

AN EXAMINATION OF OCEAN POLICY  
DEVELOPMENT IN CANADA

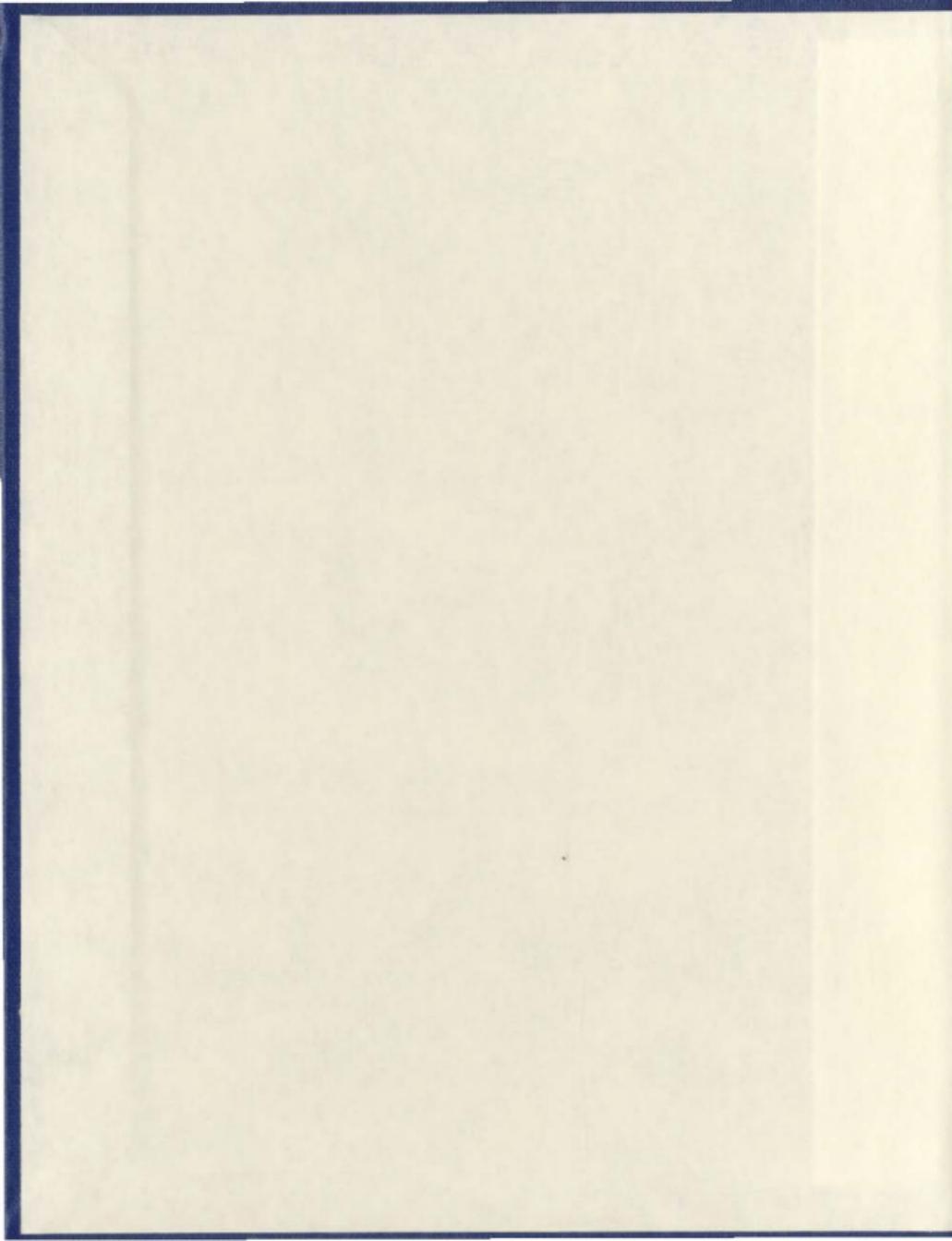
CENTRE FOR NEWFOUNDLAND STUDIES

---

**TOTAL OF 10 PAGES ONLY  
MAY BE XEROXED**

(Without Author's Permission)

JOSEPH M. TILLMAN







**An Examination of Ocean Policy Development in Canada**

by  
**Joseph M. Tillman**

**A thesis submitted to the School of Graduate Studies in partial fulfilment of  
the requirements for the degree of Master of Marine Studies in Fisheries  
Management**

**Fisheries Resource Management  
Memorial University of Newfoundland**

**April 2000**

**St. John's**

**Newfoundland**

## ***Abstract***

Canada's oceans offer important economic, socio-cultural and recreational opportunities that have shaped the country's history and identity. However, this growth is resulting in increased pressure through congestion, environmental degradation and ecosystem imbalances, which threaten the basis for future sustainable growth and in many areas, the biodiversity and ecological integrity of marine ecosystems are being threatened. The increased activity on, in and below our oceans is also manifesting conflicting usage issues that are not only shaping public and therefore policy agendas but is also leading to critical policy pressures that are demanding integration and multi-dimensional rationalization. In Canada there is a multitude of policies, regulations and legislation that bear on the management and development of ocean resources. There are those that direct and control fisheries and other harvesting activities; policies that regulate marine transportation; policies and regulations that direct seabed and subsurface exploration; laws and regulations for recreational use and a plethora of other policies that impact on our ocean resources. This paper examines the evolution of ocean policy in Canada, and describes a mosaic of mostly vertically oriented policies that is shared by other maritime nations and explores recent developments in the ocean policy forum.

<b>TABLE OF CONTENTS</b>	<b>PAGE</b>
<i>INTRODUCTION</i>	1
<b>Legislation</b>	5
<b>Ocean Industries</b>	9
<i>CANADIAN OCEAN POLICY DEVELOPMENT: AN HISTORICAL PERSPECTIVE</i>	11
<i>OCEANS POLICY DEVELOPMENT IN OTHER MARITIME NATIONS</i>	19
<b>Australia</b>	19
<b>India</b>	24
<b>United States of America</b>	27
<b>Japan</b>	31
<i>POLICY DESIGN AND DEVELOPMENT</i>	34
<b>Government Structures and Coordination of Policy Development</b>	35
<i>CANADA'S OCEANS ACT</i>	37
<b>Part I - Canada's Jurisdiction</b>	39
<b>Part II - Oceans Management Strategy (OMS)</b>	41
<b>Part III - Consolidation of Federal Responsibilities for Canada's Oceans</b>	43
<i>PUBLIC PERCEPTIONS OF CANADIAN COASTAL AND OCEAN MANAGEMENT POLICY</i>	46
<i>FUTURE DIRECTIONS</i>	54
<b>Future Directions for Canada</b>	55
<i>REFERENCES</i>	58

## ***Introduction***

"How inappropriate to call this planet Earth, when clearly it is *Ocean*."

Arthur C. Clarke

Earth is a water planet. The ocean covers seventy one percent of the planet's surface and given its depth, accounts for over ninety five percent of its life supporting space. For Canada and many maritime nations, the oceans, in some respects, are our next frontier. Activities impacting on our oceans have experienced unprecedented growth in the past 25 years and they have the capacity to exceed the growth of any other sector of the Canadian economy. The economic contribution of the oceans sector was estimated to be a minimum of 1.4% of Canada's Gross Domestic Product (GDP) in 1996, with contributions to the regional economy of Canada's coastal areas ranging as high as 10.9% of GDP (United Nations Commission on Sustainable Development, Monograph No. 7, 1999). These oceans offer important economic, socio-cultural and recreational opportunities that have shaped Canada's history and identity. However, this growth is resulting in increased pressure through congestion, environmental degradation and ecosystem imbalances, which threaten the basis for future sustainable growth and in many areas, the biodiversity and ecological integrity of marine ecosystems are being threatened. The increased activity on, in and below our oceans is also manifesting conflicting usage issues that are not only shaping public and therefore policy agendas but is also leading to critical policy pressures that are demanding integration and multi-dimensional rationalization.

In Canada there is a multitude of policies, regulations and legislation that bear on ocean resources. There are those that direct and control fisheries and other harvesting activities; policies that regulate marine transportation; policies and regulations that direct seabed and subsurface exploration; laws and regulations for recreational use and a plethora of other policies that impact on our ocean resources. As will be outlined in subsequent chapters, this mosaic of mostly vertically oriented policies is not unique to Canada. Most maritime nations, as a result of natural history and dependence on the seas, have developed a broad range of marine use policies.

The expanding use of ocean resources and the conflict between many of these uses has made it increasingly difficult to coordinate oceans-related activities and to ensure that policies are cohesive. Economic goals in the past have been pursued, for example, without adequate consideration for the broader ecological impact or the consequences for marine safety. The absence of an integrated approach to using a shared resource has often caused conflict among economic, environmental and social objectives. Furthermore, some stakeholders, particularly those who wish to develop the oceans and their resources, are concerned that the large number of government departments and agencies with oceans-related mandates and regulatory regimes complicates opportunities for investment and development.

Policy making has been defined as the process of transformation which turns political inputs into political outputs (Schoettle in O'Riordan 1981). The policy process is characteristically described as a linear or circular process, consisting of problem definition, assessment or evaluation of constituent factors, identification of response

options matched against sets of general or specific objectives, and implementation. Policies do not develop in a vacuum. They are political responses to perceived problems (Lamson C. 1994). In this context it is easy to see why oceans policy issues have become global in scope, support and attention.

