

# **The Eastern Scotian Shelf Integrated Management (ESSIM) Initiative**

*A Strategic Planning Framework  
for the  
Eastern Scotian Shelf  
Ocean Management Plan*

# **ESSIM**

**A Discussion Paper prepared  
for the ESSIM Forum**

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# **Forum**

**ESSIM Forum Secretariat  
Oceans and Coastal Management Division  
Maritimes Region**



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## Executive Summary

This discussion paper has been prepared as a strategic planning framework for the development and implementation of the future Eastern Scotian Shelf Ocean Management Plan (the Plan). The purpose of the future Plan is to provide long-term direction and a common basis for integrated ocean management and planning in the Eastern Scotian Shelf Large Ocean Management Area. To facilitate discussion, the core elements of the Plan are identified in terms of its legislative basis, area of application, vision and guiding principles, and general management objectives for environmental, social, cultural, economic and institutional sustainability. The document presents options for approaching the development of a comprehensive ocean management framework to enable the Plan to address management and planning requirements at appropriate geographical and ecosystem scales within the Management Area. It also proposes the basic components of a collaborative planning framework and a set of general mechanisms for development, approval and implementation of the Plan through the Eastern Scotian Shelf Integrated Management (ESSIM) process. This includes the identification of shorter-term priorities and actions as part of the annual implementation process for the strategic-level Plan.

Initially announced as Canada's first integrated ocean management pilot with an offshore focus under the 1997 *Oceans Act*, the ESSIM Initiative has since evolved to include coastal areas through the establishment of the Large Ocean Management Area (LOMA) concept in DFO's national *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada*, released in July 2002. DFO's *Policy and Operational Framework for Integrated Management* provides the national structure and guidance for the development of regional ocean management and planning processes such as the ESSIM Initiative.

In support of the Federal-Provincial ESSIM Working Group, the ESSIM Forum Secretariat, housed within the Maritimes Region Oceans and Coastal Management Division (OCMD), Fisheries and Oceans Canada (DFO), has prepared this document for governmental and public discussion. The direction and content of the document reflects a balance of what the Secretariat and the Working Group heard and learned through the ESSIM Initiative to date. The intent of the ESSIM process is to develop a multi-stakeholder Plan that will be implemented collaboratively by all ocean interests. A broad-based review and discussion process is now being used to obtain input from all ocean communities of interest on the future Plan. This review process may include the identification of additional elements or management strategies for inclusion in the Plan. In addition to dialogue and directed meetings with the various organizations, groups and individuals that collectively comprise the ESSIM Forum, a large multi-stakeholder discussion on the future Plan will occur during the 2<sup>nd</sup> ESSIM Forum Workshop on 18–19 February 2003 at Mount Saint Vincent University, Halifax.

Based on the input and direction gained through the process identified above, the Secretariat will work collaboratively with interested parties, both regionally and nationally, over the longer term to develop the Plan for eventual implementation at all levels of the ESSIM Forum. In addition to seeking broad endorsement through official policy mechanisms, the Secretariat will promote and

facilitate an agreed-upon set of actions to provide more definition to the Plan as it moves forward. This may include the establishment of multi-stakeholder working groups to address various implementation needs for the Plan.

This discussion paper has two main parts, namely the **Introduction** (Section 1.0) outlining the purpose of the document and background information on the ESSIM Initiative, and the proposed **Strategic Planning Framework for the Eastern Scotian Shelf Ocean Management Plan** (Section 2.0) outlining the key elements of the future Plan, as described below.

In terms of **definition** (Section 2.1), the Eastern Scotian Shelf Ocean Management Plan is presented as a multi-year strategic plan for the integrated management of all policies, programs, plans, measures and activities in or affecting the Eastern Scotian Shelf Large Ocean Management Area. The intent of the Plan is to provide long-term direction and a common basis for the development and implementation of integrated and adaptive management plans, strategies and actions for environmental, social, cultural, economic and institutional sustainability.

The **legislative basis** (Section 2.2) for the Plan is drawn primarily from Canada's *Oceans Act*, specifically Sections 31 and 32 under *Part II, Oceans Management Strategy*, but also generally by all provisions of the Act pertaining to the development and implementation of integrated management plans, including provisions for marine environmental quality and marine protected areas. The Plan is consistent with and reflects Canada's international ocean governance commitments, responsibilities and rights. In terms of federal and provincial ocean-related jurisdictions, the Plan respects existing legal and administrative responsibilities, mandates and powers found with the Government of Canada, relevant provincial governments, and their agencies. Further, the Plan will be developed and implemented in collaboration with affected aboriginal organizations, including those established under land claims agreements.

The **area of application** (Section 2.3) for the Plan is defined geographically in terms of the Eastern Scotian Shelf Large Ocean Management Area which incorporates estuarine, coastal and marine waters out to the limits of Canada's national jurisdiction, including extended continental shelf claims. Ecologically, the Management Area is defined according to major oceanographic features and their associated interactions with bathymetric features. Within the Management Area, the Plan will apply to management and planning requirements related to multiple ocean use interactions within and among ocean sectors, and to activities associated with actual and potential ecosystem pressures and impacts. In terms of management jurisdictions, the Plan will apply to matters requiring interdepartmental or intergovernmental policy, regulatory and management coordination, including cases in which there are jurisdictional overlaps or gaps in terms of addressing management requirements.

The **vision statement** (Section 2.4) for the ESSIM Initiative is aimed at providing an effective and collaborative process for achieving sustainability in the Management Area. The vision for the collaborative process is further supported by a set of overarching goals which encompass the balanced approach to integrated management intended under the *Oceans Act*. As an important part of the broader collaborative process, the proposed vision for the Plan is **to provide strategic,**

*long-term direction and a common basis for commitment and action to achieve the vision and objectives of the ESSIM Initiative.*

A comprehensive set of **guiding principles** (Section 2.5) are presented for the Plan, including the important approaches of integrated management, ecosystem-based management, sustainable development, precautionary approach, collaboration and adaptive management.

The **general management objectives** (Section 2.6) of the Plan are presented in terms of the four elements of sustainability, namely environmental, social and cultural, economic and institutional (i.e., how we manage ourselves). These are presented as high-level objectives to provide strategic direction for achieving desired outcomes and conditions through the Plan. The *environmental objectives* are divided into (1) ecosystem objectives for protecting, restoring and maintaining natural biodiversity, productivity and ecosystem components, functions and properties, and (2) sustainable use objectives for maintaining healthy connections between humans and the resources and ecosystems upon which they depend. The general *social and cultural objectives* are aimed at achieving sustainability within and across all ocean communities of interest, recognizing and supporting linkages between the ocean and the social and cultural well-being of communities. The general *economic objectives* are aimed at achieving and maintaining sustainable economic development in a multiple ocean use context, based on responsible and balanced use in the Management Area. Finally, the general *institutional objectives* seek to establish an effective and integrated ocean management and planning process, based on a collaborative approach to planning and the sharing of information, responsibility, action and accountability across government and marine communities of interest.

The **ecosystem-based management area framework** (Section 2.7) for the Plan is based on the recognition that integrated management and planning must occur in an ecosystem context with the flexibility to address requirements at various management scales and for different ecosystem types. Further, this approach requires an understanding of the nature of ocean use and related interactions and impacts. Consistent with the national *Policy and Operational Framework for Integrated Management*, ecosystem-based management can be applied at three main geographic scales:

- (1) Large Ocean Management Area
- (2) Ocean Management Areas
- (3) Sub-Ocean Management Areas (offshore) and Coastal Management Areas (estuarine/inshore)

A set of ecosystem-based Ocean Management Areas (OMAs) are proposed to enable management and planning at appropriate, nested geographic and ecosystem scales in the Management Area. Appendix 1, titled *Natural Environment of the Eastern Scotian Shelf Large Ocean Management Area and Description of Ocean Management Areas*, provides ecological descriptions and maps of the eight OMAs, namely the Laurentian Channel, Coastal, Misaine, Sable – Banquereau, Northeast Slope, Western – Emerald, Southwest Slope and North Atlantic Central OMAs. The OMAs may be further divided into smaller management areas where ecological differences and smaller-scale planning requirements are identified. For example, the

Coastal OMA can be sub-divided into Coastal Management Areas (CMAs) to enable the development of management plans for the estuarine and coastal areas along eastern Nova Scotia and Cape Breton. Measurable ecosystem indicators (pelagic and benthic), management target levels and associated trigger values can then be embedded in the Plan as marine environmental quality (MEQ) elements for ecosystem-based management areas (e.g., OMAs and sub-OMAs). Human use activities and associated pressures can be assessed, measured and managed on an area basis against MEQ objectives.

