



Government
of Canada

Gouvernement
du Canada



Canada's Oceans Action Plan

For Present and Future Generations



Table of Contents

Foreword	3
International Leadership, Sovereignty and Security	5
Integrated Oceans Management for Sustainable Development	6
Health of the Oceans	9
Ocean Science and Technology	9
Initiatives for Phase I of the Oceans Action Plan	11
International Leadership, Sovereignty and Security.	11
Integrated Oceans Management for Sustainable Development	13
Health of the Oceans.	17
Ocean Science and Technology	19

Cover photo credits:

Top left: Department of National Defence (Ship's Crew, HMCS Montréal)

Bottom left: ©Nuytco Research Ltd.

Published by:

Communications Branch
Fisheries and Oceans Canada
Ottawa, Ontario
K1A 0E6
www.dfo-mpo.gc.ca

DFO/2005-348

© Her Majesty the Queen in Right of Canada, 2005

Cat. No. FS23-472/2005

ISBN 0-662-68996-8



Printed on recycled paper.

Foreword

OUR OCEANS

Canada is a maritime nation. We are defined as much by our oceans as by land. Three of the world's oceans border our coastline, which is the longest in the world at about 244,000 km. Our oceans regions total almost 6 million square kilometers, equivalent to almost 60% of Canada's land mass. In addition, Canada's extended continental shelf (beyond 200 nautical miles), once delimited through the United Nations Convention on the Law of the Sea (UNCLOS) process, is estimated to be equivalent in size to three Prairie provinces combined.

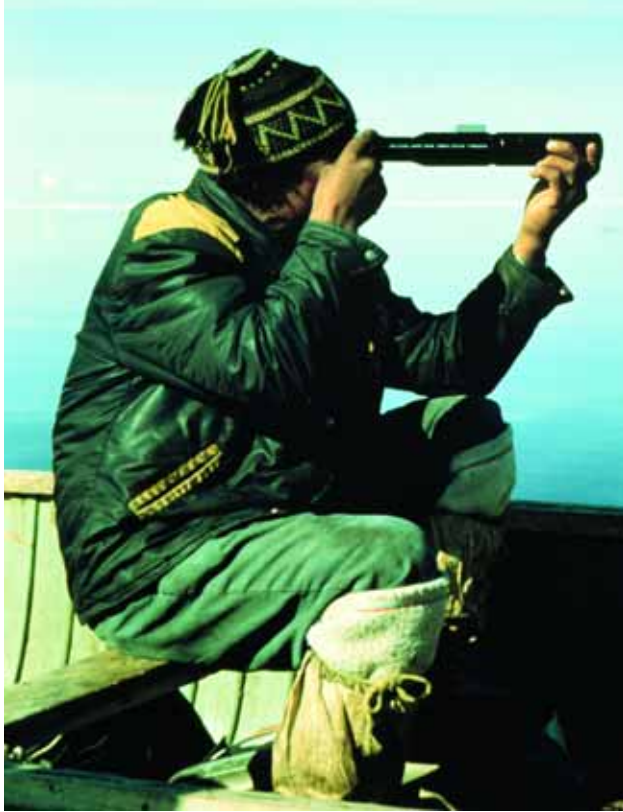
Eight out of our ten provinces border on the oceans, as do the Northwest Territories, Nunavut and Yukon. The oceans provide recreational, environmental, employment, income and cultural staples to over 7 million Canadians who live in coastal communities—more than twenty percent of Canada's total population. Our oceans are important and present an opportunity to make a greater contribution to our well-being and to benefit from the protection of critical marine environments.

Living on the land limits our vision of what our oceans look like beneath the surface. Few Canadians have seen our sub-sea valleys, plains and mountains. The Sable Gully off Nova Scotia's coast is a massive sub-sea canyon, and is now one of Canada's marine protected areas. Some of our country's most magnificent vistas are found where the land joins the sea—coastal fjords and inlets, bays and estuaries, arctic ice fields, and archipelagos made up of thousands of islands and countless beaches.

Canada's marine wildlife numbers in the thousands of species including orcas, polar bears, walrus, sea otters, and bowhead whales, which live for more than 200 years. We have shellfish, finfish, seabirds, marine plants and other seabed animals, including forests of thousand year-old corals and unique glass sponge reefs. These are part of our incredibly diverse oceans.

The role that oceans have played in Canada's history cannot be overemphasized. They are an inherent part of our environmental, social, cultural and economic fabric. Aboriginal peoples and Canada's coastal communities have longstanding ties to their oceans and other marine resources. With Canada's *Oceans Act*, we have made a commitment to manage them wisely.





WHERE WE ARE: THE OCEANS ACT

With the passage of the *Oceans Act* in 1996, followed by the release of Canada's Oceans Strategy in July 2002, we established a new legislative and policy framework to modernize oceans management. The *Oceans Act* is founded on three principles:

- Sustainable Development
- Integrated Management, and
- Precautionary Approach.

Guided by these principles, Canada can continue to develop a dynamic and diverse oceans economy in a way that ensures that we will protect the marine environment on which that economy is based.

SEIZING OPPORTUNITIES FOR SUSTAINABLE DEVELOPMENT—THE OCEANS ACTION PLAN

Modern oceans management arrangements are necessary to enable Canadians to more fully realize the potential of their oceans. Currently, oceans governance arrangements are not designed to deal with the challenges of modern oceans management. The approach is fragmented, exceedingly complex, lacks transparency, and is focused on solving problems after they appear.

