

Cultivating Growth in Canada's Ocean Economy: Smart Planning Would Lead to Jobs and Safeguards for the Environment

By Nicole Schaefer and Andrew Dumbrille

It's a fairly unconventional headline for an environmental group like WWF to write. Promoting growth is usually left up to industry or government. In this case WWF has gotten onto this particular bandwagon because we've found that the core principles, of what planners are calling Marine Spatial Planning, lead to ecosystem-friendly co-ordination of human activities at sea and smart, sustainable use of resources.

Basically, Marine Spatial Planning gathers together all the industries, indigenous groups, governments, NGOs, local communities and other ocean users to develop a management regime for the future use of any given ocean space. It's a process that involves the visualization of ocean uses and potential conflicts of interest in the form of marine spatial plans and eventually results in management decisions for ocean space. In that sense marine spatial plans are like community plans for our oceans. On land, community plans help make sure that our cities and towns remain livable and prosperous as they grow. In the same way, marine spatial plans provide for economic activity, environmental protection and sustainable development in the ocean.

So how does this cultivate economic growth? Simply put if we don't proactively engage in managing our oceans resources we're going to be mired in conflicts and inefficient processes. Nobody wants to invest in a climate like that.

What policy makers have to realize now is that in some respects the writing is on the wall. The economic drivers for a comprehensive planning process like Marine Spatial Planning are gradually beginning to appear. As Canada struggles to transform its energy economy, there is renewed interest in offshore oil and gas extraction, as well as emerging opportunities for ocean renewable energy resource development. At the same time, the environmental damage that our dependence on fossil fuels is causing to marine ecosystems has become more apparent. There is no better example than the recent oil spill in the Gulf of Mexico.

In Europe offshore wind power was and continues to be one of the biggest drivers for forward looking marine planning. Due to European legislation that supports the development of renewable ocean energy and seeks to achieve a significant reduction in greenhouse gas emissions, offshore wind farm development is catching up. Several countries, including Germany, The Netherlands, Denmark, and the UK have announced national political goals regarding the amount of offshore wind power they intend to install until 2020. Offshore wind farms need ocean space, space that might already be occupied by other, traditional marine uses like marine transport, shipping or fishing. These uses are not necessarily compatible with each other. In fact, fisheries activities are usually banned from offshore wind farm sites for security reasons. Consequently, different marine uses are increasingly competing for limited ocean space.

Here in Canada, just this past month the federal government announced \$20 million in funding for a tidal project in the Bay of Fundy and the purchase of four subsea cables. The province has also started a consultation process to help create legislation for renewable marine resources.

Competition for marine space is in general more likely to happen in densely used ocean regions. But it is not limited to these areas. On our Pacific coast, a large offshore wind development has been proposed for an area in Hecate Strait that is also the site of BC's largest commercial crab fishery. Representatives of both industries point to the value of marine spatial planning as a vehicle for moving from conflict to productive conversations about how these two activities could co-exist.

In the mid nineties, Canada established a leadership position by recognizing the need for an integrated approach to oceans management by passing the Oceans Act. The Oceans Act mandates DFO to implement marine planning and the current government has made progress in different regions in different ways on this. What we don't have is a comprehensive approach similar to the U.S. They've taken a nationally coordinated, but regional approach to federal waters to deal with conservation, conflicts, science and making decisions that will benefit local economies and ensure sustainability.

As our governments grapple with ballooning debt and an economy that looks more and more like a calm ocean sunset it may be worthwhile to be proactive when it comes to our 'blue' economy and job creation by cultivating growth. Smart oceans planning now means increased economic growth in modern, future oriented industries, less debt, livable, sustainable communities and an ecosystem that's healthy well into the future.

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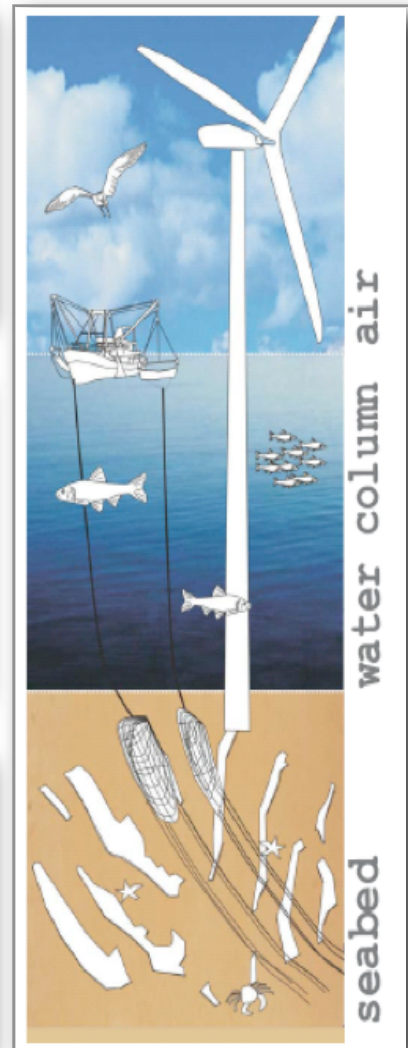
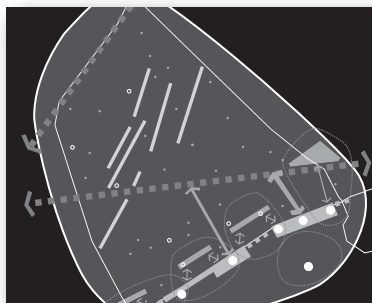
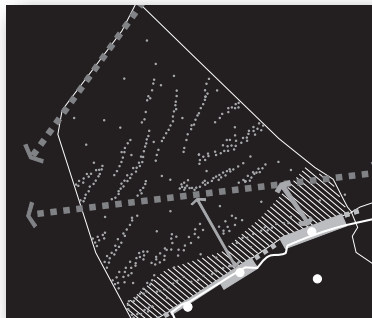
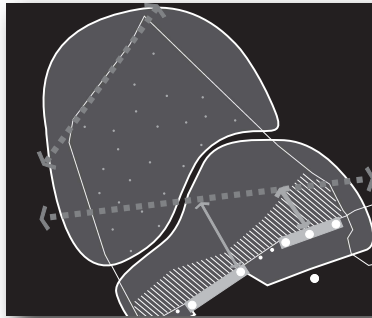
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RECOMMENDATIONS ON NATIONAL DIRECTION

Towards MSP implementation in Canada

FINAL REPORT 20 AUGUST, 2010

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EXECUTIVE SUMMARY

Marine Spatial Planning (MSP) is an internationally emerging policy tool for the spatial and temporal management of ocean space. In this sense, MSP is not a policy unto itself. The procedural set-up of MSP seeks to achieve improved policy- and decision making and provides an appropriate framework for arbitrating between competing human activities and managing their impact on the marine environment. It is therefore considered one of the key process to aid the implementation of integrated ocean management (IOM) policies in numerous countries around the world.

The ecosystem-based approach is the underpinning principle of any MSP implementation.

Canada positioned itself as an international leader for comprehensive ocean policy development with the adoption of its *Oceans Act* in 1997. The Act establishes a general foundation for integrated policy making across government departments, and is supported by the *Oceans Strategy* (2002). The strategy provides more explicit guidance for integrated planning and management of the oceans, their natural resources and ecosystems.

Despite Canada's designation of five Large Ocean Management Areas (LOMAs) under the *Oceans Act* and two Integrated Management Plans (IMPs) it is fair to say that comprehensive MSP has not been implemented in Canada.

It is undisputed, that **both the *Oceans Act* and the *Oceans Strategy* provide a solid framework for the development and implementation of MSP in Canadian waters.**

In many European countries MSP implementation has been driven largely by increased competition for marine space, as well as conflicts between marine sectors. Canada is in a unique position due to the large size of marine areas and the lesser density of use. Current conflicts are perceived as mainly "bi-sectoral" and solutions are often found between the sectors involved. The human activities at sea will significantly increase in the upcoming decades. As the situation changes there will need to be new methods of conflict resolution.

Canada's Oceans Strategy has highlighted the fact that failure to implement forward-looking planning and management of ocean space will likely result in costs such as increased conflicts and competition for ocean space, lost economic opportunities and continued environmental degradation.¹

Such conflicts weaken the "ability of the ocean to provide the necessary ecosystem services upon which humans and all other life on Earth depend."² A **proactive approach to policy and decision-making** is of utmost importance.