Canadian oceans policy making has been highly politicized, reactive and susceptible to special interest group pressures. Many oceans-related policy, program and legislative initiatives have resulted from crises and short-term issues focusing. As a result, programs and policies are sometimes established without due regard for longer-term implications and cross-sectoral influences. For example, regulations to protect fishery resources, although scientifically supportable, may not have considered socio-economic and cultural impacts on fishers and coastal communities. Some hold that these regulations should not be influenced by such factors. This falls within the realm of socio-economic analysis and multi-objective management policies and warrants separate examination beyond the scope of this paper.

The following chapters will examine oceans policy development in the Canadian context. The first three chapters will set the stage and provides a contextual foundation for the paper including an examination of the different ocean sectors in Canada, an historical perspective and a summary of ocean policy development in other maritime nations. The remaining chapters will present current policy design and development issues, a summary of Canada's Oceans Act and a review of public perceptions on oceans policy in Canada. Finally, the paper will conclude with a section outlining possible future directions in ocean policy development.

## ***The Canadian Context: The Oceans Sector***

Canada is a coastal state, with vital sovereign interests in three bordering oceans: the Atlantic, Arctic and Pacific. Canada has the world's longest coastline and one of the largest continental shelves. Its sea-surface area, out to the limits of the Exclusive Economic Zone (EEZ), is equivalent to about 34 percent of Canada's landmass or 5 million square miles ((Opportunities from our Oceans 1994). About 23 percent of Canadians live in coastal communities that border ocean waters, where approximately \$135 billion of economic activity occurs GDP (United Nations Commission on Sustainable Development, Monograph No. 7, 1999).

The oceans sector of the Canadian economy is broadly defined as including fishing, shipping, boating, tourism, oil and gas exploration and development, marine defense industries, and oceans-related manufacturing and services, and is currently estimated to account for between 3 to 6 percent of Canada's GDP. Jurisdictionally, eight of ten provinces and all territories are bordered by our oceans. Federally, 23 departments and agencies have oceans-related programs and 62 of 295 federal ridings are bordered by marine waters (DFO: The Role of the Federal Government in the Oceans Sector 1997).

With 23 federal departments and agencies having interests in the oceans sector, it is not hard to comprehend the vast number of acts, regulations and policies that currently affect management and use of our oceans. At the end of the last sitting of Parliament, there were approximately 110 legislative instruments impacting the oceans in Canada.

## ***Legislation***

The challenge of developing a horizontal, integrated oceans policy can be illustrated by examining a list of major pieces of legislation that impact on the ocean sector. The following list is not all-inclusive and is presented for illustrative purposes:

### *Canada Shipping Act:*

Marine navigation, marine search and rescue, pleasure craft safety, marine ship-source pollution prevention and response, lighthouses, receiver of wrecks, support to other federal departments and agencies.

### *Coastal Fisheries Protection Act:*

Monitoring, control and surveillance.

### *Fisheries Act:*

Conservation and management of fisheries and habitats, licensing, enforcement, international fisheries agreements.

### *Fisheries Development Act:*

Fisheries enhancement and development, aquaculture and resource development research.

### *Fishing and Recreational Harbours Act:*

Small craft harbours.

*Canadian Food Inspection Act:*

Promotes and supports the value, wholesomeness and marketability of fish products produced or sold in Canada.

*Government Organization Act:*

Assigns responsibility for physical oceanography, chemical oceanography, marine ecology, oceans policy development.

*Navigable Waters Protection Act:*

Protects the public right of navigation by providing for removal of obstructions and provides an approval mechanism for planned obstructions.

*Oceans Act:*

Declares Canada's maritime zones in accordance with the provisions of the *United Nations Convention on the Law of the Sea*; provides for the development and implementation of a national oceans management strategy; and provides for the consolidation and clarification of federal responsibilities for the management of Canada's oceans.

*Coasting Trade Act:*

Governs the granting of authority to foreign vessels wishing to conduct marine research within Canada's Exclusive Economic Zones.

*Foreign Affairs and International Trade Act:*

Maritime boundary disputes, Law of the Sea.

*Department of Justice Act:*

Conduct of litigation (including international).

*Arctic Waters Pollution Prevention Act:*

Regulations controlling the deposit of waste north of 60° latitude. Provisions concerning natural resources in areas of the Canadian Arctic for which the Minister has administrative responsibility.

*Canada Petroleum Resources Act:*

Regulates interest in petroleum in relation to frontier lands.

*Nunavut Land Claims Agreement Act:*

Puts into effect land claim agreement.

*National Research Council Act:*

Established NRC, which includes marine engineering, marine biology research.

*Canada Oil and Gas Operations Act:*

Regulation of exploration and exploitation of oil and gas.

*National Transportation Act (1987):*

Review of mergers and acquisitions of marine undertakings. Licensing of northern marine resupply. Dispute resolution mechanisms for shippers and carriers in the marine mode.

*Pilotage Act:*

Marine pilotage in certain waters of Canada.

*Public Harbours and Port Facilities Act:*

Provides for the management of public harbours and port facilities.

*St. Lawrence Seaway Authority Act:*

Seaway operations.

*Canada Wildlife Act:*

Wildlife conservation, research and interpretation, especially through partnerships and establishment of protected marine areas for wildlife.

*Canadian Environmental Assessment Act:*

Integration of environmental factors into federal planning and decision-making.

*Canadian Environmental Protection Act:*

Provides for establishment of Marine Environmental Quality Guidelines; Ocean Disposal; and control of land-based sources of pollution, offshore oil and gas, and toxic substances.

*Migratory Birds Convention Act, 1994:*

Migratory bird conservation.

*National Parks Act:*

Provides for the establishment of marine parks.

### ***Ocean Industries***

Also illustrative of the complexity of the challenge in the development of integrated ocean policies is the extent and scope of the number of industries supported by the oceans sector. The following is a representative sample:

- a marine commercial fishery, which in 1994 had approximately \$3.2 billion in production value and ranked fifth in the world in terms of fish exports. In 1994, the Atlantic fishery had a total production of more than \$2.1 billion and provided employment to more than 45,000 active fishers and another 61,500 workers in processing plants. The Pacific fishery accounted for production of \$900 million and employment of 13,500 active fishers and 6,500 plant workers (DFO: The Role of the Federal Government in the Oceans Sector 1997).
- a marine aquaculture industry, which in 1994 had an output of about \$270 million. Approximately 58 percent of that production was on the Pacific coast and the remaining 42 percent on the Atlantic coast (DFO: The Role of the Federal Government in the Oceans Sector 1997).
- a tidal water sport fishery, which generates \$600 million in value-added economic activity and 15,000 person-years of employment, resulting from anglers' expenditures on goods and services. On average, 500,000 anglers (Canadians and visitors) sportfish in tidal waters each year (DFO: The Role of the Federal Government in the Oceans Sector 1997).

- an offshore oil and gas industry, which is becoming increasingly important as a generator of economic activity, particularly on the Atlantic coast. The offshore regions are believed to contain 70 percent of Canada's unexploited oil reserves and much of its gas potential.
- an offshore mining industry, which is still in its early years of development, as the private sector has not yet shown great interest in exploring and developing offshore mineral interests. However, some forecasters projected that by the year 2000, revenues from offshore mining could be anywhere from \$25 million to \$400 million (DFO The Role of the Federal Government in the Oceans Sector 1997).
- an extensive marine shipping industry, which comprises international and Canadian vessels relying heavily on Canadian ports, container services, stevedoring, etc. About one half of Canada's exports are reliant on the shipping sector.
- a shipbuilding and repair industry, which is spread across the country, with major coastal yards located in Halifax, Saint John, and Vancouver, and smaller yards in a number of other coastal ports.
- an oceans manufacturing and services industry, comprised of hundreds of firms across the country, whose products range from oceanographic and hydrographic instruments to marine related remote sensing devices, submersibles and seabed systems.

## ***Canadian Ocean Policy Development: An Historical Perspective***

The beginning of ocean policy development is perhaps best evidenced by the establishment of an oceans research capacity which began with the Canadian Hydrographic Service in 1883. Ten years later, in 1893, a specialist in fish embryology, Dr. E. E. Price was appointed Canada's Commissioner of Fisheries and five years later, Parliament established a Board of Management with an appropriation of \$15,000 for a marine scientific station. Starting in the early 1900's the Board assumed responsibility for a number of research facilities including a station at Go Home Bay, Georgian Bay, Ontario, St. Andrews, New Brunswick and at Nanaimo, B.C.

In 1912, the Board became the Biological Board, operating under a special Act of Parliament. The Board's membership was broadened in 1924 to include representatives of the fishing industry and a wider spectrum of academic expertise. In 1937, the name of the Board was changed to the Fisheries Research Board of Canada. It continued to manage Canada's federal fisheries research effort until 1973 (Opportunities from our Oceans 1994).

