

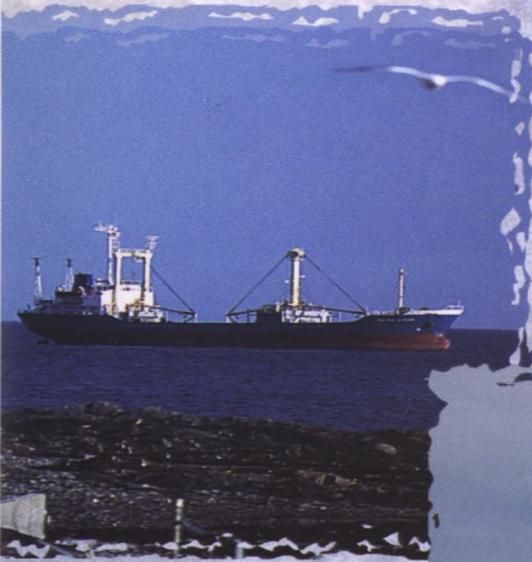
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Canada's Oceans

Monograph No. 7

Experience
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Experience and Practices

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Contents

INTRODUCTION.....	1
ECONOMIC OVERVIEW.....	2
CANADA'S OCEANS ACT AND INITIATIVES.....	3
The Oceans Act	
Canada's Oceans Strategy	
Integrated Management	
National System of Marine Protected Areas	
MARINE ENVIRONMENTAL PROTECTION.....	5
Programmes of Action for the Protection of the Marine Environment from Land-based Activities	
Canadian Environmental Protection Act	
Fish Habitat Loss and Degradation	
Canadian Biodiversity Strategy	
LIVING MARINE RESOURCE MANAGEMENT.....	8
The Need for Responsible Fishing	
Monitoring and Surveillance Programs	
Aboriginal Fisheries	
Traditional Knowledge	
Aquaculture	
THE OCEANS: A BROADER LOOK.....	10
Shipping	
Offshore Energy and Mineral Resource Development	
Climate Change	
COMMUNITY INVOLVEMENT AND PARTICIPATION.....	12
INTERNATIONAL DEVELOPMENT.....	12
CANADA'S NEXT STEPS.....	13
SELECTED READINGS.....	15
WEB SITES.....	16

Canada's Oceans: Experience and Practices is a Canadian contribution to the Oceans and Seas dialogue at the Seventh Session of the United Nations Commission on Sustainable Development, April 19–30, 1999.

CANADA'S OCEANS

Experience and Practices

INTRODUCTION

Canadian shores border on three vast and magnificent oceans in which our nation has vital interests: the Arctic, the Pacific, and the Atlantic. These oceans offer important economic, socio-cultural, and recreational opportunities that have shaped the nation's history and identity. Of equal significance are the internal waters of Canada with large marine components, such as the St. Lawrence River, the Gulf of St. Lawrence, Hudson Bay, and James Bay.

Canada's shores front on three oceans, extend over 40 degrees of latitude, and cover a wide range of oceanographic environments and geologic regions.

The richness and biodiversity of Canada's oceans provide them with enormous potential to continue to benefit both present and future generations. Our continental shelf, covering 3.7 million square kilometres, is the second largest in the world, and its marine ecosystems are host to a remarkable diversity of species, including commercial and noncommercial fish, marine mammals, invertebrates, seabirds, and plants. Canada's oceans provide numerous opportunities for commercial, recreational, and Aboriginal fisheries; tourism; transportation; mineral production; education; and biological and technical research. Almost one-quarter of Canada's total population lives in coastal areas.

Canada has the world's longest coastline. Stretched out as a single continuous line, it would circle the earth more than six times!

In Canada, the federal government has principal authority over oceans and their resources. Generally, provincial governments have some authority over shorelines to the low water mark, over some marine areas, and over many land-based activities. In some regions, Aboriginal people are becoming more involved in resource management decision making.

In recent years, growth in Canada's oceans sector has resulted in increased pressures on the ocean environment. In many areas, the biodiversity and ecological integrity of marine ecosystems are being threatened. There is a need to proactively conserve, restore, and protect marine ecosystem functions, species, and habitats for future generations.



Canada and its exclusive economic zone, which extends to 200 nautical miles.

ECONOMIC OVERVIEW

The economic contribution of the oceans sector was estimated to be a minimum of 1.4 percent 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 percent of the GDP. In 1996, there were nearly 145 000 full-time equivalent jobs throughout Canada in the oceans sector. The actual number of people employed in oceans-related activities is much larger, given the highly seasonal nature of work in many sectors of this industry. (For example, there were more than 73 000 people working in the commercial fisheries and aquaculture sectors in 1996.)

