

**EASTERN SCOTIAN SHELF  
INTEGRATED OCEAN MANAGEMENT PLAN  
(2006-2011)**

***Final Draft***

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*...a shared commitment to work together for our ocean and our future...*

FINAL DRAFT

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## **LIST OF ABBREVIATIONS**

AOI	Area of Interest
CMA	Coastal Management Area
DFO	Fisheries and Oceans Canada
EBSA	Ecologically and Biologically Significant Area
EEZ	Exclusive Economic Zone
ESSIM	Eastern Scotian Shelf Integrated Management
GIS	Geographic Information System
IM	Integrated Management
LOMA	Large Ocean Management Area
MPA	Marine Protected Area
NAFO	Northwest Atlantic Fisheries Organization
OCMD	Oceans and Coastal Management Division (of DFO)
RCOM	Regional Committee on Ocean Management
SAC	Stakeholder Advisory Council

## FOREWORD

The Eastern Scotian Shelf Integrated Management (ESSIM) Initiative is a collaborative ocean planning process being led and facilitated by Fisheries and Oceans Canada (DFO), Maritimes Region, under Canada's *Oceans Act*. In contrast to traditional 'sector-based' management, which addresses individual industries or activities on a case-by-case basis, the ESSIM planning process considers the ecosystem and all of its users comprehensively. The Initiative brings regulatory authorities from all levels of government together with a wide array of ocean stakeholders to work collaboratively. This allows for a more coordinated, comprehensive and inclusive management approach and helps to prevent conflict among different ocean users and between humans and the environment. The primary aim of the Initiative is to develop and implement an Integrated Ocean Management Plan that will guide the sustainable use, conservation, and management of this large marine region.

In February 2005, the ESSIM Planning Office, housed in DFO Maritimes' Oceans and Coastal Management Division, presented an initial draft Integrated Ocean Management Plan to stakeholders for review at the 3<sup>rd</sup> ESSIM Forum Workshop. Based on the generally positive feedback received, the Planning Office launched a broad public review of the draft Plan over the spring, summer, and fall of 2005. Following the public review, a group of stakeholders representing all major ocean sectors and government agencies in the planning area was assembled to consider the feedback received and to work with the Planning Office to revise the draft Plan. This group, known as the Stakeholder Advisory Council, will continue to have a core role in the development of the Integrated Ocean Management Plan and is working in partnership with the Planning Office to move it forward.

Based on the feedback and recommendations received through the public, stakeholder, and government review processes, the Planning Office has prepared this final draft of the Integrated Ocean Management Plan for consideration. Major changes to the Plan made as a result of the review process are highlighted throughout the document. It is planned that stakeholders and government departments will review, accept and endorse this Plan over the summer and fall of 2006, such that it can be formally recognized as Canada's first Integrated Ocean Management Plan under the *Oceans Act* by March 2007.

For more information on the ESSIM Initiative or the draft Plan, please contact:

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## HIGHLIGHTS OF THE PLAN

Highlights of the Eastern Scotian Shelf Integrated Ocean Management Plan are provided below.

### DEFINITION AND SCOPE

The Eastern Scotian Shelf Integrated Ocean Management Plan is a multi-year, strategic-level plan to provide long-term direction and commitment for integrated, ecosystem-based and adaptive management of all marine activities in or affecting the planning area. The Plan defines goals, objectives and strategies for collaborative governance and integrated management, sustainable human use, and healthy ecosystems on the Eastern Scotian Shelf. This objectives-based approach allows the goals and objectives for the Plan to be linked directly to management strategies, actions, and outcome and management performance measures.

Traditional 'sector based' management addresses individual ocean activities on a case-by-case basis. In contrast, the Plan is focused on the management of a marine area, considering all ocean uses and the environment comprehensively. This area-based approach enables marine planning, management, and decision making to occur at appropriate spatial scales (*i.e.*, regional to site-specific). Spatial planning supports the consideration of various interactions among activities and between activities and the environment.

The Plan is being developed through a collaborative and inclusive process (the ESSIM Initiative) involving all interested and affected government departments, ocean sector groups and individuals. The intent of this process is to develop a Plan that is accepted by stakeholders, endorsed by legislative and regulatory authorities, and recognized under the *Oceans Act* by the Minister of Fisheries and Oceans.

### COLLABORATIVE PLANNING

The primary mechanisms for the development and implementation of the Plan are provided through the Collaborative Planning Model. This collaborative planning structure and process has the following components:

- ***The ESSIM Forum*** – An inclusive assembly for all organizations, groups and individuals to provide multi-stakeholder communications, dialogue, information sharing and input to the planning process.
- ***The Stakeholder Advisory Council*** – A core, representative multi-stakeholder working group to provide regular input, advice and support to the planning process.
- ***The Government Sector Structure*** – An intergovernmental coordination structure that interacts with the other components of the Collaborative Planning Model to support the planning process. It is comprised of the program-level Federal-Provincial ESSIM Working Group and the senior-level Regional Committee on Ocean Management (RCOM).
- ***The Planning Office*** – DFO staff (housed within the Oceans and Coastal Management Division, Maritimes Region) to provide leadership and expertise in planning, coordination and support for the planning process, and liaison with stakeholders and external agencies and processes.

The Collaborative Planning Model is designed to provide opportunities and practical mechanisms for input, review, acceptance, approval and implementation of the Plan by government authorities and ocean sectors and communities of interest.

## **OBJECTIVES-BASED MANAGEMENT**

The Plan provides an objectives-based approach to ocean management for the Eastern Scotian Shelf. It contains a set of long-term, overarching goals for *collaborative governance and integrated management*, *sustainable human use*, and *healthy ecosystems*. These high-level goals are supported by objectives for specific collaborative governance, human use, and ecosystem elements. The goals and objectives provide a mechanism for defining management strategies and measuring progress on Plan implementation.

Under the goal of *collaborative governance and integrated management*, the Plan contains objectives that support the two core elements of integrated management and information and knowledge. For the goal of *sustainable human use*, the Plan identifies objectives for the interrelated elements of social and cultural well-being and economic well-being.

The goal of *healthy ecosystems* is subdivided into the three interconnected themes of biodiversity, productivity and marine environmental quality. Under biodiversity, the Plan lays out objectives for the elements of communities/assemblages and species/populations. For the productivity theme, objectives are identified for primary and secondary productivity, trophic structure and population productivity elements. Under marine environmental quality, the Plan contains objectives for the physical, chemical and habitat elements.

For each objective, or in some cases for groups of objectives, management strategies are defined in the Plan. These management strategies outline the general course of activities that will be required to achieve the identified objective(s). The objectives-based approach seeks to ensure that interrelationships among ecosystem and human use objectives are recognized and reflected in the identification of management strategies.

## **PLAN IMPLEMENTATION AND EVALUATION**

The management strategies contained in the Plan will be prioritized and implemented primarily through the use of shorter term (*i.e.*, two year) action plans. Action plans are designed to provide a greater level of detail and direction on specific management actions, including roles and responsibilities, timelines, milestones and targets, and specific activities for successful completion. It is anticipated that an initial draft action plan will be distributed to ESSIM stakeholders for review in the winter of 2006/07.

A practical system for performance evaluation and reporting will be used to measure progress for the Plan. This is an integral component of the objectives-based management approach, based on the use of outcome and management performance indicators. The Plan will undergo a full review every five years. This time period will facilitate the completion of two action planning cycles.

### **Significant changes to the draft ESSIM Plan**

As a result of the plan review process, a number of changes have been made to the draft ESSIM Plan. Some of these changes consisted of relatively minor additions or adjustments, while others involved fairly significant restructuring and revision of Plan content. Most notably, the Objectives-Based Management and Management Strategies sections of the document have been revised significantly.

In the initial draft of the Plan, the objectives were presented in a separate section from the management strategies, and the two were linked only indirectly. Stakeholders commented that this was not completely consistent with the intended objectives-based management approach, and that the strategies for the Plan should flow directly from the objectives. Extensive feedback was also received on the objectives themselves. Consequently, the objectives were thoroughly revised, and new management strategies were developed to reflect the revised objectives. Most of the original strategies proposed in the draft Plan are still captured in the revised document, but they have been adapted to flow more directly from the objectives. The strategies are now presented alongside the objectives to which they relate as part of the Objectives-Based Management section of the Plan, as well as in a separate Management Strategies section where they are described in more detail. Many of the management actions that were proposed in the initial draft of the Plan have been worked into the Management Strategies section, while others requiring further elaboration will be described in a subsequent action plan.

It was noted during the review that the section on Integrated Management Tools and Approaches would be more meaningful if a better description of how and in what circumstances the tools would be applied were provided. To this end, management tools are now described in the section on Management Strategies within the context of the strategies to which they will be applied.

Many other changes have been made to the revised draft, although most are somewhat more subtle. For example, the vision for the Plan has been rewritten to better reflect desired outcomes for the Eastern Scotian Shelf, collaborative science has been explicitly mentioned in the scope of the Plan, and the description of the planning area has been expanded to explain how other areas, including the inshore and the Western Scotian Shelf, will be incorporated into the integrated management process. These and other changes are highlighted in text boxes throughout this document.



## **THE EASTERN SCOTIAN SHELF INTEGRATED OCEAN MANAGEMENT PLAN**

The Eastern Scotian Shelf Integrated Management (ESSIM) Initiative is a collaborative ocean planning process being led and facilitated by the ESSIM Planning Office, housed in the Oceans and Coastal Management Division, Fisheries and Oceans Canada (DFO), Maritimes Region. The primary aim of the Initiative is to develop and implement an Integrated Ocean Management Plan for this large marine region.

### **What is the Plan?**

The Eastern Scotian Shelf Integrated Ocean Management Plan is a multi-year, strategic plan to provide long-term direction and commitment for integrated, ecosystem-based and adaptive management of all marine activities in or affecting the planning area.

The Plan is focused on management needs and priorities related to sustainable human use, ecosystem-based management and conservation, and collaborative governance and management coordination. This includes management issues related to access to ocean space and marine resources, and those involving ecosystem pressures and impacts, including cumulative effects from multiple human activities. The Plan also addresses ocean management issues requiring interdepartmental and intergovernmental policy and regulatory coordination.

The Plan is being developed through a collaborative and inclusive planning process. This means that the work of developing and implementing the Plan is done by all sectors and stakeholders through a consensus-based approach. The Collaborative Planning Model for the ESSIM Initiative includes mechanisms for intergovernmental policy and program coordination, and effective participation by all stakeholders in all aspects of the planning process. The goal of the collaborative process is to develop a Plan that is accepted by stakeholders, endorsed by management and regulatory authorities, and recognized under the *Oceans Act* by the Minister of Fisheries and Oceans.

The Plan provides an objectives-based approach to ocean management for the Eastern Scotian Shelf. It contains a set of long-term, overarching ecosystem, human use, and collaborative governance goals to support agreed upon outcomes for environmental, economic, social and institutional sustainability in the planning area. These high-level goals are supported by more specific objectives – for which indicators and targets can be set – and associated management strategies. More detailed management actions, with timelines, targets, and responsible agencies, will be outlined in a subsequent action plan. The objectives-based framework ensures that interrelationships among ecosystem, human use and governance objectives are recognized and reflected in the identification of management strategies.

The Plan also provides an area-based approach whereby planning, management, and decision making can be undertaken at appropriate spatial scales (*i.e.*, regional to site-specific) and spatial interactions among users and between activities and the ecosystem can be taken into account.

The Plan functions as an umbrella for various ocean sector management processes and is built on and supported by existing management jurisdictions and responsibilities. Regulatory authorities remain responsible and accountable for implementing management policies and measures within their established mandates and jurisdiction to support the objectives of the Plan.

The Plan is not intended to provide a detailed prescription of all measures required to achieve its objectives. Rather, the aim of the Plan is to augment or enhance existing decision-making processes by linking sector planning and management to an overarching set of goals and objectives. In many cases, this is accomplished by reference and linkages within the Plan to existing management plans and mechanisms. The Plan identifies specific management strategies for inclusion in sector-based management processes to support broader objectives and desired outcomes and conditions.

Action plans will be developed for two-year periods as part of the plan implementation process. These action plans will provide further detail, including timelines and milestones, for the implementation of management strategies contained in the Plan. As the planning process evolves, monitoring and performance measurement mechanisms will be established to enable regular evaluation and reporting on the Plan's objectives. The Plan will undergo a full review every five years.

## **LEGISLATIVE BASIS**

The legislative basis for the Plan is drawn from Canada's *Oceans Act*<sup>1</sup>, in accordance with the provisions contained in Sections 31 and 32 of *Part II, Oceans Management Strategy*:

### **Section 31, *Integrated management plans***

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, shall lead and facilitate the development and implementation of plans for the integrated management of all activities or measures in or affecting estuaries, coastal waters and marine waters that form part of Canada or in which Canada has sovereign rights under international law.

### **Section 32, *Implementation of integrated management plans***

For the purposes of the implementation of integrated management plans, the Minister [of Fisheries and Oceans]

- (a) shall develop and implement policies and programs with respect to matters assigned by law to the Minister
- (b) shall coordinate with other ministers, boards and agencies of the Government of Canada the implementation of policies and programs of the Government with respect to all activities or measures in or affecting coastal and marine waters
- (c) may, on his or her own or jointly with another person or body or with another minister, board or agency of the Government of Canada, and taking into consideration the views of

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<sup>1</sup> *Oceans Act* 1996, c. 31. Available online: <<http://laws.justice.gc.ca/en/O-2.4/text.html>>.

other ministers, boards and agencies of the Government of Canada, provincial and territorial governments and affected aboriginal organizations, coastal communities and other persons and bodies, including those bodies established under land claims agreements,

(i) establish advisory or management bodies and appoint or designate, as appropriate, members of those bodies, and

(ii) recognize established advisory or management bodies; and

(d) may, in consultation with other ministers, boards and agencies of the Government of Canada, provincial and territorial governments and affected aboriginal organizations, coastal communities and other persons and bodies, including those bodies established under land claims agreements, establish marine environmental quality guidelines, objectives and criteria respecting estuaries, coastal waters and marine waters.

The Plan is supported by all provisions of the *Oceans Act* as they generally apply to the development and implementation of integrated management plans and related measures, including those for marine protected areas and marine environmental quality.

## **POLICY AND MANAGEMENT CONTEXT**

The *Oceans Act* and its supporting policy, *Canada's Oceans Strategy*<sup>2</sup>, affirm DFO's mandate as the lead federal authority for oceans and provide the national policy context for integrated ocean management. DFO's *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada*<sup>3</sup> provides the national structure and guidance for the development of regional integrated ocean management and planning processes, such as the ESSIM Initiative. The principles and approaches of the national policy framework are rooted in developing international ocean governance processes and Canada's ocean-related international legal and stewardship commitments.

### **From international commitments to local action**

The Plan is consistent with and supports the development of management strategies and actions for implementing Canada's international ocean governance commitments, responsibilities and rights in the planning area.

The Plan responds to the policy and governance objectives of *Canada's Oceans Strategy* and the national *Policy and Operational Framework for Integrated Management*. It is also well positioned to support Canada's *Oceans Action Plan* – a federal interdepartmental program to

<sup>2</sup> Fisheries and Oceans Canada. 2002. *Canada's Oceans Strategy*. Available online: <[http://www.cos-soc.gc.ca/doc/publications\\_e.asp](http://www.cos-soc.gc.ca/doc/publications_e.asp)>.

<sup>3</sup> Fisheries and Oceans Canada. 2002. *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada*. Available online: <[http://www.cos-soc.gc.ca/doc/publications\\_e.asp](http://www.cos-soc.gc.ca/doc/publications_e.asp)>.

implement national ocean policy and management objectives.<sup>4</sup> The four key pillars of the first phase of the *Oceans Action Plan* are: (i) international leadership, sovereignty and security; (ii) integrated ocean management for sustainable development; (iii) health of the oceans; and (iv) ocean science and technology. The Scotian Shelf has been identified as one of five priority planning areas in Canada. As such, the ESSIM Initiative is the primary vehicle for implementing the *Oceans Action Plan* in this region, including priority actions for improving ocean and fisheries governance and ecosystem-based management. A number of the management strategies for the Plan respond directly to the priorities of this national plan.

The management and regulation of ocean use in the planning area involves a large number of federal and provincial government departments and agencies.<sup>5</sup> The Plan operates within this multi-jurisdictional context and respects existing legal and administrative jurisdictions within the federal Government of Canada, provincial governments and their agencies. Regulatory authorities retain their roles and responsibilities for implementing management policies and measures within their established mandates and jurisdiction. As such, federal and provincial departments are expected to support plan implementation through their respective legislative and regulatory jurisdictions, as appropriate.

The Plan recognizes the importance of First Nations and Aboriginal communities in the governance, stewardship and use of ocean resources. Implementation of the Plan will be in collaboration with all affected Aboriginal organizations, including those bodies established under land claims and other relevant agreements.

## **SCOPE AND APPLICATION**

The aim of the Plan is to provide a common basis for commitment and action to achieve sustainable and integrated ocean management in the Eastern Scotian Shelf planning area. The Plan is organized around three main themes as defined through its goals:

- collaborative governance and integrated management
- sustainable human use
- healthy ecosystems

## **COLLABORATIVE GOVERNANCE AND INTEGRATED MANAGEMENT**

A key component of the Plan is the development and implementation of an effective collaborative planning process. This is described primarily in the section on the Collaborative Planning Model.

The Plan recognizes that the integrated management process operates within a range of existing administrative, legal, regulatory, and management jurisdictions. These are based on and consistent with Canada's maritime zones of jurisdiction as defined in Part I of the *Oceans Act*, namely Internal Waters, Territorial Sea, Contiguous Zone, Exclusive Economic Zone, and

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<sup>4</sup> Fisheries and Oceans Canada. 2005. *Canada's Oceans Action Plan: For Present and Future Generations*. Available online: <[http://www.dfo-mpo.gc.ca/canwaters-eauxcan/oap-pao/index\\_e.asp](http://www.dfo-mpo.gc.ca/canwaters-eauxcan/oap-pao/index_e.asp)>.

<sup>5</sup> G. Chao, G. Herbert, S. Coffen-Smout and H. Breeze. 2004. *Overview of Federal, Provincial and International Ocean Regulatory and Policy Frameworks on the Scotian Shelf*. Can. Tech. Rep. Fish. Aquat. Sci. 2513: xii + 231 pp.

the juridical Continental Shelf. Federal, provincial and international jurisdictions are applied variously within these maritime zones. All such jurisdictions, mandates and authorities are recognized and respected in the Plan.

Recognizing the fundamental requirement for management coordination and intergovernmental cooperation, the Plan aims to provide guidance and enhance collaboration in the following circumstances:

- management issues requiring interdepartmental and intergovernmental policy and regulatory coordination
- matters subject to jurisdictional overlaps among legislated authorities
- management needs not adequately covered by existing legislated authorities
- matters within the jurisdiction of a legislated authority that affect other jurisdictions
- matters within the jurisdiction of a legislated authority that require consistency with provisions of the Plan
- priority setting on matters requiring cooperation and coordination to achieve maximum levels of efficiency and effectiveness (*e.g.*, program delivery)
- priority setting and agenda development and implementation for scientific and other research that supports effective management

## **SUSTAINABLE HUMAN USE**

The integrated management and planning process seeks to achieve a sustainable and practical balance of human use, based on agreed-upon ecosystem and human use objectives. The Plan supports sustainable ocean use involving a broad and diverse range of human activities.

One of the main purposes of the Plan is to provide guidance on management requirements resulting from interactions between and among ocean sectors and activity types. Current and potential multiple use interactions that fall within the scope of the Plan include the following:

- access to ocean space and marine resources by different users and interests
- activities within ocean sectors that affect other sectors and activities
- human activities that involve ecological pressures and impacts, including cumulative effects in terms of adjacency and timing of use

## **HEALTHY ECOSYSTEMS**

A core purpose of the Plan is to address management, planning and conservation requirements relating to ecosystem impacts and pressure resulting from various types of human use. Key conservation and ecosystem issues include those related to the following:

- living and non-living resource extraction
- marine and land-based pollution and contaminants
- human-generated acoustic levels and disturbances
- ecosystem alteration and degradation
- endangered, rare and unique species and their habitats
- areas of natural biological diversity, high productivity and critical/essential habitat (ecologically and biologically significant areas)
- fragmentation of habitat or interruption of movement/migration routes

- capacity of renewable resources for future generations
- introduced and invasive species
- cumulative, additive and synergistic effects due to temporal and/or spatial use overlaps
- changes related to climate change
- scientific uncertainty

### **Changes to the Scope and Application**

This section has been moved up in the document to achieve a better flow and to strengthen the contextual description of the Plan. The wording for the original three themes was revised slightly to be consistent with the goals of the Plan. Otherwise, there were relatively few changes to this section of the Plan. However, it was noted by stakeholders that the scope of the Plan should include collaborative science and social science research in support of integrated and ecosystem-based management. Similarly, scientific uncertainty was identified as a significant management issue that should be considered.

## VISION, GOALS AND GUIDING PRINCIPLES

### VISION STATEMENT

*The Vision for the Eastern Scotian Shelf is of healthy and sustainable ecosystems, economies and communities, supported by collaborative, integrated and harmonized governance and management.*

### GOALS

The three overarching goals of the ESSIM Plan with brief descriptions of their intent are as follows:

<b>Collaborative governance and integrated management</b>	
<ul style="list-style-type: none"><li>• Effective governance structures and processes.</li><li>• Capacity among stakeholders.</li><li>• Knowledge to support integrated management.</li></ul>	
<b>Sustainable human use</b> <ul style="list-style-type: none"><li>• Ecologically sustainable use of ocean space and resources.</li><li>• Sustainable communities and economic well-being.</li></ul>	<b>Healthy ecosystems</b> <ul style="list-style-type: none"><li>• Resilient and productive ecosystems, with diverse habitats, communities, species and populations.</li><li>• Strong marine environmental quality supports ecosystem functioning.</li></ul>

These goals are more explicitly described in the section on Objectives-Based Management below.

