitment to planning and implementation	Yes	Partially	Achievement of goals; strong volunteer commitment to action; government funding cuts
strategic planning and management	Yes	Yes	Vision oriented; strategic framework elaborated
coordination and harmonisation	Partially	Partially	No formal agreements supporting coordination; lack of coordination of objectives of some program sites
problem solving/dispute resolution	Yes	Yes	Collaboration fundamental basis for planning and management; detailed scoping to preclude conflict between stakeholders
action oriented planning and management	Yes	Yes	Annual workplans and management frameworks to be devised and revised as required
monitoring, evaluation and review	Yes	Yes	No rigid governance arrangements enforced; each program devises techniques appropriate to circumstances

³² The five ecosystem management programs undertaken by Environment Canada are the Atlantic Coastal Action Program, St Lawrence Vision 2000 (originally known as the St. Lawrence Action Plan), Great Lakes 2000 (originally called the Great lakes Action Plan), the Fraser River Action Plan, and the Northern River Basins Study.

³³ Based on experience gained and the input of stakeholders over time, it has been proposed that ACAP II will have three slightly modified fundamental 'pillars' through which it will meet its objectives: partnerships, understanding (including socio-economic influences), and action (Environment Canada 1996b).

5.3.3 Coastal 2000 (1994)

Issued by the Nova Scotia Department of Fisheries and the Department of the Environment in 1994, Coastal 2000 evolved from the Province's Round Table on the Environment and Economy. It was initiated at the request of the Premier of Nova Scotia, and was developed under the auspices of the Deputy Ministers' interdepartmental Land Use Coordinating Committee. In developing Coastal 2000, Nova Scotia became the first Canadian jurisdiction to propose integrated management of its coastal zone.³⁴

A draft discussion paper calling for comments on Coastal 2000 (Canada 1994) was prepared over two years and involved ten Provincial and federal government departments. The discussion paper states that Coastal 2000 is intended to provide for 'sustainable economic development based on community priorities' (Canada 1994: i). It also stresses that the role of government is to create conditions supportive of community action, and thus aims to provide a strategy of action based on principles discussed within the *Brundtland Report* (Hinch, Montgomery pers. comm, 1995)³⁵.

Initially Coastal 2000 made little progress through government due to a lack of consensus, particularly at the working group level (Fay pers. comm 1995). Since the federal departments of Environment, and Fisheries and Oceans have taken over development of Coastal 2000 (despite the absence of other key government agencies), some headway has been made (Fay pers. comm 1995). The Nova Scotia Round table on Environment and the Economy, for example has conducted informal follow-up to Coastal 2000, and during the 1996/97 session of the Round Table, a Coastal Zone Management Implementation Committee was established to focus on coastal zone management issues in Nova Scotia. This Committee has subsequently designed and hosted a series of workshops across the Province with the objective of exchanging ideas and information, identifying effective community development processes, and identifying joint management opportunities between the government and non-government sectors (Brown pers. comm 1998). A report and a series of recommendations resulting from these meetings has been accepted in principle and the provincial Round Table has stated that the provincial Departments of Fisheries and Aquaculture, and Environment lead a government response (Brown pers. comm 1998). A Memorandum of Understanding is currently being prepared to define the roles and responsibilities of government agencies in coastal zone management in Nova Scotia (Hinch pers. comm 1998). An interdepartmental committee has also been formed to develop a policy statement regarding community based projects in general, and to formulate means of support for such projects (Hinch pers. comm 1998).

Coastal 2000: An Analysis

As an initiative which has evolved over the last six years, Coastal 2000 presents an interesting case study in the development of comprehensive management policy at the regional level. Coastal 2000 remains a proposal, and is likely to undergo changes in structure and purpose as it continues to undergo development. The following preliminary analysis is therefore based on the objectives and strategy contained in preliminary policy documents and on discussions with individuals involved in the design of Coastal 2000.

³⁴ Nova Scotia also passed a comprehensive *Environment Act* in January 1995 that focuses on watershed planning, allocation of uses among competing interests, rights of access, health and integrity of aquatic ecosystems, informed decision-making, and public participation. The Nova Scotia *Environment Act* is the first legal document in Canada to embrace the precautionary principle, however it remains to be seen how the principle will influence decision making in practice (Haward & VanderZwaag 1995).

³⁵ See also WCED 1987; and Kriwoken & Cote 1996.

Coastal 2000 is intended as a multi-stakeholder, multi-sectoral policy document which provides a framework for the management of the coastal zone of Nova Scotia. Coastal 2000 is structured on principles of sustainable development, partnerships between community groups and various levels of government, and integrated and efficient delivery of government services to communities. It stresses that the role of government is to create conditions which will support community action, and is based on the objective of balancing economic prosperity with ecological integrity in the province's coastal communities. Andrew Montgomery, then director of the deputy minister's Land Use Committee Secretariat, argues that integrated management forms a basis for Coastal 2000 in so far as the impacts of human activity on the coastal environment are approached in a comprehensive and coordinated manner (Montgomery pers. comm 1995). The 'coastal zone', as defined within Coastal 2000, however, is restricted by rigid political and legal boundaries with little regard for ecosystem functioning. Its emphasis, furthermore, is on *development* (as distinct from management).

Voluntary participation and community partnerships are widely utilised and supported in Nova Scotia, and have been the basis for the development of a number of cooperative agreements such as the Atlantic Coastal Action Program (see Section 5.3.2) as well as Coastal 2000. Coastal 2000 is focused on 'multi-stakeholder consultation' and it relies on local communities to conduct and monitor implementation. Government, both federal and Provincial, is intended as a facilitator and a provider of information on which to make decisions. However Provincial government departments have been slow to support Coastal 2000 due, amongst other things, to concern over the allocation of powers and responsibilities (Hinch, Montgomery pers. comm 1995). The federal government has also played only a minor role in its development (Côté pers. comm 1995), though a small number of enthusiastic and dedicated individuals have ensured ongoing development of the initiative. The nature and scope of coastal management plans are vague and legal issues regarding federal/provincial roles and responsibilities have not been resolved (Haward & VanderZwaag 1995).

Coastal 2000 has been developed as a strategy to facilitate and provide advice on local community management projects. Given that Coastal 2000 is intended to improve efficiency and cost-effectiveness within the *existing* system of management however, it has been designed and developed through existing resources and staff. There has been little funding allocated to development of the initiative, and no dedicated funding, staff, or other resources provided for its implementation. As a policy document, furthermore, Coastal 2000 is not intended to provide binding legal agreement, and indeed, would be unlikely to be approved as such given ongoing government opposition to it. Support and cooperation with the proposal therefore relies on a 'desire to further community development, minimise resource depletion and prevent environmental degradation' (Hinch pers. comm 1995) rather than any financial or legal incentive.

There are approximately 50 pieces of legislation and approximately 100 distinct program areas with interest in marine resource management, spread amongst nine departments of the Provincial government of Nova Scotia. No framework currently exists to coordinate these activities, and Coastal 2000 potentially presents a major step forward in coordinating these functions. Communication and coordination between government departments is intended to be facilitated through ad hoc discussion groups formulated as part of the proposal. Implementation of the proposal is intended through the establishment of a multi-stakeholder Forum on Sustainable Coastal Resource Management in which the varied interests of all levels of government, industry, academia and the community are recognised, as well as the Nova Scotia Round Table on the Environment and Economy. Substantive discourse undertaken by the Nova Scotia Round Table has explored future implementation of the proposal. The Coastal Zone Management Implementation Committee (established during 1996/97 Round Table discussions) has also promoted a Centre of Excellence for

coastal zone management as an implementation tool, though this proposition has not progressed far as a result of poor support from the private sector. Linkages between Coastal 2000 and other initiatives in the region are not recognised and have not been established.

Coastal 2000 is primarily intended to foster efficient delivery of management action and to empower communities to take action in the management of the coastal environment. It also forms a conceptual basis for the development of a national approach to integrated management (now part of the Oceans Strategy) (Hildebrand 1995). Ongoing conflict and lack of effective dispute resolution, however have significantly hindered the development of Coastal 2000. Furthermore, despite dedicated and enthusiastic individuals involved in its development, lack of broader government support has inhibited agreement on and implementation of the proposal. The future of Coastal 2000, as proposed, is uncertain. It remains to be seen whether the initiative will promote integrated management of the marine environment of Nova Scotia.

Table 13. Coastal 2000 Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?*	Comments
multi-sectoral	Yes		
holistic focus	Partially		Lack of consideration of ecosystem boundaries
broad, transparent, collaborative decision-making	Yes		Focus on multi-stakeholder consultation and empowerment of communities towards action
top-down and bottom-up considerations	Yes		Government lead policy; community lead implementation
commitment to planning and implementation	No		No dedicated funding or staff; poor progress in development of the initiative
strategic planning and management	No		
coordination and harmonisation	Partially		Poor coordination across administrative boundaries; lack of clarity in government roles and responsibilities
problem solving/dispute resolution	Partially		Partnerships in action promoted; ongoing inter-governmental dispute and absence of collaboration
action oriented planning and management	No		No time-frames set; no framework of implementation
monitoring, evaluation and review	No		

* Since Coastal 2000 remains under development, program outcomes are unable to be assessed.

5.3.4 Marine Protected Areas Strategy for the Pacific Coast (1997)

In the Canadian context, British Columbia (BC) has been the most active of any Province in the country in the establishment of Marine Protected Areas (MPAs).³⁶ A *Protected Areas Strategy for British Columbia* was introduced in 1993 to coordinate management of existing parks and reserves in British Columbia (BC)³⁷, as well as identify new areas for protection. The *Protected Areas Strategy* is intended to complement existing federal and Provincial management by protecting representative portions of the Province's ecosystems including coastal and ocean areas. The Strategy provides a methodology and procedures for identifying representative examples of terrestrial, freshwater and marine ecosystems deserving protection, as well as assessing economic, social and sectoral impact of protected areas in the Province. As an information base for the Strategy, BC has developed a classification scheme that complements and refines a biogeographic classification scheme developed on a national scale by the federal department of Parks Canada. At the provincial level, the marine area of BC (including out to the 200 n. mile limit³⁸) has been divided into 12 eco-sections and 65 different classes. The *Protected Areas Strategy* proposes that a minimum of 12% of the Province (both terrestrial and ocean environments) is reserved by the year 2000, and that each of the designated eco-sections is to be represented within that area. To better guide the identification and selection of MPAs in the marine environment, the *Protected Areas Strategy* also proposes that the Province develop objectives and strategies specifically focused on the marine environment.

³⁶ The designation of Montaugue Harbour and Rebecca Spit off British Columbia in 1957, are argued to be the among the first Marine Protected Areas to be declared in temperate waters in the world (MPA Steering Committee and Work Group 1997).

³⁷ By 1997, BC managed 73 Provincial parks and recreation areas, and 15 ecological reserves that contain marine components. The federal department of Parks Canada had also established 2 Marine Protected Areas under the National Marine Conservation Areas system (see Section 5.3.1 of this Thesis).

³⁸ Provincial jurisdiction along the British Columbia coast includes all land between the high and low water mark, the seabed of the Strait of Georgia, Juan de Fuca and Queen Charlotte Sound - Johnstone Strait, and the coastal seabed between major headlands unless responsibility has been transferred specifically to a federal jurisdiction, or is in private ownership (Howes 1992).

Box 12. Marine Protected Areas Strategy for the Pacific Coast Sequence of Events

1957	First Provincial Marine Park established in British Columbia.
1988	Agreement to establish Gwaii Haanas National Marine Conservation Area reserve (May) <i>'Towards a Protected Areas Strategy for British Columbia'</i> released.
1992	BC government announced a <i>Protected Areas Strategy for BC</i> , and announced an initial list of approved study areas for consideration under Protected Areas status; BC Round Table on Environment and Economy report, <i>'Towards a Strategy for Sustainability'</i> published.
1993	(Jan) <i>Issues and Options for Coastal Management in BC</i> discussion paper, released; (June) BC government released the <i>Protected Areas Strategy for BC</i> .
1994	Inter-government Marine Protected Areas Working Group established and senior Steering Committee set up; (September) BC/WA Environmental Cooperation Council Marine Science panel report released.
1995	(May) Steering Committee review of MPA, Working Group Work Plan; (July) Federal and provincial governments launched a 5 year Pacific Marine Heritage Legacy program to create a network of coastal and marine protected areas; (Nov) Status report on protected areas in British Columbia released by the provincial State of the Environment Reporting office; (Dec) Marine Protected Areas Forum held in Cowichan Bay.
1997	(Mar) A draft discussion paper, <i>Toward a Marine Protected Areas Strategy for the Pacific Coast of Canada</i> , released, and a second series of MPA forums convened.
1998	(Jan) Redraft of MPA Strategy discussion paper based on feedback received from stakeholders and First Nations; (Jan - Mar) Public review and consultation on redrafted MPA strategy; (Jun 5) <i>Coastal Zone Position Paper</i> released.

Since introduction of the *Protected Areas Strategy* in 1993, significant progress in designating terrestrial areas has occurred through land use planning and consultation processes in most regions of the Province. Progress in the establishment of Marine Protected Areas, however has been far slower. As a consequence, in 1994 the provincial government, in conjunction with the federal government, initiated a process to develop a *Marine Protected Areas Strategy* for the Pacific coast of Canada, as well as to facilitate the protection of marine waters in regions that cross jurisdictional boundaries.³⁹ An inter-governmental Marine Protected Areas Working Group⁴⁰ and a senior management Steering Committee were appointed with a mandate to develop an integrated marine protected areas strategy and specifically to unify the overlapping MPA strategies of the DFO, Parks Canada, and BC Parks.

Consultation processes began in 1995 with a Marine Protected Areas Forum in Cowichan Bay.⁴¹ During the forum, issues relating to the development of an MPA

³⁹ Agencies involved in the initiative include the DFO, Parks Canada, BC Parks, the BC Land Use Coordination Office, Environment Canada (Canadian Wildlife Service), and the Provincial Department of Agriculture, Fisheries and Food.

⁴⁰ The Marine Protected Areas Working Group has now been largely absorbed by the BC/WA Environmental Cooperation Council task force to establish Marine Protected Areas (see Section 5.4.1 of this Thesis).

⁴¹ Also in 1995, as part of the MPA Strategy for BC, the federal and Provincial governments launched a *Pacific Marine Heritage Legacy*, a five year program to create an 'integrated' network of coastal and ocean protected areas on the Pacific coast, and particularly the Strait of Georgia (de Macedo pers. comm 1995). The Legacy has been initiated on a commitment to protecting marine areas, completion of the national parks system, and fulfilment of obligations under the international *Convention on Biological Diversity*. Each government has promised to fund C\$30 million to acquire selected coastal lands for protection. Both the federal and Provincial government participate in a joint Management Committee though the Provincial government manages all jointly acquired lands on an interim basis until it is determined under what status the area will be managed (Canadian Heritage 1998). The goal of the program is to establish a 'family' of existing and new heritage areas on the coast managed cooperatively by different agencies, and to this end, the program is building on previous federal/Provincial collaboration to establish the Pacific Rim and Gwaii Haanas National Park Reserves (Canadian Heritage 1998). See also Section 5.3.1 of this thesis.

Strategy for BC, the establishment of protected areas in the marine environment, and the potential for stakeholder involvement throughout these processes were identified and discussed. In addition, government commitments were made to continue working on policy components of the *BC Marine Protected Areas Strategy*, and to convene a second forum to further discuss policy issues. In March 1997, a second series of Marine Protected Area Forums were convened by the MPA Steering Committee and Working Group. Discussions centred on a draft discussion paper prepared by the MPA Steering Committee and Working Group entitled *Towards a Marine Protected Areas Strategy for the Pacific Coast of Canada* (MPA Steering Committee and Work Group 1997). In parallel with a strategy on coastal management in the Province⁴², the BC government is currently working with the federal government and a variety of stakeholders to finalise an outline of the major policy components of a MPA strategy for the Pacific Coast. Within the Strategy it is proposed that MPAs will be defined, the goals and objectives of an MPA system will be identified, and a process of identification, planning and management will be established (Mitchell pers. comm 1995).

Marine Protected Areas Strategy for the Pacific Coast: An Analysis

The *Marine Protected Areas Strategy for the Pacific Coast of Canada* is a proposal under development. The following preliminary analysis is based on discussions with individuals involved in the Program's development and on objectives and strategy contained in preliminary policy documents.

As proposed, the *MPA Strategy for the Pacific Coast* is based on principles of ecosystem based management. Management is viewed from the perspective of the Pacific Coast as a whole (as distinct from territorial waters only), and a variety of management regimes across a range of jurisdictions and geographical zones are embraced. Management of human activities in MPAs is intended through zoning, and permitted uses depend on zoning classifications. Commercial and sport fishing, as well as most other commercial and recreational harvesting activities are currently allowed in MPAs in BC. Dredging and dumping are the only activities not usually permitted in any areas of the proposed MPA scheme.

Through the *MPA Strategy for the Pacific Coast*, the federal and Provincial governments have committed themselves to a consultative, collaborative process of planning and management of protected areas. 'Progressive environmental inventory' and 'conservation research' are encouraged though no methods for incorporating research in decision making are discussed. It is envisaged that the proposed joint Provincial and federal network of MPAs will be managed in partnership with all levels of government, First Nations, non-government organisations, and all other stakeholders (MPA Steering Committee and Work Group 1997). BC Parks is intended to take a leadership role in structuring cooperation and coordination between stakeholder groups. To date, government leadership in development of the Strategy has been strong though there has been little consideration given to formal cooperative management agreements (despite their recommendation). It is argued, nevertheless that there has been good *inter-governmental cooperation* with regards Marine Protected Areas in BC, though collaboration between government and non-government interests

⁴² On June 5 1998, BC released a *Coastal Zone Position Paper* (British Columbia 1998). The Position Paper is intended to serve as the basis for the Province's discussions with the federal government in the development of the national Oceans Strategy, as well as to provide a framework for future provincial activities specifically in the coastal zone (Mitchell pers. comm 1995). Based on findings that coastal resources are at risk, that development concerns as well as opportunities exist, and that there is no coastal resource management framework in BC, the Coastal Strategy is intended to provide an 'overarching, integrated approach to managing humans, land use and coastal resources' (Salasan Associates Inc, Regional Consulting Limited et al. undated: 1). The proposed Strategy operates on the principle that new and additional institutions are not needed; what is needed is greater coordination and efficient use of existing government resources, a clear corporate vision, commitment from all levels of government and widespread public consultation.

in shared decision-making processes has not been tackled so successfully (Truscott pers. comm 1995).

There is no specific legislation targeted at the designation of MPAs in BC. Thus declaration of MPAs within the proposed system is reliant on the multitude of existing legislation at both the federal and Provincial levels. There is much pressure, particularly from the non-government sector for the designation of Marine Protected Areas in BC (Truscott pers. comm 1995). The Steering Committee (at the Assistant Deputy Minister level) is said to be aware of this pressure, but is nevertheless approaching the development of the *MPA Strategy* as part of an overall coastal/ocean management strategy for the Province (Truscott pers. comm 1995). Slow progress in the establishment of Marine Protected Areas in BC has been attributed to a lack of experience of both the Provincial and federal governments in establishing and managing Marine Protected Areas in general (de Macedo pers. comm 1995).⁴³ No marine areas in the Pacific region were declared during 1997/1998, for example, despite a high level of activity and attention at both the federal and Provincial government levels.

Within the proposed *MPA Strategy for the Pacific Coast*, integrated management is specifically referred to as an 'institutional vehicle for resolving user conflicts', and communication and 'environmental learning' are encouraged (MPA Steering Committee and Work Group 1997). The Strategy is also being developed to ensure linkage and coordination with a number of marine related initiatives being undertaken by both British Columbia and the federal government, including specifically, the national Oceans Strategy. There are nevertheless, unresolved overlaps between the BC Protected Areas Strategy, the federal National Marine Conservation Areas program (see Section 5.3.1), the BC Provincial Land Use Strategy, and First Nations Treaty Negotiations Processes. There is no detail provided as to how a cooperative approach towards planning and management is to be achieved, and there remains a diverse and confusing array of designations and legislative tools available for designation of MPAs in BC. The Land Use Planning Group (Inter-Ministry Policy Committee 1995) attributes a lack of consistency within the Strategy to the fact that there is generally no national push for consistency in MPAs, and that federal/Provincial government efforts at establishing MPAs in BC have been largely Provincially driven. Furthermore, the significant necessity and opportunity for cooperation and coordination, cross-border with Alaska and Washington State is not recognised to a large extent (Paisley 1992).

There has been a great push for an integrated approach to environmental management in British Columbia. Integrated *marine* management specifically however, has received less attention, and policy for the management of marine areas has been slow to develop. Introduction of the *Canada Oceans Act* at the federal level has provided a framework for the Province to seriously examine coastal and ocean issues, and the goals and objectives of the proposed *MPA Strategy for the Pacific Coast* are being considered in light of federal developments. The Strategy is Canada's first attempt at the combining of federal and Provincial marine policy and management within one document, and through the Strategy, BC is approaching conservation of the marine environment in a holistic and multi-sectoral way. Largely due to ongoing pressure from non-government organisations, the Strategy has developed a momentum all its own (Truscott pers. comm 1995) and the Strategy provides a useful summary of MPA management and policy for the Province. The proposed *MPA Strategy for the Pacific Coast* however does little to reconcile administrative confusion or to simplify the scope and array of MPA designations applicable to BC. It remains to be seen, therefore, whether the Strategy will be able to fulfil integration objectives within management outcomes.

⁴³ See also (MPA Steering Committee and Work Group 1997).

Table 14. Marine Protected Areas Strategy for the Pacific Coast Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?*	Comments
multi-sectoral	Yes		Dredging and dumping excluded in all areas, otherwise, most activities allowed
holistic focus	Yes		Ecosystem based, regional management focus
broad, transparent, collaborative decision-making	Yes		Commitment to cooperative, collaborative decision-making
top-down and bottom-up considerations	Yes		Top-down driven planning; strong push for MPAs from non-government sector driving the Strategy's development
commitment to planning and implementation	Partially		No dedicated legislation; slow progress in designation of protected areas
strategic planning and management	No		
coordination and harmonisation	Partially		Complementary policy and practice advocated; poor coordination across some boundaries
problem solving/dispute resolution	Partially		Commitment to conflict resolution though no methods discussed
action oriented planning and management	No		
monitoring, evaluation and review	No		

* As the Marine Protected Areas Strategy for the Pacific Coast is still under development, management outcomes are unable to be assessed.

5.4 INTERNATIONAL INITIATIVES

5.4.1 The British Columbia/Washington State Environmental Initiative (1992)

The *British Columbia /Washington State (BC/WA) Environmental Initiative* is one of the first steps resulting from a broader focussed exercise known as the *Georgia Basin Initiative* (GBI) instigated by the British Columbia Provincial Cabinet. The aim of the GBI is to provide a forum for the coordination of a number of governmental efforts including the *BC/WA Environmental Initiative*. The Georgia Basin region, a region of internationally shared waters, overlapping interests and complex management arrangements, is not set up administratively to facilitate a comprehensive planning and management. Notwithstanding, an ecosystem management approach has been advocated by the GBI, and administration of government efforts under the GBI is intended to be based on principles of shared responsibility and inter-jurisdictional cooperation (Anon 1993).

**Box 13. The British Columbia/Washington State Environmental Initiative
Sequence of Events**

1992	(May) First Environmental Cooperation Agreement signed between the BC Premier and Washington State's governor - the <i>BC/WA Environmental Cooperation Agreement</i> ; The BC/WA Environment Cooperation Council formed.
1993	(Jan) Georgia Basin Workshop - first step in consultation process leading to the Georgia Basin initiative - convened by the BC Round Table on Sustainability in the Georgia Basin; (July) The Marine Science Panel of the Environment Cooperation Council (ECC), formed.
1994	(Jan) The Marine Science Panel presented a status report of their findings at the BC/WA Symposium on the Marine Environment in a volume, <i>Review of the Marine Environment and Biota of the Strait of Georgia, Puget Sound and Juan De Fuca Strait</i> (Jan/Feb) Briefings held by the ECC to gain more information than the Symposium had produced and to report on the state of the Shared Waters; (Sept) <i>Shared Waters of the BC and Washington Report</i> released by the Marine Science Panel; (Aug) Puget Sound/Georgia Basin International Task Force charged with responding to the recommendations of the Marine Science Panel report published in September.
1995	(Dec) Marine Protected Areas Workgroup (from the Puget Sound/BC International Task Force) forum on Marine protected Areas, held.
1996	(March) Workshop and report on strategic planning in the shared waters.
1997	(March) Draft Strategy for Marine Protected Areas in BC released; (May) Background report on marine protected areas in Washington State completed.

The *British Columbia /Washington State Environmental Initiative* began in May 1992 after the signing of a *BC/WA Environmental Cooperation Agreement* which commits the Canadian Province of British Columbia and US State of Washington to cooperative efforts for the conservation, protection and enhancement of the marine resources that they share. The intention of the Initiative is to develop a regional management plan, including a comprehensive Marine Protected Area plan for the Puget Sound/Georgia Basin region (Puget Sound/Georgia Basin International Task Force 1995).

With signing of the Environmental Cooperation Agreement an *Environmental Cooperation Council* (ECC) was established to address issues transcending the international boundary between British Columbia and Washington. The ECC comprises members from the Washington Department of Ecology, the BC Ministry of the Environment, Lands and Parks, as well as formal observers from the regional offices of the US EPA, Environment Canada, and the DFO. Goals of the Council include transfer of tools, techniques and information, and to ensure that activities are evaluated in light of their potential benefits and costs to neighbouring jurisdictions. As an educational and advisory agency, however, the ECC does not have the power to regulate or implement policy. Its focus therefore, is not as much on the creation of new programs, but on the alignment and coordination of existing efforts.

In 1993, the ECC appointed a Marine Science Panel of six university and government marine scientists from British Columbia and Washington. The scientists were assigned several questions concerning the state of the marine environment and were charged with providing recommendations for action. After conducting an international symposium, a number of small meetings, and consultation with a wide number of experts, the panel members presented their results to the ECC in August 1994, in a document entitled *The Shared Marine Waters of British Columbia and Washington* (BC/WA ECC MSP 1994). The panel described and evaluated the waters and resources in the Strait of Juan de Fuca, the Strait of Georgia, and Puget Sound, and made recommendations for more effective environmental management in the region. The ECC has subsequently endorsed the panel's evaluation process, and has adopted it as a guide for continuing efforts at comprehensive, collaborative management of Georgia Basin and Puget Sound. The Council has also created five task forces to coordinate implementation efforts in five priority areas. The *Puget Sound/Georgia Basin International Task Force* is one of these task forces.

The mandate of the *Puget Sound/Georgia Basin International Task Force* is to recommend and implement efforts on information sharing, monitoring and research for transboundary waters. In September 1994, the Task Force was requested to develop a series of recommendations for 12 priority action items (listed in the Marine Science Panel Report published in August (BC/WA ECC MSP 1994). As a consequence the Task Force set up working groups in each of the 12 priority areas, and began drafting strategy documents for action. However during June 1995, urged by concerns about cross-border contamination of waters and differing effluent discharge standards, the ECC requested that the Task Force focus its efforts on the four highest priority action areas, namely habitat loss, marine protected areas, protected marine life, and minimisation of the introduction of exotic species (Puget Sound/Georgia Basin International Task Force 1995).

In addition to, and distinct from the transboundary Task Forces, separate State and Provincial work groups have been created due to logistical constraints encountered by the Task Forces. One such work group is the BC Marine Protected Areas Working Group which is in the process of developing a *Marine Protected Areas Strategy for the Pacific Coast* (see Section 5.3.4).

The British Columbia/Washington State Environmental Initiative: An Analysis

Based on widespread concern about the failure of existing arrangements to adequately protect the resources and environment of the shared waters of Puget Sound/Georgia Basin, the *BC/WA Environmental Cooperation Agreement* states that 'environmental concerns and impacts respect neither physical nor political boundaries' (BC/WA ECC MSP 1994). Joint stewardship forms the management philosophy of the Agreement, though the Canadian and US federal governments are considered 'non-signatory observers' (Hildebrand 1989), and planning and management is perceived primarily in terms of Provincial/State government responsibilities. Cooperation and collaboration are aimed for at all levels of government and across all jurisdictional boundaries. However given the absence of regulatory power in the Agreement, implementation is based on nothing more than a willingness to cooperate in environmentally sound management efforts (Newroth pers. comm 1995).

The *BC/WA Environmental Cooperation Agreement* was established with a mandate to improve information exchange between those involved in the management of Georgia Basin/Puget Sound. The Agreement is primarily targeted at assimilating existing information, though a number of new projects have been initiated under the auspices of the Agreement (Newroth pers. comm 1995). Many of the early activities of the Program were largely focused on defining marine environmental quality standards and indicators (Truscott pers. comm 1995), but activities have now broadened to include a range of topics concerning the shared waters. Effective management of the transboundary region is seen as requiring 'integrated management'; that is, management approaches which embrace strategic planning, comprehensive program audit, coordinated action as well as freedom of information, and good communication (BC/WA ECC MSP 1994). Status Reports have been used to identify and assess progress of the Initiative.

The Marine Science Panel and Task Force activities are compatible with other initiatives on both sides of the border, including the *US Clean Water Act* guidelines, the BC Ministry of Environment, Lands and Parks Strategic Plan, and the Puget Sound Water Quality Management Plan. Formal connections also exist between the Puget Sound/Georgia Basin Strategic Plan and the Fraser Basin Management Program, the Fraser River Estuary Management Program, the Islands Trust, the Vancouver Island Land Use Plan, and the Puget Sound Water Quality Authority. A cooperative agreement exists between Canada and the United States which provides a framework for funds for transboundary projects.

The *BC/WA Environmental Cooperation Agreement* is an initiative which pursues IMM in the sense of holistic, cooperative management based on ecosystem concerns and cross-jurisdictional issues. Through the Agreement, the United States and Canada have taken a step towards joint stewardship of shared waters directed at joint, long-term planning for the region's marine environment and resources. However, the actual reasons for ongoing degradation and pollution of the shared waters are unknown (BC/WA MSP undated). Furthermore, though the Agreement has been established to address the perceived failures of existing management arrangements in the region (including fragmented management authority, overlapping responsibilities, and compartmentalised jurisdictions), there have been few changes to conventional administrative arrangements resulting from the Agreement. Instead, bi-national, coordinated research and monitoring efforts are the primary means by which fragmentation and inconsistency are sought to be overcome.

Gaps and overlaps exist between the jurisdictions of federal government agencies responsible for management of Puget Sound/Georgia Basin region, even within one jurisdictional context. Administrative complexity, and logistical constraints have hindered a number of well intended efforts at collaborative planning and management, and have, in some cases, forced a return to the establishment of independent management bodies on either side of the border. Furthermore, planning processes have occurred largely within the government domain, and non-government organisations, community groups and sectoral interests have been excluded from the design of policy and management strategy. Nevertheless, the *BC/WA Environmental Cooperation Agreement* has taken an innovative approach to management of marine issues by focusing on *issues* (such as marine pollution, resource management and introduction of exotic species), rather than narrow sectoral concerns. Scientific provides a strong and critical basis to decision-making for the region, and research and monitoring efforts form the basis for cross-border communication and joint management efforts. As a non-regulatory initiative aimed at comprehensive, coordinated and strategic management, the *BC/WA Environmental Cooperation Agreement* constitutes an important step towards the integrated management of the shared international marine waters of Puget Sound/Georgia Basin.

Table 15. The British Columbia/Washington State Environmental Initiative Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Yes	
holistic focus	Yes	Yes	Ecosystem considerations; multi-jurisdictional
broad, transparent, collaborative decision-making	Yes	Partially	Non-government involvement lacking; joint stewardship aimed for
top-down <i>and</i> bottom-up considerations	Partially	No	Primarily top-down (sub-national) government driven planning and management
commitment to planning and implementation	Yes	Yes	International commitment to funding for transboundary projects
strategic planning and management	Yes	Yes	Long range planning
coordination and harmonisation	Yes	Yes	Focus on harmonising existing policy and management
problem solving/dispute resolution	Yes	Yes	Formal and informal links with initiatives and policy both sides of the border
action oriented planning and management	Yes	Partially	Program audit recommended; status reports issued annually
monitoring, evaluation and review	No	No	

5.5 SUMMARY

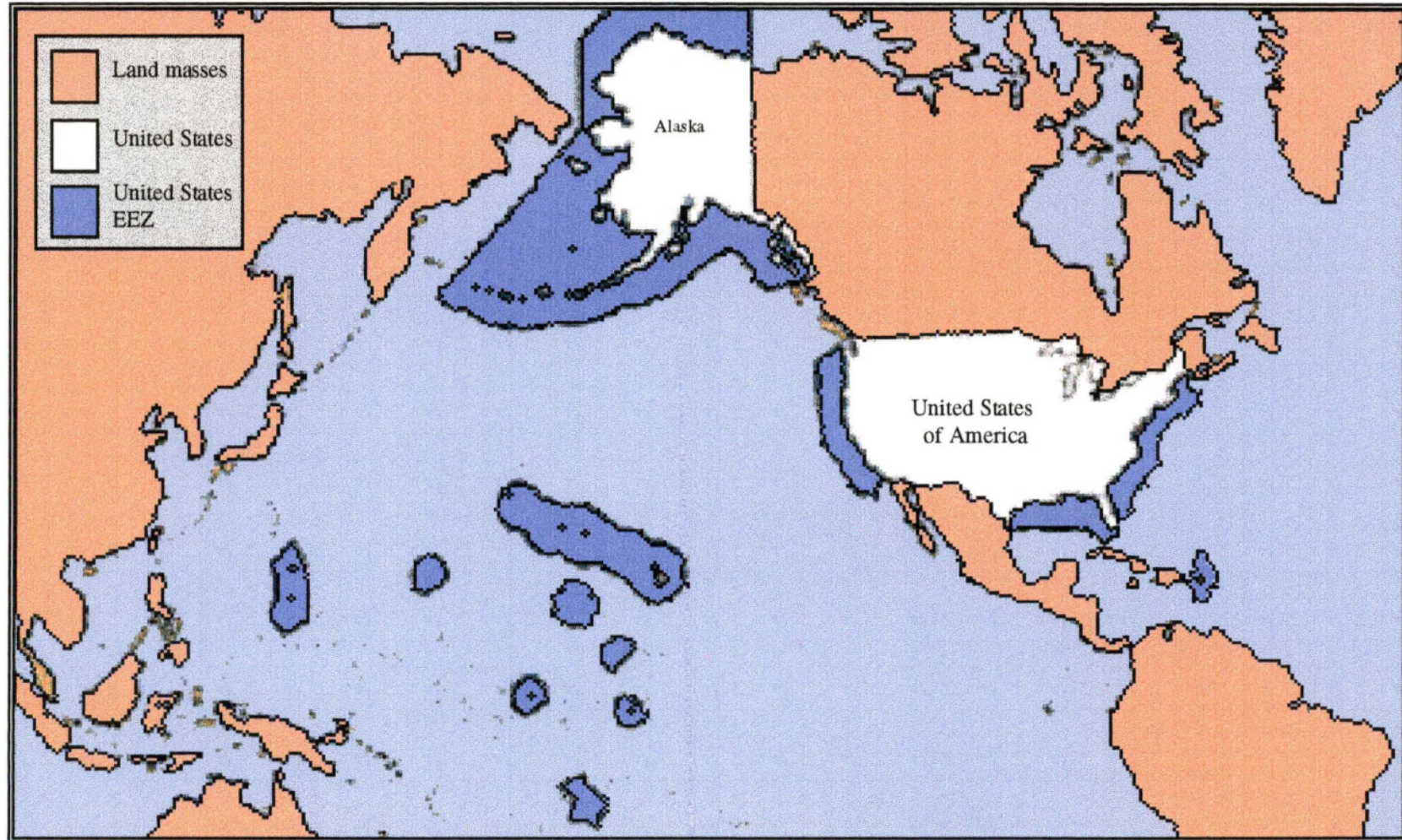
Canada has followed similar phases in the development of environmental management to those in Australia, and the need for comprehensive, coordinated and strategic responses towards management of its marine environment are well established. Unlike Australia, however, Canadian marine management initiatives have been largely driven by international and regional fisheries concerns, and an integral economic relationship with the United States. Canada has traditionally resolved offshore federalism issues on a Province-by-Province basis for individual ocean-use sectors like offshore oil, rather than to seek a comprehensive solution. Nevertheless, through a growing number of initiatives targeted at the coast (and increasingly out to sea), Canada is approaching IMM both through centralisation of responsibility and legislative reform at the national level, and through decentralisation of planning and management at the regional level.

The *Canada Oceans Act* is a major landmark in marine policy development in Canada as it consolidates the greatest proportion of marine management responsibilities with one federal department. It also sets the foundation for marine management policy on a national scale. Regional initiatives such as the Atlantic Coastal Action Program and the proposed Protected Areas Strategy for the Pacific Coast in contrast, are based on decentralisation of effort and responsibility through cooperative arrangements between the federal and Provincial governments, and local sectoral and community interests. With respect to government responses to integration objectives, a number of other administrative arrangements have been established in an attempt to overcome

fragmentation and overlap in management responsibilities, as well as to promote communication and information dissemination across and within government departments. These arrangements are both statutory and informal, and include such devices as the Interdepartmental Committee on Oceans and the National Round Table scheme.

The Canadian non-government sector has had varying influences on marine management affairs, and is largely fragmented and mistrustful. As with both Australia and the United States, Canadian environmental non-government organisations (ENGOS) such as the Canadian Oceans Caucus, the Canadian Arctic Resources Council, and the Canadian Nature Federation, play a significant role in raising awareness and community education. Initiatives such as the Canadian National Oceans Day have arguably been so successful in generating community interest and support for ocean management programs, that the United States National Ocean and Atmospheric Administration has adopted the idea for the USA (Swan, J. pers. comm 1995). In contrast, a number of other ENGOS, such as the WWF, have found it very difficult to keep marine issues on their agenda, despite a policy promoting marine conservation. Notwithstanding, the marine environment is increasingly forming a major government policy and management focus within Canada and IMM constitutes the foundation to many contemporary marine management initiatives. A major challenge now facing Canada is the practical operation of those objectives.

Map 3. Map Showing Exclusive Economic Zone of the United States of America



Chapter 6.

UNITED STATES of AMERICA

6.1 INTRODUCTION

The coastline of the United States is the second largest in the world after Canada at more than 150 000 km. Around 60% of the US population lives on the coast (only 10% of the land area), and the greatest proportion of the population also live in small to medium sized towns (Kincaid 1996: 90). Of Australia, Canada and the United States, the US was the first to formally initiate a coastal zone management program at the national level.

6.1.1 The Constitutional Division of Powers in the United States of America

The US Constitution was drafted in 1787. Similar to the Australian Constitution, the US Constitution enumerates the powers of the *federal* government and residual powers are left to the *States*. The US Constitution grants the federal government authority to protect the environment through powers over commerce, taxing and spending, property of the USA, and treaty-making (Fitzgerald 1996). Nevertheless environmental matters remain largely a state concern under the original Constitution due to state ownership of, and responsibility for, public lands (Saunders 1996).

A 3 n. mile territorial sea, in which states may assert the right to develop ocean resources, was first proposed in the United States in 1793 as a 'temporary' seaward boundary. In 1947 the US Supreme Court in *United States v. California*, 332 US 19 (1947) overturned this proposal by determining that the federal Government, rather than the states, had paramount rights over the nation's coastal waters and resources. However, ensuing debate resulted in enactment of the 1953 *Submerged Lands Act* and the *Outer Continental Shelf Lands Act of 1953* establishing state jurisdiction over a 3 n. mile territorial sea and federal jurisdiction over resources beyond 3 n. miles from the shore. The Supreme Court, in *United States v. California*, 381 US 139 (1965), subsequently adopted definitions of maritime jurisdiction provided by the international *Convention on the Territorial Sea and the Contiguous Zone* which arose out of the 1958 First Conference of the Law of the Sea.

6.1.2 The Jurisdictional Division of Powers in the United States of America

Based on historical precedent, Texas and Florida claim jurisdiction to 9 n. miles in waters of the Gulf of Mexico.¹ Otherwise all other coastal States in the US have jurisdiction over the seabed and its resources out to 3 n. miles. Extension of the US territorial sea from 3 to 12 n. miles offshore by a Presidential Proclamation in 1988 did not extend jurisdiction of any existing federal or state law, or the rights, legal interests and obligations derived therefrom. Nonetheless, the authority of the President to override existing federal laws which define jurisdictional boundaries using the term 'territorial sea' has been questioned, and ownership and regulation of this area remains ambiguous.²

¹ In *US v. Louisiana* 363 US 83 - 85 (1960), *US v. Florida* 363 US 121 (1960)

² See Hawai'i Ocean and Marine Resources Council 1991; and The Resources Agency of California 1995.

Passage of the United States federal *Magnuson Fishery Conservation and Management Act* in 1976 was the first unilateral declaration of jurisdiction over a 200 n. mile marine zone by any major power. The Act acknowledges the national interest in fishery resources within a 200 n. mile zone, and calls for fisheries to be managed 'throughout their range' using 'the best scientific data available'. However, while useful when considering management of a particular fishery, the Act offers little guidance for the management of other sectoral concerns or for the management of fisheries activities not regulated under federal law, such as marine aquaculture (Cicin-Sain 1995). Proclamation of the US EEZ in 1983 changed management and use of resources in the 200 n. mile zone from an international to a domestic issue, whereby jurisdiction over all living and non-living resources within 200 n. miles of the nation's shoreline is shared federal and state government (see Map 3.).

Environmental management in the USA has generally followed a centralised model, and legislation enacted since the 1970s has significantly increased the scope of federal government power over ocean affairs by providing for centralised authority at the national level. The federal government of the USA has also become increasingly active in enacting legislation in the environmental area, particularly with respect to its constitutional power to make and implement international treaties.³ However the 1990s have seen a strong push for decentralisation of powers within the United States, particularly with regard environmental management, and changes in law and policy have resulted in growing State-level influence over marine policy and management⁴. This has resulted in urgent calls for development of methods to achieve 'integration' and 'harmonisation' of agency actions, policies and existing governance arrangements across and between jurisdictional boundaries. Despite the belief that 'few, if any, mechanisms...for harmonising and coordinating the actions of federal ocean agencies...' exist (Cicin-Sain 1994: 172), there have been gradual moves towards promoting coordination of environmental management in the United States.