The Management Area contains a diverse range of existing management and planning zones for various sector activities and purposes. When considering the potential application of ocean planning tools, such as zoning, to address spatial and temporal interactions among ocean users and ecosystem impacts, the Plan may need to both: (1) recognize, incorporate or adopt existing management and planning zones (i.e., various types of existing sector-based zones); and (2) identify, design and implement new zones to address specific interactions, impacts or ecosystem-based management requirements. By overlaying existing sets of management and planning zones, four general categories of ocean use and management can be identified: (1) *intensive use areas*; (2) *general use areas*; (3) *special management areas* (i.e., to address specific uses and/or ecosystem issues); and (4) *protected areas* (i.e., regulatory-based protection measures, such as MPAs). For practical purposes, it is recognized that environmental, social, cultural and economic objectives cannot necessarily be applied, measured or achieved uniformly across the Management Area. However, the intent of the framework is to achieve and maintain the general management objectives at the LOMA scale and, where possible, at the OMA scale.

Although zoning is often used to specify permitted activities, a more comprehensive and balanced approach is based on performance criteria and indicators to manage various impacts of use (e.g., water quality, benthic disturbance, density and overlap of use) at selected management scales (e.g., LOMA and OMA). Through this approach, specific uses and developments can be reviewed at appropriate management scales to identify required modifications and mitigation measures to satisfy regulatory and management criteria for approval.

Under the **collaborative planning framework** (Section 2.8), the Plan will be developed and implemented through an integrated management body – the ESSIM Forum – established for the Management Area. The ESSIM Forum is proposed as a networked structure and collaborative process to engage and link government policy and decision-making authorities and all ocean communities of interest for integrated management and planning. As proposed, the integrated management body comprises several inter-related components of engagement and collaboration at the multi-stakeholder and governmental levels. At the core of the ESSIM Forum is a multi-stakeholder body, which provides inclusive opportunities for ongoing communications, information sharing, and input and advice to the planning process. This body engages all ocean interests through a range of mechanisms, including the establishment of working groups to address specific planning needs. Government engagement occurs at two functional levels to facilitate operational support and program coordination, and executive-level policy coordination. At the operational level, government involvement occurs through a regional intergovernmental working group which functions as a sub-group of the broader multi-stakeholder planning body.



## 1.0 Introduction

### 1.1 Purpose

This discussion paper has been prepared as a strategic planning framework for the development and implementation of the future Eastern Scotian Shelf Ocean Management Plan (the Plan). The purpose of the future Plan is to provide long-term direction and a common basis for integrated ocean management and planning in the Eastern Scotian Shelf Large Ocean Management Area. To facilitate discussion, the core elements of the Plan are identified in terms of its legislative basis, area of application, vision and guiding principles, and general management objectives for environmental, social, cultural, economic and institutional sustainability. The document presents options for approaching the development of a comprehensive ocean management framework to enable the Plan to address management and planning requirements at appropriate geographical and ecosystem scales within the Management Area. It also proposes the basic components of a collaborative planning framework and a set of general mechanisms for development, approval and implementation of the Plan through the Eastern Scotian Shelf Integrated Management (ESSIM) process. This includes the identification of shorter-term priorities and actions as part of the annual implementation process for the strategic-level Plan.

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## 1.2 The ESSIM Initiative

The Eastern Scotian Shelf Integrated Management (ESSIM) Initiative is a collaborative ocean management and planning process being led by the Maritimes Region Oceans and Coastal Management Division (OCMD), Fisheries and Oceans Canada (DFO). The ESSIM Initiative was announced by the Minister of Fisheries and Oceans in December 1998 following the recommendation of the Sable Gully Conservation Strategy that integrated management approaches be applied to the offshore area surrounding the Sable Gully Area of Interest (AOI) under DFO's Marine Protected Areas Program.<sup>1</sup>

Initially announced as Canada's first integrated ocean management pilot with an offshore focus, the Initiative has since evolved to include coastal areas through the establishment of the Large Ocean Management Area<sup>2</sup> (LOMA) concept in DFO's national *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada*.<sup>3</sup> DFO's *Policy and Operational Framework for Integrated Management* provides the national structure and guidance for the development of regional ocean management and planning processes such as the ESSIM Initiative. The 1997 *Oceans Act*<sup>4</sup> and its supporting policy, *Canada's Oceans Strategy*,<sup>5</sup> affirm DFO's mandate as the lead federal authority for oceans and provide the national policy context for the Initiative. The principles and approaches of the Initiative are rooted in developing international ocean governance processes and Canada's ocean-related international legal and stewardship commitments.

The Initiative is designing an intergovernmental and multi-stakeholder management and planning process to develop and implement an integrated ocean management plan for the Eastern Scotian Shelf Large Ocean Management Area. The Management Area possesses important living and non-living marine resources, high biological diversity and productivity, and increasing levels of multiple use and competition for ocean space and resources. Key ocean use interests and activities include fisheries, offshore oil and gas, shipping, maritime defence operations, submarine cables, science, research and development, recreation and tourism, potential offshore minerals development, and marine conservation. The boundaries of the Management Area comprise a mix of ecological, administrative and human use considerations, based on the LOMA concept.

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<sup>1</sup> Fisheries and Oceans Canada, 1998. *Sable Gully Conservation Strategy* (Unpublished review document).

<sup>2</sup> Large Ocean Management Areas (LOMAs) extend from the coastline to the limits of the exclusive economic zone (EEZ), with boundaries based on a mix of ecological considerations and administrative units. LOMAs address large-scale ecosystem and sustainable development requirements through the development and implementation of integrated management plans.

<sup>3</sup> Fisheries and Oceans Canada, 2002. *Policy and Operational Framework for 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)>

<sup>4</sup> *Oceans Act* 1996, c. 31. Available online: <<http://laws.justice.gc.ca/en/O-2.4/text.html>>.

<sup>5</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)>

The vision for the Initiative is to have *an effective, collaborative process that provides integrated and adaptive management plans, strategies and actions for environmental, social, cultural, economic and institutional sustainability*. A collaborative process is defined as an open, inclusive and transparent planning, advisory and decision-making system involving all interested and affected parties. Under the collaborative approach, 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. Moreover, those with the authority, power and responsibility to implement agreed-upon management plan measures are expected to do so as part of their commitment to the planning process.

One of the first activities undertaken for the ESSIM Initiative was an unpublished *Overview and Use Audit* of ocean management, activities and issues in the eastern Scotian Shelf area. Largely an internal exercise for OCMD staff, the *Audit* helped to identify existing and potential issues and challenges for ocean management. A November 2001 discussion paper titled *Issues, Challenges and Opportunities*<sup>6</sup> expanded upon the issues identified in the *Audit* and incorporated information gained from discussion with a variety of groups and individuals involved in the Initiative, including other government departments, First Nations, marine industry and user groups, conservation interests, and academia.

Also in November 2001, DFO proposed a collaborative governance structure – the ESSIM Forum – in the discussion paper *Development of a Collaborative Management and Planning Process*.<sup>7</sup> This paper essentially proposed the ESSIM Forum as a collaborative process and networked structure to link all communities of interest for integrated management and planning. The proposed integrated management body provided a major focus for discussion during the 1<sup>st</sup> ESSIM Forum Workshop – a large and interactive multi-stakeholder event held in February 2002. During the Workshop and in the subsequent proceedings,<sup>8</sup> a broad range of views was shared on this important element of the Initiative. Although the detailed structure, roles and mechanisms are still being discussed, the ESSIM Forum currently functions in a limited but encouraging capacity to facilitate multi-stakeholder and intergovernmental communications, information sharing, network development and capacity building for the Initiative.

The 1<sup>st</sup> ESSIM Forum Workshop was successful in beginning multi-stakeholder dialogue on the proposed ESSIM Forum and integrated ocean management and planning. Assessment of workshop outcomes by DFO highlighted the following points:

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<sup>6</sup> OCMD, 2001. *Issues, Challenges and Opportunities: A Discussion Paper prepared for the Federal-Provincial ESSIM Working Group*. Available online: <<http://www.mar.dfo-mpo.gc.ca/oceans/e/essim/essim-intro-e.html>>.

<sup>7</sup> OCMD, 2001. *Development of a Collaborative Management and Planning Process: A Discussion Paper prepared for the Federal-Provincial ESSIM Working Group*. Available online: <<http://www.mar.dfo-mpo.gc.ca/oceans/e/essim/essim-intro-e.html>>.