Once an infrastructure begins to take form, the next natural progression is the development of a set of policies to govern the area or discipline being pursued. For Canada, it could be argued that the first formal evidence of the emergence of an oceans policy platform began with national consideration of a Canadian oceans policy emanating from the 1957 International Geophysical Year. In that year 70 countries participated in an international study which included looking at the coordination of ocean scientific

research. As a direct result of Canada's participation in that programme and in the United Nations Conference on the Oceans in New York in 1959, the Bedford Institute of Oceanography was established in Bedford, Nova Scotia in 1962. Ten years later, the Centre for Inland Waters was opened in Burlington, Ontario, and the Fisheries and Oceans Freshwater Institute was opened at the University of Manitoba in 1973. In the same year, the laboratories and personnel of the Fisheries Research Board of Canada were integrated with the Department of Fisheries, leaving the Board an advisory role. By the end of the decade, the Board had been disbanded. The Northwest Atlantic Fisheries Centre in St. John's, Newfoundland was officially opened in 1979, the Institute of Oceans Science in Patricia Bay, B.C. in 1979 and the Maurice Lamontagne Institute in Ste-Flavie, (Rimouski), Quebec in 1987. The Department of Fisheries and Oceans was established as a separate department in 1979.

Historically speaking, Federal initiatives in ocean policy have generally been in response to international issues. The discovery of oil in Prudhoe Bay, Alaska prompted the Humble Oil Company to make a test voyage (the *S.S. Manhattan*) through the Northwest Passage, as a possible future oil transportation route, in September, 1969 without first seeking approval from Canadian authorities. Following public outrage over the issue of sovereignty of the Arctic archipelago and the waters of the Northwest Passage, the government quickly enacted the *Arctic Waters Pollution Prevention Act, (1970)*. At the same time, evidence of substantial offshore oil reserves and the potential discovery of mineral deposits were seen as a possible source of economic wealth that could mitigate the uncertainty created by the first oil shocks of the period. Both events prompted policy

attention to focus on the "oceans" as a national territory and as a national resource that needed to be managed and protected.

In 1969, in response to the increasing awareness of the importance of the oceans to Canada's economic potential, the federally constituted Science Council of Canada commissioned two studies; Special Study #16, *Ad mare: Canada Looks to the Sea* and Special Study #10, *Canada, Science and the Oceans*. The latter of the two studies contained a series of policy statements and recommendations in the area of ocean science and technology. Recommendations included establishing a national research and development program -- Major Program in Marine Science and Technology -- which would focus on the Canadian continental shelves, their superjacent waters, ice-cover and the open oceans in order to respond to the new needs in resource exploitation, fisheries, transportation, recreation, anti-pollution and climate prediction.

In 1972 the Canadian Federal Cabinet approved a proposal by the ministers of the Ministry of State for Science and Technology (MOSST) and Environment Canada to review Canada's ocean policies with particular emphasis on ocean science and technology and the development of an ocean industry. Cabinet recognized that there were no policies or overall guidelines to govern the actions of the federal departments and agencies with ocean interests at a time when they needed guidance to promote ocean industrial development, resource management and sovereignty. At this time Canada was focused on the oceans as an unmanaged, under-exploited resource. Resultantly, a Task Force on Ocean Industry, Science and Technology was established with members from the federal

departments and agencies which had "ocean" responsibilities. The objectives of the Task Force were:

1. To bring to Cabinet's attention, the strategic significance to Canada of the ocean and its resources.
2. To identify areas of marine science and technology where federal policies are, or will be, inadequate to meet Canada's increasing responsibilities, commitments and opportunities.
3. To recommend specific policies for ocean science, technology, and industry which could be implemented immediately.
4. To recommend structures and instruments for the formulation, coordination and implementation of Canada's policies for marine science and technology.

The final report, approved by Cabinet in July, 1973, recommended developing policy aimed at resource management and exploitation through industrial stimulation and the acquisition of scientific and engineering expertise. Shortly thereafter, the Minister of State for Science and Technology announced a National Oceans Policy. Its objectives were to:

1. Stimulate the development and most effective participation of Canadian industry in the elements of industrial and technological capability essential to the exploitation of Canada's offshore resources;
2. Review all Canadian legislation relevant to offshore resource development, taking into account the experience of other countries in managing offshore resources;

3. Affirm the intent that Canada develop within five years, an internationally recognized excellence in operating on and below ice-covered waters;
4. Adopt a policy that Canada develop and maintain a current information base on offshore resources that would be equivalent or superior to that available to large multinational corporations and foreign governments;
5. Give special emphasis to marine science and technology programs;
6. Charge the Minister of Industry, Trade and Commerce to coordinate proposals from all departments for the development and support of Canadian ocean industry;
7. Charge the Canadian Committee on Oceanography to coordinate Canada's programs of marine science and technology and to report to Cabinet through the Minister of the Environment;
8. Charge the Minister of State for Science and Technology to continue the review of policy on ocean industry, science and technology (Opportunities from our Oceans 1994).

The National Oceans Policy emphasized the multidisciplinary, multi-agency nature of ocean science and technology and the need for co-operation and co-ordination:

“It requires the highest level of cooperation within and between governments, and between government and the other sectors of the national economy. This type of multipurpose use and management of our renewable and nonrenewable ocean resources will assure their development for the maximum benefit to Canadians.” (Opportunities from our Oceans 1994).

Industrial policies for ocean resource management and exploitation were the major focus, and environmental protection was secondary. Science and technology development was recognized as the driver of each. Although the themes of coordination and efficiency were issues in the original report, there was no attempt to address this in its implementation. Both the Minister of State for Science and Technology and the Minister responsible for the Environment were given reporting responsibilities for various ocean science issues. The Department of National Defence was the lead department in development of "below ice capabilities" and the Canadian Committee on Oceanography was given advisory responsibilities on the development of science and technology opportunities. The Minister of Industry, Trade and Commerce was given responsibility to co-ordinate item 6 – the development and support of Canadian ocean industries. It can be concluded that this national policy had inherent horizontal management challenges and failed to properly recognize the need for integration.

The issue of 'the oceans' remained on the public policy agenda throughout the 1960's primarily because of new and ongoing international events. In 1967, the United Nations had begun deliberations to establish a Convention on the Law of the Sea, (UNCLOS III). Canada was an active participant in this exercise, which produced a Convention signed by 119 countries in 1982. The 1982 Convention established a jurisdictional framework for international management of ocean resources. A pillar of the framework was the recognition that a coastal state has exclusive rights over the resources within a 200-mile-wide band off its coasts defined as an Exclusive Economic Zone (EEZ). Canada had established a 200 nautical-mile "Zone" to protect fishing interests as early as 1977.

However, this was not a declaration of an all-inclusive EEZ that Canada can claim under the terms of Law of the Sea. The resolution of these major jurisdictional questions shifted the focus of oceans policy from sovereignty rights to domestic regulations and coastal state oceans management.

In recognition of the need for a focused, federal jurisdiction encompassing domestic regulation and management of ocean resources, the Department of Fisheries and Oceans (DFO) was established in 1979. The legislation creating DFO not only joined the government's fisheries and oceans mandates, which had previously been separate, but also articulated the Department's oceans mandate. The Government Organization Act 1979, stipulates that the Minister of Fisheries and Oceans has responsibility for "all matters over which the Parliament of Canada has jurisdiction, not by law assigned to any other department, board or agency, of the Government of Canada relating to sea coast and inland fisheries, fishing and recreational harbours, hydrography and marine science and the co-ordination of the policies and programs of the Government of Canada respecting oceans" (DFO: The Role of the Federal Government in the Oceans Sector 1997).

The next most significant development happened in 1987 when Cabinet approved an oceans policy, based on extensive public consultation, that addressed economic development, science and technology, environment (managing the ocean resource), and sovereignty. Policy instruments for implementation included a public awareness oceans campaign, industrial development, contracting-out and procurement policies, a legal framework for the strategy (the *Canada Oceans Act*), and an emphasis on enhancing science and technology knowledge and capabilities. Conservation was addressed through

the policy goals of responsible management of living resources, environmentally acceptable development of non-living resources and protection of the ocean environment. The Oceans Policy of 1987 was designed to build on the residual powers of DFO to create a "Champion of Oceans Issues" within the Department. The underlying rationale was that an amalgamation of oceans-related acts and regulations and a strengthening of ocean science and technology development programs under the auspices of one department would provide the basis for the coordination of a fragmented and piecemeal system. This consolidation would produce proactive oceans policy to replace the reactive policies which have created legislation and programs scattered throughout many departments (Opportunities from our Oceans 1994).

In May of 1994 the Committee on Oceans and Coasts and the National Advisory Board on Science and Technology, presented the Prime Minister with a report entitled "Opportunities from our Oceans". The report, once again criticized the government's efforts in implementing coordinated and integrated oceans policies and recommended a more innovative and proactive approach to managing our ocean resources. Further and historically more important, the Committee recommended the need for an oceans strategy built on a comprehensive legal framework – an Oceans Act. In January of 1997 Canada's Oceans Act received Royal Assent and became law.

## ***Oceans Policy Development in Other Maritime Nations***

Many other maritime countries are currently examining their ocean policies. As is the case with most nations, who do not have clearly articulated or legislated policy, governments are now starting to address the importance of an integrated oceans policy. Increased focus on oceans issues by international organizations like the United Nations and recognition that the oceans must be understood and managed in a more global manner has also served to advance ocean management agendas around the world. Scientific advancements in the understanding of ocean biological, ecological and physical phenomena have identified the need for:

1. greater protection of these vast resources and
2. enhanced international cooperation and commitment.

As will be seen in the following sections, nations are at varying stages of the development of integrated ocean policies. The countries selected for review provide a recognition of the differences and commonality between countries. Generally, a common theme throughout will be the recognition that, for most countries, there already exists a multitude of vertically-oriented, sectoral policies with little integration. This section will summarize recent ocean policy developments of a number of nations.