6.1.3 Marine Management in the United States of America

In 1966 a major piece of legislation was enacted in the United States that attempted to deal with issues of organisation of the national ocean program as well as improvement in the coordination of federal ocean activities. This legislation was the *Marine Resources and Engineering Act*, the principle devices of which were a Marine Sciences Council and a Commission on Marine Sciences, Engineering, and Resources (COMSER). COMSER came together in 1967 as a study commission comprising a panel of experts from within and outside of government, and chaired by Julius Stratton, President of the Massachusetts Institute of Technology. COMSER ultimately became known as the Stratton Commission and they are best known for their comprehensive report on ocean governance in the United States entitled *Our Nation and the Sea* (Commission on Marine Science Engineering and Resources 1969) issued in January 1969. This study was released prior to the implementation of the bulk of environmental policy and legislation in the United States, and it has had a significant impact on the evolution of marine management in the USA.

³ Holland (1996) argues that this is due largely to the interpretation of the constitutional powers of the United States by the High Court which decided that a federal law (that would otherwise intrude upon the reserved power of the States) is valid if it introduced as implementation of a Treaty.

⁴ Many States have proactively developed ocean use management law and policy without federal assistance. Oregon, for example, has adopted a comprehensive approach addressing both ocean and coastal issues, whereas other States such as Hawai'i have adopted certain aspects of State marine policies. Oregon is the only State where policy is at a stage of development where State-wide enforceable policies may be implemented. In other States, implementation is said to be 'weak or non-existent' (Hershman 1996: 33), or still in early stages of policy development. Nevertheless, the State role in marine management and policy development has been institutionalised through State Coastal Zone Management Programs, in the development and staffing of National Marine Sanctuaries, and in the creation of regional groups focused on regional environment and development concerns such as the Gulf of Maine Council on the Marine Environment.

The fragmented view of ocean management operating in the United States was critically assessed in the Stratton Commission report and, among its recommendations was the creation of a new federal oceans agency in order to promote the visibility and priority of ocean affairs nationally. Within a year of the Stratton Report, the National Oceanic and Atmospheric Administration (NOAA) was created (although in a somewhat compromised version than the more comprehensive recommendations of the Stratton Commission).⁵ The Stratton Commission findings also prompted the drafting of the legislation that ultimately evolved into the US federal *Coastal Zone Management Act*.

Developed in response to recognition of serious and growing marine environmental degradation, the *Coastal Zone Management Act (CZMA)* of 1972 marks the beginning of concerted development of marine policy in the United States (see Section 6.3.1). The Act provides a link between State and federal activities, and grants States the ability to review, and in some circumstances stop, federally permitted activities which affect the resources of the coastal zone. Though some US States had begun to adopt coastal management programs before the *CZMA* was enacted, most concerted State efforts followed passage of this legislation.

Further enactment of legislation concerning ocean management in the 1970s saw the United States become a world leader in the development of marine management policy (Kincaid 1996). Landmark laws of the time included the *Marine Mammal Protection Act 1972*, the *Endangered Species Act 1973*, the *Magnuson Fishery Conservation and Management Act 1976*, the *Clean Water Act 1977*, and the *Outer Continental Shelf Lands Act Amendments 1978*. A result of this legislation has been a proliferation of rules, standards, programs and agencies with responsibility in marine affairs throughout the government system, all of which have tended to reflect a use-by-use or 'sectoral' approach to environmental management which still characterises the US ocean governance system. While this proliferation has allowed the early development of practical environmental management initiatives, it has also led to fragmentation and conflict and made it difficult to coordinate policies or to treat ecosystems holistically.

Knecht (1992) argues that there are at least two other coordination devices which have been developed within the United States ocean policy framework to account for this fragmentation. The first of these is the environmental impact statement process under the *National Environmental Policy Act*,⁶ and the second is the federal consistency provisions of the *Coastal Zone Management Act*.⁷ Nevertheless, these mechanisms do not replace an integrated policy framework, and there has been a notable absence of a national policy or program for dealing with management of the EEZ as a whole (Knecht 1992). With a focus on a need for a national policy framework⁸, the United States Office of Ocean and Coastal Resource Management (OCRM) has been pursuing an Ocean Governance Initiative. The Initiative is pursuing the establishment of national goals and policies for sustainable development of ocean resources, and it calls for State and regional planning efforts to be carried out within a national policy framework and in coordination with other federal programs. Accordingly the initiative has been aimed at supporting and encouraging State and regional ocean governance initiatives as well as improving coordination among federal agencies with jurisdiction over ocean resources (Benoit pers. comm 1995).

⁵ See Knecht, Cicin-Sain et al. 1988; and Knecht 1992.

⁶ See also McDonald & Atkinson 1994.

⁷ See also Lowry, Jarman et al. 1993.

⁸ The Ocean Governance Initiative is based on the premise that the present system of fragmented federal and State authorities, single purpose statutes, and the absence of national goals and guidance leads to jurisdictional confusion and inefficient, often contentious decision-making that fails to consider the impacts to ecosystems and ensure sustainable use (Benoit pers. comm 1995).

In terms of management (as distinct from policy), recent acknowledgment of the impacts of non point-source pollution of marine environments has done much to focus attention on the need for multi-sectoral, comprehensive approaches to marine management. Reauthorisation of the *CZMA* in 1990 incorporates a requirement that States control non point-source pollution of marine regions, and these obligations now form a major policy issue for many States of the USA.

6.2 NATIONAL INITIATIVES

6.2.1 United States Oceans Act (1998)

In the 30 years since the Stratton Commission conducted a comprehensive examination of ocean and coastal activities in the United States (Commission on Marine Science Engineering and Resources 1969), a range of federal activities have been initiated to address marine issues. These activities, however, have operated in the absence of a coherent national policy, and a lack of inter-agency coordination. The proposed United States *Oceans Act* is patterned after the 1966 legislation creating the Stratton Commission, and it attempts to refocus the national ocean policy effort in order to address these issues (*Oceans Act* of 1997, s. 2).

Box 14. United States Oceans Act Sequence of Events

1983	(March) President Reagan announced the development of a national oceans policy.
1997	(Sept 24) Senator Fritz Hollings, one of 13 co-sponsors of the bill in the Senate, introduced <i>Oceans Act</i> of 1997 to Congress; (Nov 14) US Senate unanimously approved the <i>Oceans Act</i> 1997.
1998	(Mar 12) <i>Oceans Act</i> of 1998 referred to the House Committee on Resources; (Mar 16) <i>Oceans Act</i> of 1998 referred to the Subcommittee on Fisheries Conservation; Wildlife and Oceans, and executive comment was requested from Department of Commerce; (Mar 19) Subcommittee hearings held; (Apr 23) Subcommittee consideration and mark-up session held, and the Act was forwarded by the Subcommittee to a Full Committee (Amended) by voice vote.

Introduction of the legislation to create a United States *Oceans Act* followed the completion of a report by the National Research Council, *Striking a Balance: Improving Stewardship of Marine Areas*. This report urges national and regional action to assure better governance of the nation's marine resources, and it lays the groundwork for many of the concepts contained in the proposed *Oceans Act*.

Similar to the *Canada Oceans Act*, the United States *Oceans Act* is intended to lead to national ocean and coastal policy that redirects federal efforts towards common goals. Section 2 of the proposed US *Oceans Act* directs the President to:

- (1) maintain a coordinated, comprehensive, and long-range national ocean and coastal policy, including a plan to meet infrastructure requirements of Federal ocean and coastal programs; and (2) biennially report to the Congress on the relationship between Federal programs and the achievement of objectives specified in this Act.

The *Oceans Act*, as it stands, also directs the President to establish a 16 member Commission on Ocean Policy, as well as a high level federal inter-agency National Ocean Council to advise the President on the implementation of a national ocean and coastal policy.

US Senator Fritz Hollings, author of the US *Oceans Act* introduced the Act to Congress on 24 Sept 1997 and was one of 13 co-sponsors of the bill in the Senate. The Senate passed the *Oceans Act* on 14 November of that year. However it was not approved by the House due to contention regarding the powers and mandate of the proposed National Ocean Council. The duty and term of the National Ocean Council has since been modified so that it will exist for a limited period only and it will act merely to implement the findings of the Presidential Committee. The proposed development of an 'integrated program of ocean and coastal activities' contained within the Bill introduced in 1997 (Oceans Act of 1997 s4(a)(B)) has also been dropped from the current draft of the Act, and it awaits approval.

United States Oceans Act: An Analysis

The federal government is largely driving planning processes for the US *Oceans Act*, and there has been little involvement from non-government interests in its development. Despite delays in approval of the legislation due to conflict over power sharing and administrative arrangements (particularly with the formation of the National Ocean Council), the Act has a number of government and non-government supporters including senators from both the Republican and Democratic parties (WWF 1997), as well as the National Fisheries Institute, the Pacific Coast Federation of Fishermen's Associations, and the Centre for Marine Conservation (Anon 1997). To be successful however, the *Oceans Act* needs to find support from other important actors in US marine policy such as the States themselves, ocean industries and environmental groups (Cicin-Sain & Knecht 1998).

As with the Canada, development of a legislative approach to coastal and ocean management in the United States has preceded policy development. The operational framework of the US *Oceans Act* is intended to be 'fleshed out' through the future development of national coastal and ocean policy. There are few details as to what form this policy should take, or the process by which it should be developed. Indeed, the development of the *Oceans Act* itself remains in very early stages, and the form and focus of the document is yet to be finalised.

Table 16. United States Oceans Act Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?*	Comments
multi-sectoral	Yes		
holistic focus	Yes		
broad, transparent, collaborative decision-making	Yes		
top-down and bottom-up considerations	Partially		Federal government is driving policy development process; less involvement from non-government interests
commitment to planning and implementation	Yes		
strategic planning and management	No		
coordination and harmonisation	Yes		
problem solving/dispute resolution	No		
action oriented planning and management	No		
monitoring, evaluation and review	No		

* Given that the US *Oceans Act* remains under development, management outcomes are yet to be determined.

6.2.2 Coastal America (1992)

Coastal America is intended to provide a foundation for cooperation between federal agencies responsible for, or whose activities impact on, the management of the coastal environment in the United States. It also attempts to integrate federal coastal management activities with State, local and non-government efforts and thereby address primary coastal concerns including habitat loss and degradation, non point-source pollution, and contaminated sediments.

Box 15. Coastal America Sequence of Events

1991	Several Assistant Secretaries of agencies experiencing difficulty in coordinating interdepartmental activities in coastal areas urged for the establishment of a partnership entity.
1992	(April) Coastal America established by a Memorandum of Understanding, signed by eight federal agencies.
1994	(July) Three additional federal agencies joined the partnership and a new memorandum of understanding signed; Two new Regional Implementation Teams - Mid-Atlantic, and Pacific - were formed in addition to the seven regions already identified.
1996	(Sept) New England Aquarium, Boston, designated as the first Coastal Ecosystem Learning Centre; (Nov) The Florida Aquarium in Tampa designated as the second Coastal Ecosystem Learning Centre.
1997	Three new Coastal Ecosystem Areas designated

Founded on the perception that 'a cooperative approach is essential to improve the federal response' towards management of marine systems, Coastal America was established by a Memorandum of Understanding between eight federal agencies in 1992 (Coastal America 1992). With the addition of three federal agencies in 1994, a new Memorandum of Understanding was signed and Coastal America is now approaching States and non-governmental organisations to also become formally involved in the collaborative partnership (Coastal America 1995). The President's Council on Environmental Quality coordinates the effort, and the partnership is housed at NOAA offices and the Department of Agriculture. Each employee of Coastal America is paid by their home or sponsoring agency, and the Director is an employee of NOAA.

Coastal America targets initiatives at the national and regional level as well as site specific issues. Projects are designed to address coastal problems in nine geographic regions: Alaska, Northwest, Southwest, Pacific Islands, the Gulf of Mexico, Southeast, Northeast, Mid Atlantic, and Great Lakes.⁹ Within each region, problems and priorities are established by the Coastal America partners as well as State and local agencies, the private sector, and the public. To facilitate program activities, a Principals group, a National Implementation Team, nine Regional Implementation Teams, and a Coastal America Office have been set up.

The Principals Group comprises senior policy representatives of the federal signatory agencies at the sub-cabinet level, and it is responsible for establishing guiding policy for the Coastal America Partnership. The Principals Group receives advice from the National Implementation Team and Regional Implementation Teams as well as from the Coastal America Coordinating Office. Members of the National Implementation Team (NIT) represent their respective agencies at national coordination meetings. They provide advice to the Coastal America office, teams and groups, represent Coastal America in various forums, and facilitate coordination of national, inter-regional, and other large scale projects. The NIT is also responsible for reviewing policy issues identified by Regional Implementation Teams.

Members of Regional Implementation Teams (RITs) consist of senior national-level management staff from the partnership agencies, and are chaired by the Director of the Coastal America Office. RITs are the primary operating units of Coastal America and provide fora for inter-agency consultation and action. RIT members identify or develop regional strategies for joint action and facilitate mechanisms for their implementation. The Coastal America Office serves to coordinate the activities of the different Partnership elements: the Office provides an external point of contact for the partnership as well as facilitating the activities of the Principals Group, the NIT and RITs. It also operates as a catalyst for the development and facilitation of national projects, products, education, and training activities.

Coastal America: An Analysis

Coastal America promotes itself as a 'new approach to addressing complex environmental problems in a time of limited resources: a new way of doing business that goes beyond conventional roles and demonstrates innovative aggressive action at all levels' (Coastal America 1994). The philosophy and actions of the Coastal America partnership are based on a comprehensive intergovernmental approach, guided by concepts of ecosystem management. The focus, is nevertheless on *economic* development plans at the regional *watershed* level. Though management objectives of the Initiative are broadly targeted at the marine environment, most Coastal America projects are terrestrially based and localised.

⁹ Originally there were seven Coastal America regions, however two additional regions, the Mid-Atlantic and Pacific Islands, were formed in 1994.

Coastal America proposes and initiates action within the partnership, as well as responding to publicly generated proposals. Inter-agency efforts usually operate within existing authorities, while resources, expertise and action are typically levered from existing arrangements. The system of Regional Coastal Ecosystem Learning Centres introduced as an education focus to Coastal America activities in 1996, for example, have been established within existing facilities utilising existing staff and resources. The partnership is largely federally funded, though the contribution of matching funding (in the order of 25% of project costs) from non-federal government participants is strongly encouraged. Actions are usually dependent on local volunteer efforts for implementation.

There is an enthusiasm and dedication to the initiative shown by many Coastal America participants. The current Director of Coastal America, Virginia Tippy, is said to be a driving influence in the success of Coastal America programs through her negotiation and mediation skills (Updegraff pers. comm 1995). Broad awareness and understanding of Coastal America operations is lacking however, and there is some general scepticism as to the influence and effectiveness of the partnership. This may be attributed to a lack of 'visibility' and the comparatively small scale of Coastal America projects, as well as a perceived lack of 'accessibility' to the partnership due to its predominantly high level federal administrative structure.

The value of Coastal America is in its potential for resolving overlapping responsibility and effort within the government sector, rather than as an organisation with legal clout. As a partnership entity, Coastal America represents a forum for *cooperation*, though there is capacity for political influence to be generated through the high level participation of federal agencies. To date, Coastal America activity has been predominantly project oriented, designed to complement other coastal resource management initiatives including: the North American wetlands conservation program; habitat restoration and acquisition; anadromous fish enhancement activities; oil spill prevention initiatives; oil spill rapid response; and the generation of resources for the treatment of municipal sewage discharges. The administrative structure of Coastal America has also been created with the intention of linking federal statutes that affect coastal resources including the *Clean Water Act*, *Coastal Zone Management Act*, *Fish and Wildlife Coordination Act*, *Intermodal Surface Transportation Efficiency Act*, *Water Resources Development Act* and the *National Environmental Policy Act*. The Memorandum of Understanding establishing the Partnership does not, however, amend or abridge any existing statutory authorities.

There is a broad 'problem-solving' orientation to Coastal America objectives, a focus on consensus in decision-making, and conflict avoidance. This 'action oriented approach' however, is not backed by practical management strategy or action plans. There are few details on means of attaining consensus or tackling problem solving. The Coastal America Office does prepare and submit a progress report to the Principals Group on an annual basis which is intended to identify management actions undertaken and the effectiveness of program activity. However, with no monitoring or performance indicators in place, it is uncertain how practical effectiveness is ascertained in any objective sense.

Coastal America is a project oriented partnership, which aims to coordinate and facilitate regional actions within the parameters of existing administrative arrangements and governance structures. The partnership provides a common framework for action and the resolution of policy conflict, as well as an important forum for communication and technology transfer. Integrated management forms a core principle of the partnership and sets the basis for participatory decision-making, coordination and problem-solving objectives. Despite problems in realising notions of ecosystem management beyond the terrestrial context, in establishing constituency, and in implementation of some objectives, Coastal America has nevertheless taken a small step towards overcoming entrenched institutional barriers by promoting a mind-set which goes beyond single-sector, single-jurisdiction concerns.

Table 17. Coastal America Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Yes	
holistic focus	Yes	Partially	Intergovernmental approach; ecosystem management focus; primarily terrestrially based projects
broad, transparent, collaborative decision-making	Partially	Partially	Cooperation objectives; poor awareness of Coastal America projects
top-down and bottom-up considerations	Yes	Partially	Government driven decision-making; implementation at the local level; perceived 'inaccessibility' of administrative arrangements
commitment to planning and implementation	Yes	Partially	Government funding; questioned effectiveness of the initiative
strategic planning and management	No	No	
coordination and harmonisation	Yes	Partially	Some coordination with existing programs and statutes; no change to overlapping statutory responsibilities
problem solving/dispute resolution	Yes	Partially	Broad problem solving orientation of program; absence of problem-solving framework
action oriented planning and management	Yes	No	Action-oriented objectives; no determinants of effectiveness identified
monitoring, evaluation and review	Yes	Partially	Program reviews carried out; little opportunity for non-government input in review

6.3 REGIONAL INITIATIVES

6.3.1 Coastal Zone Program (1972)

The Coastal Zone Management Program arising from the federal *Coastal Zone Management Act 1972* is a cornerstone of United States efforts at management of the nation's marine environment. The Program represents a unique federal/State collaboration and is the closest thing to a comprehensive strategy for marine environmental management currently in operation in the United States of America.

Box 16. Coastal Zone Program Sequence of Events

1969	Stratton Commission Report, <i>Our Nation and the Sea</i> , released calling for more effective management of the marine environment of the United States.
1972	<i>Coastal Zone Management Act</i> enacted, bringing into effect the Coastal Zone Management (CZM) Program, the National Estuarine Research Reserve System, the National Marine Sanctuary Program, and the Ocean Minerals and Thermal Energy Program.
1976	Amendments to the CZM Act introduced a Coastal Energy Impact Program.
1980	<i>Coastal Zone Management Improvement Act</i> enacted to guide State's implementation processes, and to introduce nine areas of national interest to be addressed by States.
1986	<i>Coastal Zone Management Reauthorisation Act</i> introduced reducing the spending of the Program.
1990	Amendment and reauthorisation of the <i>Coastal Zone Management Act</i> , introducing the Coastal Zone Enhancement Program and Coastal Nonpoint Pollution Control Program.
1995	(March) President issued a directive for regulatory review under his Regulatory Reform Initiative (part of a National Performance Review).
1996	(March 11) The revision and consolidation of coastal zone management regulations proposed; (July) <i>Coastal Zone Management Program Regulations</i> came into effect.

The report *Our Nation and the Sea* (Commission on Marine Science Engineering and Resources 1969), published by the Stratton Commission in 1969, has been instrumental in focusing concern on the marine environment, including ocean and coastal ecosystems and resources. The report directed attention towards lack of effective management of the marine environment, and of the need for more comprehensive planning and management approaches (see Section 6.1.3). As a direct result of the Stratton Commission findings, the United States *Coastal Zone Management Act* (CZMA) was enacted in 1972 to encourage and assist the 35 US coastal States and Territories to develop and implement coastal zone management programs. Since 1974, with the approval of the first State Coastal Zone Management Program in Washington State, 32 coastal States and Territories have received federal approval for participation in the Program. A further two States were developing programs for federal approval in early 1998.

Participation in the Coastal Zone Program established by the CZMA is voluntary. However incentives, namely financial and technical assistance, are offered by Congress to encourage States to effectively manage, protect, and develop their coastal zones consistent with federal standards and goals. The CZMA mandates that States develop a coastal management program centred around local needs and objectives.

State programs must meet minimum federal requirements and must be approved by the Office of Ocean and Coastal Resource Management (OCRM)¹⁰ in order to be eligible for federal assistance. In order to satisfy CZMA requirements, a State's program must show that it possesses the authority to control coastal development and it must obtain local compliance with its provisions (Warren 1981).¹¹ Once approved, the OCRM has ongoing oversight of State management programs, and powers to ensure that States and Territories comply with CZMA goals and objectives (Lowry, Jarman et al. 1993). Likewise, all subsequent federal actions and policies must be consistent with State programs.

Since its enactment in 1972, the CZMA has been amended and authorised 10 times, and the Coastal Zone Program has consequently evolved and changed over that time. Regulations implementing the CZMA have similarly evolved over the life of the Act. As part of a National Performance Review for example¹², assessment and consolidation of existing coastal zone management regulations was undertaken during March 1996 and revised *Coastal Zone Management Regulations* came into effect in July 1996.

¹⁰ The National Ocean Service, part of the National Oceanic and Atmospheric Administration (NOAA), is the primary department of the federal government responsible for the health and safety of the US coastal and ocean environment. Within the National Ocean Service of NOAA, the Office of Ocean and Coastal Resource Management (OCRM) is assigned the exclusive mission of marine environmental management. It administers the provisions of the CZMA and has primary responsibility for the Coastal Zone Program.

¹¹ Specifically for a State Coastal Zone Management Plan to be approved under the CZMA it must:

- identify coastal zone boundaries;
- define permissible land and water uses within the coastal zone that have direct and significant impact, and identify the State's legal authority to regulate these uses;
- provide an inventory and designates an area of 'particular concern';
- provide a planning process for energy facilities;
- provide a planning process to control and decrease shoreline erosion; and
- provide for an effective coordination and consultation mechanism between regional, State and local agencies.

¹² In March 1995, the President of the United States issued a directive to federal agencies regarding their responsibilities under a Regulatory Reform Initiative, an initiative to undertake immediate, comprehensive regulatory review, modification, and in some cases elimination, within the scope of a National Performance Review of federal agencies.

Section 307, the federal consistency provisions of the *CZMA* are a major feature of the Act (Lowry, Jarman et al. 1993). Prior to its amendment in 1990, Section 307 of the *CZMA* required that federal activities within the coastal zone had to be consistent with the enforceable policies of the State coastal zone management plan. Amendments to the Act (approved in 1990) have extended the scope of these provisions requiring consistency determinations for *all* federal activities regardless of whether they fall within *or outside* the coastal zone¹³. Coastal Zone Re-authorisation Amendments approved in 1990, also incorporated a Coastal Zone Enhancement Program and a federal requirement within the *CZMA* that coastal States with federally approved Coastal Zone Management Plans prepare and submit coastal non point-source pollution control programs. *Coastal* non point-source pollution programs expand existing non point-source pollution programs developed under Section 319 of the *Clean Water Act*, by including land and water uses affecting coastal areas (NOAA 1995b).¹⁴

The Coastal Zone Enhancement Program was introduced to meet mounting public concern for the well-being of the nation's coastal resources. Under this Program US coastal States and Territories have begun to develop assessments which examine management practice in eight areas of national significance including:

- wetlands protection;
- coastal hazards;
- cumulative and secondary impacts of development;
- public access to the coast;
- special area management planning;
- ocean governance;
- marine debris; and
- government and energy facility siting.

Coastal Zone Program: An Analysis

With passage of the *CZMA*, States have been encouraged to move away from single sector management regimes to multiple-issue, comprehensive management frameworks (Beatley, Uravitch pers. comm 1995). The Act is designed explicitly to deal with problems concerning comprehensiveness and coordination, and was approved long before environmental policy in other spheres began to even acknowledge issues of overlapping responsibility and multi-sectoral concerns (Lowry, Jarman et al. 1993). In this sense, the United States has been attempting integrated management of the marine environment since 1972. 'Comprehensiveness', however, varies from state to State, and the Coastal Zone Program has evolved primarily a resource development and management program, so that issues such as coastal hazards and public access have not received the same degree of attention (or perceived importance) as conservation and resource protection considerations (Knecht, Cicin-Sain et al. in press). The exclusion of the fisheries sector from most State programs has also caused a number of problems within the Program. Regional fisheries Councils tend to regulate fisheries out to the 200 n. mile boundary, so that State programs have typically addressed land-use patterns but have under-emphasised water related uses of coastal areas (Boelaert-Suominen & Cullinan 1994).

¹³ The Secretary of Commerce may still override a State's determination of inconsistency, however, if the Secretary finds that an activity is consistent with the *CZMA* or in the interests of national security.

¹⁴ Once approved, programs are implemented through changes to the State Non-point Source Program approved by the EPA under Section 319 of the *Clean Water Act*, and through changes to operating State Coastal Zone Management Plans.

Limited attempts have been made to coordinate land and ocean management (Smith 1994), particularly with regards the Act's provisions for the regulation of non point-source terrestrial pollution. Due to the flexible definition of 'coastal zone' within the CZMA¹⁵ some States have interpreted the Act as providing for *ocean* management programs within overall State *coastal* management regimes (see individual State Coastal Zone Management Programs below). However, given the primacy of States in decision-making and policy formation, the approach of the Coastal Zone Program has been substantially planning based, involving the application of terrestrial management systems generally towards the limits of the territorial sea. Apart from some notable exceptions (discussed below), the management focus of the Coastal Zone Program has not been on marine management issues at all, but largely on private land ownership and terrestrial activity issues (Beatley pers. comm 1995). Furthermore, the focus, structure, objectives and implementation of Coastal Management Programs are largely the responsibility of individual States, and the Act has had difficulty articulating clear substantive standards of State performance. As such, the Coastal Zone Program has been unable to establish a *national* coastal management plan or strategy, and integrated management beyond a regional/State perspective has been impossible to ensure.

The CZMA has created a unique federal/State collaboration in the United States which has precluded any one group dictating national marine policy. The Act states that the key to avoiding conflict is regular consultation between stakeholders, and it provides a loose strategy for marine management which dictates that a State Management Program must contain a clear sense of direction and predicability for decision-makers. Major federal incentives have also been very successful in encouraging State participation in, and operation of the Program (Sherman pers. comm 1995). Incentives have included the provision of technical and financial assistance, as well as consistency provisions whereby States can ensure that federal activities within their jurisdiction will not undermine State regulatory and management initiatives (Beatley, Brower et al. 1994).

The federal consistency provisions are an important and unique cross-sectoral coordination device of the Act and have been important in striking a balance between State interests and coastal programs, and national economic and security interests in the offshore environment (Beatley, Brower et al. 1994). They have ensured that State program development and resource management objectives have been considered in planning and decision-making by federal agencies, and have also promoted communication between State and federal agencies (Lowry, Jarman et al. 1993).¹⁶ Nevertheless, there have been a number of problems with implementation of the consistency provisions particularly in the first decade of the Act's operation¹⁷, and a number of highly publicised federal/State consistency conflicts.¹⁸ Confusion and inconsistency over the application of the consistency doctrine continues to arise, and disputes over coordination between coastal managers and conservationists, and government departments and industry sectors have created major problems in the operation of the Coastal Zone Program. Furthermore, there is no requirement for Coastal Zone Programs to coordinate with existing coastal management initiatives and the Act does not coordinate or even recognise all federal agency activities in coastal and ocean areas.

¹⁵ The coastal zone is defined within the CZMA as including coastal waters extending inland from the shoreline to the extent necessary to control activities having a significant impact on coastal waters.

¹⁶ For example, 'mandated coordination has greatly improved inter-governmental communication and increased the information needed for coastal management' (Lowry, Jarman et al. 1993: 119).

¹⁷ Problems with implementation of the consistency provisions were experienced in the first decade of the CZMA where coastal States sought to expand their influence and at the same time federal agencies attempted to restrict their activities which might require consistency determinations, often in the context of coastal zone boundary limits.

¹⁸ Federal governments are inclined to support oil and gas development for example, which has been in direct conflict with State and local management objectives in some instances.

It has been suggested that underlying the design of the *CZMA* is a belief that 'public problems are best solved by transferring decision-making powers from smaller to larger scale organisations' (Warren 1981: 115). State influence over ocean use has traditionally prevailed in the United States (Hershman 1996)), and through the federal consistency provisions of the *CZMA* the potential for State influence in marine environmental management has grown. While some have argued that passage of the *CZMA* represents the growth of the federal role in management of the US coastal zone (Beatley, Brower et al. 1994), the *CZMA* has also provided States considerable capacity influence over federal activities and management considerations within *and beyond* State waters. Nevertheless, the Coastal Zone Management process is not simply one of top-down or bottom-up control and decision-making. Instead, there has been a complex shift in balance between leadership roles and policy initiatives since approval of the *CZMA*, both within the Coastal Management Program as a whole, and within the development of individual State programs.

While State programs within the Coastal Zone Program must meet certain minimum criteria, the *CZMA* provides considerable flexibility for each State to meet unique contextual and political circumstances. Reauthorisation and amendment of the *CZMA* over time has also provided important and unique capacity for the Coastal Zone Program to evolve and adapt given contextual and technological changes. However there have been few efforts to evaluate the overall achievements of the Program. Each State must prepare periodic reviews of Coastal Zone Program implementation for the federal government according to Section 312 of the *CZMA*. However these reviews give little insight into the *national* outcomes of the Program, being more concerned with financial aspects of State operations (Cicin-Sain & Knecht 1998). A study conducted in 1997 by NOAA's Office of Ocean and Coastal Resource Management (in cooperation with the National Sea Grant Office, and the Sea Grant Programs at the Universities of Washington, Rhode Island, and Oregon State), reviewing the effectiveness of the Coastal Management Program found that it is essentially successful (Millhouser 1997). The study also found, however, that due to poor, or lack of monitoring, and an absence of data collection, there are insufficient nationally compatible data available to allow a definitive national evaluation (Millhouser 1997).

Passage of the *CZMA* in 1972 introduced a system of federal/State partnership to promote the planning and management of the nation's marine environment. It has achieved high participation rates despite the voluntary nature of the legislation, and has served as a catalyst for the development of extensive coastal management programs. As a consequence, the Coastal Zone Program has become the closest thing to a comprehensive marine management strategy that exists in the United States. The consistency provisions form a key component to the Act and are the basis of integration (namely coordination, communication and conflict resolution procedures), as well as providing some basis of State control over activities in coastal and ocean waters. Another of the key features of the Act is the flexibility States have in developing management plans to meet their own requirements and unique contexts. There is consequently significant variation among State programs as to the actual components and scope of management arrangements, and as such it is difficult to assess the outcomes of the Coastal Management Program as a whole.

Three State programs are examined below, all of which have been approved under the *CZMA*, and all of which focus in some way on marine management beyond the territorial sea. These State programs demonstrate that there are a number of limitations to the *CZMA* and it has had little success in establishing a consistent, integrated *national* marine management regime. These individual State programs also demonstrate that the notion of integrated management established by the *CZMA* at the federal level is being interpreted and pursued at the *State* and *regional* levels.

Hawai'i Ocean and Coastal Management (1995)

Hawai'i, as an island state, has treated ocean governance as an important policy issue for many years, both in terms of assuring environmental integrity of its waters, and of deriving appropriate benefits from the exploitation of its resources (Cicin-Sain 1995). The principal impetus for the ocean and coastal management regime established by Hawai'i in recent years, however, has been a need to manage multiple impacts and conflicts arising from the size and growth of the ocean recreation industry over the last decade (MacDonald 1995).

Box 17. Hawai'i Ocean and Coastal Management Sequence of Events

1969	A comprehensive report on Hawai'i's marine affairs, <i>Hawai'i and the Sea - A Plan for State Action</i> , released, prompted by the federal Stratton Commission Report.
1977	Hawai'i's Coastal Zone Management Program created.
1978	Hawai'i's Coastal Zone Management Program approved by the US Department of Commerce.
1985	The State of Hawai'i Ocean Management Plan prepared and distributed, but never adopted due to its difficulty in implementation.
1988	The Hawai'i State Legislature, through Act 235 <i>Ocean Resources Management Act</i> (Chapter 228, Hawai'i Revised Statutes), created the Hawai'i Ocean Resources Management Program; Act 235 established the Hawai'i Ocean and Marine Resources Council to implement the Program and develop an Ocean Resources Management Plan.
1990	A planning team was organised to identify critical issues, prepare technical papers, suggest policies and implement actions.
1991	Final Ocean Resources Management Plan submitted to the State Legislature.
1994	The Hawai'i Coastal Zone Management Plan approved and adopted.
1995	Enactment of <i>Act 104, Session Laws of Hawai'i</i> , partnering the Hawai'i Coastal Zone Management Plan and the Hawai'i Ocean Resources Management Plan.

During 1969, in response to the federal Stratton Commission Report, a task force comprising State, federal, academic and industry representatives was charged with examining how Hawai'i's marine affairs could best be integrated with federal government initiatives. The result of this analysis, the report *Hawai'i and the Sea - A Plan for State Action*, emphasised the need to plan a long-term integrated marine program (Lowry, Jarman et al. 1990). One of the recommendations of the report was to create a Cabinet of Marine Affairs as a means by which governmental agency program and policies might be better coordinated. Though this cabinet never eventuated a Hawai'i Ocean and Marine Resources Council was formed in 1989 representing commercial, recreational, environmental and research interests. It was charged with the functions and responsibilities of the formerly proposed Cabinet as well as (amongst other things) the development of an State Ocean Management Plan.

The Hawai'i Coastal Zone Management Program (CZMP) was promulgated in 1977 in response to the federal CZMA. Approved by the federal government in 1978, many State laws, county ordinances and rules were incorporated into the CZMP, and jurisdiction of the Hawai'i's coastal zone was defined as including waters from the shoreline to the seaward extent of State jurisdiction as well as *all land areas* except those designated as forest reserves (Lowry, Jarman et al. 1990). Implementing actions were developed within the Program, with specific agencies and organisations assigned to each action. A Hawai'i State Ocean Management Plan was prepared and distributed in 1985 as part of these implementing actions. As a result of ongoing conflict over the designation of the State Department of Planning and Economic Development as the lead agency for the Plan however (Lowry, Jarman et al. 1990), the State Ocean Management Plan was never fully adopted or funded.

The Hawai'i Ocean and Marine Resources Council submitted a revised Ocean Management Plan, the *Hawai'i Ocean Resources Management Plan*, to the State Legislature in 1991 when and where it was approved. For the next 4 years the CZMP (concerning coastal waters out to 3 n. miles) and the Hawai'i Ocean Resources Management Plan (applying to coastal waters out to 200 n. miles) operated as separate programs but with overlapping mandates and objectives. In 1995 enactment of *Act 104, Session Laws of Hawai'i*, partnered the two initiatives with the intention of strengthening the State's ability to coordinate ocean and coastal policy development and resource management responsibilities. *Act 104* also created a Marine and Coastal Zone Management Advisory Group (MACZMAG) replacing earlier task forces including the Hawai'i Ocean and Marine Resources Council.¹⁹

Ten resource sectors are incorporated within both the Hawai'i Ocean Resources and the Coastal Management Plans though they do not necessarily coincide. Recommendations for implementation of regional planning approaches, improvements in information and knowledge, development of conflict resolution procedures, and public participation are supported by policies and implementing actions for each of the 10 economic and environmental sectors identified by the two initiatives. In addition, the Ocean Resources Management Plan includes recommendations for establishment of an Office of Marine and Coastal Affairs. This Office is intended to act as a central authority to perform such functions as planning and policy development, inter-agency coordination, communication facilitation, and conflict resolution.

Hawai'i Ocean and Coastal Management: An Analysis

The combined Coastal and Ocean Resources Management Plans are regarded as a model program and the first integrated marine management initiative in the United States (McDonald pers. comm 1995): 'our program...is now considering environmental management as a multi-disciplinary integrated problem...' (Pfund pers. comm 1995).

With release of the Hawai'i Ocean Resources Management Plan, Hawai'i has demonstrated a commitment to the notion of comprehensive management of the marine environment. Both Plans set forth principles and recommendations for a comprehensive, 'integrated' marine policy and establish a management framework which applies across the ocean, and terrestrial areas. The combined Plans attempt to move away from sector-specific planning and management approaches towards providing a framework for multiple-use management and development. As an integrated management framework, however, there are a number of deficiencies. Though significant powers are provided by both the Ocean Resources and Coastal Management Plans to regulate land-based activities, to date there has been a lack of political will to use these powers. The Plans are not inclusive and only certain aspects of marine management and policy have been considered; user conflicts in tourism and fisheries, for example are intended to be addressed in separate documents, namely an Ocean Recreation Management Plan and a Fisheries Plan respectively²⁰. Furthermore, policy is not defined with respect to inter-sectoral concerns, but rather on a sector-by-sector basis and government level by government level.

¹⁹ MACZMAG comprises twenty members charged with (among other things) advising the Hawai'i Coastal Management Program, facilitating implementation of the Oceans Resources Management Plan, and establishing a comprehensive management system for ocean and coastal resources (Hershman 1996).

²⁰ See Lowry, Jarman et al. 1990, for example

Development of the Hawai'i Ocean Resources Management Plan was based on major public input and issue identification processes. Trained facilitators were employed to assist the smooth operation of public consultations, and meetings were successful in establishing communication networks, empowering stakeholders within local communities, as well as raising the profile of the need for comprehensive ocean policy in Hawai'i. Conflict resolution within the scope of the meetings was also largely without controversy, though involvement by indigenous peoples was largely absent during deliberations. An absence of public controversy and conflict during consultation processes, however, resulted in little media coverage of the Ocean Plan during its development and also little political interest or broader community support for the Plan (MacDonald pers. comm 1995). Poor political support for the Hawai'i Ocean Resources Management Plan may also be attributed to unresolved conflicts over the role of the federal government in decision making in Hawai'i, and the prevailing belief (particularly at the State level) that integrated management represents a form of 'czarism' or centralised power (Allen pers. comm 1995). Though little criticism of the Ocean Resources Management Plan has been expressed at the community level, there has been a great deal of reluctance to cooperate in the development and implementation of the Plan both by administration and on-line agencies (MacDonald pers. comm 1995). Final decisions were often made by the Council rather than via collaboration with stakeholders, and the Hawai'i Ocean Resources Management Plan is not a consensual document. MACZMAG has reported that more public participation is required in all aspects of marine planning and management in Hawai'i through hearings, meetings, and groups, and that a greater dissemination of information should occur to facilitate and encourage this participation (MACZMAG 1997).

A lack of implementation strategy and commitment to implementation activity has been a major problem with both the Ocean Resources and Coastal Management Plans (Allen, Morgan, Stewart, Stimson, Poirer pers. comm 1995).²¹ The MACZMAG began identifying policies, and recommending implementing actions and priorities for each of the ten sector specific areas of the Ocean Resources Management Plan, 5 years after it was approved for example (MACZMAG 1997). Until this time implementing actions had not been prioritised, and it had never been determined whether objectives and actions were inconsistent or not. There is no statement as to how the Ocean Resources Management Plan coordinates with the Hawai'i Coastal Zone Management Program in practice, and policies and objectives of the two documents do not coincide. Management principles have not been translated for specific action at the local level. Work plans and time-frames for implementation of the Plans are not provided, and responsible agencies are expected to undertake necessary program adjustments, development of new legislation, and/or new programs needed to address recommendations within the Plans with little guidance as to how this might proceed. The MACZMAG has called for greater enforcement of existing rules and regulations, and a more consistent approach to implementation of existing legislation (MACZMAG 1997), and attempts are being made to improve implementation and coordination of coastal and ocean management efforts. However conflicts persist and perplexing administrative arrangements remain as significant hurdles to operational IMM in Hawai'i.

²¹ See also MacDonald 1995.

Table 18. Hawai'i Ocean and Coastal Management Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Partially	Some activities not embraced by Management Plans
holistic focus	Yes	Partially	Land - sea interface acknowledged; management based on specific sectors - few cross-sectoral considerations
broad, transparent, collaborative decision-making	Yes	Partially	Lack of indigenous rights in consultation processes
top-down <i>and</i> bottom-up considerations	Yes	Yes	Community driven planning and management; government based decision-making
commitment to planning and implementation	Partially	Partially	Community support for management; lack of political support for management; poor implementation
strategic planning and management	No	No	
coordination and harmonisation	Yes	No	Poor coordination across policy and management boundaries
problem solving/dispute resolution	Yes	Partially	Ongoing dispute between governments departments with marine management responsibilities
action oriented planning and management	No	No	
monitoring, evaluation and review	No	No	

Oregon Ocean and Coastal Management (1995)

Oregon is recognised as a leader in coastal and ocean planning and is argued to be the first State to have developed a comprehensive ocean management plan in the United States (Beatley, Brower et al. 1994). Oregon manages its coastal resources as a part of a State-wide program for coordinated land-use planning linked with ocean management arrangements across geographic and jurisdictional boundaries.

In 1971, the Oregon Coastal Conservation and Development Commission (OCCDC) was established in response to widespread concerns over economic, environmental, and institutional problems on the Oregon coast. With the responsibility of studying these problems and recommending solutions, the Commission identified a series of objectives for management of coastal resources. In 1973, the Oregon Land Conservation and Development Commission (LCDC) was set up and in 1975 it was assigned the task of completing development of a coastal program initiated by the OCCDC. Using the OCCDC recommendations, the LCDC established several technical advisory groups and conducted a series of public hearings. After several rounds of technical and public review, an Oregon Coastal Management Program incorporating a series of state-wide planning goals and regulations was adopted. The goals and regulations set minimum standards for comprehensive planning and other government decisions affecting land use. Four of the goals also set specific standards for planning of coastal resources including estuaries, shorelands, beaches and dunes, and ocean resources.

Box 18. Oregon Ocean and Coastal Management Sequence of Events

1967	Passage of the Oregon Beach Bill providing for public use, recreation and enjoyment of the ocean shore in perpetuity.
1971	Passage of Bill organising coastal citizens and local officials to form the Oregon Coastal Conservation and Development Commission.
1973	Passage of the <i>Oregon Land Use Act</i> (Oregon Revised Statutes, Chapter 197), establishing the Oregon Land Conservation and Development Commission (LCDC) and the basic policies of Oregon's Land Use Program.
1976	LCDC adopts State-wide planning goals on Estuarine Resources, Coastal Shorelands, Beaches and Dunes, and Ocean Resources.
1977	Federal government formally approved Oregon's Coastal Management Program.
1980s	Concerns about mineral exploration and mining in federal waters off Oregon emerged.
1987	The <i>Oregon Ocean Resources Management Act</i> approved; Oregon Legislature created a special Task Force to prepare a plan for managing ocean resources off Oregon.
1990	The Ocean Task Force released the Oregon Ocean Resources Management Plan; (Nov 8) The Oregon Ocean Resources Management Plan adopted as part of the state's coastal management program under the <i>CZMA 1972</i> ; Coastal Non-point Pollution Control Program adopted as part of the 1990 amendments to the Coastal Zone Management Act.
1991	Oregon Legislature created the Oregon Ocean Policy Advisory Council as part of the Office of the Governor, and charged it with preparing an initial plan for managing Oregon's territorial sea by mid 1994.
1994	Oregon's Territorial Sea Plan adopted.
1995	The Department of Land Conservation and Development submitted the Oregon Territorial Sea Plan for federal approval as part of the Oregon Coastal Management Program under the <i>CZMA 1972</i> .