The *Oceans Act* and the *Oceans Strategy* are both forward looking in their design. This provides the Canadian government with the

¹ Canada's Oceans Strategy, page 16

² Ehler et al., Marine Spatial Planning. A Step-by-Step Approach toward Ecosystem-based Management, page 19



outstanding opportunity to prepare for the future rather than only react.

RELATION BETWEEN IOM AND MSP

MSP is an appropriate process to enhance and strengthen Canada's IOM Program. MSP does not require any user-user or user-environment conflicts to reach its full potential.

The integrated management (IM) planning process is described in the *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada*. The policy framework in Canada describes six stages for IM:

- defining and assessing a management area;
- engaging affected interests;
- developing an Integrated Management plan;
- endorsement of plan by decision making authorities;
- implementing the plan; and
- monitoring and evaluating outcomes.

The IOM Program has delivered on the first three of the aforementioned six steps through designating five LOMAs, developing IM plans for these areas, assessing, mapping of human activities and establishing stakeholder engagement processes.

The vision, goals, guiding principles, and approaches of the IM plans remain at a very general, strategic level providing only superficial guidance for concrete implementation.

MSP offers the means to advance and deliver on the remaining three steps of decision-maker endorsement, plan implementation and outcome monitoring. MSP differs from IOM most clearly in its **spatial dimension, including the transmission of existing knowledge on the marine ecosystem and human activities at sea into a strategic management regime for marine space.**

MSP would not duplicate existing knowledge that has been gathered by IM processes. Rather, MSP capitalizes on existing knowledge and transfers it into **concrete spatial management planning.**

MSP does not attempt to halt use, but aims to create a framework for society to operate in such a way that **unwanted effects are minimized and desired effects are maximized.**

BENEFITS AND CHALLENGES

Countries utilizing and preparing MSP have been convinced it will provide significant economic benefits.³ The likely effects of MSP implementation include enhanced:

- coordination and simplified decision processes;
- legal certainty for all stakeholders in the marine arena;
- cross-border cooperation; and
- coherence with other planning systems.

The United Kingdom and the European Commission have attempted to prove and measure the economic benefits of MSP concretely.

MSP implementation also faces several challenges that must be considered:

³ The UK for instance carried out a study on economic benefits of MSP to accompany the development of its Marine and Coastal Access Act (see Marine and Coastal Access Act 2009 Impact Assessment, <http://www.defra.gov.uk/environment/marine/documents/legislation/marine-ia-0410.pdf>). Similarly, The European Commission launched a study on economic benefits of MSP, based on some specific case studies that should soon be available at http://ec.europa.eu/maritimeaffairs/spatial_planning_en.html#3

- The need to ensure **political will and leadership**. MSP is a cross-departmental and intergovernmental approach that integrates all concerned marine sectors and users. Related support throughout a government (both regarding financial and human resources allocated to the process) is a *conditio sine qua non* in this regard.
- The **involvement of ALL marine sectors**. It has been found that certain stakeholders are easier to involve than others.
- The **necessity to create an ownership of the process** among all stakeholders. Intensive and active stakeholder involvement is essential and requires an investment of time.
- **Accountability and enforcement** of MSP. In order to avoid the “toothless tiger” MSP has to have some regulatory power.
- The **need of trust-building** both between different marine sectors and between these sectors and scientific advice.

WHERE IN CANADIAN WATERS?

In order to successfully embark on MSP in Canada it is **essential to determine the implementation context**, as Canadian waters are unique. There are various factors that ensure this as Canadian waters are not as densely populated and they are vast. It is also thought that Canadian waters may not need the same level of detail and prescription. MSP is beneficial if implementation sites are carefully chosen, guiding reasons are determined, and expectations are defined and transparently communicated.

One of MSP’s strongest potential is its **forward-looking, future-oriented dimension**. It helps to shape the development of a marine area in a desirable way.

When choosing areas for MSP implementation in Canada the following aspects should be considered:

- (a) **LOMAs**. The criteria that led to the designation of the five LOMAs are likely to be different from criteria that would be needed to identify MSP areas. LOMAs may not even cover areas that would particularly benefit from MSP. Areas determined for MSP implementation should therefore not be limited only to existing LOMAs.
- (b) **Cross-border cooperation**. Although Canada’s oceans are large they are impacted by planning and developing activities of neighboring countries. Areas that would benefit from strengthened cross-border cooperation and a common understanding of the related marine ecosystems may thus be particularly interesting areas for a Canadian MSP approach.
- (c) **Ecological vulnerability and value**. MSP offers a framework to integrate different planning approaches helpful to particularly at risk ecosystems such as areas of high ecological vulnerability, value or risk potential. Conservation measures like marine protected areas (MPAs), “no-go” or “no-take” areas could be integrated in a holistic picture pursued by an MSP process.

The **definition of goals and management objectives** is one of the key components in MSP. Appropriate objectives are necessary to ensure the forward-looking dimension, are essential for the buy-in of marine sectors and for the acceptance of the MSP results by all concerned stakeholders. They also provide the bottom-line against which the performance of an MSP process can be monitored and evaluated.

As in the IOM process **MSP objectives should balance ecological, economic and**



social factors to reflect the integrated character and should be based on input from stakeholders. **MSP objectives have to be measurable** and should be linked to specific targets and indicators.

Beside the importance of defining goals and objectives at different scales and levels of detail, **appropriate timelines** have to be considered as well. While the strategic objectives will be long-term in nature, planning objectives have to be more mid-term and objectives for implementation should be achievable in a relatively short period.

WHICH APPROACH IS APPROPRIATE?: A CANADIAN-SPECIFIC “NESTED” APPROACH

Neither the global ocean nor Canadian waters are homogeneous. Successful MSP requires management that accounts for the **oceans’ dynamics in space and time**. Given the size and heterogeneity of each LOMA, stakeholders and experts felt that a Canadian-specific approach to MSP implementation is needed.

The idea of a “**nested**” **MSP approach** has been highlighted. Nesting would imply at least two different meanings with regard to:

- (a) **Scale** - in terms different scales that have to be considered.
- (b) **Scope** - in geographical area that needs to be managed.

IOM developments in Canada have led to quite extensive data gathering and assessments of existing human activities in LOMAs. The IM planning processes,, however, have a weak forward-looking dimension. Data and information collection, as well as mapping, has largely focused on existing human activities. **MSP offers an appropriate framework to capitalize on the**

existing knowledge and advance it into future-oriented management of ocean space.

WHAT TOOLS ARE REQUIRED?

Mapping and visualization are essential tools to reduce the complexity of marine ecosystems and engage stakeholders. The different types of information that should be mapped by an MSP process are **(a) biophysical conditions, (b) human uses, and (c) political and legal arrangements.**

Taken together in integrated maps, these biophysical, socio-economic and jurisdictional overlays can produce meaningful operational use scenarios of places suitable or sensitive to particular activities. Resulting maps provide an appropriate mechanism to base decision making and informed planning processes.

A lot of effort has been put into the collection and mapping of biophysical and some socio-economic data for the IOM processes in the Eastern Scotian Shelf (ESSIM) and the Beaufort Sea. But this information has not been overlaid to create integrated maps incorporating biophysical, socio-economic and jurisdictional data.

It is important to recognize that **MSP is not equal to zoning**. Zoning is only one tool that can be used within the MSP process. MSP also involves criteria setting, identification of thresholds, and the use of planning targets and planning principles.

Generally an **MSP process has two important outputs:**

- A **comprehensive marine spatial management plan** for a given marine area or ecosystem.
- The **process that leads to the development of this plan**, including its implementation and subsequent monitoring.

Both outcomes are equally important. Only a soundly built process will lead to a well-balanced and widely accepted marine spatial plan.

Implementation is key. Even the strongest process where all important and initially “unwilling” participants are involved, will eventually lose momentum if the development of a marine spatial plan does not lead to implementation. It is of utmost importance to ensure that the parties involved have the power and responsibility to implement the marine spatial plan.

WHO HAS BEEN USING THE OCEAN AND WHO WANTS TO USE IS? THE NEED FOR INTEGRATION

Traditional marine uses have been managed on a sector-by-sector basis, in accordance with single industry regulations and guidelines. This approach is quickly becoming no longer possible. New uses such as offshore aquaculture and offshore renewable energy (tidal, wind and wave) claim limited marine space. Some uses may be generally compatible, others might only be compatible during parts of the year and some might not be compatible at all, but all require marine space and intact marine ecosystems. MSP provides a sound management basis to **balance diverging sectoral interests and establish a platform to foster a collective understanding of, and consensus around, the sustainable use of the ocean amongst all users concerned.**

Existing competition between different marine uses notwithstanding, **synergies between sectors** can be identified and created. The three-dimensional character of ocean space provides an **excellent opportunity for human activities to share space for multiple purposes.**

Marine industry stakeholders highlight that research and other investments undertaken

by industries will yield greater value and become more efficient if the needs and priorities of other users were incorporated. A **baseline centre for information and data exchange** regarding the marine environment is needed.