### ***Australia***

The Australian Ocean Territory is 16.1 million square kilometers including an Exclusive Economic Zone (EEZ) of 11 million square kilometers (Australian Ocean Policy: Issues

Paper 1 1998). To achieve the goal of developing a national policy the government set out to develop a comprehensive and integrated policy to provide a strategic framework for the planning, management and ecologically sustainable development of fisheries, shipping, petroleum, gas and seabed resources.

Australia's Oceans Policy was launched on 23 December 1998. The policy outlines a planning and management system, which is intended to respond to the need for national coordination and consistency of policy, while allowing for regional diversity and continued responsibility within the well established industry sectors (Australia's Ocean Policy 1998). The Australian government recognized the absolute paramountcy of developing an oceans policy with real input from and consultation with, the many and varied stakeholders involved.

Early in the exercise (1997) as part of the consultation process, a Ministerial Advisory Group on Oceans Policy was formed to provide an independent source of advice to the Government on Oceans Policy issues of particular importance to non-government organizations (NGO's). The members were appointed on the basis of their ability to represent the views of NGO stakeholders with significant interests in Australia's marine industries and environment, and because of their personal expertise on issues relevant to the Oceans Policy. Sectors represented by NGO members were: coastal planning; conservation (national); conservation (state); environmental management; commercial fishing; recreational fishing; Indigenous; land use; legal; mining; oil and gas; science; shipping; surveillance; and tourism. The Advisory Group meetings were also attended by a senior officer from the Department of the Environment (representing the

Commonwealth Government), a representative from the Office of the Commonwealth Environment Minister and observers from the Commonwealth Departments of Primary Industries and Energy (DPIE) and Industry, Science and Tourism (DIST).

*Australia's Oceans Policy - an Issues Paper*, was released for public comment on May 19, 1998 and staff from the Oceans Policy secretariat in the Marine Group of Environment Australia, provided a series of presentations on development of Australia's Oceans Policy in all States and the Northern Territory in the period 9 June to 4 July, 1998. Presentations were made to government agencies and non-government representatives, with a second series of broader public meetings arranged through the Regional Coordinators of the Marine and Coastal Community Network (MCCN) in each centre. The Marine and Coastal Community Network regional coordinators also held a series of other discussions in each region. Five hundred and thirty three submissions on the issues paper were received. The key issues raised were related to institutional arrangements, coverage of the interest of indigenous communities, resourcing policy initiatives and implementation of a national policy. In addition, an Oceans Policy Consultation Paper was developed to assist consultations with State, Territory and Local governments, organizations and the general public on the broad framework and associated actions that should underlie an Oceans Policy for Australia.

Australia's Oceans Policy intends to set in place the framework for integrated and ecosystem-based planning and management for all of Australia's marine jurisdictions. It includes a vision, a series of goals and principles and policy guidance for a national Oceans Policy. Building on existing sectoral and jurisdictional mechanisms, it promotes

ecologically sustainable development of ocean resources and the encouragement of internationally competitive marine industries, while ensuring the protection of marine biological diversity. At the core of the Oceans Policy is the development of Regional Marine Plans, based on large marine ecosystems, which will be binding on all Commonwealth agencies. The first Regional Marine Plan will be developed for the south-eastern region of Australia's Exclusive Economic Zone. Broadly, this will include waters off Victoria, Tasmania, southern New South Wales and eastern South Australia.

Australia's Oceans Policy also established a series of arrangements for implementation, including :

- a National Oceans Ministerial Board of key Commonwealth Ministers, chaired by the Minister for the Environment and Heritage. The Board will be the decision-making body regarding Regional Marine Plans;
- a National Oceans Advisory Group of industry, community and government stakeholders;
- Regional Marine Plan Steering Committees, which will include regional stakeholders; and
- a National Oceans Office, located in Environment Australia, which will provide secretariat and technical support and programme delivery for oceans policy initiatives.

Specific sectoral measures of the policy details the major challenges and the proposed responses in some twenty areas of oceans planning and management. These range from the conservation of marine biological diversity, shipping, marine pollution, fisheries and

indigenous interests, to understanding the oceans and protection of the national interest.

An important component is the progressive assessment of the effectiveness of the Oceans Policy and its implementation.

To illustrate its commitment, the Government has committed \$50 million over three years for implementation of the Policy. Specific actions on which commitments have been made include:

- commencement of Regional Marine Planning,
- improved understanding of the marine environment, including environmental baseline surveys and sustainability indicators, monitoring and improved assessment of the impacts of commercial and recreational activities – all targeted to support Regional Marine Plans;
- accelerated development and improved management of marine protected areas;
- support for national mandatory standards for marine and estuarine water quality;
- support for the development of a single national ballast water management system;
- trials to treat acid sulfate soil problem areas;
- a National Moorings Programme for sensitive marine areas; and
- support for the early phased withdrawal of the use of toxic, organotin, and anti-fouling paints.

Australia, with its recent release of the policy, with clearly defined short and long term objectives and with a \$50 million investment, has emerged in the forefront of ocean

policy design and implementation. Although there will be many challenges for this country, they have at least risen to the challenge by taking the necessary first step in the development of a comprehensive national oceans policy.

### ***India***

India has a long maritime history. The peninsula is surrounded by the Arabian Sea, Bay of Bengal and Indian Ocean. The coastline of the mainland and islands is about 7,500 kms. including 1,256 islands and an Exclusive Economic Zone (EEZ) of 2.02 million sq. km. The coastal and offshore environment support a wide variety of marine ecosystems rich in species diversity and multifarious economic development activities. The sea also has tremendous influence on the physical and meteorological conditions of the country. Appreciating the importance of the subject, the Government of India established the Department of Ocean Development in 1981 with an aim of creating a deeper understanding of the oceanic regime of the northern and central Indian Ocean and also development of technology and technological aids for harnessing of resources and understanding of various physical, chemical and biological processes. The Ocean Policy was enunciated in 1982 (Government of India, Department of Ocean Development (DOD) Internet Site, <http://www.nic.in/dod/weldod.htm>)

For success in ocean development, "...the entire nation should be permeated by the spirit of enterprise and the desire to explore the frontiers of knowledge." (Government of India, Department of Ocean Development (DOD) Internet Site, <http://www.nic.in/dod/weldod.htm>)

The Ocean Policy that was enunciated in 1982 was in fact a list of 15 policy statements:

1. The adoption of the Convention of the UN Conference on the Law of the Seas and recognition of an EEZ.
2. Collecting basic knowledge and information about the sea and the seabed and in surveying, charting and exploiting it. Construction and development of offshore structures.
3. A coordinated, centralized and highly sophisticated development response. This should be based on adequate knowledge of marine space (sea-bed, water and air columns included) as a fundamental prerequisite to the control, management and utilization of the ocean resources.
4. Map living resources, prepare an inventory of commercially exploitable fauna and to map and assess the availability of minerals from the deep sea to ensure maximum exploitation of wealth.
5. Optimal utilization of living resources like fish and sea weeds, exploitation of non-living resources such as hydrocarbons and heavy placer deposits, harnessing of renewable resources of ocean energy from waves, temperature differences in the water column, tidal heights, salinity gradients and the collection and processing of polymetallic nodules from the deep sea.
6. Develop basic marine science and technology, i.e. technology for marine environment, technological advances have to be geared to the utilization and preservation of the marine environment.

7. In the deep sea, detailed survey and sampling in the regions of EEZ and the adjacent ocean will be necessary to locate and evaluate the rich and economically viable deposits of polymetallic nodules, heavy metals, fossil placers and phosphorite deposits.
8. Development of indigenous technology for the exploitation of fish from deeper waters.
9. An important component of the development programme should be acquisition of technology.
10. Infrastructural support forms an essential prerequisite for ocean development. This requires a broadening and strengthening of available infrastructural facilities.
11. Surveillance and conservation of the marine environment and an integrated legal framework.
12. A database to coordinate efforts made by different agencies.
13. The training of skilled manpower is to be adequately planned.
14. Existing agencies will have to be appropriately strengthened to meet the demands of this growing challenge.

The above statements indicate that the formulation of India's ocean policy is focused on further development and exploitation of ocean resources. This is not surprising given the formidable social and economic challenges facing the country.

### ***United States of America***

The United States (US) has more than 95,000 miles of coastline and more than 3.4 million square miles of ocean within its territorial sea. The US coasts are among the most densely populated areas in the world with 75% of its 250 million citizens residing on or near the coast (Our Ocean Future 1998).

In the US, the initiation of an oceans policy can be easily traced to the late 1950's and early 1960's. Its very beginnings were spawned from a renewed focus on science and technology and a recognition that the existing educational system was not as progressive as it should be. Knecht et.al. 1988, postulated this awakening was brought about as a result of the USSR winning the beginning of the space race with the launch of the *Sputnik* satellite in 1957 (Knecht, Cicin-Sain and Archer 1988). This enabled science education to be brought to the 'national policy agenda'. During this period the principal issue in the ocean policy realm was the question of ownership of offshore oil and gas resources. This led to the US participating in the first United Nations Conference on Law of the Sea (UNCLOS) in 1958 with a goal of stabilizing international ocean law in a form consistent with its desires on maintaining control of resources adjacent to continental shelves while recognizing the necessity of territorial seas to protect naval mobility.

The first major policy paper on oceans was presented by the National Academy of Sciences in 1959, which focused on ocean sciences and outlined a blueprint for a major increase in federal support.