<sup>8</sup> S. Coffen-Smout, G. Herbert, R.J. Rutherford, and B.L. Smith (eds.), 2002. *Proceedings of the 1<sup>st</sup> Eastern Scotian Shelf Integrated Management (ESSIM) Forum Workshop*, Halifax, Nova Scotia, 20–21 February 2002, Can. Manusc. Rep. Fish. Aquat. Sci. 2604: xii + 63 pp. Available online: <<http://www.dfo-mpo.gc.ca/Library/263992.pdf>>.

- There was strong support from workshop participants to proceed in the general direction proposed for the development of the ESSIM Forum and the ocean management plan.
- The workshop succeeded in highlighting to the broader community the ongoing efforts for government engagement and coordination.
- Individual sectors and communities of interest recognized the need to organize themselves in order to participate effectively in the process.

The workshop discussions provided valuable input on the structure and process for the ESSIM Forum. The various considerations and options put forward during the workshop continue to be used by the Secretariat as part of the process of refining the proposed ESSIM Forum.

Through the mandate of DFO to lead and facilitate integrated management under the *Oceans Act*, the OCMD is functioning as the ESSIM Forum Secretariat for the developing collaborative management and planning process. In this capacity, the Secretariat has been working with a variety of communities of interest (e.g., fisheries sector; conservation interests; oil and gas industry) to support their effective participation in the future multi-stakeholder planning process. At the government level, the Secretariat has been working with its federal and provincial partners through the Federal-Provincial ESSIM Working Group to provide operational support and coordination for the process. Progress is also being made in efforts to establish a senior intergovernmental committee to coordinate higher level policy and regulatory input to the Initiative. Within DFO, the Secretariat continues to work with departmental sectors, such as Science, Coast Guard and Fisheries Management, to develop capacity, expertise and action for integrated ocean management. This includes the provision of input to regional and national ocean-related policy and programs, including the developing frameworks for ecosystem objectives, marine environmental quality, and marine protected areas planning. Of particular relevance to the ESSIM Initiative is the Gully MPA proposal, which is currently undergoing its final stages for designation under the *Oceans Act*. As envisioned by those involved in the Gully MPA planning process during the 1990s, integrated management of activities in the larger area surrounding and affecting the Gully will play a significant role in meeting the conservation and management objectives for the MPA.

## 2.0 A Strategic Planning Framework for the Eastern Scotian Shelf Ocean Management Plan

This discussion paper proposes a strategic planning framework for the development of the Eastern Scotian Shelf Ocean Management Plan. The key components of the Ocean Management Plan are outlined below for discussion purposes.

### 2.1 Definition

The Eastern Scotian Shelf Ocean Management Plan (hereafter the “Plan”) is presented as a multi-year strategic plan for the integrated management of all policies, programs, plans, measures and activities in or affecting the Eastern Scotian Shelf Large Ocean Management Area (hereafter the “Management Area”). This Plan is intended to provide long-term direction and a common basis for the development and implementation of integrated and adaptive management plans, strategies and actions for environmental, social, cultural, economic and institutional sustainability.

### 2.2 Legislative Basis

#### *Canada’s Oceans Act*

The legislative basis for the Plan is drawn primarily from Canada’s *Oceans Act*, in accordance with the provisions contained in Sections 31 and 32 of *Part II, Oceans Management Strategy*:

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 31, *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 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. (**Section 32, *Implementation of integrated management plans***)

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.

## **International Commitments**

The Plan will be consistent with and supports the development of plans, strategies and actions for national, regional and local implementation of Canada's international ocean governance commitments, responsibilities and rights.

## **Federal and Provincial Jurisdictions**

The Plan will respect existing legal and administrative jurisdictions within the federal Government of Canada, provincial governments and their agencies. Regulatory authorities remain responsible and accountable for implementing management policies and measures within their established mandates and jurisdiction.

## **First Nations**

The development and implementation of the Plan will be in collaboration with affected aboriginal organizations, including those bodies established under land claims agreements.

## **2.3 Area of Application**

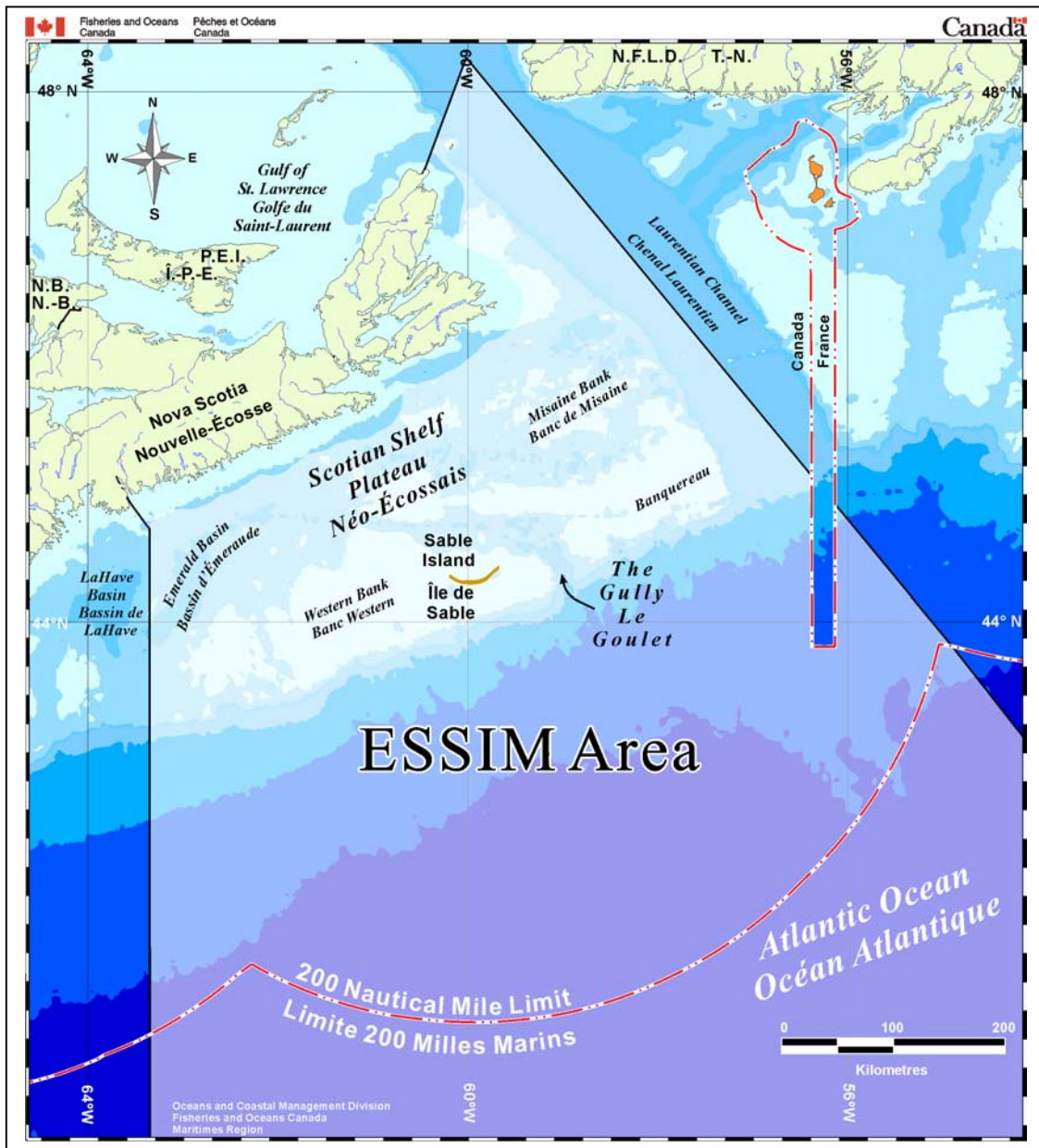
### **Eastern Scotian Shelf Large Ocean Management Area**

The Management Area is classified as a Large Ocean Management Area (LOMA) under the national *Policy and Operational Framework for Integrated Management of Estuarine, Coastal*

and Marine Environments in Canada. Consistent with the requirement under the *Oceans Act* for the development and implementation of integrated management plans for all estuarine, coastal and marine ecosystems, the national *Policy and Operational Framework for Integrated Management* commits to the establishment of LOMAs to include all marine areas under Canada’s jurisdiction. LOMAs are defined as marine areas that extend from the coastline (including estuarine environments) to the limits of the 200 nm Exclusive Economic Zone (EEZ), with boundaries based on a combination of ecological considerations and management units.

The Management Area depicted in Map 1 forms the area of application for the Plan.