### GUIDING PRINCIPLES AND APPROACHES

The Plan is based on the following **principles**:

**Integration:** Management and planning should be comprehensive and coordinated, based on the balanced consideration of the full range of activities, interests and environmental, social, cultural, economic and institutional objectives for a management area.

**Sustainable development:** Decision-making should take into account environmental, economic, social and cultural values in meeting the needs of the present without compromising the ability of future generations to meet their needs.

**Precaution:** The *Oceans Act* defines the precautionary principle simply as “erring on the side of caution,” and promotes its “wide application...to the conservation, management and exploitation of marine resources in order to protect these resources and preserve the marine environment.”

Canada (as best exemplified through directives of the Privy Council Office) and most Canadian provinces (including all Atlantic Provinces) have formally committed to the precautionary principle as it is defined in Rio Declaration on Sustainable Development. Article 15 of the Rio Declaration states that: *In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.* Canada is also a signatory to the UN Convention on Biological Diversity, which states that: *Where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.*

**Inclusion:** Communities, persons, and interests affected by marine resource or activity management should have an opportunity to participate in the formulation of integrated management decisions.

These principles are embodied in the following **approaches**, which are fundamental to the Plan:

**Adaptive management:** Integrated management and planning processes need to respond to changing environmental, social, economic and institutional conditions, and to new information and knowledge. Ongoing monitoring and regular review of management plans and actions are used to measure and evaluate progress on management objectives and to identify alterations and revisions required to address changing conditions or improved levels of knowledge.

**Collaboration:** An approach in which all interested and affected parties are engaged in an open, inclusive and transparent planning, advisory and decision-making process. Ocean management plans and decisions are based on shared information where those with the decision-making authority and those affected by the decision jointly seek outcomes that meet the needs and interests of all parties to the greatest possible degree. A consensus-based approach is the preferred method for collaborative planning. Under this approach, those with the authority, power and responsibility to implement agreed-upon management plans and measures will be expected to do so as part of their commitment to the planning process.

**Conservation:** Conservation is the sustainable use and management of ocean resources that safeguards ecological processes, biological diversity, living marine resources and their habitats for present and future generations.

**Ecosystem-based management:** The management of human activities should make every effort to ensure that ecosystem components, functions and properties are maintained and/or restored at appropriate temporal and spatial scales.

**Stewardship:** An approach that fosters an ethic of active participation and sharing of responsibility to care for ocean ecosystems and resources as parts of a natural life-support system and to sustain and enhance it for generations to come. Stewardship refers to the wide-



range of actions and activities of individuals, communities, groups and organizations acting alone or in partnership to develop and use all natural resources in a sustainable manner, and to maintain the ecosystems on which life depends.

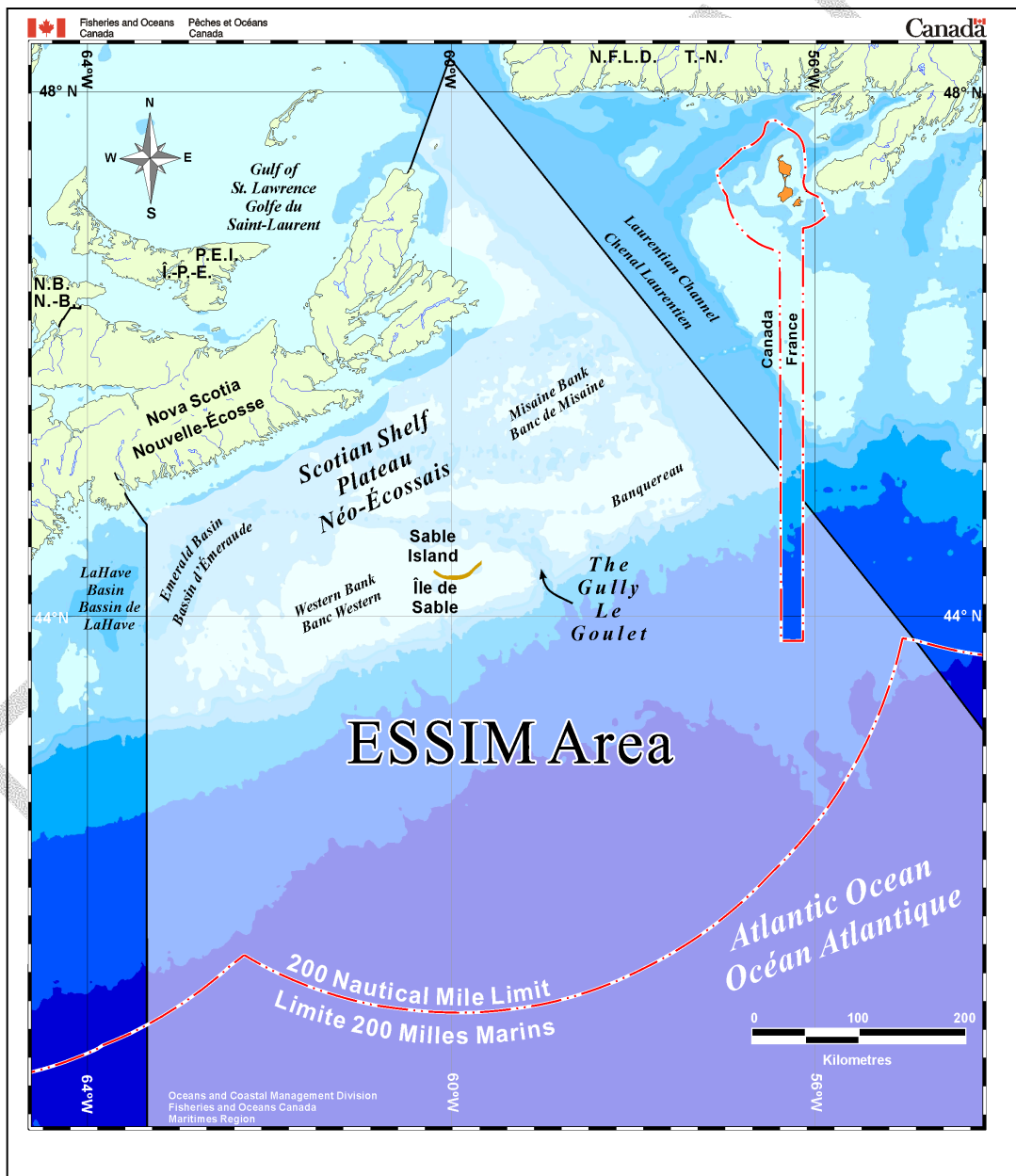
### **Changes to the Vision, Goals and Guiding Principles**

Three main changes were made to this section of the Plan, as follows:

- During the review of the draft Plan, a number of stakeholders felt that the vision was focused too narrowly on the integrated management *process*, and that desired outcomes for the area should be included more explicitly. Accordingly, the statement was revised by the Stakeholder Advisory Council to provide a vision for the Eastern Scotian Shelf.
- Previously, the Plan included both “goals” and “conceptual objectives”, which were very similar in content. Consequently, it was decided to merge the two into goals.
- The Guiding Principles section is now divided between principles and approaches.
- The definition of the Precautionary Principle has been revised to better reflect the definition used in the *Oceans Act*.

## THE PLANNING AREA

The current planning area covers the Eastern Scotian Shelf and the adjacent slope, encompassing approximately 325,000 square kilometres. The boundaries of the planning area comprise a mix of administrative and ecological considerations. The area corresponds with Northwest Atlantic Fisheries Organization (NAFO) fisheries management division 4VW. The western boundary is defined by the NAFO 4WX line that extends south from Halifax between LaHave Basin and Emerald Basin, bisecting the Scotian Shelf. The eastern boundary is the NAFO 4V/3PS line running through the Laurentian Channel and into the Gulf of St. Lawrence. The 4V/3PS line is also the regional administrative boundary for DFO Maritimes Region, and roughly corresponds with the eastern margin of the Scotian Shelf. This area was selected for integrated ocean management because it possesses important living and non-living marine resources, areas of high biological diversity and productivity, and increasing levels of use and competition for ocean space and resources. It was also chosen because this area encompasses the Gully, which was designated as Atlantic Canada's first Marine Protected Area under the *Oceans Act* in 2004.



The planning area extends seaward to the outer limit of Canadian jurisdiction as defined by national and international law (*i.e.*, the juridical Continental Shelf). Although the ESSIM Initiative is addressing ocean uses and management issues that occur both offshore and in coastal waters (e.g., commercial shipping), the focus of the initial Plan is the offshore, specifically beyond the 12 nautical mile Territorial Sea limit. The offshore was chosen as an initial focus for a variety of reasons, including the desire to capture the area surrounding the Gully Marine Protected Area—which lies in the offshore—and the need to address increasing levels of multiple human use on the offshore banks and along the shelf break. Furthermore, it was recognized that the management needs and approaches for the offshore differ in many ways from those for coastal areas, particularly in terms of the jurisdictional context, ocean use patterns, ecosystem characteristics, and communities of interest. Nonetheless, the ESSIM Initiative recognizes the interconnections between the inshore and the offshore, and acknowledges the need to develop complementary integrated management initiatives for the coastal zone. An approach for achieving this is discussed below.

## **MARINE ENVIRONMENT**

The planning area has a diversity of physical habitats. Large shallow banks are found in the outer part of the shelf, with basins and smaller banks in the middle and inner shelf. The planning area also includes portions of the continental slope and rise. The slope is indented by several submarine canyons, including the Gully – the largest canyon in the Northwest Atlantic. The mean surface circulation on the eastern shelf is dominated by the Nova Scotia Current, a southwestward flowing current largely originating in the Gulf of St. Lawrence. Waters of the slope are highly influenced by the cool, relatively fresh Labrador Current, which flows southwestward along the edge of the shelf, and the warmer, saltier Gulf Stream which flows northeastward. Waters from the Gulf Stream and Labrador Current mix over the continental slope. On the shelf itself, there are smaller scale surface circulation patterns, with anticyclonic circulation tending to occur over the banks and cyclonic circulation around the basins. The northeastern region of the shelf is the southern-most limit of winter sea ice in the Atlantic Ocean.<sup>6</sup>

A number of components of the Eastern Scotian Shelf ecosystem have changed as a consequence of human actions and environmental variability.<sup>7</sup> The change has been rapid (over 30 years) and large in magnitude. Important changes in water temperature, primary and secondary production, and species patterns have been observed. From a species perspective, some groups are proliferating, such as pelagic fishes and some benthic invertebrate species, while others are not rebuilding as quickly as expected, most notably groundfish. Physical habitat changes have also occurred due to human use and species abundance and range shifts. These changes are described in more detail in the text box below.

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<sup>6</sup> H. Breeze, D.G. Fenton, R.J. Rutherford, and M.A. Silva. 2002. *The Scotian Shelf: An ecological overview for ocean planning*. Can. Tech. Rep. Fish. Aquat. Sci. 2393: x + 259 pp.

<sup>7</sup> Fisheries and Oceans Canada (Maritimes Region). 2003. *State of the Eastern Scotian Shelf Ecosystem*. CSAS Ecosystem Status Report 2003/04.

### **The State of the Eastern Scotian Shelf Ecosystem**

In 2003, Fisheries and Oceans Canada released an Ecosystem Status Report that provided an assessment of the state of the Eastern Scotian Shelf ecosystem. The report was developed by a working group consisting of scientists from a variety of disciplines. The following is a summary of their conclusions, excerpted directly from the report:

*Many features of the Eastern Scotian Shelf ecosystem have changed dramatically during the past thirty years:*

- *A major cooling event of the bottom waters occurred in the mid-1980s that persisted for a decade and recent intensive stratification in the surface layer has been apparent; both phenomena are associated with flow from upstream areas.*
- *The index of zooplankton abundance was low in the decade of the 1990s when phytoplankton levels were high and the opposite pattern was evident in 1960s/early 1970s.*
- *Major structural changes have occurred in the fish community: groundfish have declined while small pelagic species and commercially exploited invertebrate species have increased.*
- *Changes in the physical environment were associated with the expansion of range of some species and the occurrence of species new to the area.*
- *Reductions in average body size of groundfish have occurred and there are currently very few large fish – a situation likely to have never been witnessed in the past.*
- *Condition and growth of several groundfish species has remained low during the past decade contrary to expectations for improvement.*
- *The abundance of grey seals has risen steadily during the past four decades and the population may have doubled since the last survey in 1997 to near 225,000 in 2002.*
- *It is not yet possible to predict how long the current situation will persist and whether or not the system will return to its previous groundfish-dominated state.*

*With respect to the major human activities on the Eastern Scotian Shelf, the following observations were made:*

- *The fishery is increasingly targeting species at lower levels in the food web because there now exists a lack of availability of groundfish at the higher trophic levels.*
- *Oil and gas exploration and development has been highly episodic though it is presently increasing.*
- *There are too few reported data on contaminant concentrations in water, sediment or biota from the area to establish either distributional patterns or trends in space or time.*
- *When all sources (i.e. all human uses) are taken into account, the potential cumulative effects give grounds for concern.*

*In an evaluation of such broad scope, data shortcomings become readily apparent:*

- *Knowledge about the diversity of species becomes increasingly sparse at lower trophic levels; there is a particular need for monitoring of benthic invertebrate species and contaminants.*

### **HUMAN USE**

Multiple ocean use involving a variety of human activities occurs in the planning area, both on a year-round and seasonal basis. Key ocean uses include:

- Commercial, recreational and Aboriginal fisheries
- petroleum exploration, development, production and delivery (including pipelines and power cables)
- marine transportation and commerce
- government marine operations (such as Coast Guard and Maritime Forces)
- submarine telecommunication cables

- marine conservation
- aquaculture (currently limited to inshore areas)
- scientific research and monitoring
- technology development
- recreation and tourism

These ocean uses are currently addressed through a complex range of sector-based management, regulatory and planning processes. Some portions of the planning area experience relatively high or intensive levels of use, such as heavily fished areas, hydrocarbon production areas, and high vessel traffic areas. For example, the shelf break has been subject to an increasing intensity of multiple use, including oil and gas development and a variety of fisheries. Other areas remain little to moderately used. In fact, the planning area is characterized primarily by relatively low-to-moderate levels and concentrations of multiple use. However, the current and anticipated expansion of some existing uses (*e.g.*, deep water fisheries), coupled with the potential for new ocean uses, such as offshore minerals development or wind power generation, underscores the growing requirement for effective multiple use management practices. There are also areas of importance and significance to specific user groups, such as traditional fishing spots or long-term research and monitoring sites. The value placed on access to such areas, including a sense of ownership and priority of use, must be considered when planning for and managing multiple use.

## **EVOLUTION OF THE PLANNING AREA**

The passage of the *Oceans Act* paved the way for the development of integrated ocean management plans in Canadian waters. In December 1998, the Eastern Scotian Shelf was announced as the location for Canada's first offshore integrated ocean management initiative. At the time, national strategies, policies, and plans to guide the implementation of the *Oceans Act* were not yet in place. The Eastern Scotian Shelf Integrated Management (ESSIM) Initiative was, therefore, initially announced as a pilot project.

From the outset of the ESSIM Initiative, there has been debate as to whether the boundaries of the planning area are optimal. A number of stakeholders have argued that a shelf-wide planning area would be more consistent with ecological boundaries and more practical to implement, since many ocean users are involved in shelf-wide activities, and many management systems and data sets apply to the entire shelf. There have also been regular calls for the inclusion of the coastal zone in the planning process, because of the human and ecological interconnections between the inshore and offshore. Conversely, there has been recognition amongst many stakeholders of the need to start small and get things right in one place before expanding to other areas and adding complexity.

In 2002, the Government of Canada released *Canada's Oceans Strategy* and a companion *Policy and Operational Framework for Integrated Management*, which set out a national approach for implementing integrated management in all Canadian waters. This approach involves the application of integrated management in broad planning units known as Large Ocean Management Areas (LOMAs) and smaller Coastal Management Areas (CMAs) nested within them. LOMAs are defined as marine areas that extend from the coastline (including estuarine environments) to the limits of Canadian maritime jurisdiction, with boundaries based on a combination of ecological considerations and management or administrative units (*e.g.*, fishing zones). LOMAs provide a large-scale geographical and

ecological basis for the application of ecosystem and socio-economic objectives. CMAs are intended to capture the more localized issues and management needs that arise in inshore areas while ensuring that coastal management initiatives are linked to the broader objectives set at the LOMA scale.

The current planning area has not yet been defined as a LOMA. Since the release of the *Canada's Oceans Strategy and Policy and Operational Framework for Integrated Management*, there has been much discussion as to the best approach for defining LOMAs and achieving the implementation of integrated management throughout the region. Much of this discussion has focused on the role of the ESSIM Initiative in the broader Maritimes context, and the possibility of adjusting the planning area boundaries in order to capture a larger area.

*Canada's Oceans Action Plan*, released in 2005 as a follow-up to *Canada's Oceans Strategy*, has provided additional direction regarding the implementation of integrated management in the region. The *Oceans Action Plan* identifies the entire Scotian Shelf as one of five priority areas for the development of integrated management plans. It also identifies the Gulf of Maine as a priority area within the context of promoting international leadership, sovereignty, and security.

Given the need to meet the objectives of the *Oceans Action Plan* for these two areas, and the need to work towards the longer-term objective of applying integrated management in all waters, DFO is now advocating the establishment of a coordinated planning process for both the Gulf of Maine and the Scotian Shelf. While the Gulf of Maine and the Scotian Shelf each has its distinct characteristics, they also have much in common—especially in the offshore—and there is no obvious dividing line between them, whether viewed in terms of ecology or human activity. Many of the same stakeholders are active throughout both the Gulf of Maine and the Scotian Shelf and many of the same management issues arise in both areas. A coordinated region-wide approach will avoid duplication of effort across initiatives and ensure that all areas are eventually covered by integrated management plans. Preexisting planning initiatives and structures, such as the Gulf of Maine Council, will be recognized, respected and reflected in the planning process.

In accordance with the recommendations of stakeholders, the move towards a broader regional planning area will be incremental. The current Plan will continue to be moved forward for the existing Eastern Scotian Shelf planning area, although some management strategies outlined in the Plan will be applied on a shelf-wide or regional basis. While moving forward with the completion of the Plan, the ESSIM Planning Office will continue to engage stakeholders from the Western Scotian Shelf and the Gulf of Maine in order to work towards a broader planning process to address the various management requirements in the region. It is envisioned that eventually a common framework for integrated ocean management—likely drawing heavily from the ESSIM Plan—will be developed for all offshore areas within the jurisdiction of DFO Maritimes Region. In the case of the Gulf of Maine, however, it is recognized that integrated ocean management will continue to occur through cooperation with the United States and various transboundary management mechanisms.

Developing integrated management plans for coastal areas presents a number of distinct challenges. In particular, federal, provincial, and municipal government jurisdictions overlap more heavily in the inshore, requiring careful intergovernmental cooperation. Coastal communities and Aboriginal groups have a key role to play as well, and may take the lead

in developing integrated coastal management programs in some areas. Land-based activities and impacts become more significant in the coastal zone, and interactions with terrestrial ecosystems must be carefully considered. Moreover, management issues and communities of interest are often more localized in the inshore, requiring planning processes that operate at smaller scales. Given the many distinct characteristics of the coastal zone, simply extending offshore integrated management plans and processes into inshore areas is unlikely to be successful. It is therefore the intention of DFO to work towards the establishment of complementary management plans and processes specific to smaller CMAs nested within the LOMA. These plans will be linked to plans for the offshore and will contribute to similar overall objectives, but will take into account local conditions, communities, issues, and priorities.

In a few localized instances, coastal zone management initiatives are already underway in the region. An excellent and long-standing example of coastal management is the Atlantic Coastal Action Program (ACAP) supported by Environment Canada. The Bras d'Or Lakes is another such area where communities and Aboriginal groups, with support from all levels of government, are developing an integrated coastal management plan (see text box below). DFO continues to work with provincial departments, municipalities, Aboriginal and coastal communities, and other stakeholders to enable the establishment of additional integrated coastal management plans. DFO is also working with the Province of Nova Scotia to develop a strategy for coastal management. Concurrently, DFO is preparing an Ecosystem Overview and Assessment of inshore areas of the Scotian Shelf. This overview and assessment will provide crucial scientific guidance for the establishment of integrated management plans for the inshore. DFO is also working with communities and other stakeholders to identify priority areas for integrated coastal management.

**The Bras d'Or Lakes Collaborative Environmental Planning Initiative (CEPI)**

The Bras d'Or Collaborative Environmental Planning Initiative (CEPI) was formed to develop an overall management plan for the Bras d'Or lakes and watershed and to facilitate its implementation by governments and other relevant stakeholders. CEPI represents a cross-section of government departments (First Nation, federal, provincial and municipal), as well as local industry, academics, NGOs, and community members with a role or interest in the management of the Bras d'Or. An overall management plan is thought necessary to provide the coordination and support needed to address the many issues present in the area, including fishery declines, invasive species, impacts from land-based development, and sewage contamination. To date a functioning governance structure has been created to support the planning and management process which includes a Steering Committee, Task Teams, Secretariat, Senior Council (municipal Mayors and Wardens, provincial Deputy Ministers, federal Regional Directors General and First Nation Chiefs) and an Elder Advisory Council. An ecosystem overview report that includes both the marine and terrestrial components of the Bras d'Or ecosystem is being finalized and a framework for the development of the overall management plan is in place.

### **Changes to the description of the Planning Area**

During the review of the draft Plan, many stakeholders clearly iterated their desire to see integrated management implemented across a broader geographic area. In particular, the importance of incorporating the inshore and the Western Scotian Shelf were noted. It has always been envisioned that complementary integrated management plans would be developed for coastal areas, in cooperation with the Province of Nova Scotia and coastal communities. The possibility of expanding the planning area to include the Western Scotian Shelf has also been a long-time topic of discussion within the Initiative. The revised draft Plan provides additional detail on how the Planning Office intends to proceed with the expansion of integrated management activities and identifies some of the steps that are currently being taken to work towards integrated ocean and coastal management for the Western Scotian Shelf and the Gulf of Maine. This section of the Plan has also been revised to provide a more complete description of the status of the ecosystem in the planning area, as recommended by stakeholders.