The total value of output from the oceans sector increased from \$17.4 billion in 1988 to \$18.9 billion in 1996 — an average growth rate of 1.1 percent per year. The fishing industry was the largest employer, accounting for nearly 37 percent of employment (full-time equivalent basis), while contributing approximately 15 percent of the total value of output from the oceans sector. The fisheries share of both output value and employment in the oceans sector has been relatively steady over the 1986–1996 period — sustained by strong world prices for shellfish and a rapid growth in aquaculture. In other oceans industries, the value of output in the oil and gas, manufacturing, and services sectors has doubled over the same period. Tourism and marine construction output values have increased by about 30 percent, while the ocean transportation and government sectors' share of output has experienced

a decrease. The latter is a reflection of recent downsizing and expenditure restraint in government. In the coming years, private-sector activities are expected to continue to be the main engine of growth in Canada's oceans sector.

CANADA'S OCEANS ACT AND INITIATIVES

The Oceans Act

On January 31, 1997, Canada's Oceans Act became law. The act positions Canada to move to a more integrated national oceans management approach based on sustainability, the precautionary approach, and the integration of activities occurring in and impacting on our oceans. The Oceans Act also sets the framework for an ecosystem approach to the management of Canada's oceans and oceans resources.

Canada is making significant progress toward sustainable management of oceans through a range of complementary initiatives, some of which have been facilitated by the Oceans Act. These are reforming and revitalizing traditional arrangements for oceans management with an approach that emphasizes responsibility, leadership, participation, coordination, and cooperation. The act further seeks to reduce redundant or fragmented management, to ensure the participation of key stakeholders, and to forge cross-sectoral linkages.

Initiated during the International Year of the Ocean and reflecting the principles of the Oceans Act, Canada's Department of Fisheries and Oceans, in partnership with Nova Scotia's Department of Education and Culture, developed a new grade 11 science credit course called Oceans 11. Oceans 11 is being designed to provide schools with the opportunity to utilize the expertise and experience of local fish harvesters, scientists, entrepreneurs, representatives from industry, and community leaders.

Canada's Oceans Strategy

In Canada, there are more than twenty federal government departments and agencies with some degree of responsibility for activities in or affecting the oceans. The Oceans Act calls for cooperation and collaboration in the oceans sector, led by the Minister of Fisheries and Oceans, including in the development and implementation of a national oceans management strategy.

During 1999, Canada will hold consultations with Canadians on this strategy, which will set out the guiding principles for Canada's oceans management into the next millennium. All of Canada's initiatives toward the conservation, protection, and sustainable use of its oceans and oceans resources will contribute to the development of this strategy. Significant progress to build capacity on oceans issues with a broad range of stakeholders has already been made.

Integrated Management

Integrated management is an ecosystem-based approach that aims to ensure the sustainable development of coastal and marine resources. To this end, the Oceans Act provides basic authorities for the establishment of Marine Protected Areas; the establishment and enforcement of marine ecosystem health and marine environmental quality guidelines, criteria, and standards; and the establishment of integrated management plans for activities in or affecting Canada's oceans.

Co-management is one tool offering the opportunity to harness the talents and experience of stakeholders in the search for ocean management solutions. It has been used successfully in a number of Canadian contexts including, among others, the Fraser River basin in British Columbia and the Bay of Fundy herring fishery on the east coast. In 1988, a co-management guide was developed based on the work of the National Round Table on the Environment and the Economy.

National System of Marine Protected Areas

Canada's marine ecosystems are vast and diverse, supporting many different activities. Protected areas, then, must satisfy a range of needs in a variety of jurisdictional settings.

The Oceans Act sets out the obligation of the Minister of Fisheries and Oceans to develop a national strategy for oceans management. This strategy will include coordinating an overall federal Marine Protected Areas Program that will be administered and implemented by three federal departments or agencies with mandated responsibilities to establish and create protected areas — Parks Canada, Environment Canada, and the Department of Fisheries and Oceans.

Canada is embracing the challenge of moving from theory to practice in implementing integrated ocean management. In December 1998, Canada announced the Eastern Scotian Shelf Integrated Management pilot project.

To ensure that Marine Protected Areas are a part of a comprehensive initiative to protect the health and function of marine ecosystems, they are being developed and established within a context of integrated management planning. Such planning considers the protection of each area in light of both environmental and socio-economic benefits.

A coordinated approach, as directed in the Oceans Act, will ensure that the federal government will work together with provincial and territorial governments, as well as with Aboriginal groups and individual communities, to advance marine conservation in an efficient and effective manner.

Environment Canada protects unique, critical, and productive habitats or ecosystems for wildlife in Canada's major marine ecozones and nearshore areas through the establishment of Migratory Bird Sanctuaries, National Wildlife Areas, and Marine Wildlife Areas. Migratory Bird Sanctuaries, created under the Migratory Birds Convention Act, protect coastal and marine habitats that are heavily used by birds for breeding, feeding, migration, and overwintering.