Federal government formally approved Oregon's Coastal Management Program (OCMP) in 1977. Since 1978, the Program has been refined and modified through both legislative and administrative actions. The current OCMP is based on three separate but coordinated planning and regulatory elements:

- State-wide planning goals adopted by the LCDC;
- approved comprehensive plans which local governments have developed; and
- specific statutory authorities of various State agencies.

These elements are linked by two requirements in *Oregon's Land Use Planning Act* and State-wide planning goals. The first requirement is that all units of government coordinate their actions affecting land-use with affected citizens, local, State and federal agencies. The second requirement is that the plans and actions of all agencies and local governments must comply with State-wide planning goals and approved comprehensive plans.

Oregon enacted an *Ocean Resources Management Act* in 1987, in response to concerns over federal proposals for offshore oil, gas, and mineral extraction and exploration activity in adjacent waters. Development of implementing actions within an 'Ocean Program' under the requirements of *State-wide Planning Goal 19, Ocean Resources*, began soon after. The Oregon Ocean Program incorporates legislative ocean resource policies, and the creation of a broad-based Ocean Resources Management Task Force. It mandates coordination of State and federal ocean related policies and programs, and the development of a comprehensive plan for managing the State's ocean resources.

An Ocean Resources Management Plan (ORMP) was prepared pursuant to the requirements of the Oregon Ocean Program by the Ocean Resources Management Task Force between 1987 and 1990. The ORMP is focused on ocean resources and their uses across State and federal waters within the EEZ. It contains a broad policy framework for ocean management, including a major component on the declaration of an 'Ocean Stewardship Area' (by which Oregon asserts that it has direct concerns and

ocean-related management responsibilities). The ORMP identifies 33 'sensitive marine habitats' on offshore rocks, islands, and shoreline cliffs where further work is needed to protect resources. It also provides the policy basis for an Oregon Territorial Sea Plan.

The Territorial Sea Plan was released in 1994 by the Ocean Policy Advisory Council as a central coordinating ocean policy document for all State and federal agencies with responsibilities within Oregon's territorial sea (which extends up to 3 n. miles from the coast). The Plan details legal requirements for designated agencies as well as any necessary action that must be taken by the agencies in implementing the Plan. It has three main parts. Part One identifies and describes existing management arrangements and the way they fit together in a comprehensive program for managing Oregon's ocean resources. Part Two establishes the foundation by which evaluation of ocean resource proposals may be undertaken, including requirements for consultation, provision of inventory information and review panels. Part Three defines the strategy by which human use and marine habitats may be preserved and coordinated. One of the main features of the Oregon Territorial Sea Plan is a Rocky Shores Management Strategy which has been developed as a collaborative effort between scientists, managers, and local concerns (Brosnan in press). Both the Territorial Sea Plan and the ORMP in conjunction with the OCMP, have been approved federally as part of Oregon's Coastal Zone Management Program.

Oregon Ocean and Coastal Management: An Analysis

In the absence of a national policy or cohesive framework for the management of coastal and ocean areas, Oregon has taken advantage of the fact that the federal CZMA allows for *ocean* management programs within overall State *coastal* management regimes. It is the first US State to have read and interpreted the provisions within the federal Act in such a 'direct and clearly linked way' (Bailey pers. comm 1995), by developing comprehensive management policy for the area of coast and ocean adjacent to the State. For this reason, the system is thought to be the only such initiative that addresses the challenge of integrating coastal and ocean planning under a single policy and governance system (Benoit pers. comm 1995).²²

Oregon's Ocean Program as a whole, provides a means of defining and implementing the marine policy within a framework established by Oregon law. As part of the Ocean Program, Oregon has sought to apply policies and principles of conservation, and marine habitat protection on a cross-sectoral basis throughout its adjacent waters, with development of the ORMP and Territorial Sea Plan. Not all sectors are incorporated within management considerations, however. The ORMP, for example, prohibits oil and gas development in State waters, and lists a number of stringent conditions related to oil and gas activity in federal waters. Most fisheries management considerations have also been avoided within the ORMP and Territorial Sea Plans, since 'fisheries are an established and vocal constituency that is locally based, and fisheries management at the State and federal level has well established bureaucracies' (Hershman 1996: 34).

The Oregon Ocean Program is applicable to the State's entire marine environment - that is, from the coastal watershed to the boundaries of the EEZ, within a realm known as the Ocean Stewardship Area.²³ The Ocean Stewardship Area established by the

²² See also Vallejo 1991.

²³ As defined by the ORMP, the Ocean Stewardship Area claimed by Oregon extends from the crest of the coastal mountains seaward to the boundary of the continental margin, and thus it extends into waters primarily under federal control. As required by the 1991 Oregon legislature, the Territorial Sea Plan also applies to the 'ocean shore' which is defined in State law as the 'land lying between the extreme low tide of the Pacific Ocean and the line of vegetation' (Oregon Ocean Policy Advisory Council 1994: 12). In effect this means that the Territorial Sea Plan maintains management responsibility for State waters as well as an ocean shore zone bounded by the crest of the coastal watershed.

ORMP has been designed to proclaim Oregon's interests in the marine region, accounting for ecological factors rather than political or legal factors as far as management is concerned. The Stewardship Area has not been asserted in law or administrative rule, but rather exists as a State policy that is 'fundamental to our policy position that the conservation and protection of marine habitat is essential to the long-term sustainable use of ocean resources' (Bailey pers. comm 1995). Nevertheless, a principal basis of its declaration was a desire to fend off federal action (namely offshore mining) in waters adjacent to those under State control (MacDonald pers. comm 1995).²⁴

With approval of its comprehensive Coastal Zone Management Program, Oregon has taken a lead in resolving marine issues through collaboration and coordination. The LCDC has pursued planning and management in collaboration with the public and all interested parties. The Ocean Policy Advisory Council emphasises an inter-agency and 'public-private' approach to the planning and management of the coastal domain, and has sought to coordinate federal and State department responsibilities within the marine environment. Management linkages with other ocean management authorities are clearly defined within the Territorial Sea Plan, and based on the recognition that the Pacific Northwest effectively forms a large marine ecosystem, one of the objectives of the Territorial Sea Plan is to carry out cooperative programs with other States and agencies (Oregon Coastal Management Program undated).²⁵ The Ocean Policy Advisory Council thus provides, in a practical sense, a mediation function for activities within Oregon's Territorial Sea, though this function is not defined or formalised in any sense (Bailey pers. comm 1995). Despite calls for government - non-government collaboration, however, the management system comprising the ORMP and the Territorial Sea Plan is primarily a top-down model for ocean management in Oregon.

The Oregon's Coastal Zone Management Program has been described as a 'well defined program supported by legislation, comprehensive planning and funding' (Hershman 1996: 30).²⁶ Hershman cites that after 10 years of development, only Oregon (of all States attempting management of their coastal zones) has reached a point in the policy process where implementation of State-wide enforceable policies may begin (Hershman 1996). However, there is no time-frame by which either the Territorial Sea Plan or the ORMP are intended to be implemented and little direction on practical management approaches.

The Oregon coastal and ocean management program has broken new ground in establishing a multi-jurisdictional Ocean Stewardship Area in which marine management activities can be planned and focused. The Oregon program envisions a system of federal/State co-management of ocean resources and the development of a coordinating mechanism in the form of the Ocean Policy Advisory Council. Integrated management has thus been pursued by Oregon as a concept and process within the marine environment and some arrangements have been made to foster coordination across jurisdictional boundaries and geographical contexts. The challenge facing Oregon is now to overcome jurisdictional differences in how the ocean environment should be managed in a practical sense, and to implement policy within and beyond State waters.

²⁴ Consistency provisions under Oregon's Coastal Zone Management Program have been used within the Ocean Stewardship Area to enforce State policy and standards on federal oil and gas drilling activities (Bailey pers. comm 1995).

²⁵ The Ocean Policy Advisory Council for example, has begun to work on policy elements within the Territorial Sea Plan encompassing 'integrated' policies for management of living marine resources, particularly within the context of regional marine ecosystems (Oregon Coastal Management Program undated).

²⁶ See also Cicin-Sain 1990.

Table 19. Oregon Ocean and Coastal Management Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Partially	Some extractive uses excluded from management planning
holistic focus	Yes	Yes	Ecosystem approach - ocean, coastal and coastal watershed management considered
broad, transparent, collaborative decision-making	Yes	Partially	Non-government interests not widely incorporated
top-down <i>and</i> bottom-up considerations	Yes	No	'Public-private' decision-making objectives; top-down driven management and policy
commitment to planning and implementation	Yes	Partially	Comprehensive management system in place; development of implementation framework still underway
strategic planning and management	No	No	
coordination and harmonisation	Yes	Yes	Federal consistency provisions applied; coordination across geographic and jurisdictional boundaries
problem solving/dispute resolution	Yes	Partially	Few formalised frameworks or tools established
action oriented planning and management	No	No	
monitoring, evaluation and review	Yes	Partially	Management Plans to be revised and added to over time as new concerns emerge

California Ocean and Coastal Management (1997)

California has dealt with specific ocean and coastal management issues from its earliest days as a State. However comprehensive management efforts did not begin until the mid 1960s. Efforts since that time have attracted national and international attention and have resulted in important advances in ocean and coastal management. The Ocean and Coastal Management regime (incorporating the Coastal Zone Management Program) now established in California comprises a unique tripartite arrangement that attempts to ensure comprehensive and coordinated management, and integration of resource management efforts.

With growing confusion, duplication and fragmentation in matters relating to ocean resource management in California, the need for comprehensive planning and management approaches became a primary concern for California during the 1960s. A Governor's Advisory Commission on Ocean Resources (GACOR) was formed in 1965 to advise on management of ocean resources. During this time, the University of California's Institute of Marine Resources prepared a framework *California and the Use of the Ocean* for the coordination of ocean management activities, and the San Francisco Bay Conservation and Development Commission was created as a temporary entity to develop a plan for managing San Francisco Bay.

Box 19. California Coastal and Ocean Management Sequence of Events

- 1964** First Governor's Conference on California and the World Ocean held.
- 1965** First Governor's Advisory Commission on Ocean resources (GACOR I) formed to advise the Governor and Legislature on developing State approaches to managing ocean resources; The report, *California and the Use of the Ocean* prepared by the University of California's Institute of Marine Resources; San Francisco Bay Conservation and Development Commission created.
- 1966** Resources Agency Committee on Ocean Resources (RACOR) formed; Production of the RACOR report, *California and the Ocean*, to provide the first State agency approach to coordinating ocean management activities.
- 1967** Governor's Advisory Committee on Ocean Resources (GACOR II) reappointed due to a change in administration; The Marine Resources and Conservation and Development Act passed by the State Legislature which required the Governor to produce a Comprehensive Ocean Area Plan. The Act also mandated the creation of the California Advisory Commission on Marine and Coastal Resources, superseding the GACOR II.
- 1969** The Department of Navigation and Ocean Development established and given the responsibility to produce a Comprehensive Ocean Area Plan (COAP).
- 1972** The *California Coastal Zone Conservation Act* came into effect; COAP makes recommendations for management of California's coastal and ocean resources; Proposition 20 passed, creating the California Coastal Zone Conservation Commission, and the COAP transferred to this Commission; The California Advisory Commission on Marine and Coastal Resources disbanded.
- 1973** The *Marine Resources and Development Act* of 1967 repealed by the Legislature; (Jan) California Coastal Initiative came into effect.
- 1975** The California Coastal Plan published by the California Coastal Zone Conservation Commission, providing much of the policy basis for the subsequent passage of the *California Coastal Act*.
- 1976** *California Coastal Act* passed by the State Legislature, creating the California Coastal Commission; California State Coastal Conservancy created.
- 1978** The California Coastal Management Program activated; For purposes of the CZMA 1972, the federal government certified the *California Coastal Act* of 1976 as a segment of California's Coastal Management Program for all portions of the coast except San Francisco Bay.
- 1982** Ocean study Symposium convened by the California Coastal Commission to explore policy need and to examine the relative roles of government agencies at different levels.
- 1988** The Resources Agency of California sponsored a workshop with State agencies and departments in response to legislation to discuss ocean-related management responsibilities and planning activities.
- 1990** The *California Ocean Resources Management Act 1990* enacted.
- 1991** The *California Ocean Management Resources Act* amended, mandating the creation of an ocean resources management report and plan. Responsibility for creating the plan and taking the lead on ocean resource management issues transferred to the Secretary for Resources.
- 1993** The Resources Agency of California received funding, hired staff and began development of California's *Ocean Resources: An Agenda for the Future*.
- 1995** The Resources Agency released a draft policy document, *California's Ocean Resources: An Agenda for the Future* outlining a strategy to help ensure effective and well coordinated management, conservation and enhancement of California's ocean resources, for comment.
- 1997** (March) Conference on California and the World Ocean held; (March) *California's Ocean Resources: An Agenda for the Future* released.

In 1967 the State *Marine Resources and Conservation and Development Act* was passed calling for the production of a Comprehensive Ocean Area Plan and the creation of the California Advisory Commission on Marine and Coastal Resources (to supersede the GACOR). In 1972, the *California Coastal Zone Conservation Act* came into being, and a Coastal Initiative known as Proposition 20 was enacted by voters frustrated by the failure of the Legislature to adopt legislation for the protection of public values.²⁷ Adoption of Proposition 20 created the California Coastal Zone

²⁷ Proposition 20 is State-wide legislation created to protect State-wide public interests, including assurance that public access, recreation, preservation of important land and sea-scapes, and conservation of significant landforms and habitats, are not destroyed by development, whether public or private.

Conservation Commission (to replace the California Advisory Commission on Marine and Coastal Resources). The *Marine Resources and Conservation and Development Act* of 1967 was repealed by the Legislature in 1973 and a program known as the California Coastal Initiative, published by the California Coastal Zone Conservation Commission, came into effect. The Coastal Initiative provided much of the policy basis for the subsequent passage of the *California Coastal Act* in 1976. The *California Coastal Act 1976* incorporates the goals of Proposition 20, and it establishes the California Coastal Commission. The State Coastal Conservancy also created in 1976, oversees and funds numerous coastal programs and the acquisition of property, and it, along with the California Coastal Commission and the San Francisco Bay Conservation and Development Commission, comprises the third segment of the California Coastal Management Program.

The San Francisco Bay and Development Commission, the State Coastal Conservancy, and the California Coastal Commission are all departments of the California Resource Agency which is charged with responsibility for the management of ocean and coastal resources in California²⁸. In effect, the Coastal Commission issues permits, the San Francisco Conservation and Development Commission oversees development around the Bay, and the California Coastal Conservancy provides funding to buy agricultural land, provide public access to the coast, to conserve resources, and to restore endangered areas. The federal government certified the *California Coastal Act 1976* in 1978 as a segment of California's Coastal Zone Management Program for all portions of the coast except San Francisco Bay which is under the responsibility of the San Francisco Bay and Development Commission. All three agencies have, however, been used by California to review federal activities (most frequently outer continental shelf oil and gas projects) under the auspices of the Coastal Zone Management Program.

After 'legislative-executive impasse' (Cicin-Sain 1990) in the integration of ocean and coastal policy since 1967, the *California Ocean Resources Management Act* was enacted in 1990 (The Resources Agency of California 1995). The Act states that it is the policy of California to:

- develop and maintain an ocean resource planning and management program to promote and ensure coordinated management of federal and State resources, and to ensure coordination with adjacent States;
- ensure effective participation in federal planning and management of ocean resources and uses which may affect the State; and
- to coordinate State agency management of ocean resources with local government management of coastal zone uses and resources above the mean high tide line.

Amendments to the *Ocean Resources Management Act* in 1991 transferred all responsibility for marine and coastal resource management programs to the California Secretary for Resources. Amendments to the Act also required that the Resources Agency develop an Ocean Resources Management Program to address California's economic, environmental, aesthetic, recreational, and scientific needs regarding the use and enjoyment of the State's marine resources. Development of an Ocean Management Program began in 1993, and in 1995 the Resources Agency released a draft policy document, *California's Ocean Resources: An Agenda for the Future* for review and comment. The finalised Plan was approved and released in March 1997.

²⁸ Under assembly Bill 205, the Resources Agency has been given all executive branch delegations regarding review and coordination of federal outer continental shelf (OCS) oil and gas lease sales and development projects, policy coordination of resources and uses in the EEZ, State representation to the Coastal States Organisation and the Department of the Interior's OCS Policy Committee, and participation in other ocean and coastal resource issues.

Comprising a comprehensive overview of California's ocean management arrangements, the *Agenda for the Future* lists and describes the major State and federal laws that impact on California's ocean ecosystem, as well as the roles of the agencies responsible for implementing these laws. It describes and maps California's system of State and Federal reserves, sanctuaries and other managed areas, and provides economic analysis detailing the contribution of ocean-dependent industries to the Californian economy. Recommendations are made for nine key issue areas including habitat and living resources, water quality protection, vessel traffic safety systems, and shoreline erosion control. A key recommendation of the *Agenda for the Future* is the establishment of a State cabinet-level ocean resources management coordinating council to help integrate the multiple agencies and programs of ocean and coastal jurisdiction.

California Ocean and Coastal Management: An Analysis

The Californian approach to coastal and ocean management is unique in that it consists of an ocean resources management strategy operating in conjunction with a tripartite arrangement between 3 coastal management bodies (the San Francisco Bay Conservation and Development Commission, the California Coastal Commission and the California Coastal Conservancy). These bodies have been designed to work closely together, but with each fulfilling different regulatory and non-regulatory functions, and each with a markedly different scope and operations. Given the independence of each of the three bodies, brief individual discussion of each agency is presented below. A general analysis of the California Ocean and Coastal management regime as a whole, follows.

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission was established as a temporary entity in 1965 in response to concern over the filling of San Francisco Bay and the resultant loss of public access to the shoreline. The Commission was later made permanent in 1969 and was given responsibility, as a State planning and regulatory agency, over a legislatively designated area within San Francisco Bay. The San Francisco Bay Conservation and Development Commission is the first targeted coastal management initiative to have been created in the United States, and it is the federally designated agency responsible for implementing the California Coastal Zone Management Program for the San Francisco portion of the California Coastal Zone. The Commission is also charged with preserving and enhancing the natural resources of San Francisco Bay, while at the same time authorising its development to the maximum potential (The Resources Agency of California 1995).

There are two fundamental premises to the Commission's activities. Firstly, 'the Bay must be treated not as a divisible piece of real estate but rather as an integral unit, the use or misuse of which has both direct and ancillary effects which are felt throughout the region', and secondly, that conflicts are inevitable (Travis pers. comm 1995). Operation of the San Francisco Bay and Development Commission is guided by the policies contained within the San Francisco Bay Plan (SFBCDC 1969). The Bay Plan sets forth policies for shoreline development, public access, dredging and filling, designates priority use areas for water related uses and activities, and defines the jurisdiction of the Commission as the entire San Francisco Bay and its coastline. Thus the Plan has the potential to 'coordinate management of the Bay's development through a single agency' (Travis pers. comm 1995).

In an attempt to institute a balanced and procedurally fair approach to decision-making the Commission comprises members representing most of the land and water users embraced by the San Francisco Bay Plan. This is argued to be one the greatest strengths of the management arrangement 'in that such a consensus-building environment allows a single political entity to act with the support of interests which would more commonly oppose each other' (Travis pers. comm 1995).

California Coastal Commission

The California Coastal Commission (CCC) is a State agency that plans and regulates coastal development. Moulded on the San Francisco Bay and Development Commission (Fischer pers. comm 1995), the California Coastal Commission was established in 1972 and made permanent by Legislature in 1976. It consists of six regional commissions and one State commission (which is an independent entity).

The mission of the CCC is to plan for and regulate development in the coastal zone consistent with the policies of the *California Coastal Act 1976*, though the Commission now operates primarily as an appellant body (Fischer pers. comm 1995). The CCC is also the designated principle State coastal management agency for the purpose of administering the federal *CZMA* in California. Given these responsibilities, the CCC has been a leader in testing the limits of the consistency provision of the *CZMA*. It has reviewed offshore uses such as those associated with oil and gas development (Hershman 1996), and it has 'looked into' broader EEZ management (McCreary pers. comm 1995) through policy developed as part of the Ocean Resources Management Program (The Resources Agency of California 1997).

Approval of the *California Coastal Act* in 1976 introduced a requirement that all governments with responsibilities in the Californian coastal zone must prepare and adopt their own Local Coastal Program (LCP) incorporating policies set forth in the Act. To this end the CCC works with local coastal communities to prepare LCPs which outline local plans for development and resource conservation, and it encourages broad community participation. The Commission is also charged with reviewing each certified LCP at least once every five years to ensure LCPs are implemented properly and are still in compliance with the *Coastal Act*. The sum total of LCPs are the closest thing to a comprehensive State coastal plan that exists, but given that reviews of individual LCPs are generally not undertaken, the program is disjointed and outdated (Fischer 1995).

In the past 15 years, budget cuts and a reduction in the number of staff (by 40 percent) has generally affected the Commission's ability to carry out *Coastal Act* requirements (California Coastal Commission 1997). The Commission relies on a mix of State and federal funds to carry out its program, and it has been very successful in identifying innovative funding approaches. Nevertheless, this has come at the cost of diverting staff from core program responsibilities (Fischer 1995)).

California State Coastal Conservancy

The State Coastal Conservancy is an independent State agency, with a governing board appointed by the governor and the State legislature. At the same time that the *Coastal Act 1976* was passed in California, the Conservancy was created by State legislature in 1976 as a sister agency to the CCC. The Coastal Conservancy is however a separate and distinct agency to the CCC and operates quite differently, though both are statutory bodies. The Coastal Conservancy was created as a unique entity with flexible powers to serve as an intermediary between the government, public, and the private sector in recognition that 'creative approaches' would be needed to preserve California's coast. Fischer (pers. comm 1995) makes the point that:

our agency excels at building the partnerships and the collaboration necessary to cross jurisdictional boundaries and enter into the adaptive management practices which our earth and all its inhabitants require.

The Coastal Conservancy uses non-regulatory means to resolve conflicts between the uses and users of coastal resources based on the notion that 'there are no culprits, there are just solutions' (Fischer pers. comm 1995). The Conservancy also provides financial and technical aid to local governments in implementing projects to carry out the Local Coastal Programs of the CCC. Much of the work of the Coastal Conservancy is focused on terrestrial issues (and more particularly with entrepreneurial methods of purchasing, restoring and enhancing terrestrial coast environments), and providing access to the shore. Working with local governments, other public agencies, land trusts, community groups and landowners, the Conservancy is funded mostly by the State, but also by project specific grants from other sources. Stakeholders are identified on the discretion of Conservancy staff, and there is no scientific method in identification or involvement of stakeholders in decision making processes within the Conservancy. Conscious efforts are also made within the Conservancy *not* to set priorities but to address problems as they arise (Fischer pers. comm 1995).

The Coastal Conservancy has been a leader in forming partnerships, resolving multiple-use conflicts and operating effectively as a government agency without appearing intrusive (Crance 1994). The majority of Conservancy projects are also considered to be successful in meeting project goals due to extensive planning, good inter-departmental communication, and 'funding of projects involving those who have a genuine interest in restoring and enhancing coastal ecosystems' (Josselyn, Chamberlain et al. 1993). Michael Fischer (pers. comm 1995), executive officer of the CCC, believes that State Coastal Conservancy projects are successful because they are publicly supported and because the body 'is not threatening as it carries no big stick'. An evaluation report on Coastal Conservancy projects conducted between 1978 and 1992 (Josselyn, Chamberlain et al. 1993) determined that there was a high level of project effectiveness throughout the period examined as a direct result of careful attention by Conservancy staff to planning processes. The least effective element of the program was identified as the transfer of experience gained from one project to another, due in part to a lack of monitoring and follow-up work (Josselyn, Chamberlain et al. 1993).

Summary

The plan, *California's Ocean Resources: An Agenda for the Future* outlines a strategy to help ensure effective and well coordinated management, conservation and enhancement of California's ocean resources. It is described by the Resources Agency of California (1997) as the:

first ever overview of California's ocean ecosystem and its relationship to State and federal laws, economics, jurisdictional designations and the complex system of reserves, refuges, sanctuaries and other marine managed areas that exist to protect and manage this critical resource.

Management of resources seaward of the 3 n. mile Territorial Sea boundary are the responsibility of the Marine Resources Division of the State Department of Fish and Game, and the California Coastal Commission has responsibility for coastal resources within the 'coastal zone'²⁹ to 3 n. miles (as defined by the *California Coastal Act*). However, there are no precise administrative linkages between the two departments (Boydston pers. comm 1995). The coastal zone boundary, furthermore, is defined by political considerations, and planning for boundary designations is said to have been

²⁹ The coastal zone is defined within the California Coastal Act 1976 as being that area which extends 3 n. miles seaward and up to 5 miles inland (thereby encompassing around 1 5 million acres of land).

inadequate³⁰: major areas of the coastal watershed are excluded, and seaward boundaries are inappropriate to deal with many ecosystem management issues. Due to the broad terrestrial component of the defined coastal zone there is also little marine focus to Program activities. Terrestrial management approaches to marine management and planning have most often been used given a perception that there is a 'need to borrow from some of our onshore success with integrated resource management and adapt them to the highly complex ocean resource ecosystem' (The Resources Agency of California 1995: 2).

Notwithstanding these limitations, the California coastal and ocean program is an example of inter-governmental power sharing. It recognises a need for horizontal as well as vertical coordination among governments, and partnerships forged under the Coastal Zone Management Program between State and local governments have been effective in brokering solutions to complex problems (Douglas pers. comm 1995).³¹ Another major, albeit intangible, achievement of the *California Coastal Act* has been a positive change in attitude amongst stakeholders and decision-makers towards environmental protection, and acceptance of the notion that a 'stewardship responsibility' toward the coast is necessary. There is essentially a good relationship between government agencies involved in the Coastal Zone Management Program, and an enthusiasm and demonstrated commitment to it. There has also been strong public support, involvement and activism in the Program, despite some difficulty in finding common ground in problem-solving as well as considerable public cynicism about the role of government in resource management (California Coastal Commission 1997).

The California Coastal Management Program is argued to be 'one of the toughest in the nation and is particularly aggressive in the application of its permit authority to restrict and to mould appropriate coastal development and to ensure public access to the shoreline' (Cicin-Sain 1990: 315). For this reason, Californian marine management practice has also been regarded as some of the most progressive and innovative in the world (Kenchington pers. comm 1994). Nevertheless, the Coastal Management Program has had difficulty in maintaining consensus and in implementation (Cicin-Sain 1990). Although each local government is required to develop a Local Coastal Program under the *Coastal Act 1976* for example, a large number have failed to carry out this mandate largely due to political conflict involved in complying with the Act's 'protective provisions'. There have been ongoing staff and funding cuts to the CCC due in part to inconsistent political support.³² Additional problems have also arisen with recent uncertainty about the direction and consequences of judicial rulings regarding land use planning and regulatory decisions in California (California Coastal Commission 1997). Perhaps most seriously, however, due to increasing politicization of the supposedly independent CCC and a frequent turnover of members, the Authority has suffered from a lack of continuity and an inability to develop a long range view.³³ Long-term planning efforts have typically been deferred due to time pressures and to meet short-term needs, and broad-scale issues such as non point-source pollution control have only recently been looked into (as a result of federal directives).

³⁰ See California Coastal Commission 1997; and Faber 1997.

³¹ See also Faber 1997.

³² During the two terms that George Deukmejian held as Governor of California between 1982 and 1990, the California Coastal Commission's State budget was reduced by 27 percent, staff levels were reduced by 42 percent, and the Commission's North Coast District Office in Eureka was forced to close. These actions are argued not to have been related to the Commission's workload, but on the Governor's desire to abolish the Coastal Commission (California Coastal Commission 1997).

³³ See, for example, California Coastal Commission 1997; and Faber 1997.

Despite these problems, the greatest accomplishment of the California coastal and ocean management regime has been the development of a consistent approach to coastal land-use planning, and the establishment of a consistent conflict-resolution mechanism (Faber 1997). The *California Coastal Act* mandates a certain degree of coordination between coastal management programs and other State functions. To assist in coordination, California is also authorised to participate with the States of Alaska, Hawai'i, Oregon and Washington in joint liaison programs. The *Coastal Act* includes strong law enforcement provisions including penalties, and regional task forces have worked cooperatively with local governments to enforce the requirements of the *Coastal Act* (California Coastal Commission 1997). Nevertheless, the Act contains no means of addressing cumulative impact of marine development projects and few objectives or goals have been set (by either the *Coastal Act* or *Ocean Resources Agenda*). There is also little coordination between the California Coastal Management Program and the National Marine Sanctuary Program (see Section 6.3.3) (Fischer pers. comm 1995). The *Coastal Act* does not provide for any review processes, and there is no binding mechanism to revise or update LCPs.³⁴ Furthermore, the CCC suffers a lack of resources for implementation, and due to staff limitations, review and monitoring capabilities have been inadequate to ensure that approved coastal development permits are implemented as intended.

The California Coastal Management Program is representative of an increasing tendency towards federal/State concurrent jurisdiction and power sharing in marine environmental management. A widespread acceptance of a need for comprehensive marine management arrangements has evolved with development of the Program, and principles of integrated management have formed a framework for participatory decision-making processes and coordination across governmental and geographical boundaries. Despite integrated management objectives however, there has been some difficulty in achieving integration in practice due largely to political constraints.

³⁴ The mandate to prepare and implement Local Coastal Plans (LCPs) has recently been suspended, and so there are no strong incentives or sanctions to encourage development of LCPs. This has resulted in the Coastal Commission being involved for the majority of its time, in routine matters or time-consuming permit decisions for some local jurisdictions that would otherwise be made by local councils. In addition, periodic evaluation of certified LCPs has been deferred, in some cases for as long as 11 years, local assistance grants to coastal jurisdictions for LCP development and completion have been stopped, and the technical and legal assistance needed to develop, certify and implement their LCPs is not available (California Coastal Commission 1997). See also Faber 1997; and Gustaitis 1997.

Table 20. California Coastal And Ocean Management Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Yes	
holistic focus	Yes	Partially	Lack of ecosystem consideration in coastal zone boundaries
broad, transparent, collaborative decision-making	Yes	Partially	Comprehensive involvement problematic
top-down <i>and</i> bottom-up considerations	Yes	Yes	Top down coordination; coastal policy dependent on bottom-up decision making approaches
commitment to planning and implementation	Yes	Partially	Commitment of government agency managers; reduced funding and inconsistent political commitment to support coastal agencies
strategic planning and management	Partially	No	Forward looking but lack of long range planning and consistency
coordination and harmonisation	Yes	Partially	Coordination mandatory by law; poor implementation of coordination requirements
problem solving/dispute resolution	Yes	Partially	Conflict resolution through mediation; ongoing conflict between agencies
action oriented planning and management	Partially	Partially	Local interpretation of regional management objectives encouraged; poor implementation of LCPs
monitoring, evaluation and review	Yes	Partially	Lack of review of management plans or local coastal programs

6.3.2 National Estuarine Research Reserve System (1972)

Established under the federal *CZMA*, the National Estuarine Research Reserve (NERR) System is designed to provide a nation-wide network of protected areas dedicated to research and education. Not a dedicated *management* program as such, the NERR System is aimed at establishing 'field laboratories' (Beatley, Brower et al. 1994). Since the Program began in 1972, twenty-two reserves have been designated nationwide, and six more are currently in development. As such, around 17 of the 29 biogeographic regions that have been defined to describe the US coast, are represented.

Box 20. National Estuarine Research Reserve System Sequence of Events

1972	The National Estuarine Sanctuary Program established under the <i>CZMA 1972</i> .
1974	The South Slough Estuary became the first official reserve of the System; Guidelines published on the selection and management of sanctuaries, and the operation of the Program as a whole.
1981	A two-tiered approach to estuary selection within the National Estuarine Research Reserve System created.
1993	A mission statement and 5 program goals defined as part of a System-wide Strategic Plan.
1994	Strategic Plan released for comment.
1995	Final Strategic Plan released.

In 1974, NOAA published guidelines regarding the selection and management of sanctuaries, and the operation of the Estuarine Sanctuary Program (as it was originally entitled) as a whole. Since then, the NERR program has undergone several changes. These changes have involved funding levels, clarification of the intent of the program, and emphasis on the research component of the program. The program has now moved away from emphasis on site selection and designation, land acquisition and facilities development, towards strengthening the *national* aspects of the program (Knecht 1993). No new funds have been appropriated to match the growing number of designated reserves, and the focus of the NERR has consequently turned to the design and operation of a nationally coordinated research effort as well as a nationally integrated public education program. Three dimensions currently comprise the NERR program (Knecht 1993):

- a nationally coordinated research program aimed at coastal and estuarine management problems;
- effective long term protection of the reserves making up the system; and
- an program of education and interpretation to support the management and stewardship goals of NERRs.

The NERR System was designed to fulfil a perceived need for more information regarding the functions and processes of estuarine ecosystems and human effects upon them (Beatley, Brower et al. 1994). A biogeographic classification scheme and typology of national estuarine areas have been developed in order to designate areas representative of all regions and habitat types. States may seek federal approval and designation of certain areas as NERRs if they qualify as biogeographic and typological representations of estuarine ecosystems, and if they are suitable for long-term research and conservation.

The NERR Program is administered by the Sanctuaries and Reserves Division of NOAA, and is part of a nationally coordinated system. Each reserve is to provide for estuarine research, monitoring, and education on local, State and national levels, and management is approached as a partnership effort between the federal and State governments. The identity of each reserve within the System, however, remains with the State. Funding of the NERR Program operates on a 50/50 cost-share basis between the State and federal governments and matching grants are available to States with laws that protect estuarine environments.

National Estuarine Research Reserve System: An Analysis

The NERR System was established to ensure a stable environment for coordinated research through long-term protection of estuarine environments, to address marine management issues, and to enhance public awareness (Benoit pers. comm 1995). Unlike the National Marine Sanctuary Program which provides a general framework for the management of the marine environment, the NERR System is focused on the development of a system of representative protected areas within a biogeographic zoning classification.

The NERR System is well placed to lead coordination of estuarine resource protection programs at the national level (Knecht 1993), and has the potential to work in close harmony with other NOAA programs and regional efforts in marine science and coastal monitoring. There is currently close cooperation between the NERR System and the National Marine Sanctuaries Program (see Section 6.3.3).³⁵ However, the potential value of NERRs to marine management is only partially realised. As the focus of the program is on the development of a *representative* system of protected

³⁵ Close coordination between the CZMA and the *Marine Protection, Research and Sanctuaries Act* may in some part be attributed to the fact that Joe Uravitch, Associate Director of the Office of Ocean and Coastal Resource Management of NOAA, authored both pieces of legislation.

marine areas, less attention is directed towards *comprehensive* management of the marine environment: at a State level, there is most often administrative separation of estuarine and coastal management. Within State administration, responsibility for the NERR Program is usually held by a fisheries or marine protected areas agency or in a department of natural resources, and coastal management programs are most often found within the State planning office or in a department of environment. Furthermore, although several exceptions exist, coastal zone and estuarine managers have not looked to research within NERR System as the way to solve marine management problems. This is partly as a result of the research program of the NERR System being quite small, and partly because of a lack of effective mechanisms to couple coastal and estuarine management considerations (Knecht 1993).

In order to support the NERR program as a focus for marine management more generally, a system-wide Strategic Plan has been developed. Drafted by a committee of representatives from six designated reserves and Office of Ocean and Coastal Resource Management staff, the Strategic Plan is guided by a mission statement and 5 goals including 'integrated management of the Nation's coastal ecosystems' (NOAA 1995a).

The NERR System pursues integrated management from the direction of 'stewardship' arrangements between the State and federal governments, as well as information acquisition and management. Education, research and monitoring have been very successful within the NERR System, and have all contributed to knowledge and appreciation for the coastal environment in the United States. There is however, an absence of an holistic perspective, and a lack of coordination between the NERR program and coastal and ocean management programs more generally. Connections between the NERR Program and other coastal and ocean management programs are not clear, and a lack of coordination has limited the success of the Program in tackling marine management issues more generally.

Table 21. National Estuarine Research Reserve System Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Partially	No	Research/education and protection focus
holistic focus	Partially	No	Coastal ecosystem objectives; coastal systems often excluded from management considerations
broad, transparent, collaborative decision-making	Yes	Partially	Partnership effort between federal and State governments
top-down and bottom-up considerations	Yes	Partially	Primarily government driven action and decision-making
commitment to planning and implementation	Yes	Partially	No new funding levels allocated despite increases in program numbers
strategic planning and management	Yes	Yes	Long-term focus and strategic plan coupled with system of biogeographic representation
coordination and harmonisation	Partially	Partially	Nationally coordinated system; lack of program coordination with coastal management efforts
problem solving/dispute resolution	Yes	Yes	
action oriented planning and management	Yes	Yes	
monitoring, evaluation and review	Yes	Yes	Management focus has changed since the program's inception; research and monitoring o priority within the System

6.3.3 National Marine Sanctuary Program (1972)

The National Marine Sanctuaries Program is a companion program to the National Estuarine Research Reserve System (see Section 6.3.2) administered by the Sanctuaries and Reserves Division of the Office of Ocean and Coastal Resource Management (OCRM). Created in 1972 as part of the federal *Marine Protection, Reserve and Sanctuaries Act* the National Marine Sanctuaries Program, however, is a free standing, *ocean* protection program. Since the Program began in 1972, fourteen National Marine Sanctuaries have been designated off the coast of continental US and American Samoa, and three more are in development.

Box 21. National Marine Sanctuary Program Sequence of Events

1972	National Marine Sanctuary Program created as part of <i>Marine Protection, Research and Sanctuaries Act 1972</i> .
1975	(January) The <i>Monitor</i> became the first National Marine Sanctuary; (December) Key Largo National Marine Sanctuary declared.
1977	Channel Islands, Monterey Bay and Point Reyes-Farallon Islands were chosen as sites for further study as National Marine Sanctuaries.
1980	(September) Channel Islands declared a National Marine Sanctuary.
1981	(January) Gulf of the Farallones received final designation as a National Marine Sanctuary; Grays Reef National Marine Sanctuary designated; Looe Key National Marine Sanctuary declared.
1986	Fagatele Bay in American Samoa designated as a National Marine Sanctuary.
1988	National Marine Sanctuary Program amended; Northwest Straits became an active candidate as a National Marine Sanctuary.
1989	(May) Cordell Bank designated a National Marine Sanctuary.
1990	(November) The Florida Keys National Marine Sanctuary declared.
1991	Thunder Bay made an active candidate as a National Marine Sanctuary; (November) The Flower Garden Banks National Marine Sanctuary designated.
1992	National Marine Sanctuary Program amended and reauthorised; Congress designated the Hawai'ian Islands Humpback Whale National Marine Sanctuary; (January) Flower Garden Banks received final designation as a National Marine Sanctuary; (September) Monterey Bay received final designation as a National Marine Sanctuary; (November) Stellwagen Bank designated as a National Marine Sanctuary.
1993	Strategic Plan began development.
1994	(July) Olympic Coast National Marine Sanctuary was formally designated.

The purpose of the National Marine Sanctuary Program (NMSP) is the protection of 'conservation, recreational, ecological, historical, research, educational, or aesthetic values through comprehensive long-term management' (NOAA 1995a). The consumptive use of resources within Marine Sanctuaries is *not* banned in most cases, and the major role of the Sanctuary Manager has become to coordinate the management efforts of the many federal and State agencies working under the 'umbrella objectives' of federal legislation (Paisley 1992). The major benefit of Sanctuary status for a designated area is argued to be that many important nearshore and oceanic marine resource zones and their corresponding human uses may be integrated into one management regime (NOAA 1995b).

The authority provided by the NMSP does not supersede existing regulatory regimes, but is intended to augment existing efforts. Individual Sanctuaries are intended to act as coordinating mechanisms, and a focal point for overlapping jurisdictions and program mandates. It is contingent on each individual Sanctuary Program, however, to devise mechanisms to coordinate existing regulatory and management authorities.

Similar to the CZMA, the *Marine Protection, Reserve and Sanctuaries Act* is subject to reauthorisation and amendments. In 1988 and 1992, the National Marine Sanctuary Program (NMSP) was amended substantially. Important provisions for enforcement and liability were added that give Sanctuary designation and Sanctuary Management Plans greater authority. The 1992 amendments have also provided the OCRM with the power to review all federal agency actions which impact on sanctuaries.

National Marine Sanctuary Program: An Analysis

The NMSP is essentially a multi-sectoral management framework which has been translated in many cases as a tool for 'resource protection' (Uravitch pers. comm 1995). By allowing sanctuaries to be used for purposes other than research, the designation of some areas has been made more politically and economically feasible. Within individual designated sanctuaries however, this multiple-use objective has been one of the most controversial and problematic of the Program as a whole (Beatley, Brower et al. 1994). Sanctuaries are usually managed in such a way that there are no zoning regulations, but that uses are either completely permitted or prohibited. Conventional commercial activities, which are mostly banned in terrestrial National Parks, are consequently often allowed in National Marine Sanctuaries as long as they do not undermine the health and integrity of the area³⁶, and conflict between development and conservation objectives has often resulted.³⁷

Marine Sanctuaries may be designated in coastal or ocean waters, the Great Lakes and their connecting waters, and submerged lands over which the US exercises jurisdiction, consistent with international law. Within three miles of the shore, ownership of the seabed and responsibility for resource management are usually left in ownership of the State, and in other areas jurisdiction and responsibility is mostly with the federal government. The NMSP also provides the framework for multiple-use, ecosystem based reserves across a range of coastal and ocean environments (Benoit, Sherman, Uravitch pers. comm 1995). The Marine Sanctuaries encompassing both federal and State waters³⁸, however, have resulted in considerable conflict (Phillips, Sessing pers. comm 1995). They are still considered to be an 'experiment' and their success is yet to be determined in practice (Hildreth 1994).