FINAL DRAFT



## COLLABORATIVE PLANNING MODEL

### INTENT, FUNCTIONS AND OPERATING PRINCIPLES

Unlike more traditional planning processes, the ESSIM Initiative employs a multi-stakeholder, collaborative planning approach. This means that the work of developing and implementing the Plan is done by all sectors and stakeholders. The intent of this process is to develop a Plan that is accepted by stakeholders, endorsed by legislative and regulatory authorities, and recognized under the *Oceans Act* by the Minister of Fisheries and Oceans.

This section contains the Collaborative Planning Model designed to support the integrated management process.<sup>8</sup>

The intent of the Collaborative Planning Model is not to supersede or interfere with the ability of federal and provincial departments and agencies to carry out their legislative mandates. They retain all authority, but work with other stakeholders within the process to develop and pursue shared goals relating to environmental, economic and social sustainability. If policy or regulatory adjustments are needed to achieve these goals, authority for making such adjustments rests with the responsible department or agency.

#### Operating principles for collaborative planning

The Collaborative Planning Model is founded upon the following operating principles:

- **Jurisdiction:** management authorities and jurisdiction of government departments and agencies is acknowledged and affirmed
- **Inclusion:** all stakeholders are included
- **Consensus:** decisions and recommendations are made by consensus and the process includes mechanisms for dispute resolution
- **Accountability:** accountability is expected of and demonstrated by all parties
- **Evolution:** the process is designed to permit and support evolution and will be monitored and evaluated to support shared learning and adaptation
- **Networking:** the process will continue to work through a network of stakeholders
- **Transparency:** decisions and recommendations are made openly, with information and results shared with all stakeholders
- **Efficiency:** issues are addressed in a timely manner
- **Knowledge-based:** decisions and recommendations are based on best available information

<sup>8</sup> For background and additional information on the Collaborative Planning Model, see Oceans and Coastal Management Report 2004-05, *Eastern Scotian Shelf Integrated Management Initiative: Proposed Collaborative Planning Model – A Discussion Paper*.

The Collaborative Planning Model has the following institutional components:

- The ESSIM Forum
- The Stakeholder Advisory Council
- The Government Sector Structure
- The ESSIM Planning Office

**The ESSIM Forum** is the collective of all organizations, groups and individuals who are stakeholders (*i.e.*, they may be impacted by, have the ability to impact, or have an interest in the ESSIM Initiative). Annual (or semiannual) workshops are held to punctuate work stages and receive broad input or feedback. Ongoing communication with the Forum participants is also provided through regular e-newsletters, web-based information and online discussions.

Leadership for the process and the actual work of developing the plan is provided jointly by the **Stakeholder Advisory Council (SAC)**, the Government Sector Structure and the ESSIM Planning Office. The SAC is broadly representative of ocean sectors, communities of interest and stakeholders. It is not anticipated that its size will increase beyond 30 ( $\pm 2$ ) members without taking some steps to aggregate interests or use some other means to enable participation while maintaining a reasonable working size. Sub-groups may be struck as needed for task work and may draw members from the full ESSIM Forum and beyond. The SAC also links with related stand-alone initiatives, such as the Gully MPA Advisory Committee.

The **ESSIM Government Sector Structure** is an institutional governance mechanism that intersects and works within the Collaborative Planning Model. The Government Sector Structure has two components: a Federal-Provincial ESSIM Working Group and a Regional Committee on Ocean Management (RCOM). The RCOM mandate is regional and thus broader than the Eastern Scotian Shelf planning area.

The **Federal-Provincial ESSIM Working Group** is comprised of representatives of both levels of government that have some regulatory responsibility and policy or program interest in the ESSIM planning area. The Working Group has been active since January 2001. At present, the Working Group has approximately 20 member departments and agencies. It is a place for information sharing and discussion of issues among government representatives and provides operational level support for the ESSIM Initiative. It is one of a number of coordination groups to support and facilitate full sectoral participation and representation in the planning process.

The **Regional Committee on Ocean Management (RCOM)** is the senior executive forum for federal and provincial departments and agencies with ocean-related program activities in the Maritime Provinces (Nova Scotia, New Brunswick and Prince Edward Island). RCOM provides coordinated decision making at the intergovernmental and interdepartmental levels, internal oversight, monitoring and performance assessment of integrated management and planning processes, and formal, executive-level government involvement in the development and implementation of integrated management plans. Membership is comprised of senior federal and provincial representatives. Co-chair functions are currently provided by the Regional Director-General, DFO Maritimes Region, and the Deputy Minister of Fisheries and Aquaculture for the Province of Nova Scotia.

The **ESSIM Planning Office** is housed within the Oceans and Coastal Management Division of DFO. Its role is to provide leadership and expertise in planning, coordination and support for the process, and liaison with stakeholders and external agencies and processes.

## **COMPONENTS OF THE COLLABORATIVE PLANNING MODEL**

This section provides more details on the ESSIM Forum, the Stakeholder Advisory Council, the Government Sector Structure, and the ESSIM Planning Office.

### **THE ESSIM FORUM**

**Purpose:** The ESSIM Forum provides an inclusive assembly for all stakeholders to participate in the collaborative planning process. It serves as a network for multi-stakeholder communications, information sharing and input to the ESSIM Initiative.

**Membership:** The Forum is open to all stakeholders and interested individuals. Sectoral participation includes the following: government, coastal communities, Aboriginal groups, fisheries, oil and gas, marine conservation, telecommunications, shipping, and academia.

**Leadership:** The ESSIM Forum does not have a formal leadership structure, such as a chair or co-chairs. Leadership is provided jointly by the Stakeholder Advisory Council and the Government Sector Structure, with coordination and support from the Planning Office.

**Meetings:** Annual meetings are held to review and discuss progress over the previous year and to provide input and guidance for regular action plans. Community or sector workshops may also be held for information sharing, topical discussion and feedback, as required.

**Decisions:** The ESSIM Forum is not a decision-making body.

#### **Functions and Responsibilities:**

- Develop broad vision, goals and strategic direction for the ESSIM Initiative.
- Function as an inclusive, multi-stakeholder forum for information exchange and dialogue.
- Review and provide feedback on planning documents and materials, including action plans and performance evaluations.
- Provide ideas, opinions and advice on a range of topics of importance for development of the Plan.

### **THE STAKEHOLDER ADVISORY COUNCIL**

**Purpose:** The Stakeholder Advisory Council shares the responsibility for leadership and guidance in meeting the vision for the ESSIM Initiative. The SAC operates on a consensus basis for the stewardship of the ESSIM Plan and undertakes monitoring and evaluation functions for plan implementation. The SAC works in partnership with the Planning Office by providing input into content of the Plan and ongoing feedback as the Plan evolves. The SAC also works collaboratively with the various stakeholder groups and the Regional Committee on Ocean Management (RCOM). Together with the RCOM, the SAC is responsible for recommending the Plan to the Minister of Fisheries and Oceans for recognition under the *Oceans Act*.

**Membership:** The membership is balanced by sector and other criteria, such as group size, capacity, commitment and history. Members represent or are representative of sectors or the public. The optimum group size is 30 ( $\pm 2$ ), and various methods, such as coalitions and selective or rotational participation, will be used to keep the group at a manageable level. Members are appointed for two-year and three-year staggered terms to ensure continuity. The sector composition for the SAC is described in the box below.

**ESSIM Stakeholder Advisory Council: current membership breakdown**

Government of Canada	4 members	Conservation Groups	3 members
Government of Nova Scotia	3 members	Community Groups	2 members
Government of Newfoundland & Labrador	1 member	Academic & Private Sector Research	2 members
Offshore Petroleum Boards	2 members	Transportation	1 member
Municipal Government	2 members	Telecommunications	1 member
Aboriginal Peoples	2 members	Tourism	1 member
Fisheries	5 members	Citizens at Large (proposed, optional)	1-2 members
Oil and Gas	2 members		

**Total: 29-33 members**

The proposed number of representatives for each sector has been developed with primary consideration given to the relative size of the sector, its complexity and the economic, social, environmental and legislative links to the planning area. Nomination of citizens at large may be done by the ESSIM Planning Office in consultation with the sectors and interests.

**Leadership:** Co-chairs are provided by a DFO representative from the Planning Office and by a representative from the SAC membership. Co-chairs may rotate on an annual basis. Co-chairs should have the ability to be neutral when dealing with issues among multiple sectors or parties, have the confidence and respect of the members, and be able to resolve conflict and move a diverse group toward consensus. Co-chairs may need additional representation at the table for their respective organizations.

**Meetings:** The SAC meets quarterly at a minimum. Task groups may meet more frequently, as necessary.

**Decisions:** Decisions regarding the Plan and planning process are made by consensus. Consensus means unanimous agreement of the members. Interest-based negotiation (mutual gains) is the preferred format for dialogue.

The SAC has protocols for working through situations in which consensus is difficult to reach, or where conflict needs to be resolved. A facilitator is available to provide support to the SAC. The facilitator is content neutral and assists the group in conducting dialogue and reaching consensus.

Routine administrative decisions are made by consensus or, when time or other factors interfere, by majority vote.

**Sub-Groups:** The SAC may form task groups to carry out specific assignments.

#### **Recognition under the *Oceans Act***

The Stakeholder Advisory Council could be formally designated or recognized as an advisory body pursuant to Section 32 of the *Oceans Act*:

*For the purpose of the implementation of integrated management plans, the Minister may...*

- i) establish advisory or management bodies and appoint or designate, as appropriate, members of those bodies; and*
- ii) recognize established advisory or management bodies..." (Section 32(c))*

The option of formal recognition under the *Oceans Act* may be considered by the Stakeholder Advisory Council as it evolves over time.

#### **Functions and Responsibilities:**

- Provide leadership, guidance and stewardship for development and implementation of the Integrated Management Plan for the Eastern Scotian Shelf, in cooperation with the Planning Office.
- Finalize Terms of Reference, and develop ground rules and protocols to support and guide the work of the group.
- Develop subcommittees or working groups as needed.
- Engage in multi-stakeholder dialogue, conflict resolution and consensus-building.
- Provide input into the planning process and feedback on work done by the Planning Office.
- Liaise with parallel sector structures, including the Federal-Provincial ESSIM Working Group, and provide advice to RCOM, as necessary.
- Collaborate with RCOM to bring forward the Plan for acceptance of stakeholders, endorsement of decision-making authorities, and recognition under the *Oceans Act*.
- Carry out ongoing monitoring and evaluation of the Plan and its implementation, and collaborate on future revisions as necessary.

#### **THE GOVERNMENT SECTOR STRUCTURE**

The Government Sector Structure consists of the Federal-Provincial ESSIM Working Group and the Regional Committee on Ocean Management (RCOM).

### ***Federal-Provincial ESSIM Working Group***

**Purpose:** The Federal-Provincial ESSIM Working Group was established in January 2001 as an intergovernmental forum to focus on policy, management, operations and regulatory coordination for the ESSIM Initiative. The Working Group builds government support and cohesion for the ESSIM Initiative and carries out work in support of and as directed by RCOM.

**Membership:** Representatives of over 20 ocean-related federal and provincial departments, agencies and boards.

**Leadership:** Leadership and support are provided by the ESSIM Planning Office.

**Meetings:** The Working Group meets approximately four to five times per year, or as required.

**Decisions:** The group makes decisions by consensus; however, decisions are advisory in nature and non-binding on departments, agencies or boards.

**Sub-Groups:** The Working Group may form sub-groups or committees, as required.

#### **Functions and Responsibilities:**

- Provide ongoing support and advice to the senior-level RCOM in carrying out its functions and responsibilities.
- Review planning documents and reports.
- Provide guidance on the identification, definition and prioritization of ocean management issues and requirements.
- Provide advice on the design of collaborative management and planning processes.
- Support the development of the Plan, including the development, implementation and monitoring of management strategies and actions.
- Support communication and engagement strategy for the ESSIM Initiative.

### ***Regional Committee on Ocean Management (RCOM)***

**Purpose:** The Regional Committee on Ocean Management (RCOM) is the senior executive-level forum for federal and provincial departments and agencies with ocean-related program activities. RCOM provides coordinated decision making at the intergovernmental and interdepartmental levels for:

- planning, management and regulatory matters for integrated ocean management
- internal oversight, monitoring and performance assessment of regional integrated management and planning processes
- formal and executive-level government involvement in the development and implementation of plans for regional integrated management and planning processes
- regional implementation of Canada's Oceans Action Plan

RCOM is a body of decision-makers, each with mandated decision-making powers at the zonal/regional level. RCOM provides advice and recommendations to mandated decision-making processes to be implemented via the relevant government departments, agencies and boards.

The geographic focus for RCOM is integrated ocean and coastal management and planning processes within Nova Scotia, New Brunswick and Prince Edward Island.

**Membership:** The membership is comprised of senior federal (Regional Director-General level) and provincial (Deputy Minister-level) representatives of government departments and agencies.

**Leadership:** RCOM is co-chaired by the Regional Director-General, DFO Maritimes Region or Gulf Region, and a Deputy Minister of the Province of Nova Scotia, New Brunswick or Prince Edward Island, on a rotational basis.

**Meetings:** RCOM meets on a semi-annual basis, or as required.

**Decisions:** RCOM makes decisions by consensus. Recommendations are non-binding on departments, agencies and boards.

### **Functions and Responsibilities:**

- Represent the federal and provincial governments at the executive level in regional integrated ocean and coastal management processes.
- Provide direction to operational-level government committees for integrated ocean and coastal management processes throughout the region (*e.g.*, the Federal-Provincial ESSIM Working Group).
- Serve in an advisory capacity to the federal and provincial Ministerial level through existing government line mechanisms.
- Strive to reach consensus while representing departmental/organizational mandates and considering the range of opinion.
- Review and comment on integrated ocean and coastal management plans, policy papers, and initiatives of multi-stakeholder planning groups and the ESSIM Planning Office.
- Provide coordination and harmonization of regulatory approaches, policies and programs across government with respect to regional integrated management and planning processes.
- Monitor and review government planning, policy coordination and program implementation across government.
- Support and oversee information-sharing mechanisms among departments and agencies to support initiatives led by one or more departments and agencies represented on RCOM.
- Work in collaboration with the Stakeholder Advisory Council to recommend the ESSIM Plan to the Minister of Fisheries and Oceans for recognition under the *Oceans Act*.

### **THE ESSIM PLANNING OFFICE**

**Purpose:** The Planning Office provides shared leadership and coordination for development and implementation of the Plan, in cooperation with the Stakeholder Advisory Council and the Government Sector Structure.

**Membership:** The Planning Office is housed within the Oceans and Coastal Management Division (OCMD) of DFO Maritimes Region. It is possible that the core resources provided by DFO could be augmented by resources from other government departments, and eventually by non-governmental groups (*e.g.*, staff secondments and internships).

**Leadership:** The Planning Office has regional and national line reporting relationships within DFO.

**Meetings:** The Planning Office leads and facilitates the organization of meetings for the Stakeholder Advisory Council, the Government Sector Structure and the broader ESSIM Forum, as required.

**Decisions:** The Planning Office has decision-making authority consistent with its line reporting relationships within DFO. The Planning Office may also participate in decision making within other components of the Collaborative Planning Model according to applicable processes (*e.g.*, consensus-based).

**Sub-Groups:** The Planning Office may assist in the establishment and operation of various sub-groups formed by other components of the Collaborative Planning Model.

**Functions and Responsibilities:**

- Provide expertise in development of the Plan and related planning documents.
- Support the Collaborative Planning Model, including coordination functions for the ESSIM Forum, the Stakeholder Advisory Council and the Government Sector Structure.
- Ensure that all sectors and stakeholders have input into discussions at the appropriate level, and that a range of engagement mechanisms is available to those who are unable to participate in group processes.
- Liaise with other regional, national and international integrated management processes.

**Changes to the Collaborative Planning Model:**

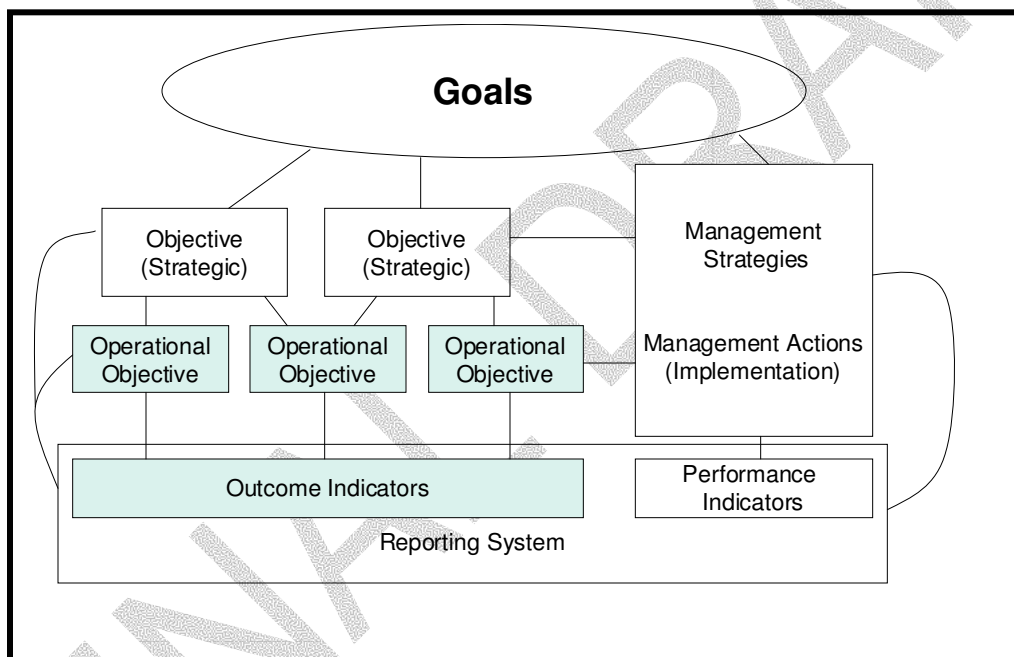
When the initial draft Plan was released, several of the bodies described in this section—namely the Stakeholder Advisory Council and Regional Committee on Ocean Management—had been proposed but not yet established. These bodies were both created in the fall of 2005 and have since met several times. One of the initial tasks carried by the groups has been to finalize their terms of reference. As a result of this process, several changes have been made to the descriptions of the two groups in this section of the Plan. Previously, the multi-stakeholder group had been referred to as the Stakeholder Roundtable, but there was some concern that this might lead to confusion with the Scotia-Fundy Fishing Sector Roundtable. Consequently, the group's members were asked to choose a new name, leading to the moniker Stakeholder Advisory Council. The purpose, roles and membership of the Council were also revised slightly. Meanwhile, the geographic scope of the Regional Committee on Ocean Management has been expanded to include all of the Maritime Provinces, so as to allow for broader cooperation and collaboration and avoid duplication of effort between the various integrated management initiatives ongoing in the region.



## OBJECTIVES-BASED MANAGEMENT FRAMEWORK

The Plan applies an objectives-based approach to integrated ocean management. The objectives-based approach is essentially an outcomes oriented system that promotes management and use of marine areas and resources in a manner that addresses the multiple needs and expectations of society, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by the ocean. The system requires objectives, not only to address the need for functional, healthy ecosystems, but also to address the issues surrounding governance and human use of the ocean.

The objectives-based management framework consists of a hierarchy of objectives, associated management strategies and actions, and a reporting system. The framework is illustrated in the diagram below.



The hierarchy of objectives is organized around four main tiers: goals, elements, strategic-level objectives and operational objectives.

- **Goals** are high-level statements of the desired outcome that we hope to achieve. Goals provide the umbrella for development of all other objectives and outline the principles upon which subsequent objectives are based.
- **Elements** are recognized components or attributes for which objectives need to be developed in order to achieve the desired goals.
- **Strategic-level objectives** are objectives that are developed for each element under the collaborative governance and integrated management, sustainable human use and healthy

ecosystem goals. These objectives express an outcome of what we want to achieve and the general management direction necessary to achieve the outcome.

- **Operational objectives** are more specific objectives that support the achievement of strategic-level objectives. These objectives are developed through sector management processes and are used to guide the development of management strategies and actions to meet higher level goals and objectives.

As illustrated in the diagram above, a hierarchy of management strategies and actions are aligned with the objectives. The Plan identifies specific management strategies for each strategic-level objective. The goals and objectives tables below include the associated management strategies, with more information provided in the Management Strategies section. Management actions will be elaborated in action plans that are developed in support of the Plan.

- **Management strategies** are the methods by which the Plan will pursue the strategic-level objectives. Due to the integrated nature of the planning process, management strategies are not linked to only one objective, but may meet the requirements of more than one objective.
- **Management actions** are undertaken to contribute to the implementation of the management strategies. Management actions are typically linked to a timeframe within which they should be implemented.

The reporting system for the objectives-based management framework provides a method to evaluate implementation of management strategies and actions against the objectives. The reporting system is based on two main types of indicators: *outcome indicators* and *management performance indicators*.

- **Outcome indicators** provide a measure of progress against the management objectives by reporting on the level of improvement in the planning area over time. These indicators may not cover all aspects of each objective, but should provide a good indication of the direction in which the system is moving.
- **Management performance indicators** provide a measure of implementation of the management strategies and actions identified for the Plan. They provide an assessment of the degree to which management actions have been carried out within a given time limit.

The main purpose for establishing indicators is to measure, monitor and report on progress toward meeting the goals and objectives. Indicators have numerous uses and potential for improving management, including the ability to monitor and assess conditions and trends, forecast changes and trends (such as providing early warning information), and evaluate the effectiveness of management strategies, actions and implementation.