Under the authority of the Canada Wildlife Act, important wildlife habitats are set aside for purposes of wildlife research, conservation, and public education. On land and in coastal waters out to the 12-nautical-mile territorial sea limit, these areas are called National Wildlife Areas, while beyond they are known as Marine Wildlife Areas.

National Marine Conservation Areas (NMCAs) are part of a family of protected areas administered by Parks Canada to protect and commemorate the country's natural and cultural heritage. The objective of the National Marine Conservation Areas Program is to protect and conserve for all time marine areas that are representative of the country's ocean environments and Great Lakes, and to encourage public understanding, appreciation, and enjoyment of this marine heritage so as to leave it unimpaired for future generations. Waters of the Atlantic, Pacific, and Arctic Oceans — out to 200 nautical miles — and Canada's Great Lakes waters have been divided into twenty-nine marine regions. The long-term goal is to establish NMCAs representing each region. While provisions exist under the National Parks Act to establish these areas, new legislation is being developed for the administration of NMCAs.

The Department of Fisheries and Oceans, under the authority of the Oceans Act, can establish Marine Protected Areas in marine waters under Canada's jurisdiction for the conservation and protection of fish and other living marine resources and their habitats; endangered and threatened species and their habitats; marine areas of high biodiversity or biological productivity; unique habitats; or for any other reason pursuant to the mandate of the Minister of Fisheries and Oceans.

In 1998, Canada announced five pilot Marine Protected Areas: the Sable Gully, Gabriola Passage, Race Rocks, the Endeavour Hot Vents Area, and the Bowie Seamount Area.

The Oceans Act provides the coordination and planning framework that enables key stakeholders to help create an overall system of protected areas for Canada's estuarine, coastal, and marine waters.

MARINE ENVIRONMENTAL PROTECTION

Programmes of Action for the Protection of the Marine Environment from Land-based Activities

Degradation of the marine environment is a global problem that should be addressed through a concerted international and national effort. There are considerable social and economic pressures involved in this effort. The impacts of pollution from land-based activities include shellfish area closures, degraded beaches, destroyed fish habitat, and contaminated sites.

The United Nations Global Programme of Action for the Protection of the Marine Environment from Land-based Activities was a response to an international call for coordinated actions at local, national, regional, and global levels to protect the marine environment. Co-led by Environment Canada and the Department of Fisheries and Oceans, Canada's National Programme of Action meets its domestic commitment to protect the marine environment from land-based activities under the Global Programme of Action. Under the North American Free Trade Agreement-Commission on Environmental Cooperation, Canada and the United States are also developing a subregional plan of action for the protection of the Gulf of Maine. Implementation of the National Programme of Action involves using sustainable and integrated environmental management approaches, such as the harmonization of coastal, river basin, and land-use plans.

At the first meeting of the Arctic Council in September 1998, Ministers from all eight circumpolar states adopted the Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities, which addresses the impacts of the Arctic marine and coastal environment and recognizes the benefit of a phased approach to its development. The initial phase focuses on pollution impacts; in subsequent stages the focus will be expanded to include habitat protection in the coastal zone.

Canada is one of eight Arctic states, together with Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States. The Arctic Council was established in 1996 as a high-level forum to promote cooperation and coordination among the eight Arctic states on issues of sustainable development and environmental protection.

Canadian Environmental Protection Act

The Canadian Environment Protection Act (CEPA) was proclaimed in 1988 and is a cornerstone of federal environmental protection legislation. The act is concerned with the protection of the environment and of human life and health in Canada. It is, at present, being renewed, and the renewed CEPA will set in place a stronger emphasis on pollution prevention. The proposed act also provides mechanisms for cooperative action among governments, private industry, and other stakeholders to achieve the goals of the statute.

In terms of the effect that the revised act will have on protection of our oceans, the provisions governing toxic substances will enable control of releases that could harm the environment. It will also allow Canada to ratify the 1996 Protocol to the London Convention, 1972, the international agreement governing the disposal of waste at sea. The 1996 protocol is consistent with a pollution prevention approach. When it becomes law, the renewed CEPA will contain a list of what wastes are allowed to be disposed of at sea as well as the new obligation imposed on the Minister of the Environment to monitor ocean disposal sites. It will also impose on the Minister of the Environment the duty to carry out

research on endocrine disrupters. Results of that research could be of value in determining environmental impacts on aquatic organisms.

Fish Habitat Loss and Degradation

Healthy fish habitat is critical to sustainable fisheries. The fish habitat protection and pollution prevention provisions of Canada's Fisheries Act provide for fish habitat conservation throughout Canada. The act prohibits the harmful alteration, disruption, or destruction of fish habitat unless authorized by the Minister of Fisheries and Oceans or under regulations. The fish habitat provisions of the act are followed by the pollution prevention provisions, which are Canada's most powerful tool to prevent pollution of fishery waters. These provisions set out a prohibition against the addition to fishery waters of any substance that is harmful to fish, unless that addition is allowed by a regulation under the Fisheries Act of the Canadian federal Parliament.