**Map 1: Eastern Scotian Shelf Large Ocean Management Area**



Functionally, the Management Area is located within the administrative jurisdiction of the Maritimes Region of Fisheries and Oceans Canada (DFO) and corresponds with the Northwest Atlantic Fisheries Organization (NAFO) Divisions 4V/W. The western boundary is defined by the 4W/X line that extends south from Halifax between LaHave and Emerald Basins. The eastern boundary is defined by the 4V/3Ps line through the Laurentian Channel into the Gulf of St. Lawrence, and the 4V/T line extending off the northern tip of Cape Breton. The outer boundary of the Management Area extends beyond the 200 nm EEZ to include Canada's extended continental shelf claims under the 1982 UN Law of the Sea Convention. The inner boundary of the Management Area includes coastal and estuarine waters as interpreted under the *Oceans Act*.

Ecologically, the Management Area is defined according to major oceanographic features and associated interactions with bathymetric features. A more detailed description of the ecosystem basis for the Management Area is provided in **Section 2.7, *Ecosystem-Based Management Area Framework***.

The Plan will be applied to all measures and activities in or affecting the Management Area. As such, the integrated management and planning process will be linked and coordinated with management jurisdictions, processes, measures and activities in adjacent ocean and land areas. Consistent with the provisions for plan development, implementation and review, the Plan and its area of application (including boundaries of the Management Area) will be adapted to address integrated management requirements relating to changes in the nature and understanding of ocean use, management and ecosystem aspects of the Management Area.

## **Multiple Ocean Use**

The Management Area experiences multiple ocean use involving a range of activity types, including the following:

- commercial and recreational fisheries
- petroleum exploration, development, production and delivery (including pipelines and power cables)
- marine transportation and commerce
- government marine operations (including Coast Guard and Maritime Forces)
- communications and submarine cables
- aquaculture
- scientific research and technology development
- recreation and tourism
- marine conservation

The Plan will address integrated management and planning requirements resulting from interactions between and among ocean sectors and activity types, including the following:

- inter-sectoral matters relating to access to ocean space and marine resources

- intra-sectoral matters as they affect other sectors and activity types
- inter- and intra-sectoral matters with actual or potential ecological pressures and impacts, including actual or potential cumulative effects in terms of adjacency and timing of use

Through the Plan, the integrated management and planning process seeks to achieve an acceptable balance of use for the Management Area, based on agreed-upon environmental, social, cultural, economic and institutional objectives.

## **Ocean Use Pressures and Impacts**

The ecosystem and marine resources in the Management Area are subject to pressures and impacts resulting from multiple ocean use. The Plan will apply to integrated management, planning and conservation requirements relating to ocean use pressures and impacts resulting from or on the following:

- living and non-living resource extraction
- marine and land-based pollution and toxic inputs (non-point and points sources and vectors)
- 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 habitat
- 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 overlaps
- climate change

The Plan will consider a range of criteria for determining appropriate management measures, including the following:

- ecological context
- geographical extent
- magnitude
- duration and frequency
- reversibility
- scientific uncertainty
- potential for cumulative effects

## **Management Jurisdictions**

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

For the purposes of integrated management and planning, the Plan will apply to the following:

- matters requiring interdepartmental and intergovernmental policy and regulatory coordination (including First Nations agreements)
- matters subject to jurisdictional overlaps between and among legislated authorities
- matters 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

## **2.4 Vision Statement**

A vision for the Eastern Scotian Shelf Integrated Management (ESSIM) Initiative is presented as follows:

*An effective, collaborative process that provides integrated and adaptive management plans, strategies and actions for environmental, social, cultural, economic and institutional sustainability in the Eastern Scotian Shelf Large Ocean Management Area.*

This vision is supported by four overarching goals drawn from the *Oceans Act* and supported by the national *Policy and Operational Framework for Integrated Management*:

- to integrate the management of all measures and activities in or affecting the Management Area
- to manage for conservation, sustainability and responsible use of ocean space and marine resources
- to restore and/or maintain natural biological diversity and productivity
- to provide opportunities for economic diversification and sustainable wealth generation to foster social well-being for coastal communities and stakeholders

The proposed vision and intent of the Plan is *to provide strategic, long-term direction and a common basis for commitment and action to achieve the vision and objectives of the ESSIM Initiative.*

## 2.5 Guiding Principles

The Plan enshrines the following guiding principles and approaches:<sup>9</sup>

Integrated management: A comprehensive and coordinated approach to planning and decision making for sustainability, based on the balanced consideration of the full range of interests and environmental, social, cultural, economic and institutional objectives for a management area.

Ecosystem-based management: The management of human activities so that ecosystem components, functions and properties are restored and/or maintained at appropriate temporal and spatial scales. Ecosystem objectives are used to identify and set desired ecosystem conditions, measurable indicators for monitoring and evaluation, and operational measures and actions to ensure that conditions are met and maintained.

Sustainable development: A development process that takes 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 own needs.

Precautionary approach: An evaluation and decision-making process that errs on the side of caution and is applied to cases where there is a risk of serious or irreversible harm, significant scientific uncertainty, and a management decision must be taken. The precautionary approach is applied to decisions with potential ecosystem, social, cultural and economic impacts.

Multiple use management: A management and planning process that involves all ocean interests to achieve an acceptable balance of use for a management area, based on agreed-upon environmental, social, cultural, economic and institutional objectives.

Conservation: An approach that ensures the protection, maintenance and rehabilitation of living marine resources, their habitats and supporting ecosystems. Conservation is considered as both a principle to be incorporated into all ocean activities and a use of ocean space and resources in the context of multiple use management.

Collaboration: An open, inclusive and transparent planning, advisory and decision-making process involving all interested and affected parties. 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. 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.

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<sup>9</sup> Although consistent with the guiding principles contained in the national *Policy and Operational Framework for Integrated Management*, this set of management principles has been expanded for the purposes of the ESSIM Initiative.

Adaptive management: The integrated management and planning process is adaptive and responsive to the changing environmental, social, cultural, economic and institutional conditions. 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.

Stewardship: 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 promote, monitor and conserve biodiversity, to develop and use all natural resources in a sustainable manner, and to maintain the ecosystems on which life depends.

## 2.6 General Management Objectives

The general management objectives for the Plan are presented in terms of the four elements of sustainability: (1) environmental; (2) social and cultural; (3) economic; and (4) institutional (i.e., how we manage ourselves). These high-level, qualitative objectives provide strategic direction for achieving desired outcomes and conditions and respecting agreed-upon values through the Plan and integrated management and planning process.

For plan implementation and monitoring purposes, the general objectives will be supported by sets of operational objectives, with associated indicators, baselines, reference points, triggers for management action, and performance measures. The operational objectives will be developed, monitored and reviewed through the annual implementation process for the Plan (see **Section 2.9, Plan Implementation Framework**).

### Environmental Objectives

The environmental objectives of the Plan are divided into two components:

1. *Ecosystem objectives* for protecting, restoring and/or maintaining natural biodiversity, productivity and ecosystem components, functions and properties
2. *Sustainable use objectives* for maintaining healthy connections between humans and the resources and ecosystems upon which they depend

The distinction between these two sets of objectives is based on the recognition that marine ecosystems must be both protected for their intrinsic value and functions and conserved for their ecological services to humans (i.e., natural resources).

## 1. *Ecosystem Objectives*

The general ecosystem objectives are aimed at restoring and/or maintaining natural biodiversity, productivity, and ecosystem components, functions and properties in the Management Area. These objectives are based on levels and desired conditions set for a healthy marine ecosystem, and the recognition that remedial action may be required for certain areas or ecosystem components.

These objectives and their nested components include the following:

- Maintain<sup>10</sup> ecosystem *components* to ensure the natural resilience of the ecosystem:
  - (a) Maintain *communities* within the bounds of natural variability
  - (b) Maintain *species* within the bounds of natural variability
  - (c) Maintain *populations* (genetic diversity) within the bounds of natural variability
- Maintain the *function* of ecosystem components to ensure that natural roles are performed in the ecosystem:
  - (a) Maintain *primary production* within the bounds of natural variability
  - (b) Maintain *trophic structure* so that individual species/stages can play their natural role in the food web
  - (c) Maintain mean *generation times* of populations within bounds of natural variability so that population resiliency is assured
- Maintain the physical and chemical *properties* of the ecosystem:
  - (a) Conserve critical landscape and bottomscape features and water column properties
  - (b) Conserve water, sediment and biota quality

Under the national *Policy and Operational Framework for Integrated Management*, general ecosystem objectives are to be expressed, operationalized and measured through the use of Marine Environmental Quality (MEQ) objectives embedded in the management plan. MEQ is defined as a statement of the overall condition of the marine ecosystem. Reference points associated with MEQ objectives provide measurable operational targets to ensure that desired ecosystem conditions are met and maintained for the Management Area. MEQ objectives can be implemented under the *Oceans Act* or through other federal or provincial legislation, as appropriate.<sup>11</sup> MEQ objectives are not used to measure and achieve desired ecosystem health

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<sup>10</sup> In cases where remedial action is required for an area or ecosystem component to meet the desired level of ecosystem health, the term “restore” may be used in advance of or in conjunction with the term “maintain”.