The selection of relevant and practical (i.e., measurable) indicators is one of the most important components of the objectives-based management approach. The appropriate interpretation and use of indicators is important to their success. For example, indicators used in isolation may present a different picture than when they are used in conjunction with other indicators. The initial objectives-based management framework will focus on a limited set of relatively simple indicators, with the inclusion of additional and more complex indicators as the process develops over time. The broader performance evaluation and reporting approach for the Plan is described in the section on Implementation and Evaluation.

## **Development of the goals and objectives**

The development of the goals and the objectives for ESSIM Initiative began as two separate processes to establish ecosystem and human use objectives, respectively.

### *Ecosystem objectives*

In 2001, DFO held a *National Workshop on Objectives and Indicators for Ecosystem-based Management* (frequently referred to as the Dunsmuir Workshop) to discuss a national framework for ecosystem, or conservation, objectives. The resulting national DFO framework contains two overarching conceptual objectives for ecosystem-based management:

- the sustainability of human usage of environmental resources
- the conservation of species and habitats, including those other ecosystem components that may not be utilized by humans

The second of these objectives (*i.e.*, the conservation objective) is sub-divided into three more specific objectives which can be summarized as maintaining biodiversity, productivity and habitat. Core elements that needed to be addressed to achieve the conceptual objective were also identified at this workshop. For biodiversity, this included communities, species and populations, while for productivity, the elements were identified as primary productivity, trophic structure and population generation time. In the case of habitat, the elements were listed as critical landscapes/bottomscapes, water column properties, water/sediment quality and biota quality.

Following the national workshop, the ESSIM Planning Office used the high-level objectives as a basis for developing more specific objectives for the Scotian Shelf. A multi-stakeholder working group was established to prepare a regional list of ecosystem elements and objectives. These were further refined by DFO's ESSIM Science Working Group. The objectives contained in the Plan are based on this regional developmental work and are consistent with the overall national ecosystem-based framework.

### *Human use objectives*

As there was no national-level guidance for addressing human use objectives (*i.e.*, social, economic and governance aspects), the ESSIM Planning Office used another multi-stakeholder working group to develop an initial set of human use elements and objectives. This group used a series of working sessions, a focus workshop, and a review of comparable marine management processes around the world in support of the development process.

The work done by the multi-stakeholder groups identified above has formed the basis for the current set of goals and objectives in the Plan. The Stakeholder Advisory Council has subsequently focused on the integration of the two separate sets of objectives and has been instrumental in the continued refinement of this important part of the Plan.

## GOALS AND OBJECTIVES

Marine systems are complex and dynamic. With our current understanding of the Scotian Shelf and its uses, it is acknowledged that there are certain limits and challenges to what can be achieved through this Plan. The goals, objectives and strategies for the Plan have been developed to express what we are striving to achieve through integrated and ecosystem-based ocean management over the long term. As our knowledge of the system improves, and as circumstances (e.g., ecosystem and human) change, the objectives will evolve to accommodate and address these changes.

The three major goals for the Plan are provided in the table below. Each goal is presented as an outcome statement, with accompanying descriptive statements to clarify the intent of the goal. The goal for *collaborative governance and integrated management* is essentially the overarching goal for the Plan as it focuses on the creation of an enabling environment for achieving the goals of *sustainable human use* and *healthy ecosystems*.

<p><b>Collaborative governance and integrated management</b></p> <ul style="list-style-type: none"> <li>• Effective governance structures and processes.</li> <li>• Capacity among stakeholders.</li> <li>• Knowledge to support integrated management.</li> </ul>	
<p><b>Sustainable human use</b></p> <ul style="list-style-type: none"> <li>• Ecologically sustainable use of ocean space and resources.</li> <li>• Sustainable communities and economic well-being.</li> </ul>	<p><b>Healthy ecosystems</b></p> <ul style="list-style-type: none"> <li>• Resilient and productive ecosystems, with diverse habitats, communities, species and populations.</li> <li>• Strong marine environmental quality supports ecosystem functioning.</li> </ul>

Objectives and strategies have been developed for each of the goals and are presented in the tables below.

Within the tables, the objectives are organized around a set of core elements to describe more specifically what we want to achieve. Although these are presented in discrete cells within the tables, it is recognized that all elements and objectives are interconnected. The objectives should not be considered in isolation of one another, as it is the entire suite of objectives that will collectively support the achievement of the desired goals.

Strategies have been developed to illustrate how we intend to achieve each objective. Once again, it is recognized that some strategies may influence the outcome of more than the single

objective to which they have been linked. The strategies are presented at a relatively high level, providing the basic course of action that is required if the objectives are to be met. Specific actions, time frames and resource requirements will be outlined in an action plan, which will be developed as a separate document to this strategic-level Plan. In accordance with the guiding principle of adaptive management, specific strategies may be revised or added as implementation proceeds.

## **COLLABORATIVE GOVERNANCE AND INTEGRATED MANAGEMENT**

*Collaborative governance and integrated management* is the over-arching goal of the Plan as it addresses the enabling mechanisms required to achieve the integration of the remaining goals for *sustainable human use and healthy ecosystems*.

This goal is broken down into the two core elements of integrated management and information and knowledge. The overall intent of the integrated management element is to provide a more inclusive, collaborative and horizontal approach to the management of our ocean uses and resources. Effective structures and processes must be established to bring together ocean users, regulators and decision makers from multiple sectors to address and collaborate on ocean management issues. All stakeholders must have adequate capacity and opportunity to fully participate in the process.

In addition to the establishment of collaborative structures and processes, appropriate legislation, policies, plans and programs must be in place to support integrated management. This involves ensuring that all relevant legal obligations and commitments are fulfilled, including our international agreements. Ultimately, the effectiveness and success of integrated management is dependent on ocean user and regulator compliance and accountability with these plans and measures. Ocean users and regulators must also act as stewards of the ocean and ensure that they implement best practices when conducting their activities. Of particular importance is the development of processes for avoiding and resolving conflict among various ocean users and interests.

The objectives under the information and knowledge element are focused on the requirements for strong research and knowledge building to support management decisions. Effective mechanisms for information sharing, communication and awareness raising among and within stakeholders and decision makers are essential components of this element, as are timely processes for monitoring and reporting on performance and progress against objectives.

Element	Objective (What)	Strategy (How)
<b>Table 1: Collaborative Governance and Integrated Management</b>		
Integrated management	Collaborative structures and processes with adequate capacity, accessible to community members are established	<ul style="list-style-type: none"> <li>▪ Implement ESSIM collaborative planning model</li> <li>▪ Identify and support existing multi-sectoral and inter-governmental coordinating mechanisms and establish new mechanisms where needed.</li> <li>▪ Facilitate stakeholder involvement and capacity</li> </ul>
	Appropriate legislation, policies, plans and programs are in place	<ul style="list-style-type: none"> <li>▪ Assess effectiveness and efficiency of current legislation, policies, plans and programs</li> <li>▪ Develop mechanisms for evaluating proposed legislation, policies, plans and programs.</li> <li>▪ Initiate policies, plans and programs and identify the need for new legislation as required</li> <li>▪ Assess international obligations and commitments and ensure that they are fulfilled</li> <li>▪ Incorporate integrated management objectives into sector management plans</li> <li>▪ Clarify jurisdictional relationships and fulfill constitutional obligations</li> <li>▪ Ensure adequate resources are in place</li> </ul>
	Legal obligations and commitments are fulfilled	
	Ocean users and regulators are compliant and accountable	<ul style="list-style-type: none"> <li>▪ Develop and implement frameworks for compliance promotion</li> <li>▪ Develop and implement frameworks for accountability</li> <li>▪ Develop and implement frameworks for performance monitoring, reporting and assessment</li> </ul>
	Ocean stewardship and best practices are implemented	<ul style="list-style-type: none"> <li>▪ Review existing guidelines and best practices and improve/adapt as necessary</li> <li>▪ Develop new guidelines and best practices as necessary</li> <li>▪ Support stewardship through education, training and awareness programs</li> </ul>
	Multi-sectoral resource use conflict is reduced	<ul style="list-style-type: none"> <li>▪ Understand existing use patterns and interactions</li> <li>▪ Identify and characterize spatial and/or temporal conflicts</li> <li>▪ Develop procedures and tools for addressing conflicts</li> </ul>
Information and knowledge	Natural and social science research is responsive to knowledge needs	<ul style="list-style-type: none"> <li>▪ Initiate research program for integrated management                             <ul style="list-style-type: none"> <li>○ Establish research structures and partnerships</li> <li>○ Identify research priorities and needs</li> </ul> </li> <li>▪ Promote core government and non-government capacity for supporting research</li> <li>▪ Ensure science is evaluated through objective peer and stakeholder review processes</li> <li>▪ Facilitate timely delivery of scientific advice for management</li> <li>▪ Promote the use of and access to traditional knowledge, including Aboriginal/indigenous knowledge</li> </ul>
	Information management and communication are effective	<ul style="list-style-type: none"> <li>▪ Identify information needs</li> <li>▪ Develop mechanisms for information management, sharing, and feedback</li> <li>▪ Facilitate the use of science and social science research</li> </ul>

Element	Objective (What)	Strategy (How)
		<ul style="list-style-type: none"> <li>▪ Improve ocean awareness through education and communication</li> <li>▪ Promote awareness of the ESSIM Initiative and ensure the information about the Initiative is accessible to the public</li> <li>▪ Promote the use of and access to traditional knowledge, including Aboriginal/indigenous knowledge</li> </ul>
	Monitoring and reporting are effective and timely	<ul style="list-style-type: none"> <li>▪ Identify monitoring needs</li> <li>▪ Evaluate usefulness of monitoring and reporting programs and review management as necessary</li> </ul>

### **SUSTAINABLE HUMAN USE**

The overall intent of the *sustainable human use* goal is to ensure that current and future generations continue to receive benefits from and have access to the ocean and its resources. The two interconnected elements for this goal are social and cultural well-being and economic well-being.

The main focus of the social and cultural well-being element is on sustainable communities and healthy human relationships with the ocean. The objectives under this element emphasize the need for equitable opportunities and access for coastal communities to sustainable livelihoods from the ocean. Coastal communities may be defined in several ways, including geographic, fishing or Aboriginal communities, or broader communities of interest and common concern. A sustainable community is considered to be one that takes a long-term perspective to safeguard the interests of future generations so that social, cultural, economic and environmental assets create positive outcomes for its members.

The objective for sustainable human relationships with the ocean shows an explicit recognition that benefits, wealth and values associated with the ocean are not exclusively monetary, but also intrinsic in nature to include the natural assets of the marine environment and our traditional and cultural relationships and connections with the sea. This element also recognizes that sustainable human use is dependant on a safe, healthy and secure ocean area for people who derive their living from the sea, reap its recreational benefits or consume products of the sea.

The economic well-being element addresses the economic benefits that are associated with and derived from ocean resources, including renewable and non-renewable resources found in the ocean, on the surface of the ocean or on or below the ocean floor (e.g., fish, oil and gas); from ocean infrastructure (e.g., submarine cables); and ocean-related activities (e.g., shipping). The objectives presented under this element stress the fundamental requirement for sustainability in the use of marine resources and areas, and in doing so, acknowledge that wealth generation from existing sustainable ocean uses must be supported, while new sustainable opportunities are fostered.

**What is natural capital?**

Natural capital refers to natural resources, such as water and oil, the land which provides space on which to live and work, and the ecosystems that maintain clean water, air and a stable climate. .... Natural capital is essential to sustaining all forms of life including human life. (Government of Canada, 2006)

This element will enable and support the direction established in Canada's *Oceans Act*: "Canada recognizes that the oceans and their resources offer significant opportunities for economic diversification and generation of wealth for the benefit of all Canadians, and in particular for coastal communities." This includes strengthening long term productivity and competitiveness, creating new employment opportunities while supporting traditional livelihoods, seeking innovation through research and sustaining natural capital.

Element	Objective (What)	Strategy (How)
<b>Table 2: Sustainable Human Use</b>		
Social and cultural well-being	Communities are sustainable	<ul style="list-style-type: none"> <li>▪ Identify and characterize communities</li> <li>▪ Identify community assets related to the ESSIM Initiative</li> <li>▪ Promote and maintain access to sustainable livelihoods from ocean-related activities</li> <li>▪ Enhance ocean-related education, training and awareness</li> <li>▪ Support ocean-related services and infrastructure</li> <li>▪ Improve government capacity (including fiscal) to implement social programs</li> <li>▪ Involve Aboriginal peoples in planning and development decisions</li> </ul>
	Sustainable ocean/community relationships are promoted and facilitated	<ul style="list-style-type: none"> <li>▪ Recognize and celebrate coastal communities and their connection to the ocean</li> <li>▪ Recognize the social and cultural importance of traditional livelihoods</li> <li>▪ Promote social impact assessment to inform decision-making</li> <li>▪ Recognize and affirm intrinsic values that link people, communities, and the environment.</li> <li>▪ Ensure community inclusion in ocean planning and decision-making</li> </ul>
	Ocean area is safe, healthy and secure	<ul style="list-style-type: none"> <li>▪ Assess current status and risks and develop plans to address them</li> <li>▪ Support ocean-related services, training and infrastructure for health, safety and security</li> <li>▪ Monitor and manage chemical or biological contamination that could affect humans</li> <li>▪ Maintaining and enhance integrated surveillance, monitoring and response system</li> </ul>



Economic well-being	Wealth is generated sustainably from renewable ocean resources	<ul style="list-style-type: none"> <li>▪ Assess current and potential wealth generating activities and opportunities</li> <li>▪ Identify, assess and link to existing policies, plans and initiatives for sustainable wealth generation/economic development</li> <li>▪ Support existing activities and opportunities, and future economic diversification and employment</li> <li>▪ Support positive investment environment for ocean-related activities                             <ul style="list-style-type: none"> <li>○ Assess constraints and enabling factors for investment (e.g., regulatory environment) and identify changes required</li> </ul> </li> <li>▪ Identify and implement measures to improve retention of wealth and benefits within coastal and Aboriginal communities in Nova Scotia and Canada</li> <li>▪ Support initiatives to maintain or improve economic competitiveness for Nova Scotia</li> <li>▪ Balance industrial capacity with resource sustainability</li> <li>▪ Support the conservation of natural capital by recognizing, linking to and working with related ecosystem objectives and strategies</li> <li>▪ Recognize, link to and work with key related social and cultural well-being objectives and strategies (e.g., traditional livelihoods)</li> <li>▪ Support innovation and research that may contribute to economic well-being</li> </ul>
	Wealth is generated sustainably from non-renewable ocean resources	
	Wealth is generated sustainably from ocean infrastructure	
	Wealth is generated sustainably from ocean-related activities	

## **HEALTHY ECOSYSTEMS**

The overall intent of the goal for *healthy ecosystems* is to ensure that structure, function and environmental quality of the marine ecosystems associated with the Scotian Shelf are not compromised by our management and use. This goal is organized in the three interconnected themes of biodiversity, productivity and marine environmental quality, each containing a set of more specific elements and supporting objectives. However, it is important to understand that ecosystems are complex and dynamic and, as such, all of the elements and objectives are interconnected. The Plan explicitly acknowledges that the overall goal of *healthy ecosystems* can only be achieved through the integration of all ecosystem objectives, as well as with those for *sustainable human use*.

### **A note on terminology**

The objectives under the *healthy ecosystems* goal use several verbs to convey the desired outcomes and directions of change required. The context for these verbs is described below:

The verb *conserve* is used in the context of sustainable use of a marine resource or area. It is aimed at the avoidance of wasteful or destructive use and seeks to ensure that a resource or area is kept in a safe or sound state. In some cases, protection and or restoration may be used as a tool to meet conservation requirements.

The verb *reduce* is used when describing potential adverse impacts on components of the ecosystem. It is used in situations where lessening the extent of a given impact would result in a positive outcome for the ecosystem. Although the overall intent is to decrease any potential harmful impacts on the marine system, the Plan acknowledges that negative impacts cannot always be reduced, either due to the influence of inter-related objectives or a lack of understanding of interactions in the marine system. In cases where impacts cannot be reduced to zero, it is necessary to develop and adhere to acceptable or allowable levels. As such, the use of the verb *reduce* is dependent on our knowledge of acceptable levels and the impact of the stressor.

The term *representative*, as used in the objectives for healthy ecosystems, refers to areas, communities, or habitats that are typical of the surrounding ecosystem at a chosen scale. The physical features, oceanographic processes and ecological patterns within a representative area, community, or habitat reflect those of the surrounding ecosystem.

### **Biodiversity**

The biodiversity objectives are aimed at the conservation of ecosystem components to support a diversity of communities/assemblages and species/populations. This means that no community, species or population should be lost as a result of human activities. The specific objectives address the conservation of benthic, demersal and pelagic communities. They also consider the management of incidental mortality of all species within acceptable levels (see box below), and the protection and recovery of at-risk species, namely those species considered to be extirpated, endangered, threatened or of special concern under the *Species at Risk Act* or identified as such by COSEWIC. In order to conserve native species diversity, the Plan stresses the prevention of introductions of invasive species and the reduction of their distribution and settlement if introductions have already occurred. The conservation of genetic integrity, which includes genetic fitness and diversity, is also articulated through an objective.

### **Managing incidental mortality of all species**

Human activities that occur in the marine environment often result in the unintentional mortality of marine organisms. The intent of the objective is to manage mortality within acceptable levels. The Plan recognizes that incidental mortality of marine organisms is an unfortunate consequence of human activities and that at times unintentional mortality cannot be reduced if the cost of the reduction outweighs the benefits.

The issue of incidental mortality in commercial fisheries has garnered significant public interest in recent years. The Plan distinguishes between different kinds of incidental mortality or by-catch, and treats them somewhat differently. In some cases, fishers targeting a particular species may also catch, either intentionally or unintentionally, other commercial species for which they have a quota or which they are otherwise permitted to catch and sell. This by-catch of commercial species is accounted for, and managed to ensure the population remains healthy. By-catch of commercial species is therefore addressed under the Plan through the population productivity objective and not under the objective for incidental mortality.

On the other hand, the unintentional catch of non-commercial species by fishers is considered under the incidental mortality objective, as is the unintentional mortality of any marine organism by other activities. It is important to monitor the mortality of all species, including non-commercial species, in order to prevent over-exploitation of populations. The primary focus of this objective from a fishing industry perspective is to manage and monitor the incidental mortality of non-commercial species. The fishing industry is currently working on improving the accounting of mortality of non-commercial species and setting reference limits for mortality of these species. Where practical, the fishing industry will try to avoid the capture of such unwanted species.

### **Productivity**

The productivity objectives focus on achieving healthy conditions for the elements of primary and secondary productivity, trophic structure and population productivity. The overall intent is to ensure that human activity does not cause unacceptable alterations to these core drivers for ecosystem functioning. More specifically, the objectives apply to human activities that may result in excessive or depleted primary production (e.g., due to nutrient loading or depletion, or decreased light), alteration of species to the extent that they no longer retain their natural function in the overall trophic structure (i.e., the multi-species structure and its interactions), or alter any population to the extent that it can no longer continue to grow and reproduce.

It must be acknowledged that it is difficult to express more specific objectives related to primary productivity and trophic structure as natural fluctuations occur and the dynamic nature of the environment makes it difficult to predict human influences. However, maintaining healthy biomass and productivity of harvested species has always been a priority for fisheries

management and will continue to be pursued in this context. Integrated management will expand on the fisheries management process to consider impacts from other activities.

**Marine environmental quality**

The marine environmental quality objectives are intended to safeguard the physical, chemical and habitat elements of marine ecosystems. This includes physical and chemical characteristics and conditions of the ocean bottom (e.g., sediments, biogenic structures) and the water column (e.g., currents, temperature). The objectives are aimed at ensuring that the quality of the environment is capable of supporting the growth and health of marine organisms.

In order to achieve the necessary level of environmental quality, harmful inputs to the ecosystem need to be reduced and, in certain cases, eliminated. Recognizing that some inputs and effects are inevitable and that the need to reduce impacts must be considered in relation to other interrelated objectives, the overall desired outcome is for a reduction in harmful inputs and effects. More specifically, the marine environmental quality objectives address issues such as chemical and physical contamination of sediments and the water column, introduction of waste and debris in the environment, harmful noise levels, overall atmospheric pollution, and the conservation of habitat integrity.