MSP provides an appropriate framework to assess and explain the **role of each sector in a given marine area** and integrate all uses in an entire ecosystem-based management regime. This integration can aid the enhancement of economic prosperity and assist the fulfilment of sectoral mandates in a more sustainable and environmentally sound way.

WHO SHOULD BE INVOLVED?

MSP is a **participatory process.** The timely and proper involvement of stakeholders is a key component to development and implementation of an MSP process. Who, when and how stakeholders are involved will significantly influence the buy-in, success and long-term acceptance of MSP in a given area.

MSP seeks to achieve **multiple goals (economic, social and ecological).** It is essential to identify key stakeholders that should be involved to achieve these goals.

In Canada, valuable knowledge and experience has been gained for stakeholder involvement during the development of the existing IM plans. MSP implementation could be build on this experience, using the established groups and fora. It is essential to ensure that all important parties are on board and consider how “unwilling” participants can be brought to the table.

It has also to be ensured that MSP **ties well into other government processes and activities.** Involvement of relevant government departments throughout to an MSP process is essential.



Utilizing proper terminology and easy to understand language is crucial to stakeholder participation, and the involvement of marine industries in particular. The MSP process and the role stakeholders are expected to play have to be communicated in a clear manner for each party involved. The development of an appropriate **communication strategy** is essential. Such a strategy should clarify:

- At which stages during the MSP process stakeholders will be involved;
- How often stakeholders will have their say and upon which topics;
- What the results of each stakeholder involvement are and how they will be incorporated in the MSP;
- How stakeholders' contribution is going to be used;
- What role stakeholders will play during implementation of the marine spatial plan;
- What the next steps are.

WHEN?

TIMELINES AND ORGANIZATIONAL PROCESS

It is difficult to determine in general terms an appropriate timeline for the MSP process as such timing shifts depending on various factors, such as legal obligations, the required level of detail, prescription and, complexity as well as the type and duration of stakeholder involvement. It is essential, however, to **have a timeline that is defined**.

Based on international experience 18 to 24 months is a reasonable period to develop a marine spatial plan. This development must subsequently be followed by implementation and enforcement measures, as well as an evaluation and monitoring process.

Monitoring is integral to ensuring the adaptability of MSP. An appropriate **monitoring system should be developed as**

early as the entire MSP approach is established.

There is also no common rule regarding the ideal timeframe after which MSP performance shall be evaluated, and revised. International examples regard a period of five to seven years as reasonable for meaningful assessment.

Canadian stakeholders considered the **development of action programs and plans** as one of the most important achievements of the MSP approach. The MSP process should be accompanied by concrete action plans. These plans should attempt to achieve the deliverables of each individual step. This would help to break a complex planning regime into digestible steps and increase the transparency of the process.

WHOSE OCEAN IS IT? RESPONSIBILITIES AND ADMINISTRATIVE STRUCTURE

Accountability is one of the key factors for successful MSP implementation. Canadian stakeholders generally state that the *Oceans Act* and the *Oceans Strategy* provide a sound basis for MSP implementation. However, a current lack of accountability for MSP has been identified. The question of who is to be held accountable for MSP, its implementation, and how it could be enforced, remains unsolved.

There are generally three options for establishing a legal basis of a responsible MSP authority:

- (a) create new legislation tailor made for MSP;
- (b) depart from existing legislation (as an example, modify land use legislation to be adapted to a marine environment);
- (c) re-interpret existing legislation.

As Canada has the *Oceans Act* new legislation may not be required. It might be necessary, nevertheless, to develop regulations to

specify the *Oceans Act* and enforce MSP implementation, including guidance how to build the process, which government departments have to be involved and who has the final decisive power in case of conflict.

To identify an authority responsible for MSP development and implementation, two possible options are used internationally:

- (a) Creating a new authority that is responsible for marine planning (and probably even gets the power to issue related licenses); or
- (b) Establishing MSP by using existing responsibilities and mandates.

Given the mentioned current lack of accountability, Canadian stakeholders do acknowledge the leading and facilitating role of the Department of Fisheries and Oceans (DFO). However, they are of the opinion that a **strong commitment of all concerned government departments and a clear link between these departments is urgently needed** to establish MSP in Canada. This requires an assignment of appropriate resources for the development and implementation of MSP. Development can not be and it should not be promoted only by DFO.

A **cross-departmental agreement** to span all relevant government departments could be an appropriate way forward. Such agreement should be **signed on to at least at the Deputy Minister's level**. A high level of political commitment is key to move forward meaningfully as there are challenges to fitting MSP in existing government structures and merging the necessary "modi operandi".

In order to overcome every departments agenda, interests and objectives the development of an **independent body for MSP** (either a temporally established Task Force, as done by the USA and the European

Union, or an interdepartmental agency) could be beneficial. The organizational structure would not have to be large, but would provide a neutral forum to coordinate the development and implementation of MSP.

An appropriate administrative structure would be necessary to support MSP implementation. The specific Canadian configuration of rights and responsibilities through different federal, provincial/territorial and indigenous levels must be accounted for. Taking national and international experiences into account, there are two examples of administrative structures that might be relevant to consider:

- (a) The offshore petroleum boards that were established between the federal and provincial government such as the Canada-Nova-Scotia Offshore Petroleum Board (CNSOPB), as well as the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB); and
- (b) Regional Planning Bodies intended to be established through the Coastal and Marine Spatial Planning (CMSP) framework in the United States.

Both structures offer interesting approaches that require further analysis and consideration to determine their suitability for MSP implementation in a Canadian context.

WHAT ELSE IS NEEDED?

In Canadian waters, the following aspects have to be taken into account:

- The need for a **gap analysis to prove the added value of MSP**. Such a study should be undertaken to identify existing sectoral legislation and regulations that would either impact ocean management, MSP or would be affected by an MSP regime. The analysis must address current weaknesses,



contradictions and gaps within existing regulations, then suggest how MSP would be beneficial and fill the gaps. Additionally, the value of MSP over and above what current management processes provide should be identified.

- Appropriate methodologies are urgently needed to measure both economic and ecosystem benefits making MSP positive effects more tangible. **Applied research is needed to support MSP development and implementation. Tools** utilized within MSP should reflect the three-dimensional character and the dynamics of marine ecosystems, spatially and temporally. It is undisputed that sound MSP would have to be based on **cumulative impacts and effects of human activities** at sea. However, appropriate methodologies to measure these effects are not yet in place. It is widely anticipated that MSP leads to economic and ecosystem benefits. Attempts to prove related positive effects and measure them in concrete figures remain scarce. A clear picture of benefits to be expected from MSP would assist marine industry buy-in and obtain the support from critical stakeholders.
- Sufficient scientific resources have to be allocated to accompany MSP development and implementation.
- Implementation is key and sufficient funding is a *conditio sine qua non* for MSP initiation, the establishment of the entire process including stakeholder involvement, development of scenarios and a marine spatial plan as well as monitoring and evaluation.