The first major piece of ocean legislation passed in the US was the Marine Resources and Engineering Act of 1966. That legislation went beyond ocean science and for the first

time spoke of issues related to organization of the national ocean program and improved coordination of federal ocean activities. Shortly thereafter, in 1967, probably the most significant event in US oceans policy development occurred: the creation of a Marine Sciences Council and a Commission on Marine Sciences, Engineering and Resources (COMSER), chaired by the former President of the Massachusetts Institute of Technology, Julius Stratton. This commission, which ultimately became known as the Stratton Commission, issued in 1969 a comprehensive and forward looking report entitled "Our Nation and the Sea". This report presented for the first time, elements of a national ocean policy and was to guide many oceans policy issues in the years to come. The report emphasized three issues:

1. The idea that the ocean was a frontier for resource development;
2. Emerging threats to the coastal environment, and
3. The need to reorganize and unite federal ocean and coastal programs.

The Commission also set forth 120 recommendations and one of the first acted upon was the creation of a new federal oceans agency in 1970: the National Oceanic and Atmospheric Administration (NOAA).

During the late 60's and early 70's the momentum, gained with outputs from the Stratton Commission, continued with a series of ocean/environmental legislation:

- 1969 National Environmental Policy Act
- 1972 Federal Water Pollution Control Act
- 1972 Marine Mammal Protection Act of 1972
- 1972 Marine Protection, Research and Sanctuaries Act of 1972

1972 Coastal Zone Management Act of 1972

1973 Endangered Species Act of 1973. (Knecht, Cincin-Sain, Archer 1988)

These Acts, although pioneering in nature, were weak and difficult to enforce. Regardless of the relative 'strength' of these Acts, they significantly increased the scope of governmental activity vis-à-vis the oceans.

Ocean policy development in the 70's and 80's was once again tied to significant social events, namely, the 'energy crisis'. Arab oil embargoes focused attention to offshore resources and among many other measures the US government drafted a Coastal Energy Impact Program, amended the Outer Continental Shelf Lands Act and invested in areas such as ocean thermal energy conversion. One clear impact the energy crisis had on ocean policy, from a science perspective, was that it 'blunted' the environmental focus attained in the previous decade by putting energy needs ahead of science and conservation (Knecht, Cincin-Sain, Archer 1988). The other significant influence in the 70's was the declaration of a 200-mile fishery conservation zone.

The 80's can probably be summarized as a period of survival in a time of fiscal restraint and program reductions. Sectoral ocean policy initiatives did not expand or evolve but focused on maintaining a presence on policy agendas. The emerging cycle is about to return to a time of increased awareness and attention to conservation of ocean resources and the US is currently trying to rationalize and initiate another major policy review (sometimes referred to as Stratton II).

Given the above history, one could still ask the question: Does the US have a national ocean policy? While there is no tangible evidence like a single law or document, one

could argue the policy consists of a dynamic mosaic of laws, treaties, Presidential statements and proclamations (Sullivan 1985). Sullivan summarized the US Ocean Policy as such:

“It is the policy of the US to pursue all our range of interests in the ocean, including security, resources, the environment, commerce and navigation, and science, and to seek the most equitable accommodation when there is conflict between those interests.” (Sullivan 1985)

It is his contention that there exists already a policy but the specific actions to implement the policy or procedures are missing.

The US, like many maritime nations, declared 1998 as the Year of the Ocean and attempted to establish a new commission on the oceans. The legislation passed in both the House and the Senate but has not yet received final passage. NOAA, in May of 1998 organized a roundtable meeting of federal and state representatives, industry and academia to debate and discuss lessons learned from the first Stratton Commission, the 1998 policy context and possible options for a new commission.

The US and its marine environment are experiencing the same types of issues that all maritime nations are facing: encroachment of humans on the coast, the depletion of marine species and habitats, changing governance regimes etc. The US ‘national ocean policy’ is at best a sectoral, vertically oriented mosaic. Future developments in its policy will hinge upon the next major review or Stratton II.

## ***Japan***

The importance of the sea to Japan is well known around the world. The nation's post-war economic survival and prosperity have depended heavily on the international seaborne trade carrying its industrial products to the rest of the world and oil, food and other primary goods to Japan.

Japan's national ocean policy in the decades since World War II has been shaped by several factors:

- The nation's heavy dependence on ocean space and resources;
- The historical context of the nation's post war political arena;
- The need to balance domestic and international policy needs;
- Coordinating developmental and environmental needs;
- Policy making structure and processes.

Japanese ports and harbours annually handle 2.85 billion tons of goods and the country has the largest merchant fleet in the world (approximately 10,000 vessels) (Akaha T., 1995). With respect to fisheries, Japan has always been one of the top fishing countries in the world, but with vast reductions in the catch of distant water fleets after 1977, the country has had to increase imports substantially (3.8 million tonnes in 1991) (Akaha 1995). There are also 14 national and 47 prefectural aquatic cultivation centers not including private and local government facilities. In 1991 estimated production from aquaculture was 1.36 million tonnes. With such a dependence on the ocean, Japan's national ocean policies will always have fisheries, shipbuilding and shipping as its cornerstones.

Following the Second World War and Allied occupation it took many years for Japan to reintegrate into the international fishery regime. For many years Japan was unable to exercise its sovereignty and its economic activities, including fishing and shipping, were under Allied control. However, over time and with the cooperation of the US, Japan was able to rebuild its international fisheries and shipping presence.

Japan, like many countries, often is required to balance domestic and foreign policy. In the establishment of a 12 mile territorial sea, Japan had to consider its 3 non-nuclear principles – not to produce, not to possess and not to introduce, which, as part of domestic laws and policy, would extend to the territorial sea. This would prohibit navigation of nuclear powered/armed warships in this area – a prospect that would surely have been challenged by both the US and the USSR. In the end exemptions were employed to allow an acceptable compromise solution.

Japanese fisherman have historically fished extensively within the coastal zone of South Korea and China and if Japan declared a 200 mile limit, it feared those two countries, as a protectionist measure, would declare their own 200 mile limit. Again in a compromise, Japan exempted South Korea and China from prohibitions of the 200-mile limit and maintained the 12-mile limit in some areas.

Japan has also seen the environmental effects of rapid industrial growth and population increases. By the mid 70's only 40 % of the coast remained unaltered because of land reclamation and the coastal zone was being severely impacted by industrial pollutants and other toxic substances. As with many other countries developing ocean policy, crises often provide the needed catalyst. In 1970 Japan established its first national legislative

framework – Maritime Pollution Control Law and the Water Pollution Control Law and also established its first Environmental Agency. In spite of these moves, there were 893 confirmed cases of marine pollution in coastal waters in 1991 with 59% being oil related (Akaha 1995). Land reclamation has made available about 75,000 additional hectares of space for residential and industrial usage. About 1,270,000 hectares of coastal areas serve as fishing grounds and 3000 fishing ports claim about 200,000 hectares of coastal waters. Given this importance and degree of usage, ocean management has become a very sensitive and critical issue for Japan.

Japan does not have an integrated ocean policy at the national level. Instead, there are many ocean policies for many functional areas, including shipping, shipbuilding, fishing, maritime safety etc. Multiple use problems, as with other countries, are growing; however, in the absence of a coordinated, integrated policy, Japan has instituted a mechanism, the Council on Ocean Development (COD) to attempt to coordinate the many interests involved in ocean development and management. The Council is composed of government officials, major ocean industry representatives, academia and scientific personnel. Although it is not a policy coordination body and may have a bias toward development rather than conservation, the COD does articulate in its annual reports the nation's numerous ocean interests and serves to focus policy debates and attention on current ocean issues.

Horizontal coordination is clearly needed. Japan has developed a fragmented national policy that has been built incrementally usually in reaction to some national or international development, e.g. UNCLOS and the 200-mile zone. This does not imply that

some policies have not been effective. A highly centralized political structure and a highly capable public service have allowed for effective implementation of many policies, usually in the name of development.

It can be concluded that there exists a not surprising commonality of oceans issues amongst maritime nations which is not surprising. Integration, enforcement, research, coordination are all common themes and challenges. The Canadian experience has been similar in its challenges however, different political structures, for example state/provincial vs. federal powers will give rise to different approaches to national policy development and implementation. In addition temporal differences must be considered. Nations do not 'develop' at the same rate and therefore one would expect some nations to be currently at different stages of ocean policy development and implementation.

### ***Policy Design and Development***

Most articles written about oceans policy invariably use the terms integration, comprehensiveness, rationality and meaningful engagement. Caution must be exercised in using and trying to incorporate these elements into a policy design. The technical and political challenges of horizontal policy design is particularly prominent in oceans policy.

Integration is probably the most often used phrase in oceans policy literature but some would argue a perfectly integrated oceans policy that is rational from all perspectives does not and cannot exist (Levy 1993). Levy explains this by contending that due to the complexity of the policy process and the influence of internal and external factors at different stages of formulation and implementation, a truly integrated policy is

unattainable. This is not difficult to accept given the multitude of uses, users, environmental factors, political influences and the sheer magnitude and size of our oceans and its resources.

The integration of oceans policy requires a sound understanding of the different biological and environmental phenomena taking place in the marine environment, the interests of various marine sectors and ultimately the impacts of man's interaction with the ocean. The focus on oceans policy development over the past two decades, simplistically stated, can be traced to a convergence of a number of forces and issues:

- Ocean resource usage and the close interdependence of economic and social development;
- Preservation of the environment;
- Conflicting resource usage;
- Global awakening to the importance of earth's oceans;
- International conventions and organizations.