Element	Objective (What)	Strategy (How)
<b>Table 3: Healthy Ecosystems – Biodiversity</b>		
Communities/ assemblages	Diversity of benthic, demersal and pelagic community types is conserved	<ul style="list-style-type: none"> <li>▪ Develop integrated, coordinated conservation framework                             <ul style="list-style-type: none"> <li>○ Identify representative, important and sensitive benthic, demersal and pelagic (including seabird) communities/assemblages</li> <li>○ Identify threats and management options for conservation</li> </ul> </li> <li>▪ Implement management measures based on framework</li> </ul>
Species / Populations	Incidental mortality of all species is within acceptable levels	<ul style="list-style-type: none"> <li>▪ Quantify the extent of incidental mortality and understand the impact on species/populations</li> <li>▪ Identify acceptable levels of incidental mortality for species/populations</li> <li>▪ Monitor the catch of non-commercial species in all fisheries</li> <li>▪ Identify mechanisms for managing incidental mortality within acceptable levels</li> <li>▪ Assess the risks (social and economic) of implementing management measures to address incidental mortality</li> <li>▪ Manage human activities to address incidental mortality where practical</li> </ul>
	At risk species protected and/or recovered	<ul style="list-style-type: none"> <li>▪ Implement recovery strategies, action and management plans under the <b>Species at Risk Act</b></li> <li>▪ Ensure that sectoral management plans and ocean activities are consistent with SARA</li> <li>▪ Coordinate multi-species recovery planning where appropriate</li> </ul>

	Invasive species introductions are prevented and distribution is reduced	<ul style="list-style-type: none"> <li>▪ Assess sources, vectors, extent and risks of invasive species</li> <li>▪ Develop management plans and measures to prevent introductions and limit distribution of invasive species</li> <li>▪ Establish a surveillance and monitoring system</li> </ul>
	Genetic integrity (i.e., genetic fitness and diversity) is conserved	<ul style="list-style-type: none"> <li>▪ Improve knowledge of genetic integrity and identify priority species</li> <li>▪ Develop and implement management measures to conserve genetic integrity where required</li> </ul>
<b>Healthy Ecosystems – Productivity</b>		
Primary and secondary productivity	Primary productivity and secondary productivity are healthy	<ul style="list-style-type: none"> <li>▪ Assess and review factors that influence primary and secondary productivity</li> <li>▪ Review, evaluate and upgrade monitoring programs</li> <li>▪ Develop management measures to address negative factors</li> </ul>
Trophic structure	Trophic structure is healthy	<ul style="list-style-type: none"> <li>▪ Increase knowledge of trophic interactions and human influences and define trophic structure objectives</li> <li>▪ Recognize the importance of a healthy trophic structure in sector management plans</li> <li>▪ Develop management measures where needed for healthy trophic structure</li> </ul>
Population productivity	Biomass and productivity of harvested and other species are healthy	<ul style="list-style-type: none"> <li>▪ Define biomass and productivity objectives</li> <li>▪ Support and enhance stock assessment practices and explore effort-based management approaches</li> <li>▪ Ensure compliance with established measures and limits</li> <li>▪ Identify other important species and develop management measures (e.g., keystone species)</li> </ul>

Healthy Ecosystems – Marine Environmental Quality		
Physical	Physical characteristics of ocean bottom and water column support resident biota	<ul style="list-style-type: none"> <li>▪ Identify and quantify the impacts of physical factors on biota</li> <li>▪ Manage human influences to address negative impacts on physical properties</li> </ul>
	Harmful noise levels are reduced to protect resident and migratory species and populations	<ul style="list-style-type: none"> <li>▪ Improve knowledge of sound and its impacts in the marine environment</li> <li>▪ Identify mechanisms for reducing sound in the marine environment</li> <li>▪ Identify and quantify acceptable noise levels for species / populations</li> <li>▪ Develop management measures for ocean activities to meet acceptable levels</li> </ul>
	Wastes and debris are reduced	<ul style="list-style-type: none"> <li>▪ Assess sources and impacts of wastes and debris</li> <li>▪ Assess current measures, capabilities and infrastructure</li> <li>▪ Develop and implement measures to limit inputs (e.g., awareness program and compliance promotion)</li> <li>▪ Eliminate the intentional discarding of garbage at sea</li> </ul>
Chemical	Chemical characteristics of ocean bottom and water column support resident biota	<ul style="list-style-type: none"> <li>▪ Identify and quantify the impacts of chemical factors on biota</li> <li>▪ Manage human influences to address negative impacts on chemical properties (e.g., toxic chemicals)</li> </ul>
	Overall atmospheric pollution from ocean activities is reduced	<ul style="list-style-type: none"> <li>▪ Identify sources and extent of atmospheric pollution from ocean activities</li> <li>▪ Develop management measures to meet acceptable levels</li> </ul>
Habitat	Habitat integrity is conserved	<ul style="list-style-type: none"> <li>▪ Incorporate habitat considerations in the integrated conservation framework (see communities/assemblages)</li> <li>▪ Identify and conserve rare, important and representative habitats</li> <li>▪ Manage human influences to address negative impacts on habitat</li> </ul>

### **Changes to the Objectives:**

This section of the Plan has changed significantly from the initial draft. The objectives table has been reorganized to offer greater clarity and to improve consistency between the different categories of objectives. Previously, the human use and ecosystem objectives were presented in separate tables, using different formats. Objectives for the integrated management *process* were included in the human use table. Based on feedback from stakeholders, the tables have been harmonized to offer a more consistent framework, which includes goals, elements, objectives, and strategies. The integrated management objectives have been separated from the human use objectives, and given their own over-arching goal, elements, and objectives.

Many of the objectives have been reworded and reorganized to better reflect the aspirations of participants in the process. All objectives are now written as desired outcomes for the planning area, whereas previously some objectives were worded as outcomes while others were worded as actions. A number of new objectives have been added to make the framework more inclusive. Additional explanatory text outlining the intent and clarifying the meaning of the objectives has been inserted, and a number of definitions have been provided.

In the initial Plan, management strategies were presented separately from the objectives tables and linked only indirectly to the objectives. In order to be more consistent with the proposed objectives-based management approach, strategies are now presented along with the objectives to which they relate. A number of new strategies have been developed to reflect the revisions and additions to the objectives tables.

## MANAGEMENT STRATEGIES

The Plan proposes a series of management strategies to achieve the objectives identified for *healthy ecosystems, sustainable human use, and collaborative governance and integrated management*. Each strategy is intended to represent a general course of activities that will be pursued in order to reach one or more objectives.

In the preceding section on Objectives-Based Management, the strategies are listed in relation to the objective or objectives they are intended to achieve. This section provides further detail on the management strategies and their intent.

For each objective, an overview description of some of the activities that have been initiated or envisioned in relation to the proposed strategies is provided below. Some objectives will be achieved, at least in part, through the continuation or enhancement of existing programs. Where this is the case, some ongoing activities are described below and a brief synopsis of accomplishments to date and further work required is provided. In other cases, entirely new programs and activities will be necessary. In such cases, management options and tools that could be used are outlined.

It is anticipated that the implementation of the management strategies will be achieved through the collective effort of the ESSIM community. A variety of actors from both within and outside government will play leading roles in implementation of the management strategies. For example, while government is likely to play a lead role in strategies involving regulatory tools, industry may take the lead on developing best practices and operating procedures, academic institutions may provide the leadership for research programs, and community or environmental organizations may initiate stewardship projects.

This section does not provide details on the specific actions that will be pursued under each strategy or the organizations that will carry them out. Additional detail on management actions, timelines, indicators and lead organizations will be provided in a subsequent action plan. It is not envisioned that all of the strategies outlined in this section will be fully implemented within the first 5-year phase of the Plan. Many of the objectives and strategies will only be achievable over the long-term. Through the action-planning process, priority issues will be identified, and management actions will initially focus on those priorities.

### COLLABORATIVE GOVERNANCE AND INTEGRATED MANAGEMENT

The following strategies have been identified for the elements and objectives under the goal of *collaborative governance and integrated management*:

#### ***Element: Integrated Management***

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**Objective:** Collaborative structures and processes with adequate capacity and accessible to community members are established

**Strategies:**

- Implement ESSIM Collaborative Planning Model



- Identify and support existing multi-sectoral and inter-governmental coordinating mechanisms and establish new mechanisms where needed
- Facilitate stakeholder involvement and capacity

**Overview :**

The main mechanism used to achieve integrated management and develop and implement the ESSIM Plan is collaborative governance. In order for collaborative governance to be effective, appropriate structures and processes must be established and all interested parties must have the ability to participate. A Collaborative Planning Model for the ESSIM Initiative that describes the processes and structures that will be put in place to guide integrated management has been developed and is being implemented (see Collaborative Planning Model).

Apart from the ESSIM Collaborative Planning Model, there are other multi-sectoral and inter-governmental mechanisms that already exist and operate. These structures will be identified and attempts will be made to develop linkages, where appropriate, to the ESSIM Collaborative Planning Model. This will be done to avoid duplication of working groups and ensure coordination between initiatives. When issues arise that cannot be addressed by existing structures or processes, it may be necessary to establish new mechanisms.

Participating in a collaborative process, such as the ESSIM Initiative, requires a great deal of time and effort on the part of stakeholders and government officials. Many stakeholders may not have the capacity or time required to participate fully in such an initiative. The Planning Office will provide assistance where possible to ensure that all interests have the ability and capacity to participate. This may include, for example, working with stakeholder groups to help them engage their constituents, mobilizing resources, providing products and tools, or facilitating meetings. Since the resources of the Planning Office are finite, it may be necessary in some cases to look to other partners and organizations for support in capacity building.

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**Objectives:** Appropriate legislation, policies, plans and programs are in place; Legal obligations and commitments are fulfilled

**Strategies:**

- Assess effectiveness and efficiency of current legislation, policies, plans and programs
- Develop mechanisms for evaluating proposed legislation, policies, plans and programs
- Initiate policies, plans and programs and identify the need for new legislation as required
- Assess international obligations and commitments and ensure that they are fulfilled
- Incorporate integrated management objectives into sector management plans
- Clarify jurisdictional relationships and fulfill constitutional obligations
- Ensure adequate resources are in place

**Overview :**

Although the Plan is not regulatory in nature, implementation of the management strategies contained in it may require the use of various regulatory-based tools. Consistent with the collaborative planning approach advocated for integrated management, government departments and agencies may use their regulatory authorities and powers to fulfill or contribute

to the objectives and management strategies contained in the Plan. These regulatory tools may include the following:

- sector-specific control measures as contained in legislation and supporting regulations
- sector-specific plans, authorizations, licences or permits issued pursuant to legislation and supporting regulations
- protected area designations and controls
- requirements under federal or provincial environmental assessment processes

The Plan and supporting collaborative planning process are designed to ensure that sector-specific regulatory tools are coordinated within the broader multiple use context. This will require, among other things, clarification of jurisdictional authority in some cases. As issues are dealt with through the collaborative planning process, the effectiveness of current legislation, policies, plans and programs will be assessed in the context of integrated management. As integrated management becomes more mature, current policies, programs and plans will adapt to accommodate this new management regime. This will include incorporating agreed upon objectives into sector management plans. In certain circumstances there may be a need to develop new programs, plans and policies or to identify the need for new legislation, if current mechanisms are deemed inadequate. When new legislation, policies, plans and programs are proposed outside of the collaborative planning process, mechanisms for evaluating such proposals must be in place. This will provide a means for stakeholders to provide input and ensure consistency with the objectives of the integrated management plan.

Legislation, policies, plans and programs must not only be assessed in the context of integrated management, but also to ensure that Canada's international obligations are being fulfilled. International conventions often guide national legislation and form the basis for many plans and programs. It is important not only to ensure that obligations are being considered, but that they are also being fulfilled. In order to ensure that international obligations and plan objectives are being met, adequate resources must be in place to provide support for programs.

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**Objective:** Ocean users and regulators are compliant and accountable

**Strategies:**

- Develop and implement frameworks for:
  - compliance promotion
  - accountability
  - performance monitoring, reporting and assessment

**Overview:**

Within the context of ocean and marine resource management, compliance can be viewed as a continuum of tools, techniques and approaches. This continuum essentially extends from activities associated with awareness raising and stewardship through to activities involving regulatory-based control and enforcement. The preferred means of obtaining adherence to the Plan is through the use of compliance promotion approaches. This can be achieved through a variety means, including the following:

- information sharing and communications (*i.e.*, awareness raising)

- stewardship promotion and development of best practices
- incentives programs
- effective participation in the collaborative planning process and development of management objectives, strategies and actions
- performance monitoring and reporting

Surveillance, monitoring and enforcement of specific measures contained in the Plan can be undertaken by relevant regulatory authorities under their respective legislation and regulations. In addition, the Plan supports ongoing efforts and arrangements for integrated approaches to marine compliance and enforcement, including regular information sharing among marine-related authorities and coordination for marine surveillance, monitoring and information collection on the water.

Accountability to the Plan is a fundamental pre-requisite to successful implementation. The Collaborative Planning Model is designed to promote a more inclusive and transparent approach to management and decision making. Participants in the planning process—both government and non-government—are expected to promote and build accountability to the Plan within their communities of interest and constituencies. This involves the incorporation of the Plan's principles, goals, objectives and strategies into sector-based planning, decision making and reporting. The Plan recognizes that ultimate decision-making responsibility will remain with relevant regulatory authorities. However, in cases where a decision-making body is not able to meet or contribute to an aspect of the Plan, there is an expectation that the rationale for decision will be made available to other participants in the process. The specific mechanisms and requirements for reporting on performance are outlined in other parts of the Plan.

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**Objective:** Ocean stewardship and best practices are implemented

**Strategies:**

- Review existing guidelines and best practices and improve/adapt as necessary
- Develop new guidelines and best practices as necessary
- Support stewardship through education, training and awareness programs

**Overview:**

The Plan may be implemented through a variety of non-regulatory management tools and approaches. These instruments include the following:

- government statements, guidelines and/or protocols for best practice
- industry-based statements and/or codes of best practice
- statements of intent or commitment

There are currently a variety of codes of practice in place to guide ocean activities, many of which have been developed by ocean users. For example, Exxon Mobil has developed codes of practice for personnel of the Sable Offshore Energy Project relating to stewardship of Sable Island and the Gully. As objectives begin to be implemented through sector management plans, it will be necessary to review existing guidelines and practices and improve or adapt them to

reflect the intent of the objectives. In some cases it may be necessary to develop new guidelines and codes of practice if none exist.

Ocean stewardship refers to the careful and responsible management and use of the ocean. Stewardship involves the consideration of environmental impacts and use of best management practices at all stages of the utilization of natural resources. Ocean users are more likely to make responsible decisions regarding the operation of their activities if they are informed and aware of the issues at hand. Ocean stewardship can be promoted through education, training and awareness. This could include holding information sessions for stakeholders, inviting trained experts to discuss topics of interest, or making government documents and other information products more readily available to stakeholders.

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**Objective:** Multi-sectoral resource use conflict is reduced

**Strategies:**

- Understand existing use patterns and interactions
- Identify and characterize spatial and/or temporal conflicts
- Develop procedures and tools for addressing conflicts

**Overview:**

As technology advances and more activities are taking place on the water, conflicts over ocean resources and ocean space are increasing. As new industries become active in the offshore, they often compete for ocean space with more traditional ocean users. It is the intent of the ESSIM Initiative to reduce the number of conflicts that are occurring by developing mechanisms that allow ocean users to come together to discuss and address issues before a conflict arises.

In order to reduce or prevent conflict, it is necessary to understand existing use patterns and interactions. An *Atlas of Human Activity on the Scotian Shelf* has been compiled by the ESSIM Planning Office in order to map existing use patterns. This atlas is available to the public online and in hard copy and will be updated as regularly as possible. Based on the data gathered for the atlas and other data layers, work is continuing with the development of a GIS-based decision support tool (see box below). This tool will help to provide decision-makers with accurate, queryable information about human activities and environmental characteristics across the Scotian Shelf.

### **Ocean use mapping: a tool for decision support**

The ESSIM Planning Office is undertaking a major project to develop a decision support tool for multiple use management on the Scotian Shelf. The current phase is focused on the completion of a GIS-based atlas showing the location and extent of major human activities and related management zones and practices in the region. Areas of importance for various ocean uses will be characterized. Ecological information will also be incorporated in a subsequent phase. This atlas and its underlying database will form a key component of a spatial-temporal framework to assess risks associated with a range of human activities, including ecosystem impacts and sector activity interactions. The project is designed to support regional ocean planning, management and decision making, including the Eastern Scotian Shelf planning process and the Gully Marine Protected Area. As such, the development of prototype analysis will focus on priority management needs in the region.

The completion of this geospatial assessment tool has been identified in the Plan as a key activity in support of multiple ocean use and marine ecosystem management.

Procedures must be developed to address multiple use conflicts. This will require dialogue within and across sectors. The ESSIM Initiative will provide multi-sectoral forums where proposals for new ocean activities can be tabled and discussed by the proponent and affected ocean interests in order to reach an agreement that is satisfactory to all involved. In some cases mechanisms have already been established, such as the Joint Fisheries/Telecom Cable Working Group (see box below).

### **Joint fisheries/telecom cable working group**

The joint fisheries/telecom cable working group was formed in November 2005. Its purpose is to provide a forum for the telecommunications and fisheries sectors to discuss and resolve outstanding issues, and to develop effective processes for discussion of future projects or concerns. Decisions are made on a consensus basis. The working group is proving to be a useful forum for collaboration among the sectors.

Spatial management can provide a useful approach for addressing spatial and temporal interactions among ocean users. However, to be successful, spatial management must occur within the context of agreed-upon management objectives and applied in a coordinated and careful manner. Recognizing that the planning area already contains multiple, sector-based spatial management areas (*e.g.*, fishery closures, oil and gas exploratory licence areas), an initial task will be to evaluate the effectiveness of existing measures and tools.

The coordination of ocean uses and management systems through spatial management can assist in finding appropriate balances among the ecosystem and human use objectives for the

planning area. The effective application of spatial management requires the recognition of the temporal and spatial scales at which ecological systems function, with the realistic understanding that management areas and lines are limited by the dynamic nature of the marine environment.

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**Element: Information and Knowledge**

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**Objective:** Natural and social science research is responsive to knowledge needs

**Strategies:**

- Initiate research program for integrated management
  - Establish research structures and partnerships
  - Identify research priorities and needs
- Promote core government and non-government capacity for supporting research
- Ensure science is evaluated through objective peer and stakeholder review processes
- Facilitate timely delivery of scientific advice for management
- Promote the use of and access to traditional knowledge, including Aboriginal/indigenous knowledge

**Overview:**

In order to achieve many of the objectives for multiple human use and healthy ecosystems, more information and knowledge of human and marine systems is required. This will require developing a research program for integrated management that is broad in scope and that responds to current knowledge needs. Research programs should be integrated, drawing on expertise from many disciplines to provide the most comprehensive advice. This will require establishing research structures and partnerships involving government, ocean users, academics, Aboriginal communities, and NGOs. It will also involve promoting the use of traditional and local knowledge, including that available from the fishing industry and Aboriginal/indigenous communities. As an example, DFO and the Fishermen and Scientist Research Society (FSRS) are collaborating on a project to collect traditional knowledge from fishers to support the EBSA identification process.

**Aboriginal Traditional Knowledge**

The indigenous people of the world possess an immense knowledge of their environments, based on centuries of living close to nature. Living in and from the richness and variety of complex ecosystems, they have an understanding of the properties of plants and animals and the functioning of ecosystems and techniques for using and managing them that is particular and often detailed. In rural communities in developing countries, locally occurring species are relied on for many-sometimes all-foods, medicines, fuels, building materials and other products. Equally, people's knowledge and perceptions of the environment, and their relationships with it, are often important elements of cultural identity. (Source: UNESCO)

In order to ensure that the research program responds to knowledge needs, it is necessary to identify research priorities for the planning area through a collaborative process. It is envisioned that this will be achieved largely through mechanisms established under the ESSIM Collaborative Planning Model, such as the Stakeholder Advisory Council and a related Science and Technical Working Group. Implementing the research program will require ensuring that adequate resources are in place, both inside and outside government. It is envisioned that a research plan for the ESSIM Initiative will be developed to outline research priorities, define the required structures and partnerships to address research questions, and identify means for mobilizing resources.

Once scientific research has been conducted, it is important that mechanisms be in place to review and validate research outcomes. These mechanisms must be transparent and robust, so that all stakeholders can have faith in research conclusions. Mechanisms including, but not limited to, peer and stakeholder review processes for new research will be promoted. It is also important that research results be provided to private and public sector managers in a timely fashion. It may be useful to develop a process to facilitate the timely delivery of scientific advice for management. This will require effective communication and information sharing mechanisms, as discussed elsewhere in the Plan.

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**Objective:** Information management and communication are effective

**Strategies:**

- Identify information needs
- Develop mechanisms for information management, sharing, and feedback
- Facilitate the use of science and social science research
- Improve ocean awareness through education and communication
- Promote awareness of the ESSIM Initiative and ensure the information about the Initiative is accessible to the public
- Promote the use of and access to traditional knowledge, including Aboriginal/indigenous knowledge

**Overview:**

The Plan supports the use of a variety of communications and information sharing tools. The Collaborative Planning Model and its various mechanisms for multi-sectoral and intergovernmental dialogue, such as the Stakeholder Advisory Council and annual ESSIM Forum workshops, should provide a valuable foundation for information exchange. The ESSIM Planning Office will also support ongoing communications with all interested and affected groups through the following tools:

- regular e-newsletters to the ESSIM Forum membership
- the ESSIM Initiative website, including the online discussion forum (*i.e.*, moderated discussions)
- planning reports and issue/topical papers
- face-to-face dialogue through meetings and workshops

A variety of options are being considered for improving communications, ocean awareness and information sharing beyond those discussed above. These include, for example:

- development of a web-based information portal for the ESSIM Initiative containing easy access to relevant information on ocean-related activities in the region
- development of a common source of geospatial, scientific and other types of information, using geographic information systems (GIS) and/or other tools.
- a review of issues related to information and data sharing and development of recommendations for improvement
- implementing programs to research and disseminate Traditional Ecological Knowledge related to marine ecosystems
- developing simple fact sheets, brochures, and other communications products about integrated management

In order to ensure the effectiveness of such communication tools, information needs of stakeholders and interested parties must be identified. One need that has already been identified is access to science and social science research. Often studies are not easily accessible to the public or are not presented in a manner that is commonly understood. In the future more communication products will be produced to facilitate information sharing.

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**Objective:** Monitoring and reporting are effective and timely

**Strategies:**

- Identify monitoring needs
- Evaluate usefulness of monitoring and reporting programs and review management as necessary

**Overview:**

Monitoring in this context refers both to the need to monitor progress on the implementation of the Plan, and the broader need for monitoring of socio-economic and environmental conditions in the planning area. While both are clearly inter-related, monitoring and evaluation of Plan implementation requires a specific approach that is discussed in detail in a separate section below.

In order to ensure that monitoring on the Scotian Shelf is effective, it is important to have a thorough understanding of monitoring requirements. Determining which attributes need to be monitored, and assessing the extent to which existing programs are meeting monitoring needs will be an important first step. It is also important to insure that the information being gathered through monitoring programs is being communicated to decision makers in a timely fashion, and that decision makers are adjusting their actions accordingly.

Numerous monitoring programs are already in place on the Scotian Shelf. Probably the most comprehensive of these is the Atlantic Zone Monitoring Program. This program collects environmental data related to hydrography, climate, plankton abundance, and sea level, amongst other variables. Three of the Program's seven monitoring transects are on the Scotian Shelf, and a fourth transect in the Cabot Strait is also relevant to the ESSIM planning area.



Various other environmental monitoring programs for specific ecosystem components are also ongoing, such as contaminant monitoring and monitoring of fish and marine animal populations.