The current approach has resulted in:

- failing oceans health, including some declining fish stocks and increasing fluctuations of stocks, increasing numbers of marine species at risk and invasive species, marine habitat loss, and declining biodiversity;
- growing oceans user conflicts and administrative, jurisdictional and regulatory complexities, and lost or delayed investments; and
- an oceans industry sector that is significantly weaker than its potential.

Without a strategy to more effectively manage our oceans and address these challenges, there will be continued environmental degradation and lost economic and employment prospects. This will have serious consequences for coastal and Aboriginal communities that already face the challenge of maintaining healthy environments and providing the necessary infrastructure to support, sustain and grow their communities.

The Government of Canada recognizes the importance of *action* to address these challenges.

- The Prime Minister has personally tasked the Minister of Fisheries and Oceans Canada to lead the development of an Oceans Action Plan, and has appointed a Parliamentary Secretary to assist the Minister in this task.
- The Prime Minister has also indicated that Canada will play a significant leadership role internationally in promoting modern oceans governance and improved management.

In addition, the Government of Canada committed in the October 2004 Speech from the Throne, to:

“move forward on its Oceans Action Plan by maximizing the use and development of oceans technology, establishing a network of marine protected areas, implementing integrated management plans, and enhancing the enforcement of rules governing oceans and fisheries, including rules governing straddling stocks.”

The Oceans Action Plan responds to that commitment and advances the legislation and policy in place as well as the Government of Canada’s commitment to smart regulation. The Oceans Action Plan articulates a *government-wide* approach to seize opportunities for sustainable development. The Plan serves as the overarching umbrella for coordinating and implementing oceans activities, and as the framework to sustainably develop and manage our oceans.

The Oceans Action Plan is based on four interconnected pillars:

- **International Leadership, Sovereignty and Security;**
- **Integrated Oceans Management for Sustainable Development;**
- **Health of the Oceans; and**
- **Ocean Science and Technology.**

A PHASED APPROACH TOWARD IMPLEMENTATION

This will take time, and we must start with the foundation pieces needed to achieve sustained, long-term change. The most fundamental of these are new oceans governance arrangements (“integrated management” under the *Oceans Act*), and ecosystem science to improve the management of the marine environment.

Phase I includes a series of interrelated initiatives that will be completed within 24 months, which build on progress made to date and set the foundation for achieving the long-term objectives of the *Oceans Act* and Canada’s Oceans Strategy. Subsequent phases of the Oceans Action Plan will broaden the geographic scope of oceans management, deepen action across the Government and take advantage of lessons learned in Phase I.



Fisheries and Oceans Canada – Newfoundland



National Defence (Ship's Crew, HMCS Montécal)



International Leadership, Sovereignty and Security

Sovereignty and security are the essential base for oceans policy and management. The measures that have been put in place to enhance maritime security,

as part of the broader National Security Policy, are a fundamental aspect of improved oceans management. The national ability to conduct surveillance, patrol and interdiction operations is pivotal. A strong fleet is crucially important to reinforce and support oceans management.

On the Atlantic Coast, overfishing in the Northwest Atlantic Fisheries Organization's (NAFO) regulatory area is a pressing issue. Efforts to date—including an increased at-sea presence by Canada leading to more inspections of vessels coupled with enhanced diplomatic interventions—have shown early positive results in reducing the instances of overfishing and improving compliance with the provisions of NAFO regulatory measures in the immediate term.

Broader-based action now is critical to preventing virtual stock destruction and other irrecoverable damage to this globally significant ecosystem. Canada is taking leadership in the global community to address this issue.

Canada's economic security interests will also be pursued through delimiting the outer limit of the continental shelf, following Canada's decision to ratify the United Nations Convention on the Law of the Sea in November 2003. Funding was provided in the federal budget of 2004 to undertake the work necessary to provide support for a claim to extend Canada's continental shelf rights beyond 200 nautical miles as provided in the Convention. This claim will provide long-term certainty over the full extent of Canada's extended continental shelf. Canada will confirm our sovereign rights for the purpose of exploring the seabed and managing the sustainable use of living and non-living natural resources.

There is an important regional context for oceans management, especially through bilateral and trilateral actions with our North American partners in the United States and Mexico. Challenges faced by our partners parallel those in our waters. Consequently, the Prime Minister of Canada and the Presidents of the United States and Mexico, as part of the new Security and Prosperity Partnership of North America, have agreed to: *"develop complementary strategies for oceans stewardship by emphasizing the ecosystem approach, coordinating and integrating existing marine managed areas, and improving fisheries management."*

Canada and the United States are working together on improving oceans management in the Gulf of Maine to prevent ecological damage, map the area, and strengthen regional economies in both countries. These efforts are a key step toward enhancing scientific understanding and managing the area.

Canada has collaborated with other Arctic Council states to lead the development of the Arctic Marine Strategic Plan. This plan provides the high level policy framework for the eight Arctic nations to address the particular challenges facing oceans management in the circumpolar north.