### ***Government Structures and Coordination of Policy Development***

Policy making is central to what governments are about and it is the public policy development function of government that most distinguishes it from private sector organizations. In some instances, policy development is an orderly step-by-step process involving a cycle of analysis, options development, selection of a preferred option and

implementation. Very often, however, policy development is incremental, fragmented and not entirely predictable.

Ocean responsibilities including policy design and development, fundamentally controlled and administered by the state, are guided by administrative structures used to implement government actions. As ocean usage gradually increased over time, the Canadian government, as with most maritime states, developed a fragmented and incremental approach to management of ocean resources. The multiplication of various responsibilities as a result of this increased usage, in Canada's case, has resulted in over 20 federal departments and agencies with ocean interests. This type of governance structure, that relies on coordinated activities between agencies, can only add to the challenge of true integration.

Organizational fragmentation, policy complexity, resource scarcity, sectoral interdependence, conflicting values, competing interests, departmental rivalries, increasing specialization, the sheer scope and scale of government activity, and the overload of senior policymakers all make the task of achieving political cohesion, policy consistency and administrative coherence a virtually impossible feat. (Jonathan Boston: *The Problems of Policy Coordination: The New Zealand Experience*, 1992.)

The expanding use of ocean resources and the conflict between many of these uses has made it increasingly difficult to coordinate oceans-related activities and to ensure that policies are cohesive. Economic goals in the past have been pursued, for example, without enough consideration for the broader ecological impact or the consequences for

marine safety. The lack of an integrated approach to using a shared resource has often caused conflict among economic, environmental and social objectives. This is perhaps a fundamental challenge of any policy instrument. Furthermore, some stakeholders, particularly those who wish to develop the oceans and their resources, are concerned that the large number of government departments and agencies with oceans-related mandates and regulatory regimes, complicates opportunities for investment and development. Experience has shown that if there is no strategic management framework, the potential for working at cross purposes is considerable.

Canada has passed federal legislation, the Oceans Act and has consolidated some responsibilities under one department - Fisheries and Oceans. The Oceans Act will be presented in the following chapter.

### ***Canada's Oceans Act***

The Oceans Act of 1997 positioned Canada in the forefront of all nations in establishing a single piece of legislation to address the horizontal challenge of articulating an oceans strategy. The preamble to the legislation provides a good summary of the intent of the legislation and is paraphrased as follows:

- Canada recognizes that the three oceans, the Arctic, the Pacific and the Atlantic, are the common heritage of all Canadians;
- Parliament wishes to reaffirm Canada's role as a world leader in oceans and marine resource management;

- Parliament wishes to affirm in Canadian domestic law Canada's sovereign rights, jurisdiction and responsibilities in the exclusive economic zone of Canada;
- Canada wishes to promote the understanding of oceans, ocean processes, marine resources and marine ecosystems to foster the sustainable development of the oceans and their resources;
- Canada holds that conservation, based on an ecosystem approach, is of fundamental importance to maintaining biological diversity and productivity in the marine environment;
- Canada promotes the wide application of the precautionary approach to the conservation, management and exploitation of marine resources in order to protect these resources and preserve the marine environment;
- Canada recognizes that the oceans and their resources offer significant opportunities for economic diversification and the generation of wealth for the benefit of all Canadians, and in particular for coastal communities;
- Canada promotes the integrated management of oceans and marine resources;
- The Minister of Fisheries and Oceans, in collaboration with other ministers, boards and agencies of the Government of Canada, with provincial and territorial governments and with affected aboriginal organizations, coastal communities and other persons and bodies, including those bodies established under land claims agreements, is encouraging the development and implementation of a national strategy for the management of estuarine, coastal and marine ecosystems (Oceans Act 1997).

The following section will provide an overview the three parts of the legislation.

### ***Part I***

The first part of the Act formally establishes Canada's jurisdiction as a coastal state over its ocean areas and their resources. It defines national maritime zones as consisting of Canada's Internal Waters, Territorial Sea, Contiguous Zone, Exclusive Economic Zone and the Continental Shelf (Oceans Act 1997).

The Act grants Canada powers that go well beyond the powers the country asserted in the past. It puts in place a clear definition of jurisdiction that is fully supported by global agreement.

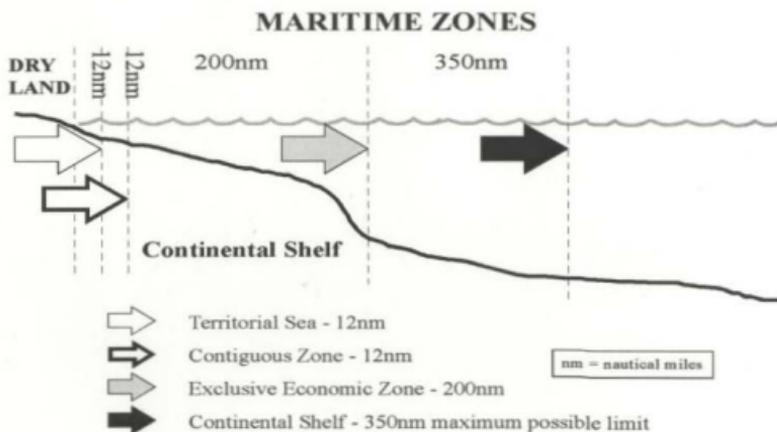
Canada's Territorial Sea (TS) extends from Canada's baseline (low water mark along the coast) out to 12 nautical miles. Within this zone, Canada may exercise full rights and responsibilities.

The Contiguous Zone extends 12 nautical miles from the outer edge of the Territorial Sea. Canada's rights and responsibilities in this zone prevents the commission of offences on Canadian territory relating to customs, sanitary, fiscal and immigration laws.

The Exclusive Economic Zone extends 200 nautical miles from the baseline. Canada may exercise its rights and responsibilities with respect to the exploration and exploitation of living and non-living resources of waters, subsoil and seabed. The EEZ also provides Canada with the responsibility and jurisdiction to protect the marine environment, to regulate scientific research and to control offshore installations and structures.

The Continental Shelf includes the seabed and subsoil from the outer edge of the Territorial Sea to the outer edge of the Continental Margin of 200 nautical miles, whichever is greater. On the Continental Shelf, Canada may exercise its rights and responsibilities with respect to the exploration and exploitation of mineral, non-living resources and living resources (sedentary species only -- e.g. scallops).

**Diagram 1: Contiguous Zones Established by the Oceans Act**



## ***Part II - Oceans Management Strategy (OMS)***

The Oceans Management Strategy section of the Oceans Act outlines a new approach to managing Canada's oceans and their resources. The concept is based on the premise that Canada's oceans must be managed as a collaborative effort among stakeholders. This section of the Act contains provisions for the Minister of Fisheries and Oceans to lead the development and implementation of a national strategy for ocean management based on the principles of:

- sustainable development;
- integrated management of activities in estuaries, coastal and marine waters;  
and
- the precautionary approach (a commitment to err on the side of caution)  
(Oceans Act 1997).

Practically, the OMS is based on the integrated management of activities occurring in or affecting oceans by developing a flexible strategy that can be implemented regionally by stakeholders within their areas of responsibility.

The Act directs the Minister to involve stakeholders in the development of Canada's Oceans Strategy and its implementation through integrated management plans.

Involvement of stakeholders at all levels in developing policy and management plans will require the DFO to re-organize both the structural composition of the department as well as its internal institutions, e.g. Stock Assessment processes. To illustrate, the DFO

currently assesses and manages exploited species on a stock-by-stock basis. A true ecosystem approach would surely challenge the current approach and organization.

This section of the Act also provides the Minister with some basic authorities and management tools to be used within the context of integrated management plans. They include:

1. the establishment of Marine Protected Areas;
2. the establishment and enforcement by regulation of Marine Environmental Quality guidelines, criteria and standards designed to conserve and protect ecosystem health; and
3. the development of Management Plans, including integrated coastal zone management plans.

The precautionary approach principle has gained considerable attention in many arenas over the past few years and as noted above is one of the key principles of Canada's Ocean Act.

The precautionary ideal arises from recognition that scientific understanding of ecosystems is complicated by a host of factors, including complex and cascading effects of human activities and uncertainty introduced by naturally chaotic population dynamics that current science struggles to understand. Precaution can also serve as a progressive policy tool. By adopting an overriding principle, policy development will tend to follow a distinguishable trend and direction. The precautionary approach poses a key dilemma for environmental managers: how should policies be decided in the face of scientific uncertainty? The response from science is to engage in further rigorous studies to better

understand the hidden workings of nature. But a similar response is not available within the culture of policy; in a setting that must cope with demands for economic growth, the pressures for resource extraction are immense. Consequently, important policy decisions (including continuing the status quo) are made despite poor knowledge of the ultimate effects of anthropogenic activities. Vague definitions of the precautionary approach are evolving as it is increasingly applied. Initially the principle was put forward in an international setting at the first ministerial conference on North Sea pollution in Bremen in 1984; it was strengthened at the second North Sea conference in 1987 (London) and further reinterpreted at the third conference in 1990 (The Hague) (Dethlefsen, V., Jackson, T. & Taylor, P. (1993)). In Canada's Oceans Act it is defined rather simplistically as 'a commitment to err on the side of caution.' Considerable debate has ensued about the precise definition and interpretation of the intent of the principle. A principle is often open to operational interpretation and is presenting significant implementation challenges.