<sup>11</sup> Further, MEQ requirements and standards may be made as regulations under Section 52.1 of the *Oceans Act*, as follows:

and conditions for human use, but rather for the intrinsic value of ecosystems. Human-ecosystem interactions and needs (e.g., resource use) are addressed directly through sustainable use objectives.

## **2. Sustainable Use Objectives**

The general sustainable use objectives are aimed at protecting, maintaining and enhancing healthy connections between humans, the resources upon which they depend, and marine ecosystems. These objectives include the following:

- Ensure that management policies, plans and measures are based on conservation, sustainability and responsible use of marine ecosystems and resources.
- Ensure that human use is consistent with agreed-upon ecosystem objectives and MEQ objectives expressed in the Plan and places priority on the maintenance of environmental health and quality.
- Promote and support sustainable living resource management, harvest and production strategies that provide long-term opportunities for industry, traditional users and coastal communities.
- Promote, develop and support environmental awareness and ocean literacy, stewardship, shared responsibility and ethics across all ocean communities of interest.

## **Social and Cultural Objectives**

The general social and cultural objectives are aimed at achieving and maintaining sustainability within and across all ocean communities of interest. These objectives recognize and place priority on the connections and roles played by the ocean and its resources in the social and cultural well-being of communities and the people who live and work in them. These objectives include the following:

- Ensure that management policies, plans and measures recognize and contribute to the sustainability and well-being of communities and people connected to the ocean.

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The Governor in Council may, on the recommendation of the Minister, make regulations for carrying out the purposes and provisions of this Act and, in particular, but without restricting the generality of the foregoing, may make regulations (a) prescribing marine environmental quality requirements and standards (**Section 52.1, Regulations**)

Guidelines and standards may also be adopted, applied or established for the Plan under other applicable federal or provincial legislation.

- Ensure that all communities of interest have access to ocean areas in order to maintain desired traditional, community and personal connections, relationships and ways of life in the marine environment.
- Ensure that ocean areas and adjacent communities are stable and secure environments to live and work in, with effective systems for meeting human safety, health and security needs.
- Ensure that all users of the ocean and its resources recognize and respect the interests, rights and needs of others in a multiple use environment.

### **Economic Objectives**

The general economic objectives are aimed at achieving and maintaining sustainable economic development in a multiple ocean use environment. These objectives support responsible and balanced ocean use in the Management Area through the development of agreed-upon strategies for economic diversification and innovation, stability and security of investment, best practice, and equitable access and opportunity. These objectives include the following:

- Ensure that economic development policies, plans and measures are based on sustainability, and include strategies for achieving balanced, diversified, stable, resilient and adaptive ocean use.
- Ensure that ocean use and development activities are consistent with agreed-upon management objectives, and incorporate strategies for best industry practices, responsible use, stewardship and compliance promotion.
- Promote and support marine-based activities that provide long-term economic and social benefits and employment opportunities for regional communities.
- Ensure that the pace of economic development is managed through integrated and collaborative planning, ecosystem and precautionary approaches to decision-making, and effective, transparent and efficient regulatory processes.

### **Institutional Objectives**

The general institutional objectives are aimed at establishing an effective and integrated ocean management and planning process for the Management Area. These objectives support a collaborative approach to planning and decision-making, based on the sharing of information, responsibility, action and accountability across government and marine communities of interest. These objectives include the following:

- Ensure that the integrated ocean management and planning process is collaborative, inclusive and transparent, and based on effective networks, communication and understanding among all interested and affected parties.

- Ensure that ocean management plans and decisions are based on shared information where those with the decision-making authority and those affected by the decisions jointly seek outcomes that meet the needs and interests of all parties to the greatest possible degree.
- Ensure that the integrated ocean management and planning process is adaptive and responsive to the changing environmental, social, cultural, economic and institutional conditions.
- Ensure that those with the authority, power and responsibility to implement agreed-upon management plans and measures do so as part of their commitment and accountability to the collaborative process.
- Ensure that the integrated ocean management and planning process builds on and enhances existing management structures and systems, and is capable of addressing international, national, regional and local requirements and responsibilities.

## 2.7 Ecosystem-Based Management Area Framework

The national *Policy and Operational Framework for Integrated Management* supports the development of an ecosystem-based approach to ocean management, whereby spatial and temporal planning of multiple ocean use is undertaken in the context of ecosystem-based management units. This is based on the recognition that integrated management and planning must occur in an ecosystem context with the flexibility to address requirements at various management scales and for different ecosystem types. Further, this approach requires an understanding of the nature of ocean use and related interactions and impacts. Consistent with the national *Policy and Operational Framework for Integrated Management*, ecosystem-based management can be applied at three main geographic scales:

- (1) Large Ocean Management Area
- (2) Ocean Management Areas
- (3) Sub-Ocean Management Areas (offshore) and Coastal Management Areas (estuarine/inshore)

### Large Ocean Management Area (LOMA)

The Eastern Scotian Shelf Large Ocean Management Area is an extensive marine area encompassing a range and diversity of estuarine, coastal and marine ecosystems. A brief description of the LOMA natural environment is provided in Appendix 1. As defined under the national *Policy and Operational Framework for Integrated Management*, the LOMA<sup>12</sup> provides a large-scale geographical and ecosystem basis for the application of environmental (i.e., both ecosystem and sustainable use objectives), social, cultural, economic and institutional objectives. It also defines the geographical context for the coordination of management policies, programs,

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<sup>12</sup> As noted in *Section 3, Area of Application*, the LOMA is synonymous with the Management Area.

plans and measures to achieve the general management objectives. The planning process for the LOMA needs to be linked and coordinated with management jurisdictions, processes, measures and activities in adjacent ocean and land areas. Adaptations to the scope and boundaries will be developed as required to address changes in the nature and understanding of ocean use, management and ecosystem aspects of the LOMA, including those influenced by adjacent areas.

### **Ocean Management Areas (OMAs)**

The national *Policy and Operational Framework for Integrated Management* recognizes that a range of connected and nested structures can be established within LOMAs to provide options for different scales of response for ecosystem-based management. Based on this direction and the natural environment of the eastern Scotian Shelf, the LOMA can be divided into a set of Ocean Management Areas for the development of smaller-scale integrated management plans and measures. This approach enables the Plan to address management and planning requirements at appropriate, nested geographical and ecosystem scales within the LOMA. Management plans, objectives and measures for OMAs need to be consistent with and contribute to those set at the broader LOMA scale. In the context of ecosystem objectives, OMAs should provide the scale for the application of MEQ objectives embedded in the Plan.

Eight ecosystem-based management units have been identified for definition and assessment as OMAs for the Management Area:

- Laurentian Channel OMA
- Coastal OMA (includes set of Coastal Management Area sub-units)
- Misaine OMA
- Sable – Banquereau OMA
- Northeast Slope OMA
- Western – Emerald OMA
- Southwest Slope OMA
- North Atlantic Central OMA

Appendix 1 provides ecological descriptions and maps of the OMAs. Key ecosystem, ocean use and management considerations for the OMAs are also highlighted in table format.

### **Sub-OMAs and Coastal Management Areas (CMAs)**

The OMAs may be further divided into smaller management areas where ecological differences and smaller-scale management and planning requirements are identified. For example, a sub-set of Coastal Management Areas (CMAs) can be defined within the Coastal OMA encompassing the coastline and inshore components of the Management Area. These CMAs can be based on finer scale ecological features (e.g., oceanographic and bathymetric characteristics; watersheds) suitable for planning in the coastal zone and on consideration of the needs and interests of local communities. The same ecological approach could be applied in the offshore OMAs, as required

through the planning process (e.g., based on oceanographic and bathymetric characteristics, use intensity or ecological sensitivities to use types, and the application of MEQ objectives).

## **OMA Characterization Process**

### ***Environmental***

There are several approaches to ecosystem characterization in the marine environment. The approach selected for the LOMA is based on water movement (currents) and the physical and chemical characteristics of the water column. Support for this approach is nested in classical oceanography. The physical and chemical characteristics of seawater, together with the distribution, concentrations and the movement of the water, are all decisive factors in determining the abundance, distribution and fate of marine organisms.