Through the *Oceans Act*, Canada was the first country in the world to adopt comprehensive oceans management legislation. The *Act* represents a global benchmark for oceans legislation. Canada will continue to work with the United Nations and its bodies and directly with other nations to continue to assist the global effort to improve oceans governance and management arrangements.

Integrated Oceans Management for Sustainable Development

Over the past decade and a half, our oceans have been a very dynamic growth sector for Canada's economy, and currently generate more than \$22 billion directly through ocean-related industries.

Although there have been significant structural shifts in the commercial fishing sector, this industry continues to make an annual contribution to Canada's oceans economy totalling \$2 billion in harvest value and \$4.4 billion in export value.

Employment in aquaculture has grown more than 460% and the value of fish farm production has increased by more than 500%.

Offshore oil and gas production has increased in annual investment value over the past decade from \$250 million to \$5 billion. Employment now represents 4.0% of the overall oceans industry compared to past levels of 0.3%.



Jack Mathias



Bedford Institute of Oceanography - Photo Section



Recreation and tourism have grown more than 33% in the past decade despite a drop in the number of recreational anglers. There has been major growth in both coastal tourism (156%) and cruise ship tourism (176% in the number of passengers). Although tourism still remains a relatively small contributor to the oceans economy, it is increasing in its influence.

Given the right oceans management conditions, the oceans economy has the potential to grow enormously, with benefits for rural and coastal Canadians:

- market analysis indicates the aquaculture industry could grow from a current annual value of \$600 million into a \$2 billion industry;
- fish harvesting and fish processing are still the backbone and the heart and soul of many if not most coastal economies, particularly in rural areas. While this sector is expected to remain relatively stable, if oceanographic and other conditions improve, it has a good potential to grow. There is a growing global consensus that a more ecosystem-based approach to fishing will enhance opportunity over time. In addition, the development of technologies for value-added products offers potential economic growth at existing harvest levels;
- increased global demand for known and potential offshore oil and gas reserves points toward significant potential for growth; and,
- the oceans technology sector has many small and medium-sized enterprises that have the potential to become important players on the global stage.

There are, however, serious limiting factors that handicap our oceans economy:

- few venues presently exist for multi-sectoral interests to interact effectively with each other and to sort out conflicting use issues;
- goals and objectives for decision-making are not clear nor integrated across sectors and they are not always grounded in sustainable practices, based on sound science that considers both current and cumulative impacts;
- regulatory complexity and uncertainty as well as a continuing lack of awareness about economically based oceans activities frequently result in unreliable and hesitant investor confidence;

- emerging industries seeking to find a niche such as offshore aquaculture, mineral and metal exploration and other non-traditional energy sources like wind and wave power generation are increasingly experiencing conflicts with other more traditional oceans uses over space and resource allocation; and,
- “non-consumptive uses” of the oceans environment (cable-laying for telecommunications or electricity; oil or gas pipelines; etc.) often experience conflict due to lack of planning or concerns about lost access to ocean areas.

Solutions to these problems can be found in new management models founded on the three principles of Canada’s *Oceans Act*: sustainable development, the precautionary approach and integrated management.

Countries around the globe that have pursued modern oceans management, including Canada, have recognized the value of integrated oceans management. The precautionary approach compels more care be taken where knowledge and scientific research has yet to provide sufficient certainty to decision-making.

The principle of Integrated Management was first agreed to at the 1992 United Nations Conference on Environment and Development, which recognized the long term value of sustainable development. Canada, by signing the “Agenda 21” commitments, joined the global community in supporting action. Canada has taken some significant steps to move toward the protection of the ecosystem and increased resource management capability. Through the *Oceans Act* and supporting policy direction, we have agreed to:

- work together among governments;
- bring sectors and citizens together using more open and transparent management and advisory bodies;
- pursue ecosystem-based approaches;
- base decisions on strong scientific advice; and,



Rick Meiers



Tara Donaghy



Bob Heger

- apply conservation and protection measures in the marine environment through actions such as Marine Protected Areas and “smart” regulations, and guidelines and standards to ensure marine environmental quality.

The Oceans Action Plan will build upon these approaches.

Health of the Oceans

Healthy and productive ocean ecosystems are the foundation for all ocean and marine resource management actions. However, all indicators point to the reality that the health and quality of the marine environment are at risk or declining. There are:

- major declines in some fish stocks and greater stock fluctuations;
- fundamental changes in the structure of marine-ecosystems, especially in the upper layers of the food web;
- shifts in major oceanographic drivers due to climate change;
- persistent introduction of pollutants and invasive species;
- increasing numbers of marine species-at-risk;
- measurable habitat alteration and degradation;
- contamination of traditionally harvested resources; and,
- declining biodiversity and productivity.

The illegal discharge of ship-generated oil waste continues to create serious problems affecting numerous populations of marine birds on both eastern and western coasts of Canada. Over 100 ship-based oil pollution incidents are reported each year and many more are missed. Improved surveillance is necessary to combat this issue.