Canada's Policy for the Management of Fish Habitat provides a comprehensive framework for the conservation, restoration, and development of fish habitats. The policy's broad objective is to achieve a net gain in the productive capacity of Canada's fish habitats. In the day-to-day management of fish habitat, the policy's guiding principle of no net loss of productive capacity promotes sustainable development by requiring mitigation to avoid damage to fish habitat or compensation to replace destroyed habitat. It also promotes an integrated approach to resource management and establishes a framework for reconciling competing uses.

Canadian Biodiversity Strategy

In 1992, Canada ratified the United Nations Convention on Biological Diversity. The Canadian Biodiversity Strategy, developed jointly by federal, provincial, and territorial governments, puts commitments under the convention into a Canadian context. The strategy includes strategic directions aimed at conserving and sustainably using marine and freshwater ecosystems.

One of the first programs of work developed under the convention is the Jakarta Mandate on Marine and Coastal Biodiversity, which provides a useful framework and ecosystem approach for international activities to conserve marine ecosystems. Canada sees the Jakarta Mandate on Marine and Coastal Biodiversity, with

The original Habitat Restoration and Salmon Enhancement Program (HRSEP) of the Department of Fisheries and Oceans began in 1996/97 and was a three-year, multimillion-dollar program that complemented the Pacific Salmon Revitalization Strategy. Since then, HRSEP has contractually funded hundreds of worthwhile habitat restoration works, stewardship initiatives, and stock-rebuilding activities operated and administered by a variety of community groups and agencies.

The Atlantic Coastal Action Program (ACAP) is the Atlantic Canada member of a family of six large ecosystem initiatives located across Canada, which includes the Georgia Basin Ecosystem Initiative, located on Canada's Pacific coast. ACAP is a network of thirteen community-driven, watershed-based ecosystem initiatives located across the four Atlantic provinces. Since 1991, citizens, community organizations, private-sector organizations, municipalities, universities, First Nations representatives, and a number of federal and provincial government departments have been collaborating to develop broadly supported strategies for the restoration and sustainable use of their watersheds.

To date, more than 400 projects have been undertaken involving hundreds of organizations and thousands of volunteers. Results have included pollution prevention, restored habitats, reduced waste, upgraded sewage treatment facilities, improved energy efficiency, the establishment of new parks, the creation of artificial wetlands, reduced risks to human health, and increased employment.

its ecosystems approach to conservation and sustainable use of biological diversity, as a useful framework for action across a wide variety of international initiatives.

LIVING MARINE RESOURCE MANAGEMENT

The conservation and sustainable use of fisheries resources is one of Canada's principal oceans objectives. Stock conservation problems, allocation conflicts, international boundary disputes, excessive harvesting, and fiscal restraint have all shaped federal government approaches to domestic and international fisheries policies and management practices in the continuing pursuit of economic and environmental sustainability.

Canada's Pacific coast stretches about 804 kilometres, from the Juan de Fuca Strait north to Alaska. If this jagged shoreline were laid straight, it would extend about 26 000 kilometres.

Canada's federal fisheries managers are developing a renewed and integrated approach toward the management of the resource. The main program elements focus on conservation, streamlining programs to seek efficiencies, and working more closely with the public, industry, and Aboriginal groups through co-management arrangements.

The Need for Responsible Fishing

Canada faced extraordinary social, economic, and political costs when it made conservation the top priority in fisheries management decisions. In the wake of the collapse of Atlantic groundfish stocks and poor Pacific salmon returns, the Government of Canada resisted the pressure to compromise the future and has put in place measures that will ensure the sustainable management and exploitation of fisheries resources.

Canada has embraced the precautionary approach, integrated management, fishing capacity reduction, selective fishing strategies, and many other building blocks that are essential to the fishery of the future. As it moves forward into the next millennium, Canada is coming ever closer to its vision of a fishery that is environmentally sustainable and economically viable.

The complex problems of the world's fisheries are well known, and global instruments to deal with many of these problems have been developed. The most important of these are the United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks (known as the United Nations Fisheries Agreement, or UNFA), the United Nations Food and Agriculture Organization (FAO) Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, and the FAO Code of Conduct for Responsible

Fisheries. States around the world now need to ratify and fully implement these tools, both within their jurisdictions and within regional fisheries organizations.

Canada has introduced legislation before the Canadian Parliament to enable the ratification of UNFA and has developed its own Canadian Code of Conduct for Responsible Fishing Operations, based on the FAO Code of Conduct for Responsible Fisheries.

Monitoring and Surveillance Programs

Highly trained fishery officers, at-sea fisheries observers, patrol vessels, and aerial surveillance are all part of Canada's multifaceted efforts to conserve and protect Canada's marine resources.