Public participation in decision-making and education are two important aspects of the NMSP. Selection and designation processes are open to public comment and in some cases public steering or advisory committees for long-term Sanctuary management have also been proposed. Educational programs initiated by some Sanctuaries have been especially successful and have helped to bolster protection and enforcement efforts (Beatley, Brower et al. 1994). In some cases, however, public participation has resulted in cumbersome and lengthy selection and planning processes due to prolonged and protracted debate (Beatley, Brower et al. 1994)

³⁶ Oil and gas development for example has been prohibited in the Olympic Coast, Stellwagen Bank and the Flower Garden Bank Marine Sanctuaries. In other Sanctuaries, resource development (such as fisheries) is generally permitted though special-use permits from NOAA are required in some cases to authorise specific activities that are compatible with Sanctuary objectives.

³⁷ Conflicts between the NMSP and sectoral interests including fisheries, and the oil and tourism industries, have lessened in recent years as the Program has sought to avoid confrontation to the extent of dropping several sites from consideration (Knecht, Cicin-Sain et al. 1988). Knauss (pers. comm 1995) suggests that the greatest *support* for the NMSP has come from those who are against mining activity in marine waters due to a widespread perception that the NMSP is predominantly a system for the conservation and preservation of coastal and ocean areas. As a result of this perception widespread *opposition* to the NMSP has also come from development interests. Nevertheless the Program is, and always has been, intended as a 'multiple-use' management arrangement, and Knauss (pers. comm 1995) argues that greater support for the NMSP may be generated if the Program name reflected this.

³⁸ Four Marine Sanctuaries - Florida Keys, Monterey Bay, Olympic, and Hawai'i - include both federal and State waters within their boundaries.

Marine Sanctuaries are largely designated, staffed, and funded by the federal government. However States also play a significant role in many, and a number of Sanctuaries have been established as a result of strong local pressures (Hershman 1996). Federal and State cooperative programs are encouraged and a strategic plan for the NMSP began development in 1993, using a 'bottom up' approach led by Sanctuary Managers. A lack of funding however, and the absence of 'grand scale' programs is argued to have limited successful implementation of the NMSP (Beatley, Brower et al. 1994).³⁹

Initial progress of the NMSP was 'timid' partly due to concerns over its 'interference' with offshore oil development (Knecht, Cicin-Sain et al. 1988). Only two small, non-controversial sanctuaries were designated in the first four years of the Program and it has continued to move forward only slowly. The objectives of individual Sanctuary Programs tend to be locally, rather than nationally derived, and many Sanctuaries have been used as a vehicle to resolve local environmental problems such as conflicts with oil and gas development, shipping and Naval activities (Phillips, Sessing pers. comm 1995).⁴⁰ While this has resulted in management arrangements sensitive to local conditions, it has also resulted in ad hoc decision-making in the absence of a national planning framework (Golde pers. comm 1995).

Another of the major problems facing the NMSP is difficulties in enforcement and cross-jurisdictional effectiveness (Beatley, Brower et al. 1994). The OCRM alone is unable to enforce regulatory measures⁴¹, and due to the multiplicity of government agencies with responsibilities for management within each individual Sanctuary and the frequent absence of coordinating institutional arrangements, inefficiency and conflict has been experienced by a number of programs. Furthermore, the NMSP has no mechanism for regulating activities beyond Sanctuary boundaries and as a result cannot ensure protection from adjacent activities.

As an umbrella initiative instituted at the federal level, the NMSP has achieved certain success in establishing a comprehensive management regime for many, often quite large, areas of the US marine environment. The structure, administrative framework, and scope of individual State Sanctuaries differs significantly however, and the success of the NMSP as a whole is therefore very difficult to assess. The Program has nevertheless resulted in a number of individual initiatives which are argued to be amongst the best examples of operational integrated management in the United States. Three individual Marine Sanctuaries are examined below. The Florida Keys and Monterey Bay National Marine Sanctuaries constitute both State and federal waters and are two of the largest Marine Sanctuaries. The Flower Garden Bank Marine Sanctuary is located entirely in federal waters and is very small compared to the first two. All three have approached integrated management in different ways and all have incorporated innovative arrangements for the management of the marine environment.

³⁹ Sherman (pers. comm 1995) suggests that the National Marine Sanctuaries Program has far less power than the Australian Great Barrier Reef Marine Park Program, for example, due to limited funding and a lack of large scale planning and management arrangements.

⁴⁰ See also Hershman 1996.

⁴¹ In many cases, however, the OCRM has the capacity to develop regulatory mechanisms for point-source pollution impacting on Sanctuary waters, and it has the capacity to sue for damage to Sanctuary land and waters.

Florida Keys National Marine Sanctuary (1990)

As the second largest Marine Sanctuary (after Monterey Bay), the Florida Keys National Marine Sanctuary covers approximately 9500 sq km of State and federal waters.⁴² The region is one of the most heavily used coral reef tracts in the world, and it is characterised by a great many competing and often conflicting uses, activities, interests and jurisdictions.

Box 22. Florida Keys National Marine Sanctuary Sequence of Events

1975	Key Largo National Marine Sanctuary declared.
1980	State and federal employees began to cooperatively manage and implement regulations in the region.
1981	Looe Key National Marine Sanctuary declared.
1989	Three ships ran aground on coral reefs, causing serious damage.
1990	(November) Congress passed the <i>Florida Keys National Marine Sanctuary and Protection Act</i> of 1990 (Public Law 101-605), designating the Florida Keys National Marine Sanctuary.
1991	(Spring) Advisory Council formed to gather information and initiate a 'scoping' process for the development of a management plan for the Marine Sanctuary; (July) Inter-agency Core group formed to develop policies and direct/oversee development of the Management Plan.
1992	(February) The Sanctuary Advisory Council first met; The Florida Board of Trustees and NOAA signed an interim agreement for joint cooperation and consultation; Goals and objectives developed by the Sanctuary Advisory Council were adopted by NOAA; Water Quality Protection program began development.
1995	(April) The Florida Keys draft Management Plan, 'Strategy for Stewardship' released.
1997	(July) Florida Keys National Marine Sanctuary Management Plan brought into effect.

In response to concern over pollution, over-harvesting, physical impacts and overuse in the Florida Keys, a small National Marine Sanctuary was declared in 1975 for the protection of coral reef habitat off Key Largo. Declaration of the Looe Key National Marine Sanctuary followed in 1981 to protect the popular reef located off Big Pine Key in the Lower Keys. A number of ship groundings⁴³, increasing water quality problems, and growing threats of coral disease however, provided impetus for Congress to take further action to protect the coral reef ecosystem in the Keys.⁴⁴ The *Florida Keys National Marine Sanctuary and Protection Act* was passed by Congress in 1990 setting in motion protection of the Florida Keys National Marine Sanctuary (NMS)⁴⁵, as well as creating an internationally recognised 'area to be avoided' by ships greater than 50 metres in length.

⁴² Consisting of coastal and oceanic waters and the submerged lands thereunder, surrounding the Florida Keys, and extending westward to encompass the Dry Tortugas, but excluding the Dry Tortugas National Park. The shoreward boundary of the Sanctuary is the mean high water mark.

⁴³ Within an 18 day period in 1989, three large ships ran aground on the coral reef tract in the vicinity of the Florida Keys.

⁴⁴ The Florida Keys are subject to an intense level of human use due to their proximity to the Miami metropolitan area and their popularity as a vacation spot. Tourism, recreational uses ranging from fishing, diving and boating, commercial fishing and shellfishing, military activities, research, and treasure salvaging, compete for natural resources in the area (NOAA 1995c). Water quality problems are ecosystem wide, and environmental degradation in the Sanctuary and surrounding coastal areas is indicated by declining bird populations, coral reef bleaching, widespread death of seagrass beds, reductions of sport and commercial fisheries, increasing salinity, turbidity, nutrients, and contaminants in coastal waters (Florida Keys National Marine Sanctuary Advisory Council 1995; NOAA 1995c).

⁴⁵ According to the *Florida Keys National Marine Sanctuary and Protection Act*, the Key Largo and Looe Key National Marine Sanctuaries were incorporated into the new Florida Keys National Marine Sanctuary.

In 1992, an interim agreement was signed between the State and federal governments establishing a mechanism for joint consultation and cooperation to protect Florida's marine environment and cultural resources.⁴⁶ A draft management plan, *Strategy for Stewardship* was released in April 1995 and the approved Management Plan was finally brought into effect in July 1997.

The Management Plan for the Florida Keys NMS represents a six year effort by combined Federal, State and local agencies. The Strategic Assessment Program of NOAA played a supporting role, and NOAA's Sanctuaries and Reserves Division coordinated the entire government inter-agency effort. Other agencies involved in the Sanctuary's designation and management planning include the federal Department of Interior, the US EPA, the Florida Department of Environmental Protection, and the Growth Management Division of Monroe County. A Citizens Advisory Council, consisting of 22 volunteer members, also contributed significantly to the development of the Management Plan and have some responsibility in ongoing implementation.

The Florida Keys NMS Management Plan is divided into 10 different Action Plans. One of these Plans, the Water Quality Protection Program, incorporates significant and expensive long-term adjustments to point and non point-sources of pollution, especially sewage.⁴⁷ Unlike other Marine Sanctuaries, a system of zones with varying levels of protection are also incorporated into the Florida Keys NMS Management Plan. State and federal government employees work cooperatively to implement management policy and regulations, as well as to enforce local and State laws, the *National Marine Sanctuaries Act*, and other federally administered statutes relevant to the region. The greatest focus of enforcement officers to date, has been on education and awareness-raising as means to promote voluntary compliance and a sense of 'stewardship' by users in the region.

Florida Keys National Marine Sanctuary: An Analysis

The Florida Keys NMS is widely regarded as one of the best, if not the best example of successful integrated management in the United States particularly with respect to horizontal and vertical coordination across the land-sea boundary and the management of water quality issues in the region (Kenchington pers. comm 1994; Basta, Kruczynski, Ostrom pers. comm 1995).

The management framework for the region has been based on a ecosystem-based, comprehensive management model established by the Australian Great Barrier Reef Marine Park (Saenger pers. comm 1994)⁴⁸, the major difference being that all terrestrial areas have been included within Sanctuary boundaries. Regulations still in place for the Looe Key and Key Largo portions of the Florida Keys NMS prohibit the removal or damage of natural or historical resources or marine life, the discharge of substances, and use of wire fish traps, trawls, explosives, spear guns, or dangerous weapons. Zoning regulations have also been used to zone 'Sanctuary Protected Areas' off-limits to fishing and to declare an 80 sq. km Ecological Reserve (the only Ecological Reserve of the 3 proposed within the Draft Management Plan) off the Western Sambos near Key West.

⁴⁶ This agreement remained in effect until implementation of the Sanctuary Management Plan began in 1997.

⁴⁷ The Water Quality Protection Program is the first such program mandated by Congress for a National Marine Sanctuary. It is said to have resulted from public pressure for immediate conservation action (Anon 1995). Based on the belief that dealing with water quality issues requires concerted effort by all government and non-government agencies, the Water Quality Protection Program was developed in order to facilitate cooperation between agencies with minimal additional funding requirements.

⁴⁸ See also Beatley, Brower et al. 1994.

Multiple-use zoning received a great deal of criticism particularly during the Sanctuary's early development, mostly from those who opposed government intervention and the loss of access and 'rights'.⁴⁹ A lack of scientific basis to the designation of the zones within the Management Plan has also been criticised (Clark pers. comm 1995). The Florida Keys however, similar to the Great Barrier Reef in Australia, attracts widespread attention and public support for its protection due to its size, its obvious beauty, and the nature of its environment. Despite a number of well organised and vocal Sanctuary opposition groups⁵⁰, opinion polls have found significant support for management of the region including strict management regulations and measures (Klingener 1995c).⁵¹ Volunteer support has been good, with more volunteer response than volunteer coordinators can handle, and external funding and financial support for the Sanctuary has been strong (Florida Keys National Marine Sanctuary Advisory Council 1995). Recognised as significant by various national funding agencies, the Florida Keys NMS has also attracted an enormous amount of externally funded research activity.

Consultation and planning processes for the Florida Keys NMS have been largely ad hoc and designed as events have proceeded, and there have been a number of difficulties with public relations between Sanctuary managers and the public (Barley 1993). This has resulted in confusion and inconsistency and consequently, conflict between and among stakeholder interests (Causey pers. comm 1995). Implementation of the Florida Keys NMS Management Plan has also been problematic for a number of reasons. Poor communication (Clark pers. comm 1995), a lack of government collaboration with community interests, and an absence of a strategic framework have all contributed to difficulties and delays in the development and implementation of the Management Plan. The Management Plan itself has also been structured badly so that many of its requirements and intentions have been misinterpreted or misunderstood.⁵²

The Florida Keys NMS represents a coordinating mechanism which incorporates disparate but linked statutes, jurisdictions and policies. The Management Plan development has resulted in ongoing operational interaction between government officials and employees, and has promoted policy coordination. Furthermore, the Management Plan affords Florida a role and additional control over this federal program in State waters. The autonomy of individual agencies and departments is recognised but the Plan has introduced a primary enforcement mechanism to the region whereby all laws may be enforced by a single entity.

The Florida Keys NMS Management Plan is the first comprehensive marine plan in the US, and similar to the Great Barrier Reef Marine Park, its development has been characterised by ongoing, *evolving* and iterative planning processes. Unlike the Great Barrier Reef Marine park however, public relations between Sanctuary managers and the public have not always been successful and conflict and opposition to management in the region has resulted. Nevertheless, a certain degree of 'institutional learning' has emerged and based largely on principles of IMM, the Florida Keys NMS is beginning to bridge the gaps between management, science and public participation that have frustrated marine management initiatives in the past.

⁴⁹ With a traditional distrust of government officials, and an aversion to regulation, many Florida Keys residents initially resented 'intrusion' in their traditional use of the area and a lack of effective public relations by Sanctuary managers has done little to dispel mistrust and conflict in planning processes (Basta, Clark pers. comm 1995). See also Hagenkotter 1995; Carlson 1995; Klingener 1995a; and Klingener 1995b.

⁵⁰ For example, Victims of NOAA, and the Conch Coalition.

⁵¹ There are also a number of well-organised support groups for the Florida Keys Sanctuary such as the Last Stand, and Reef Relief.

⁵² Conflict and confusion characterised discussions at the Florida Keys National Marine Sanctuary Advisory Council Meeting held on 5 October 1995. Present at the meeting were Mike Collins (meeting chair), Billy Causey (Florida Keys National Marine Sanctuary Director), Jack London (Commissioner), Bruce Fishman, William Wickers, and J. Allison Defoor II, as well as interested individuals representing conservation and development interests including the Wilderness Society, the Monroe County Commercial Fishing Corp, and the Centre for Marine Conservation.

Table 22. Florida Keys National Marine Sanctuary Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Partially	Some extractive uses prohibited
holistic focus	Yes	Yes	Terrestrial concerns and federal waters incorporated in management arrangements
broad, transparent, collaborative decision-making	Yes	Yes	
top-down and bottom-up considerations	Yes	Yes	Government facilitated decision-making; community generated push for management
commitment to planning and implementation	Yes	Partially	Strong government and non-government support for management; external funding generated; opposition to zoning arrangements
strategic planning and management	No	No	
coordination and harmonisation	Yes	Yes	Interagency, cross-boundary and policy coordination
problem solving/dispute resolution	Yes	Partially	Poor sense of collaboration or communication between government and non-government interests
action oriented planning and management	Yes	Yes	Action plans as a basis to management arrangements
monitoring, evaluation and review	Yes	Partially	Poor scientific basis to decision-making; poor implementation of some monitoring programs

Monterey Bay National Marine Sanctuary (1992)

At approximately 15 700 sq. km, Monterey Bay NMS covers State and federal waters off the coast of California. The Sanctuary is easily accessible and hosts a high level of human activity and use. The northern extent of the Monterey Bay NMS is located along the southern boundary of the Gulf of Farallones NMS which in turn is adjacent to the Cordell Bank NMS. This series of adjoining Marine Sanctuaries and the adjacent coastal watershed, provides a unique opportunity for a comprehensive approach to management of California's waters.

Box 23. Monterey Bay National Marine Sanctuary Sequence of Events

1977	Monterey Bay chosen as one of three sites for consideration as a National Marine Sanctuary (NMS).
1978	Issue Paper released for public hearing, presenting boundary and regulatory options for the proposed Sanctuary.
1979	Monterey Bay declared an Active Candidate based on the Issue Paper hearings.
1983	(December) Monterey Bay removed as an Active Candidate from the register.
1988	Monterey Bay reinstated as a NMS candidate.
1989	(January) Two public scoping meetings held.
1990	(August) The proposed Management Plan and regulations for Monterey Bay NMS released for public comment.
1992	(September) Monterey Bay received final designation as a National Marine Sanctuary; Memoranda of Agreement between federal, State and local agencies adopted to develop a water quality protection program for the region.
1994	(January) Issue Identification and Strategy Development Workshop held at Monterey; (March) The Monterey Bay NMS Advisory Council created (the first advisory group established within the NMS Program).

The State of California nominated Monterey Bay for consideration as a NMS in 1977 along with nine other marine areas. Of these ten areas, NOAA chose three for further consideration: Channel Islands, Point Reyes-Farallon Islands, and the Monterey Bay area. NOAA released an Issue Paper for public comment in 1978, outlining several boundary proposals and regulatory options for the three sites. Based on the public hearings ensuing from the Issue Paper, NOAA declared all three sites active candidates for NMS designation in 1979. The Channel Islands NMS was declared in 1980, and the Point Reyes-Farallon Islands NMS (later renamed the Gulf of Farallones NMS), was designated in 1981. However, designation of the proposed Monterey Bay site was delayed due to attention being directed towards the other two sanctuaries (NOAA 1995a). Monterey Bay was subsequently removed from the list of active candidates due to the proposed area's large size and the additional enforcement burdens it was argued to entail, the perceived wealth of existing marine conservation programs in the area, as well as the belief that the two existing adjacent sanctuaries protected similar resources. Nevertheless, in 1988, under re-authorisation of the *Marine Protection, Research and Sanctuaries Act*, NOAA was directed to redesignate Monterey Bay as a candidate for NMS status. Monterey Bay received final designation in September 1992 with broad public, scientific, and political support (Beyeler 1993), and so became the largest Marine Sanctuary in the United States.

The Monterey Bay NMS is supported by a non-profit foundation, and is targeted at the protection of resources along the central Californian Coast, research, and education. The Sanctuary is also specifically designed to provide a forum to facilitate multiple-use, and to reduce multiple-use conflicts (Anon 1996).

The Monterey Bay NMS Advisory Council (SAC), the first such Advisory Council within the NMS Program, was established in March 1994. The Council comprises 20 voting and 4 non-voting members and is supported by three working groups focused on conservation, education and research. Managers of the adjacent Channel Islands NMS, the Gulf of Farallones NMS, and the Elkhorn Slough National Estuarine Research Reserve also sit on the SAC as non-voting members.

NOAA and various State and local resource management agencies have developed a water quality protection plan for the marine region which includes California's Monterey Bay NMS. The *Monterey Bay Water Quality Protection Program* framework document includes a preliminary program outline, background on the planning process, a figure delineating a 3-year framework and a work group structure (ORCA 1994). The Water Quality Protection Program also implements a key provision of a Memorandum of Agreement (MOA) signed by eight federal, State and regional agencies in 1992 to address water quality issues in the Sanctuary.

Monterey Bay National Marine Sanctuary: An Analysis

Monterey Bay NMS is the largest marine management program in the world after the Great Barrier Reef Marine Park, and is considered to be one of the best examples of integrated management efforts in the United States (Basta pers. comm 1995). The Water Quality Protection Program in particular, is argued to be based on the concepts of integrated management.

The purpose of the Sanctuary is provide a comprehensive ecosystem approach to resource management (US 1992), and based on wide-scale participation and improved coordination, the Monterey Bay Water Quality Protection Program, provides an overarching mechanism by which concerns might be addressed within a holistic framework. The Sanctuary extends up to 60 n. miles offshore and around 555 km along the Californian shoreline. Management considerations for the region are complex and intertwined, and include the impacts of commercial fisheries and tourism, as well as major shipping lanes and military activity. Non point-source pollution, and the impacts from it, are also pressing issues for the Sanctuary.

Regulations for the Monterey Bay NMS prohibit oil and gas extraction, depositing or discharging substances or materials, taking or damaging Sanctuary resources, altering the seabed, and operating motorised aircraft (at less than 1000 ft) over specified biologically sensitive areas. In addition, sand mining, and ocean dumping are prohibited within the Sanctuary.

Regulatory activities in California as a whole are largely fragmented. There is little coordination between the California Coastal Management Program (see Section 6.3.1) and the National Marine Sanctuary Program (Fischer pers. comm 1995), and water quality issues are under the responsibility of many federal, State, regional and local management authorities. A major problem for the development of the Monterey Bay Water Quality Protection Program therefore has been to generate a broad plan for management action while recognising the autonomy of multiple management authorities (Galasso 1994). NOAA's role has attempted to initiate inter-departmental collaboration and to provide an ecosystem perspective, and the MOA on which the Water Quality Protection Program is structured, forms a focus to this coordination. Within the context of the Monterey Bay NMS, NOAA has also operated as a facilitator in encouraging stakeholders to 'buy in' to the planning process (Moore pers. comm 1995). The Water Quality Protection Program has involved managers, scientists, businesses, landowners and interest groups in systematic consultations whereby issues, and existing authorities and programs have been identified (The Resources Agency of California 1995). A focus of the Program has also been to address gaps and redundancies, and to initiate education and research programs.

A large factor in the success of the Monterey Bay NMS has been attributed to the 'renegade' Sanctuary Advisory Council for the region (Moore pers. comm 1995). The SAC is made of representatives from government departments and key user groups, and it provides a two-way 'conduit' for information and advice with the local community concerning the Sanctuary. Five working groups operating within the Marine Sanctuary (comprising a total of 80 people) are extremely dedicated to the effective management of coastal and ocean issues with the Monterey Bay NMS (Moore pers. comm 1995). They provide a strong foundation for policy development and implementation and have proven to be a powerful voice for communication and collaborative action on local Sanctuary management issues.

Monterey Bay NMS is an example of an interdisciplinary approach to cooperative agreements for the comprehensive management of a large area of coast and ocean. A priority objective of the Sanctuary is water quality management and, indeed the primary success of the Program has been the development of the participatory, broadly focused Water Quality Management Program.

Table 23. Monterey Bay National Marine Sanctuary Analysis of Summary

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	No	Certain activities and uses excluded
holistic focus	Yes	Yes	Multi-jurisdictional; marine, coastal and terrestrial management considerations
broad, transparent, collaborative decision-making	Yes	Yes	
top-down and bottom-up considerations	Yes	Yes	
commitment to planning and implementation	Partially	Partially	Some problems with implementation given fragmentation of responsibilities among disparate government departments
strategic planning and management	Partially	Partially	Short term planning and management set out by the Water Quality Protection Program
coordination and harmonisation	Yes	Partially	Good coordination among local interests; poor coordination among national management programs
problem solving/dispute resolution	Yes	Yes	
action oriented planning and management	Yes	Yes	
monitoring, evaluation and review	Yes	Yes	

Flower Garden Banks National Marine Sanctuary (1992)

At 164 sq km, the Flower Garden Bank NMS covers two separate submerged salt dome features (the East and West Flower Garden Banks) that support the northernmost coral reefs on the continental shelf of North America. As the Sanctuary is located 100 n. miles offshore, management of the area is largely a federal - international issue which requires a balance between national and international interests. Unlike many other Marine Sanctuaries in the United States, there are only a small number of government departments with responsibilities in the Flower Garden Bank region.

Box 24. Flower Garden Banks National Marine Sanctuary Sequence of Events

1977	Flower Garden Banks first proposed as a Marine Sanctuary.
1979	Site made an Active Candidate for designation.
1980	Original regulations of the proposed Sanctuary revised and repropoed for consideration.
1982	Site withdrawn from consideration.
1983	The Flower Garden Banks recommended for placement on the Site Evaluation List for Sanctuary designation following an evaluation by the Gulf of Mexico Regional Resource Evaluation Team.
1984	Site again raised to Active Candidacy.
1986	Public scoping meeting held to solicit comment on significant issues in the region.
1989	(Feb) A Draft Environmental Impact Statement/Management Plan published and public comments sought.
1991	(July) Final Environmental Impact Statement/Management Plan for the proposed Flower Garden Banks National Marine Sanctuary published.
1992	(January) Flower Garden Bank National Marine Sanctuary designated.

The Flower Garden Banks in the Gulf of Mexico were first proposed as a Marine Sanctuary in 1977. In 1979 the site was made an Active Candidate for designation as a Marine Sanctuary as a result of concerns over escalating oil and gas development, and damage arising from vessel anchoring in the region. As a result of the amelioration of perceived threats from industry activity (due to proposed fisheries management arrangements)⁵³, the site was withdrawn from consideration in 1982 (NOAA 1995a). In 1984 after severe anchor damage caused by an industry vessel was documented, the site was again raised to Active Candidacy. It was not until January 1992 however, that the Flower Garden Banks NMS was finally designated.

The designation of the Flower Garden Banks as a National Marine Sanctuary is intended to provide an 'integrated' program of resource protection, research and interpretation to assist in the long-term management of the region's resources (Department of Commerce 1991). The Management Plan for the region contains a number of regulations prohibiting anchoring, oil and gas exploration and development, and a number of other exploitative and potentially degrading activities (NOAA 1995a).

Flower Garden Banks National Marine Sanctuary: An Analysis

The Flower Garden Banks NMS lies beyond US territorial waters and within the 200 n. mile boundary of the EEZ. As such, *national* sovereignty and jurisdiction of the Sanctuary is certain, however protection of the sanctuary waters has required careful consideration of both national and international rights and interests. The *Marine Protection, Reserve and Sanctuaries Act* authorises the regulation of activities within a marine sanctuary to protect nationally significant 'human-use values'. Yet the implementation of these powers occurs with considerable discretion to program managers. While authority over US citizens and US flagged vessels is sure, the extension of authority to foreign vessels and citizens in the region is uncertain (Archer 1988).⁵⁴ Nevertheless, NOAA has attempted to devise regulations in accordance with international legal principles, and at the same time has applied regulations, including prohibitions, to foreign flagged vessels and citizens (Department of Commerce 1991).

A number of boundaries for the Flower Garden Banks NMS were proposed during the planning stages of the Sanctuary. A comprehensive Sanctuary boundary encompassing the East and West Flower Garden Banks was avoided in favour of a smaller Sanctuary divided into two separate portions. Management of the Sanctuary has been assisted by minerals interests operating in the region through the contribution of staff and funding for research efforts, in a 'stewardship' role with Sanctuary managers (Galasso 1994). Ehler and Basta (1993: 7) argue that the Flower Garden Banks NMS is therefore an example of how 'commercial and environmental needs can converge on a marine area'. Oil and gas development are specifically prohibited in the Sanctuary under the Flower Garden Bank NMS Management Plan (Department of Commerce 1991). The Minerals Management Service (Department of the Interior) has also declared a zone of no activity around the Flower Garden Banks which correlates to the Marine Sanctuary boundary. However directional oil drilling has proceeded in the *land underneath sanctuary waters* with no objection from NOAA (Ostrom pers. comm 1995), and 24 companies are currently involved in drilling adjacent to the Flower Garden Banks NMS.

⁵³ In 1982, the Flower Garden Banks was withdrawn from consideration as a Marine Sanctuary in part because a proposed Gulf of Mexico Coral Fishery Management Plan (prepared under the US *Fishery Conservation and Management Act*) would regulate vessel anchoring in the region. The final Coral Fishery Management Plan did not however, include regulations applicable to anchoring (Archer 1988).

⁵⁴ The coral resources of the Flower Garden Banks are protected under US federal law, however regulations prohibiting anchoring by foreign vessels potentially interferes with international provisions for freedom of navigation under the United Nations Convention on the Law of the Sea.

The administrative framework for managing the Sanctuary recognises the need for cooperation and coordination in all aspects of resource protection, research, interpretation, and administration. Cooperative State, federal, industry and interest group partnerships have been established for fundraising, education, research and monitoring of the Flower Garden Banks. Community participation in decision-making occurs primarily through a Sanctuary Advisory Group and the Sanctuary is supported by the Flower Gardens Fund. Community support for the Sanctuary has generally been high, though planning, designation, and management processes have mostly been driven by the federal and State governments. Given the absence of cross-governmental responsibilities in the region, the opportunity for conflict and overlap is significantly reduced and as a result the Sanctuary has been considered a 'success story' by many (Knecht pers. comm 1995).

Major accomplishments of the Sanctuary have included the installation of mooring buoys and the development of a long-term monitoring program. Ongoing and extensive monitoring supported by the financial resources and technical expertise of mineral interests in the region, has occurred for around 20 years in the Flower Garden Bank region showing continuing health of the reef system. Ken Sherman suggests that there is little conflict of interest in industry sponsorship of the monitoring program, as a number of scientific checks, including peer review, the local presence of NOAA scientific bases, as well as a number of privately funded scientific studies have validated monitoring results (Sherman pers. comm 1995).

The Flower Garden Banks NMS has been developed on grounds of integrated management, though the region is very small and it demonstrates few characteristics of integration in a practical sense. Nevertheless the Sanctuary provides an important example of the coordination of environmental and development interests, as well as the exercise of national policy over the EEZ beyond territorial waters. Despite controversy over the impact of the Sanctuary on the rights and access of foreign vessels and persons in the region, the United States has asserted its powers to protect marine resources within its ocean jurisdiction. This has bolstered the enforcement and regulatory regime for the region and has established a research program focused on management related issues. A further achievement of the Sanctuary has been the promotion and strengthening of public awareness of the Flower Garden Banks, and a widespread acknowledgment of the need for long-term, comprehensive marine management frameworks (Department of Commerce 1991; Ehler & Basta 1993).

Table 24. Flower Garden Banks National Marine Sanctuary Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	No	No	
holistic focus	Yes	Partially	National/international considerations; small-scale, divided Sanctuary
broad, transparent, collaborative decision-making	Yes	Yes	
top-down <i>and</i> bottom-up considerations	No	No	Largely government driven planning, designation, and management processes
commitment to planning and implementation	Yes	Partially	Delays in designation and development of management arrangements
strategic planning and management	No	No	
coordination and harmonisation	Yes	Partially	Coordinating mechanisms and advisory bodies established; coordination with international law and policy sought; little coordination with adjacent activity objectives
problem solving/dispute resolution	No	No	
action oriented planning and management	Yes	Yes	Strong research program focused on management considerations
monitoring, evaluation and review	Yes	Yes	Long-term monitoring program in operation

6.3.4 National Estuary Program (1987)

Prompted by public alarm over beach closures, dying and contaminated marine fauna and flora, and a sense of deteriorating coastal environments, the United States National Estuary Program (NEP) was established in 1987 under the auspices of the *National Clean Water Act* (United States Environmental Protection Agency 1998). The Program is structured on the basis of partnerships between and within levels of governments, and between governments and affected communities in the management of estuarine areas (Poole 1996). In 1996 there were 28 estuaries involved in this national coastal management effort, though many were still in the planning phase whereby Management Plans were being drafted.

Similar to the Coastal Zone Management Program, the NEP is a voluntary program operated at the State level. It is administered by the US Environmental Protection Agency (through the Office of Wetlands, Oceans and Watersheds) which provides technical and financial assistance, management guidance and organisation for State and local authorities responsible for implementing Program policy. Once selected for inclusion in the national Program, individual Estuary Programs are responsible for creating decision-making teams made up of relevant stakeholders. Most Estuary Programs choose a management framework that includes a Management Committee to oversee routine operation of the Program, a Policy Committee comprising Federal, State and local government representatives, a Technical Advisory Committee to guide technical decisions, and a Citizens Advisory Committee to represent the interests of estuary user-groups and the public.

Individual 'Comprehensive Conservation and Management Plans' are required to be developed for each site. The goal of a Comprehensive Conservation and Management Plan (CCMP) is to meet particular needs and problems of a specific area, while at the same time meeting national Program requirements. This includes public participation in setting priorities, planning and implementation of an action plan, integration of available regulatory tools, methods and techniques for restoration and protection of habitats, and time-tables for implementation.

In order to become part of the NEP, an estuary must be nominated by the governors of the State which will undertake responsibility for the implementation of management within the area. Only those estuaries which are considered to be 'nationally significant', and whose managing authorities demonstrate that there are sufficient resources to comprehensively manage the area, qualify for inclusion in the Program. Federal assistance under the Program is then only provided if the problems experienced are of sufficient scale, and if the Management Plan strives towards better ecosystem health while involving all levels of government and all interested parties (Poole 1996). Five years after an estuary has been included within the NEP, a Comprehensive Conservation and Management Plan has to be submitted by the participating States for approval by the EPA administrator. On final approval, funds may be allocated by the EPA to assist in the implementation phase.

National Estuary Program: An Analysis

The US EPA is very proud of its National Estuary Program: 'what began as a demonstration of an alternative to traditional command-and-control regulatory approaches to water quality problems has evolved into a model for integrated, watershed-based, stakeholder oriented, water resource management' (United States Environmental Protection Agency 1998). Stephen Olsen, director of the Coastal Resources Centre at the University of Rhode Island, believes that the 'tangible progress' of the NEP makes it one of the best efforts at integrated management in the USA (Olsen pers. comm 1995).

Individual Estuary Programs within the NEP all differ in their degree of jurisdictional complexity, and few transcend both State and federal waters. The management approach for each Estuary Program is guided by flexible federal standards and an ecosystem perspective whereby interactions between ecosystem components (including humans) are taken into account. Management arrangements are also required to involve all interested parties in decision making. The NEP aims to bring communities together to establish working relationships and trust, based on the belief that long-term success is dependent on solutions being 'owned' by participants who have a stake in achieving them. For some estuaries this has entailed cooperative management at a regional level (between two or more States). All estuaries within the program, however, are characterised by a primarily 'bottom-up' approach to solving environmental problems in conjunction with State and federal agencies (Anon 1997): while federal funds are available for planning, State and local governments are responsible for development and implementation of CEMPs.

The NEP is widely considered to be a well designed management program and a 'community based resource management that achieves results' (United States Environmental Protection Agency 1998). A workshop convened in 1997 to identify key issues and exchange information on the NEP⁵⁵ found that the Program is a successful model of consensus-based and collaborative decision-making. Critical to the success of the Program has been commitment and support from the government and non-government sectors alike, and coordination at all levels of government. The

⁵⁵ The National Estuary Program Key Management Issues Workshop was held in San Francisco during 26 - 28 February 1997. The Workshop was co-sponsored by the Environmental Protection Agency and the Association of National Estuary Programs, and was attended by over 125 representatives from the local National Estuary programs and the EPA.

transition from plan development to implementation, however has been difficult and often absent (Cicin-Sain, Uravitch pers. comm 1995). There is a need for uniform standards, new indicators, and uniform measures of habitat loss in order to be able to determine the program's success and to better define program boundaries. There is a need for additional funds to allow better enforcement of environmental regulations, and education initiatives require improvement and augmentation (Anon 1997). Furthermore, the EPA, as the governing body of the NEP, has no legislative 'teeth' or capacity for regulation or implementation and while the CEMP operates as a vehicle for problem identification, plans do not automatically become State policy. Federal assistance covers preparation and planning, but it is not available for implementation. There has also been an absence of effective implementation measures to put CEMPs in operation once they have been developed.

There is a direct relationship between the NEP and the National Marine Sanctuary Program (see Section 6.3.3). Both are similarly structured and strive for similar goals, though this has been rarely acknowledged in practice. A meeting conducted during March 1998 marked for the first time that NEP representatives and other coastal program managers (from initiatives such as the NERR System, the National Marine Sanctuary Program, and the Coastal Zone Management Program) had come together to explore opportunities for coordination between the Programs. The meeting also marked the beginning of dialogue between the Programs, and sharing of information and expertise on common issues.

Despite limitations in terms of policy implementation, the NEP has been successful in terms of establishing a regional, coordinated approach to environmental protection and management. The Program structure is dynamic and flexible, and management plans have the capacity to be responsive to local contexts within the framework of national objectives. As an integrated management program, however, the NEP is limited - the focus is not multi-sectoral but primarily conservation oriented, and objectives have not been met in practice.

Table 25. National Estuary Program Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Partially	Partially	Focus on environmental considerations
holistic focus	Yes	Yes	Commitment to regional management; ecosystem perspective
broad, transparent, collaborative decision-making	Yes	Yes	Strong participatory decision-making processes
top-down and bottom-up considerations	Yes	Yes	Government driven objectives; bottom-up implementation
commitment to planning and implementation	Yes	Partially	Many sites designated but few Management Plans have been developed; insufficient financial support for implementation
strategic planning and management	No	No	
coordination and harmonisation	Yes	Partially	Coordination between coastal and ocean management programs only just beginning
problem solving/dispute resolution	Yes	Yes	Partnership objectives
action oriented planning and management	Partially	No	No standards and outdated indicators
monitoring, evaluation and review	No	No	Poor implementation capability, and lack of means for review

6.4 INTERNATIONAL INITIATIVES

6.4.1 The Agreement on Conservation of the Marine Environment of the Gulf of Maine (1989)

Maritime boundary disputes between Canada and the US have occurred on all three coasts but the greatest conflict has occurred over the Gulf of Maine (Chircop, VanderZwaag et al. 1995). It was not until 1984 that a World Court decision finally resolved Canada - US boundary disputes on the east coast. Following the World Court decision the Governors and Premiers of the US States and Canadian provinces bordering the Gulf of Maine, convened a conference of over 300 participants to discuss cooperation in order to sustain biological productivity in the region. The conference concluded with the signing of an *Agreement on Conservation of the Marine Environment of the Gulf of Maine* in an attempt to restore and maintain the health and benefits of the resources of Gulf of Maine. The Agreement confirmed the establishment of the Gulf of Maine Council on the Marine Environment, and charged the Council with developing a Gulf of Maine Action Plan.

Box 25. The Agreement on the Conservation of the Environment of the Gulf of Maine Sequence of Events

1984	Resolution by the World Court of the Canada - US boundary dispute on the east coast.
1989	(Nov) <i>Gulf of Maine: Sustaining our Common Heritage</i> published and conference held; (Dec) The Agreement on Conservation of the Marine Environment of the Gulf of Maine signed, creating the Gulf of Maine Council on the Marine Environment.
1990	Gulf of Maine Council met for the first time in Halifax, Nova Scotia, and the Council committee structure was established; The Gulf of Maine Regional Marine Research Program created by the US Congress; The Regional Marine Research Board, comprised of representatives from the three US States formed and began work on a comprehensive regional marine research plan for the Gulf; The Environmental Impacts of Finfish Aquaculture workshop held in New Brunswick.
1991	An international scientific workshop, Natural Variability in the Gulf of Maine, took place at Woods Hole, MA, sponsored by the Gulf of Maine Council, and steps were subsequently taken by scientists to form the Regional Association for Research on the Gulf of Maine (RARGOM) as a joint US - Canada association; The Gulf of Maine Council began implementation of the first regional Marine Environmental Quality Monitoring Plan the pilot study, and as a first step the pilot study, Gulfwatch was created; (June) <i>The Gulf of Maine Action Plan 1991- 2000</i> completed; (July) <i>The Gulf of Maine Action Plan 1991- 2000</i> adopted.
1992	A regional meeting of educators and communicators hosted by the Gulf of Maine Council formulated several public awareness projects and encouraged the activities of the Gulf of Maine Council's Public Education and Participation Committee; Environment Canada and the Gulf of Maine Council hosted a workshop for federal agencies to enlist their assistance in the implementation of the Action Plan.
1993	An application to the US EPA requesting recognition of the Gulf of Maine as a National Estuary denied; The Gulf of Maine Data and Information Management workshop held; The Gulf of Maine Habitat Identification Project begins supported by the US Fish and Wildlife Service, private organisations and public agencies; The Gulf of Maine Council approached members of the US Congress with a request for federal recognition of the Gulf of Maine Agreement and Council; The Regional Marine Research Board, the Regional Association for Research in the Gulf of Maine, and the Gulf of Maine Council on the Marine Environment signed a collaborative Agreement establishing a working relationship among all three organisations.
1994	The Gulf of Maine Pollutant Inventory completed its first phase; Second <i>Gulf of Maine - Sustaining Our Common Heritage</i> conference and review convened.
1996	(June) Council and Working Group meet to finalise 5-year Action Plan and to develop an annual Work Plan.

The Gulf of Maine Council on the Marine Environment is not a regulatory body, and has no independent authority. It is supported by a Secretariat, a Working Group and committees, and its function is to operate as a coordinating and planning organisation. The Council's mandate is to encourage the coordination of existing programs, to oversee joint collaborative efforts, and to act upon environmental issues of common concern including (but not limited to) protection and conservation of the ecological balance of the Gulf of Maine ecosystem (Cicin-Sain 1995). The Council comprises two government and one non-government representative from each of the five States and Provinces bordering the region.

The Gulf of Maine Council completed a *Gulf of Maine Action Plan 1991 - 2000* in 1991 after 18 months of research and negotiation. The Plan details activities which the five participating States and Provinces agree to take in order to prevent degradation of the Gulf of Maine. A Working Group, composed of State, Provincial, and federal representatives, assists the Gulf of Maine Council in implementing the Action Plan, and actually performs much of the Council's work. The Working Group monitors program implementation, conducts strategic planning, manages the day-to-day operations, as well as financial issues. The Working Group is also charged with the development of Protocols called for by the *Agreement on Conservation of the Marine Environment in the Gulf of Maine*. Similar to the Agreement, the Protocols are designed as statements of principle or policy with actions to be determined at a later time. Program activities are initiated and implemented by specialised committees composed of bureaucrats from the Provinces and States, individuals from the private sector, and interest groups with expertise in appropriate areas.

*The Agreement on the Conservation of the Environment of the Gulf of Maine:
An Analysis*

The Gulf of Maine Agreement and the Action Plan have been described as 'embryonic' (McCay pers. comm 1995) and 'small "first steps" rather than a fully fleshed and mature regional regime for developing and managing the marine environment' (Chircop, VanderZwaag et al. 1995: 330). However, the Gulf of Maine Environmental Management Program is also considered to be 'a real attempt to do something in an integrated, large-scale ecosystem fashion' (McCay pers. comm 1995), and as such, the first attempt at a broad environmental protection regime in North America (Chircop, VanderZwaag et al. 1995).

The Gulf of Maine Action Plan was developed on the premise that the boundaries defining the Gulf of Maine are natural rather than political - that the ecological complexity of the ocean environment in the region demands an equally complex and coordinated management response from the political units bordering the Gulf. The Program is however not entirely comprehensive in its management scope since it has 'avoided' a number of issues (such as fisheries and shipping) which may have potentially proven disruptive to cooperation (Côté, Fay pers. comm 1995). Brad Fay, Assistant Director of the Policy and Standards Department of the Nova Scotia Department of Municipal Affairs, believes however, that the non-inclusive nature of the program should not be seen as a failure since many other legislative means exist for dealing with them (Fay pers. comm 1995).