Through an examination of the surface current, salinity and temperature data and associated nutrient concentrations over the LOMA, a broad picture of physically delineated environments takes form. Upon further refinement through discussions with regional scientific experts, a characterization scheme of ecosystem-based OMAs has been identified for the LOMA. The development of this OMA characterization scheme takes into account the inherent difficulties in delineating clear boundary lines in the marine environment, given factors such as the large-scale variability in certain features from year-to-year, the influence of long-term cycles, and the arbitrary nature of lines selected from a continuum between ecosystem types. In these cases, the OMA boundaries had to be adjusted for management purposes. The same approach can be taken within the OMAs to further delineate sub-OMAs or CMAs (i.e., for the Coastal OMA).

This characterization, based on the physical properties of water bodies, leads to a description of the pelagic realm within each OMA and its sub-units. Each OMA is described in terms of vertical ecozones, which combined with the assemblage of living organisms defines ecotypes. This is described in more detail below.

Water movement largely determines ecosystem dynamics and influences the shape and structure of physiographic and benthic ecosystem components. The productivity of benthic communities is partly dependent on pelagic features and, in waters deeper than 50 metres, it is highly dependent on the productivity of the adjacent pelagic ecotypes. Benthic communities are also dependent on the substrate or bottom type and, as a result, vary at finer scales and present very different patterns than pelagic features.

A benthic characterization framework is being developed for the Scotian Shelf to support ecosystem-based management and related regional management and science initiatives. Upon completion, this benthic framework will be incorporated into the Plan's ecosystem-based management area framework to provide more detailed scales of information for planning.

Although the various management areas have been identified on an ecological basis, the LOMA and, to a lesser extent, the OMAs have been modified by jurisdictional and administrative parameters.

The key biological components or attributes of each OMA are described based on features such as primary productivity regimes and pelagic and benthic species assemblages and communities. Important biological characteristics include primary and secondary productivity patterns, species abundance and diversity (e.g., population; genetic), species life stages, trophic level relationships, and food-web structure, key species and energy flows. MEQ objectives and associated indicators can be used to track key biological components over time and trigger management action.

Each life stage for every marine species has its own niche, or habitat. These habitats can be described by a series of physical and chemical variables, each with an optimum range and a secondary, or survivable, range. Important indicator variables include salinity, temperature, turbidity, oxygen, currents, food supply, depth, light levels, substrate type, sound levels, heavy metal levels, and contaminant levels. In most cases, the optimum range only occurs naturally during part of the year. A prime example is provided by fish, which grow when the temperature is warm in the spring/summer/fall period, but only manage to survive with a minimum of growth in over-wintering areas. In many cases, fish migrate to areas in which they can survive.

These indicator variables can be used to define the ecosystem conditions that must be maintained for indicator or key species in support of MEQ objectives embedded in the Plan. Indicator species can be selected for each trophic level at each ecotype or strata, and for each season. Within each ecologically delineated management area, assemblages of indicator or key species can be selected at each strata, as follows:

- Pelagic:
  - euphotic zone (depth to which light levels are sufficient for plant growth)
  - above the thermocline
  - for water depth zones – <180m, 180-360m, 360-540m, 540-900m, >900m – as appropriate
- Benthic:
  - for water depth zones and major bottom types (according to parameters of benthic characterization framework when available)

Management target levels and associated trigger values can be established for each assemblage to provide measurable ecotype indicators. Activities with impacts on the ecosystem will be required to stay within the high and low trigger levels set for each indicator. If monitoring shows that a trigger level has been reached, a management action will be initiated to either bring the indicator back into the desired range, or to determine if it is actually causing the expected negative effect. The latter approach is necessary as indicators do not work independently and there will be cases in which they will either compensate for each other or respond synergistically

for negative impacts. These variables and target levels can be used to define the bounds of natural variability for the ecotypes. Population size and age structures can also have target and trigger levels set, based on food-web role and sustainable population considerations. Similarly, indicators can be set for biodiversity at the species level and for genetic diversity within species.

For monitoring, assessment and management purposes, ecosystem indicators will be applied at the appropriate scale (i.e., LOMA; OMA; sub-OMA/CMA). Based on current knowledge, target levels and indicators can be identified and applied in a basic form, and be refined as understanding of marine ecosystems improves.

### ***Social, Cultural, Economic and Institutional***

The ecological parameters for defining, assessing and monitoring OMAs need to be considered in relation to human activities in and affecting marine ecosystems. Key parameters for understanding and assessing human use and pressures include the following:

- activity types and their nature (e.g., extractive vs. non-consumptive; ocean surface vs. bottom)
- geographic locations and extent of activity types
- resulting pressures and impacts on marine ecosystems and resources

The various ocean activities and associated pressures and impacts can be assessed and measured on an area basis against ecosystem indicators. This provides a common ecosystem protection basis for all activities and a way to ensure that cumulative effects are considered. This approach also enables the development of more specific management requirements, priorities and measures (e.g., MEQ objectives) for OMAs.

In addition to understanding and accounting for human use and associated pressures, OMAs need to be considered in terms of jurisdictional and management parameters. In some cases, these jurisdictional zones enable specific management and regulatory powers to be exercised, such as in Canada's Internal Waters and Territorial Sea. Recognition and incorporation of jurisdictional and management zones also assists in the practical and effective application of management powers and measures in OMAs. Key types of jurisdictional and management parameters to be considered in OMAs include the following:

- departmental and governmental administrative areas (e.g., regional and zonal jurisdictions of federal government departments; provincial jurisdictions)
- sector-oriented management zones (e.g., fisheries management, conservation, licensing and reporting zones; oil and gas license areas; vessel traffic management zones; ocean dumping sites etc.)
- scientific monitoring and research zones (e.g., fisheries survey and sampling strata; data collection and monitoring areas)

Planning and management at the OMA-scale will need to consider ocean activities and management jurisdictions and measures in adjacent OMAs.

### Spatial Planning and Zoning

The Management Area contains a diverse range of management and planning zones for various sector activities and purposes. Existing zones include the following:

- **Fisheries management, conservation and licensing zones**, including Northwest Atlantic Fisheries Organization (NAFO) Statistical Units, and open and closed areas/seasons for species, gear type and vessel class.
- **Oil and gas management zones**, including exploration license blocks and class environmental assessment areas.
- **Ocean dumping and disposal zones**, including dumping permit areas and charted locations of munitions.
- **Marine transportation management and monitoring zones**, including vessel traffic service (VTS) zones and separation schemes, ballast water exchange zones, and Search and Rescue responsibility zones.
- **Coastal and inshore zones**, including aquaculture leases, shellfish harvesting closures, port/harbour authority anchorage areas, and private water lots.
- **Military operational areas**, including offshore naval exercise and test areas, and surveillance and patrol areas of responsibility.
- **Protected areas**, including Areas of Interest and Marine Protected Areas (MPAs) under the *Oceans Act*, and various wildlife conservation areas under federal and provincial legislation.
- **Scientific research and monitoring zones**, including fisheries survey and sampling strata, and zonal and site monitoring areas.
- **Informal zones established by common practice and use**, such as preferred fishing grounds or commonly used vessel transit lanes.

It is recognized that the current framework of sector-based zones does not provide an adequate approach to consider and address planning requirements for all parts of the Management Area. Further, it is understood that simply adopting various existing zones, or developing new, unconnected management zones, does not constitute effective ocean planning. When considering the application of ocean zoning, the Plan may need to both:

- (1) recognize, incorporate and adopt existing management and planning zones; and

- (2) identify, design and implement new zones for the purposes of ecosystem-based management or to address specific interactions or impacts.

When used in the broader context of integrated ocean management, zoning can provide a useful management tool to address spatial and temporal interactions among ocean users and ecosystem impacts. Key objectives of zoning in the marine setting include the following:

- provide protection for critical, important or representative ecosystems, habitats and ecological processes
- enable reasonable and multiple human use in defined areas
- address known or potential spatial and/or temporal interactions among activities, including cumulative effects at various management scales
- protect desired qualities and values of defined areas (e.g., social and cultural)
- preserve areas in natural state, including areas for scientific research and monitoring
- provide greater clarity for ocean use sectors and regulators in terms of environmental protection and monitoring requirements in defined areas (e.g., more effective and efficient environmental assessment processes)

Ocean zoning provides a planning option that can be used to determine, manage and monitor types and/or degrees of use for spatially defined areas. Although zoning is often used to specify permitted activities, a more comprehensive and balanced approach is based on performance criteria and indicators to manage various impacts of use (e.g., water quality; benthic disturbance; density and overlap of use) at selected management scales (e.g., LOMA; OMA). Through this approach, specific uses and developments can be reviewed at appropriate management scales to identify required modifications and mitigation measures to satisfy regulatory and management criteria for approval.