Some effort has also been made to gather baseline economic data related to the marine environment. For example, a study was recently completed by the federal and provincial governments and private sector partners to quantify the economic value of the Nova Scotia ocean sector. Monitoring of sector-specific economic variables is also common place, but broader monitoring of overall socio-economic trends and conditions in the planning area may be necessary.

Tying the various monitoring programs that are in place together, establishing new programs where necessary to fill gaps, and communicating the results to the appropriate parties will help to ensure that all ocean users and regulators have access to the information they need to make effective decisions. Monitoring will also help to measure the success of integrated management and to adjust programs accordingly.

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## **SUSTAINABLE HUMAN USE**

The following strategies have been identified for the elements and objectives under the goal of *sustainable human use*.

### ***Element: Social and Cultural Well-Being***

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**Objective:** Communities are sustainable

**Strategies:**

- Identify and characterize communities
- Identify community assets related to the ESSIM Initiative
- Promote and maintain access to sustainable livelihoods from ocean-related activities
- Enhance ocean-related education, training and awareness
- Support ocean-related services and infrastructure
- Improve government capacity (including fiscal) to implement social programs
- Involve Aboriginal peoples in sustainable development

**Overview:**

A sustainable community is considered to be one that takes a long-term perspective to safeguard the interests of future generations so that social, cultural, economic and environmental assets create positive outcomes for its members. Communities are not limited to groups of people who live in the same geographic area, but may also include communities of interest (*e.g.*, the fishing community, the environmental community). Given this broad definition, many of the objectives and strategies outlined for other elements will contribute to community sustainability. The strategies outlined in this section therefore focus specifically on those aspects of sustainability that are not covered elsewhere. The implementation of these strategies will require input and action from a diverse array of groups and individuals. Governments,

Regional Development Authorities, community groups, industry, business associations and chambers of commerce, harbour authorities, universities and colleges, and many other organizations all have a role to play. The intention of the ESSIM Initiative is to bring together these organizations so that they can collectively work towards a common set of coordinated strategies and actions for the achievement of shared objectives related to community sustainability.

Better understanding and characterizing communities will assist the development of more detailed management actions to achieve community sustainability. In particular, identifying community assets will help to identify opportunities for sustainable development. Community assets go beyond physical assets, such as resources and infrastructure, and include social and cultural assets, such as knowledge, skills and networks.

Sustainable livelihoods are a cornerstone of sustainable communities. Livelihoods provide more than just economic benefits; they contribute to overall social, cultural and individual well being. One of the strategies proposed in the Plan is to promote access to sustainable livelihoods. It should be noted that this does not necessarily mean promoting increased access to natural resources, which may not always enhance sustainability.

Enhancing ocean-related training, education and awareness-raising will help communities to take advantage of the ocean-related assets and opportunities available to them, encourage stewardship of the ocean, and improve access to sustainable livelihoods. Actions for this strategy could include developing training programs related to ocean employment, encouraging schools to incorporate ocean issues into their curricula, or raising awareness about ocean opportunities through special events. Supporting ocean-related services and infrastructure will also help communities to take advantage of ocean assets and opportunities and maintain ocean-based livelihoods. For example, public wharves, boat launches, and marinas play a very important role in providing access to the ocean for commercial and recreational purposes.

Governments play an important role in providing much of the infrastructure and many of the services upon which coastal communities rely. Ensuring that government has the capacity to provide the programs that communities require is an important part of sustainable community development. This can be achieved through a variety of mechanisms, including by aligning government priorities and budgets with community needs, and by undertaking activities to generate public revenues. In some cases, this may include ocean-specific revenue generation activities, such as collecting royalties from industries or developing public-private partnerships to take advantage of ocean resources.

The successful achievement of sustainable community development is much more likely to occur when local people are engaged in the planning process. Promoting collaboration is fundamental to the Plan, and the Collaborative Planning Model is intended to be inclusive of all communities. In particular, however, the Plan notes the need to engage Aboriginal communities in planning and decision making. In the past, Aboriginal peoples have often been left out of key development decisions. It is therefore a priority to make decision-making processes more accessible to Aboriginal communities. Translating documents into Mi'kmaq, ensuring that public meetings and workshops are held in accessible locations, and ensuring the decision-making processes are open, transparent, and responsive to the concerns of Mi'kmaq peoples and all communities of interest will help to achieve this.

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**Objective:** Sustainable ocean/community relationships are promoted and facilitated

**Strategies:**

- Recognize and celebrate coastal communities and their connection to the ocean
- Recognize the social and cultural importance of traditional livelihoods
- Promote social impact assessment to inform decision-making
- Recognize and affirm intrinsic values that link people, communities, and the environment.
- Ensure community inclusion in ocean planning and decision-making

**Overview :**

Individuals who derive their living from the sea or who have grown up in a community along the coast often have a special cultural link to the ocean. The objective and associated strategies for sustainable ocean/ community relationships aim to recognize and honor such relationships. Although such relationships are often alluded to in oceans management, they are not often given formal consideration when making management decisions. As ocean management becomes more complex and more activities begin to occur on the water, it is essential that managers do not lose sight of the cultural importance of the ocean or the importance of traditional livelihoods. There is a need to promote and celebrate coastal communities and their connection to the ocean. In conjunction with the objective for sustainable communities, as communities are identified and characterized, the Planning Office will work to ensure that their interests are understood and represented during ocean planning and decision making. Managers will be encouraged to give consideration to the views and the knowledge held by community members.

The ESSIM Collaborative Planning Model can be used as a forum to recognize and promote ocean/community relationships. As the ESSIM Plan matures and the ESSIM community (members of the Forum and the Stakeholder Advisory Council in particular) becomes more familiar, individuals will gain a greater perspective on the importance of the ocean to others. As participants share their stories and cooperate, the intrinsic values that link people, communities and the environment will be affirmed.

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**Objective:** Ocean area is safe, healthy and secure

**Strategies:**

- Assess current status and risks and develop plans to address them
- Support ocean-related services, training and infrastructure for health, safety and security
- Monitor and manage chemical or biological contamination that could affect humans
- Maintain and enhance integrated surveillance, monitoring and response system

**Overview :**

In order to achieve the goal of sustainable human use, it is necessary to ensure that the ocean area is a safe, healthy, and secure environment for humans. The first task to ensuring a safe, healthy and secure ocean area is conducting an assessment of the current status of potential

risks. Risks to human safety, security and health could include contaminants in the ocean, munitions dump sites, accidents at sea, severe weather events, or illegal activities such as smuggling or terrorism. In order to respond to risks proper response systems need to be maintained or developed if necessary. This could include maintenance of appropriate infrastructure and support for search and rescue programs, ensuring adequate government surveillance and presence, developing health and safety education programs, developing monitoring programs, and/or managing specific threats, such as munitions dumps.

A variety of government departments and agencies can contribute to providing a safe, healthy and secure ocean area. As a result of this, it is essential that response programs are integrated and roles of each department clarified. Several integrated programs already exist, such as the Canadian Shellfish Sanitation Program. The shellfish sanitation program is an integrated monitoring program delivered by Environment Canada, Canadian Food Inspection Agency, and the DFO. Its primary objective is to protect the public from the consumption of contaminated shellfish by controlling the recreational and commercial harvesting of all shellfish within Canada.

Another important example of inter-agency coordination is found in the area of marine surveillance, enforcement and emergency response. The Eastern Canada Interdepartmental Marine Operations Committee (ECIMOC) includes representatives from all federal departments and agencies with mandates for marine operations, surveillance and enforcement. The primary focus of ECIMOC is on information sharing, coordinated planning of activities, cooperative training, and improvements to communications among agencies. In addition, the establishment of an inter-agency Marine Security Operations Centre (MSOC) and the maintenance of a common operating picture (known as the "Recognized Maritime Picture") using all available sources of marine surveillance and intelligence represent practical approaches to integration and coordination. This is further illustrated by the Joint Rescue Coordination Centre in Halifax which is staffed by the Canadian Coast Guard and National Defence for search and rescue operations in the region.

The Plan supports the continued development of programs and capabilities for marine security, safety and health promotion, involving both government and non-government stakeholders.

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***Element: Economic Well-Being***

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**Objectives:** Wealth is generated sustainably from:

- renewable ocean resources
- non-renewable ocean resources
- ocean infrastructure
- ocean-related activities

**Strategies:**

- Assess current and potential wealth generating activities and opportunities
- Identify, assess and link to existing policies, plans and initiatives for sustainable wealth generation/economic development
- Support existing activities and opportunities, and future economic diversification and employment

- Support positive investment environment for ocean-related activities
  - Assess constraints and enabling factors for investment (*e.g.*, regulatory environment) and identify changes required
- Identify and implement measures to improve retention of wealth and benefits within coastal and Aboriginal communities in Nova Scotia and Canada
- Support initiatives to maintain or improve economic competitiveness for Nova Scotia
- Balance industrial capacity with resource sustainability
- Support the conservation of natural capital by recognizing, linking to and working with related ecosystem objectives and strategies
- Recognize, link to and work with key related social and cultural well-being objectives and strategies (*e.g.*, traditional livelihoods)
- Support innovation and research that may contribute to economic well-being

**Overview :**

One of the overarching goals of the ESSIM Plan is to ensure the sustainable human use of the ocean. Sustainable development refers to meeting the needs of the current generation, without compromising the needs of future generations. Essentially the intention is to ensure that economic activities are carried out in a manner that does not degrade the resource base or environment, to allow for future generations to have similar opportunities. The objectives for wealth generation recognize that wealth and livelihoods are derived not only from the living resources in the ocean, but also from non-living resources, ocean activities (*e.g.*, shipping) and ocean infrastructure (*e.g.*, telecommunications cables).

To achieve the objective of generating wealth sustainably, activities and opportunities for generating wealth must be assessed, including existing activities (*e.g.*, fishing, shipping, oil and gas) and new opportunities (*e.g.*, new fisheries, renewable energy). Generating wealth from ocean resources, activities and infrastructure can be achieved by supporting existing activities or fostering new activities. When fostering new activities, it is important to ensure that existing activities are not compromised and that the new activity will be carried out in a sustainable manner. Balancing of new and existing opportunities can be achieved through integrated management planning. Ensuring that new opportunities are sustainable can be achieved through various mechanisms, such as environmental assessments (including project, regional, and/or strategic environmental assessments), policies for new activities (*e.g.*, the DFO Protocol for New Fisheries), implementation of best practices, and multiple use planning. Ensuring sustainable development also requires that industrial capacity is balanced with resource availability and the carrying capacity of the ecosystem, and supports the conservation of natural capital. This will create conditions to sustain wealth.

The Plan supports the development of a positive investment environment to improve economic competitiveness for Nova Scotia's ocean sector. Fostering effective linkages and complementarities among existing and future policies and initiatives aimed at sustainable wealth generation and economic development will provide mutual benefits. Investing in research and innovation is also key to success. It is also important to ensure that wealth attained from those resources and activities benefits the community, province and country from which they are derived.

## HEALTHY ECOSYSTEMS

The following strategies have been identified for the elements and objectives under the three themes of biodiversity, productivity and marine environmental quality for the goal of *healthy ecosystems*:

### **Biodiversity**

#### ***Element: Communities/ Assemblages***

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**Objective:** Diversity of benthic, demersal and pelagic community types is conserved

**Strategies:**

- Develop integrated, coordinated conservation framework
  - Identify representative, important and sensitive benthic, demersal and pelagic (including seabird) communities/assemblages
  - Identify threats and management options for conservation
- Implement management measures based on conservation framework

**Overview :**

In the past a variety of management measures have been implemented to conserve specific benthic, demersal and pelagic communities and assemblages or to address specific threats. These have included spatial measures, such as marine protected areas and fisheries closures, as well as non-spatial measures, such as codes of practice for specific ocean activities. With the implementation of the Plan, the intention is to achieve a comprehensive and coordinated approach to the conservation of benthic, demersal and pelagic communities that will ensure the diversity of community types is conserved. To this end, the Plan proposes the development of an integrated, coordinated conservation framework that would involve the identification of representative, important, and sensitive communities and assemblages; the identification of threats and management options; and the implementation of management measures.

A variety of activities have been initiated or envisioned to identify representative, sensitive and important communities and assemblages. In 2005, DFO Maritimes began a program to identify ecologically and biologically significant areas (EBSAs) of the Scotian Shelf. This program is working to identify areas that are significant in terms of species aggregation, life history functions (*e.g.*, spawning) and/or uniqueness. Naturalness and resilience of areas are also considered. Meanwhile, DFO Maritimes and Natural Resources Canada are working on a benthic classification framework that will help to categorize benthic habitats and communities across the Scotian Shelf. The framework will contribute to the identification of representative and sensitive habitats, communities and assemblages. Parks Canada Agency has also conducted research that will contribute to this objective. The Agency has assessed areas of the Scotian Shelf to identify potential candidates for its National Marine Conservation Areas Program, which endeavours to conserve representative and important marine ecosystems. Non-governmental organizations have also contributed. For example, the World Wildlife Fund has conducted its own research program to identify representative communities and highlight priority conservation areas.

In order to fully implement the strategy to identify important, representative and sensitive communities and assemblages, it will be necessary to continue the research programs that have been initiated, and to integrate the outcomes of the many programs into a comprehensive analysis. Identifying threats to important, representative and sensitive communities and assemblages is another key strategy for this objective. To this end, DFO is working with government and private sector partners to conduct further research and assessments on the impacts of ocean activities on communities and assemblages. Key examples include ongoing research on the interactions between fishing activity and marine ecosystems, and research on the impacts of ocean noise. Mapping the distribution and intensity of ocean activities is another ongoing activity that will help to determine where activities overlap with important, sensitive and representative areas.

### **The Coral Conservation Plan**

Tropical corals have long been a focus of marine biodiversity conservation efforts worldwide, but cold-water corals have gained increasing conservation attention in recent years. Their important role in the ecosystem and their sensitivity to human impacts has made them a focus of particular interest. Several fisheries closures have been established on the Scotian Shelf over the past five years to protect corals, including a closure to protect the reef-building coral *Lophelia pertusa* in the Laurentian Channel and a larger closure to protect a variety of corals in the Northeast Channel. While these closures are successful examples of efforts to protect specific coral aggregations on a case-by-case basis, a more comprehensive approach to coral conservation is being sought.

The ESSIM Planning Office recently released a Coral Conservation Plan for the Maritimes Region, based on consultation with ocean stakeholders, scientists, and government partners. The plan describes what is known about the 25-30 species of corals found off Nova Scotia, identifies the key issues related to corals and managing human activities, describes existing management measures, outlines research requirements, and suggests strategies and actions for conserving areas of known and potential importance. The Coral Conservation Plan represents a more coordinated and strategic approach to conservation that will contribute to the objectives of the ESSIM Plan.

The final step proposed to achieve this objective is to identify management options and implement management measures to conserve important, representative and sensitive communities and assemblages. For all communities and assemblages identified as important, sensitive, or representative, current threats will be considered, and existing management measures will be assessed to determine their adequacy in achieving conservation. Where existing management measures are inadequate, additional management options will be considered in collaboration with stakeholders. These could include a wide variety of management measures ranging from enhanced monitoring to the establishment of voluntary codes of practices to spatial or temporal closures.

The establishment of marine protected areas is a specific tool that may be used in some instances to protect important, sensitive or representative marine communities and assemblages. Marine protected areas are marine zones that are given enhanced protection under legislation or regulations. Generally, the legislation or regulations impose restrictions or special requirements on activities conducted in a specific area. In some cases, certain activities

may be prohibited in all or part of an area. Several federal departments have marine protected area programs and legislation. In 2005, the federal government released a Marine Protected Areas Strategy outlining its commitment to continue with the development of a network of marine protected areas. The strategy commits the three lead departments—DFO, Parks Canada and Environment Canada—to working together to coordinate their programs and develop a comprehensive network. The strategy states that integrated management programs, such as the ESSIM Initiative, will be used as a primary vehicle for planning MPA networks regionally.

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**Element: Species / Populations**

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**Objective:** Incidental mortality of all species is within acceptable levels

**Strategies:**

- Quantify the extent of incidental mortality and understand the impact on species/populations
- Identify acceptable levels of incidental mortality for species/populations
- Monitor the catch of non-commercial species in all fisheries
- Identify mechanisms for managing incidental mortality within acceptable levels
- Assess the risks (social and economic) of implementing management measures to address incidental mortality
- Manage human activities to address incidental mortality where practical

**Overview :**

A variety of human activities in many different ocean sectors can result in the unintentional mortality of marine species. One of the objectives of the Plan is to keep unintentional mortality within acceptable levels. The strategies for keeping incidental mortality within acceptable levels involve improving knowledge of incidental mortality in order to inform management and assessing the impacts on species/populations, and setting limits for mortality and implementing management measures based on a risk assessment analysis. Continuous monitoring and assessment will be necessary as acceptable levels will change over time (e.g., based on societal expectations).

Numerous programs are already underway to quantify and assess incidental mortality in the marine environment. For example, over the past few years, DFO has worked with private sector partners to conduct research on the impacts of ocean noise on marine fish and invertebrates. Much of this research is only preliminary and more research that is validated through appropriate mechanisms is needed. Specific research priorities related to this objective will be identified in a broader research strategy, as discussed under the objective “Natural and social science research is responsive to knowledge needs.”

There are a variety of management measures that can be used to keep incidental mortality within acceptable levels. Promoting technology improvements is often an excellent option to control mortality while allowing ocean activities to continue. For example, fishing gear



improvements can prevent non-target species from being captured, while innovations in hydrocarbon exploration and development can reduce the potential for impacts on marine life.

Spatial or temporal management measures can also play a role in controlling incidental mortality. Managing activities so that they occur at times or places when/where sensitive species are least likely to be present can reduce the risk that these species will be affected. For example, moving shipping lanes and creating voluntary avoidance/cautionary areas are options that have been used in the past for reducing ship-induced whale mortality. Best practices or required operating procedures can also be used to reduce incidental mortality. For example, a national statement of practice for seismic surveys that would require various mitigation procedures (*e.g.*, ramping up) is currently under development. Similar codes of practice for other activities involving sound, such as sonar, may also be warranted.

### **Ecosystem-based fisheries management**

The fishing industry in collaboration with DFO Science, Resource Management and Oceans and Habitat is currently developing a framework for implementing ecosystem-based fisheries management. This framework takes the IM level objectives and makes them operational for fisheries management. One of the largest priorities for fisheries management will be incidental mortality or by-catch.

In order to quantify the extent of mortality and understand the impacts on species/populations, more knowledge is needed regarding the amount and types of species that are being caught and discarded. Resource Management, Science and Oceans and Habitat are currently working together to analyze data that are available, identify data gaps and begin to determine priority areas where incidental mortality needs to be addressed. Collaboration will continue to occur within DFO and with the fishing industry to address this issue.

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**Objective:** At-risk species are protected and/or recovered

**Strategies:**

- Implement recovery strategies, action and management plans under the *Species at Risk Act*
- Ensure that sectoral management plans and ocean activities are consistent with SARA
- Coordinate multi-species recovery planning where appropriate

**Overview:**

A number of Canada's native wildlife species are considered to be at risk of extinction or extirpation. Ensuring the protection and, where applicable, promoting the recovery of these species is a national and international priority. To this end, Canada has developed the *Species at Risk Act* (SARA) and a number of complementary programs to promote the recovery and protection of at-risk species. Under SARA, species may be listed, on the advice of independent experts, as extirpated, endangered, threatened or of special concern. Several species native to

the Eastern Scotian Shelf planning area have been listed in one of these four categories. The Atlantic walrus and grey whale are considered extirpated; the northern bottlenose whale (Scotian Shelf population), blue whale, North Atlantic right whale and leatherback turtle are all listed as endangered; the northern and spotted wolffish are considered threatened; and the Atlantic wolffish is identified as a species of special concern.

SARA prohibits the harming, killing, harassing, taking, collecting, selling or trading of species listed as extirpated, endangered or threatened, although exceptions can be made under certain conditions. Damaging the residence or critical habitat of these species is also prohibited. Additionally, the Act requires that recovery plans and action plans be developed for threatened, endangered and extirpated species. The recovery plans identify population objectives, threats and critical habitat for one or more species and propose a course of activities for achieving recovery. Action plans provide more detail on management measures and timelines. In the case of species of special concern, a management plan to prevent the species from becoming threatened or endangered is required.

The Plan does not intend to replace or duplicate existing mechanisms for the protection, recovery and management of species at risk under SARA. The intention of the objective and strategies for at-risk species contained in the Plan is to ensure that the integrated management process supports and complements SARA programs. The Plan may provide a useful mechanism for contributing to the implementation of recovery plans, action plans and management plans. For example, the process to identify ecologically and biologically significant areas of the Scotian Shelf may contribute to the identification of critical habitat for species at risk. Spatial management tools developed through the integrated management process, such as marine protected areas, could be used to protect identified habitats. Use-analysis and decision-support tools being developed in conjunction with the Plan can contribute to ensuring the current and prospective activities are consistent with recovery plans and SARA requirements.

SARA requires consultation through the listing, planning and recovery phases. The ESSIM Collaborative Planning Model could provide a mechanism for informing communities of interest about ongoing SARA programs and gathering input. Because the ESSIM Initiative takes an ecosystem-based approach and involves a broad array of stakeholders and decision-making authorities, it may also be a useful venue for coordinating the development of multi-species recovery plans.

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**Objective:** Invasive species introductions are prevented and distribution is reduced

**Strategies:**

- Assess sources, vectors, extent and risks of invasive species
- Develop management plans and measures to prevent introductions and limit distribution of invasive species
- Establish a surveillance and monitoring system

**Overview:**

Invasive species (*i.e.*, exotic species that displace native species or disrupt ecosystems) are becoming an increasingly serious threat to the marine ecosystem and to ocean industries. A variety of invasive species are already present in the planning area, including green crab, which

out-competes local crab species and damages vegetation, and several species of tunicates, which cling to and cover hard surfaces, displacing or smothering other species. Invasive species are a major threat to native diversity, and can also affect fisheries and aquaculture operations. The risk of additional invasive species entering the waters of the planning area is ever present. An objective of the Plan is to prevent the introduction of invasive species and to limit their distribution within the planning area.