The Gulf of Maine Agreement and Action Plan are not limited to the coverage of marine waters but embrace coastal areas and watersheds within an ecosystem management approach (Gulf of Maine Council on the Marine Environment 1991). Some success of the program has been noted in terms of addressing 'upland/marine interactions' (Truscott pers. comm 1995). A Protocol on Coastal Zone Management developed by the Working Group further recognises that jurisdictions need to adopt 'integrated coastal zone management', however implementation details are weak.

The Gulf of Maine Council on the Marine Environment initially formed as an inter-governmental body only, and has since grown to include representatives of business and industry. Regional collaborative efforts have also drawn in members from advocacy and environmental organisations, scientific and academic communities, and many other non-government individuals and groups concerned with the health of the region. In response to concerns that the Council is only a 'vehicle for State, Provincial, and federal environmental agencies to collaborate on environmental issues in the Gulf' (Anon 1997), a Gulf of Maine Alliance formed in 1994 in an attempt to marshal grassroots support for regional actions. The Alliance also acts as a convenor and facilitator of information exchange, mediation, and sharing of technical expertise within the non-government sector. Since its formation, the Alliance has had some success in working in collaboration with the Gulf of Maine Council (Meltzer pers. comm 1995).⁵⁶

The Gulf of Maine Council on the Marine Environment is one of the first international organisations to circumvent the national government and initiate a management program within the sub-national units of government (Hershman 1996). The US States and Canadian Provinces take a lead in regional organisation, and there has been a real attempt to involve communities in decision-making, implementation and monitoring processes, as well as to involve non-government organisations in planning and management. Decision making is characterised by informality and consensus and most often takes place at a technical, rather than a political, level.

Management arrangements for the Gulf of Maine are not regulatory, but 'because they are generally reached on the basis of consensus and decision-making is a participatory process, the outcome tends to be agreements of a morally binding nature' (Chircop, VanderZwaag et al. 1995: 328). In this way, the Action Plan attempts to foster consensus and coordination. No treaties or international agreements authorise interactions between the participating sub-national levels of government, and the Agreement does not formally involve the Federal governments from either the USA or Canada.⁵⁷ Impetus, therefore, to cooperate within the framework of the Gulf of Maine Agreement rests entirely on political and moral will (Chircop, VanderZwaag et al. 1995). There is a reluctance (and no perceived need) to enter 'the political abyss' by formalising management arrangements (Bellfontaine pers. comm 1995), and indeed, the informal nature of the Program has been attributed to its success (Fay pers. comm 1995).

Implementation of the 10 year Action Plan for the Gulf of Maine has focused on the promotion of environmental quality and sustainable resource use. Notable efforts of the Gulf of Maine Environment Program to date include data and information management, a shell-fish monitoring program for tracking changes in marine environmental quality, and a report on long-term economic prospects for the Gulf of Maine. Financing of the Program has however been problematic given the absence of formal agreements and the absence of financial arrangements between the US and Canada. Both financial and in-kind support has been provided by all jurisdictions and participants, but this has not been sufficient for longer-term program development, or for activities where departmental based funding is inappropriate (Chircop, VanderZwaag et al. 1995). Given the scant availability of funds, the critical need for improved inter-agency and international cooperation and coordination has been highlighted by a number of commentators and practitioners alike.⁵⁸

⁵⁶ See also Anon 1997.

⁵⁷ Formal cooperation between the national governments over marine environmental protection in the Gulf of Maine region has been limited to contingency planning arrangements (Chircop, VanderZwaag et al. 1995).

⁵⁸ See, for example, Pearce undated.

Coordination and complementarity between existing management arrangements has been sought. The UNEP Regional Seas Program and existing water body management efforts in the US and Canada were used as examples when devising the structure of the Gulf of Maine Action Plan. The Gulf of Maine Coastal and Estuary Project is a partner in the implementation of the habitat protection objectives of the Gulf of Maine Action Plan, and the East Coast of North America Strategic Assessment Project (see Box 7.) is undertaking studies in the Gulf of Maine region focusing on providing information on living resources within the region. The Atlantic Coastal Action Program (see Section 5.3.2) also oversees five program sites in the Bay of Fundy. The partnership has been criticised as not 'organised to resolve disputes' (Anon 1997), however, and coordination between wider regional initiatives and the Gulf of Maine Agreement remains to be addressed (Chircop, VanderZwaag et al. 1995: 331).

The agencies and departments represented on the Gulf of Maine Council have outlined specific activities in the areas of marine and coastal pollution, monitoring and research, habitat protection, protection of public health, and public education. Monitoring of the status, trends and sources of risk to the marine environment of the Gulf is part of the mandate of the Council, and to this end they created the pilot study, *Gulfwatch*, in 1991. However, while some standards exist for local projects, no firm regional environmental standards have yet been developed or agreed to. Furthermore, the Gulf of Maine Council has been viewed as 'behind the times' in not keeping up to date with developments in other regional seas agreements or with other international environmental management principles (VanderZwaag pers. comm 1995).⁵⁹ Despite these concerns, the Gulf of Maine Agreement on the Environment has promoted a degree of cross-jurisdictional cooperation in the region, and has resulted in documented environmental benefits to all participating States and Provinces.

Table 26. The Agreement on the Conservation of the Environment of the Gulf of Maine Summary of Analysis

Evaluation criteria	Criterion met - objectives?	Criterion met - outcomes?	Comments
multi-sectoral	Yes	Partially	Some uses and activities excluded from consideration
holistic focus	Yes	Yes	Multi-jurisdictional; ecosystem management approach; land-sea linkages acknowledged
broad, transparent, collaborative decision-making	Yes	Yes	Ongoing comprehensive stakeholder participation sought
top-down and bottom-up considerations	Partially	Partially	Little federal government involvement; sub-regional government with a lead in lead decision-making
commitment to planning and implementation	Partially	Partially	No binding agreement; lack of funding for implementation
strategic planning and management	Yes	Partially	Implementation strategy is weak
coordination and harmonisation	Yes	Partially	Some coordination with existing programs pursued; lack of regional coordination
problem solving/dispute resolution	Yes	Partially	Focus on fostering consensus and cooperation; lack of formal dispute resolution mechanisms
action oriented planning and management	Partially	Partially	Some local standards, no regional standards set
monitoring, evaluation and review	Partially	Partially	Action plan viewed as 'behind the times'

⁵⁹ See also Chircop, VanderZwaag et al. 1995.

6.5 SUMMARY

Similar to Australia and Canada, differences in history, culture, patterns of resource use and geography across the nation have significantly influenced marine environmental management efforts in the United States. Unlike Australia and Canada, however, responses towards maritime concerns in the US have been shaped by interplay between constitutionally and legally enshrined rights and freedoms, a culture of litigation, international political dominance, a large population and in some areas, chronic marine ecosystem degradation and pollution. There is no single federal agency in charge of coordinating marine management policy and law, and as yet, no comprehensive federal law or policy unifying marine management programs. Marine policy is fragmented and dispersed over several government departments, and although there has been concerted attempt at establishing marine management goals at the federal level (through the *CZMA* for example), they have fallen short of providing a framework for the coordination of federal, State or even regional activities which may affect the marine environment. Furthermore, despite a proliferation of rules, standards, programs and agencies throughout the US government system all with marine management obligations, most have reflected a *sectoral* approach to environmental management, which has in turn made it difficult to coordinate policies or to treat marine ecosystems holistically.

Following the approval of the *CZMA* in 1972, the US approach to marine management has been one of collaboration between the federal and State governments with an emphasis on State driven policy and planning. State coastal programs have historically concerned themselves with the management of terrestrial issues in and around the coastal fringe. However a number of US States are now expanding the geographical and issue scope of their management programs, taking into account ocean environments beyond State limits. As States become increasingly involved in ocean management there is potential that they will seek to exert their control more strongly within the context of the EEZ. The United States is consequently facing the challenge of having to overcome differences and overlaps in regional approaches towards management of the ocean area.

Environmental non-government organisations (ENGOS) have played a major role in lobbying, education and raising awareness over marine environmental concerns in the United States. Local action groups such as the Florida Keys Reef Relief and the Conch Coalition have had some influence in marine management arrangements at the local level. However national organisations such as the Sierra Club, Audubon Society, National Resources Defense Council and the national chapters of the IUCN and WWF have had little to do with the development of marine management policy on a broader scale.

Despite significant achievements in the context of marine management, and important developments in terms of inter-governmental collaboration and consistency, serious problems in the implementation of integration objectives in the United States may be identified. This is particularly the case in terms of inter-sectoral integration at the national level, where, apart from isolated initiatives such as Coastal America, conflicts among government departments and interest groups are exacerbated by an absence of coordinating mechanisms or agreements.

Chapter 7.

COMPARATIVE ANALYSIS OF CASE EXPERIENCE

7.1 INTRODUCTION

Experience analysed in the previous three chapters shows that integrated management is not a rigid set of rules, and that there are many factors which affect the nature and scope of integrated marine management initiatives. Vast differences in history, climate, culture, patterns of resource use and geography within each of the three countries, for example, may be seen to have significantly influenced outlook on government inspired management efforts and general management strategies. Yet while each case study thus presents a unique experience in the development and operation of integrated management, a number of common lessons can be identified from practice.

In order to evaluate the application of integrated marine management (IMM) across a range of contexts, this Thesis has focused on broad experience rather than in-depth coverage of a small number of programs. In doing so this Thesis has sought to identify and highlight the most significant elements of integrated management in both theory and practice and to distil general conclusions regarding the feasibility of the process, particularly in the context of the EEZ. In this chapter, case studies of IMM within Australia, Canada and the USA presented in the previous three chapters are compared and contrasted. The basis of comparison are the ten criteria of integrated management identified in Chapter 1, namely:

- multi-sectoral planning and management;
- holistic focus;
- broad, transparent, and collaborative decision-making;
- 'top-down' and 'bottom-up' planning and management;
- commitment to planning and implementation;
- strategic planning and management;
- coordination and harmonisation;
- problem solving and dispute resolution;
- action oriented planning and management; and
- provision for monitoring, evaluation and review.

Lessons from the application of integrated management principles in the federal EEZ are identified, and the triggers and nature of IMM approaches are summarised. Conclusions and recommendations following from this comparative analysis are provided in the next chapter.

7.1.1 Multi-sectoral Planning and Management

While the term 'integrated' is frequently used in relation to the *combined* management of two or more sectors such as fisheries and tourism, *integrated management* implies the *consolidation* of uses and activities together with the consequences of those uses across multiple sectors. Integrated management does not imply unqualified comprehensiveness, however. Rather it refers to the inclusion of all *relevant* concerns and sectors in decision-making.

Of the case evidence examined, all have intended multi-sectoral management, and most have achieved this in management outcomes. Even within the Marine Park/Marine Reserve systems of Australia, Canada and the United States, there appears to be an emphasis on 'multiple use' management rather than strict conservation. Indeed, the Marine Park/Marine Reserve systems examined are better described as 'marine managed areas' in so far as marine environmental protection is but one of a series of management objectives. This move towards large managed areas which incorporate the activities and interests of a diversity of users provides some basis of experience for the integrated management of the entire EEZ. In a number of the cases examined however, certain *relevant* economic sectors (particularly petroleum exploration and mining, and often fisheries) have not been included in decision-making processes. This has occurred both as a result of these interests being entirely prohibited from the region under consideration (such as the Florida Keys), as well as because of the separation of these sectors from management considerations (Ningaloo Reef Marine Park for example). The success of some programs has been attributed to the exclusion of certain sectoral interests (the prohibition of mining within the Great Barrier Reef for instance). However in many other cases, unresolved relationships with some economic sectors has led to delays in planning and management arrangements at the very least, and ongoing conflict at worst (for example, the Ningaloo Marine Park, the Canadian system of National Marine Conservation Areas, and the US Coastal Zone Management Program). This has significant implications for the management of the EEZ where conflicts are most frequently likely to occur between major economic interests such as fisheries, oil and gas development, and shipping. The future of integrated management will depend on the extent to which pertinent and affected sectoral interests are involved in decision making processes. Multi-sectoral planning and management is a key factor in IMM and the exclusion of certain sectoral interests (though potentially affording less scope for conflict) has the potential to weaken ultimate management outcomes.

There have been a number of efforts to develop a classification of ocean and coastal uses as a basis for management arrangements.¹ Some have focused on the 'wet side' of the coast, emphasising ocean based uses, while others have been more concerned with terrestrial activities. Few embrace non-consumptive uses, and all are primarily defined in terms of sectoral activity. This presents a significant hurdle when considering management of cross-sectoral issues and non sector-specific problems. Thus a classification of marine management *issues* (as distinct from sectors) would provide a more useful framework for conceptualising approaches to management problems in the marine environment.

7.1.2 Holistic Focus

The term 'holistic' implies that the whole is greater than the sum of the parts; that is, that the management of sectoral activities in union will result in greater overall benefits than pursuing individual sectoral management programs in isolation. Of the case evidence examined, all have intended holistic planning and management, and most have achieved this within their outcomes to a greater or lesser degree. Nevertheless holistic planning and management considerations have generally been translated as *ecosystem* or *multiple-use* management, and a number of constraints to the concept may be identified in practice. In the case of the Great Barrier Reef for example, upstream and downstream ecosystems linkages, and comprehensive conservation considerations are widely discussed within the literature.² Operationally, however, management of the Great Barrier Reef is largely based on a system of self-contained elements in the form of separate zoning plans so that little consideration is given to management of the region as a whole.

¹ See, for example, Sorensen & McCreary 1990; Hawai'i Ocean and Marine Resources Council 1991, Pernetta & Elder 1993; and Cicin-Sain & Knecht 1998.

² See Kenchington 1992.

In many cases there is a clear division between coastal and ocean concerns, whereby different government agencies, legislation, policy and funding is directed towards different management programs. The focus of marine management programs in general, however, remains predominantly on the coastal zone - where problems are perceived to be the greatest (or the most pressing), and where issues are considered the most tractable (DFO 1998d). Many US and Canadian marine management programs, for instance, have been developed as part of State or Provincial land-use planning programs (for example, the Marine Protected Areas Program for the Pacific Coast, and the Hawai'i Coastal and Ocean Management Program). While this has been valuable in promoting the link between land-use and the health of nearshore environments, it has limited coastal management to terrestrially based concerns. The DFO has stated that the focus of integrated management within the *Canada Oceans Act* will be on the coast until a functioning Integrated Coastal Zone Management model is established, at which time the focus will turn to integrated *oceans* management. While the coastal zone is defined very broadly within the *Canada Oceans Act*,³ the 'zone of influence' of coastal concerns is nevertheless anticipated by the Act not to be beyond the territorial sea limit.

Despite a number of constraints, the emphasis on multiple use management in the marine context provides some basis of experience for the IMM of the EEZ as a whole. Precedent for holistic, and multi-sectoral management has been established with programs such as US National Marine Sanctuary Program and the Australian Great Barrier Reef Marine Park, and the legislative basis for comprehensive management is being developed through such initiatives as the *Canada Oceans Act* and the proposed Australian Oceans Policy.

7.1.3 Broad, Transparent, Collaborative Decision-making

Participatory, collaborative decision-making is seen as an essential element to the integrated management process as 'the essential issues of marine conservation...cannot be addressed without coordination, consideration of the interests of, and involvement of users' (Kenchington 1991: 53). That is, 'without public and user commitment to the process and outcomes, marine and maritime management strategy will probably fail' (Kenchington 1991: 53). Since integrated management is a process that has the capacity to challenge the status quo, broad-scale support is arguably even more necessary than for conventional management approaches. Participatory mechanisms within IMM may therefore be seen to be largely directed towards coopting public support for integrated management regimes, or as Nelkin (1982: 88) sees it, towards creating 'informed consent'. Participatory decision-making therefore, is one source of legitimacy within the IMM process. As a procedure however, it has occasionally been criticised as inefficient and obstructive: concerns have been raised that too great an access to information and policy formulation has the potential to generate greater public concern, increased conflict and reduced efficiency, while there has been no guarantee that all who have got involved in participatory processes will benefit from the outcomes.⁴

Of the case studies examined, all have intended participatory decision-making processes and most have achieved this in management outcomes. Participation and collaboration between interests have been found by most programs as appropriate and desirable methods to enhance accountability within IMM initiatives. Transparent and open decision-making procedures have been used by some programs to ensure that planning processes are not confined within a single agency or specific sectoral interest. Indeed, initiatives which have sought credibility and legitimacy through participatory processes are found to be some of the most enduring and successful (for example, the

³ The *Canada Oceans Act* defines the coast as the area extending from the boundary of coastal watersheds to the seaward limit of the zone of influence of land-based activities (DFO undated).

⁴ See, for example, Nelkin 1982; and Chua & Scura 1992.

National Marine Sanctuary Program, ACAP, NEP, the Great Barrier Reef Marine Park). Given the case evidence, however, there appears to be a widely held assumption that integrated management refers to collaborative planning processes almost exclusively.⁵

There are a number of reasons why integrated management initiatives have to this point been focused on participatory management approaches. First, anticipatory decision-making is an established, tested method: there is a substantial body of literature and experience on which to draw and participatory decision making has been part of conventional management arrangements for a number of years. Second, the way integrated management has been defined has also had much to do with a focus on broad-based decision-making. 'Stakeholder participation', for example, is one the most common (and specific) elements stated within definitions of integrated management.⁶ Aspects of comprehensiveness and coordination within the context of IMM, furthermore, have often been interpreted in terms of comprehensive and coordinated involvement of user groups and interests. Third, and perhaps most significantly, in some instances IMM *relies* on participatory involvement in planning and management processes to both identify priorities and issues as well as to undertake implementation. The US National Estuary Program (NEP), for example, depends to a large degree on voluntary participation and action of users and interested parties.

With declines in government funding, volunteer involvement in marine management programs is increasingly being pursued. Certain initiatives have been established largely as a means to harness and coordinate volunteer efforts in marine environmental management, and for generating external funding (for example, the NEP, ACAP, and the Florida Keys National Marine Sanctuary Program). It has been found in some cases that while potentially more costly in the short-term due to extensive analysis and planning requirements, IMM can be substantially more cost-effective in the long-term if independent momentum and community commitment to the initiative can be fostered (the NEP for instance). Nevertheless, success with participatory involvement has resulted in concern that the expectations of communities will be raised, but that these expectations will not necessarily be met with results. 'Volunteer burnout' has also become an issue in some established programs (ACAP for instance). Furthermore, public participation processes are costly, and can take many years to complete. Development of zoning plans for a section of the Great Barrier Reef Marine Park, for example, (from initial preparation until allowance of the plan by the Parliament) is a process that takes a number of years (Kenchington 1992). This time and cost can promote scepticism about the efficiency and effectiveness of integrated management programs and isolate those who are unable to commit themselves to participation for the full duration of planning processes.⁷

Maintaining involvement for implementation and ongoing revision of management objectives presents further problems. Objectives and circumstances change and it may be found that a management plan developed with a certain set of objectives at the outset is out of date at its completion. Objectives and management approaches can be updated and revised, but as consultation processes tend to be lengthy as well as costly, management plans have the potential to be forever *reacting* to, rather than *anticipating* circumstances in marine areas.

⁵ Causey (pers. comm 1995), for example, argues that 'public participation is what integrated management is all about'.

⁶ For example, see House of Representatives Standing Committee on Environment and Conservation 1980; World Bank 1992b; Bower, Ehler et al. 1994; and GESAMP 1996.

⁷ See, for example, Coastal Community News 1997.

Participatory decision-making is emphasised in most of the case studies examined. However not *all* stakeholders are always incorporated in decision-making processes: sometimes they have been forgotten or ignored⁸, and other times they have been deliberately excluded from management processes.⁹ Difficulties in maintaining stakeholder involvement and the incorporation of all views and interested parties in decision-making has also been found to be a problem in some cases. This concern has prompted the Oregon Coastal Management Program, for example, to experiment with new ways of garnering meaningful public input. They have used the internet as a forum for contributing opinion and information. While not replacing State and federal obligations for accessible and meaningful opportunities to participate in decision-making, using the internet as a policy development tool raises interesting questions as to the definition of 'stakeholders', 'interested parties', and/or 'community involvement'. As this initiative was only advertised on 15/5/1998 (Netcoast discussion group), the outcome is not available for comment.

In many of the initiatives examined, there is little provision for scientists and managers to work together, or for management related questions to be posed in such a way that can be answered by science.¹⁰ Science and management have different perspectives and imperatives, and approach the solution of problems in different ways - management requires standards, targets and goals on which action can be taken, often in the face of scientific uncertainty (GESAMP 1996). Science in itself is not decision-making, nor is it technology for the implementation of management strategy. Rather, science provides a database on which decisions may be based: 'information is not the only thing that makes for good environmental management - it is how the information is used that is important' (Kenchington pers. comm 1994). The challenge therefore, is to obtain the best information from which management decisions can be made.

7.1.4 'Top-down' and 'Bottom-up' Planning and Management

This analysis demonstrates that IMM does not require all issues and functions to be allocated to a single level of government or to one administration approach. Instead it suggests that issues and functions should be allocated to the scale closest to the interests influenced by the marine management activity; that is, the regional level where issues are broadly *marine* (ACAP, NEP for example), or the national level where *ocean* issues predominate (such as the *Canada Oceans Act*, and the proposed Australian Oceans Policy). However evidence also suggests there is no demonstrated preference for top-down or bottom-up management arrangements. Both methods are employed though the degree of top-down versus bottom-up involvement may change.

The extent of autonomy of sub-national levels of government and the nature of their power with respect to the national government is one significant factor in determining how marine management programs have been developed and pursued. The legal and actual powers of sub-national governments has been a large factor in determining whether marine management initiatives have proceeded mainly at the national, sub-national, or local levels, or an approach involving two or more levels. Australia, for example, has not seen the same degree of federally imposed environmental mandates on State governments as there has been in the United States (Kellow 1996). Neither does Australia demonstrate the same degree of local government involvement in inter-governmental arenas for environmental policy making as is the case in the United States or Canada. Program structures within the cases examined range from centralised, multiple function (top-down) initiatives (such as the *Canada Oceans Act*,

⁸ For example, the involvement of indigenous peoples in participatory processes is not emphasised as often in Australia or the USA, as is the case in Canada where there is a strong focus on First Nation peoples' rights and cultural heritage considerations in management decisions.

⁹ For example, major economic interests, particularly fisheries, and petroleum exploration and mining, are often found to be absent from negotiation processes.

¹⁰ For more on this issue refer to GESAMP 1996.

the Great Barrier Reef Marine Park, and the proposed Australian Oceans Policy), to decentralised (bottom-up) initiatives (for example, ACAP, aspects of the Coasts and Clean Seas Initiative, and the NEP). In most of the cases examined, a shifting *balance* between top-down and bottom-up planning and management has occurred, both in terms of individual programs themselves (such as ACAP), as well as within the national context. For example, in the United States during the 1970s, major pieces of legislation were passed by the United States Congress, including the *Clean Water Act*, and the *Coastal Zone Management Act*. Implementation of this legislation was pursued through the creation of federal agencies such as the Environmental Protection Agency and NOAA, inevitably leading to a top-down approach to management. Over subsequent decades however, expertise to support marine resource management has slowly become available at the local level. As a consequence there are now a number of examples where environmental problems are being defined and solved by local stakeholders and managers, in conjunction with State and federal agencies, in a largely bottom-up approach (the NEP for instance).

7.1.5 Commitment to Planning and Implementation

Integrated marine management ultimately depends upon the willingness of participants to make it happen. There are few explicit or direct incentives for integration and if administrative arrangements are to facilitate IMM, they require political credibility and legitimacy through commitment, in conjunction with structures, powers and resources to make it work. Case evidence demonstrates, however, that in this respect, IMM is facing challenges at both informal and formal levels.

At the *informal* level, commitment to IMM has mostly been strong. Interest groups, for example, have had significant influence in triggering integrated management (such as within the Great Barrier Reef Marine Park, the Florida Keys National Marine Sanctuary, and the proposed Marine Protected Areas System for BC). Interest group *involvement* in integrated management processes in the cases examined has also generally been high. Experience suggests, nevertheless, that many decision-makers are unaccustomed to think beyond narrow objectives in terms of issue-linkages and comprehensive strategy. This has presented significant problems in the design and application of IMM initiatives, even where integrated management objectives have been embraced. IMM also faces hurdles from some development sectors where there is fear that introduction of the process will entail a major compromise to their economic interests (for example, within the Great Australian Bight Marine Park, and the Canadian National Marine Conservation Areas). Indeed it may be argued that some well established and powerful groups have a demonstrated a vested interest in maintaining the development of policies and programs on a sector-by-sector basis.

At the formal level, as discussed in Chapter 3, integrated management has achieved international political legitimacy through such mechanisms as Agenda 21, and the United Nations Convention on Biological Diversity. Widespread formal commitment to IMM at the national level is demonstrated by a growing number of *policy* tools in Australia, Canada and the United States which have been developed on integrated management principles. Nevertheless, evidence suggests that in some cases ongoing political commitment at the level of *management* has been fickle, leading to disrupted development and implementation of initiatives (such as Coastal 2000), conflict and ambiguity (for example, the NMCA program), and a loss of 'institutional memory' (the California Coastal Zone program). In some cases, the legislative basis for integrated management has inhibited its development, not from a *lack* of legislation, but rather from a lack of *appropriate* legislation designed to deal with interdependent problems, or poor implementation of legislation and policy already in place. Principles of integrated management for example, have been incorporated within the objectives of case studies analysed. However few are found to have achieved integrated management in practice. In some cases, there has been a demonstrated lack of political will to fulfil commitment to IMM as a result of concerns over political accord (such as within the Great Barrier Reef Marine Park). In many cases, the completion of a

management system or plan has been perceived as an end point rather than a beginning, at which time political, community and financial commitment to ongoing management has lapsed. With some initiatives (such as the Great Barrier Reef Marine Park, and ACAP) the very success of the program in generating non-government support has in part lead to cuts in government support and funding. Furthermore, the establishment of a *formal political* constituency for IMM may be seen to have been adversely influenced in some cases, by concerns over potential changes to departmental powers and responsibilities (the Hawai'i Coastal and Ocean Management Program, and the proposed United States Oceans Act for example). Thus, finding a way to *maintain* involvement of interest groups and to secure dedicated funding and support is one of the greatest challenges facing most IMM programs.

An absence of funding for some initiatives must not, however, always be interpreted as a lack of commitment to the program. In a number of cases examined, for example, IMM programs have been deliberately established as largely *cost-saving* coordinative measures with the aim of improving the efficiency and effectiveness of efforts already in place (such as Coastal 2000, and the Gulf of Maine Agreement on the Environment). As a result, few additional resources are directed towards the functioning of these programs, though initiatives such as the Gulf of Maine Agreement on the Environment demonstrate strong in-kind support from both non-government and government levels.

Kelleher (1993: 15) argues that:

it can be safely concluded that...integration and consequent benefits are unlikely to occur anywhere in the absence of an agency with the explicit functions of achieving integrated planning and management and ecologically sustainable development of a complete ecosystem.

Examples such as the *Canada Oceans Act*, ACAP, and the Great Barrier Reef Marine Park) demonstrate that commitment to integration is substantially assisted where pertinent agencies and responsibilities relative to integrated objectives are specified. However most IMM programs remain hindered by jurisdictional confusion and ambiguous departmental responsibilities.

7.1.6 Strategic Planning and Management

Action towards achieving environmental goals is constrained by the inherent variability of the natural environment. This natural variability is a consequence of both regular and stochastic processes operating in the physical and biological domains. Successful environmental management therefore depends on an understanding of systemic time scales on which natural processes and resources operate. Yet human environments and political systems operate on very different time scales and this creates significant problems when attempting to reconcile long-term management requirements with shorter-term socio-economic needs.

The case studies generally demonstrate a poor formal framework or even recognition of strategic planning and management. Cumbersome administrative structures, unclear functions and ambiguous authority, combined with competing sectoral goals, and political rivalry, have often lead to programs which are observed to lack strategic direction (for example, the Canadian NMCA's, Ningaloo Marine Park). In addition, uncertain, political and/or financial commitment to IMM initiatives has hampered the development of strategic approaches to planning and management. Case evidence suggests that the establishment of strategic planning processes strongly correlates to a strong constituency and long-term commitment to program implementation (see for example, the Great Barrier Reef Marine Park Authority, ACAP). Given that fickle political and poor financial support characterises most of the case evidence examined, strategic planning and management is one of the least acknowledged elements of IMM within marine management initiatives.

7.1.7 Coordination and Harmonisation

Coordination is a concept that forms a major component to integrated management. Coordination is also a term that is sometimes used synonymously with integration, though there is more to integration than just coordination. Kenchington and Crawford (1993: 111) have introduced some clarity to the distinction between integration and coordination suggesting that an integrated system is a complete and unified system composed of subordinate parts. A coordinated system in contrast, involves generally independent equivalent components working to a common purpose.

In such large and administratively complex countries as Australia, Canada and the USA, federalism allows a diversity which can respond to broadly different issues and circumstances (Haward 1996). However, the fragmentation of federal division of powers has been widely criticised where coordination has become problematic; that is where harmonisation of policy and effort *between and within* (that is, horizontal and vertical coordination) levels of government has become necessary. Nevertheless, given that the costs of a fragmented system can arguably be offset by the benefits that diversity provides (see Section 2.3), the problem may be seen as not so much the nature of a federal system itself, but the nature of *coordination* within the federal system. As Lowry, Jarman et al. (1990: 251) argue:

continued fragmentation of responsibility among several government entities has led to the inevitable complaints of inefficiency and to the frustration that follows. Centralisation of authority in an ocean agency or cabinet office is frequently touted as the solution to the lack of coordination and fragmentation of authority. However the lack of coordination is perhaps better understood as a manifestation of a lack of consistent policy direction.

Planning frameworks, policy developments and regional programs have tended to evolve in Canada, Australia and the United States in a national policy vacuum without structure or coordination, and links between initiatives are only slowly beginning to be defined. It is apparent that sub-national policy objectives for marine management can be in conflict with the policy objectives at the federal level and sometimes with adjacent sub-national governments. Marine management issues tend to be cross-sectoral and complex in nature, reflecting a diversity of problems which can have consequences for a wide range of interests and users. Yet the conventional response of governments has most often been to assign marine management issues to administrative organisations insufficiently equipped to deal with them. That is, while the problems have multiple and interdependent causes, most organisations responsible for their management tend to be independent, narrowly focused, and fragmented. Consequently prevailing administrative and legal arrangements for integration of marine policy and management effort remain poorly developed, and though most of the case studies examined strive towards coordination of management policy and effort, few are found to have achieved this in practice. With passage of the *Canada Oceans Act*, development of the Australian Oceans Policy and the proposed US *Oceans Act*, for example, commitment to a national policy framework involving coordination at a national scale has been demonstrated. The *Canada Oceans Act* in particular has legitimised the concept of integrated management at the federal level and is structured on the basis of coordination of analogous government roles and responsibilities. However, formal coordinative arrangements and processes are yet to be established and while the *Canada Oceans Act* has achieved a certain degree of coordination of *policy* within one federal department, there has been less consideration given to the coordination of marine *management* at the federal level.

Despite an absence of *national* planning frameworks in all three countries, a number of successful IMM initiatives have nevertheless sprung up at the *regional* level (ACAP for instance). There are also notable IMM programs involving international partners within Canada and the United States (for example, the Gulf of Maine Agreement on the Environment, and the BC/WA Environmental Cooperation Agreement). The success of these regional IMM initiatives would suggest that providing adequate resources to inter-governmental arrangements is one of the first steps in the development of integrated management.

7.1.8 Problem Solving and Dispute Resolution

There are at least two main types of conflicts with regards marine management: conflicts between users, and conflicts among government bodies with overlapping responsibilities. To a lesser degree, disputes between users and governments occurs where interests conflict. Given the multi-sectoral nature of IMM, situations where conflict is unable to be resolved by participating parties will inevitably arise, and in any case, integration requires problem solving in terms of weighing interests and setting priorities. Despite a considerable proportion of the coastal and ocean management literature being concerned with means to resolve conflict, in practice however, conflict management is one of the least developed of integrated management criteria found within the case studies.

Consultation processes are often regarded as the primary means by which problem-solving occurs, though a number of initiatives cite 'prevention' as a far more successful tool than 'cure' (the Great Barrier Reef Marine Park, the National Marine Sanctuary Program and the National Marine Conservation Area program for example). In a number of cases, conflict is actively *avoided* by relocating management programs, excluding conflicting interests from the implications of management, and/or not seeking to significantly modify existing uses or management arrangements. As case evidence demonstrates, however, conflict can not always be avoided and means of dispute resolution are inevitably essential.

In the United States the courts have an important role in conflict management and arbitration. In Australia and Canada, political and bureaucratic groups tend to be used more as a focus for bargaining and negotiating associated with decision-making. The case studies indicate, however, that it is *informal* strategies which have emerged as an important factor in problem solving, though they are rarely recognised either in the literature or in practice. Evidence suggests that social contact and informal networks which exist between people in different departments or sectors can often determine whether a management system will operate well. Where staff are unaccustomed to, and inexperienced in dealing with the need for comprehensive strategy and broadly focused objectives, inter-departmental communication, and problem-solving can be severely hampered. Thus, the skills of individuals and the relationships they form with other players tends to be just as critical to problem-solving and dispute-resolution, as formal mechanisms for arbitration and conflict management.

7.1.9 Action Oriented Planning and Management

Ecologically sustainable development is a dynamic system of balance towards which management is aimed. IMM is an equally dynamic system of principles by which this balance might be approached. Since neither concept forms an end within itself, it becomes imperative to define goals, objectives or some kind of performance standards in order to determine the effectiveness of the management system employed. Analysis suggests, however, that very few initiatives demonstrate a commitment to or operation of an *action* oriented approach to planning and management. The term 'implementation' is often used to refer to the beginning of planning efforts or the initiation of data collection and scoping. The term is rarely used to refer to fully

operational, *ongoing* planning, management, and evaluation, and as a result, in many cases there has been a greater focus on devising appropriate *process* without the same consideration given to *practice*. The environment movement in Australia, for example has tended to call for greater federal powers with respect to environmental management, but in doing so neglects the fact that a significant problem is not a lack of power but the *application* of powers that the Commonwealth already has.

One example that stands out in its action oriented approach to management is ACAP. Not only does ACAP pursue integrated management objectives, but it goes on to detail how these objectives might be achieved in practice. Unlike other initiatives, ACAP, without setting rigid rules, specifies practical methods for planning and management, and it is these management approaches which have ultimately been attributed to the Program's success.

7.1.10 Monitoring, Evaluation, and Review

Changes in circumstances do occur and marine management systems should be capable of responding to them without requiring major reorganisation. A number of the cases analysed have evolved and developed by 'trial by error' (such as the Great Barrier Reef Marine Park, ACAP, and National Marine Conservation Areas). Very few of the case studies examined however, demonstrate a commitment to or operation of monitoring, evaluation and review of planning and management arrangements. Even fewer programs incorporate environmental and social impact assessment, which can encourage decision-makers to systematically address externalities in management arrangements, as an integral part of the planning process.

There are inherent difficulties in evaluating IMM programs, not least due to the comparatively short time-frame in which many have been operating. Few incentives exist to perform evaluation: a negative evaluation could mean the loss of resources or power, and those involved in the program, whether stakeholders, decision-makers, or financial supporters, tend to prefer some kind of action rather than none. Cicin-Sain and Knecht (1998: 295) suggest that those responsible for management programs may go so far as to *avoid* potentially damaging evaluations by employing such methods as adopting vague goals or goals that defy measurement, selecting indicators that measure effort rather than results, not responding to changing circumstances, or avoiding formal evaluation entirely.

As with other management approaches, IMM involves decision-making against a backdrop of uncertainty applying to ecological, economic, physical and technological conditions. This means that integrated management *has* to be cyclical process allowing for modification and review in light of changing knowledge and circumstances. Many evaluations that are conducted, however, are limited to a mid-term and/or final evaluation, and they tend to be undertaken by an internal reviewer funded by the authority under scrutiny. These evaluations are also often considered proprietary information and are rarely published.

Case studies show that the short-term economic costs of integrated management are often high due to extensive analysis and planning requirements. The potential *economic and environmental benefits* of integrated management in the long-term¹¹ however, may also be high due to a reduction in negative externalities.

¹¹ Long-term benefits have been assessed from the perspective of 10 - 15 year operation of integrated management initiatives; see, for example, OECD 1989; and IPCC 1994.

There is a critical need for monitoring and review mechanisms, as well as extensive empirical information to determine positive and negative consequences in time as well as the investments and operational costs of management strategies. Given the short time-frame of most IMM initiatives, however, it is almost impossible to currently determine the benefits of the process relative to sectoral management even where evaluation processes have been incorporated within management arrangements.

An important factor for the future of IMM in the EEZ will be assessment of the benefits of the process versus the administrative costs of establishing it. In advocating integrated management, governments have rarely considered the costs of achieving it: a framework of analysis allows for managers to assess alternative courses of action, and indeed to determine whether integrated management is an appropriate process for the circumstances. Determining the 'effectiveness' of integrated management is beyond the scope of this thesis which has instead examined the *feasibility* of the process on the basis of accepted criteria in the context of the marine environment. Nevertheless, evidence to date suggests that the costs of IMM are essentially associated with short-term administrative changes and that long-term socio-economic and environmental benefits warrant commitment to the principles and practice of integrated management (Jansen, Klein et al. 1993).

7.2 SUMMARY OF RESULTS

On the basis of ten criteria of integrated management, the objectives and outcomes of 17 case studies in Australia, Canada and the United States have been analysed in Chapters 4, 5 and 6. Results from this analysis show that of all the case studies examined, no marine initiative claiming to be integrated demonstrates *all* aspects of integrated management throughout its objectives *and* outcomes. The majority of case studies incorporate 7 or less integrated management criteria within their objectives, and 3 or less in outcomes. Australia, Canada, and the United States all endorse integrated management and all pursue IMM programs.

Of the case studies examined, *all* contain objectives towards multi-sectoral management, a holistic focus, and participatory planning and management processes, and many demonstrate these criteria within their management outcomes also. *Most* of the case studies examined strive towards commitment, as well as coordination of policy and management, though most have not yet achieved these objectives in practice. The integrated management criteria which are found to be most often absent from both objectives and outcomes are strategic planning and management, action oriented management, and means for monitoring, evaluation and review.

The Australian Great Barrier Reef Marine Park is a strong example of IMM, embracing all integrated management criteria with respect to management objectives (though not management outcomes). The Canadian Atlantic Coastal Action Program is the highest rating program in terms of its management outcomes, meeting 7 of the integrated management criteria in this respect and 9 in terms of management objectives. Other programs which pursue 8 or more integrated management criteria within their objectives are the Great Australian Bight Marine Park, the *Canada Oceans Act*, the BC/WA International Environmental Agreement, the California Ocean and Coastal Management Program and the Florida Keys National Marine Sanctuary. None of these initiatives however, demonstrate more than 6 of the 10 integrated management criteria within their management outcomes.

Given that a number of the cases examined remain under development, and that management objectives and outcomes are yet to be established, these results must not be considered conclusive. The *Canada Oceans Act* for example, incorporates 9 integrated management criteria within its objectives, but due to ongoing development of policy and implementation strategy, outcomes are yet to be determined. This

analysis highlights a significant problem in the translation of integrated management from policy to practice. All initiatives examined meet integrated management criteria less frequently (often far less frequently) in practice than in policy.

7.2.1 Triggers for Administrative Reform

There are few specific or direct incentives for IMM so that triggers for an integrated approach may often be found to be provided by an event which disturbs the status quo. It is therefore interesting to note the various factors which trigger or inhibit the pursuit of integration where management was previously left to a multiplicity of competing organisations. These triggers may act alone, but more often in combination, and influence the way in which administrative reform, and therefore IMM, is approached. Based on the case evidence, a summary of factors which have influenced reform towards IMM include the following.

Environmental crisis

A number of analysts suggest that crisis is the *most* important trigger factor for administrative reform, both from the sense that it is the most frequent, and the most influential cause.¹² That is, crises are said to create both the imperative for policy change and the political cohesion and constituency to accept change. Clark (1991) observes that this characteristic reflects the 'reality of society's myopia', but he also points out that it is a major factor contributing to the difficult implementation of integrated management programs given that short-term economic considerations will predominate over long-term sustainability concerns.

Depletion of marine resources has been a powerful trigger for administrative reform in Canada and the United States. Of the case studies examined, development of the *Canada Oceans Act*, for example, has been encouraged by escalating concerns over marine resource management, namely fisheries. The majority of the United States marine management initiatives examined including the Coastal Zone Management Program, the National Marine Sanctuary Program and Coastal America, have been largely triggered by serious concerns over environmental issues. The joint USA/Canada initiatives, the BC/WA Environmental Cooperation Agreement and the Gulf of Maine Agreement on the Environment have also arisen due to serious concern over the declining health and resources of shared marine waters. Australia, largely due to its much smaller population and lower levels of impact on the marine environment, has not faced environmental crisis as a trigger for change to the same degree. The Great Barrier Reef Marine Park is the only case study examined which has been triggered by major environmental concerns. In many ways, environmental politics in Australia has been delayed, but many of the issues now being tackled there are the same as those that the United States (and to some degree Canada) began to face earlier this century.

This analysis confirms that an environmental crisis (or serious concerns over the state of environmental resources and health), is a major trigger for change in administrative structures and process. It is not, however, the *only* trigger, and more often acts in combination with one or more other factors. This analysis also demonstrates however, that implementation is no more or less problematic in programs developed in response to an environmental crisis and that major (and far reaching) administrative reform has sometimes resulted from environmental concern (for example, the *Canada Oceans Act* and the Great Barrier Reef Marine Park).

¹² A number of authors, for example, suggest that it will be future ocean crises, natural catastrophes or broadscale resource conflict which will invoke serious consideration and implementation of integrated management (Juda & Burroughs 1990; Clark 1992; Sorensen 1993). See also OECD 1989; World Bank 1993; and Cicin-Sain & Knecht 1998.