As noted above, sectoral approaches to zoning can lead to conflicts between different types of ocean uses and can actually contribute to ecosystem impacts, such as cumulative effects arising from uncoordinated activities. The Plan will need to ensure that zoning is considered in the context of agreed-upon management objectives (e.g., MEQ objectives) and applied in a balanced and careful manner.

By overlaying the existing sets of planning and management zones, four general categories of ocean use and management can be identified: (1) *intensive use areas*; (2) *general use areas*; (3) *special management areas*; and (4) *protected areas*.

**Intensive Use Areas:** The Management Area contains discrete areas that are characterized by relatively higher levels, intensities and concentrations of ocean development and use. These areas include industrialized and developed harbours and bays, as well as offshore areas containing important living and non-living resources (e.g., fishing banks or shelf break areas), that are subject to multiple uses and associated inputs and effects. This category can also be used for areas subject to intensive single uses, such as heavily fished areas, hydrocarbon production areas, high vessel traffic areas (e.g.,

vessel traffic control zones/separation schemes), or potential seabed mining areas. In cases where it is desired to designate a priority of use, these single use locations could also be considered under the category for *special management areas*. For practical purposes, the planning process will need to apply management and restoration objectives and measures that are appropriate for the site.

**General Use Areas:** In contrast to fairly discrete and limited *intensive use areas*, the Management Area is largely subject to lower-to-moderate levels and concentrations of multiple ocean use. This enables the application of proactive planning and management for these general use areas to pre-empt user conflicts and associated effects (i.e., as may occur in *intensive use areas*) and to ensure that reasonable ocean use can occur. In certain cases, moderately used areas will require more immediate attention to address specific management issues, such as a specific ecosystem effects or user conflicts. However, large portions of the Management Area are amenable to more proactive planning, with relatively limited requirements for reactive management relating to user conflict or environmental impacts.

From a management perspective, *general use areas* enable a general continuation of existing activities and uses, subject to agreed-upon criteria and management requirements for reasonable use on an area and/or sensitivity basis. The overall distribution of various types of ocean activities can be tracked and monitored at the LOMA and/or OMA scales. As part of this balanced approach, the planning process should work to identify areas that are suitable for various types of use, as well as to identify areas not suitable for certain types of use.

**Special Management Areas:** A range of spatial planning and management tools exist to address inter-sectoral interactions and planning requirements, to manage and protect specific ocean uses, or to address ecological sensitivities and associated protection requirements. For the purposes of ocean management, *special management areas* can be designated to address specific functional requirements. This flexible planning tool enables site-specific cases and requirements to be taken into consideration within the overall management framework at the LOMA and OMA levels.

The category of *special management areas* can be used to address spatial and temporal interactions among ocean uses. For this purpose, the Plan could be used to support, design and implement a range of these areas, including:

- marine utility corridors to plan, manage and protect linear developments, such as pipelines, power cables and telecommunications cables, and address spatial conflicts with other ocean uses, such as fisheries
- “priority of use” zones to enable most appropriate and sustainable use of ocean areas, based on ecological, economic, social and cultural considerations

- (e.g., traditional access and adjacency; community sustainability and dependence; resource base valuations)
- zones for safety purposes, such as safety zones around oil production platforms
  - vessel traffic control and reporting zones, including precautionary designations by the International Maritime Organization (IMO)
  - zones for scientific research, monitoring and education, including reference/control areas for assessment of management effectiveness and use impacts, and various experimental areas (e.g., exploratory fisheries)
  - zones for protecting sites of historical and cultural significance

*Special management areas* can be both regulatory and non-regulatory in nature and application, based on availability and applicability of legislation and regulations.

For the specific case of ecosystem protection, the category of *special management areas* encompasses various non-regulatory measures and approaches (i.e., short of protection that can be provided through the *protected areas* category). *Special management areas* can be used to protect areas and ecosystem components through the setting of conditions for use, monitoring requirements and mitigation measures on a site and/or sensitivity basis. Under this approach, existing licensing, permitting and environmental assessment processes are expected to function in support of the Plan and its management measures, including the adherence to minimum protection standards and uniform monitoring and reporting requirements.

**Protected Areas (regulatory-based):** A range of regulatory-based protected area designations and mechanisms exist to address specific management and protection requirements in the Management Area. These regulatory protection tools include the following:

- potential Marine Protected Areas (MPAs) designated by Fisheries and Oceans Canada (DFO) for the defined purposes of the *Oceans Act*
- wildlife protected areas designated by the Canadian Wildlife Service (CWS) for the purposes of wildlife conservation legislation (e.g., *Migratory Birds Convention Act*)
- protected areas designated by the Government of Nova Scotia under various environmental and sectoral legislation
- sector-specific closures and protection measures under various federal legislation, such as fisheries closures and restrictions under the *Fisheries Act* (e.g., Western-Emerald Haddock Closure)
- species and habitat protection measures under “Species at Risk” legislation, including provisions of species recovery plans and identification of critical habitats

## Operationalizing the Ecosystem-Based Management Area Framework

Under the ecosystem-based management area framework described above, two important and complementary management and planning approaches exist for application through the Plan: (1) ecosystem-based management as expressed in the national *Policy and Operational Framework for Integrated Management*; and (2) the current sectoral zoning approaches to ocean use. In order to provide a comprehensive planning framework that effectively addresses ecosystem-based management requirements and multiple ocean use interactions, it is important to integrate both approaches within the Plan. The integration of these management approaches requires:

- that ecosystem objectives will be met at the LOMA scale and the MEQ objectives (and social, cultural, economic and institutional operational objectives) will be met at the OMA scale
- a recognition that various management and planning zones already exist and cover most of the space within OMAs
- the application and monitoring of management objectives within management and planning zones

The MEQ objectives model can be used to explain how objectives-based management can be applied to a management zone. MEQ objectives are applied at the OMA scale and expressed as numeric or narrative statements that can be measured and monitored by the development of indicators. Reference points exist for MEQ objectives-based indicators (e.g., a *limit value* such that population size of a marine mammal that leads to extinction; and a *target value* such as the desired population size). The *target value* could be adjusted in a particular management zone to reflect the operational realities and the need to mesh with economic and social objectives. As an example, the net result could be to meet the MEQ objectives at the OMA scale by balancing a potentially lower *target value* in an intensive use area with a highly precautionary *target value* in a protected area(s).

Furthermore, sectoral zoning approaches are only effective at managing use conflicts within a sector, but not at the inter-sectoral level. To implement multiple use management, there is a need to cooperatively plan and implement agreements for the spatial and temporal use of ocean space. Institutional arrangements need to be developed to make decisions and reach agreements. The outcome of these arrangements could lead to new zoning arrangements, such as seabed utility corridors or, preferably, an arrangement that can move beyond historical zoning with its inherent problems (e.g., potential for cumulative impacts).

For practical purposes, the Plan recognizes that objectives, indicators and desired levels for environmental, social, cultural, economic and institutional objectives cannot be applied, measured or achieved uniformly across the Management Area. More generally, the Plan supports the maintenance of desired balances and trends among *intensive use*, *general use*, *special management* and *protected areas* at the overall LOMA scale and within OMAs – provided that this system is compatible with an ecosystem-based approach to management (i.e., objectives can be applied at the OMA scale). The effective application of zoning requires the

recognition of the temporal and spatial scales at which ecological systems operate, with the overriding purpose to ensure that the broader LOMA ecosystem is viable and its components are healthy. Similarly, the Plan seeks to achieve appropriate balances among economic, social, cultural and institutional objectives.

The development and application of ocean zoning requires practical considerations to ensure that resulting zones and measures can be effectively managed, monitored and enforced. This is based on the recognition that zoning schemes will be comprised of both non-regulatory/voluntary and regulatory zones. Zoning can be implemented jointly by relevant regulatory agencies in support of the management objectives and requirements for the Management Area (including the OMA and LOMA scales). In the case of voluntary zones, all affected interests will be expected to comply with zone requirements as part of their commitment to the Plan.

A range of supporting management strategies and planning tools can also be used for ecosystem-based management (with its associated objectives) and ocean zoning, including the following:

- permit/license regimes for specific activities and levels of use through sectoral management processes in support of and consistent with the Plan
- establishment of industry codes of conduct, best practices and compliance promotion strategies
- area- and sensitivity-based environmental impact and risk assessments
- research and monitoring programs
- economic measures (e.g., environmental management charges; pollution protection funds)

## 2.8 Collaborative Planning Framework

The Plan will be developed and implemented through an integrated management body established for the Management Area.<sup>13</sup> The legislative basis for the establishment of integrated management bodies is provided by Section 32 (c) of the *Oceans Act* (see **Section 2.2, Legislative Basis**). Further guidance for the structure and function of integrated management bodies is provided by the national *Policy and Operational Framework for Integrated Management*.