LIST OF RECOMMENDATIONS

1. Establish political leadership for the development of an MSP regime in Canada. This could be achieved through a cross-departmental agreement signed by the Deputy Ministers of all sectors and policy fields concerned.
2. Increase cooperation amongst government departments for ocean management through a robust leading and facilitating mandate fulfilled by the DFO, and supported by all departments concerned.
3. Reactivate the federal, Deputy Ministers' Interdepartmental Committee on Oceans as a steering group for further IOM and MSP development.
4. Launch studies on economic and ecosystem benefits of MSP in Canada.
5. Determine Canadian pilot sites for MSP implementation.
6. Organize regional workshops in each ocean region to identify appropriate pilot sites.
7. Develop a long-term vision for each area that MSP is to be implemented.
8. Review identified strategies by IOM processes if they are suitable to support MSP implementation and revise them if needed.
9. Develop objectives and timelines to guide the MSP process at all levels including the strategic, planning and implementation stages.
10. Define criteria and indicators to measure the implementation objectives.
11. Assess existing human activities in MSP areas and analyze their cumulative impact both in terms of occurrence and intensity.
12. Assess predictable future human activities in MSP areas.
13. Develop scenarios for MSP areas to determine the desired development of these areas taking predictable future activities into account.
14. Strengthen research on measurement of cumulative impacts of human activities.
15. Develop nested approach for MSP implementation in Canada - both in scale and scope.
16. Overlay biophysical with socio-economic and jurisdictional information and visualize the results.
17. Develop multi-layer maps to identify areas of conflict, of particular vulnerability, and of high ecological value.
18. Develop a "Canadian toolbox" for MSP that is tailor-made for the specific framework conditions in Canadian waters and can be applied in different marine areas.
19. Develop marine spatial plans for selected areas through sound processes and ensure responsibility for implementation.
20. Apply the ecosystem based approach within all government departments.
21. Foster research regarding the compatibility of marine uses and cumulative effects of human activities on the marine environment.
22. Identify potential synergies between different marine uses and opportunities for marine multi-use areas.
23. Integrate fisheries management with MSP and marine protected areas planning.
24. Develop guidelines for data gathering and establish a baseline information platform regarding the marine environment.
25. Define key stakeholders to be involved in both development and implementation



of MSP in Canada by capitalizing on experience gained through the IOM process.

26. Develop a communication strategy that clearly defines stages, timelines and purpose of stakeholder participation.
27. Develop reiterating consultation rounds.
28. Establish permanent stakeholder groups as a means to ensure balanced representation of different interests and coordinated feedback.
29. Support stakeholder groups with scientific advice on certain topics to strengthen and inform their stance.
30. Define an appropriate time frame to develop and implement marine spatial plans in Canadian waters.
31. Define an evaluation period for marine spatial plans.
32. Communicate both the time frame and evaluation period to all concerned stakeholders.
33. Develop action plans according to each step of the MSP process that are tailor-made for the Canadian framework conditions.
34. Investigate alternatives for a Canadian MSP authority using the *Oceans Act* as a basis.
35. Elaborate on different administrative structures to implement and enforce MSP through a regional approach.
36. Establish an authority and administrative structure for MSP in Canada by deciding from the best and most functional alternatives.

1. RATIONALE

“Arriving at one goal is the starting point to another.”

(John Dewey)

1.1. DEFINITION OF MARINE SPATIAL PLANNING

Marine spatial planning (MSP) is an internationally emerging tool for the management of ocean space. According to the United Nations Educational, Scientific and Cultural Organization MSP is a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives that usually have been specified through a political process.⁴

Figure 1: MSP Cycle



Source: PlanCoast Handbook on IMSP, www.plancoast.eu

The above figure illustrates the procedural steps of the MSP approach and its circular character.

MSP is not a policy unto itself but a policy tool that aids the implementation of integrated management (IM) of the seas and oceans. The procedural structure provides an appropriate framework for improved policy and decision making, as well as a mechanism for arbitrating between competing human activities and managing their impact on the marine environment. The ecosystem-based approach is the underpinning principle of any MSP activity.

1.2. CURRENT STATE OF PLAY IN CANADA

In January 1997 the Government of Canada brought the *Oceans Act* into force. The *Oceans Act* calls for the Minister of Fisheries and Ocean to “lead and facilitate the development and implementation of a national strategy for the management of estuarine, coastal and marine ecosystems [...]”⁵ The Minister is also called to develop and implement related policies and programs⁶ and to “encourage activities necessary to foster the understanding, management and sustainable development of oceans and marine resources.”⁷

In 2002 the Government of Canada adopted Canada’s *Oceans Strategy* which responds to the *Ocean Act* requirement to develop a national ocean management strategy. The strategy “seeks to implement a program of Integrated Management planning to engage partners in the planning and managing of ocean activities. [...]” Integrated management establishes decision-making

⁴ Ehler et al., *Marine Spatial Planning. A Step-by-Step Approach toward Ecosystem-based Management*, page 18

⁵ *Oceans Act*, Part II, *Oceans Management Strategy*, paragraph 29

⁶ Cf. *Oceans Act*, Part II, *Oceans Management Strategy*, paragraph 32

⁷ *Oceans Act*, Part III, *Powers, Duties and Functions of the Minister*, paragraph 40



structures that consider both the conservation and protection of ecosystems, while at the same time providing opportunities for creating wealth in oceans-related economies and communities.

While the Act lays the more general foundation for integrated policy making across government departments, the Strategy provides more explicit guidance for integrated planning and management of the oceans, their natural resources and ecosystems.

It is undisputed that the *Oceans Act* and the *Oceans Strategy* provide a solid framework for the development and implementation of MSP in Canadian waters.

Despite the designation of five identified Large Ocean Management Areas (LOMAs) under the *Oceans Act* in Canada and two Integrated Management Plans (IMPs) for the Eastern Scotian Shelf (ESSIM) and the Beaufort Sea it is fair to say that comprehensive MSP has not been used in Canada so far.

1.3. REPORT'S OBJECTIVES

As part of its National Oceans Governance Project, the Ottawa Bureau of WWF-Canada in collaboration with Fisheries and Oceans Canada is examining the application of MSP as an appropriate instrument to deliver and enhance integrated oceans and coastal management in Canada.

To advance IOM a research project was launched to develop recommendations for a National Direction to design and implement MSP in Canada. Deliverables covered by the project include:

- (a) a report on the results of a comparative research on international experience with MSP;

- (b) a series of interviews conducted with Canadian experts and stakeholders as well as a report on the identified key messages;

- (c) the conceptualization and organization of an Oceans Summit on MSP which was held 15 June 2010 in Ottawa; and - derived from the above mentioned results -

- (d) the elaboration of national recommendations for MSP implementation in Canada

This is the final report of the project and ties the results of the previous deliverables together.

2. WHY MSP IN CANADIAN WATERS?

"Things alter to the worse spontaneously, it they be not altered for the better designedly."

(Sir Francis Bacon)

In 1997 with the adoption of the *Oceans Act* Canada became the first country in the world with a comprehensive ocean management legislation. Five years later, Canada's *Oceans Strategy* was created, which described the costs that would accompany a failure to implement a management strategy. The identified cost include increased conflicts and competition for ocean space, lost economic opportunities and continued environmental degradation.⁸ The *Oceans Strategy* seeks to bring environmental, economic and social considerations together by planning for sustainable ocean use.

In comparison to countries with established MSP, Canada is in a unique position. Most marine user conflicts that currently occur in

⁸ Canada's Oceans Strategy, page 16



Canada are perceived as “bi-sectoral” where solutions can be found between the sectors involved. Additionally, most of Canada’s large marine areas are not as densely used as parts of the US or European waters. But this situation is likely to change.

In the coming decades human activities at sea will increase significantly. Technology development will allow uses like oil and gas exploitation or offshore renewable energy production to move further offshore. Research for offshore aquaculture is already in progress and “blue biotechnology” will likely increase its importance and economic value. There is no doubt that shipping and marine transport will face large growth rates, particularly with new areas due to changing climate conditions. These conditions will also cause modifications in species distributions and habitats.

The above mentioned conflicts weaken the “ability of the ocean to provide the necessary ecosystem services upon which humans and all other life on Earth depend.”⁹ A proactive approach to policy and decision-making is therefore of utmost importance.

The *Oceans Act* and the supporting *Oceans Strategy* are forward looking in their design. They provide the Canadian government with the outstanding opportunity to prepare for increasing marine uses, pressures on the ecosystem and, competition for limited marine space, as well as developing a marine management regime based on the ecosystem approach.

MSP is a future-oriented process that can enhance and strengthen Canada’s integrated ocean management. It does not require any user-user or user-environment conflicts to reach its full potential.

MSP can address current conflicts, provide a framework to develop appropriate management strategies to help to prevent conflicts and, manage the cumulative effects of human uses on the marine environment. MSP assists in the maintenance and security of marine ecosystem integrity.

2.1. DOING NOTHING IS NOT AN OPTION

During the past five to ten years it has become common knowledge that the goods and services provided by marine ecosystems are seriously compromised. This knowledge has led to a shift in marine science towards more solution-driven research. And has moved marine policy from management of individual sectoral activities to integrated, ecosystem-based management.¹⁰

IM is a central principle of Canada’s *Oceans Act*. It is a commitment to planning and managing human activities in a comprehensive manner while considering all measures necessary for the conservation, protection and sustainable use of ocean resources and the shared use of ocean areas.¹¹

The IM planning process as described in the “Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada” involves six inter-related stages:

- defining and assessing a management area;
- engaging affected interests;
- developing an Integrated Management plan;
- endorsement of plan by decision making authorities;

⁹ Ehler et al., *Marine Spatial Planning. A Step-by-Step Approach toward Ecosystem-based Management*, page 19

¹⁰ Cf. Crowder, L., Norse, E., *Essential ecological insights for marine ecosystem-based management and marine spatial planning*, page 772

¹¹ Cf. http://policyresearch.gc.ca/page.asp?pagenm=2010-0045_06, visited June 30, 2010



- implementing the plan; and
- monitoring and evaluating outcomes.