Interest group pressure

In combination with other factors, particularly environmental concerns, interest group pressure has played a great part in triggering administrative reform in all three nations under examination. Media coverage can also be an important element in arousing public interest in particular issues. This study shows that interest group pressure has had most impact on the scope and design of marine park/marine sanctuary programs. Given serious concern over environmental degradation and pollution, environmental interest groups, for example, have played a major role in the designation of the Great Barrier Reef Marine Park by focusing political attention on the need for comprehensive management of the region. Prompted by similar concerns for the marine environment, ENGOs have also had a significant impact on management arrangements for the Florida Keys National Marine Sanctuary in the United States. Scientific interest in and concern for the unique characteristics of the Ningaloo Reef tract, sparked the eventual declaration of the Ningaloo Marine Park in Australia, and user groups in British Columbia are attributed with fostering momentum for the joint federal/Provincial Protected Areas Strategy for the Pacific Coast. By the same token, economic interests (particularly fisheries) in South Australia have had considerable influence in the planning and design of management arrangements in the Great Australian Bight Marine Park.

Developments in international/national environmental policy

Case analysis demonstrates that, in conjunction with domestic pressures, international environmental policy developments are a major factor in determining the nature and scope of national and regional policy in Australia and Canada.¹³ Australia, for example, is developing a National Oceans Policy in response to new opportunities and responsibilities conferred with ratification of the United Nations Law of the Sea Convention (LOSC). Motivated by relations with other countries (such as with regards to conflicts over fishing interests) in conjunction with ratification of the LOSC, Canada has also introduced a federal *Oceans Act*. Developments in domestic policy in turn, have had a significant impact on regional management initiatives, particularly in Canada (for example, ACAP, Coastal 2000, and the Protected Areas Strategy for BC).

Domestic policy within the United States is less influenced by developments at the international level.¹⁴ Uravitch (pers. comm 1995) suggests that the *international* environmental agenda is influential in the United States only to the extent that Congress 'deem principles to be important to the national interest'. Certainly *national* policy developments are almost exclusively identified as the trigger for marine environmental management initiatives in the USA (such as within the proposed *United States Oceans Act*, and the Coastal Zone Management Program).

The USA, though having discussed the concept of an oceans policy for many years, has only just begun to seriously develop a national approach towards management of the EEZ as a whole. The USA has introduced national legislation directed at management of certain marine issues and activities¹⁵, and has discussed the concept of Large Marine Ecosystems as a management substitute to comprehensive marine policy (Sherman, Alexander et al. 1993). In practice however, preparation of individual State government coastal and ocean policy constitutes the closest attempt at broader EEZ governance in the United States (the Oregon Ocean and Coastal Management Program, the Hawai'ian Ocean and Coastal Management Program, and the Agreement on

¹³ This view is also held by a number of analysts both within Australia and overseas (Ivanovici pers. comm 1994; and Hildebrand, VanderZwaag pers. comm 1995).

¹⁴ This conclusion is upheld by a number of analysts and practitioners alike in the United States (Cicin-Sain, Fischer, Friedheim, Kildow, Uravitch pers. comm 1995).

¹⁵ For example, the *Magnuson Fisheries Act*, *Marine Protection, Research and Sanctuaries Act*, and the *Marine Mammal Protection Act*.

Conservation of the Marine Environment of the Gulf of Maine for example). There has been speculation on reasons why the USA has been so slow to develop an oceans policy at the national level: the USA has failed to sign the LOSC for example, the ratification of which has been a major impetus in the development of an oceans policy in both Canada and Australia. Perhaps more significant however, is the apparent absence of a constituency for the development and implementation of national policy on ocean management. Given these issues, the future of the proposed US *Oceans Act* is difficult to predict.

Research results/ policy analysis

New data or research results, particularly on the effects of poor policy co-ordination is an important factor in triggering management reform. On the basis of the case studies examined, this factor is demonstrated to be significant in Canada and the USA. The Stratton Commission report (Commission on Marine Science Engineering and Resources 1969), for example, was the primary trigger for reform of State coastal and ocean management efforts within the Hawai'i Coastal and Ocean Management Program and is a basis for the development of the United States *Oceans Act*. In Canada, the report *Opportunities from our Oceans* (NABST 1994), is described as the foundation to the *Canada Oceans Act*. Research and policy analysis has had less direct impact on administrative reform in Australia. Though Australia has conducted a multitude of reviews, inquiries and analysis on the state of the marine environment and its management (see Appendix I), little direct action or policy has resulted from them.

Analysis of the case material demonstrates that programs which embrace integrated management criteria have been triggered by one or more of all the factors discussed above. That is, there is no one particular reason which appears to lead to efforts towards IMM though there are some very general trends which may be identified. There is some indication, for example, that the most 'integrated' of the marine management efforts examined have, to a significant degree, been triggered by major environmental concern. By the same token, it appears that with the exception of the *Canada Oceans Act*, those initiatives that have been triggered by a research results and policy analysis do not meet integrated management criteria to the same degree as programs triggered in other ways.

7.2.2 Approaches Towards Administrative Reform

Experience suggests that IMM programs have emerged either in the context of growing recognition of the inadequacy of conventional management systems, or in connection with management needs that require a more comprehensive and coordinated approach. Carroll (1988) argues that evidence of a widening gap between environmental degradation and 'band-aid' remedies is feeding rejection of conventional (sectoral) approaches to management. He suggests that such evidence also supports the idea that the system itself is the problem, and that what is required therefore is to embrace and accept a fundamental change in our philosophy of governance. Given that the perceived failures of sectoral management are essentially more political and institutional than ecological, the pursuit of IMM requires changes to philosophical, socio-economic, and institutional aspects of management. However it is important to note that not all programs incorporating principles of integrated management are implemented with this express purpose. Integrated management objectives may *evolve* as a result of a program designed to achieve more limited goals.¹⁶ Even where awareness of the inadequacies of sectoral management have been identified, modification of existing administrative arrangements have not necessarily resulted.

¹⁶ For example, the initially water quality focused Atlantic Coastal Action Program, and through interpretation of the federal United States *Coastal Zone Management Act* by the State of Oregon to embrace ocean management concerns.

While it is argued that none of the initiatives examined represent integrated management in practice, they nevertheless all seek to overcome in some way the limitations of narrowly focused management arrangements and policy. Most importantly, they have all been developed to encourage changes in human behaviour and all contain, or have been expressly developed on the basis of, integrated management objectives.

A number of authors have sought to distinguish approaches towards the integration of policy and management.¹⁷ The approaches most commonly described range between *direct* approaches through command and centralisation, and *indirect* approaches through training, institutional design, and decentralisation. Others have examined *proactive* versus *reactive* strategies (Jansen, Klein et al. 1993). These extremes are rejected however, because they do not explain more subtle intermediate type management frameworks which are found to *actually* exist, nor do they describe the evolutionary nature of IMM. Thus a categorisation is suggested below that acknowledges sectoral management as a basis for the development of IMM initiatives, and the largely incremental nature of IMM programs to date. Although the forces shaping integrated management programs are different in each nation, and indeed in every context, approaches taken towards IMM may be broadly classified in one of four main categories.

Improved implementation

Whereby the existing legislative framework is largely maintained and enforcement efforts are enhanced through a comprehensive and coordinative strategy. The Australian Coasts and Clean Seas Initiative, for example, has mostly repackaged existing programs, but is modifying some aspects and developing new policy in an attempt to improve implementation. The Canadian Coastal 2000, and proposed Protected Areas Strategy for BC aim towards improving the effectiveness and efficiency of existing programs by establishing an overview mechanism and a 'spirit of cooperation' in order to improve implementation. The international BC/WA Environmental Cooperation Agreement has been structured on similar lines, and in the United States, Coastal America was established on the need for better implementation of marine policy across government departments.

Transition strategy

Wherein tools such as capacity building, communication structures, partnerships, collaborative efforts are imposed on existing arrangements, though little structural change is introduced. Within the Great Australian Bight Marine Park and the Ningaloo Marine Park, for example, there have been few modifications to existing use patterns or administrative structures, though temporal and spatial zoning has been introduced as a tool to reconcile potentially conflicting uses and interests in the region. The Canadian system of National Marine Conservation Areas has likewise not influenced existing patterns of resource use to a large degree. The Hawai'i Coastal and Ocean Management Program is structured on sectoral considerations but attempts to introduce an integrative overview.

Mindset reform

in which processes such as long-term, participatory involvement, awareness raising and education concerning human impact on the environment influence fundamental changes in human behaviour and decision-making. The Great Barrier Reef Marine Park, for example, has made use of the concept of cooperative federalism and

¹⁷ See, for example, Underdal 1980; Miles 1992; and Boelaert-Suominen & Cullinan 1994.

cooperative responsibility towards marine environmental management. The Canadian Atlantic Coastal Action Program has likewise introduced a new approach towards the management of marine issues, putting cooperation and collaboration into practice through defined management arrangements. Though the US National Estuarine Research Reserve System and the National Estuary Program have little regulatory or legal powers, they are two initiatives which have been successful in promoting understanding and awareness of issues concerning the marine environment through establishing notions of stewardship.

Radical reform

Involving revolutionary type rearrangement of conventional, existing institutional and management structures, whereby authority and sanctions are reallocated and administrative boundaries are crossed. The *Canada Oceans Act*, for example, represents a major reform of government policy in Canada by centralising the majority of marine environmental management responsibilities within one federal government department. The US Oceans Act has similarly called for substantial reform of fragmented government powers though this has received much criticism and little support to date.

Analysis suggests that no particular approach has resulted in marine management initiatives which are more integrated than any other. There is some indication that those initiatives which rely on improved implementation alone as a trigger for management reform have not incorporated integrated management criteria to the same degree as initiatives structured in other ways. However it may be concluded from experience to date, that there is no one best way of approaching IMM. To the degree that integrated management is encouraging changes in human behaviour towards desired goals, the process is influencing the nature and scope of marine management programs.

7.3 SUMMARY

Of the IMM case studies examined, all of the criteria of integrated management are met to a greater or lesser degree within program objectives. There is a strong commitment to integrated management in terms of policy, but commitment to implementation of integrated management objectives is often found to be lacking. The Marine Reserve/Marine Park in Australia, Canada and the United States are among the most developed responses to IMM currently in operation. Integrated management *is* influencing the way management is thought about, the way environmental issues are perceived, and occasionally the way management structures have been developed to address environmental concerns. To this time, however, none of the case studies analysed incorporate *and* bring into use every element of the process. This has as much to do with entrenched patterns of behaviour as it does with disjunctional political, ecological, and economic realities.

PART III INTEGRATED MARINE MANAGEMENT: FUTURE DIRECTIONS

Chapter 8. CONCLUSIONS AND RECOMMENDATIONS

Introduction

There is widespread concern over the present and potential degradation of marine environments around the world. Consensus at the international and national levels supports the notion that marine resources and environments need to be managed in such a way that sectoral linkages and ecological interdependencies are recognised - that management needs to be *integrated* rather than sectoral. Such an approach has been endorsed by the United Nations Conference on Environment and Development, and is consistent with the goal of ecologically sustainable development.

Integrated management is most often described as pertaining to the narrow coastal fringe. However, given that many countries have claimed an EEZ, and given the management responsibilities that such a claim entails, integrated management of the marine environment beyond the coast is an important consideration. Yet despite a growing literature, the *feasibility* of integrated management has been largely unquestioned. In theory, integrated management provides a philosophical framework for addressing ongoing marine environmental degradation. In practice, however, the process has neither been rigorously assessed nor proven: the very complexity of the problems that integrated marine management has evolved to address are potentially the greatest barriers to its realisation.

Three aims were stated in the Introduction to this Thesis. These aims were to:

- identify integrated management as a concept and practice;
- assess the success of integrated management as a means of resolving complex marine issues; and
- to determine the feasibility of integrated management within the context of the Exclusive Economic Zone.

Based on these aims, this study first set out to identify what is integrated management; second, to assess practical examples of marine management initiatives claiming to be integrated; and third, to determine whether, and how, integrated marine management is in operation. Via analysis of a large number of case studies, an understanding of the outcomes of IMM has been sought in order to determine what the process holds for future marine management, particularly in the, as yet largely un-managed, EEZ.

Within this final chapter, a number of conclusions are drawn about the experience and prospects of IMM in the federal context. Comment is made on the future of IMM within the EEZ, and a number of elements critical to the future operation of integrated management are identified. Finally, this chapter incorporates a number of recommendations on the development, implementation and future strength of integrated marine management within the EEZ.

Integrated Marine Management as a Concept and Practice

The conventional approach towards the management of marine affairs has been to deal with individual problems and issues as they arise. However with growing competition for marine resources, increasing understanding of the nature and functioning of the marine environment, and with recognition of the interdependencies between marine issues, attention has turned to developing approaches for comprehensive planning and management.

The Law of the Sea Convention states that 'the problems of ocean species are closely inter-related and need to be considered as a whole'.¹ Thus the need for comprehensive management of the EEZ is implied though the Convention itself fails to take a holistic view of the marine environment. Agenda 21 extends the notion of a comprehensive marine management regime and clearly states that the ocean and management of its resources should be approached in an integrated manner. Yet Agenda 21 also fails to provide an integrative framework in that it remains fragmented and is structured largely as a series of sectoral programs.

Given the limited foundation provided by these international documents and the ongoing development of integrated marine management as a concept and practice in many parts of the world, the process of IMM is understood, and has been applied, in many different ways. Integrated management principles have been widely pursued for the management of coastal and occasionally ocean environments. Though there are demonstrated problems with the implementation of the process, an intensification of marine uses, a growing number of users, and thus an increasing potential for conflict have ensured that IMM has been a focus of marine management developments.

As a concept, integrated management provides a valuable philosophical framework based on harmonisation across political, geographical, sectoral and disciplinary boundaries. Management policy that is perfectly integrated from all points of view does not, and can not exist. However, integrated management is not about perfect comprehensive rationality. Instead it is more a means by which environmental problems may be assessed within a comprehensive perspective. As a concept integrated management is largely congruent with a systems analysis of environmental functioning, and it has therefore become widely accepted and advocated because it is seen to recognise the interconnected nature of the marine environment and marine management issues.

As a practice, integrated management is distinguished from sectoral management by its multi-sectoral perspective, its recognition of externalities, and its holistic focus. IMM implies (among other things) institutional coordination, policy harmonisation, broad-scale communication and cooperation, and long-term (financial and political) commitment. However, given the case evidence, the process faces a myriad of constraining factors. These include:

- lack of political constituency;
- single sector oriented bureaucracies,
- entrenched and competing interests and lack of priorities;
- unresolved jurisdictional complexity;
- poor availability and utilisation of information;
- lack of strategic overview in the management of marine environments;
- long term planning and management requirements; and
- inadequate financial commitment and lack of capacity.

¹ Law of the Sea Convention preamble.

Despite these constraints, analysis of the case evidence indicates that contemporary marine management programs are increasingly pursuing integrated management. Notions of comprehensiveness, multi-sectoral planning and management, and participatory decision-making have had significant impact on both the design and application of a number of initiatives in Australia, Canada and the United States. IMM initiatives tend to be directed by objectives which attempt to balance diverse interests, and planning arrangements which target broader *issues* (such as conservation, prevention of marine pollution, and scientific research and analysis) rather than separate sectoral activities. Nevertheless a great disparity may be identified between objectives and outcomes within case studies of IMM. That is, of the case studies analysed, many embrace principles of integrated management within their objectives, yet criteria of integrated management are not identified within management outcomes. Indeed, certain criteria such as action-oriented implementation strategy and performance standards are absent from many if not most IMM programs to date. Further constraints identified by this analysis which are associated with the *practice* of integrated management include:

- exclusion of some sectors or interest groups from decision-making processes;
- certain sectoral interests afforded priority decision-making powers;
- management arrangements structured on largely sectorally based ocean and coastal use models;
- poor linkages made between science and management; and
- lack of mechanisms for monitoring, evaluation and review.

Furthermore, integrated management criteria are *never* met by management outcomes if they are not contained within management objectives. That is, if the elements of integrated management are not established within program objectives, they do not emerge in practice. While this may be a somewhat obvious conclusion, it does highlight that integrated management will not just *happen*. For an integrated marine management initiative to be meaningful therefore, management *processes* must have a fundamental basis in integrated *objectives*.

Given fragmented institutional arrangements, entrenched interests and unresolved jurisdictional complexity among other things, this analysis indicates that the implementation of comprehensive, multiple-use management is extremely difficult. Single-sector oriented bureaucracies and a lack of political commitment are confounding many concerted attempts at IMM and are contributing to poor implementation of the process. It is nevertheless evident that maintenance of the status quo is sufficiently unacceptable that attention and effort are increasingly being directed towards IMM. Moreover, evidence demonstrates that integrated marine management is not *impossible*. The question therefore remains - is it worth it?

Review of Sectoral Versus Integrated Management

Sectoral management is defined by its policy scope and is therefore confined to one activity or 'sector'. Integrated management is also defined by its policy scope, and is distinguished by a multi-sectoral perspective. On the basis of General Systems Theory, sectoral management is fragmented and incremental in nature. In contrast, integrated management tends towards comprehensive rationality. Perfect rationality has not, and most probably can not, be attained by integrated management. Rather the concept of integrated management is intended more as a balance somewhere between comprehensive and incremental methodologies. That is, while the process itself is incremental, the outlook is comprehensive.

Marine management issues are widely contested as beyond the capacity of sectoral management to resolve due to its:

- problems overcoming ad hoc planning and management strategies;
- inability to resolve conflict;
- inability to deal with cross-sectoral issues;
- inability to overcome the separation of government units with environmental protection responsibilities; and
- lack of practical implementation of sustainable development policies.

Given the reality of federal political parochialism and ongoing constraints to IMM, there is good argument to redirect resources away from developing new, comprehensive, integrated management strategies to what might well be the more manageable task of *improving* existing sectoral management in an incremental and strategic way. Counter to this argument however, is that certain *aspects* of IMM have been pursued with some success in resolving the perceived inadequacies of sectoral management. Case studies have demonstrated, to a greater or lesser degree, that integrated marine management has a capacity to:

- deal with cross-linked and multi-sectoral issues;
- provide a common framework of principles and management objectives;
- promote communication, coordination and collaboration between different levels of governance; and
- to promote innovative problem solving.

As often with sectoral management however, integrated management encounters serious problems in establishing a long-term strategic approach to management as well as in implementation and review. While evidence suggests therefore, that IMM is a potentially feasible management option for resolving complex issues in the marine environment, it is apparent that IMM is yet to broadly influence practical management *outcomes*. Integrated management is nevertheless an evolutionary process, and long-term perspectives are central to the concept. Furthermore, integrated management is mostly not intended, and has not been applied, as a *replacement* for sectoral management. Rather, the concept of integrated management has been introduced as a means to embrace diverse sectoral interests within a holistic perspective so that they may function more effectively as a whole than as the sum of isolated sectoral parts. Perfectly integrated policy and management is neither required nor practically viable. Instead, a more politically and administratively realistic option is to explore *steps* toward a more integrated marine management regime.

Integrated Marine Management of the EEZ

Having established that IMM is a potentially feasible management option, the question of the applicability of integrated management within the broader EEZ must be examined. The notion of an integrated approach to planning and management has emerged as having two distinct geographical components: the coastal area and the ocean area. The design and implementation of marine management programs has accentuated this division in many cases, being targeted either for coastal *or* ocean areas separately. To date, the narrow coastal fringe remains the target of the majority of marine management initiatives, and there are few, if any, programs focused purely on *ocean* management concerns. The reasons behind this vary but may in large part be attributed to historic practice as well as the common perception that either ocean management is 'too hard' (and therefore that easier problems closer to home should be tackled first), and/or that there are too few pressing ocean management issues to warrant allocation of funding and resources to the development of new ocean management arrangements.

Ocean management issues have conventionally been within the purview of national government departments. Coastal management in contrast, has evolved from a focus on the terrestrial side of the land-sea interface, and has therefore tended to be within the responsibility of the State/Provincial and local levels of government. As awareness of the complexity and nature of marine issues grows however, understanding of the 'coast' has broadened conceptually to include consideration of numerous cross-linkages including cross-geographical, cross-jurisdictional, and multi-sectoral concerns. Increased use of coasts *and* oceans furthermore, and increasing levels of marine environmental degradation over recent decades, has presented a considerable challenge to the divided coastal-ocean system of management. As a result an increasing number of *coastal* management programs are extending their focus both inland and out to sea, incorporating in some cases a significant *ocean* component. In this way, a growing understanding of the fundamentally interconnected nature of the marine environment may be seen to be influencing a trend towards more broadly focused coastal and ocean - or *marine* - environmental management.

This analysis demonstrates that there is a significant difference between the application of integrated marine *policy* and *management*. The predominance of national interests in regulating ocean resources implies that ocean *policy* should occur first and foremost at the national level. Given that *management* of the EEZ is more than the regulation of ocean resources, however, IMM requires the development of comprehensive, coordinated and dynamic policy *and* management linkages between all levels of government, from the international level, to the national, sub-national and local levels. While coordinated, comprehensive type marine management has been attempted since the introduction of US *Coastal Zone Management Act* in 1972, it has largely evolved in the absence of a formal policy framework. Integrated marine policy has only very recently been tackled in Australia, Canada and the United States, and remains under development in all three countries.

The Marine Park/Marine Reserve systems of Australia, Canada and the USA demonstrate (to date) the best *operational* (though by no means perfect) examples of IMM. The National Marine Sanctuaries Program of the United States, the National Marine Reserve System of Canada, and the Great Barrier Reef, Great Australian Bight and Ningaloo Marine Parks of Australia are mostly multi-sectoral: they attempt comprehensive management, and they have incorporated mechanisms for addressing cross-linkages. They have also, in a number of different ways, sought to reconcile diverse interests and activities by balancing environmental interests with development interests. Consequently they are not strictly conservation focused 'marine protected areas'. Instead, they constitute what may be seen as 'marine managed areas'. In this way the Marine Reserve/Marine Park programs of Australia, Canada and the USA represent small-scale prototypes of integrated management of the EEZ. By conceptualising the EEZ as a large 'marine managed area'² within which a range of issues affecting the health and sustainability of the marine environment must be resolved, future application of IMM within the EEZ may build on the precedent established by multiple-use management schemes.

Several efforts have been made to develop a classification of marine uses and their interactions, both amongst the academic literature and as part of management programs themselves.³ Though these classifications have been constructed on the basis of formulating strategy for comprehensive management, they are most often defined in terms of sectoral activity. As such, they confirm entrenched constraints to integrated management by impeding consideration of cross-sectoral issues and non-sector-specific problems. In order to advance consideration of cross-sectoral issues therefore, and to devise truly *integrated* management action, an *issue*-specific (rather than sector-specific) classification of marine uses would be more useful. A possible classification is given in Box 26.

² Thus, extending notions of EEZ management proposed by both Craik 1994 and Olsen 1995.

³ For example, Sorensen & McCreary 1990; Hawai'i Ocean and Marine Resources Council 1991; Pernetta & Elder 1993; and Cicin-Sain & Knecht 1998

Box 26. Marine Issue Classification	
<i>Integrated issue area</i>	<i>Possible components of integrated issue area</i>
Resource Exploitation & Exploration	Fisheries/ by-catch Aquaculture/ Mariculture Mineral and energy resources Renewable energy resources Biological resources Whale watching Water supply Agriculture Tourism and recreation, Potential (future)resources and uses
Industry and Development	Coastal infrastructure development/ Beach replenishment Ports and harbours - port development Reclamation of coastal waters Shipping - transportation, navigation Mitigation of coastal hazards Air transportation Protection structures, groynes/shark nets Sea pipelines, cables, communications Urban development/settlement Property rights and access
Pollution and Waste Management	Land-based sources of pollution Air-sourced marine pollution Waste disposal and pollution prevention Sewage disposal Dredging - dumping of dredged materials Contingency planning - oil spills
Environmental Protection/Conservation	Marine protected areas Protection of cultural resources Environmental quality protection Introduction of alien species Beach and shoreline management Climate change/Ozone depletion Natural area and protection systems Erosion control
Security	Surveillance and military activities Strategy and defence Enforcement of national ocean zones Resource protection and management Special areas - exercise areas, test ranges
Scientific Research and Analysis	Archaeology Study of human uses and impacts Global circulation systems and patterns Coastal & ocean processes & evolution Monitoring - base line data gathering

Given a classification of this nature, environmental policy may be devised in terms of *issues* such as Ecologically Sustainable Development, Marine Science and Technology, and Biodiversity, rather than *sectors*. Sectoral management will always form a vital component within the context of integrated policy, given that specialised, formal regulatory arrangements for specific activities will always be necessary. However, there is a critical need to move beyond narrow sectoral perceptions of marine management if sectoral linkages and ecosystem functioning are to be acknowledged. This approach to policy development within the EEZ is not entirely new. Cross-sectoral policy development has been initiated in all three nations⁴, however it has occurred in the absence of a over-arching policy framework and has most often been structured on the basis of sectoral considerations. These foundations to integrated policy should be harmonised, reassessed from the perspective of cross-sectoral concerns, and strengthened as the foundation to consistent, integrated marine management.

The Future of Integrated Marine Management

Australia, Canada and the United States are three federal nations addressing similar challenges in the management of three of the largest marine jurisdictions in the world. They all widely embrace the concept of integrated management, and have all made concerted attempts at developing marine policy and management programs based on the principles of integrated management. Yet despite these similarities, there are a number of differences which have had considerable influence on the nature of marine management initiatives adopted by each nation and on the operation of these programs. There are a number of explanations for these differences including constitutional and institutional arrangements, patterns of resource use, history, population, and the political priorities of each nation.

This analysis highlights that there are a range of implementation methods and means towards integrated marine management, that there is no unique design for IMM, and that it would be fruitless to define one. However, given the case studies examined by this thesis, it is possible to pinpoint common features which characterise successful IMM initiatives, and which may be seen to guide steps towards the future application of integrated management in the EEZ.

⁴Particularly in Australia, for example, a number of policy documents targeting broad-based issue aspects have been devised, such as the National Strategy for Ecologically Sustainable Development (Commonwealth of Australia 1992a), the National Water Quality Guidelines (ANZECC 1992), the National Biodiversity Strategy (Commonwealth of Australia 1996), and the proposed Marine Industry, Science and Technology Plan (Australian Marine Industries Council 1997).

Features essential to the future application of integrated marine management within the EEZ include the following.

1. A clear vision statement on which to focus planning and implementation, and a consistent set of policy principles on which to base decision making (established with regards to available knowledge on the special character of the marine environment).
2. Adequate and assured resources for (developing and improving) implementation tools and arrangements; political support to integrate management processes.
3. Open and transparent decision-making processes in which interest groups can meet on a 'level playing field'.
4. A 'two track' management approach involving input from the non-government level (bottom up) linked with, and supported by, input from the government level (top down).
5. Long- and short-term management objectives which tie local and regional considerations with national and international policy goals.
6. Incorporation of formal and informal means for coordination and harmonisation of coastal and ocean management objectives, different levels of government, users, and interest groups within the integrated management process.
7. Ongoing training and skill development for staff and participants.
8. A learning process in which ongoing completion of planning processes allows modification and adaptation to changing knowledge, environmental conditions and improved technologies.

Marine environmental conservation is no longer a sectoral concern or an issue that can be delegated to a category separate from other management issues. Integrated marine management offers one means of balancing marine conservation considerations with development interests in pursuit of ecologically sustainable development. Integrated marine management provides a philosophy of governance focused on the 'big picture', on the complex and interconnected interactions between sectoral uses and users, and on the resolution of sectoral interests operating in the marine environment. Better implementation of sectoral management policy and regulation might preclude the need for alternative (integrated) management arrangements. However integrated management does not *replace* single-sector management. Instead, it provides a systems view of marine ecological and economic systems that sectoral management is not able to do. Therefore rather than a prescriptive set of guidelines, integrated marine management offers a perspective, a vision, a way of thinking that is radically different from sectoral management. As a concept and practice, integrated management has the capacity to influence the way managers, decision-makers and practitioners think and operate. Indeed, evidence suggests that integrated marine management offers a feasible, if not essential method of approaching environmental management of the EEZ.

PERSONAL COMMUNICATIONS

Allen, Scott *Associate Director, Law of the Sea Institute, Honolulu, 1995*
Bailey, Robert *Ocean Program Coordinator, Ocean Policy Advisory Council, Oregon, 1995*
Baird, Brian *California Ocean Program Manager, Resources Agency, California, 1995*
Baird, Sam *Strategic Policy & Cabinet Liaison, Department of Fisheries and Oceans, Ottawa, 1995*
Ballard, Rick *Commercial Fisheries Association, Florida, 1995*
Basta, Daniel *Strategic Environmental Assessments Division, NOAA, Washington DC, 1995, 1996*
Beatley, Timothy *University of Virginia, Department of Urban & Environmental Planning, 1995*
Beaton, Wally *Communications Officer, National Round Table on the Environment and Economy, Ottawa, 1995*
Bellfontaine, Neil *Regional Director-General, Scotia-Fundy Region, Department of Fisheries and Oceans, 1995*
Benoit, Jeffrey *Director, Office of Ocean and Coastal Resource Management, NOAA, 1995*
Bewers, Mike *Bedford Institute of Oceanography, Physical & Chemical Sciences Branch, Dartmouth Nova Scotia, 1995*
Biddle, Joel *Reef Relief, Key West, Florida, 1995*
Bleakley, Chris *Special Projects Officer, Great Barrier Reef Marine Park Authority, Canberra, 1995*
Boydston, L.B. *Acting Chief, Marine Resources Division, Department of Fish and Game, California Resources Agency, 1995*
Brady, Amanda *Ecosystem Objectives Specialist, Environment Canada, Ottawa, 1995*
Brown, Joanna *Policy Analyst, Nova Scotia Department of the Environment, Halifax, 1998*
Burgess, Steve *Chief, Policy & Program Development, DFO, Ottawa, 1995*
Butler, Mike *Director, Coastal Information, Oceans Institute of Canada, Halifax, 1995*
Causey, Billy *Sanctuary Superintendent, Florida Keys National Marine Sanctuary, Marathon, 1995*
Chevis, Hugh *Department of Conservation and Land Management, Western Australia, 1994*
Chircop, Aldo *Coordinator, University of Dalhousie, Marine Affairs Program, Halifax, 1995*
Cohen, Fay *Dalhousie University, School for Resource and Environmental Studies, 1995*
Crickard, Fred *Naval Officers Association, Ottawa, 1995*
Cicin-Sain, Biliana *University of Delaware, Graduate College of Marine Studies, 1995*
Clark, John *University of Miami, Rosenstiel School of Marine and Atmospheric Science, 1995, 1996*
Comfort, Mary-Jean *Department of Fisheries and Oceans, Ottawa, 1995*
Côté, Ray *School of Resource and Environmental Studies, Dalhousie University, 1995*
Craik, Wendy *Executive Officer, Great Barrier Reef Marine Park Authority, Townsville, 1994*
Davidson, Ed *Florida Keys Land and Sea Trust, Environmental Education and Ecotourism, 1995*
Davy, Brian *Canadian National Oceans Network, Ottawa, 1995*
Douglas, Peter *Executive Director, California Coastal Commission, 1995*
de Macedo, Tricia *Land Use Coordination Office, British Columbia, 1995*
Dunn, Michael *Head, Ecosystem Status and Trends, Environment Canada, 1995*
Ellsworth, Jim *Environment Canada, Dartmouth, BC, 1995, 1998*
Fay, Brad *Assistant Director, NS Department of Municipal Affairs, Land Information Services, 1995*
Filion, Claude *Director, Saguenay - St. Lawrence Marine Park, Canadian Heritage, 1996*
Fischer, Michael *Executive Officer, State Coastal Conservancy, San Francisco, 1995*
Flaherty, Tony *SA Regional Coordinator, Marine and Coastal Community Network, 1994, 1995*
Foster, Sherrard *Program Specialist, National Marine Sanctuary Program, NOAA, 1995*
Friedheim, Robert *University of Southern California, School of International Relations, 1995*
Gallagher, Jack *Strategic Planning Group, Canadian Coastguard, DFO, 1995*
Golde, Helen *Ecologist, NOAA, Sanctuaries and Reserves Division, Washington DC 10/10/1995*
Habel, Digby *Commonwealth Environment Protection Authority, Canberra, 1994*
Henwood, Bill *Senior Planner, Canadian Heritage, Parks Canada, Vancouver, 1995*
Hildebrand, Larry *Environment Canada, Dartmouth, Nova Scotia, 1995, 1998*
Hinch, Pat *Nova Scotia Department of the Environment, 1995, 1998*
Howes, Don *Program Manager, Land Inventory and Information Analyst, Land Use Coordination Office, Victoria BC, 1995*
Huard, Michaela *Director, Oceans Programs, Department of Fisheries and Oceans, 1995*
Ivanovici, Angela *Commonwealth Environment Protection Authority, Canberra, 1994*
Joyner, Christopher *Georgetown University, Department of Government, 1995*
Juda, Lawrence *University of Rhode Island, Coastal resources Centre, 1995*
Katz, Mitch *Editor, Strategic Environmental Assessments Division, NOAA, Washington DC, 1995*
Keeley, David *Director, Maine Coastal Program, Maine State Planning Office, 1995*
Kelly, Geoff *Regional Manager, Marine Parks and Coastal management, Queensland Department of Environment and Heritage, Cairns, 1994*

- Kenchington, Richard *Great Barrier Reef Marine Park Authority, Canberra*, 1994
- Kenney, Diane *Nova Scotia Department of Fisheries*, 1995
- Kildow, Judith *University of Southern California, Los Angeles*, 1995
- Kjos, Kaare *Binational Development Consultant, Land Use, Environment, Infrastructure, San Diego*, 1995
- Knauss, John, *University of Rhode Island, School of Oceanography*, 1995
- Knecht, Robert *University of Delaware, Graduate College of Marine Studies*, 1995
- Kruczynski, Bill *Environmental Protection Agency, Marathon, Florida*, 1995
- Lawless, Jim *Acting Director, Office of Ocean and Coastal Resource Management, NOAA, Washington DC*, 1995
- McCallum, Gord *Department of Fisheries and Oceans, Ottawa*, 1995
- McCay, Bonnie *Rutgers University, Department of Human Ecology, New Jersey*, 1995
- McBurney, Dave *Marine Areas Coordinator, Legislation and Policy Branch, Canadian Heritage, Ottawa*, 1995
- McCreary, Scott *Principal, CONCUR, Berkley, California*, 1995, 1996
- McGinnity, Peter *Director, Planning and Management, Great Barrier Reef Marine Park Authority, Townsville*, 1994
- MacDonald, Craig *Ocean Resources Development Manager, Department of Business, Economic Development, & Tourism, Honolulu*, 1995
- Mackenzie, Cameron *Crab Fisherman's Association, Ottawa*, 1995
- Mageau, Cammille *Department of Fisheries and Oceans, Ottawa*, 1995
- Meltzer, Evelyn *Meltzer Research and Consulting, Halifax*, 1995, 1996
- Mitchell, Warren *Director, Planning, Land Use Coordination Office, Victoria*, 1995
- Montgomery, Andy *Director, Land Use Committee Secretariat, Nova Scotia Department of the Environment*, 1995
- Moore, Elizabeth *Program Specialist, Sanctuaries & Reserves Division, NOAA, Washington DC*, 1995
- Morgan, Joe *Law of the Sea Institute, Honolulu*, 1995
- Morry, Chris *Oceans Programs, Habitat Management and Environmental Science, Department of Fisheries and Oceans, Ottawa*, 1995, 1998
- Morvell, Gerry *Department of Environment, Sport and Training, Canberra*, 1994
- Muir, Frazer *District Manger, Marine Parks and Coastal Management, Queensland Department of Environment and Heritage, Cairns*, 1994
- Neverauskas, Vic *Manager, Habitat and Biodiversity, Department of Primary Industries and Fisheries, South Australia*, 1998
- Newroth, Peter *Manager, Monitoring and Reporting Section, Water Quality Branch, Ministry of Environment, Lands and Parks, Victoria*, 1995
- Novaczek, Irene *Canadian Oceans Caucus, Ottawa*, 1995
- Olsen, Stephen *University of Rhode Island*, 1995
- Ostrom, Chris *Senior Project Manager, Sanctuaries and Reserves Division, NOAA, Washington DC*, 1995
- Outhit, Peter *Chairman, Management Committee, Oceans Institute of Canada, Halifax*, 1995
- Oyston, Chris *Director Environmental Management, Royal Australian Navy, Canberra*, 1994
- Pfund, Rose *Acting Director, Sea Grant College Program, University of Hawaii*, 1995
- Phillips, Brady *Program Specialist, Sanctuaries and Reserves Division, NOAA, Washington DC*, 1995
- Poirer, Dick *Planning Program Manager, Office of State Planning, Honolulu*, 1995
- Pross, Paul, *Dalhousie University, School of Public Administration*, 1995
- Pyke, Des, *Environment Australia, Parks Australia North*, 1996
- Ray, Carelton *University of Virginia, Department of Environmental Sciences*, 1995
- Rainer, Rob *St. Croix Estuary Project Inc., New Brunswick*, 1996
- Roots, Fred *Environment Canada, Hull*, 1995, 1996
- Rubinoff, Pamela *University of Rhode Island, Coastal Resources Centre*, 1995
- Saenger, Peter *Southern Cross University, Head, Centre for Coastal Management, Lismore, New South Wales*, 1994
- Sanchez, John *Monroe County Commercial Fishing Inc, Florida*, 1995
- Sessing, Janice *Sanctuary Program Specialist, NOAA, Washington DC*, 1995
- Sherman, Kenneth *University of Rhode Island, Director, Narragansett Laboratory*, 1995
- Skillen, Andrea *Oceans Policy Secretariat, Department of Fisheries and Oceans, Ottawa*, 1998
- Sobel, Jack *Centre for Marine Conservation, Florida*, 1995
- Stewart, Catherine *Greenpeace, Ottawa*, 1995
- Stewart, Carolyn *Hawai'i Coastal Zone management Program, Office of State Planning, Hawai'i*, 1995
- Stimson, Carol *Law of the Sea Institute, Honolulu*, 1995
- Swan, Judith *SwanSea, Oceans Environment Inc. Waverley Nova Scotia*, 1995
- Swan, Karen *Environment Canada, Dartmouth*, 1995, 1998

Tarnas, David *State Legislator, Hawai'i*, 1995
Travis, Will *Acting Executive Director, San Francisco Bay Conservation and Development Commission*, 1995
Truscott, Joe *Senior Marine Analyst, Aquaculture and Commercial Fisheries Division, Ministry of Fish, Food and Agriculture, Victoria*, 1995
Updegraff, Gail *Coastal America, NOAA, Washington DC*, 1995, 1996
Uravitch, Joe *Associate Director, Office of Ocean and Coastal Resource Management, NOAA, Washington DC*, 1995
Vandermeulen, John *Bedford Institute of Oceanography, Physical and Chemical Sciences Branch, Dartmouth NS*, 1995
VanderZwaag, David *Dalhousie University, Marine and Environmental Law Program*, 1995, 1996
Watson, Giz *WA Regional Coordinator, Marine and Coastal Community Network, Western Australia*, 1995, 1996
Wilson, Stanley *Assistant Administrator, National Ocean Service, NOAA*, 1995
Zacharias, Mark *Land Use Coordination Office, Victoria*, 1995
Zurbrigge, Eleanor *Canada Wildlife Service*, 1995

REFERENCES

ACAP (1993), *Sharing the Challenge: A Guide for Community-Based Environmental Planning. Volume 1.*, Environment Canada.

ACIUCN (1986), *Australia's Marine and Estuarine Areas - A Policy for Protection*, Australian Committee for the International Union for Conservation of Nature and Natural Resources, Occasional Paper No. 1.

ACIUCN (1993), *Towards a Strategy for the Conservation of Australia's Marine Environment*, Australian Committee for the International Union for Conservation of Nature and Natural Resources, Marine Sub-Committee.

Ahmad, Yusuf J. & Muller, Frank J., Eds. (1982), *Integrated Physical, Socio-Economic and Environmental Planning*. UNEP, Natural Resources and the Environment Series. Tycooly International Publishing Ltd, Dublin, Eire.

ALGA (1993), *Making the Connections A Guide to Integrated Local Area Planning*, Australian Local Government Association.

Andresen, Steinar, Skjaereth, Jon Birger & Wettstad, Jorgen (1993), 'International Efforts to Combat Marine Pollution: Achievements of North Sea Cooperation and Challenges Ahead', *Green Globe Yearbook of International Cooperation on Environment and Development 1993* eds. Bergesen, H.O. & Parmann, G. Oxford University Press, New York. pp 15 - 24.

Andrews, Greg (1994), *DRAFT Great Australian Bight Marine Park Management Plan*, South Australian Research and Development Institute, Draft Management Plan.

Anon (1980), *World Conservation Strategy*, IUCN, UNEP, WWF, FAO, UNESCO.

Anon (1993), *Georgia Basin Initiative: Creating a Sustainable Future*, Prepared for the British Columbia Round Table on the Environment and the Economy.

Anon (1995a), *Ocean Outlook. A Blueprint for the Oceans*, Department of Industry, Science and Technology, DEST, MARINET, Ocean Rescue 2000 (CSIRO Fisheries/Oceanography, AGSO, AIMS), A Report from the Congress 16 - 17 November 1994 and a Scientific Program Proposed by the Steering Committee.

Anon (1995b), *Dispute Strikes GAB Marine Park*, West Coast Sentinel. Thursday January 26, p. 3.

Anon (1995c), *Special Issue: Strategy for Stewardship in the Florida Keys*, Vol. 3, No. 1, NOAA.

Anon (1995d), *EPA Says It Will Open Keys Office*, The Key West Citizen. 23 January, Florida. p. 3A.

Anon (1996), *Memorandum of Understanding Between the Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration and the Californian Marine Sanctuary Foundation Regarding the Monterey Bay National Marine Sanctuary*, OCRM, NOS, NOAA, US Department of Commerce, California Marine Sanctuary Foundation, Memorandum of Understanding.

Anon (1997a), 'Alliance, Council Envisions Complementary Roles in Support of Gulf of Maine Environment' *Gulf of Maine Times* 1 (2).

Anon (1997b), 'National Estuary Program Key Management Issues Workshop' *Coastlines. Information about Estuaries and Near Coastal Waters*. 7 (3).

Anon (1997c), 'Representatives and Senators introduce new 'Oceans Act'' *Ocean Update* 2 (10):

ANZECC (1992), *Australian Water Quality Guidelines for Fresh and Marine Waters*, Australian and New Zealand Environment Conservation Council, Australian Water Resources Council, Canberra.