While the challenges are many, there are solutions to deal with these problems. Scientists and oceans managers around the world are in agreement that we need a greater commitment to:

- stronger ecosystem-based science to look at the interactions among the diverse parts that make up the natural world, as well as scientific advice to turn information and research results into definitive action;

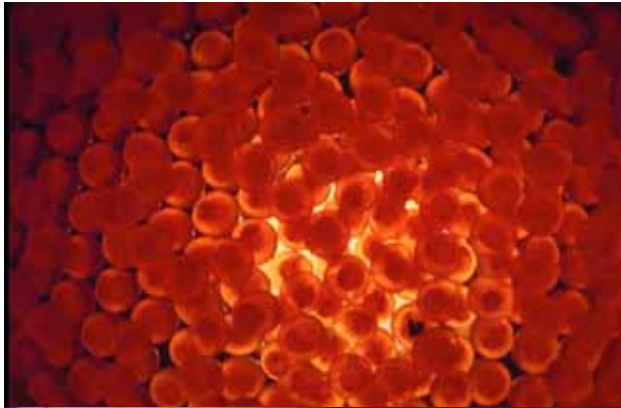
- deployment of modern technology to support oceans understanding and awareness, and monitoring and management regionally and nationally;
- integrated planning amongst oceans users based on clear, well-understood and shared ecosystem objectives;
- effective regulatory measures to protect the oceans resources against over-harvest, as well as environmental degradation; and,
- protection measures, especially the designation of marine protected areas in the ocean to protect the most important, productive and biologically diverse areas and vulnerable species.

Canada has already made a significant investment in the marine environment through improvements in the management and regulation of the fisheries, understanding large scale oceanographic processes and ensuring safe navigation through our waters. We have a starting base of knowledge about sensitive areas and species, and more needs to be done.

Ocean Science and Technology

Canadian firms have established themselves as world leaders in oceans technology niches. To fully employ Canadian ingenuity and to secure markets, which will allow this industry to prosper, the Government needs to provide a supportive environment for the development and commercialization of oceans technology. There is a tremendous opportunity to turn the government’s need for technology solutions that arise from the other three pillars of the Oceans Action Plan into business and commercial opportunities, especially for coastal communities.

The Marine and Ocean Industry Technology Roadmap provides a vision for development of technologies that will help address growing demands and achieve Canada’s potential as an ocean technology innovator. The Roadmap outlines actions to develop technology and emphasizes sustainability. The ocean technology industry comprises many small and medium-sized firms as well as regionally-based research and development organizations. The marketplace is moving toward integrated technology-based solutions, and Canadian firms will need partnerships with each other to increase their capacity to respond.



There is a need to network with coastal communities to achieve economic development, ensure economy of scale for small-to-medium size firms, and capitalize on the current market. Ocean science and technology networks and organizations, as well as National Research Council institutions, government labs, and consortia of private firms are emerging as focal points for information-sharing, and innovation.

Development and demonstration are critical to research and development and commercialization. Working relationships with firms and research institutes are needed to establish needs, define applications and demonstrate new technologies. The government, as a main user and purchaser of oceans technologies, can also foster and support the commercialization of new technologies. The Oceans Action Plan supports the development and implementation of a technology demonstration platform to facilitate wireless transmission of key oceanographic information for integrated management and for modeling systems.

The regional economic development agencies—Atlantic Canada Opportunities Agency, Western Economic Diversification, and Canada Economic Development for Quebec, as well as Industry Canada, the National Research Council, granting councils, and other technology development programs can also support the Oceans Action Plan and facilitate the development of the oceans industry sector.

The Industry Portfolio has been actively working to encourage small and medium sized business innovation. With increased focus and coordination, more can be done to position Canadian companies to create next generation technologies aimed at an expanding international oceans market.

Initiatives for Phase I of the Oceans Action Plan

International Leadership, Sovereignty and Security

INTERNATIONAL OCEANS MANAGEMENT

Canada will continue to play a leadership role in international oceans management, advancing within global fora concepts—such as an ecosystem approach to management, integrated management planning and marine protected areas—that we have embraced in our own Canadian legislation. Canada will also learn from best practices as they are developed and implemented by other countries and oceans institutions. By participating in the United Nations Convention on the Law of the Sea and oceans management efforts, and in fora such as the Global Oceans Forum (a unique partnership of United Nations oceans intergovernmental bodies, national governments, oceans industries and civil society), we can help advance capacity building in other countries as well. There are a number of important areas, such as the protection of high-seas biodiversity and the concept of high-seas marine protected areas, where Canada can bring to the global stage practical solutions that can lead international benchmarking and best practice exercises.

Canada has taken a leadership role in addressing oceans governance and fisheries issues broadly and proactively. The Prime Minister has raised the issue with his G8 counterparts, and at a major international conference hosted by Canada in St. John's

Newfoundland and Labrador in May 2005 where international experts were brought together to develop concrete actions to tackle these global challenges.

SECURITY AND PROSPERITY PARTNERSHIP OF NORTH AMERICA

On March 23, 2005, the Prime Minister of Canada and the Presidents of the United States and Mexico signed a Leaders' Statement and companion Security Agenda and Prosperity Agenda. This Security and Prosperity Partnership commits the governments to develop complementary strategies for oceans stewardship by emphasizing an ecosystem approach, coordinating and integrating existing marine managed areas, and improving fisheries management. A major maritime collaboration in the Partnership is to develop and implement a strategy to enhance North American maritime transportation and port security. It also commits to enhancing partnerships and incentives to conserve habitat for migratory species, thereby protecting biodiversity. The plan also calls for measures to combat the spread of invasive species in both coastal and fresh waters. The United States recently released its Oceans Action Plan, providing a solid foundation upon which collaboration can be built. As well, participation and support for the North American Free Trade Agreement/ Commission on Environmental Cooperation marine projects will be enhanced.