Monitoring and surveillance programs are directed at ensuring compliance with Canadian fisheries legislation and regulations, protecting habitat, monitoring fishing activities, and providing scientific data and management information for direct input into the management of Canada's fisheries and the conservation of fisheries resources for Canada.

Aboriginal Fisheries

The Aboriginal Fisheries Strategy, whereby the federal government enters into agreements with Aboriginal organizations to involve Aboriginal peoples in the sustainable management of the fisheries, is one of the many domestic policy developments that has been undertaken in Canada.

Traditional Knowledge

There is a need for better information about stocks and fishing efforts on stocks. Better information reduces the uncertainty and makes the management of marine resources more accurate. For example, despite the remarkable progress made this century in understanding the dynamics of marine stocks and ecosystems, uncertainty about their current and future condition is still a major constraint to ensuring their long-term sustainability. Information can come from many sources: scientific data collection, anecdotal information, or traditional and local knowledge. Canada must continue to improve its scientific knowledge of oceans resources, including the dynamics of fished stocks and the effects of pollution on oceans ecosystems. Improved access to and uses of traditional and local knowledge are essential for resource conservation.

Aquaculture

Developing aquaculture in Canada is a priority of the federal government as there is considerable potential for development in the Canadian aquaculture industry. This sector could create jobs, spur economic growth, and encourage coastal community development. At present, five species (salmon, trout, mussels, oysters, and Manila clams) have made the transition from the laboratory to commercial production. Research is continuing on new species development and on the mitigation of potential and known environmental effects.

THE OCEANS: A BROADER LOOK

Shipping

Canada advocates international harmonization of its shipping policy and its marine safety and environmental policies with international maritime law. As a maritime nation that developed significant technologies to enhance ship safety while navigating, such as the Electronic Navigation Charts and Display Systems, Canada is a major supporter of the work of the International Maritime Organization and other intergovernmental agencies.

The Canada Shipping Act is the principal statute governing commercial shipping in Canada. It deals with activities of foreign ships in Canadian waters and Canadian ships in all waters. It covers issues such as ship registration, certification of masters and crew, ship safety, wrecks, salvage and casualty investigations, aids to navigation, collisions and liability, ship-source pollution, and civil liability and compensation for pollution. The Canada Shipping Act is currently being overhauled, and the end product will be a statute that is updated, streamlined, and economically beneficial to the Canadian shipping industry.

The Arctic Waters Pollution Prevention Act does not deal solely with shipping, but is a coordinated piece of legislation dealing also with offshore and land pollution arising in the Canadian Arctic.

With respect to trade, for the most part, Canada depends on foreign vessels for the international transportation of its goods. Domestic marine trade and a large portion of Canada/United States marine transborder trade is moved in Canadian-registered ships. Much of the shipping activity to Canadian ports involves contiguous waterways shared with the United States. Thus, in addition to actively contributing to and supporting the approach taken by the international marine community, Canada

must also take into account marine transportation and protection regimes in the United States.

Offshore Energy and Mineral Resource Development

Interest in exploring and developing offshore oil and gas resources has increased significantly and has the potential to generate significant economic benefits. Projects such as the Hibernia and Terra Nova projects on the Grand Banks off Newfoundland and the Sable Offshore Energy Project on the Scotian Shelf provide significant employment opportunities to local communities and revenue to the pertinent provincial governments. Interest in exploring in the Gulf of St. Lawrence and offshore British Columbia has also increased noticeably. However, there are potential environmental threats associated with such development, including excessive noise from geophysical seismic surveys and drilling, seabed disturbances from development infrastructure (such as pipelines), disposal of drilling fluids, and accidental petroleum discharges.

Offshore mineral development in Canada is not at the same level of maturity as oil and gas development, but federal and provincial geological surveys, as well as the minerals industry, indicate that significant mineral potential exists. Placer deposits that contain either proven or potential commodities exist at technologically exploitable depths, as do large reserves of aggregate. Interest in developing aggregates continues to be expressed, and placer deposits of gold and other minerals may be developed in the future. Many of the provinces and territories contiguous to Canada's marine areas are eager to work with the federal government to develop a management regime for offshore mineral resources.

Climate Change

The oceans play an integral role in the earth's climate. Climate change will affect the availability of freshwater, influence sea temperatures and levels, and directly impact coastal areas, such as the Vancouver basin. The planet's food supply, the distribution of pests and disease vectors, the survival of species, the fisheries and forest industries, and the occurrence of natural disasters will all be affected. The understanding of the impact of climate change is of fundamental importance to the security and economic well-being of Canada and of all states.

The United Nations Framework Convention on Climate Change was one of the intergovernmental outcomes of the United Nations Conference on Environment and Development. The subsequent negotiations on the

For more than a year, beginning in October 1997, scientists and crew aboard the Canadian Coast Guard icebreaker Des Groseilliers were frozen in the ice of the Canada Basin while participating in the most complex and broadly based ocean study ever undertaken in the Arctic. SHEBA (Surface Heat Budget of the Arctic Ocean) was an international initiative involving the work of three ships, more than fifty universities, and approximately one hundred principal investigators.

reduction of greenhouse gases have been high on political agendas. The Kyoto Protocol is a good first step in the process of mitigating the effects of climate change.