The IOM Program has delivered mainly on the first three steps. Five LOMAs have been identified and IM plans have been developed for two of these areas: ESSIM and the Beaufort Sea. The areas have been intensively assessed, human activities have been mapped and all concerned stakeholders have been involved in the process. The vision, goals, guiding principles and approaches of these plans, however, remain at a very general, strategic level and provide little guidance for concrete implementation.

The *Oceans Act* is a federal government act, it is anticipated that the involvement of all relevant government departments will be challenging. The reasons for this are numerous:

- Sectoral policies follow their own agenda and have to fulfill their own mandate. The involvement in an IM process must provide added value to achieve this mandate;
- IM and planning is extraneous to the traditional “day to day business”. These planning tools introduce a new method of decision making that must either aid, or not hinder, the daily demands.
- IM and planning has to function within existing limited resources. Commitment and buy-in is necessary from all relevant departments to ensure sufficient resources for the planning and implementation phase.
- Synergies and co-benefits between different sectors have to be highlighted. The role different sectors play in MSP is either not clearly identified, or not

appropriately communicated and understood.

- The IOM structure is very “process heavy” and provides too few tangible outcomes.

MSP offers the means to advance IOM and deliver on the remaining three steps. The strongest element that distinguishes MSP from the IOM is its spatial dimension in that it transmits existing knowledge and data about the marine ecosystem and human activities at sea into a strategic management regime for marine space.

MSP would not duplicate existing knowledge. Instead it would utilize the completed IM work and transfer it into concrete spatial management planning. MSP would identify spatial and temporal criteria for the use of a given sea area, identify suitable areas for particular uses, examine potential synergies between different marine sectors in order to achieve - where appropriate - multi-use areas; identify particular vulnerable and high value habitats and suggest measures to protect them and, help to streamline decision-making via informed planning.

2.2. BENEFITS AND CHALLENGES

MSP does not aim to hinder use. Rather it aims to create a framework for society to operate so unwanted effects are minimized and desired effects are maximized.

Countries utilizing or preparing MSP believe that it provides significant economic benefits.¹² The likely effects of MSP implementation include:

- enhanced coordination and simplified decision processes;

¹² The UK for instance carried out a study on economic benefits of MSP to accompany the development of its Marine and Coastal Access Act (see Marine and Coastal Access Act 2009 Impact Assessment, <http://www.defra.gov.uk/environment/marine/documents/legislation/marine-ia-0410.pdf>). Similarly, The European Commission launched a study on economic benefits of MSP, based on some specific case studies that should soon be available at http://ec.europa.eu/maritimeaffairs/spatial_planning_en.html#3

- enhanced legal certainty for all stakeholders in the marine arena;
- enhanced cross-border cooperation; and
- enhanced coherence with other planning systems.

Initial studies undertaken by the United Kingdom and the European Commission have attempted to prove the anticipated economic benefits with concrete figures. Due to the specific framework conditions in Canadian waters the results of those studies may not be directly transferable, but the main arguments remain valid. The benefits include:

- (a) Coordination benefits for governments are likely to be a result of MSP due to improved cooperation amongst government departments and integrated decision making;
- (b) A properly designed MSP approach will lead to lower transaction costs for companies operating in the marine environment. For example, marine activities like offshore oil and gas, wind or wave energy require significant exploratory time and investigation to identify the optimal location. MSP would incorporate assessments and analysis of scenarios to identify appropriate sites for these activities and thus increase planning and investment certainty.
- (c) Society will benefit from the enhanced certainty provided by MSP which results in a better investment climate.

Despite the benefits that can be linked to MSP, several challenges to implementation can also be highlighted.

First and foremost, political will and leadership has to be ensured. MSP is a cross-departmental and intergovernmental approach that integrates all concerned marine users. The ecosystem approach which underpins any MSP regime has to be applied

by every sector that impacts the ocean. Related support throughout a government for financial and human resources allocated to the process is a *conditio sine qua non*.

Second, the involvement of **all** marine sectors is key. It has been found that certain stakeholders are easier to involve than others. For instance in Europe and the United States fishing activities are mainly excluded. Fishing is mentioned as one of the major uses but is not mapped and thus is not spatially integrated with other uses. The exclusion of fishing from MSP is untenable to achieving ecosystem-based, integrated ocean management.

Third, it is necessary to create ownership of the process among all stakeholders. Intensive and active stakeholder involvement is essential and requires an investment of time. Generally the time invested for stakeholder involvement and participation as early as possible in the MSP process will pay off in the end.

Fourth, accountability and enforcement of MSP is required. In order to avoid the “toothless tiger” MSP must have regulatory power. Creating a legally binding status for MSP is the most powerful option. However, several international examples illustrate that non-binding management plans can be enforced through other mechanisms such as yearly progress reports and government commitments.

Trust must be build between different marine sectors and between these sectors and scientific advice. Constructing trust between sectors is challenged mainly by a lack of understanding of the limits, demands, requirements and objectives of other sectors. The majority of marine industries have no tradition of intercommunication. The language is different, data and information are not necessarily shared, and an awareness of needs beyond the sector is scarce.



Mistrust between industry and marine science arises due to the different ways information and data is gathered such as diverging use of fishing gear for fish stocks assessment. It is essential that the concerned sectors work together, join forces, exchange data and develop synergies for the greater benefit of a sound management of marine resources.

2.3. RECOMMENDATIONS

1. **Establish political leadership for the development of an MSP regime in Canada. This could be achieved through a cross-departmental agreement signed by the Deputy Ministers of all sectors and policy fields concerned.**
2. **Increase cooperation amongst government departments for ocean management through a robust leading and facilitating mandate fulfilled by the DFO, and supported by all departments concerned.**
3. **Reactivate the federal, Deputy Ministers' Interdepartmental Committee on Oceans as a steering group for further IOM and MSP development.**
4. **Launch studies on economic and ecosystem benefits of MSP in Canadian waters.**

3. WHERE IN CANADIAN WATERS?

“Changes affecting a part of a system will affect the system as a whole.”

(Elisabeth Mann Borgese)

3.1. DETERMINE AREAS TO BE PLANNED

In order to successfully embark on MSP two questions must be answered:

- What challenges will be solved with MSP? and
- Where would MSP be beneficial?

Countries that have implemented or are developing MSP have done so to address particular problems. These challenges have included increasing conflicts in densely used marine areas, the need to enable new economic development such as offshore renewable energy or environmental conservation and protection.

Most Canadian waters are not as densely utilized as some European waters. Canada's waters are also too vast to be planned all at once. Due to this factors it might not be necessary to plan all Canadian waters at the same level of detail and prescription.

MSP will be beneficial as the implementation on sites will be carefully determined. The reasons why MSP is used and what it is expected to deliver are must also be defined and transparently communicated.

One of the strongest potentials of MSP is its forward-looking, future-oriented dimension. It can help to shape the development of a given marine area in a desirable way.

The following questions and aspects should be considered in the context of choosing areas for MSP implementation in Canada:

- (a) **Are the LOMAs the appropriate areas to start from?** The five existing LOMAs¹³ were “established in order to advance collaborative management [...] and to develop a strategic, long-term plan for sustainable management of resources”¹⁴ within the designated boundaries. They were largely defined on socio-economic and some ecological factors and are characterized by “important living and non-living resources; high biological diversity and productivity; and many stakeholders competing for ocean space and resources.”¹⁵ The criteria that led to LOMA creation might be different from that used to identify MSP areas. The LOMAs are probably too large and too diverse in terms of habitats and species to be covered by only one marine spatial plan on their areas. They may also not cover areas that would particularly benefit from MSP. The Bay of Fundy would definitely benefit from an MSP approach. It is a densely used area where new ocean uses like tidal power generation are emerging. However, the Bay of Fundy is not integrated in the ESSIM LOMA. Areas determined for MSP implementation should against this background not be limited only to existing LOMAs.
- (b) **Cross-border cooperation.** Although Canada’s oceans are large they are certainly impacted by planning and developing activities of neighboring

countries. The USA for example has recently adopted a Coastal and Marine Spatial Planning (CMSP) framework for its waters. Regions like the Gulf of Maine, the Pacific North Coast Integrated Management Area (PNCIMA) or the Arctic Ocean would therefore be particularly interesting areas for a Canadian MSP approach as they could benefit from strengthened cross-border cooperation with the USA and a common understanding of the related marine ecosystems.