Mike Mitchell - 2003

GULF OF MAINE

As part of the broader oceans commitments set out in the Security and Prosperity Partnership of North America, Canada will work cooperatively with the United States in the Gulf of Maine. Collaborative work will unfold through existing transboundary fisheries management mechanisms and the Gulf of Maine Council on the Marine Environment. The Council includes representatives from Nova Scotia, New Brunswick, the states of Maine, Massachusetts and New Hampshire. Six American States and Canadian federal agencies sit as partners on the council. This body aims to foster cooperative actions within the Gulf of Maine watershed to preserve our common heritage and advance sustainable resource use.

ARCTIC MARINE STRATEGIC PLAN

The Arctic Marine Strategic Plan sets out a framework to work cooperatively with eight Arctic nations and Indigenous peoples to address pollution, biodiversity and ecosystem integrity, coastal community and human health, and marine resource use issues. Under the Arctic Marine Strategic Plan, which was adopted by the Arctic Council in November 2004, the Government of Canada has committed to: co-lead an Arctic marine shipping assessment at current and projected future levels, contribute to an assessment of potential impacts of oil and gas activities in the Arctic; identify large marine ecosystems and promote ecosystem-based management; develop management responses to the Arctic Climate Impact Assessment; advance implementation of the Regional Programme of Action; and engage Aboriginal groups in oceans and coastal management.

OVERFISHING

On the Atlantic Coast, overfishing in the Northwest Atlantic Fisheries Organization's (NAFO) regulatory area is a pressing issue. Efforts to date—including increased at-sea presence by Canada and enhanced bilateral interventions—have shown early positive results in reducing the instances of overfishing and improving compliance with the provisions of NAFO regulatory measures in the immediate term. While these actions need to be sustained, longer-term solutions need to be developed to improve the governance of high-seas fisheries and oceans. Canada is taking leadership in the global community to address these issues through continued enforcement presence, diplomatic interventions and governance change.



MAPLANT (Maritime Forces Atlantic)



Fisheries and Oceans Canada – Central and Arctic Region

CANADA'S CONTINENTAL SHELF

Canada's economic security interests will also be pursued through a formal delimitation of the outer limit of the continental shelf following Canada's decision to ratify the United Nations Convention on the Law of the Sea in November 2003. Funding was provided in the federal budget of 2004 to undertake the work necessary to provide support for a claim to extend our Canadian continental shelf rights beyond 200 nautical miles as provided in the Convention. This claim will provide long-term certainty over the full extent of Canada's extended continental shelf. Canada will confirm our sovereign rights for the purpose of exploring the seabed and managing the sustainable use of living and non-living natural resources.

Integrated Oceans Management for Sustainable Development

Integrated Management Planning is at the heart of new, modern oceans governance and management. Integrated management is a comprehensive way of planning and managing human activities so that they do not conflict with one another and so that all factors are considered for the conservation and sustainable use of marine resources and shared use of oceans spaces. It is an open, collaborative and transparent process that is premised on an ecosystem-approach. It involves planning and management of natural systems rather than solely political or administrative arrangements, and is founded on sound science that can provide the basis for the establishment of ecosystem management objectives. The implementation of Integrated Management Planning for Phase I of the Oceans Action Plan is focused in five priority areas.

Integrated Management Planning in 5 Priority Areas

PLACENTIA BAY AND THE GRAND BANKS

The Grand Banks covers an area of 500,000 sq. km. inside and beyond our 200 nautical mile zone on the south-eastern portion of Newfoundland and Labrador. Placentia Bay, encompassing 3,600 sq. km.,

is an important coastal area in and of its own right, and is an area where many of the coastal impacts of activities taking place on the Grand Banks are felt. The initial phase of the Oceans Action Plan will focus on establishing a new local planning committee for integrated management in Placentia Bay. Also, a technology advisory council will be established, making Placentia Bay the prime site for oceans technology projects. On the Grand Banks, the focus is on promoting ecosystem-based management within and beyond the Canada's Exclusive Economic Zone. Phase I will see the development of a science and management framework, including strengthened domestic and international partnerships, for this area.

THE SCOTIAN SHELF

This area is approximately 325,000 sq. km in size, south-east of the Province of Nova Scotia. There are an exceptional number of stakeholder interests converging in this area, including oil and gas, defense activity, commercial fishing, aquaculture, fibre optics, and a proposed natural gas pipeline from Nova Scotia to Boston. This initiative is the most mature of the integrated management planning initiatives established under the *Oceans Act*. The main focus of the offshore component during

Phase I of the Oceans Action Plan will be on implementing new governance arrangements (based on the conclusions of the recent public forum), concluding a draft integrated oceans management plan, and implementing that plan. Work is also under way on the development of a coastal management plan for the Bras d'Or Lakes, which will be accelerated and serve as a model for future coastal planning initiatives in the region.