One of the primary vectors for the introduction of invasive species is ballast water aboard ships. Large ocean-going vessels take in water when they unload cargo in order to maintain stability. When these ships take on cargo in other ports, they release ballast water, along with any organisms that may be present. Although ballast water is the suspected source of many invasives, the transmittal mechanisms—or vectors—for invasive species are imperfectly understood. Similarly, only limited information about the extent and risks posed by existing invasives is available. Improving our understanding of the sources, vectors, extent and risks of invasive species is fundamental to the development of effective strategies for the prevention of introductions. Research in this field is already ongoing, such as research on the spread of tunicates and the factors that encourage or discourage their introduction, but this work is only preliminary. Specific research questions and priorities for invasive species will need to be developed as part of the strategic research program for the ESSIM Initiative.

Once invasive species have been introduced, it is extremely hard to limit their distribution. Management measures developed under the Plan will therefore give special attention to preventing introductions. Work in this area is already underway. Transport Canada has promulgated regulations for the management and control of ballast water. The intention is to ensure that incoming ships exchange their ballast in offshore waters where any invasive species will be flushed out to sea, rather than releasing ballast in coastal waters or sensitive areas on the Scotian Shelf where invasive species can more easily take hold. This is only a first step in addressing the invasive species issue, and other measures, such as promoting onboard treatment of ballast water, will also have to be considered. Although measures for limiting the distribution of introduced invasives is generally seen as a last resort, the Plan will support, where appropriate, the development of management measures to this end.

Finally, the Plan supports the establishment of a surveillance and monitoring system for invasive species. Such a program would serve a number of purposes. First, it would help to improve understanding of the extent and spread of invasive species. Second, it would contribute to the evaluation of management measures and provide a mechanism for measuring progress towards the objective. Third, it may serve as an early warning system that allows invasive species to be detected early when more management options for dealing with them exist.

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**Objective:** Genetic integrity (*i.e.*, genetic fitness and diversity) is conserved

**Strategies:**

- Improve knowledge of genetic integrity and identify priority species
- Develop and implement management measures to conserve genetic integrity where required

## **Overview :**

Genetic integrity refers to the genetic fitness and diversity of a species or population. In biological terms, fitness refers to the ability of a species, population, or individual to survive and reproduce. Genetic diversity, or the variation within the gene pool for a given species or population, is one of the factors that contributes to fitness. Greater genetic variation increases the ability of a species or population to respond to environmental change and competition and reduces the risk of inbreeding. Species or populations with low genetic diversity are less resilient and less likely to survive in a changing environment.

A variety of factors can contribute to the loss or retention of genetic diversity. Small populations are particularly susceptible to loss of genetic diversity, and therefore any activity or occurrence that severely reduces the abundance of a species or population may in turn reduce genetic integrity. Obstructions to the interbreeding of individuals within a species or population (e.g., the construction of a dam that prevents some individuals from mating with others) can also affect genetic diversity, either positively or negatively, as can artificial propagation (e.g., breeding programs).

A first step proposed to conserve genetic integrity is to improve knowledge and identify priority species. This will involve supporting and promoting research on the genetic condition of native species and the factors affecting genetic integrity. Priority species would include species or populations that are currently in a state of reduced genetic diversity that threatens their fitness, or species that are at risk of losing genetic diversity. Species listed under the *Species At Risk Act* are particularly likely to be high priority species in terms of genetic integrity.

Once priority species have been identified, management measures should be developed to promote the recovery and/or prevent the loss of genetic diversity within these species if possible. Managing species/populations and their habitats to ensure a viable population size is an important part of ensuring that genetic diversity is retained. Many strategies implemented in relation to other objectives will contribute to the conservation of populations and their habitats, but in some cases specific measures may be warranted in relation to this objective. Where genetic diversity has already been lost within a population or species, it may be appropriate to develop measures to enhance diversity, such as artificial propagation or removal of barriers to reproduction.

## **Productivity**

### ***Element: Primary and secondary productivity***

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**Objective:** Primary productivity and secondary productivity are healthy

#### **Strategies:**

- Assess and review factors that influence primary and secondary productivity
- Review, evaluate and upgrade monitoring programs
- Develop management measures to address negative factors

## **Overview :**

Primary and secondary productivity provide the foundation for the food web and are therefore essential to overall ecosystem function. A variety of human and natural factors can affect primary and secondary productivity, resulting in ecosystem impacts. In some cases, excessive productivity can be a threat to the ecosystem, as in the case of eutrophication. Eutrophication occurs when nutrient levels become too high, causing run-away productivity that ultimately results in oxygen depletion. This effect is more common in coastal and freshwater systems, but may occur locally in the offshore. On the other end of the spectrum, nutrient depletion can result in decreased primary productivity, leading to an overall reduction in ecosystem productivity. Healthy levels of primary and secondary productivity (ensuring that it is neither too high nor too low) is therefore the objective of the Plan.

Directly manipulating primary and secondary productivity in the offshore ecosystem is unlikely to be feasible in most cases. However, it is possible to manage human activities that affect productivity. The first strategy for this objective is therefore to assess and review the factors that affect primary and secondary productivity so that they can be better understood and more effectively managed. This will require the identification of research priorities and the implementation of research projects. Improving monitoring programs is one step that will contribute to a better understanding of the status of and changes in productivity in the offshore, and that will help to assess factors affecting productivity. A variety of programs that monitor productivity, such as the Atlantic Zone Monitoring Program, are ongoing on the Scotian Shelf, but additional or enhanced programs may be needed. For many factors affecting productivity, such as climate variability and upwelling patterns, monitoring may be the only realistic management action, since it is virtually impossible to manipulate these factors directly.

Once negative factors influencing productivity have been identified, it should be possible to develop management measures to address some factors, especially those that are human-induced. For example, preventing excessive nutrient inputs by reducing or treating effluents may be an appropriate strategy where eutrophication is an issue. In other cases, managing biomass removals to ensure that adequate nutrients are available may be necessary. If adequate monitoring programs are in place, it should be possible to assess the effectiveness of management actions as they are implemented and adapt accordingly.

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## ***Element: Trophic Structure***

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**Objective:** Trophic structure is healthy

### **Strategies:**

- Increase knowledge of trophic interactions and human influences and define trophic structure objectives
- Recognize the importance of a healthy trophic structure in sector management plans
- Develop management measures where needed for healthy trophic structure

**Overview :**

Trophic structure is a term used to describe the structure of the food web, or in other words the hierarchy through which organisms derive their nutrients. The functioning of food webs is complex, involving interactions between multiple trophic levels (e.g., primary producers, secondary producers, higher level predators, decomposers, etc.). Our understanding of these interactions is incomplete, but it has been recognized that activities that affect a species at one level can have impacts that reverberate through to other levels and throughout the food web. For example, top predator species often play an important role in controlling the population size of prey species, while primary producers and forage species provide the fuel supply for higher trophic level. Removing species from either group is likely to have impacts on the species above and/or below and perhaps beyond.

Given the complexity and uncertainty around trophic structure and human impacts on the food web, a first priority is to increase knowledge of trophic interactions and human influences. In particular, it is necessary to define what would constitute an optimal trophic structure and to set specific objectives, such as ensuring adequate forage species and top predators. It may be possible to manage human activities so as to control, prevent or reduce negative influences on trophic structure. It is therefore important that sector management plans incorporate trophic structure objectives and include appropriate measures to meet these objectives. Where management needs go beyond what can be achieved through existing sector plans, additional management measures may need to be developed. This could include, for example, management measures to conserve or restore species that play an important role in the trophic structure of an ecosystem.

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***Element: Population productivity***

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**Objective:** Biomass and productivity of harvested and other important species are healthy

**Strategies:**

- Define biomass and productivity objectives
- Support and enhance stock assessment practices and explore effort-based management approaches
- Ensure compliance with established measures and limits
- Identify other important species and develop management measures (e.g., keystone species)

**Overview :**

Biomass is a measure of the mass of all living things within a community, species population, or habitat. Productivity is a measure of the amount of biological material produced per unit area per unit time. In essence, these measures are the core biological indicators of the health of marine ecosystems. Population productivity deals with maintaining a population's generation time, that is, the mean time between birth and age at first reproduction or maturity. Human activities should not alter any population to the extent that it can no longer continue to grow

(increasing biomass) and reproduce (increasing productivity).

Population productivity objectives in the Plan are intended to ensure that human activities do not cause unacceptable impacts, recognizing that any human activity may have some effect on primary productivity, trophic structure and population productivity. These three ecosystem components collectively promote healthy ecosystem functioning.

In order to achieve the population productivity objective, specific biomass and productivity objectives should be defined for harvested and other important species and/or species groups. Stock assessment practices require continued support and enhancement through, for example, ongoing annual indicators of biomass and productivity. Continued promotion of effort-based management approaches and ensured compliance with established management measures and limits will contribute towards the desired goal. Management measures may be required to address other identified important (i.e., non-commercial) species and/or species groups. The implementation of ecosystem-based management approaches through the fisheries management process and related plans will be the mechanism through which this objective is achieved.

## **Marine Environmental Quality**

### ***Element: Physical***

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**Objective:** Physical characteristics of ocean bottom and water column support resident biota

**Strategies:**

- Identify and quantify the impacts of physical factors on biota
- Manage human influences to address negative impacts on physical properties

**Overview:**

Physical characteristics of the water column include temperature, salinity and turbidity (*i.e.*, the amount of suspended sediment), while characteristics of the ocean bottom include sediment size, type and depth and bottom topography. The characteristics of the water column and ocean bottom play an important role in determining the communities that are found in a given area. Both natural and human induced factors can change the physical characteristics of the water column and ocean bottom, causing either positive or negative impacts on biological communities.

Improving our understanding of the impacts of physical characteristics and physical changes on marine organisms will help to guide management. A number of research programs are already underway in this regard. For example, DFO is currently conducting a National Advisory Process to assess the effects of certain fishing gears on benthic habitats that will consider, amongst other factors, physical impacts on the ocean bottom. Additional research programs for other activities, and/or for specific physical characteristics, are needed.

Where human influences are causing negative impacts in the physical properties of the environment, management measures may be needed to address these impacts. These could

include, for example: promoting the adoption of lower-impact technologies; changing the spatial or temporal extent of activities; encouraging best-practices; and/or compliance promotion, education, and awareness raising.

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**Objective:** Harmful noise levels are reduced to protect resident and migratory species and populations

**Strategies:**

- Improve knowledge of sound and its impacts in the marine environment
- Identify mechanisms for reducing sound in the marine environment
- Identify and quantify acceptable noise levels for species / populations
- Develop management measures for ocean activities to meet acceptable levels

**Overview:**

Human activities, including shipping, seismic exploration, and sonar, are increasing the amount of noise in the ocean. Many marine species rely on sound—which travels four to five times faster in water than in air—to communicate and navigate. Although the exact effects of increased noise on marine organisms remain uncertain, it is believed that excessive sound causes behavioural changes and in some cases physical damage. Marine mammals are particularly sensitive to noise, which, in extreme cases, has been implicated in mass strandings and deaths of whales.

Given the uncertainty surrounding sound in the marine environment, improving knowledge is essential to effective management. Research that helps to determine the impacts of sound, define acceptable levels for species on the Scotian Shelf, and identify methods for reducing noise is a particular priority. Some research has been conducted over the past few years on the impacts of seismic surveys on snow crab and cod, but much of this research needs to be replicated and validated, and additional research is needed. Developing partnerships, acquiring resources, and defining priority research questions will be necessary to achieve this objective.

Management of noise will primarily be achieved by setting acceptable sound levels and developing measures to meet those levels. Management measures may include promoting the adoption of best-available technologies, establishing codes of practice, setting regulated noise levels, and using spatial and temporal management techniques to ensure that loud activities occur away from sensitive populations. Work is already underway in several of these areas. For example, work is well under way on a national statement of practice that will outline guidelines and mitigation procedures for seismic operations. In addition, DFO is working with the US government to identify biologically important areas from which low frequency active sonar should be excluded.

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**Objective:** Wastes and debris are reduced

**Strategies:**

- Assess sources and impacts of wastes and debris
- Assess current measures, capabilities and infrastructure



- Develop and implement measures to limit inputs (e.g., awareness program and compliance promotion)
- Eliminate the intentional discarding of garbage at-sea

**Overview :**

Discarded wastes and debris in the ocean can pose a significant threat to marine wildlife and the environment. For example, abandoned ropes and cables can entangle marine mammals and amphibians, plastic beer/pop can rings can strangle seabirds, plastics and styrofoam can resemble food, causing them to be ingested by marine animals, and other dumped items can leach toxic substances into ocean waters and sediments. Wastes and debris in the ocean may originate from either sea- or shore-based sources. Determining with greater accuracy the origin of wastes and debris found in the planning area will assist the development of appropriate management measures.

Canada currently has regulations in place restricting the discarding of garbage at sea by ships to some degree. These regulations prohibit the dumping of garbage in all of Canada's fishing zones and in all waters north of 60 degrees latitude. Transport Canada is currently in the process of reviewing these regulations to ensure that they are compliant with Annex V of the International Convention for the Prevention of Pollution from Ships. Although not currently a signatory to Annex V, Canada is working towards compliance with its provisions. Annex V requires that various measures be implemented to prevent the dumping of garbage at sea. These include a total ban on the dumping of plastics, prohibitions on dumping in coastal areas, provision of adequate port infrastructure for handling wastes, and the posting of notices to passengers and crew regarding requirements for proper management of garbage. Implementing measures in relation to Annex V will help to achieve the objective of reducing wastes and debris and will represent a significant step towards eliminating the intentional discarding of garbage at sea.

Under the 1996 Protocol to the International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Canada is also taking steps to prevent ocean dumping. The 1996 Protocol, which comes into force in 2006, prohibits any dumping at sea, except for a short list of excepted items. Environment Canada is the lead department for the domestic implementation of the Protocol.

The efforts of Environment Canada and Transport Canada described above relate primarily to garbage from large vessels or large-scale dumping. Addressing wastes and debris from land-based sources and recreational boaters will require additional effort from governments and stakeholders. Education programs, infrastructure development, enhanced monitoring and enforcement, and the promotion of non-toxic biodegradable materials can all contribute to reducing wastes and debris from these sources.

**Element: Chemical**

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**Objective:** Chemical characteristics of ocean bottom and water column support resident biota

**Strategies:**

- Identify and quantify the impacts of chemical factors on biota
- Manage human influences to address negative impacts on chemical properties (e.g. toxic chemicals)

**Overview:**

Chemical contaminants in sediments and the water column are a concern for several reasons. Contaminants can directly affect the health of marine organisms, especially higher level predators including many marine mammals, causing reduced reproductive success, diminished immune response, and delayed development. When contaminants appear in marine organisms that are harvested for food by humans, potential impacts on human health must also be considered. In 2001, Stewart and White conducted a review of contaminants on the Scotian Shelf for Fisheries and Oceans Canada. They found that a number of common environmental contaminants, such as polychlorinated hydrocarbons (PCBs), heavy metals, and polycyclic aromatic hydrocarbons (PAHs), were present on the Scotian Shelf in varying concentrations. Major ports and adjacent coastal waters tended to be the most heavily contaminated areas, while much of the offshore was relatively pristine (*i.e.*, concentrations of contaminants were at or near background levels). They noted, however, that scientific data on contaminant levels was limited, and that some of the available data was suspect. Additional research on the level of contamination on the Scotian Shelf, sources of contaminants, impacts on biota, and threshold effects levels would help to inform management.

Most contaminants found in the offshore are transported there from other areas, rather than released locally (Stewart and White, 2001). Much of the contamination on the Scotian Shelf originates from the land base of northeastern North America, most notably via the outflow of the St. Lawrence River. Although relatively less significant, there are numerous local sources of contaminants in the offshore, including accidental and routine discharges from tankers, shipping accidents, passage of ships and fishing vessels, and incidental wastes from hydrocarbon drilling and production activities. Given that most contaminants found in the offshore originate outside the planning area, any approach to managing these contaminants will have to involve cooperation with other jurisdictions. Local sources of contaminants can be managed through various means, including compliance promotion, improved monitoring and surveillance, technology development, spatial and non-spatial regulatory tools, and the development of voluntary standards and guidelines.

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**Objective:** Overall atmospheric pollution from ocean activities is reduced

**Strategies:**

- Identify sources and extent of atmospheric pollution from ocean activities
- Develop management measures to meet acceptable levels

**Overview:**

The marine ecosystem includes not only the waters of the ocean, but also the seabed below and the air above. A variety of activities carried out on the ocean can result in air pollution. Notably, any activity involving the use of motorized vessels is likely to result in some degree of air pollution, although the amount is likely to vary from ship to ship, and some modern vessels may have very low emissions. Flaring from oil and gas production installations can also result in the release of air pollutants, including sulphur dioxide, nitrous oxide, and small amounts of PAHs. Greenhouse gas emissions are an additional concern related to both flaring and operating motorized vessels.

It is envisioned that the management of air pollution will be achieved largely by defining acceptable levels and developing management measures to meet these levels. Various standards are already in place for emissions from ships and recreational vessels. Transport Canada regulates emissions from large ships under the Air Pollution Regulations. These regulations were established in 1978 and focus only on smoke density, rather than specifying maximum concentrations or absolute volumes of pollutants in emissions. Canada is currently working to develop new regulations that would be consistent with Annex VI of the International Maritime Organization (IMO)'s International Convention for the Prevention of Pollution from Ships. Annex VI sets limits on sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibits deliberate emissions of ozone depleting substances. Although Canada has not yet acceded to this Annex, it intends to do so in the near future. IMO members are also considering options for setting standards for greenhouse gas emissions. Meanwhile, the shipping industry is developing its own approaches to reducing emissions. For example, new technologies that reduce idling in port by allowing ships to access shore power are currently under development.

For small, spark-ignition marine engines (e.g., outboard motors), emissions are currently controlled through a voluntary agreement with industry that requires engines sold in Canada to meet US Environmental Protection Agency emissions standards. Regulations are currently being developed under the *Canadian Environmental Protection Act* to codify emissions standards for spark-ignition marine engines sold in Canada. Regardless, many manufacturers design and build their engines to meet California Air Resources Board emissions standards, which are more stringent than federal mandatory limits. The proliferation of four-stroke and direct-injection two stroke engines has allowed emissions from outboard motors to be reduced significantly in recent years. Continuing to promote the use and development of clean technologies such as these will help to ensure an ongoing reduction in emissions.

Currently there are no specific emissions standards for offshore oil and gas activity on the Scotian Shelf. Emissions are evaluated through the environmental assessment process and through monitoring programs. The Canada-Nova Scotia Offshore Petroleum Board is in the process of developing emissions standards for oil and gas operations to be incorporated into its Offshore Waste Treatment Guidelines.

**Element: Habitat**

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**Objective:** Habitat integrity is conserved

**Strategies:**

- Incorporate habitat considerations in the integrated conservation framework (see communities/assemblages)
- Identify and conserve rare, important and representative habitats
- Manage human influences to address negative impacts on habitat

**Overview :**

The Plan identifies several strategies for conserving benthic, demersal and pelagic communities and assemblages. One of the strategies is to develop a coordinated and integrated conservation framework that would involve identifying representative, important communities/assemblages, identifying threats and management options, and implementing management measures. Since communities are intrinsically linked to the habitat that they occupy, it is logical that marine habitat conservation should be incorporated into the conservation framework for communities, rather than addressed in isolation.

Through the ecologically and biologically significant areas (EBSA) program, described above, efforts are already underway to identify rare and important habitats and communities. This program is using empirical data, expert opinion and traditional knowledge to identify areas of aggregation, functional importance, uniqueness, sensitivity, and naturalness on the Scotian Shelf. It is anticipated that an initial map of offshore EBSAs will be developed by March 2007. Other programs are also underway that will contribute to this objective, such as the development of a benthic habitat classification and efforts to identify priority conservation areas.

Once rare, important, and representative habitats have been identified, it will be necessary to assess threats to those habitats and develop management measures to address those threats. Known threats to habitat include physical disturbance, pollution and climate change. Examples of management measures that could be used to address these threats include adopting technologies that cause less disturbance, promoting best-practices, reducing inputs of pollutants through compliance promotion and installation of waste treatment facilities, and establishing spatial or temporal closures or restrictions. Many of the strategies defined for marine environmental quality will involve developing complementary management measures that will contribute to habitat conservation.

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### **Changes to the Management Strategies**

In the initial draft of the Plan, management strategies and actions were presented in a table and outlined in bullet form. A number of participants in the review of the draft Plan commented that the strategies did not flow directly from the objectives, as had been intended in the objectives-based management framework. Consequently, the strategies were reviewed and revised to reflect more directly the objectives of the Plan. The strategies are now presented in relation to the objective or objectives that they are intended to achieve. For each objective, a detailed description of the strategies has been provided, including a summary of ongoing and envisioned activities that will be implemented under each strategy. Specific actions, priorities, timelines, and lead organizations for the strategies will be defined through the action planning process (see discussion on Action Plans below).

FINAL DRAFT

## **IMPLEMENTATION AND EVALUATION**

The Plan provides a common basis for long-term commitment and action toward integrated, ecosystem-based and adaptive management of all marine activities in or affecting the planning area. The Plan is being developed through a collaborative and inclusive planning process. The intent of this process is to develop a Plan that is accepted by stakeholders, endorsed by legislative and regulatory authorities, and recognized under the *Oceans Act* by the Minister of Fisheries and Oceans.

The Collaborative Planning Model is designed to provide the necessary dialogue, reviews and approvals at all levels of government prior to the signature of the Minister for recognition of the Plan under the *Oceans Act*. Similarly, the mechanisms contained in the Collaborative Planning Model for stakeholder input and review have been designed to ensure broad support for the Plan prior to its completion and implementation.