- (c) **Areas with high ecological vulnerability, high ecological value, or high risk potential regarding hazards (like oil spills), particularly vulnerable ecosystems etc.** Some marine habitats have a much greater importance than others for species, ecosystems or processes, and hence for humans. Knowing which places are the most important is essential to marine spatial management. MSP offers the opportunity to provide a framework that is able to integrate different planning approaches. Areas that are particularly vulnerable to hazards or environmental changes would benefit from a forward-looking spatial management pursued by MSP. Conservation measures like “no-go” or “no-take” areas could be integrated in a holistic picture of sustainable ocean planning and management of marine resources.

¹³ For more information please visit <http://www.dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/loma-zego/index-eng.htm>

¹⁴ <http://www.dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/loma-zego/purpose-but-eng.htm>, visited June 30, 2010

¹⁵ <http://www.dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/loma-zego/purpose-but-eng.htm>, visited June 30, 2010



3.2. DETERMINE GOALS AND OBJECTIVES FOR PLANNING AREAS

IOM processes have already been designed to identify a common vision and a set of guiding principles and goals. The ESSIM, for instance, is organized around the objectives of “collaborative governance and integrated management, sustainable use, and healthy ecosystems”.¹⁶ These objectives remain at a very general and strategic level as they are neither specific enough to guide an implementation process, nor are they measurable.

The definition of goals and management objectives for MSP is one of the key components in MSP. Appropriate objectives ensure: the forward-looking dimension, buy-in of marine sectors, and the acceptance of the MSP results by all concerned stakeholders. They also provide the bottom-line against which the performance of MSP can be monitored and evaluated.

As in IOM, MSP objectives should balance ecological, economic and social factors to reflect integration and input from stakeholders. MSP objectives must be measurable and should be linked to specific targets and indicators.

International MSP experience demonstrates variance in realizing goals and objectives. For instance, Norway has defined national environmental objectives as the foundation for MSP development. These objectives have been based on the United Nations (UN) Convention on Biological Diversity (CBD) and are very general and strategic in nature.

At a more concrete level, objectives for marine spatial plans (or integrated management plans as they are called in

Norway) have been defined to guide how activities are carried out in particular areas. The objectives must ensure that the ecological functioning and biodiversity of vulnerable areas are not threatened and that damage to marine habitats through human uses is avoided.

These MSP objectives are substantiated at the implementation level where qualitative objectives must be measurable and verifiable.

The Massachusetts Ocean Management Plan employs a different approach. A broad set of goals have been identified that are the “highest-level statements of what the plan seeks to achieve”. Objectives and strategies respectively are utilized as “measures to achieve the goals.” Both are based on the values and directives of the *Massachusetts Ocean Act* from 2008. The strategies have also been used to guide the compatibility assessments and impacts of certain human uses.¹⁷

Beside the importance of defining goals and objectives at different scales and levels of detail, appropriate timelines have to be considered. Strategic objectives should be long-term in nature, while planning objectives have to be more mid-term and objectives for implementation should be achievable in a relatively short period.

¹⁶ Eastern Scotian Shelf Integrated Ocean Management Plan, Summary, page 11

¹⁷ For further information please visit http://www.mass.gov/?pageID=eoeeterminal&L=3&L0=Home&L1=Ocean+%26+Coastal+Management&L2=Massachusetts+Ocean+Plan&sid=Eoeea&b=terminalcontent&f=eea_oceans_mop&csid=Eoeea

3.3. RECOMMENDATIONS

5. Determine Canadian pilot sites for MSP implementation.
6. Organize regional workshops in each ocean region to identify appropriate pilot sites.
7. Develop a long-term vision for each area that MSP is to be implemented.
8. Review identified strategies by IOM processes if they are suitable to support MSP implementation and revise them if needed.
9. Develop objectives and timelines to guide the MSP process at all levels including the strategic, planning and implementation stages.
10. Define criteria and indicators to measure the implementation objectives.

4. WHICH APPROACH IS APPROPRIATE?

“The meaning of things lies not in the things themselves, but in our attitude towards them.”

(Antione de Saint-Exupery)

4.1. A CANADIAN APPROACH TO MSP

The global ocean is not homogeneous, and neither are Canadian waters. LOMAs have been defined by a common set of criteria reflecting spatially heterogeneous patterns of the marine environment in terms of bathymetry, water movement, living resources and habitats. The sea is also heterogeneous in time, with variability in time scales of hours, days or months. Successful MSP requires a management that suits the oceans’ dynamics in space and time.

Stakeholders and experts have stated that due to the size and heterogeneity of each of the LOMAs, a specific approach to implement MSP in Canadian waters would be needed that might differ from international examples.

The idea of a “nested” MSP has been highlighted in this respect whereby the meaning of nested is at least twofold:

- (a) **Scale** - Heterogeneity occurs at different scales. MSP should incorporate all levels from the largest scale (ocean basin), through ecoregions (the LOMAs) to specific habitats. “Using a nested hierarchy of spatial patterns and conducting a gap analyses will allow governance and management to set priorities that reflect oceanographic, ecological, and human use patterns as well as the process that underlie them [...]”¹⁸ This kind of nested approach

¹⁸ Cf. Crowder, L., Norse, E., Essential ecological insights for marine ecosystem-based management and marine spatial planning, page 774



would be reflected by the objective setting and monitoring described above in chapter 3.2.

- (b) **Scope** - Due to limited financial and human resources and considering the degree of planning effort and detail required, MSP focus could initially start in “priority areas” such as densely used areas or areas with high vulnerability or risk potential. This approach would provide the opportunity to learn from implementation and closely monitor the benefits of MSP; thereby learning by tangible results. It could promote the needed buy-in from marine industries by allowing administration to move relatively quickly with implementation and lead to tangible outcomes. Determination of “priority sites” should be based on a sound assessment of cumulative effects of the number, occurrence and intensity of human activities. The experience gathered with these “first priority planning sites” could then be transferred to “second” or “third” priority areas. It should also be considered that MSP might not be needed in certain areas at all, such as remote areas with low density of activities or the far offshore (see also chapter 3.1 above).

4.2. ANALYSIS & ASSESSMENT

Marine ecologists and oceanographers have been actively developing new techniques to understand the spatial and temporal dynamics and interlinkages of the marine environment. The information currently available allows for spatially explicit analysis and management possibilities previously unknown.

The MSP approach is able to integrate the biophysical, socio-economic and jurisdictional layers. Canadian IOM processes have gathered quite extensive data and assessments of existing human activities

in LOMAs. This knowledge can be utilized to inform any further approach leading to more efficient and informed MSP.

It is of utmost importance, that MSP manages existing uses and takes predictable future developments into account. MSP should envision desired activities in the future, as well as forecasting future needs and conditions. Existing data and knowledge should be used to develop different scenarios that are based on certain hypothetical political decisions, such as strengthening offshore renewable energy development, increasing marine protected areas, or extending harbor development. The scenarios would have to reflect defined objectives for a particular marine area. Such scenarios provide a useful tool to determine the desired development of a given area and consequences to be expected from certain management decisions.

Consequently decisions about where, when and how human activities should take place in the marine environment could be based on forward-looking planning rather than being simply reactive.

Despite the effort that has been put into the assessment of human activities at sea, the current IOM processes in Canada remain weak regarding their forward-looking dimension. Data and information collection has largely focused on existing human activities. Scenarios to incorporate predictable future demands have not been developed and methodologies to measure cumulative effects are not yet in place. MSP offers an appropriate framework to capitalize on the existing knowledge from the IOM processes and advance it into future-oriented management of ocean space.

4.3. RECOMMENDATIONS

11. Assess existing human activities in MSP areas and analyze their cumulative impact both in terms of occurrence and intensity.
12. Assess predictable future human activities in MSP areas.
13. Develop scenarios for MSP areas to determine the desired development of these areas taking predictable future activities into account.
14. Strengthen research on measurement of cumulative impacts of human activities.
15. Develop nested approach for MSP implementation in Canada - both in scale and scope.