In Canada, the Department of Fisheries and Oceans is funding an east coast ocean observation program, and plans are under way to prepare a similar program for the west coast. Canadian scientists have also been prominent in the planning and development of the Global Ocean Observation System and have recently established a committee to review the national contribution.

COMMUNITY INVOLVEMENT AND PARTICIPATION

Canadian coastal communities have been keenly involved in the development, promotion, and implementation of sustainable oceans activities in Canada. Provinces and territories have developed their own marine strategies and, together with communities and local governments, have provided the impetus for the announcement of five pilot Marine Protected Areas in 1998. Conferences and symposia hosted by universities, nongovernmental organizations, and oceans-sector industry representatives have added to the momentum and helped to engage and educate the public of Canada on issues relating to oceans and seas.

INTERNATIONAL DEVELOPMENT

Canada provides oceans management and development assistance through the Canadian International Development Agency (CIDA) and the International Development Research Centre. Support in these fields has focused on three main areas: management of the uses of the ocean and seabed, protection of the marine environment, and fisheries management and development.

In the 1990s, CIDA's program emphasis shifted from the development of fisheries to a wider radius of activity encompassing seas and oceans management, marine environmental protection, and fisheries management. Between 1992/93 and 1994/95, CIDA's overall seas and oceans budgets totaled approximately \$57 million, divided roughly equally between "traditional" fisheries development projects and ocean and fisheries management.

In recognition of the need for a Canadian-based forum for the discussion and debate of coastal and ocean management issues, both domestic and global, a coalition of government, academic, private-sector, nongovernmental organization, and community interests formed the Coastal Zone Canada Association (CZCA) in 1993. The CZCA is a national nongovernmental organization that has taken on the role of convening biennial Coastal Zone Canada conferences. The fourth in the series of conferences will be held in Saint John, New Brunswick, in September 2000.

Since 1988, the Department of Fisheries and Oceans has been successful in encouraging the creation of independent Harbour Authorities, which have been given responsibility for managing certain Small Craft Harbours fishing harbour facilities. These local Harbour Authorities, which represent fishers and other users, have proven to be highly effective at managing Small Craft Harbour facilities, providing user services, and reducing the cost of harbour operations and maintenance.

Support for the building of regional capacity and institutions has figured prominently in CIDA support. The Association of South East Asian Nations (ASEAN)–Canada Fisheries Post-Harvest Technology Project, which extended from 1983 to 1998, helped southeast Asian nations to increase fish production for export and supported institution building through the provision of training, education, and technical assistance. Since 1984, the ASEAN–Canada Cooperative Programme on Marine Science has been supporting regional cooperation in marine environmental research, including the establishment of environmental criteria, pollution monitoring, and Red Tide studies. In the Caribbean, CIDA supports the CARICOM (Caribbean Community) Fisheries Resource Assessment and Management Programme to help Commonwealth Caribbean countries achieve the capacity for scientific assessment and management of their fisheries resources. The Canada–South Pacific Ocean Development Program focuses on strengthening regional opportunities. These are examples of CIDA's special attention to the unique needs of Small Island Developing States, both in terms of direct assistance and in promoting regional cooperation.

CIDA's recently published Strategy for Ocean Management and Development calls for a focus on five main areas of support that reflect the priority needs of developing countries in this era:

- establishment of a framework for sustainable ocean development, an ocean policy, and related law
- development of knowledge bases in fisheries and marine science
- management of the uses of the ocean and coordination and management of coastal zones, shipping, and environment
- fisheries management and development
- aquaculture/mariculture development.

Canada has worked closely with a number of developing countries through the Marine Affairs Program at Dalhousie University in Halifax, Nova Scotia, and the Université du Québec à Rimouski, at Rimouski, Quebec.

CANADA'S NEXT STEPS

For Canada, the coming years will mean an increasing focus on its oceans. Delivery on a number of oceans programs and continued emphasis on public education and awareness, as well as further progress in meeting international commitments, will be key to achieving its vision for healthy, safe, and productive oceans for the benefit of present and future generations.

Domestically, Canada will move from pilot Marine Protected Areas to the designation of Marine Protected Areas with enforceable regulations. It will continue to pursue an integrated approach to the planning and management of oceans activities and will develop guidelines, criteria, and

standards for marine environmental quality. The development of an oceans management strategy for Canada will be central to all of its activities.

Canada is proceeding with its National Programme of Action for the Protection of the Marine Environment from Land-based Activities. A document prepared by federal, provincial, and territorial agencies has been released for public consultation. After this phase, Canada's National Programme of Action will be published.