The process being used to develop, review and endorse this Plan involves the following mechanisms:

- broad-based public review, discussion and comment period on initial draft Plan (February 2005 – January 2006)
- directed community workshops (Fall 2005)
- review by Stakeholder Advisory Council (September 2005 – July 2006)
- review by Government Sector Structure, specifically the Federal-Provincial ESSIM Working Group and the Regional Committee on Ocean Management (September 2005 – July 2006)
- broad-based public review of final draft (July – September 2006)

Upon completion of the review and endorsement process within each participating department and sector, the co-chairs for the Stakeholder Advisory Council and the Regional Committee on Ocean Management will recommend the final Plan to the Minister of Fisheries and Oceans for recognition under the *Oceans Act*.

### **Recognition under the *Oceans Act***

Sections 31 and 32 of the *Oceans Act* provide the legislative basis for formal recognition of the Plan by the Minister of Fisheries and Oceans as Canada's first integrated management plan under this legislation. The intent of this formal recognition is to provide national level commitment to the Plan under the ocean policy framework defined by *Canada's Oceans Strategy*, the national *Policy and Operational Framework for Integrated Management*, and the *Oceans Action Plan*. In this capacity, the final signature of the Minister of Fisheries and Oceans is on the behalf of all government authorities and stakeholders at the Governor-in-Council level of the Government of Canada.

## GOVERNMENT-LEVEL IMPLEMENTATION

At the governmental level, the Plan provides an intergovernmental mechanism to promote, support and implement policy, planning and management coordination. It is based on and supported by existing mandates, jurisdictions and responsibilities, and is consistent with federal and provincial policies and regulatory frameworks. Endorsement and approval of the Plan by a government decision-making authority is equivalent to a departmental policy commitment. Ongoing participation by government authorities in the integrated management process is provided through the Government Sector Structure (*i.e.*, RCOM and the Federal-Provincial ESSIM Working Group).

### **What happens if a government department cannot commit to something in the Plan?**

In cases where a regulatory authority cannot commit to a specific part of the Plan (*e.g.*, management strategies or actions), further dialogue with affected parties will occur through appropriate mechanisms, such as those provided by the Collaborative Planning Model. Aspects of the Plan requiring significant policy or regulatory changes may be identified for further consideration and future action. In such cases, endorsement of the Plan by the affected authority will indicate a commitment to further consideration of the matter through appropriate processes. This approach allows the Plan to move forward in the absence of full agreement on all aspects, while ensuring that all concerns and limitations are identified for future deliberation and action.

Federal and provincial government departments may use both internal and external mechanisms to formalize, reflect and carry out their commitment to the Plan. Participating departments will incorporate the Plan and its relevant provisions in their departmental policy, program and planning documents, including:

- strategic and/or business plans
- sustainable development strategies
- strategic environmental assessments
- annual reports on plans and priorities
- annual financial planning documents and budgets, including commitments of staff and associated resources to the planning process and relevant management strategies and actions

Departments may also choose to formalize their commitment to the Plan through external mechanisms, including:

- letters of support or intent
- existing or new memoranda of understanding or agreement

Federal departments will use regional or national-level mechanisms in accordance with their organizational and line reporting structures.

## **STAKEHOLDER-LEVEL IMPLEMENTATION**

Acceptance of the Plan by affected ocean sectors, groups and individuals may occur through a variety of ways. The Collaborative Planning Model is designed to provide several mechanisms for stakeholder participation in the planning process. The core Stakeholder Advisory Council is essentially a standing working group comprised of identified and accepted ocean sector representatives to provide regular input on plan development and related planning activities. The functions and responsibilities of the Stakeholder Advisory Council also require regular communications and two-way information sharing between its members and the broader communities of interest that they represent at the table.

In addition to the Stakeholder Advisory Council, the ESSIM Planning Office is committed to regular dialogue, information sharing and meetings with all interested and affected communities of interest, either through the ESSIM Forum (a collective of interests) or through directed discussions and meetings with specific groups.

Endorsement and implementation of the Plan will occur through reference in appropriate organizational documents, including:

- activity, strategic or business plans
- performance reports
- activity applications, proposals and environmental assessments
- industry standards, guidelines or codes of conduct/best practice
- letters of support or intent
- terms of reference, mission or mandate documents

Sectors will also have opportunities to incorporate, reflect and implement the Plan through discussions and consultations with government departments on policy, regulatory and management matters affecting their activities.

## **ACTION PLANS**

Implementation of the management objectives, strategies and actions contained in the Plan will be undertaken through the regular development and implementation of shorter term action plans (*i.e.*, two-year cycles). The action planning process enables the identification and selection of actions that are deemed to be of a priority or short-term nature. Medium and longer term actions may also be included in action plans, particularly in cases where sequential activities or steps are required to achieve completion and/or implementation. This may include short-term steps and activities for long-term actions.

Action plans are designed to provide a high level of detail on the specific management actions selected for them, including various roles and responsibilities, timelines, milestones and targets, and specific activities required for successful completion.

The ESSIM Planning Office will provide a lead role in the development of the action plans, with direct input from government and sectors through the mechanisms contained in the Collaborative Planning Model. In particular, the Stakeholder Advisory Council will play a key



role in preparing and reviewing action plans and identifying priority activities. Biennial meetings of the full ESSIM Forum will be used to help develop action plans and report on their progress (see Performance Evaluation and Reporting below).

## **PERFORMANCE EVALUATION AND REPORTING**

Successful implementation of the Plan requires an effective and comprehensive program for performance evaluation and reporting. This is an integral component of the objectives-based approach, and key to the practice of adaptive management. There are two main, inter-related components of an effective performance evaluation and reporting program:

- **Plan outcomes:** A key aspect of the performance evaluation and reporting program is the assessment of outcomes resulting from the management objectives, strategies and actions contained in the Plan. This will be determined through the use of outcome indicators for the various objectives, as well as through the evaluation of results from the completion and implementation of the various strategies and actions. Regular status reports will be combined with related assessments of management actions to demonstrate performance and progress against objectives and desired outcomes.
- **Plan performance:** The second main component of the performance evaluation and reporting program is focused on the Plan itself, particularly in terms of the progress made in undertaking the various strategies, actions and commitments. This will include assessments of adherence to principles and objectives, as well as the effectiveness of the Collaborative Planning Model.

In tandem with performance evaluation, the Plan requires a practical and transparent reporting system to enable all participating departments and sector groups to demonstrate adherence to and implementation of the Plan. The various mechanisms identified for approving and adopting the Plan will also fulfill many of the reporting requirements for the Plan. The ESSIM Planning Office will draw information from these sources as it prepares regular status reports for the Plan and its supporting action plans. Other means to assess performance and accountability may include interviews, audits or questionnaires.<sup>9</sup>

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<sup>9</sup> For a more detailed description of options and methods for performance evaluation, see Oceans and Coastal Management Report 2006-03, *Approaches to the Evaluation and Assessment of Progress and Performance of the Eastern Scotian Shelf Integrated Management (ESSIM) Initiative*.

### **A practical framework for evaluation**

One of the key requirements for successful implementation of the Plan is a practical framework for evaluating performance. Within the overall focus on plan *outcomes* and *performance*, this framework will need to facilitate more specific evaluations related to context (e.g., issue identification), inputs, process, products and outcomes. All components of the Collaborative Planning Model will have important functions and responsibilities for evaluation.

Key evaluation mechanisms for the Plan will include:

- a biennial progress report describing progress and achievements (in tandem with action plans)
- a practical set of indicators for measuring and describing progress against objectives and strategies
- direct stakeholder participation in evaluation and reporting through the Stakeholder Advisory Council, RCOM, and biennial Forum Workshops
- use of external specialists or reviewers as required

The development of this evaluation framework is a priority activity for the ESSIM Planning Office and its partners.

### **PLAN REVISION**

The Plan will undergo a full review every five years. This time period will facilitate the completion of two action planning cycles. It also corresponds to the short-to-medium-term timelines for the majority of management actions contained in the Plan. The five-year review will cover all aspects of the Plan and will draw on information and findings obtained through the performance evaluation and reporting process, as well as emerging management needs and priorities. The ESSIM Planning Office will provide a lead role in the plan review and revision process, with the support of all components of the Collaborative Planning Model.

*...a shared commitment to work together for our ocean and our future...*

FINAL DRAFT

## **APPENDIX A: BACKGROUND INFORMATION AND KEY REFERENCES FOR THE ESSIM INITIATIVE**

This appendix contains a list of key references and documents for the ESSIM Initiative. The documents listed below and additional background information can be obtained from the ESSIM Initiative website (<http://www.mar.dfo-mpo.gc.ca/oceans/e/essim/essim-intro-e.html>) or by contacting the ESSIM Planning Office.

### **ESSIM Planning Office Documents**

*The Development of a Collaborative Management and Planning Process: A Discussion Paper prepared for the Federal-Provincial ESSIM Working Group (2001).*

*Issues, Challenges and Opportunities: A Discussion Paper prepared for the Federal-Provincial ESSIM Working Group (2001).*

*An International Survey of Integrated Ocean and Coastal Planning Initiatives (2001).*

*A Strategic Planning Framework for the Eastern Scotian Shelf Ocean Management Plan: A Discussion Paper prepared for the ESSIM Forum (2003).*

Oceans and Coastal Management Report 2004-01. *Developing Objectives and Indicators for Marine Ecosystem-Based Management: International Review of Marine Ecosystem-Based Management Initiatives throughout the World* (prepared by Jay Walmsley, Jacques Whitford Environment Ltd.).

Oceans and Coastal Management Report 2004-02. *Developing Objectives and Indicators for Marine Ecosystem-Based Management: Definition of Commonly Used Terms* (prepared by Jay Walmsley, Jacques Whitford Environment Ltd.).

Oceans and Coastal Management Report 2004-03. *International Review of Areas where Activities are Restricted to Protect Deep Sea Corals* (prepared by D'Entremont Environmental Ltd.).

Oceans and Coastal Management Report 2004-04. *Review of Criteria for Selecting Ecologically Significant Areas of the Scotian Shelf and Slope: A Discussion Paper* (prepared by Heather Breeze, Maris Consulting).

Oceans and Coastal Management Report 2004-05. *Eastern Scotian Shelf Integrated Management (ESSIM) Initiative: Proposed Collaborative Planning Model – A Discussion Paper* (prepared by Bruce Smith, BLSmith Groupwork Inc.).

Oceans and Coastal Management Report 2005-01. *Report of the Eastern Scotian Shelf Integrated Management Community Workshops.*

Oceans and Coastal Management Report 2005-03. *Human Use Objectives and Indicators Framework for Integrated Management on the Scotian Shelf* (prepared by Jay Walmsley, Jacques Whitford Environment Ltd.).

Oceans and Coastal Management Report 2005-05. *Conflict, Collaboration and Consensus in the Eastern Scotian Shelf Integrated Management (ESSIM) Initiative* (prepared by BLSmith Groupwork Inc.).

Oceans and Coastal Management Report 2006-03. *Approaches to the Evaluation and Assessment of Progress and Performance of the Eastern Scotian Shelf Integrated Management (ESSIM) Initiative* (prepared by R.D. Walmsley).

### **ESSIM-Related DFO Documents**

Below is a selection of ESSIM-related documents available through DFO's Canadian Science Advisory Secretariat (CSAS) and the Canadian Fisheries and Aquatic Sciences report series.

#### **Proceedings Series**

R. O'Boyle (ed.). 2000. *Proceedings of a Workshop on the Ecosystem Considerations for the Eastern Scotian Shelf Integrated Management (ESSIM) Area*. CSAS Proceedings Series 2000/014.

G. Jamieson and R. O'Boyle (eds.). 2001. *Proceedings of the National Workshop on Objectives and Indicators for Ecosystem-based Management*. CSAS Proceedings Series 2001/009.

J. Arbour (chair) and V. Kostylev (ed.). 2002. *Proceedings of a Benthic Habitat Classification Workshop Meeting of the Maritimes Regional Advisory Process. A Framework for the Conservation of Benthic Communities of the Scotia-Fundy Area of the Maritimes Region*. CSAS Proceedings Series 2002/023.

R. O'Boyle and P. Keizer. 2003. *Proceedings of three workshops to investigate the unpacking process in support of ecosystem-based management; February – July, 2002*. CSAS Proceedings Series 2003/004.

J. Arbour (chair) and R. St-Laurent (compiler). 2004. *Proceedings of a Benthic Habitat Classification Workshop Meeting of the Maritimes Regional Advisory Process. Benthic Classification and Usage Guidelines of the Scotia-Fundy Area of the Maritimes Region*. CSAS Proceedings Series 2004/004.

H. Powles, V. Vendette, R. Siron and R. O'Boyle. 2004. *Proceedings of the Canadian Marine Ecoregions Workshop*. CSAS Proceedings Series 2004/016.

#### **Habitat and Ecosystem Status Reports**

DFO Maritimes Region. 2003. *State of the Eastern Scotian Shelf Ecosystem*. CSAS Ecosystem Status Report 2003/04.

DFO National Capital Region. 2004. *Habitat Status Report on Ecosystem Objectives*. CSAS Habitat Status Report 2004/01.

## **Research Documents**

S. Coffen-Smout, R.G. Halliday, G. Herbert, T. Potter, and N. Witherspoon. 2001. *Ocean Activities and Ecosystem Issues on the Eastern Scotian Shelf: An Assessment of Current Capabilities to Address Ecosystem Objectives*. CSAS Research Document 2001/095.

R. O'Boyle, M. Sinclair, P. Keizer, K. Lee, D. Ricard and P. Yeats. 2004. *Indicators for Ecosystem-Based Management on the Scotian Shelf: Bridging the gap between Theory and Practice*. CSAS Research Document (in press).

## **Technical and Manuscript Reports**

P.L. Stewart and L. White. 2001. *A Review of Contaminants on the Scotian Shelf and in Adjacent Coastal Waters: 1970 to 1995*. Can. Tech. Rep. Fish. Aquat. Sci. 2351: xviii + 158 pp.

S. Coffen-Smout, G. Herbert, R.J. Rutherford and B.L. Smith (eds.). 2002. *Proceedings of the 1st Eastern Scotian Shelf Integrated Management (ESSIM) Forum Workshop, Halifax, Nova Scotia, 20-21 February 2002*. Can. Manuscr. Rep. Fish. Aquat. Sci. 2604: xiii + 63 pp.

H. Breeze, D.G. Fenton, R.J. Rutherford, and M.A. Silva. 2002. *The Scotian Shelf: An ecological overview for ocean planning*. Can. Tech. Rep. Fish. Aquat. Sci. 2393: x + 259 pp.

R.J. Rutherford, S. Coffen-Smout, G. Herbert and B.L. Smith (eds.). 2003. *Proceedings of the 2nd Eastern Scotian Shelf Integrated Management (ESSIM) Forum Workshop, Halifax, Nova Scotia, 18-19 February 2003*. Can. Manuscr. Rep. Fish. Aquat. Sci. 2637: x + 63 pp.

G. Chao, G. Herbert, S. Coffen-Smout, and H. Breeze. 2004. *Overview of Federal, Provincial, and International Ocean Regulatory and Policy Frameworks on the Scotian Shelf*. Can. Tech. Rep. Fish. Aquat. Sci. 2513: xii + 231 pp.

S. Coffen-Smout, D. Millar, G. Herbert, and T. Hall (eds.). 2005. *Proceedings of the 2nd Eastern Scotian Shelf Integrated Management (ESSIM) Forum Workshop, Halifax, Nova Scotia, 22-23 February 2005*. Can. Manuscr. Rep. Fish. Aquat. Sci. 2719: viii + 63 pp.

## **Canadian Integrated Ocean Management Policy and Legislation**

Government of Canada. *Oceans Act* 1996, c. 31.

Fisheries and Oceans Canada. *Canada's Oceans Strategy*. (2002).

Fisheries and Oceans Canada. *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada*. (2002).

**APPENDIX B: MEMBERSHIP OF REGIONAL COMMITTEE ON OCEAN MANAGEMENT (RCOM)**

<b>Jim Abraham</b> Environment Canada (Atlantic)	<b>Ian Atkins</b> RCMP
<b>Capt. (N) Bruce Belliveau</b> National Defence	<b>Gerry Berigan</b> Transport Canada (Atlantic)
<b>John Brown</b> Indian and Northern Affairs Canada	<b>Bill Coulter</b> Canadian Environmental Assessment Agency
<b>Diana Lee Dalton</b> Canadian Nova Scotia Offshore Petroleum Board	<b>Simon d'Entremont</b> Health Canada
<b>Robert Fowler</b> Nova Scotia Department of Intergovernmental Affairs	<b>John Knubley</b> Atlantic Canada Opportunities Agency
<b>William Lahey</b> Nova Scotia Department of Environment and Labour	<b>Claire LePage</b> Industry Canada
<b>Freeman Libby</b> Canadian Food Inspection Agency	<b>John McBain</b> Public Works and Government Services Canada
<b>Rosalind Penfound (co-chair)</b> Nova Scotia Agriculture and Fisheries	<b>Faith Scattolon (co-chair)</b> Fisheries and Oceans Canada (Maritimes Region)
<b>Alison Scott</b> Nova Scotia Department of Energy	<b>Judith Sullivan-Corney</b> Nova Scotia Office of Aboriginal Affairs
<b>Paul Taylor</b> Nova Scotia Office of Economic Development	<b>Ted Tax</b> Justice Canada
<b>Rob Thompson</b> Parks Canada	<b>Peter Underwood</b> Nova Scotia Department of Natural Resources
<b>Jacob Verhoef</b> Natural Resources Canada	

**APPENDIX C: MEMBERSHIP OF STAKEHOLDER ADVISORY COUNCIL (SAC)**

<p><b>Chris Annand</b> Fisheries and Oceans Canada, Fisheries and Aquaculture Management (Maritimes Region)</p>	<p><b>Tom Burfitt</b> Hibernia Atlantic/North American Submarine Cable Association (NASCA)</p> <p>Alternate: <b>Rick Lowe</b> North American Submarine Cable Association (NASCA)</p>
<p><b>Mark Butler</b> Ecology Action Centre</p> <p>Alternate: <b>Bruno Marcocchio</b> Sierra Club Atlantic</p>	<p><b>John Charles</b> Halifax Regional Municipality</p> <p>Alternate: <b>Donnie Burke</b> Cape Breton Regional Municipality</p>
<p><b>Ratana Chuenpagdee</b> International Ocean Institute (IOI-Canada)</p>	<p><b>Kim Coady</b> Canada-Newfoundland and Labrador Offshore Petroleum Board</p>
<p><b>Douglas Duggan</b> Natural Resources Canada (NRCan)</p> <p>Alternate: <b>Jim Delaney</b> Natural Resources Canada (NRCan)</p>	<p><b>George Foote</b> Nova Scotia Department of Energy</p> <p>Alternate: <b>Sandra Farwell</b> Nova Scotia Department of Energy</p>
<p><b>Darren Hicks</b> Newfoundland and Labrador Department of Natural Resources</p>	<p><b>Roger Hunka</b> Maritime Aboriginal Peoples Council</p> <p>Alternate: <b>Franz Kesick</b> Maritime Aboriginal Aquatic Resources Secretariat</p>
<p><b>Ivan Lantz</b> Shipping Federation of Canada</p> <p>Alternate: <b>Caroline Gravel</b> Shipping Federation of Canada</p>	<p><b>Gordon MacDonald</b> Area 23 Snow Crab Fishermen's Association</p>



<p><b>Jennifer Weseloh McKeane</b> Tourism Industry Association of Nova Scotia</p>	<p><b>Karen McNulty</b> Guysborough County Regional Development Authority</p> <p>Alternate: <b>Ross MacDonald</b> Victoria County Regional Development Authority</p>
<p><b>Eugene O'Leary</b> Guysborough County Inshore Fishermen's Association</p> <p>Alternate: <b>Ginny Boudreau</b> Guysborough County Inshore Fishermen's Association</p>	<p><b>Jackie Olsen</b> Environment Canada (Atlantic Region)</p> <p>Alternate: <b>Larry Hildebrand</b> Environment Canada (Atlantic Region)</p>
<p><b>Andy Parker</b> Canada-Nova Scotia Offshore Petroleum Board</p>	<p><b>Christine Penney</b> Clearwater Seafoods Ltd.</p> <p>Alternates: <b>Bruce Chapman</b> Groundfish Enterprise Allocation Council or <b>Dick Stewart</b> Atlantic Herring Co-op</p>
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<p><b>Carol Ann Rose (chair)</b> Fisheries and Oceans Canada, Oceans and Habitat (Maritimes Region)</p> <p>Alternate: <b>Joe Arbour</b> Fisheries and Oceans Canada, Oceans and Habitat (Maritimes Region)</p>	<p><b>Alastair Saunders</b> Nova Scotia Department of Intergovernmental Affairs</p> <p>Alternate: <b>Angela Matheson-Coutu</b> Nova Scotia Department of Intergovernmental Affairs</p>

<p><b>Jennifer Smith</b> World Wildlife Fund (Atlantic)</p> <p>Alternate: <b>Debbie MacKenzie</b> Grey Seal Conservation Society</p>	<p><b>Kevin Squires</b> Maritime Fishermen’s Union</p>
<p><b>Roger Stirling</b> Seafood Processors Association of Nova Scotia</p> <p>Alternates: <b>Bruce Chapman</b> Groundfish Enterprise Allocation Council or <b>Dick Stewart</b> Atlantic Herring Co-op</p>	<p><b>Marielle Thillet</b> EnCana Corporation</p>
<p><b>Karen Traversy</b> Lake Charlotte Heritage Society / Nova Scotia Coastal Coalition</p>	<p><b>Ray White</b> Town of Canso / Nova Scotia Coastal Communities Network</p> <p>Alternate: <b>Dan MacInnes</b> Nova Scotia Coastal Communities Network</p>
<p><b>Martin Willison</b> Dalhousie University</p> <p>Alternate: <b>Carolyn Hedley</b> Dalhousie University</p>	<p><b>Tonya Wimmer</b> Marine Animal Response Society</p>