THE GULF OF ST. LAWRENCE

The Gulf of St. Lawrence oceans management initiative, including the marine estuary of the St. Lawrence River, is approximately 200,000 sq. km and is surrounded by five provincial land masses. The Gulf of St. Lawrence and its marine ecosystem has several distinct features: its "isolation" from the offshore North Atlantic in connection with the extensive Laurentian Channel through which Atlantic water penetrates; its linkage to freshwater drainage from the Great Lakes and St. Lawrence Basin; its seasonal ice cover; and its shallow, highly productive waters, that make the Gulf of St. Lawrence one of the most diverse and productive North American marine environments. Because of its configuration, the Gulf of St. Lawrence and its ecosystem support a wide range of human activities within and adjacent to it, including exploitation of living and non-living resources, industrial development, transportation, and recreational activities. Additionally, climate change, warmer waters and sea-level rise in low-lying areas are known to impact on this ecosystem and its inhabitants.

THE BEAUFORT SEA

The Beaufort Sea covers about 175,000 sq. km. It is located in the Canadian Western Arctic and falls within the Inuvialuit Settlement Region, a settled land claim. The area has the third largest reserve of conventional oil and gas in Canada, and the development of the Mackenzie Valley pipeline is a key issue. Oil and gas development has the potential to provide unprecedented opportunities for Northern Canadians. Development of these resources must be realized both in partnership with Northern communities, and in a manner that ensures effective environmental stewardship. An important component of this involves scientific research to help ensure that appropriate measures are taken to minimize environmental impacts, protect the public interest, and assess the cumulative effects of individual projects on the broader northern landscape and people.



Tara Donaghy



Fisheries and Oceans Canada – Newfoundland



Fisheries and Oceans Canada – Central and Arctic Region

THE PACIFIC NORTH COAST

Based primarily on ecological characteristics, the Pacific North Coast area extends from the Canada–Alaska border in the north to Brooks peninsula on Northwest Vancouver Island and Quadra Island and Bute Inlet in the south, encompassing an area of approximately 88,000 sq. km. The planning area extends seaward to the foot of the continental slope and on the landward boundary, which takes into consideration the importance of coastal watersheds. The area is important for food, social and ceremonial fisheries for First Nations, as well as commercial fisheries and recreational fisheries. Aquaculture development is also a key issue in the area, as are tourism, transportation, and potential offshore energy development. A particular feature of the initiative will be the development of proactive means for First Nations involvement in marine and coastal resource management at the broader oceans management scale, as well as within the smaller coastal community scale.

While the specific outcomes and pace of implementation will differ in each priority area, there are two fundamental outcomes that lay the foundation of all future oceans management activities:

- the establishment of open and collaborative oceans governance and management arrangements amongst governments at all levels, with stakeholders directly affected by those government decisions, and with citizens and interested parties who have an interest in decisions affecting that oceans area; and,
- the establishment of ecosystem-based approaches to science and management advice to provide more informed and comprehensive advice in support of oceans decision-making.

OCEANS MANAGEMENT TOOLS

ECOSYSTEM OVERVIEW AND ASSESSMENT REPORTS

These reports will provide basic scientific information to guide user-led oceans planning in the five priority areas, inform stakeholder consultations, and accelerate the production of ecosystem objectives. The reports will also address the ecosystem components and properties, causality and pressures,



Jack Mathias



Maria Buzeta and Mike Strong



Jack Mathias

land-water interface, and water quality. These overviews and assessments will assist stakeholder advisory bodies in making recommendations and governments in making management decisions on long-term environmental trends. Resources will be used to gather and analyze existing scientific information, including the assistance of scientific experts.

IDENTIFICATION OF ECOLOGICALLY SIGNIFICANT AREAS

This initiative is the basis for “carving out” the geographic boundaries where management needs to be applied. It is based on identifying ecologically and biologically significant areas to determine whether measures may be required (e.g., marine protected areas, species at risk, and critical habitat). Resources will be used to develop criteria to differentiate areas; identify significant features relative to the structure and function of an ecosystem and vulnerable areas; establish priorities; and, determine appropriate management options. Other activities include scientific work, the mapping of areas, and modelling of dynamic distributions.