Canada will also continue to promote the conservation and sustainable use of its fish stocks. Internationally, this means implementing international legal instruments, an important one being the United Nations Fisheries Agreement.

Improving our knowledge and understanding of the oceans environment and its impacts — ecosystems impacts as well as human, social, and economic — will continue to be a challenge, but one that we are willing and eager to face.

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WEB SITES

Arctic Ocean

Arctic Climate System Study (ACSYS)
<http://pices.ios.bc.ca/www/wwwf.htm>

Arctic Council
<http://www.nrc.ca/arctic>

ArcticExplorer
<http://www.ArcticExplorer.com>

Canada Centre for Inland Waters
<http://www.cciw.ca>

Canadian Arctic Resources Committee (CARC)
<http://www.carc.org>

Coastal and Arctic Oceanography Research Group
<http://marine.rutgers.edu/ac/page1.html>

Institute of Ocean Sciences
<http://www.ios.bc.ca>

Atlantic Ocean

Atlantic Coastal Action Program
<http://www.ns.ec.gc.ca/acap>

Atlantic Coastal Zone Information Steering Committee (ACZISC)
<http://is.dal.ca/aczisc>

Bay of Fundy Ecosystem Partnership
<http://is.dal.ca/aczisc/fundy/BoFEP.htm>

Bedford Institute of Oceanography
http://www.dfomr.ca/es_bio.html

Coastal Challenges
<http://www.nsc.org/ehc/guidebks/coasttoc.htm>

Newfoundland Ocean Industries Association (NOIA)
<http://www.noia.nf.ca>

Nova Scotia Oceans Initiative
<http://www.nsoi.ns.ca>

Pacific Ocean

Burrard Inlet Environmental Action Program/Fraser River
Estuary Management Program
<http://www.bieapfrempp.org>

Department of Fisheries and Oceans – Pacific Region
Oceans Program
<http://www.pac.dfo-mpo.gc.ca/oceans>

Georgia Basin Ecosystem Initiative
http://www.pyr.ec.gc.ca/GeorgiaBasin/gbi_eIndex.htm

Institute of Ocean Sciences
<http://www.ios.bc.ca>

Integrated Coastal Zone Management (ICZM) –
British Columbia
<http://www.pac.dfo-mpo.gc.ca/oceans/iczm/miczmf.htm>

Marine Protected Areas – Pacific Region
<http://www.pac.dfo-mpo.gc.ca/oceans/mpa/mpafin.htm>

Pacific Marine Ecozone, Canada
<http://cs715.cciw.ca/eman-temp-f/ecozones/pacific-ecozone.html>

Canadian Universities/Colleges with Oceans-Related Programs

Association of Universities and Colleges of Canada

<http://www.aucc.ca>

Acadia University

<http://www.acadiau.ca>

Brock University

<http://www.brocku.ca>

Canadian Coast Guard College

<http://www.cgc.ns.ca>

Carleton University

<http://www.carleton.ca>

Concordia University

<http://www.concordia.ca>

Dalhousie University

<http://www.dal.ca>

Lakehead University

<http://www.lakeheadu.ca>

Laurentian University

<http://www.laurentian.ca>

McGill University

<http://www.mcgill.ca>

McMaster University

<http://www.mcmaster.ca>

Memorial University of Newfoundland

<http://www.mun.ca>

Queen's University

<http://www.queensu.ca>

Simon Fraser University

<http://www.sfu.ca>

St. Francis Xavier University

Interdisciplinary Studies in Aquatic Resources

http://iigo.stfx.ca/people/aqua_res

Trent University

<http://www.trentu.ca>

Université de Montréal

<http://www.umontreal.ca>

University of Alberta

<http://web.cs.ualberta.ca/UAlberta.html>

University of British Columbia

<http://www.ubc.ca>

University of Guelph

<http://www.uoguelph.ca>

University of Manitoba

<http://www.umanitoba.ca>

University of Northern British Columbia

<http://www.unbc.ca>

University of Saskatchewan

<http://www.usask.ca>

University of Toronto

<http://www.utoronto.ca>

University of Victoria

Centre for Earth and Ocean Research (CEOR)

<http://ceor.seos.uvic.ca>

University of Waterloo

<http://www.uwaterloo.ca>

University of Western Ontario

<http://www.uwo.ca>

University of Windsor

<http://www.uwindsor.ca>

University of Winnipeg

<http://www.uwinnipeg.ca>

York University

<http://www.yorku.ca>

Oceans and Coasts

Canadian Coastal Science and Engineering Association
<http://www.cciw.ca/ccsea/intro.html>

Canadian Council of Ministers of the Environment
<http://www.mbnet.mb.ca/ccme>

Canadian Hydrographic Service
<http://www.chs-shc.dfo-mpo.gc.ca>

Canadian Meteorological and Oceanographic Society
(CMOS)
<http://www.meds-sdmm.dfo-mpo.gc.ca/cmoss>