- Archer, Jack H. (1988), 'The Proposed Flower Garden Banks Marine Sanctuary. Protecting marine Resources Under International Law' *Oceanus* 31 (1): pp. 54 - 58.
- Ashford, D. (1983), 'Comparing Policies Across Nations and Cultures', *Encyclopedia of the Policy Sciences* ed. Nagel, S. Marcel Dekker, New York. pp. 171 - 197.
- Australian Marine Industries Council (1997), *Marine Industry Development Strategy*, Department of Industry, Science and Tourism, Canberra.
- Australian Nature Conservation Agency, ANCA (undated), *Ningaloo Marine Park (Commonwealth Waters) Plan of Management*, Commonwealth of Australia.
- Barber, Peter (1994), 'No Barriers to Cooperation' *Environment Business* (September): pp. 24 - 25.
- Barley, George (1993), 'Integrated Coastal Management. The Florida Keys example From and Activist Citizen's Point of View' *Oceanus* Fall : pp. 15 - 18.
- Bartlett, Robert V. (1990), 'Comprehensive Environmental Decision Making: Can it Work?', *Environmental Policy in the 1990s* eds. Vig, N.J. & Kraft, M.E. CQ Press, Washington D.C. pp. 235 - 254.
- Bayly, Brett (1993), 'Strong action needed to conserve ocean fisheries' *Insight* (March 1): p. 5.
- BC Marine Protected Areas Working Group (1995a), *Report to the Environmental Cooperation Council Marine Science Panel Recommendation B Establish Marine Protected Areas*, Update by the BCMPAWG to the BC/WA Environmental Cooperation Council on the progress towards establishing marine protected areas in BC, May 23 1995.
- BC/WA ECC MSP (1994), *The Shared Marine Waters of British Columbia and Washington. A Scientific Assessment of Current Status and Future Trends in Resource Abundance and Environmental Quality in the Strait of Juan de Fuca, Strait of Georgia, and Puget Sound.*, British Columbia / Washington Marine Science Panel, Report to the British Columbia/Washington Environmental Cooperation Council.
- BC/WA MSP (undated), *Shared Waters: The Vulnerable Inland Sea of British Columbia and Washington*, British Columbia/Washington Marine Science Panel.
- Beatley, Timothy, Brower, David J. & Schwab, Anna K. (1994), *An Introduction to Coastal Zone Management*, Island Press, Washington D.C.
- Belsky, Martin H. (1986), 'Legal Constraints and Options for Total Ecosystem Management', *Variability and Management of Large Marine Ecosystems* eds. Sherman, K. & Alexander, L.M. pp. 241 - 262.
- Bergin, Anthony (1986), 'Australian Ocean Policy - the Need for Review' *Marine Policy* 10 (2): pp. 155 - 158.
- Bergin, Anthony & Haward, Marcus (1993), 'The Southern Bluefin Tuna Fishery: Recent Developments in International Management' *submitted to Marine Policy* (October).
- Bergin, Anthony, Haward, Marcus, Russell, Dawn, Weir, Robert (1996) 'Marine Living Resources' *Oceans Law and Policy in the Post-UNCED Era: Australian and Canadian Perspectives* eds. Kriwoken, L.K., Haward, M., VanderZwaag, D. & Davis, B. Kluwer Law International, Great Britain. pp. 173 - 213.
- Bertalanffy, Ludwig von (1950), 'The Theory of Open Systems in Physics and Biology' *Science* 111: pp. 23 - 29.
- Bertalanffy, Ludwig von (1973), *General Systems Theory. Foundations, Development, Applications.*, Revised edition. George Braziller, New York.
- Bewers, J. Michael & Vandermuelen, John H. (1994), *Integrated Coastal Zone Management: The Implications for Science*. Coastal Zone Canada '94. Cooperation in the Coastal Zone, World Trade and Convention Centre, Halifax, Nova Scotia, Canada, 20 - 23 September 1994.

- Beyeler, Marc (1993), 'Ocean Governance' *California Coast and Ocean* 9 (1 and 2): pp. 4, 5.
- Black, G. (1968), *The Application of Systems Analysis to Government Operation*, New York.
- Bleakley, Chris, Ivanovici, Angela & Ottesen, Peter (1994), *Assessment of Marine Protected Areas in Australia*, GBRMPA, CEPA, ANCA, SOMER Technical Report.
- Boelaert-Suominen, Sonja & Cullinan, Cormac (1994), *Legal and Institutional Aspects of Integrated Coastal Area Management in National Legislation*, Development Law Service, Legal Office. FAO.
- Borgese, Elisabeth Mann, Ginsburg, Norton, Morgan, Joseph R. eds. (1994), *Ocean Yearbook 11*, University of Chicago press, London.
- Boulding, K.E. (1956), 'Management Science', *General Systems Theory - The Skeleton of Science* ed. Boulding, K.E. pp. 197 - 208.
- Bower, Blair T., Ehler, Charles N. & Basta, Daniel J. (1994), *A Framework for Planning for Integrated Coastal Zone Management*, Office of Ocean Resources Conservation and Assessment, National Ocean Service, National Oceanographic and Atmospheric Administration.
- Briggs, David (1993), 'A 25 year Strategic Plan for the Great Barrier Reef World Heritage Area' *Australian Ranger* (Autumn): pp. 29 - 30.
- British Columbia (1998), *Province of British Columbia, Coastal Zone Position Paper*, Inter-agency Coastal Working Group, Office of the Premier.
- Brosnan, Deborah (in press), *Integrating Science and Policy: The Oregon Territorial Sea Plan as a Case Study*, Sustainable Ecosystems Institute, Recent Advances in Marine Science and Technology.
- Brown, Seyom, Cornell, Nina W., Fabian, Larry L. & Brown Weiss, Edith (1977), *Regimes for the Ocean, Outer Space and Weather*, The Brookings Institution, Washington DC.
- Brown, Valerie A. (1995), *Turning the Tide. Integrated Local Area Management for Australia's Coastal Zone*, Department of Environment Sport and Territories.
- Brunckhorst, D.J. & Bridgewater, P.B. (1994), 'A Novel Approach to Identify and Select Core Reserve Areas, and to Apply UNESCO Biosphere Reserve Principles to the Coastal Marine Realm', *Marine Protected Areas and Biosphere Reserves: Towards a New Paradigm*. *Proceedings of the 1st International Workshop on Marine and Coastal Protected Areas* ed. Brunckhorst, D.J. ANCA, Canberra. pp. 12 - 17.
- Caldwell, L. K. (1963), 'Environment: A New Focus for Public Policy?' *Public Administration Review* XXIII(3): pp. 132 - 139.
- Caldwell, L.K. & Bartlett, R.V., Eds. (1997), *Environmental Policy. Transnational Issues and National Trends*. Quorum Books, Westport
- California Coastal Commission (1997), *California Coastal Commission, Strategic Plan, June 1997*,
- CALM, Department of Conservation and Land Management (1989), *Ningaloo Marine Park (State Waters) Management Plan 1989 - 1999*, Department of Conservation and Land Management, Parks and Reserves of the Cape Range Peninsula Part 2.
- CALM, Department of Conservation and Land Management (1994), *A Representative Marine Reserve System for Western Australia*, Marine Parks and Reserves Selection Working Group, Report of the Marine Parks and Reserves Selection Working Group.
- Campbell, Senator Ian (1996), *Integrating Planning and the Environment, The Commonwealth's Role*, Parliamentary Secretary to the Minister of the Environment, Speech to the Planning Education Foundation of South Australia, 11 July 1996.
- Canada (1990), *Canada's Green Plan. Canada's Green Plan For A Healthy Environment*, Minister of Supply and Services.

- Canada (1991), *The State of Canada's Environment - 1991*, Minister of Supply and Services, Minister of the Environment.
- Canada (1994), *Coastal 2000. A Consultation Paper*, Department of the Environment, Department of Fisheries.
- Canadian Heritage, BC Parks (1998), *Acquisition of Three Pacific Marine Heritage Legacy Properties Announced*, Canadian Heritage, News Release 24 March, 1998.
- Canadian Heritage, Government of Quebec (1995), *The Saguenay - St. Lawrence Marine Park. Management Plan*, Minister of Supply and Services.
- Canadian Parks Service (1986), *National Marine Parks Policy*, National Parks Systems Branch, Ottawa.
- Carlson, Glen (1995), Sanctuary leaves o... Freedom to leave Keys., *The Key West Citizen*. Sunday August 27, Florida.
- Carroll, John E. (1988), 'Conclusion', *International Environmental Diplomacy: The Management and Resolution of Transfrontier Environmental Problems* ed. Carroll, J.E. Cambridge University Press, Cambridge. pp 275 - 279.
- Chircop, Aldo, VanderZwaag, David & Mushkat, Peter (1995), 'The Gulf of Maine Agreement and Action Plan. A Novel but Nascent Approach to Transboundary Marine Environmental Protection' *Marine Policy* 19 (4): pp. 317 - 333.
- Choudhury, Masudul Alam (1994), 'Regional and Subregional Economic Issues of Sustainable Development in Atlantic Canada', *Coastal Zone Canada '94, Cooperation in the Coastal Zone: Conference Proceedings* eds. Wells, P., G. & Ricketts, P.J. Coastal Zone Canada Association, Halifax, Nova Scotia. pp. 183 - 198.
- Chua, Thia-Eng (1993), 'Essential Elements of Integrated Coastal Zone Management' *Ocean and Coastal Management* 21 (1-3): pp. 81 - 108.
- Chua, Thia-Eng & Scura, Louise Fallon (1992), *Integrative Framework and Methods for Coastal Area Management*, ASEAN, ICLARM, USAID, Proceedings of the Regional Workshop on Coastal Zone Planning and Management in ASEAN: Lessons Learned, Bandar Seri Begawan, Brunei Darussalam 28 - 30 April 1992. ASEAN/USAID, Coastal Resources Management Project Conference Proceedings 12.
- CIA, Central Intelligence Agency (1997), *The World Factbook*, Government Printing Office, Washington DC.
- Cicin-Sain, Biliana (1989), 'Private and Public Approaches to Solving Oil/Fishing Conflicts Offshore California' *Ocean and Shoreline Management* 12: pp. 223 - 251.
- Cicin-Sain, Biliana (1990), 'California and Ocean Management: Problems and Opportunities' *Coastal Management* 18: pp. 311 - 335.
- Cicin-Sain, Biliana (1993a), 'Sustainable Development and Integrated Coastal Zone Management' *Ocean and Coastal Management* 21 (1 - 3): pp 11 - 43.
- Cicin-Sain, Biliana, Ed. (1993b), *Special Issue: Integrated Coastal Management*. Ocean and Coastal Management.
- Cicin-Sain, Biliana (1994), 'Essay: A National Ocean Governance Strategy for the United States is Needed Now' *Coastal Management* 22: pp. 171 - 176.
- Cicin-Sain, Biliana (1995), 'National and Regional Perspectives on Ocean Governance', *Pacific Coast Ocean Management Workshop, September 9 - 11, 1995*. Centre for the Study of Marine Policy, Graduate College of Marine Studies, University of Delaware, Portland, Oregon. 26pp.
- Cicin-Sain, Biliana & Knecht, Robert W. (1993), 'Implications of the Earth Summit for Ocean and Coastal Governance' *Ocean Development and International Law* 24 (1, January - March): pp 323 - 353.

- Cicin-Sain, Biliana & Knecht, Robert W. (1998), *Integrated Coastal and Ocean Management. Concepts and Practices*, Island Press, Washington, D.C.
- Clark, John R. (1991a), *The Status of Integrated Coastal Zone Management: A Global Assessment*, (CAMPNET, The Coastal Area Management and Planning Network), Rosenstiel School of Marine and Atmospheric Sciences, The University of Miami, Florida.
- Clark, John R. (1991b), 'Management of Coastal Barrier Biosphere Reserves. Working Concepts for Conservation, Science, and Sustainable Resource Use.' *Bioscience* 4 (5 (May)): pp. 331
- Clark, John R. (1992), *Integrated Management of Coastal Zones*, FAO, Rome, FAO Fisheries Technical Paper, No. 327.
- Coastal America (1992), *Coastal America Memorandum of Understanding. Statement of Principles for a Coastal America Partnership for Action to Protect, Restore and Maintain the Nation's Coastal Living Resources*.
- Coastal America (1994), *Forging Partnerships to Restore Coastal Environments. 1993 Coastal America Progress Report*, Coastal America.
- Coastal America (1995), *Coastal Restoration and Protection Lessons Learned*, Coastal America Technology Transfer Report.
- Coastal Community News (1997), *CCN Newsletter* 2 (2), Canada.
- Cocks, K.D. (1984), 'A Systematic Method of Public Use Zoning of the Great Barrier Reef marine Park, Australia' *Coastal Zone Management Journal* 12 (4): pp. 359 - 383.
- Commission on Marine Science Engineering and Resources (1969), *Our Nation and the Sea. A Plan for National Action*, Stratton Commission.
- Commonwealth Group of Experts (1984), *Ocean Management: A Regional Perspective. The Prospects for Commonwealth Maritime Cooperation in Asia and the Pacific*, Commonwealth Secretariat, London .
- Commonwealth of Australia (1975), *Great Barrier Reef Marine Park Act 1975*.
- Commonwealth of Australia (1992a), *National Strategy for Ecologically Sustainable Development*, AGPS, Canberra.
- Commonwealth of Australia (1992b), *The Intergovernmental Agreement on the Environment*, Commonwealth of Australia, the States and Territories of Australia, and the Australian Local Government Association.
- Commonwealth of Australia (1992c), *Ecologically Sustainable Development Working Group Chairs. Intersectoral Issues Report*, Ecologically Sustainable Development Working Groups.
- Commonwealth of Australia (1996), *National Strategy for the Conservation of Australia's Biological Diversity*, ANZECC.
- Commonwealth of Australia (1997a), *Australia's Oceans. New Horizons*, Portfolio Marine Group, Environment Australia.
- Commonwealth of Australia (1997b), *National Heritage Trust. A Better Environment for Australia in the 21st Century. Coasts and Clean Seas*, Department of the Environment, Sport and Territories.
- Copp, David, A. (1994), *Structural Concept for the Atlantic Accord on Integrated Management of the Coastal Zone*, Oceans Institute of Canada (Secretariat of the Atlantic Coastal Zone Information Steering Committee), Halifax, Nova Scotia.
- Cornwall, G., Higgins, P. & Karau, J. (1988), 'Canadian Legislation Pertaining to the Prevention and Control of Marine Pollution', *Canadian Conference on Marine Environmental Quality. Proceedings* eds. Wells, P.G. & Gratwick, J. IITOPS, Halifax, Nova Scotia. pp. 47 - 57.

- Corwin, Ruthann (1979), 'Protecting the Oceanic Environment', *Managing Ocean Resources: A Primer* ed. Friedheim, R. Westview Press, Boulder, Colorado. pp 101 - 123.
- Cote, Raymond, Lamson, Cynthia & VanderZwaag, David (1990), 'Getting the Oceans Act Together' *Policy Options* 11 (7): pp. 23 - 26.
- Couper, Alistair D. (1992), 'History of Ocean Management', *Ocean Management in Global Change* ed. Fabbri, P. Elsevier Applied Science, London. pp. 1 - 18.
- Craik, Wendy (1991), *The Great Barrier Reef Marine Park: A Model for Regional Management*. Ivanovici, A., Tarte, D. & Olsen, M. Fourth Fenner Conference on the Environment, Canberra, 9 - 11 Oct 1991. IUCN, ANPWS.
- Craik, Wendy (1994), *Large Multiple Use Managed Areas: The Solution for Integrated Marine Management*. Ocean Outlook: Exclusive Economic Zone Marine Science and Industry Workshop, Canberra, 16 - 17 Nov 1994.
- Crance, Colin G. (1994), *Cooperation and Stewardship: Government Coordinating Agencies in the Coastal Zone*. Wells, P.G. & Ricketts, P.J. 2, 5. Coastal Zone Canada '94, Cooperation in the Coastal Zone, Halifax, Nova Scotia, Sept 20 - 23, 1994. Coastal Zone Canada Association.
- CSD (1995), *The London Workshop on Environmental Science, Comprehensiveness and Consistency in Global Decisions on Ocean Issues*, Sponsored by the governments of Brazil and the United Kingdom as part of the inter-sessional work for the 1996 Commission on Sustainable Development, Commission on Sustainable Development Review of Progress on Strategies Under Chapter 17 of Agenda 21 Oceans and All Seas, 30 November - 2 December 1995,.
- Cuellar, Javier Perez de (1991), 'The United Nations Conference on the Environment and Development' *International Challenges* 11 (3): pp 4 - 6.
- Dahl, Arthur Lyon (1993), 'Land-based pollution and integrated coastal management' *Marine Policy* 17 (6): pp. 561 - 572.
- Davis, Bruce (1991), 'Economic Growth, Environmental Management and Government Institutions: the Political Implications of Sustainable Policies' *The Science of the Total Environment* 108: pp 87 - 96.
- Davis, Bruce (1996), 'National Responses to UNCED Outcomes: Australia', *Oceans Law and Policy in the Post-UNCED Era: Australian and Canadian Perspectives* eds. Kriwoken, L.K., Haward, M., VanderZwaag, D. & Davis, B. Kluwer Law International, Great Britain. pp. 25 - 40.
- Davis, Glyn & Weller, Patrick (1993), *Strategic Management in the Public Sector: Managing the Coastal Zone*, Resource Assessment Commission, Consultancy report.
- Daw, Michelle (1994), Who Has the Southern Rights?, The Advertiser. Tuesday 26 July, 1994 South Australia. p. 13.
- de Macedo, Tricia (1995), *An Overview of Marine Protected Areas: Global Status, Management Models and Benefits of Establishment*, Land Use Coordination Office, Draft.
- DEA (1992), *The Integrated Environmental Management Procedure*, Department of Environmental Affairs, Environmental Evaluation Unit, University of Cape Town, South Africa.
- Deiana, Massimo (1994) The transboundary cooperation in the Mediterranean Sea, paper presented at the 28th Annual Conference of the Law of the Sea Institute, Honolulu, July 11 - 14, 1994, Law of the Sea Institute.
- Department of Commerce (1991), *Flower Garden Banks National Marine Sanctuary. Final Environmental Impact Statement/Management Plan*, National Oceanic and Atmospheric Administration. Sanctuaries and Reserves Division, Final Environmental Impact Statement and Management Plan for the Proposed Flower Garden Banks National Marine Sanctuary.
- DEST (1995), May, *Living on the Coast. The Commonwealth Coastal Policy*, Commonwealth of Australia, Department of Environment, Sport and Territories.

- Devall, Bill & Sessions, George (1985), *Deep Ecology. Living as if Nature Mattered*, Gibbs Smith, Salt Lake City.
- DFO (undated), *Canada Oceans Act (Bill C-98) An Overview*, Department of Fisheries and Oceans, Canada.
- DFO (1987), *Oceans Policy for Canada. A Strategy to Meet the Challenges and Opportunities on the Oceans Frontier*, Department of Fisheries and Oceans, Canada.
- DFO (1995b), *Notes for an Address by The Honourable Brian Tobin, Minister for Fisheries and Oceans to the House of Commons on Second Reading of the Canada Oceans Act*, September 26, 1995, Department of Fisheries and Oceans, Canada.
- DFO (1997a), *Ensuring the Health of the Oceans and Other Seas*, Department of Fisheries and Oceans, Communications Branch, Ottawa, Canada, Prepared in connection with Canada's participation at the meeting of the United Nations Commission on Sustainable Development.
- DFO (1997b), *Performance Report - DFO, for the period ending March 31, 1997*, Department of Fisheries and Oceans, Canadian Ministry of Public Works and Government Services, Improved Reporting to Parliament - Pilot Document.
- DFO (1997c), *An Approach to the Establishment and Management of Marine Protected areas Under the Oceans Act. A Discussion Paper.*, Department of Fisheries and Oceans, Canada.
- DFO (1997d), DFO releases discussion paper on marine protected areas, Department of Fisheries and Oceans News Release, Canada. February 13, 1997.
- DFO (1998a), *Marine Protected Areas Program Policy*, Department of Fisheries and Oceans, Canada, Marine Protected Areas Program Policy Statement.
- DFO (1998b), *National Framework for Establishing and Managing Marine Protected Areas*, Department of Fisheries and Oceans, Canada, Discussion Paper: Suggested Criteria for Establishing Protected Areas under the Oceans Act.
- DFO (1998c), *Marine Protected Areas*, Department of Fisheries and Oceans, Canada, Backgrounder, B-HQ-98-15(72).
- DFO (1998d), *Towards Canada's Oceans Strategy*, Department of Fisheries and Oceans, Canada Oceans Policy Secretariat, Discussion paper.
- DFO (1998e), *Integrated Coastal Zone Management in Canada*, Department of Fisheries and Oceans, Discussion Paper.
- Donaldson, Carole (1994), *An Unholy Alliance: Working with Coastal Communities. A Practitioners Perspective*. Wells, P.G. & Ricketts, P.J. 2, 5. Coastal Zone Canada '94, Cooperation in the Coastal Zone, Nova Scotia, 20 - 23 Sept 1994.
- Easton, D. (1965), *A Systems Analysis of Political Life*, New York .
- Eaton, Peter B., Gray, Alan G., Johnson, Peter W. & Hundert, Eric (1994), *State of the Environment in the Atlantic Region*, Environment Canada, Atlantic Region.
- Eckert, R (1979), 'Ocean enclosures: A Better Way to Manage Marine Resources', *Managing Ocean Resources: A Primer* ed. Friedheim, R. Westview Press, Boulder, Colorado. pp 91 - 100
- Edwardes, Cheryl (1997), Government of Western Australia, Ministerial Media Statement, 26 March, 1997.
- Ehler, Charles N. & Basta, Daniel J. (1993), 'Integrated Management of Coastal Areas and Marine Sanctuaries A New Paradigm' *Oceanus* Fall: pp. 6 - 14.
- Ehler, Charles N. & Bower, Blair T. (1995), *Towards a Common Framework for Integrated Coastal Zone Management*. Coastal Zone 95, "Spotlight on Solutions", Tampa, Florida, July 16 - 19, 1995.

- Eikeland, Per Ove (1991a), 'Norwegian Fisheries Management After the Introduction of EEZs - The "Tragedy of the Commons" to be Played on a Different Stage?' *International Challenges* 11 (2): pp. 39 - 51.
- Eikeland, Per Ove (1991b), 'Emerging Neo-regionalism in Fisheries Management?' *International Challenges* 11 (3): pp 44 - 51.
- Ellsworth, James P. (1994), *Closing the Gap between Community Expectations and Service Delivery: Canada's Atlantic Coastal Action Program (ACAP)*. Wells, P.G. & Ricketts, P.J. 2, 5. Coastal Zone Canada '94, Cooperation in the Coastal Zone, Nova Scotia, 20 - 23 Sept. 1994.
- Environment Australia (undated), *Great Australian Bight Marine Park. How the Park will Impact on Commercial Users*, Facts Sheet.
- Environment Australia (1998a), *Australia's Oceans Policy. Report of the Ministerial Advisory Group on Oceans Policy*, AGPS, Canberra.
- Environment Australia (1998b), *Supporting Information on the Commonwealth Great Australian Bight Marine Park*, Environment Australia, Fact sheet.
- Environment Australia (1998c), *Guidelines for Establishing the National Representative System of Marine Protected Areas*, Portfolio Marine Group, Environment Australia, Draft Version 2.0.
- Environment Canada (1995a), *INFO Program Review. Environment Canada*, February 27, 1995, Atlantic Canada.
- Environment Canada (1995b), *The Fraser River Action Plan, 1994 - 1995 Progress Report*, Environment Canada/Fisheries and Oceans.
- Environment Canada (1996a), *Performance Report for the Period Ending March 31, 1996*.
- Environment Canada (1996b), *Environment Canada Action Plan 1996/97 to 1999/2000*.
- Environment Canada (1997), *Environment Canada Report on Plans and Priorities for Period 1997/98 to 1999/2000*.
- Environmental News Network (1998), Scientists Design Ocean Management Model, Year of the Ocean 1998, Daily News. Thursday May 28, 1998.
- Evans, Alan (undated), *Submission to the Select Committee on Cape Range National Park And Ningaloo Marine Park*, Western Australian Branch of the Australian Marine Sciences Association.
- Evans, Nathan (1996), 'Multiple Use Conflicts - The Role of Marine Protected Areas in W.A.', *Coast to Coast 96. Australia's Coastal Management Conference*. Glenelg, South Australia.
- Fabbri, Paolo (1992), 'From Coastal to Ocean Management: Policies and Planning Issues', *Ocean Management in Global Change* ed. Fabbri, P. Elsevier Applied Science, London. pp. 169 - 183.
- Faber, Phyllis M. (1997), 'Has the Coastal Act Worked?' *California Coast and Ocean* Winter 1996-97
- Fischer, Michael (1995), 'Taking a New Look at the Coast' *California Coast and Ocean* 11 (1): p. 2.
- Fitzgerald, Edward A. (1996), 'The Constitutional Division of Powers with Respect to the Environment in the United States', *Federalism and the Environment. Environmental Policymaking in Australia, Canada and the U.S* eds Holland, K.M., Morton, F.L. & Galligan, B. Greenwood Press, Westport, Connecticut. pp. 19 - 36.
- Flaherty, Tony (1994), 'The Proposed Great Australian Bight Marine Park. Two Meetings in Ceduna' *Southern Regional Ripples* 1 (4): pp. 1 - 2.
- Florida Keys National Marine Sanctuary Advisory Council (1995), *Florida Keys National Marine Sanctuary Advisory Council Meeting*, Meeting Minutes 13 September, 1995.
- Foster, Bill (1995), 'The Gift of the GAB', *The Next Wave. Marine Protection Beyond the Reef* eds. Allen, T. & O'Hara, T. p.6.

- FREMP (1994), *A Living, Working River. An Estuary Management Plan for the Fraser River.*, Fraser River Estuary Management Program.
- Friedheim, Robert, Ed. (1979a), *Managing Ocean Resources: A Primer*. Westview Press, Boulder, Colorado.
- Friedheim, Robert (1979c), 'The Political, Economic and Legal Ocean', *Managing Ocean Resources: A Primer* ed. Friedheim, R. Westview Press, Boulder, Colorado. pp 26 - 42.
- Galasso, George A. (1994), *The Use of Coordinating Mechanisms in the Management of National Marine Sanctuaries*. Wells, P.G. & Ricketts, P.J. 3, 5. Coastal Zone Canada '94, Cooperation in the Coastal Zone, Nova Scotia, 20 - 23 Sept. 1994.
- Galligan, Brian & Fletcher, Christine (1993), *New Federalism, Intergovernmental Relations and Environment Policy*, Resource Assessment Commission, Consultancy Report of the Coastal Zone Inquiry.
- GBRMPA (1988), *Great Barrier Reef Marine Park, Cairns Zoning Plan Review: Issues*.
- GBRMPA (1994a), *Corporate Plan 1994 - 1999 with Specific Objectives for 1994 - 1995*, Great Barrier Reef Marine Park Authority.
- GBRMPA (1994b), *The Great Barrier Reef, keeping it great. A 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area*, Great Barrier Reef Marine Park Authority.
- GESAMP (1990), *The State of the Marine Environment*, Joint Group of Experts on the Scientific Aspects of Marine Pollution, Reports and Studies, No. 39, 111.
- GESAMP (1996), *The Contributions of Science to Integrated Coastal Management*, (Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection) FAO, Rome, Reports and Studies No. 61.
- Gold, Edgar (1976), 'The Rise of the Coastal State in the Law of the Sea', *Marine Policy and the Coastal Community. The Impact of the Law of the Sea*. ed. Johnston, D.M. Croom Helm, London.
- Gold, Edgar, Ed. (1991), *Maritime Affairs: A World Handbook*. Longman Current Affairs, UK.
- Government of Western Australia (1994), *New Horizons in Marine Management*, Department of Conservation and Land Management, Department of Minerals and Energy, Fisheries Department of Western Australia, Department of Resources Development.
- Grady, Michelle (1998), 'The Great Australian Bight Marine Park' *Habitat Australia (Supplement)* April: p 8.
- Graham, Robert (1992), 'The Canadian Marine Parks Program: Opportunities and Options', *Marine, Lake and Coastal Heritage. Proceedings of a Heritage Resource Centre Workshop* ed. Graham, R. Department of Recreation and Leisure Studies, Heritage Resources Centre, University of Waterloo. pp. 119 - 138.
- Grinlinton, David P. (1992), 'Integrated Resource Management - A Model for the Future' *Environmental and Planning Law Journal* (February): pp 4 - 19.
- Gulf of Maine Council on the Marine Environment (1991), *The Gulf of Maine Action Plan 1991 - 2000*, Gulf of Maine Working Group.
- Gustaitis, Rasa (1997), "'never saved...always being saved'" *California Coast and Ocean* Winter 1996 - 97.
- Hagenkotter, Carl (1995), Hagenkotter: You'll have no control over sanctuary, The Key West Citizen Sunday February 12, Key West. p 5A.
- Hall, A.D. & Fagen, R.E. (1956), 'Definition of System' *General Systems* 1: pp. 18 - 28.
- Hardin, Garret (1968), 'The Tragedy of the Commons' *Science* 162: pp. 1243 - 1248.

- Hardin, Garrett & Baden, John (1977), *Managing the Commons*, W.H. Freeman & co., San Francisco.
- Harrison, Peter & Parkes, J.G. Michael (1983), 'Coastal Zone Management in Canada' *Coastal Zone Management Journal* 11 (1-2): pp. 1 - 11.
- Haward, Marcus (1995), 'Integrated Coastal Zone Management in Australia' *Maritime Studies* (May-June): 11pp.
- Haward, Marcus (1996), 'Institutional framework for Australian ocean and coastal management' *Ocean and Coastal Management* 33 (1 - 3): pp. 19 - 39.
- Haward, Marcus & Davis, Bruce W. (1994), *Current Developments in Australian Coastal Zone Management*. 1, 5. Coastal Zone Canada '94. Cooperation in the Coastal Zone, World trade and Convention Centre, Halifax, Nova Scotia, Canada, 20 - 23 Sept. 1994. Coastal Zone Canada Association.
- Haward, Marcus & VanderZwaag, David (1995), 'Implementation of UNCED Agenda 21 Chapter 17 in Australia and Canada: a comparative analysis' *Ocean and Coastal Management* 29 (1- 3): pp. 279 - 295.
- Hawke, R.J. (1989), *Our Country, Our Future: Statement on the Environment*, AGPS, Canberra, Statement to the 18th General Assembly of the World Conservation Union (IUCN), 28 November 1990.
- Hawai'i Ocean and Marine Resources Council (1991), *Hawai'i Ocean Resources Management Plan*, Department of Business, Economic Development and Tourism, State of Hawai'i.
- Hayes, B.R.M. (1992), *Integrated Strategic Planning its Application to Coastal Management*. New Directions in Coastal Management Conference, Sydney, 22 - 23 Oct 1992.
- Henwood, William D. (1988), *Legislating National Marine Parks: The Experience of Australia, the United States, Great Britain and Japan*, Canadian Parks Service; Marine Parks Planning, National Parks Systems Branch.
- Hershman, Marc J. (1996), 'Ocean Management Policy Development in Subnational Units of Government: Examples from the United States' *Ocean and Coastal Management* 31 (1): pp. 25 - 40.
- Hildebrand, Lawrence P. (1989), *Canada's Experience with Coastal Zone Management*, Oceans Institute of Canada.
- Hildebrand, Lawrence P. (1995), *Notes on Canadian Coastal and Ocean Policy*, March 23, 1995 DRAFT.
- Hildebrand, Lawrence P. & Norrena, Edward J. (1992), 'Approaches and Progress Toward Effective Integrated Coastal Zone Management' *Marine Pollution Bulletin* 25 (1 - 4): pp. 94 - 97.
- Hildreth, Richard (1991), 'Managing Ocean Resources: Canada' *International Journal of Estuarine and Coastal Law* 6 (3): pp. 199 - 228.
- Hildreth, Richard (1992a), 'Australian Coastal Zone Management: A North American Perspective' *Environmental and Planning Law Journal* (June 1992): pp. 165 - 174.
- Hildreth, Richard (1992b), 'Australian Coastal Management: Some North American Perspectives on Recent Queensland and Other Initiatives' *Coastal Management* 20: pp. 255 - 268.
- Hildreth, Richard (1994), *Institutional Arrangements for Sustainable Use of Coastal and Marine Resources*. Coast to Coast '94. A National Coastal Management Conference, Hobart, Tasmania, 29 June - 2 July 1994.
- Hill, Senator Robert (1996a), *Coast to Coast '96 - Australia's Coastal Management Conference Opening Address*, Minister for the Environment, 17 April, 1996.
- Hill, Senator Robert (1996b), *Commonwealth Consults on New Great Australian Bight Reserve*, Minister for the Environment, Media Release 164/96, 22 November, 1996.

- Holdgate, Martin (1980), 'Forward', *Adaptive Environmental Assessment and Management* ed. Holling, C.S. John Wiley & Sons, UK. pp ix - xiii.
- Holland, Kenneth M. (1996), 'Introduction', *Federalism and the Environment. Environmental Policymaking in Australia, Canada and the U.S.* eds. Holland, K.M., Morton, F.L. & Galligan, B. Greenwood Press, Westport, Connecticut. pp. 1 - 15.
- Holland, Kenneth M, Morton, F.L. & Galligan, Brian, Eds. (1996), *Federalism and the Environment. Environmental Policymaking in Australia, Canada and the U.S.* Contributions in Political Science No. 368. Greenwood Press, Westport, Connecticut.
- Holling, C.S., Ed. (1978), *Adaptive Environmental Assessment and Management*. UNEP, John Wiley & Sons, Chichester.
- Hopley, David (1988), 'Anthropogenic Influences on Australia's Great Barrier Reef' *Australian Geographer* 19 (1, May): pp. 26 - 45.
- House of Commons Standing Committee on Environment and Sustainable Development (1995), *It's About our Health! Towards Pollution Prevention*, Ottawa Communications Group, Ottawa, Minutes of Proceedings.
- House of Representatives Standing Committee on Environment and Conservation (1980), *Management of the Australian Coastal Zone*, HRSCEC.
- House of Representatives Standing Committee on the Environment and Conservation (1984), *Protection of the Greater Daintree*, HRSCEC, The Parliament of the Commonwealth of Australia.
- House of Representatives Standing Committee on Environment and Conservation (1985), *Protection of the Great Barrier Reef*, AGPS, Canberra .
- House of Representatives Standing Committee on Environment, Recreation and the Arts (1991), *The Injured Coastline. Protection of the Coastal Environment*, HRSCERA.
- House of Representatives Standing Committee on Environment, Recreation and the Arts (1993), *Biodiversity. The Role of Protected Areas*, AGPS, Canberra.
- Howes, Don (1992), *Coastal Resource Inventory Review*, The Resources Inventory Committee, Discussion Document, RIC Report 011.
- Interagency Ecosystem Management Taskforce (1995), *The Ecosystem Approach: Healthy Ecosystems and Sustainable Economies*, National Technical Information Service, US Department of Commerce, Volume I - Overview.
- Inter-Ministry Policy Committee (1995), *Provincial Land Use Goals and Strategic Policies*, Government of British Columbia.
- IPCC, Intergovernmental Panel on Climate Change (1994), *Preparing to Meet the Challenges of the 21st Century. Conference Report. World Coast Conference 1993*. World Coast Conference 1993, Noordwijk, The Netherlands, 1 - 5 November 1993. Ministry of Transport, Public Works and Water Management.
- IUCN (1995), *The Law of the Sea: Priorities and Responsibilities in Implementing the Convention*, Union, T.W.C., IUCN, Gland, Switzerland.
- Jackson-Davis, W. (1990), 'Global Aspects of Marine Pollution Policy. The Need for a New International Convention' *Marine Policy* 14 (3): pp. 191 - 197.
- Jackson-Davis, W. (1993), 'The Need for a New Global Ocean Governance System', *Freedom for the Seas in the 21st Century* eds. VanDyke, J.M., Zaelke, D. & Hewison, G. Island Press, Washington D.C pp. 147 - 170.
- Jansen, H.M.A, Klein, R.J.T., Tol, R.S.J. & Verbruggen, H. (1993), 'Some Considerations on the Economic Importance of Pro-Active Integrated Coastal Zone Management', *World Coast Conference 1993. Proceedings* ed. Beukenkamp, P. Coastal Zone Management Centre, The Hague. pp. 99 - 105.

- Johnston, Douglas M. (1988), 'Marine Pollution Agreements: Success and Problems', *International Environmental Diplomacy: The Management and Resolution of Transfrontier Environmental Problems* ed. Carroll, J.E. Cambridge University Press, Cambridge. pp 199 - 206.
- Johnston, Douglas M. (1996), 'UNCLOS III and UNCED: A Collision of Mind-Sets?', *Oceans Law and Policy in the Post-UNCED Era: Australian and Canadian Perspectives* eds. Kriwoken, L.K., Haward, M., VanderZwaag, D. & Davis, B. Kluwer Law International, Great Britain. pp. 11 - 24.
- Josselyn, Michael, Chamberlain, Sarah, Goodnight, Kate, Hopkins, Helenka & Fiorillo, Adele (1993), *Evaluation of Coastal Conservancy Enhancement Projects 1978 - 1992*, State Coastal Conservancy.
- Joyner, Christopher C. & de Cola, Peter N. (1993), 'Chile's Presential Sea Proposal: Implications for Straddling Stocks' *Ocean Development and International Law* 24 (1, January - March): pp 99 - 121.
- Juda, Lawrence & Burroughs, R.H. (1990), 'The Prospects for Comprehensive Ocean Management' *Marine Policy* 14 (1): pp. 23 - 35
- Kahn, A. E. (1966), 'The Tyranny of Small Decisions: Market Failures, Imperfections, and the Limits of Economics' *KYKLOS. The International Review for Social Sciences* XIX : pp. 22 - 47.
- Kay, Robert (1995), 'What Will Happen to Coastal Planning and Management in Australia When the Federal Dollar Hits the Table?' *Western Planner: Newspaper of the Royal Australian Planning Institute. West Australian Division.* 12 (1): pp. 3 - 4.
- Kelleher, Graeme (1990), *Sustainable Development of the Great Barrier Reef Marine Park*, IUCN.
- Kelleher, Graeme (1993), *The Contribution of Marine Protected Areas to Ecologically Sustainable Development: Action for East Asia. Keynote Address.* The First Conference on National Parks and Protected Areas of East Asia (EA-1), Beijing, China, 12 - 18 September 1993.
- Kelleher, Graeme (1994), *Can the Great Barrier Reef Model of Protected Areas Save Reefs Worldwide?* Ginsburg, R.N. Colloquium on Global Aspects of Coral Reefs: Health, Hazards and History, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 10 - 11 June 1993
- Kellow, Aynsley (1996), 'Thinking Globally and Acting Federally: Intergovernmental Relations and Environmental Protection in Australia', *Federalism and the Environment. Environmental Policymaking in Australia, Canada and the U.S.* eds. Holland, K.M., Morton, F.L. & Galligan, B. Greenwood Press, Westport, Connecticut. pp. 135 - 156.
- Kenchington, Richard (1990), *Managing Marine Environments*, Taylor & Francis, New York .
- Kenchington, Richard (1991), *Maritime Conservation and the Role of Marine and Estuarine Protected Areas.* Ivanovici, A., Tarte, D. & Olson, M. Fourth Fenner Conference on the Environment, Canberra, 9 - 11 Oct 1991, IUCN, Australian National Parks and Wildlife Service.
- Kenchington, Richard (1992), 'Planning the Great Barrier Reef Marine Park', *Marine, Lake and Coastal Heritage. Proceedings of a Heritage Resource Centre Workshop* ed. Graham, R. Department of Recreation and Leisure Studies, Heritage Resources Centre, University of Waterloo. pp. 37 - 56.
- Kenchington, Richard & Agardy, Mary T. (1990), 'Achieving Marine Conservation Through Biosphere Reserve Planning and Management' *Environmental Conservation* 17 (1, Spring): pp. 39 - 44.
- Kenchington, Richard, Agardy, T., Dobbin, J., Foster, N., Hanson, A., Broadus, J., Gable, F. & Gaines, A. (1992), 'Marine Conservation and Biosphere Reserves', *Marine, Lake and Coastal Heritage. Proceedings of a Heritage Resource Centre Workshop* ed. Graham, R. Department of Recreation and Leisure Studies, Heritage Resources Centre, University of Waterloo. pp. 139 - 222.
- Kenchington, Richard & Crawford, David (1993), 'On the Meaning of Integration in Coastal Zone Management' *Ocean and Coastal Management* 21 : pp 109 - 127.
- Kennedy, Fiona (1994), Port in a Storm, The Australian. Tuesday Oct 4, 1994, p. 13.

- Kennedy, Fiona (1995), Marine park's main threat comes from land: guardian, *The Weekend Australian*. Jan 14 - 15, p. 6.
- Kennett, Steven (1997), 'Boundary Issues and Canadian Environmental Legislation', *Environmental Policy. Transnational Issues and National Trends* eds. Caldwell, L.K. & Bartlett, R.V. Quorum Books, Westport. pp. 131 - 155.
- Keohane, R.O. & Nye, J.S. (1985), 'Two Cheers for Multilateralism' *Foreign policy* 60 (Fall): pp. 151.
- Kimball, Lee A. (1995), 'An International Regime for Managing Land-based Activities That Degrade Marine and Coastal Environments' *Ocean and Coastal Management* 29 (1 - 3): pp. 187 - 206.
- Kincaid, John (1996), 'Intergovernmental Costs and Coordination in U.S. Environmental Protection', *Federalism and the Environment. Environmental Policymaking in Australia, Canada and the U.S.* eds. Holland, K.M., Morton, F.L. & Galligan, B. Greenwood Press, Westport, Connecticut. pp. 79 - 101.
- Klingener, Nancy (1995a), Strategies to Save our Sanctuaries. 900-page Plan Unveiled., *The Keys*. *The Herald*. Tuesday April 4, Florida. p. 2B.
- Klingener, Nancy (1995b), Foreign experts to address marine reserve, *The Keys*. *The Herald*. Wednesday October 12, Florida. p. 1B.
- Klingener, Nancy (1995c), Poll: 56 percent support sanctuary., *The Keys* *The Herald*. Friday June 23, Florida. p. 1B.
- Knecht, Robert W. (1992), 'National Ocean Policy in the United States: Less Than the Sum of its Parts', *Ocean Management in Global Change* ed. Fabbri, P. Elsevier Applied Science, London. pp. 184 - 208.
- Knecht, Robert W. (1993), *The National Estuarine Research Reserve System: Building a Valuable National Asset*, Review Panel on the National Estuarine Research Reserve System, An Assessment by the Review Panel on the National Estuarine Research Reserve System. Final Report to NOAA.
- Knecht, Robert W., Cicin-Sain, Biliana & Archer, Jack H. (1988), 'National Ocean Policy: A Window of Opportunity' *Ocean Development and International Law* 19: pp. 113 - 142.
- Knecht, Robert W., Cicin-Sain, Biliana & Fisk, Gregory W. (in press), 'Perceptions of the Performance of State Coastal Zone Management Programs in the United States' *Coastal Management Journal*.
- Krier, James E. & Brownstein, Mark (1992), 'On Integrated Pollution Control' *Environmental Law* 22 (1): pp. 119 - 138.
- Kriwoken, Lorne (1989), Australian Marine Protected Area Policy: Toward a National System of Marine Biosphere Reserves, December, PhD thesis, Centre for Environmental Studies, University of Tasmania.
- Kriwoken, Lorne (1991), 'Great Barrier Reef Marine Park. Intergovernmental Relations' *Marine Policy* 15 (5): pp. 349 - 362.
- Kriwoken, Lorne & Cote, Raymond (1996), 'Developments in Australian and Canadian Marine Environmental Management', *Oceans Law and Policy in the Post-UNCED Era: Australian and Canadian Perspectives* eds. Kriwoken, L., Haward, M., VanderZwaag, D. & Davis, B. Kluwer Law International, London. pp. 215 - 242.
- Krockenberger, Michael (1992), *Strategies for National Environmental Management*, Australian Conservation Foundation, Conference paper - New Directions in Coastal Management Conference. Sydney. 22 - 23 October, 1992.
- Lamson, Cynthia (1991), 'The Coastal Zone', *Maritime Affairs: A World Handbook* ed. Gold, E. Longman Current Affairs, UK. 2nd, ed. pp 282 - 302.