An integrated management body – the ESSIM Forum – has been proposed for application to the Management Area.<sup>14</sup> The key elements and functions for the ESSIM Forum are described below.

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<sup>13</sup> Integrated management bodies established under the *Oceans Act* will require formal approval by the Minister of Fisheries and Oceans.

<sup>14</sup> A proposed structure and process for the ESSIM Forum is contained in the DFO public discussion paper, *Development of a Collaborative Management and Planning Process* (see note 7). Subsequent comments and input on the proposal are summarized in the *Proceedings of the 1<sup>st</sup> Eastern Scotian Shelf Integrated Management (ESSIM) Forum Workshop* (see note 8).

## The ESSIM Forum

The ESSIM Forum is proposed as a networked structure and collaborative process to engage and link government policy and decision-making authorities and all ocean communities of interest and use sectors for integrated management and planning.<sup>15</sup> The ESSIM Forum comprises several required and inter-related levels of engagement and collaboration:

### *Multi-Stakeholder Level*

The ESSIM Forum provides mechanisms for broad engagement and participation through a multi-stakeholder planning body. This body functions as the core of the ESSIM Forum to provide inclusive opportunities for ongoing communications, information sharing, input and advice for the development, implementation and review of the Plan. This body engages all ocean interests (including government) through a range of mechanisms, including regular meetings and opportunities for discussion and input for the plan development and implementation process, and ongoing, broad-based communications and information sharing. This body may also be used to establish multi-stakeholder/expert working groups to address specific management issues and requirements for the planning process.

### *Government Level*

The ESSIM Forum provides mechanisms for government engagement at two functional levels to facilitate: (1) operational support and program coordination; and (2) executive-level policy coordination. At the operational level, government engagement and support occurs through a regional intergovernmental working group comprised of program-level staff, and which functions as a sub-group of the broader multi-stakeholder planning body. At the executive level, policy coordination occurs through a regional intergovernmental body comprised of senior departmental officials, and which responds to advice and recommendations from the multi-stakeholder planning body. These two levels of government engagement serve to provide policy and regulatory coordination, and to incorporate the objectives and measures of the Plan into planning and decision-making processes for all ocean sectors. Regulatory authorities with capabilities and responsibilities to implement agreed-upon management measures are expected to do so as part of their commitment to the Plan and the planning process.<sup>16</sup> New management and planning structures, or improvements to existing structures, may be developed to address gaps in the ocean planning process.

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<sup>15</sup> The detailed structure and mechanisms for the ESSIM Forum are being developed and are to be elaborated in a supporting document for the Oceans Management Plan.

<sup>16</sup> As part of the collaborative approach, this responsibility is not limited to regulatory authorities. Non-governmental ocean interests, such as marine industry, resource user and conservation groups are also expected to incorporate the Plan into their operations and decision-making processes.

### ***Administration and Operation***

The ESSIM Forum Secretariat, established and housed in the Maritimes Region Oceans and Coastal Management Division (OCMD), Fisheries and Oceans Canada, provides ongoing facilitation and coordination functions for the collaborative management and planning process.<sup>17</sup> Primary functions for the Secretariat are to support the various activities of the multi-stakeholder planning group, and to facilitate the development and implementation of the Plan in collaboration with the multi-stakeholder and government interests engaged in the ESSIM Forum.

### ***Decision Making***

The ESSIM Forum is not intended to remove existing decision-making authorities, powers or responsibilities. Under the collaborative approach, decision making occurs at all levels of involvement in the process – within and outside of government – according to assigned or recognized authorities and capabilities. The objectives of the ESSIM Forum and the Plan are to provide a common vision and set of balanced objectives upon which decisions are made, to ensure that decisions are made at the most appropriate levels, and to facilitate opportunities for inclusive and transparent discussion on decision-making requirements based on all relevant information and inputs.

### ***Conflict Resolution***

Cases of disagreement will be addressed through the provision of all relevant and required information and the involvement of all affected parties in discussion and consensus building through the multi-stakeholder planning process and/or through applicable intersectoral committees and mechanisms. In cases where the planning process cannot effectively address disagreements, government-led conflict resolution processes can be invoked through the responsible regulatory authorities or currently established review processes, such as those related to environmental assessment, public review and mediation processes. As appropriate, decision-making with respect to conflicts can be ultimately provided at the intergovernmental executive level in the ESSIM Forum.

## **2.9 Plan Implementation Framework**

### **Annual Plan Implementation Process**

The strategic-level Plan will be supported and implemented through annually reviewed action plans that identify and prioritize planning requirements and actions according to criteria set

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<sup>17</sup> Although the OCMD is currently performing the functions of the ESSIM Forum Secretariat, this coordinating body could be expanded in the future to include other government agencies and broader ocean interests in the ESSIM Forum.

collaboratively by the ESSIM Forum. Annual action plans will need to address a range of implementation requirements and tasks, including:

- identification and definition of management issues, priorities and short and longer-term requirements for action
- identification of significant ecological areas and protection approaches, such as marine protected area planning and other management tools
- identification of operational objectives and indicators to support general management objectives
- identification of mechanisms and frameworks for monitoring, reporting, performance measurement and review
- further definition and delineation of OMAs and prioritization of smaller-scale OMA planning and management requirements
- identification of research strategies to address priorities and needs
- development of an ocean planning framework, including the identification of criteria and mechanisms for balancing ocean use and management objectives

## Plan Monitoring and Review

### *Operational Objectives and Indicators*

For implementation and monitoring purposes, the general management objectives of the Plan will be supported by sets of operational objectives with indicators, reference points, triggers for management action, and performance measures. This will be done for each category of management objectives, namely environmental, social, cultural, economic and institutional. The key elements of these operational objective sets include the following:

**General Objective:** High-level, qualitative statement of desired state, condition or outcome being supported by operational objective set.

**Operational Objective:** Statement with direct and practical interpretation for management purposes and against which performance can be evaluated quantitatively (i.e., targets/thresholds) and measured practically.

**Indicator:** Quantity that can be measured and used to monitor changes over time for the operational objective.

**Reference Point/Level:** Value or condition of an indicator corresponding to a management target or threshold. There are two types of reference points: (1) *limit* reference points and (2) *target* reference points.

**Trigger:** Value or condition of an indicator corresponding to a pre-determined management action. (Note: A reference point may also be an indicator)

**Management Action:** Pre-determined management measure or action taken in response to negative performance of an indicator (i.e., trigger value is met or trend towards it is detected).

**Performance Measure:** Quantitative measure of management performance derived from value of an indicator and compared to a reference point or level.

For each operational objective, roles and responsibilities will be identified and established to monitor indicators and reference points, and related reporting and corrective management actions will be exercised according to existing management authorities and responsibilities. The operational objectives for the Plan will be developed, monitored and reviewed through the annual plan implementation process within the ESSIM Forum.

### ***Plan Review Process***

The timelines for plan review and performance assessment will include a five-year review of the strategic-level Plan and annual reporting and reviews of supporting action plans. The process for revising the Plan or supporting action plans will adapt as required to changes, such as increasing levels and types of ocean use, new scientific understanding and evidence for adaptive management and conservation requirements, and other changing environmental, social, cultural, economic and institutional circumstances.

### **Plan Approval and Implementation Arrangements**

Approval of the Plan is to be provided by the ESSIM Forum through the multi-stakeholder planning group and the executive-level intergovernmental body. Approval and implementation arrangements for the Plan may include formal arrangements (e.g., departmental policy statements or Memoranda of Understanding) or informal arrangements (e.g., letters of agreement or intent; practice). In addition to individual approvals within various agencies and organizations involved in the planning process, the provisions of the *Oceans Act* require formal approval of the Plan by the Minister of Fisheries and Oceans.

Plan implementation will occur through a networked approach, based on existing powers and planning mechanisms in government and ocean sectors.<sup>18</sup> As described in **Section 2.8, Collaborative Planning Framework**, regulatory authorities and ocean sectors with capabilities and responsibilities to implement agreed-upon management measures are expected to do so as part of their commitment to the Plan and the collaborative planning process. Regulatory authorities with mandates over non-participants in the process will need to ensure that activities of non-participants are conducted according to the management objectives and measures in the Plan. Similarly, industry and ocean use sectors are expected to apply the objectives and measures within their respective sectoral planning process and to demonstrate adherence to the Plan.

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<sup>18</sup> It is important to note that even without the full endorsement or participation of all interests, some management actions will still proceed to meet existing jurisdictional responsibilities. For example, actions necessary for marine conservation can proceed under the mandated authority of the Minister of Fisheries and Oceans.