5. WHAT TOOLS ARE REQUIRED?

“Knowing is not enough; we must apply. Willing is not enough; we must do.”

(Johann Wolfgang von Goethe)

5.1. MAPPING AND VISUALIZATION

Maps are a common language: they are understandable for any stakeholder concerned by and involved in ocean management. Mapping and visualization are essential tools to reduce the complexity of marine ecosystems by showing interactions, delineating areas of certain potential or specific characters, and making complex data easily accessible.

Mapping plays an essential role for stakeholder engagement. International experience illustrates that it is often not until maps are presented that industries, local communities or fishermen are buying-in and contributing to the MSP process. Maps make information tangible and provide a platform for people with local knowledge to engage and correct information where necessary.

There are at least three different types of information that should be mapped by an MSP process:

- (a) **Biophysical conditions.** Mapping these conditions identifies distinctive assemblages or communities of marine organisms, such as kelp forests, coral reefs, or shellfish beds.
- (b) **Human uses.** Mapping socio-economic data and information identifies the spatial distribution of traditional marine uses like fishing, shipping or oil and gas exploitation, new uses like offshore renewable energy sites and aquaculture, as well as recreational uses like boating, scuba diving or whale watching.



(c) Political and legal arrangements.

Jurisdictional overlays would help to delineate areas covered by existing management arrangements such as fisheries closures, military zones, national marine reserves etc.

Taken together in integrated maps, these biophysical, socio-economic and jurisdictional overlays can produce meaningful operational use scenarios of places suitable for certain uses or sensitive to particular activities. Resulting maps provide an appropriate tool on which decision making and informed planning processes can be based.

Through the IOM processes much effort has been expended to collect and map the biophysical and some socio-economic data for ESSIM and the Beaufort Sea. This information has not been overlaid yet through integrated maps that incorporate biophysical, socio-economic and jurisdictional information.

5.2. TO ZONE OR NOT TO ZONE?

Generally it is important to recognize that MSP is not equal to zoning. Zoning is only one tool that can be used within the MSP process. MSP also involves criteria setting, identification of thresholds, and the use of planning targets and principles.

The concept of zoning tends to cause suspicion, tension and uncomfortable feelings within some marine sectors, especially those not bound to a certain location like shipping, fishing, and recreational boating or with traditional rights to freedom of navigation and access. This suspicion might be rooted in some misconception of zoning and how it is used within MSP.

As any form of planning, MSP is adaptive and flexible. Marine spatial plans are never one-time plans but subject to regular evaluation and monitoring. Zones that have been designated for certain uses or particular purposes, like protection of marine habitats in the context of the MSP regime are consequently equally subject to evaluation. They might be revised or changed in accordance with the result of the monitoring process.

Zoning is already used within some international MSP approaches, and experience with the tool has been particularly gathered by Australia at the Great Barrier Reef and in the Florida Keys National Marine Sanctuary, USA.

In Australia, the Great Barrier Reef management utilizes zoning as a fundamental component of MSP attaching regulations to address objectives of ecosystem-based, integrated management of human uses and impacts consistent with best contemporary understanding of biological diversity. Zoning is however only one tool that is combined with other spatial and temporal measures as well as non-spatial measures including public education, community engagement, codes of environmental best practice, industry partnerships and economic instruments.

The statutory (legislative) Australian zoning plan includes 8 different zone types, ranging from General Use Zones where all reasonable activities can occur to Marine National Park Zones (“no-take areas”) and Preservation Zones (“no-go areas”). For each zone clear objectives have been identified including activities that can be carried out without a permit and activities that require a permit. The zoning plan also includes provisions for Special Management Areas and Designated Shipping Areas.¹⁹

¹⁹ For further information please visit <http://www.gbrmpa.gov.au/>



In the Florida Keys National Marine Sanctuary marine zoning has been implemented to protect biological diversity, to reduce user conflicts and lessen the concentrated impact to marine organisms in heavily used areas. Zoning is a management tool to focus on small portions of the Sanctuary while broader unzoned portions of the Sanctuary are managed by set criteria addressing topics such as water quality or habitat degradation. Like the Australian example, different zone types have been established where each is designed to reduce resource damage and threats to environmental quality, while allowing uses that are compatible with resource protection. The Sanctuary's zoning program will be regularly evaluated by updating the management plan in a five-year time frame. This appraisal process is accompanied by a variety of research activities and might lead to a modification or even elimination of zones.²⁰

The Australian and Florida examples focus largely on marine conservation and protection and are thus not fully integrated MSP processes. They show, however, the variety of how zoning can be applied and that management by zoning can be combined with other MSP tools.

MSP takes place in a three-dimensional environment. If zoning is used as a tool it has to reflect both spatial and temporal components of ocean management. Zones can be designated for single or multiple uses, provided the uses are compatible.

5.3. FURTHER TOOLS FOR MSP

A combination of different tools might be the most promising approach to implement MSP in Canadian waters.

MSP in Canada could be based on ecological objectives and thresholds, respectively. Rather than defining zones for particular uses or prohibition, stakeholders suggest that such thresholds could determine whether a given use is compatible or not. This would base MSP on cumulative effects (as the definition of thresholds and criteria would have to be consistent with an ecosystem's capacity that is affected by cumulative impacts of human activities), and would actively involve marine users in the decision-making process to prove and ensure that their activities don't compromise the defined objectives.

Other tools to be used in combination with zoning are planning targets and principles, as applied by Germany. Targets and principles have been derived from the terrestrial planning regime and applied in MSP for the German North and Baltic Sea EEZ areas. Planning targets and principles have different legal binding force:

- (a) **Planning targets** that are legally binding for sectoral planning at project level;
- (b) **Planning principles** that are guidelines and thus not binding;
- (c) **Priority areas** (Vorranggebiete) that are specified for a certain use. Potentially conflicting uses are excluded from these areas;
- (d) **Reservation areas** (Vorbehaltsgebiete) that provide the opportunity to give priority for a certain use in a given area provided that a balancing process has been established to identify these areas; and
- (e) **Suitable areas** (Eignungsgebiete): defined uses are restricted to certain areas.

²⁰ For further information please visit http://floridakeys.noaa.gov/resource_protection/welcome.html#zoning



5.4. DEVELOPMENT AND IMPLEMENTATION OF A MARINE SPATIAL MANAGEMENT PLAN

The MSP process generally has two important outputs:

- A comprehensive marine spatial management plan for a given marine area or ecosystem.
- The process that leads to the development of this plan, including its implementation and subsequent monitoring.

Both outcomes are equally important. Only a soundly built process will lead to a well-balanced and widely accepted marine spatial plan. The process is essential to build trust between different sectors, increase common understanding of marine ecosystems among stakeholders, make decision making transparent and understandable, create credibility of the MSP process and increase acceptance of compromises as not every desire will be optimized.

Implementation is key. Even the strongest process, with all important and even “unwilling” participants involved will eventually lose power and momentum if the development of a marine spatial plan does not lead to implementation.

It is central to ensure that the parties involved in the process have the power and responsibility to implement a marine spatial plan. Authorities that will have the responsibility to implement the marine spatial plan consequently have to be involved in the entire process from the beginning.

5.5. RECOMMENDATIONS

16. **Overlay biophysical with socio-economic and jurisdictional information and visualize the results.**
17. **Develop multi-layer maps to identify areas of conflict, of particular vulnerability, and of high ecological value.**
18. **Develop a “Canadian toolbox” for MSP that is tailor-made for the specific framework conditions in Canadian waters and can be applied in different marine areas.**
19. **Develop marine spatial plans for selected areas through sound processes and ensure responsibility for implementation.**

6. WHO HAS BEEN USING THE OCEAN AND WHO WANTS TO USE IT? THE NEED FOR INTEGRATION

“Yes, there is light at the end of the tunnel. And only by seeing what was can we hope to see what should be and what must be restored.”

(Carl Safina)

6.1. TRADITIONAL AND NEW USES IN CANADIAN WATERS

Traditional marine uses like shipping, fishing, oil and gas exploitation, coastguard and defense measures have been managed on

a sector-by-sector basis, in accordance with sectoral regulations and guidelines. This approach seems to be no longer possible.

Significant change is likely to occur in the near future; new uses such as offshore aquaculture and renewable energy (tidal, wind and wave) seek to claim marine space which is limited. Framework conditions like climate change will influence the distribution of species and the condition of marine habitats. Marine transport is facing large growth rates and ocean related human activities will increase further in coming years.