### ***Part III - Consolidation of Federal Responsibilities for Canada's Oceans***

The consolidation of most federal oceans responsibilities under one organization has established an identifiable lead federal agency accountable for oceans management. This Part outlines the responsibilities of the Minister with respect to coast guard services, and specifies activities that may be undertaken respecting marine sciences and hydrography. Coast guard services are aimed at supporting the provision of a safe, economical and efficient marine transportation system. The Minister will ensure that the following services are provided in a cost-effective manner:

1. safe navigation (aids to navigation systems and services, marine communications and traffic management services, ice breaking and ice management services and channel maintenance)
2. the marine component of the federal search and rescue program pleasure craft safety, including the regulation of the construction, inspection, equipment and operation of pleasure craft pollution prevention and response, and support to other departments, boards and agencies of the Government of Canada.
3. Canada's hydrographic services include the mandate to survey and chart the navigable waters of Canada. Of primary concern is the gathering and publishing of hydrographic data and marine navigation information. Canada's immense coastline and its extensive navigable waters requires that about 1000 nautical charts be published and maintained. In this service, the Minister of Fisheries and Oceans duties, powers and functions relate to:
  - setting standards and establishing guidelines for use by hydrographers and others in collecting data and preparing charts;
  - conducting surveys;
  - producing, distributing and selling hydrographic documents, and providing hydrographic advice, services and support to other persons and bodies (Oceans Act 1997).

Marine Sciences are crucial to developing an understanding of Canada's oceans. Through the Canada Oceans Act, the Minister may, among other activities:

- collect data and carry out investigations for the purpose of understanding oceans and their living resources and ecosystems;
- conduct hydrographic and oceanographic surveys of Canadian and other waters;
- conduct marine scientific surveys relating to fisheries resources and their supporting habitat and ecosystems;
- conduct research related to hydrography, oceanography and other marine sciences;
- participate in ocean technology development, and
- conduct studies to obtain traditional ecological knowledge (Oceans Act 1997).

Authority is also included to allow the Minister to recover costs for services, facilities, products, rights, privileges, and regulatory processes provided under the authority of the Oceans Act. Before fixing fees, the Minister is directed to consult with persons or bodies that are interested in the matter, and to comply with existing review processes.

Part III also allows the Minister to designate enforcement officers with specified powers, and identifies offences, fines and sentences. It also provides for a review of the provisions and operation of the Act within three years of its enactment.

## ***Public Perceptions of Canadian Coastal and Ocean Management Policy***

The development of oceans policy is inextricably linked to public perception, political processes and hence the political agenda. The development of any public policy, through our political systems, should reflect public opinion and general consensus. To provide an analysis of Canadian public perceptions on ocean policy, the findings of a research project conducted by the Canadian Operational Center of the International Ocean Institute (IOI) will be presented. The study should not be considered the definitive assessment of public perception, but rather a representative sample.

On behalf of the Independent World Commission on the Oceans (IWCO), IOI in Halifax, Nova Scotia coordinated the Canadian Ocean Assessment (COA), a review of Canadian ocean management policy and practice (Coffen-Smout, 1996).

The COA is one of five regional assessments on the interrelated problems of ocean space conducted by the IOI as part of the worldwide public input to the IWCO. The process implemented under the COA was essentially one of information collection, involving the solicitation of opinion and perceptions from academics, government departments, and to some degree, from the grass-roots level to provide a current status assessment of the oceans and of oceans management policy and practice. Four information-collection components were used, including three public hearings, individual mailed surveys, submitted briefs, and current organization reports. Three public hearings held during March-April, 1996, in Vancouver, Ottawa and Halifax, were attended by individuals from

various sectors, including governments, the private sector, academia, non-governmental organizations, First Nations and Inuit organizations, and coastal communities.

The survey focused on four specific areas: (i) perceptions of marine pollution sources in Canada's oceans; (ii) principles and values in Canada's coastal zone and oceans policy; (iii) assessment of current Canadian practices in support of sustainable ocean development; and (iv) analysis of Canada's oceans policy community attributes. The sections most relevant to policy development, principles and values in Canada's coastal zone and oceans policy and oceans policy community attributes, will be presented here.

One of the major achievements of the 1992 United Nations Conference on Environment and Development was the international commitment by world leaders and the global community to adopt principles in decision-making related to natural resource uses and allocations. The principles in the Rio Declaration on Environment and Development and Agenda 21 emphasize the need for decision-makers to follow key principles in order to ensure sustainable ocean ecosystems and the integrity of the global environmental and developmental system (United Nations, 1992). The Rio Declaration comprised 27 principles, including public participation, community-based management, polluter pays, precaution, pollution prevention, indigenous rights, and intergenerational equity. The Rio Principles provided a useful framework, as survey respondents were asked to consider principles and values which should be included in the federal government's current coastal zone and ocean policy, and rank the extent to which the principle or value is found in Canadian policy. The respondents also ranked the impacts the presence or absence of principles and values have had on Canada's ocean resources.

Three caveats of this approach are worth noting. First, present government policy may not necessarily be responsible for the current impacts upon ocean resources. Secondly, policy statements should be distinguished from policy practices since statements are not necessarily reflected or realized in their application through policy practices. Thirdly, it was assumed that the chosen survey population had some knowledge of what is present in Canadian policy.

There were six principles which a majority of respondents indicated were both present in current Canadian policy and having had a negative impact on Canada's ocean resources.

These six principles were:

1. Government Subsidization of the Private Sector
2. The Profit Motive
3. Resource Utilization
4. Economic Competition
5. Conflict Avoidance
6. Community Economic Development

Aboriginal Rights were regarded as being present by three-quarters (74%) of respondents, but 87 percent indicated that such rights had either a negative (43%) or neutral (44%) impact on resources. The only principle that was considered present in policy and having a positive impact on resources was Environmental Protection. Environmental Protection was considered to be present in policy by most (84%), but only half of the respondents said it had a positive impact on ocean resources.

The principle of Public/Private Partnership was the only principle considered as present in policy and neutral, with half of the respondents indicating that it had a neutral impact on ocean resources.

Overall, at least 50 percent of respondents indicated that seven principles were not present in policy. These seven principles include:

1. Biodiversity
2. Human Rights
3. Gender Equity
4. Women in Development
5. Polluter Pays
6. Community-based Management
7. Intergenerational Equity

Of those regarded as absent from policy, three principles were considered controversial by being not present and a problem in terms of their impact on ocean resources. The majority of survey respondents felt that the absence from policy of Biodiversity, Polluter Pays, and Community-based Management principles has had a negative impact on ocean resources. Meanwhile, four principles were regarded as not present in policy and neutral in their impact on ocean resources. The majority of respondents indicated that Human Rights, Gender Equity, Women in Development, and Intergenerational Equity were neutral in their impact on resources.

International Co-operation, Sustainable Use of Resources, Consultation, and Environmental Stewardship were considered by most to be present in policy, but there is

some divergence of opinion as to the impacts these principles have had on ocean resources. The Precautionary Principle has gained marginal acceptance and is considered present by just over half of the respondents. Noteworthy is the fact that there is still considerable uncertainty and continuing confusion over exactly what the precautionary principle means in practice. There are over 12 different international definitions of the precautionary principle or approach found in international conventions and international declarations (VanderZwaag, 1996). Central to these are: (i) a shift in the onus of proof to those who propose change; (ii) the need for a proactive approach to environmental protection, i.e. a willingness to take action in advance of formal scientific proof; and (iii) consideration of cost-effectiveness of actions, although there is ongoing debate over the role of economics in the application of the principle. Other relevant principles and values as suggested by respondents include habitat protection, property rights, co-management, regional development, economic development, poverty eradication, and sovereignty protection.

Respondents were also asked to characterize the oceans policy community in Canada by indicating which community attribute best indicates the relative characterization of or is most like the policy community.

Over half of the respondents (58%) indicated that the policy community was fragmented in terms of policy direction and values, (i.e. is divided on policy direction; is not in touch with economic realities; does not understand the importance of sustainable development goals; and is a fragmented policy community). Nearly two-thirds (65%) emphasized issues of exclusion and conflict, (i.e. does not represent well the needs of coastal

communities; excludes the voice of aboriginal, First Nations' people; and groups are in conflict over directions for oceans development). Three-quarters (74%) indicated that the policy community does rely on national government funding for research, is dominated by fisheries policy concerns, and also received weak support for ocean technology development.

This analysis confirms that there is wide disagreement over objectives and the government's role, and great conflict in general in the oceans sphere. Canadians exhibit a considerable range of dissonance and harmony regarding their values for the oceans and their perceptions of the strengths and weaknesses of the governments and institutions managing Canada's oceans.

Included in the results of the research were 50 recommendations drawn from implicit interpretation of the briefs presented during the COA process and those explicitly stated in the survey responses. Some recommendations are more widely agreed upon than others. Thus, some cases represent just opinion needing broader public debate. Some of those recommendations follow:

- Canada should continue to study and monitor ocean health over the long-term and ensure that practical actions are taken without delay to ameliorate problems confronting our coastal and offshore waters.
- Greater recognition and acknowledgement is needed of the importance of marine environmental science and oceanography in support of ocean health assessments, and the decline of Canadian marine science capacity should be reversed.