- Lang, Reg, Ed. (1986a), *Integrated Approaches to Resource Planning and Management*. The Banf Centre, School of Management, Canada.
- Lang, Reg (1986c), 'Achieving Integration in Resource Planning', *Integrated Approaches to Resource Planning and Management* ed. Lang, R. The Banf Centre, School of Management, Canada. pp 27 - 50.
- Lester, James P. (1990), 'A New Federalism? Environmental Policy in the States.', *Environmental Policy in the 1990s. Toward a New Agenda* eds. Vig, N.J. & Kraft, M.E. CQ Press, Washington D.C. pp. 59 - 79.
- Levy, Jean-Pierre (1988), 'Towards an Integrated Marine Policy in Developing Countries' *Marine Policy* 12 (4): pp. 326 - 342.
- Levy, Jean-Pierre (1993), 'A National Ocean Policy. An Elusive Quest' *Marine Policy* 17 (2): pp. 75 - 80.
- Lewis, Kaaren (1995), *A Marine Protected Areas Strategy for the Pacific Coast of Canada*, Land Use Coordination Office, Land Use Planning Working Group directional statement.
- Lindblom, Charles (1959), 'The Science of "Muddling Through"' *Public Administration Review* 19: pp. 79 - 88.
- Lindblom, Charles (1979), 'Still Muddling, Not Yet Through' *Public Administration Review* 39: pp. 517 - 526.
- Lloyd, David & Wachenfeld, David (1998), 'Working to Save Nature's Playground' *Reef Research* 8 (1): pp. 24 - 27.
- Lowry, Kem, Jarman, Casey & Maehara, Susan (1990), 'Ocean Management in Hawai'i' *Coastal Management* 18: pp. 233 - 254.
- Lowry, Kem, Jarman, Casey & Maehara, Susan (1993), 'Federal-State Coordination in Coastal Management. An Assessment of the Federal Consistency Provision of the Coastal Zone Management Act' *Ocean and Coastal Management* 19 (2): pp. 97 - 120.
- Ludwig, Donald, Hilborn, Ray & Walters, Carl (1993), 'Uncertainty, Resource Exploitation, and Conservation: Lessons from History' *Ecological Applications* 3 (4): pp. 547 - 549.
- Lunn, Stephen (1997), *Heritage Funds Flow to Ocean Industries*, The Australian. 4 March 1997, p. 10.
- MacDonald, Craig (1995), 'An Integrated Ocean Policy for Hawai'i: the State Ocean Resources Management Plan', *Ocean Governance for Hawai'i* ed. Mensah, T. The Law of the Sea Institute, Honolulu, Hawai'i. pp. 230 - 241.
- Macquarie Library (1981), *The Macquarie Dictionary*, Second Revision 1987. Macquarie University, NSW.
- MACZMAG, Marine and Coastal Zone Management Advisory Group (1997), *Summary of Recommendations by the Non-Government Members*, First annual report of the non government members of MACZMAG.
- Maheswaran, A. (1985), 'Integrated Coastal Zone Development Strategies', *Environmental Protection and Coastal Zone Management in Asia and the Pacific* eds. Kato, I., Kumamoto, N., Matthews, W.H. & Suhaimi, A. University of Tokyo Press, Japan. pp. 77 - 88.
- Mann Borgese, Elisabeth, Ed. (1972), *Pacem In Maribus*. Dodd, Mead & Co., New York.
- Marine and Coastal Community Network, MCH (1996), 'Marine and Coastal Community Network, Strategic Plan 1996-97' *Waves* 3 (1): pp. 6 - 7.
- Marsh, John (1992), *Marine Park Initiatives Around the World*. Graham, R. Marine, Lake and Coastal Heritage, University of Waterloo, Canada, Jan 1992. Heritage Resources Centre.

- Mason, R.O. & Mitroff, I.I. (1981), *Challenging Strategic Planning Assumptions: Theory, Cases and Techniques*, John Wiley and Sons, New York .
- May, R.F., Lenanton, R.C.J & Berry, P.F. (1983), *Ningaloo Marine Park. Report and Recommendations by the Marine Park Working Group*, National Parks Authority, Report 1.
- May, Robert, M (1994), 'The Economics of Extinction' *Nature* 372 (6501, 3 Nov): pp. 42 - 43.
- McBurney, Dave (1978), *The Management of Fisheries Within Marine Waters of National Parks*, Natural Resources Division, Parks Canada, Discussion paper to be presented at the Chiefs Resource Conservation Conference, January 24 - 26, 1978.
- McClellan, Stan (1992), 'Fathom Five Provincial Park - A Successful Fifteen Year Old', *Marine, Lake and Coastal Heritage. Proceedings of a Heritage Resource Centre Workshop* ed. Graham, R. Department of Recreation and Leisure Studies, Heritage Resources Centre, University of Waterloo. pp. 87 - 90.
- McDonald, Adrian & Atkinson, Ken (1994), 'Environmental Issues and Policies in the USA and Canada', *The USA and Canada 1994* . Europa Publications Ltd., London, England. 2nd edition, ed. pp. 375380.
- McKinnon, K.R. (1989), *Oceans of Wealth*, Review Committee on Marine Industries, Science and Technology.
- McKinnon, K.R. (1994), 'The Law of the Sea and Australian Ocean Policy' *Maritime Studies* (Nov - Dec): pp. 18 - 24.
- Meltzer Research and Consulting (1996), *A Strategy for Achieving Integrated Management*, Prepared for the Department of Fisheries and Oceans, Canada, Consultancy Report.
- Miles, Edward L. (1992), 'Future Challenges in Ocean Management: Towards Integrated National Policy', *Ocean Management in Global Change* ed. Fabbri, P. Elsevier Applied Science, London. pp. 595 - 620.
- Miles, Edward L. (1995), 'The Approaches of UNCLOS III and Agenda 21 - A Synthesis', *Sustainable Development and Preservation of the Oceans: The Challenges of UNCLOS and Agenda 21, International Conference, 19 - 22 June 1997. 29th Annual Conference, Law of the Sea Institute*. ed. Bali.
- Millhouser, Bill (1997), 'National CZM Effectiveness Study. How Well has the Federal Coastal Zone Management Act Worked?' *Coastlines. Information about Estuaries and Near Coastal Waters*. 7 (3).
- Mitchell, Bruce (1986), 'The Evolution of Integrated Resource Management', *Integrated Approaches to Resource Planning and Management* ed. Lang, R. The Banf Centre, School of Management, Canada. pp 13 - 26.
- Moir, S.B. Consulting (1997), *Lessons Learned: the Atlantic Coastal Action Program*, ACAP, A Report Prepared for Environment Canada.
- Mondor, Claude (1992a), 'Canada's National Marine Park Policy, Evolution and Implementation', *Marine, Lake and Coastal Heritage. Proceedings of a Heritage Resource Centre Workshop* ed. Graham, R. Department of Recreation and Leisure Studies, Heritage Resources Centre, University of Waterloo. pp. 57 - 70.
- Mondor, Claude (1992b), 'Planning for Canada's System of National Marine Parks', *Marine, Lake and Coastal Heritage. Proceedings of a Heritage Resource Centre Workshop* ed. Graham, R. Department of Recreation and Leisure Studies, Heritage Resources Centre, University of Waterloo. pp. 223 - 234.
- Moorcroft, Colin (1972), *Must the Seas Die?*, Temple Smith, London .
- Morris, Graham C. (1983), ' The Great Barrier Reef Marine Park Authority: A Unique Management Concept' *Parks* 8 (3): pp, 1- 4.

- Morton, F.L. (1996), 'The Constitutional Division of Powers with Respect to the Environment in Canada', *Federalism and the Environment. Environmental Policymaking in Australia, Canada and the U.S.* eds. Holland, K.M., Morton, F.L. & Galligan, B. Greenwood Press, Westport, Connecticut. pp. 37 - 53.
- MPA Steering Committee and Work Group (1997), *Toward a Marine Protected Areas Strategy for the Pacific Coast of Canada. A Draft Discussion Paper*, BC Parks; Parks Canada; Environment Canada; Land Use Coordination Office; Department of Fisheries and Oceans; Ministry of Agriculture, Fisheries and Food, BC, Prepared for the 2nd Marine Protected Areas Forum, Parksville and Prince Rupert, British Columbia.
- Muller, F.J. (1982), 'Environmental Management: Issues of an Integrated Planning Approach', *Integrated Physical, Socio-Economic and Environmental Planning* eds. Ahmad, Y.J. & Muller, F.J. Tycooly International Publishing Ltd., Dublin. pp. 17 - 34.
- Mulrennan, Monica E. & Pollard, Wayne H. (1994), *Indigenous People and Coastal Zone Management: The Experience of Canada's James Bay Cree and Australia's Torres Strait Islanders*. Wells, P.G. & Ricketts, P.J. 2, 5. Coastal Zone Canada '94, Halifax, Nova Scotia, 20 - 23 Sept. 1994. Coastal Zone Canada Association.
- NABST (1994), *Opportunities From Our Oceans*, National Advisory Board on Science and Technology, Committee on Oceans and Coasts, Report of the National Advisory Board on Science and Technology.
- Nadelson, Robert (1992), 'The Exclusive Economic Zone. State Claims and the LOS Convention.' *Marine Policy* 16 (6): pp. 463 - 487.
- Nelkin, Dorothy (1982), 'Public Participation in Environmental Planning', *Integrated Physical, Socio-Economic and Environmental Planning* eds. Ahmad, Y.J. & Muller, F.J. Tycooly International Publishing, Ltd., Dublin. pp. 73 - 92.
- NOAA (1995a), *An Overview of the Sanctuaries and Reserves Division, Second Edition*, National Ocean Service, Sanctuaries and Reserves Division.
- NOAA (1995b), *Healthy Coastal Ecosystems and the Role of Integrated Coastal Management*, National Ocean Service.
- NOAA (1995c), *Florida Keys National Marine Sanctuary. Draft Management Plan/Environmental Impact Statement*, Office of Ocean and Coastal Resources Management, Sanctuaries and Reserves Division, Management Plan.
- Nurmi, Satu (Legal Counsellor for International Environmental Affairs, Ministry of the Environment, Helsinki, Finland) (1988), 'Chapter 14: Issues and Problems in the Protection of the Marine Environment.', *International Environmental Diplomacy: The Management and Resolution of Transfrontier Environmental Problems* ed. Carroll, J.E. Cambridge University Press, Cambridge. pp. 207 - 227.
- O'Riordan, T. & Vellinga, P. (1993), 'Integrated Coastal Zone Management: The Next Steps', *World Coast Conference 1993 Proceedings* ed. Beukenkamp, P. Coastal Zone Management Centre, The Hague. pp. 409 - 413.
- OECD (1989), *Water Resource Management. Integrated Policies*, Organisation for Economic Cooperation and Development.
- OECD (1990), *Final Declaration of the 3rd International Conference on the Protection of the North Sea*, 12 March 1990, Environment Directorate, Environment Committee Group on National Resource Management, Paris (ENV/NRM/90.1).
- OECD (1992), *Recommendation of the Council in Integrated Coastal Zone Management (adopted by the Council at its 787th session on 23 July 1992)*, Organisation for Economic Cooperation and Development, C(92)114/FINAL.
- OECD (1993), *Coastal Zone Management: Integrated Policies*, Development, France.
- Old Humphrey, (1856). *Old Humphrey's Observations*. The Religious Tract Society, London.

- Olsen, Stephen (1993), 'Will Integrated Coastal Management Programs be Sustainable: the Constituency Problem' *Ocean and Coastal Management* 21 (1 - 3): pp. 201 - 225.
- Olsen, Stephen (1995), *Linking the Concepts of Large Marine Ecosystem Management with Integrated Coastal Management*. Large Marine Ecosystems, Florida, 23 - 25 Aug, 1995.
- Olsen, Stephen (1996), *Increasing the Efficiency of Integrated Coastal Management*, IUCN World Conservation Congress (WCC), Montreal, Canada, 13 - 23 October 1996, Keynote Paper.
- Olsen, Stephen, Hale, Lynne Zeitlin, Dubois, Random, Robadue, Donald & Foer, Gordon (1989), June, *Integrated Resources Management for Coastal Environments in the Asia Near East Region*, USAID, Asia Near East Bureau.
- ORCA (1994), *Recent Publications from NOAA's Strategic Assessment Program*, Office of Ocean Resources Conservation and Assessment.
- Oregon Coastal Management Program (undated), *Coastal - Ocean Report to the LCDC, The Oregon Coastal Management Program*, Land Conservation and Development Commission.
- Oregon Ocean Policy Advisory Council (1994), *State of Oregon Territorial Sea Plan*, Land Conservation and Development Commission.
- Osborn, Dick and Associates (1993), *The Prospect for Institutional Arrangements to Promote Integrated Coastal Zone Management*, Resource Assessment Commission, Consultancy report for the RAC.
- Osborne, Sue (1995), 'Ningaloo Marine Park', *Our Sea, Our Future. Major Findings of the State of the Marine Environment Report for Australia* ed. Zann, L.P.
- Ottesen, Peter & Kenchington, Richard (1994), *Marine Conservation and Protected Areas in Australia: What is the Future?* Second International Conference on Science and the Management of Protected Areas, 16 - 20 May 1994, Dalhousie University, Halifax, Nova Scotia.
- Paisley, Richard Kyle (1992), *Marine Protected Areas (MPA) in British Columbia. A Discussion Paper*, Westwater Research Centre, University of British Columbia, Final Report to the Law Foundation of B.C.
- Pallemaerts, Marc (1993), 'International Environmental Law from Stockholm to Rio: Back to the Future?', *Greening International Law* ed. Sands, P. Earthscan Publications Ltd, London. pp 1 - 19.
- Pardo, Arvid (1979), 'Law of the Sea Conference - What Went Wrong', *Managing Ocean Resources: A Primer* ed. Friedheim, R. Westview Press, Boulder, Colorado. pp 137 - 148.
- Parks Canada (1996a), *Parks Canada Mandate for Change*, April 2, 1996.
- Parks Canada & Canadian Heritage (1994), *Parks Canada Guiding Principles and Operational Policies*, Minister of Supply and Services.
- Parks Canada & Canadian Heritage (1995a), *State of the Parks 1994 Report*, Minister of Supply and Services.
- Parks Canada & Canadian Heritage (1995b), *Sea to Sea to Sea. Canada's National Marine Conservation Areas System Plan*, Ministry of Supply and Services.
- Parks Canada & Canadian Heritage (1997), *Charting the Course: Towards a Marine Conservation Areas Act*, Minister of Public Works and Government Services.
- Parks Canada & Canadian Heritage (1998), *Parks Canada to Become Federal Agency*, Canadian Heritage, News Release, 5 February 1998.
- Pavasovic, Arsen (1994), *Regional Cooperation and its Role in Integrated Coastal Management - Experience of the Mediterranean Action Plan - UNEP*, Coastal Zone Canada '94. Cooperation in the Coastal Zone, World Trade and Convention Centre, Halifax, Nova Scotia, Canada, 20 - 23 September 1994, Conference Proceedings, pp. 165 - 180.

- Pearce, John B. (undated), *The State of the World's Oceans According to United Nations Environmental Program (UNEP); New Ways Forward for the Gulf of Maine*, DOC, NOAA, NMFS, Northeast Fisheries Centre.
- Peet, Gerard (1992), 'Ocean Management in Practice', *Ocean Management in Global Change* ed. Fabbri, P. Elsevier Applied Science, London. pp. 39 - 56.
- Pernetta, John & Elder, Danny (1993), *Cross-sectoral, Integrated Coastal Area Planning (CICAP): Guidelines and Principles for Coastal Area Development*, IUCN, Gland, Switzerland, A Marine Conservation and Development Report.
- Pfund, Rose T. (1994), 'Application of the Australian Public Authority as a Model for the Management of Hawai'i's Ocean Resources', *Ocean Yearbook No. 11*. University of Chicago, pp. 275 - 286.
- Pitts, David (1993), *Analysis of Strategic Planning Processes and Initiatives for Coastal Zone Management*, Resource Assessment Commission, Consultancy Report, Commissioned by the Coastal Zone Inquiry, Resource Assessment Commission.
- Poole, Stephanie (1996), 'The United States National Estuary Program' *Ocean and Coastal Management* 30 (1): pp. 63 - 67.
- Prideaux, Margi, Horstman, Mark & Emmett, Jon (1998), April, *Sustainable Use or Multiple Abuse?*, Australian Conservation Foundation, Special Habitat Supplement.
- Puget Sound/Georgia Basin International Task Force (1995), *Puget Sound/Georgia Basin International Task Force Status Report*, November 22, 1995, Environmental Cooperation Council.
- Queensland Government (1991), *Integrated Catchment Management. A Strategy for Achieving the Sustainable and Balanced Use of Land, Water and Related Biological Resources*, Department of Primary Industries, Queensland Government.
- RAC (1993a), *Coastal Zone Inquiry. Final Report.*, Resource Assessment Commission, AGPS, Canberra.
- RAC (1993b), *Integrated Resource Management in Australia*, Resource Assessment Commission, Information Paper, No. 6.
- RAC (1993e), *Coastal Zone Inquiry. Final Report Overview*, Resource Assessment Commission, AGPS, Canberra.
- RAC (1993f), *Government Approaches to Coastal Zone Resource Management*, Resource Assessment Commission, Information Paper No. 1.
- Ray, G. Carlton (1976), 'Critical Marine Habitats', *Proceedings of an International Conference on Marine Parks and Reserves (held at Tokyo, Japan 12 -14 May 1975)* ed. IUCN. IUCN, Morges, Switzerland. pp. 34 - 59.
- Ray, G. Carleton & Hayden, Bruce P. (1993), 'Marine Biogeographic Provinces of the Bering, Chukchi, and Beaufort Seas', *Large Marine Ecosystems. Stress Mitigation and Sustainability* eds. Sherman, K., Alexander, L.M. & Gold, B.D. American Association for the Advancement of Science, Washington D.C. pp. 175 - 184.
- Ray, G. Carleton & McCormick-Ray, M. Geraldine (1987), *Coastal and Marine Biosphere Reserves*. 4th World Wilderness Congress, Colorado, USA, 11 - 18 Sept. 1987.
- Reynolds, Anne & Tarte, Diane (1998), 'New Debate on an old Topic - Oil Mining on the Great Barrier Reef' *Waves, Newsheet of the Marine and Coastal Community Network* 5 (2): p 11.
- Robadue, Donald (1995), *Eight Years in Ecuador: The Road to Integrated Coastal Management*, Coastal Resources Centre, U.S. Agency for International Development, Global Environmental Centre, CRC Technical Report N. 2088.

- Roberts, G.K. (1978), 'The Explanation of Politics: Comparison, Strategy and Theory', *The Practice of Comparative Politics: A Reader* eds. Lewis, P.G., Potter, D.C. & Castles, F.E. Longman, London. pp. 287 - 303.
- Rothwell, Donald (1996), 'The Legal Framework for Ocean and Coastal Management in Australia' *Ocean and Coastal Management* 33 (1 - 3): pp. 41 - 61.
- Rothwell, Donald & Haward, Marcus (1996), 'Federal and international perspectives on Australia's maritime claims' *Marine Policy* 20 (1): pp. 29 - 46.
- Sainsbury, Keith, Haward, Marcus, Kriwoken, Lorne, Tsamenyi, Martin & Ward, Trevor (1997), *Australia's Ocean Policy. Oceans Planning and Management, Issues Paper 1. Multiple Use Management in the Australian marine Environment: Principles, Definitions and Elements*, Department of the Environment, A Report Commissioned by Environment Australia, Issues Paper 1.
- Salasan Associates Inc, Regional Consulting Limited & Quadra Planning Consultants Ltd (undated), *"Towards A Coastal Resource Strategy". Final Report*, Coastal Resource Strategy Study Steering Committee, Final workshop report.
- Salm, Rodney V. & Clark, John R. (1984), *Marine and Coastal Protected Areas: A Guide for Planners and Managers*, IUCN, Gland, Switzerland .
- Sartori, Giovanni (1991), 'Comparing and Miscomparing' *Journal of Theoretical Politics* 3 (3): pp. 243 - 257.
- Saunders, Cheryl (1996), 'The Constitutional Division of Powers with Respect to the Environment in Australia', *Federalism and the Environment. Environmental Policymaking in Australia, Canada and the U.S.* eds. Holland, K.M., Morton, F.L. & Galligan, B. Greenwood Press, Westport, Connecticut. pp. 55 - 76.
- Savory, Alan (1988), *Holistic Resource Management*, Island Press, Washington .
- Scura, Louise Fallon, Chua, Thia-Eng, Pido, Michael D. & Paw, James N. (1992), *Lessons for Integrated Coastal Zone Management: the ASEAN Experience* ICLARM.
- SEAPOL (1994), *Report of the Singapore Conference on 'Sustainable Development of Coastal and Ocean Areas in South-East Asia: Post Rio Perspectives'*, 26 - 28 May, 1994, SEAPOL; the Faculty of Law of the National University of Singapore; the IUCN Commission on Environmental Law.
- SFBCDC (1969), *San Francisco Bay Plan*, San Francisco Bay Conservation and Development Commission.
- Shearer, Ivan (1994), *The EEZ: Implications for National and International Marine Industries and Sectors*. Ocean Outlook Congress, Old Parliament House, Canberra, 16 - 17 November 1994.
- Shepherd, A.D. (1991), 'ICZM: Are we Reinventing the Wheel?', *The Status of Coastal Zone Management: A Global Assessment* ed. Clark, J.R. CAMPNET, Coastal Area Planning and Management Network, Miami, Florida. pp. 33 - 34.
- Sherman, Kenneth (1994), 'Sustainability, Biomass Yields, and Health of Coastal Ecosystems: An Ecological Perspective' *Marine Ecology Progress Series* 112 (September): pp. 277 - 301.
- Sherman, Kenneth, Alexander, Lewis M. & Gold, Barry D., Eds. (1993), *Large Marine Ecosystems. Stress, Mitigation and Sustainability*. AAAS Press, USA.
- Simonis, Udo E. (1993), *Environmental Policy in the Federal Republic of Germany - Creative and Precautionary Approaches*, Institute of Environmental Studies, University of NSW, Paper presented at the Precautionary Principle Conference, The Precautionary Principle. A New Approach to Environmental Management, 20 -21 Sept, 1993.
- Simpson P. & Associates (1993), *The Development and Application of Institutional Arrangements and Intergovernmental Agreements to Integrated Coastal Zone Management*, Resource Assessment Commission.

- Skogstad, Grace (1996), 'Intergovernmental Relations and the Politics of Environmental Protection in Canada', *Federalism and the Environment. Environmental Policymaking in Australia, Canada and the U.S.* eds. Holland, K.M., Morton, F.L. & Galligan, B. Greenwood Press, Westport, Connecticut. pp. 103 - 133.
- Smith, Hance D. (1994), 'The Development and Management of the World Ocean' *Ocean and Coastal Management* 24 (1): pp. 3 - 16.
- Smith, Hance D. & Vallega, Adalberto, Eds. (1991), *The Development of Integrated Sea-Use Management*. Routledge, New York.
- Sorensen, Jens (1993), 'The International Proliferation of Integrated Coastal Zone Management Efforts' *Ocean and Coastal Management* 21 (1 - 3): pp. 45 - 80.
- Sorensen, Jens & McCreary, Scott (1990), *Institutional Arrangements for Managing Coastal Resources and Environments*, National Park Service, U.S. Department of the Interior and U.S. Agency for International Development, Renewable Resources Information Series, Coastal Management Publication No. 1.
- Springer, Allen L. (1988), 'U.S. Environmental Policy and International Law: Stockholm Principle 21 Revisited', *International Environmental Diplomacy. The Management and Resolution of Transfrontier Environmental Problems* ed. Carroll, J.E. Cambridge University Press, Cambridge. pp. 45 - 65.
- Stark, K.P. & Pomeroy, A.B. (1983), *A Systems Approach to the Management of a Reef Ecosystem*, GBRMPA, Workshop on the Northern Sector of the Great Barrier Reef. Papers and Proceedings of a Workshop held in Townsville 20, 21 April 1978, GBRMPA Workshop Series No.1.
- Stephen, James Thomas (1987), *The Great Barrier Reef Marine Park Authority: A Case Study in Executive Federalism*, Awarded 14 May 1990, Masters of Public Administration, University of Queensland.
- Stonehouse, Brett (1995), 'Community Input into Transparent Coastal Management; or 'Keeping the Bastards Honest' *Waves* 2 (3): p. 7.
- Strong, Maurice (1995), quoted by Prime Minister Ingvar Carlsson of Sweden, Co-chairman of the Commission on Global Governance at the conference, *The United Nations - Between Sovereignty and Global Governance*, Latrobe University, Melbourne, Australia. July 2 - 6, 1995.
- Suter, K.D. (1983), *Marine and Estuarine Reserves in Australia. Towards a National Policy*, Marine and Coastal Protection Group of the Fund for Animals Ltd. Australia.
- The Resources Agency of California (1995), *California's Ocean Resources: An Agenda for the Future*, State of California, The Resources Agency, DRAFT.
- The Resources Agency of California (1997), *California's Ocean Resources: An Agenda for the Future*, Pete Wilson, Governor, State of California, Douglas P. Wheeler, Secretary, The Resources Agency, executive summary
- Underdal, Arild (1980), 'Integrated Marine Policy. What? Why? How?' *Marine Policy* (July): pp 159 - 169.
- UNEP (1995), *Guidelines for Integrated Management of Coastal and Marine Areas - With Special Reference to the Mediterranean Basin*, UNEP Regional Seas Reports and Studies, No. 161.
- UNESCO (1986a), *Coastal Offshore Ecosystems Relationships*, Final Report of SCOR/IABO/UNESCO, Working Group 65, UNESCO Technical Papers in Marine Science 48.
- UNESCO (1986b), *Research on Coastal Marine Systems*, Report of the third meeting of the UNESCO/ SCOR/ IABO consultative panel on coastal systems, October 1984, UNESCO Technical Papers in Marine Science, 47.
- UNESCO (1993), *UNESCO Activities Relevant to the Management of Coastal Areas and Resources*. World Coast Conference, The Hague, Netherlands, 1 - 5 November 1993.

- United Nations (1972), *Declaration of the United Nations Conference on the Human Environment*, United Nations Conference on the Human Environment, The Stockholm Declaration, 21st Plenary Meeting, 16 June 1972.
- United Nations (1993), *Earth Summit. Agenda 21. The UN Program of Action From Rio*.
- United Nations (1998), *United Nations Launches Expanded Internet Site on International year of the Oceans*, Press Release 11 August 1998, PI/1075, SEA/1590.
- United States Environmental Protection Agency, Office of Water (1998), 'The National Estuary Program: A Ten Year Perspective. Demonstrating Practical Tools for Watershed Management Through the National Estuary Program.' *Coastlines. Information about Estuaries and Near Coastal Waters*. 8(1): pp. 1 - 6.
- USAID (1989), *Integrated Resources Management for Coastal Environments in the Asia Near East Region*, (US Agency for International Development) Asia Near East Bureau, The University of Rhode Island.
- US Department of Commerce (1992), *Monterey Bay National Marine Sanctuary. Final Environmental Impact Statement/Management Plan*, National Oceanographic and Atmospheric Administration. Sanctuaries and Reserves Division, Final Environmental Impact Statement and Management Plan for the Proposed Monterey Bay National Marine Sanctuary.
- Valentine, Peter S. (1986), 'Between the Devil and the Deep: Parks in the Water' *Park News* 22 (1): pp. 14 - 17.
- Vallega, Adalberto (1993), 'A Conceptual Approach to Integrated Coastal Management' *Ocean and Coastal Management* 21 : pp 149 - 162.
- Vallejo, Stella Maris (1991), 'The Development and Management of Coastal and Marine Areas. An International Perspective', *The Development of Integrated Sea-Use Management* eds. Smith, H.D. & Vallega, A. Routledge, New York. pp 17 - 34.
- Vallejo, Stella Maris (1992), 'Integrated Marine Policies: Goals and Constraints', *Ocean Management in Global Change* ed. Fabbri, P. Elsevier Applied Science, London. pp. 153 - 167.
- Vallejo, Stella Maris (1993), 'The Integration of Coastal Zone Management into National Development Planning' *Ocean and Coastal Management* 21 (1 - 3): pp. 163 - 182.
- VanderZwaag, David, Davis, Bruce, Haward, Marcus & Kriwoken, Lorne, K (1996), 'The Evolving Oceans Agenda: From Maritime Rights to Ecosystem Responsibilities', *Oceans Law and Policy in the Post-UNCED Era: Australian and Canadian Perspectives* eds. Kriwoken, L.K., Haward, M., VanderZwaag, D. & Davis, B. Kluwer Law International, London. pp. 1 - 9.
- Verlaan, Philomene A. (1994), *The Regional Seas Program and a Strategy for Ocean Governance*, Paper presented at the 28th Annual Conference of the Law of the Sea Institute, 11 - 14 July 1994, Honolulu, Hawai'i.
- Vicuna, Francisco Orrego (1993), 'Toward an Effective Management of High Seas Fisheries and the Settlement of the Pending Issues of the Law of the Sea' *Ocean Development and International Law* 24(1): pp 81 - 92.
- Walker, Terry A., Bell, Peter R.F., Gabic, Albert J., Kinsey, Donald W., Hopley, David, Yellowless, David & Cuff, Chris (1991), 'Pollution and the Great Barrier Reef' *Search* 22 (4): pp. 115 - 121.
- Walmsley, D.J. (1972), *Systems Theory: A Framework for Human Geographical Enquiry*, Research School of Pacific Studies, The Australian National University, Canberra.
- Wang, James (1992), *Handbook on Ocean Politics and Law*, Greenwood Press, Westport, USA.
- Ward, Barbara & Dubos, Rene (1976), 'The Oceans.', *The Ecology of Man: An Ecosystems Approach* ed. Smith, R.L. Harper & Row Publishers, New York. 2, ed. pp. 292 - 297.

- Warren, Robert (1981), 'An Ecology of Governments: Coastal Zone Management in a Federal System', *Making Ocean Policy. The Politics of Government Organisation and Management* eds. Hoole, F., Friedheim, R. & Hennessey, T. Westview Press, Colorado. pp. 113 - 129.
- Watt, D. Cameron (1990), 'An Integrated Marine Policy. A Meaningful Concept?' *Marine Policy* 14 (4): pp. 299 - 304.
- WCED (1987), *Our Common Future*, Brundtland, G.H., World Commission on the Environment and Development.
- Weide, Jentje van der (1993), 'A Systems View of Integrated Coastal Management' *Ocean and Coastal Management* 21 (1 - 3): pp. 129 - 148.
- Wells, Peter G & Ricketts, Peter J., Eds. (1994), *Coastal Zone Canada '94, Cooperation in the Coastal Zone, Conference Proceedings*. Wells, P.G. & Ricketts, P.J., Coastal Zone Canada '94, Cooperation in the Coastal Zone. Nova Scotia.
- Westcott, Geoff (1996), *The Next Step Towards Developing An Australian Oceans Policy: A Discussion Paper*, Deakin University, Discussion paper.
- Williams, Caroline (1998), Combating Marine Pollution from Land-based Activities: Post-UNCED prospects and initiatives. PhD thesis, Institute for Antarctic and Southern Ocean Studies, University of Tasmania, May 1998.
- Williams, C. & Davis, B. (1995), 'Land Based Activities: What Remains to be Done' *Ocean and Coastal Management* 29 (1 - 3): pp. 207 - 222.
- Wilson, B.R. (1995), 'Marine Conservation and Marine protected Areas in Western Australia', *Our Sea, Our Future. Major Findings of the State of the Marine Environment Report for Australia* ed. Zann, L.P. pp. 493 - 498.
- Winsemius, P. (1993), 'Integration is Necessary for Coastal Zone Management', *World Coast Conference 1993. Proceedings* ed. Beukenkamp, P. Coastal Zone Management Centre, The Hague. pp. 417 - 423.
- Wood, Christopher (1995), *Environmental Impact Assessment. A Comparative Review*, Longman, Essex, England.
- Woodley, Simon (1985), *Report on Current and Potential Developments on Marine and Estuarine Protected Areas - Great Barrier Reef Marine Park*, GBRMPA, Paper at the 2nd CONCOM Technical Workshop on the Selection and Management of Marine and Estuarine Protected Areas, Feb 1985.
- Woodley, Simon, Craik, Wendy, Briggs, David & Raymond, Kayt (1993), 'The Strategic Planning Process for the Great Barrier Reef World Heritage Area' *The Practising Manager* (October): pp. 24 - 30.
- World Bank (1992a), *Technical Guidelines and Strategic Framework for Applications of Integrated Coastal Zone Management*, The World Bank, DRAFT.
- World Bank (1992b), *Integrated Coastal Zone Management - A Process for Achieving Sustainable Coastal Development*, The World Bank, DRAFT Strategy Paper.
- World Bank (1993), *Noordwijk Guidelines for Integrated Coastal Zone Management. Principles in Integrated Coastal Zone Management proposed by the World Bank*, The World Bank.
- Wright, Judith (1977), *The Coral Battleground*, Thomas Nelson, Australia Ltd., Melbourne.
- WWF (1996), Ground Breaking Legislation Raises Hope for Canada's Oceans, World Wildlife Fund. December 19, 1996.
- WWF (1997a), *WWF Calls for Specific Action to Save Embattled Marine Environments*, World Wildlife Fund Canada, Media Release June 5, 1997.
- WWF (1997b), *Media Advisory: Bipartisan Senate Bill Introduced to Protect American Ocean and Coastal Resources*, World Wildlife Fund, Media Advisory 24 September, 1997.

WWF (1998), *Endangered Spaces, Progress Report 1997 - 1998, Number 8*, World Wildlife Fund (Canada) April 28, 1998.

Yurick, Doug (1992), 'Planning A System of National Marine Parks for Canada', *Marine, Lake and Coastal Heritage. Proceedings of a Heritage Resource Centre Workshop* ed. Graham, R. Department of Recreation and Leisure Studies, Heritage Resources Centre, University of Waterloo. pp. 71 - 81.

Zacharias, Mark A. & Howes, Don E. (1998), 'An Analysis of Marine Protected Areas in British Columbia, Canada, Using a Marine Ecological Classification' *Natural Areas Journal* 18 (1): pp. 4 - 13.

Zann, Leon P. (1995), *Our Sea, Our Future. Major Findings of the State of the Marine Environment Report for Australia*, Ocean Rescue 2000 program, DEST, Commonwealth of Australia.

Zimmerman, Klaus (1982), 'Institutional Aspects of Integrated Planning Processes', *Integrated Physical Socio-Economic and Environmental Planning* eds. Ahmad, Y.J. & Muller, F.J. Tycooly International Publishing Ltd., Dublin. pp. 37 - 51.

APPENDIX I

Major reports and inquiries conducted on the management of Australia's marine environment since 1970

- 1970 Senate Select Committee on Water Pollution.
- 1974 Committee of Inquiry in to the National Estate.
- 1978 House of Representatives Standing Committee on Environment and Conservation: *Oil Spills, Prevention and Control*.
- 1980 House of Representatives Standing Committee on Environment and Conservation: *Management of the Australian Coastal Zone*.
- 1981 Senate Standing Committee on Science and the Environment: *Australian Marine Science*.
- 1985 The House of Representatives Standing Committee on Environment and Conservation: *Protection of the Great Barrier Reef*.
Lawrence, R.J *Australian Coastal Zone Management: A Unified Approach*, Fund for Animals (Marine and Coastal Protection Group).
- 1988 Australian Water Resources Council, *Proceedings of the National Workshop on Integrated Management* Jean Gordon, Government Printer, Melbourne.
- 1989 Review Committee on Marine Industries, Science and Technology *Oceans of Wealth*, Department of Marine Industries, Science and Technology. AGPS, Canberra.
- 1991 Report of the House of Representatives Standing Committee on Environment, Recreation and the Arts *The Injured Coastline. Protection of the Coastal Environment*.
- 1992 TASQUE *The Role of Local Government in Environmental Management*, Local Government Ministers' National Working Group, Hobart.
ANZECC & Australian Water Resources Council. *Water Quality: A National Approach* ANZECC, Australia.
Ecologically Sustainable Development Working Group Chairs *Intersectoral Issues Report* AGPS, Canberra.
RAC (May), *Governmental Approaches to Coastal Zone Resource Management*, Information Paper No. 1 AGPS, Canberra.
- 1993 RAC (March), *Coastal Zone Management Objectives*, Information Paper No. 5, AGPS, Canberra.
RAC (March), *Integrated Resource Management in Australia* Information Paper No. 6 AGPS, Canberra.
RAC (May), *Resources and Uses of the Coastal Zone, Coastal Zone Inquiry* Information Paper No. 3 AGPS, Canberra.
RAC (May), *Values and Attitudes Concerning the Coastal Zone*, Information Paper No. 4, AGPS, Canberra.
RAC, *Recommendations from Previous Reports and Inquiries Relevant to the Coastal Zone* Information Paper No. 2 AGPS Canberra.
RAC, *Coastal Zone Management Financial Arrangements* Information Paper No. 7, AGPS, Canberra.
RAC, *The Carrying Capacity Concept and its Application to the Management of Coastal Zone Resources* Information Paper No. 8, AGPS, Canberra.
RAC (November), *Coastal Zone Inquiry. Final Report* AGPS, Canberra.
McKinnon, K.R., *Review of Marine Research Organisation. Report*, Wollongong.
- 1994 CSIRO (Oceanography and Fisheries), AGSO, AIMS, *Ocean Outlook. A Blueprint for the Oceans* A report from the Congress and a Scientific Program Proposed by the Steering Committee.
Australian Committee for IUCN, *Towards a Strategy for the Conservation of Australia's Marine Environment* ACIUCN Occasional Paper No. 5, South Australia.
- 1995 Zann, Leon, *Our Sea, Our Future. Major Findings of the State of the Marine Environment Report for Australia* GBRMPA, Canberra.
Brown, Valerie, *Turning the Tide. Integrated Local Area Management for Australia's Coastal Zone* Department of Environment Sport and Territories, Canberra.

- 1997** Australia's Oceans Policy, Ocean Facts and Figures, *A Primer on Australia's Oceans and Exclusive Economic Zone* Background Paper 1.
 (June) Australia's Oceans Policy, Oceans Planning and Management, *Multiple Use Management in the Australian Marine Environment: Principles, Definitions and Elements*, Issues Paper 1.
 (Sept) Australia's Oceans Policy, Oceans Planning and Management, *Management Instruments for Marine Resource Allocation and Use*, Issues Paper 2.
 (Sept) Australia's Oceans Policy, Oceans Planning and Management, *Best Practice Mechanisms for Marine Use Planning*, Issues Paper 3.
 (Oct) Australia's Oceans Policy, Socio-Cultural Considerations, *Caring for the Commons, Socio-cultural Considerations in Oceans Policy Development and Implementation*, Issues Paper 4.
 (Oct) Australia's Oceans Policy, Socio-Cultural Considerations, *Expanding the Role of Collaborative Management and Stewardship in the Conservation Management of Australia's Marine and Coastal Resources*, Issues Paper 5.
 (Oct) Australia's Oceans Policy, Socio-Cultural Considerations, *Socio-cultural Saltwater Country Aboriginal and Torres Strait Islander Interest in Ocean Policy Development and Implementation* Issues Paper 6.
 (Oct) Australia's Oceans Policy, Oceans Planning and Management, *Summary of Issues Papers*.
 (Nov) Australia's Oceans Policy, Biodiversity Conservation, *Biodiversity Conservation* Issues Paper 7.

Major reports and inquiries conducted on the management of Canada's marine environment since 1969

- 1969** Science Council Special Study #16, *Ad mare: Canada Looks to the Sea*
1970 Science Council of Canada, *Report No. 10: Canada, Science and the Oceans*
1978 (October) Shore Management Symposium sponsored by the Canadian Council of Resource and Environmental Ministers (CCREM) examined the state of Canada's shorelines and how they were being managed.
1988 DFO, *Multi-Year Marine Science Plan*, Interdepartmental Committee on Oceans.
1989 'Canada's Experience with Coastal Zone Management', published.
1991 Environment Canada, *Health of Our Oceans*.
1992 Canadian Marine Policy and Strategy Project prepared by the Centre for Foreign Policy Studies, Dalhousie University.
1994 Government of Canada, *The State of Canada's Environment - 1991*
 Committee on Oceans and Coasts of the National Advisory Board on Science and Technology *Opportunities from our Oceans*.
1996 International Ocean Institute, *A Review of Canadian Ocean Policy and Practice*.

Major reports and inquiries conducted on the management of the United States' marine environment since 1959

- 1959** National Academy of Sciences, *Report on the Ocean Sciences*.
1969 Commission on Marine Science, Engineering and Resources, *Our Nation and the Sea*,
1987 Coastal States Organisation, *Coastal States and the US Exclusive Economic Zone*.
1990 National Coastal Resources Research and Development Institute, *Improving Ocean Management Capacity in the Pacific Coast Region: State and Regional Perspectives*.
1993 Ocean Governance Study Group, *Ocean Governance, Issues and Challenges*.
1994 Ocean Governance Study Group, *Moving Ahead on Ocean Governance*.
1995 Ocean Governance Study Group, *Implications of Entry into Force of the Law of the Sea Convention for US Ocean Governance*.