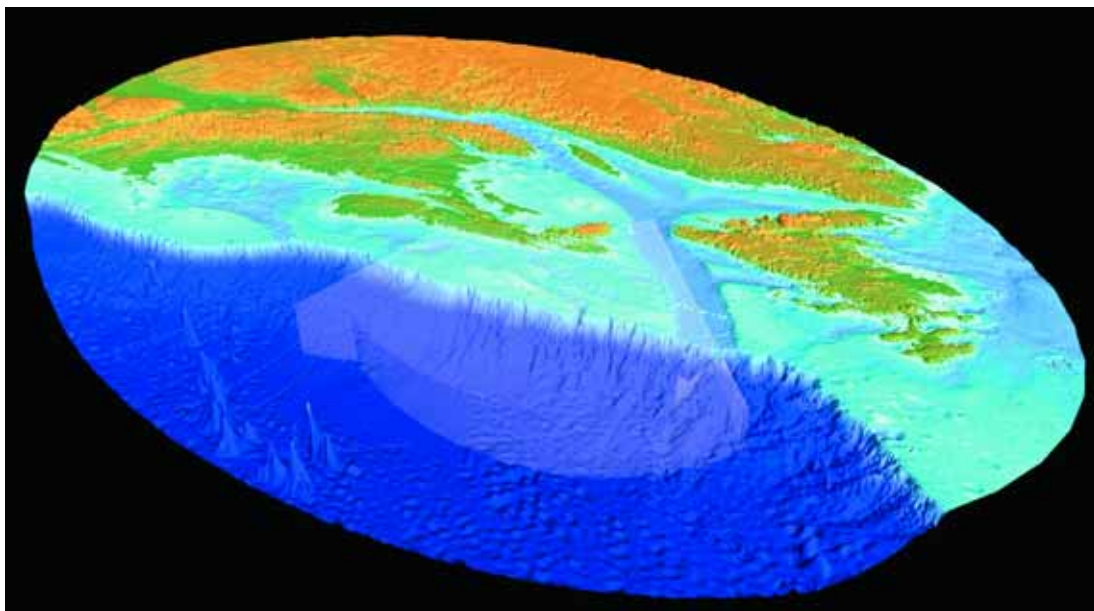
SEABED MAPPING

Seabed mapping is focused on providing imagery of the seabed characteristics and features. For high priority areas within the five geographic areas of the Oceans Action Plan, seabed mapping will help to increase scientific understanding of the physical environment and associated habitats to support

integrated management planning and the identification of marine areas in need of protection. Activities include: determining strategically important areas to implement seabed mapping in the five large oceanic regions for integrated management planning; producing maps, data bases and reports; conducting surveys to collect data; and developing web accessible databases and data collection.

ECOSYSTEM OBJECTIVES

This initiative is an innovative way to apply ecosystem-based management approaches to the management of human activity in the oceans. It involves the development of objectives based on an understanding of the ecosystem. The aim is to maintain the biodiversity, productivity and physical-chemical properties of marine ecosystems. The activities of oceans users can be assessed against these objectives to identify permissible types and levels of activity as well as measuring the effectiveness of marine environmental regulations and protection measures and the impact of oceans development. Ecosystem objectives will inform oceans management and marine environmental protection by guiding the activity of industry and other stakeholders, who in turn make recommendations about marine environmental quality and indicators of progress to oceans decision-makers.



Fisheries and Oceans Canada – Maritimes Region

Health of the Oceans

MARINE PROTECTED AREAS STRATEGY

In 1997, the Government of Canada brought the *Oceans Act* into force providing Canada with a framework for modern oceans management. The *Oceans Act* tasks the Minister of Fisheries and Oceans with leading and coordinating a system of marine protected areas on behalf of the Government of Canada. The Federal Marine Protected Areas Strategy is our response. It will guide the establishment of a comprehensive and coordinated network of marine protected areas in Canada. The Strategy on marine protected areas will contribute to meeting Canada's commitments under the Convention on Biological Diversity's Protected Areas Programme of Work, which includes the establishment of a network of marine protected areas by 2012.

Within Canada there exists a spectrum of legislative and policy tools to establish and manage marine protected areas. Three federal departments and agencies—Fisheries and Oceans Canada, Parks Canada Agency and Environment Canada—have specific mandates in this regard and have developed this Strategy to articulate how they will work together to establish and manage a network of marine protected areas in Canada.

Canada's federal marine protected area network is comprised of three core programs, including:

- **Oceans Act Marine Protected Areas** established to protect and conserve important fish and marine mammal habitats, endangered marine species, unique features and areas of high biological productivity or biodiversity;
- **Marine Wildlife Areas and Migratory Birds Sanctuary** established to protect and conserve habitat for a variety of wildlife including migratory birds and endangered species;
- **National Marine Conservation Areas** established to protect and conserve representative examples of Canada's natural and cultural marine heritage and provide opportunities for public education and enjoyment. In addition, several coastal National Parks include significant marine components.



Fisheries and Oceans Canada

Fisheries and Oceans Canada

This Strategy is a blueprint for the three federal departments to achieve networks of marine protected areas that contributes to longer-term ecosystem protection. It will involve natural and social science research; ongoing management and enforcement of specific marine protected areas; and communication with Canadians, including the development of a web-based mapping system of marine protected areas in Canada. The Strategy will be implemented in consultation with stakeholders

and in collaboration with provinces and territories, and First Nations and mandated Aboriginal organizations.

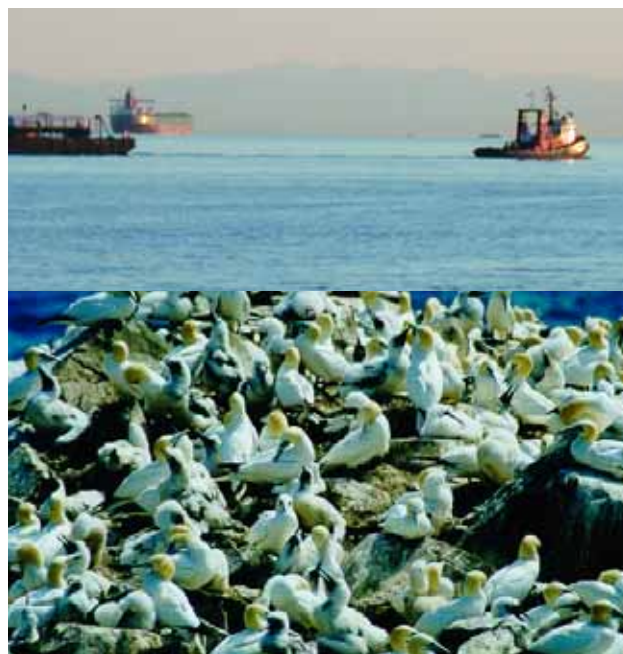
BALLAST WATER AND MARINE POLLUTION REGULATIONS

This initiative is twofold. Led by Transport Canada, the aim is to reduce the risk of aquatic invasive species to Canadian waters from ballast water dumping by ships through the development of appropriate regulations to replace current voluntary guidelines. Implementing the regulations and adequately monitoring compliance will require the purchase of testing equipment, and the support of the development of onboard treatment methods to control invasive species.