- Promote the strengthening of ocean policy, science, and management practices related to ocean health in order to ensure coastal sustainability.
- Involve to a greater extent marine environmental scientists from all sectors in policy formulation, coastal management and decision-making, and ensure the inclusion of the full range of stakeholders.
- Public education to instill a greater awareness of the value of oceans and programs to promote pollution prevention and community stewardship are required.
- Governments must demonstrate commitment and enhanced political will in policy, planning, and program implementation to abate and prevent marine pollution.
- The federal government must consider a shift in policy and jurisdiction for fisheries in favour of the principle of co-management, implying shared decision-making responsibility with coastal communities and the fishing industry.
- The federal government should undertake a review of the ways and means for the devolution of management responsibility for fisheries to the local and/or regional level, with the retention of ultimate authority.
- Canada should establish and maintain a systematic and representative network of marine protected areas in all three ocean regions.
- The need to consider the full range of marine species and to protect their biodiversity through marine protected areas and marine conservation measures is emphasized.

- Precautionary management approaches emphasizing marine environmental protection, cost-effectiveness, and a shift in the onus of proof should be core to fisheries management policy and practices.
- Full user-group participation and stakeholder consultation in the decision-making process is fundamental to effective policy development and full acceptance during policy implementation.
- Integrated national ocean policy and ecosystem management policies are necessary.
- A management framework is needed to resolve potential ocean space conflicts arising from oil and gas development and for any future seabed extraction of minerals and aggregates.
- Marine science research and infrastructure requires a dedicated commitment of funding support.
- Community input should be part of the research priority-setting process and fishers should participate in fisheries science research.
- A public awareness campaign on the oceans economy and heritage should be launched to advocate conservation and sustainable development.
- Canada must adopt the sustainable development principles of polluter pays, community-based management, intergenerational equity, biodiversity, and the precautionary principle in its approaches to coastal zone and ocean policy.

## ***Future Directions***

The oceans have traditionally been taken for granted as a source of wealth, opportunity and abundance. Our growing understanding of the oceans has fundamentally changed this perception and is leading towards a growing appreciation of the importance, complexity and fragility of this vast resource. In the space of a few decades the oceans have become the setting for an ever-expanding list of problems. Global climate change, overfishing, indiscriminate trawling, habitat destruction, species extinction, pollution, congested shipping lanes and piracy are just samples of a much larger list of issues. . The ongoing "Great People's Migration" toward coastal areas is increasing the environmental and social stress on coastal zones and ocean space, thus frustrating efforts to control and reduce pollution thereby endangering both the wealth of the ocean and human health.

The challenge posed by effective oceans management is one of truly historical dimensions, since the extent to which it is met will have a major bearing on the well-being of present and future generations (The Ocean...Our Future 1998).

The Independent World Commission of the Oceans (IWCO) report, *The Ocean...Our Future* (1998) highlighted several issues where major adjustments and innovations will be required if obstacles to change are to be addressed effectively:

- Promoting peace and security in the oceans;
- Equity in the oceans;
- Ocean science and technology;
- Valuing the oceans;

- Public awareness and participation
- Effective ocean governance.

The IWOC adequately addressed what the issues are, however, what is absent is a focus on the importance of the development of appropriate policy instruments and institutions. Oceans issues are inherently global in nature and cross artificial political and geographic borders. In the international policy arena this obviously poses further complexities for harmonious, integrated and universal policies.

### ***Future Directions for Canada***

The new approach of Canada to adopt a national strategy for the ocean, based on the principle of integrated management, continues to evolve. Such an approach appears to have some merit promoting proper coordination for efficient decision-making at the national level. A comprehensive and coherent national policy will certainly be more readily accepted at the international level, particularly when sectoral issues are discussed in different intergovernmental organizations and are consistent with international principles. The sectoral and fragmented approach which is still evident in Canada, may create a detrimental effect and might lead to losing sight of the fact that the problems of the oceans are closely interrelated and need to be considered as a whole. Canada's Oceans Act will serve as a policy instrument that may prevent disjointed policies of the past.

While the protection and the preservation of the marine environment should invariably remain a primary objective of any future policy development, Canada cannot overlook the significance of ocean resources to overall development and economic growth. In other

words, Canada's Oceans Act will help ensure that the resources of the seas are utilized and managed in a sustainable, environmentally sound manner in order to manage risk.

Technological and scientific advances continue to present new opportunities as well as challenges. Genetic resources derived from the seabed and the capacity to drill for oil and gas under deeper waters are just two examples of how science and technology can generate greater wealth from the sea. At the same time, it is imperative that such technological advances should be applied so as not to endanger the ocean environment, particularly sensitive coastal areas. The stability of the oceans depends to a great extent on the ability to anticipate problem areas and address them in an appropriate and efficient manner.

Canada's Ocean Act and the yet to be developed Ocean Management Strategy, will be the cornerstones of future ocean policy development in Canada. The passage of the Ocean Act was a major accomplishment, however the real challenge will be in its implementation. The Act calls for sustainable development, integrated management and a precautionary approach, all admirable and desirable notions but how will this be achieved and to what degree, remains to be seen. Variable and conflicting usage will limit true integrated management and will always be susceptible to interest group pressures. Sustainable development of fishery resources has never been achieved in the history of man's exploitation of the sea and unknown ecological factors and their impacts may limit man's ability to manage sustainability. The precautionary approach is a vague philosophy, open to broad interpretation and difficult to translate in an operational or regulatory regime.

The yet to be developed Ocean Management Strategy will be a key instrument in policy development in the coming years. The federal government's ability to deliver, fund and operationalize the strategy will be the true test of horizontal management. Its success in engaging all stakeholders will be critical to the mission.

Policy development and more importantly, implementation, cannot be measured in short time frames. The objectives of an OMS will take years and decades to implement and have some effect. Accepting the temporal challenges of policy design, development and implementation, a fundamental and key element of the OMS should be focused on education and public awareness and this element must be further focused to younger generations, the citizens and resource users of tomorrow. The 'beginning of the future' for our oceans perhaps will fall to the next few generations of Canadians but the principles and objectives outlined in Canada's Ocean Act can provide the basis for effective progress over the foreseeable future.

## **References**

- Akaha, T. (1995). Muddling Through Successfully: Japan's Post -War Ocean Policy and Future Prospects, Marine Policy Volume 19. No. 3. pp. 171-183.
- Boston, J. (1992). The Problems of Policy Coordination: The New Zealand Experience, Country Report. An International Journal of Policy and Administration. Volume 5. pp. 88-103.
- Cicin-Sain, B. & Knecht, R. (1993). Implications of the Earth Summit for Ocean and Coastal Governance. Ocean Development and International Law. Volume 24. pp. 323-353.
- Coffin-Smout, S. (1996). Final Report of the Canadian Ocean Assessment: A Review of Canadian Ocean Policy and Practice. International Ocean Institute, Halifax, Canada.
- Commonwealth of Australia. (1998). Australia's Oceans: Issues Paper 1. [http://www.environment.gov.au/portfolio/esd/coast\\_marine/oceans/consult.html](http://www.environment.gov.au/portfolio/esd/coast_marine/oceans/consult.html).
- Commonwealth of Australia. (1998). Australia's Oceans: New Horizons, Oceans Policy Consultation Paper. [http://www.environment.gov.au/portfolio/esd/coast\\_marine/oceans/consult.html](http://www.environment.gov.au/portfolio/esd/coast_marine/oceans/consult.html).
- Dethlefsen, V., Jackson, T. & Taylor, P. (1993). Clean Production Strategies: Developing Preventive Environmental Management in the Industrial Economy (ed Jackson, T.) 41- 62 (Lewis, Boca Raton). \_
- Fisheries and Oceans Canada. (1997). The Role of the Federal Government in the Oceans Sector (DFO/5265 Cat. No. Fs 23-319/1997E) Ottawa Ontario
- Knecht, R., Cicin-Sain, B., Archer, J. (1988). National Ocean Policy: A Window of Opportunity. Ocean Development and International Law. Volume 19. pp. 113-142.
- Lamson, C. (Ed.) (1994). The Sea has Many Voices: Oceans Policy for a Complex World. McGill Queens University Press.
- Levy, J.P. (1993). A National Ocean Policy: An Elusive Quest, Marine Policy March 1993. pp. 75-80.

- Oceans Act (1997) Chapter C-31. 45 Elizabeth II. Ottawa, Canada.
- O'Riordan, T. (1981). Environmentalism. London:Pion Ltd.
- Report of the National Advisory Board on Science and Technology, Committee on Oceans and Coasts. (1994). Opportunities from our Oceans.  
<http://www.schoolnet.ca/vp-pv/ocean/ocean>.
- Sullivan, William L. (1985). Is There a National Ocean Policy? Ocean Development and International Law. Volume 15, Number 1. pp. 77-88.
- The Heinz Center (1998). Our Ocean Future. John H. Heinz III Center for Science, Economics and the Environment. Washington. D.C. U.S.A.
- The Ocean...Our Future. (1998). Independent World Commission on the Oceans. The Report of the Independent World Commission on the Oceans. Cambridge University Press. Cambridge, UK.
- United Nations Commission on Sustainable Development. (1999). Canada's Oceans: Experience and Practices. Monograph No. 7. Ottawa, Canada.
- VandersZwag, D. (1996). Canada and Marine Environmental Protection: The Need for Principled Decision-Making. Briefing, Halifax Public Hearing, Canadian Ocean Assessment, 12 March 1996.