Canadian Museum of Nature
<http://www.nature.ca>

Canadian Wildlife Service
http://www.ec.gc.ca/cws-scf/cwshom_e.html

The Coastal Management Web
<http://www.coastalmanagement.com>

Coastal Zone 2000
<http://www.gov.nb.ca/dfa/czc2000.htm>

Commissioner of the Environment and Sustainable
Development
http://www.oag-bvg.gc.ca/domino/cesd_cedd.nsf/html_e.html

Ecosystem Initiatives
<http://www2.ec.gc.ca/ecosyst/overview.html>

Fisheries Resource Conservation Council
<http://www.dfo-mpo.gc.ca/frcc>

Gulf of Maine Council on the Marine Environment
<http://www.gulfofmaine.org>

International Institute for Sustainable Development
<http://iisd1.iisd.ca>

International Joint Commission
<http://www.ijc.org>

International Ocean Institute
<http://is.dal.ca/~ioihfx/index.html>

Marine Environmental Data Service
<http://www.meds-sdmm.dfo-mpo.gc.ca>

Oceans Canada
<http://www.OceansCanada.com>

Oceans Conservation
<http://www.OceansConservation.com>

Ocean Voice International
<http://www.ovi.ca>

Strategis – Ocean Technologies
http://strategis.ic.gc.ca/sc_indps/sectors/engdoc/ocea_hpg.html

World Wildlife Fund Canada
<http://www.wwfcanada.org>

United Nations

United Nations
<http://www.un.org>

United Nations Commission on Sustainable Development
<http://www.un.org/esa/sustdev/csd.htm>

United Nations Development Programme
<http://www.undp.org>

United Nations Environment Programme
<http://www.unep.org>

World Business Council for Sustainable Development
<http://www.wbcsd.ch>

The World Conservation Union
<http://iucn.org>

World Health Organization
<http://www.who.ch>

Federal Departments and Agencies with Ocean Responsibilities

Agriculture and Agri-Food Canada
<http://www.agr.ca>

Atlantic Canada Opportunities Agency
<http://www.acoa.ca>

Canadian Coast Guard
<http://www.ccg-gcc.gc.ca>

Canadian Environmental Assessment Agency
<http://www.ceaa.gc.ca>

Canadian Ice Service of Environment Canada
<http://www.tor.ec.gc.ca/ice>

Canadian International Development Agency
<http://www.acdi-cida.gc.ca>

Canadian Transportation Agency
<http://www.cta-otc.gc.ca>

Department of Foreign Affairs and International Trade
<http://www.dfait-maeci.gc.ca>

Department of Justice
<http://canada.justice.gc.ca>

Environment Canada
<http://www.ec.gc.ca>

Fisheries and Oceans Canada
<http://www.dfo-mpo.gc.ca>

Health Canada
<http://www.hc-sc.gc.ca>

Indian and Northern Affairs Canada
<http://www.inac.gc.ca>

Industry Canada
<http://info.ic.gc.ca>

International Development Research Centre
<http://www.idrc.ca>

National Defence
<http://www.dnd.ca>

National Energy Board
<http://www.neb.gc.ca>

National Research Council Canada
<http://www.corpserv.nrc.ca>

National Round Table on the Environment and the
Economy
<http://www.nrtee-trnee.ca>

Natural Resources Canada
<http://www.nrcan.gc.ca>

Natural Sciences and Engineering Research Council of
Canada
<http://www.nserc.ca>

Parks Canada
<http://parkscanada.pch.gc.ca>

Privy Council Office
<http://pco-bcp.gc.ca>

Public Works and Government Services Canada
<http://w3.pwgsc.gc.ca>

Royal Canadian Mounted Police
<http://www.rcmp-grc.gc.ca>

Transportation Safety Board of Canada
<http://www.bst-tsb.gc.ca>

Transport Canada
<http://www.tc.gc.ca>

Western Economic Diversification Canada
<http://www.wd.gc.ca>

Provincial and Territorial Governments

Government of Alberta
<http://www.gov.ab.ca>

Government of British Columbia
<http://www.gov.bc.ca>

Government of Manitoba
<http://www.gov.mb.ca>

Government of New Brunswick
<http://www.gov.nb.ca>

Government of Newfoundland and Labrador
<http://www.gov.nf.ca>

Government of the Northwest Territories
<http://www.gov.nt.ca>

Government of Nunavut
<http://www.nunavut.com>

Government of Nova Scotia
<http://www.gov.ns.ca>

Government of Ontario
<http://www.gov.on.ca>

Government of Prince Edward Island
<http://www.gov.pe.ca>

Government of Québec
<http://www.gouv.qc.ca>

Government of Saskatchewan
<http://www.gov.sk.ca>

Government of Yukon
<http://www.gov.yk.ca>