This initiative also involves developing innovative regulations to prevent marine pollution from ships, and enhancing enforcement, e.g. reception facilities, adoption of an enhanced regulatory program including new/expanded provisions for sewage, garbage, air emissions and anti-fouling paints, training of ship inspectors, and the ability to conduct an increased number of investigations of pollution incidents anticipated due to increased surveillance activities.

POLLUTION PREVENTION SURVEILLANCE FOR SEA BASED SOURCES

Transport Canada is the lead department responsible for preventing pollution from ships, and the National Aerial Surveillance Program (NASP) is one method by which this is achieved. Additional surveillance will be undertaken to enforce the provisions of Canadian legislation applicable to illegal discharges from ships—pollution patrols will be increased by approximately 100%. Furthermore, by coordinating the pollution surveillance patrols with Radarsat satellite reports of anomalies on the ocean's surface, it is anticipated that the overall effectiveness of pollution surveillance will be increased. In addition, Transport Canada will acquire and install forward-looking technology for its Dash 8 pollution surveillance aircraft with the objective of significantly increasing the capability to conduct long-range identification and investigation of ships.



Tara Donaghy

Fisheries and Oceans Canada – Newfoundland Region

BIRDS OILED AT SEA

Chronic oil pollution coming from ships traveling off Canada's coasts causes the death of hundreds of thousands of seabirds every year. An estimated 300,000 birds are killed every year off of Newfoundland's coast, and at least equivalent numbers may be dying annually on the Pacific coast, because of this illegal pollution. The Government of Canada has introduced a Bill that will allow Canada to better protect its marine environments and send a strong message to polluters. Bill C-15, An Act to amend the Migratory Birds Convention Act and the Canadian Environmental Protection Act, is designed to make the enforcement of marine pollution cases more effective. The amendments will send a clear message that the discharge of oily waste in Canadian waters is unacceptable. The Bill calls for increased fines of up to \$1 million and additional powers for enforcement officials to redirect and detain ships suspected of having polluted our ocean waters. Amending these pieces of environmental legislation will complement the *Canada Shipping Act (2001)* thus enabling the judicial system to prosecute offenders and to levy fines that appropriately reflect the damages caused to the environment. These modifications will allow Canada to better protect our marine environment as well as send a clear message to polluters that Canada will ensure our ocean waters are protected.

Ocean Science and Technology



OCEANS TECHNOLOGY NETWORK

This national initiative captures the links between ocean science researchers and technology innovators from government, industry, academia, coastal communities and regional organizations. It provides an opportunity for identifying innovative ocean science and technology in support of the Oceans Action Plan, and the commercialization of oceans technology. The Network will facilitate the sharing of oceans information, discoveries and new technologies, and promote partnerships and business plan development. Networking is key to meeting the needs, and fostering the competitiveness of ocean science and technology industries. This industry is primarily made up of small-to-medium firms including environmental oceans interests. By promoting knowledge sharing that can advance sustainable economic development, the growth of this industry will be enhanced.

PLACENTIA BAY TECHNOLOGY DEMONSTRATION PLATFORM

Located on the south coast of Newfoundland, Placentia Bay is fringed by a host of small communities, all of which rely to some extent on the adjoining waters for their livelihood. The bay is considered an environmentally sensitive area, hosting an abundant and diverse marine ecosystem. The bay is also the scene of significant industrial activity and associated marine transportation. The initiative is complementary to and will enhance the integrated management effort in Placentia Bay.

The concept of multiple technologies integrated into an expandable network represents both challenge and opportunity for marine integrated management. A demonstration platform will serve as a test case to “prove” the practicality of modern technology application to integrated management, while showcasing Canadian expertise and technology to international markets.

The project will provide access for all stakeholders to data and information in support of effective management and sustainable development of coastal and ocean areas and the safety and security of life at sea. The platform will integrate a variety of information that is generated from existing ocean, land and air-based technology. The aim is to build a better understanding of our oceans to support ecosystem based management, while enabling new technology development.

The Project will be built around a state-of-the-art internet-based access point for sharing coastal and ocean data and information. Electronic charts will be produced from multi-beam sonar data collected by the Geological Survey of Canada to provide a base layer of electronic navigation and management charts.

Meteorological buoys and water quality samplers will be deployed to provide mariners and fishers with real-time weather and sea conditions. Other information 'layers' will include crab habitat maps for selected areas and identification of sensitive ecological areas.

The Placentia Bay technology platform will be a catalyst and building block for future technology developments. Fisheries scientists will be able to enhance the platform by developing and testing new generation technologies in support of the modernization of our understanding and management of marine ecosystems.



Bedford Institute of Oceanography - Photo Section



Fisheries and Oceans Canada - Newfoundland Region