Some uses may be generally compatible with each other, others might only be compatible, however all uses need marine space and an intact marine ecosystem to flourish.

The need for marine planning certainty will increase as will the competition for limited space between different users and their demands. MSP provides a sound management basis to tackle demands and balance diverging sectoral interests in accordance with a healthy ecosystem. It establishes a platform to foster collective understanding of, and consensus around, the sustainable use of the ocean amongst all users concerned.

6.2. SYNERGIES BETWEEN POLICIES WITH MARINE MANDATES

Existing competition between different marine uses notwithstanding, synergies between sectors can be identified and created. The three-dimensional character of ocean space provides an excellent opportunity for human activities to share space and use a particular area for multiple purposes.

European Union (EU) Member States have started to examine potential synergies for

example between offshore wind farms and shellfish aquaculture. Offshore installations like wind farms or oil rigs create “artificial” rocky habitats that may enhance biodiversity in areas with shallow, sandy sea beds. As traditional fishing is usually banned from wind farm installations for security reasons there is potential to combine protected areas for fish stock recovery with wind farm installations. These few examples illustrate synergies that can be explored between different marine sectors that have, at first glance, nothing in common.

Each sectoral policies has its own agenda and mandate to fulfill. However, existing and upcoming challenges and changing political priorities require a new method of policy and decision-making. It is widely agreed that the traditional single sector decisions and silo-approach to achieve sectoral goals despite interrelations with other sectors and complex environments is unsustainable. There are demands for a different kind of interaction between users.

Marine industry stakeholders highlight that research and other investments undertaken by sectors will yield greater value and become more efficient if the needs and priorities of other users are incorporated. A baseline centre for information and data exchange regarding the marine environment is needed.

An interesting example in this regard is the “Directive establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)” which was adopted by the European Commission in 2007. In order to ensure that the spatial data structures of the Member States are compatible and usable in a Community context, the Directive requires that common Implementing Rules (IR) are adopted in specific areas, such as metadata, data and



service sharing or monitoring and reporting.²¹

MSP provides an appropriate framework to assess and explain the role of each marine sector in a given sea area and thus integrate all uses in an entire ecosystem-based management regime. It can aid the enhancement of economic prosperity and promote the fulfilling of sectoral mandates in a more sustainable and environmentally friendly way.

More concretely, integrating Marine Protected Area (MPA) planning and MSP may illustrate potential benefits of a more holistic, synergy oriented approach.

Canada's *Federal Marine Protected Areas Strategy* aims for the "establishment of a network of marine protected areas, established and managed within an integrated oceans management framework, that contributes to the health of Canada's oceans and marine ecosystems."²²

The *Oceans Act* provides DFO with a leading and facilitating role in this endeavor. Achieving the *Federal Marine Protected Areas Strategy's* objectives and the supporting measures are a shared responsibility of the federal departments and agencies with MPA mandates, namely DFO, Environment Canada and the Parks Canada Agency.

Since the Strategy's adoption in 2005 measures have been undertaken to designate MPAs and establish a network in Canadian waters. Despite the attempts to manage MPAs in an IOM framework it has not been achieved. Marine sectors like the energy sector criticized MPA planning activities for not being integrative and focussing too strongly on protection and conservation

issues, leaving social and economic aspects behind. It is felt that MPA network planning is another "single sector" approach that does not consider other ocean uses and their demands sufficiently. Data and information gathering to date have focused on conservation, without taking the development, cumulative effects and impacts of all marine activities into account.

Stakeholders highlight that MSP could be the appropriate approach to "broaden" the assessment, incorporating all marine uses and activities and integrating marine protection into a holistic MSP regime. Data collection should not only focus on conservation related issues but include economic development and social aspects.

Another more controversial example of synergies can be created between the diverging interests of marine reserves and fisheries. Marine reserves are areas protected from all fishing. At first glance it seems that these two interests are incompatible. Critical voices state that there is no evidence of the benefits of marine reserves for fisheries.

The notion of fishing refuges is not novel, however. As Callum Roberts describes in his book *The Unnatural History of the Sea* "islanders across the Pacific placed some areas of reef off limits to fishing. In most places these were 'rested' for a time before being fished again to supply some feast, rather than given permanent protection."²³

In Europe, meaning in cold waters, the idea of closing areas for fishing has been seen for centuries. "In France, some areas were protected from all fishing as long ago as the early nineteenth century. The intent of these protected areas was not to save pretty fish from the hook and trawl but to benefit

²¹ For more information visit <http://inspire.jrc.ec.europa.eu/>

²² Canada's Federal Marine Protected Areas Strategy, page 3

²³ Callum Roberts, *The Unnatural History of the Sea*, page 350

fisheries. For example, trawling was prohibited near Marseille between 1793 and 1830. When the area was reopened to fishing, the catches were said to be almost miraculous {...}.”²⁴

More recent evidence can also be taken from Marine Sanctuaries that have been designated in the United States of America. *The Florida Keys National Marine Sanctuary and Protection Act* was adopted in 1990. The Act’s purpose is to protect the specified areas, to educate the public regarding the Florida Keys marine environment, and to manage human uses of the Sanctuary which are consistent with the Act. The Act is not intended “to restrict activities that do not cause an adverse effect to the resources or property of the Sanctuary and do not pose harm to users of the Sanctuary.”²⁵

“Fully Protected Marine Zones” (FPMZs, i.e. “no-take” zones) were established in 1997 where regular monitoring and research is carried out to report on the effects of these sites as compared to reference sites. Since the initiation FPMZs significant density increases for several exploited reef fish species were observed compared to fished reference areas. After five years of protection there were almost twice as many spiny lobsters inside three Lower Keys FPMZs as outside.

Positive effects for fisheries outside the “no-take” zones result from what could be called “spill-over effects”. Fish stocks outside the areas benefit becoming more abundant and larger in size. This in turn has led to strong support for the protected zones by stakeholders that were initially critical and opposed the idea.

More research is urgently needed to examine the potential benefits of fully protected zones for fisheries management in cold waters and

the possible synergies between marine protection and fisheries.

6.3. RECOMMENDATIONS

20. **Apply the ecosystem based approach within all government departments.**
21. **Foster research regarding the compatibility of marine uses and cumulative effects of human activities on the marine environment.**
22. **Identify potential synergies between different marine uses and opportunities for marine multi-use areas.**
23. **Integrate fisheries management with MSP marine protected areas planning.**
24. **Develop guidelines for data gathering and establish a baseline information platform regarding the marine environment.**

7. WHO SHOULD BE INVOLVED?

“Honest disagreement is often a good sign of progress.”

(Mahatma Ghandi)

MSP is a participatory process. The timely and proper involvement of stakeholders is a key component to any MSP development and implementation. Who, when and how

²⁴ I.c. page 350-351

²⁵ Florida Keys National Marine Sanctuary and Protection Act, Sec. 3(b)



stakeholders are involved will significantly influence the buy-in, success and long-term acceptance of MSP in a given area.

7.1. ORGANIZATION OF STAKEHOLDER INVOLVEMENT

MSP seeks to achieve multiple economic, social and ecological goals. The process as well as implementation phase should include as broad involvement of concerned parties as possible.

It is important to identify key stakeholders that should be involved. Criteria to determine this group, amongst others, are:

- Existing rights to the resources in the area;
- Knowledge of the conditions and skills for the spatial management of the area;
- Degree of economic and social reliance on the resources of the area;
- Present or potential future impact of activities in the area;
- Level of potential losses related to the MSP process;
- Historical and cultural relation with the area;
- Degree of interest in the management of the area;²⁶

Valuable experience has been gathered for appropriate stakeholder involvement in preparation for the IOM processes and during the development of IMP for ESSIM, PNCIMA and the Beaufort Sea. Stakeholders have stated that currently a lack of inter-sectoral dialogue leads to a failure to coordinate within the government, in particular amongst departments and administrations that have a mandate in marine development.

It must be ensured that MSP integrates well into other government processes and activities. The involvement of relevant government departments into MSP and the contribution of these departments throughout the process is essential.

MSP implementation could be founded on stakeholder groups established during the IOM processes. It is important to cross-check, however, that all significant parties are on board and in particular how the “unwilling” participant can be brought to the table.

Not all stakeholders and groups will be equally easy to involve. Environmental stakeholders who utilize integrated approaches tend to be easier to engage than industries with long traditions of single-sector decision making. Certain stakeholder groups that are essential to the process may need to be lobbied individually before they are willing to join the process.

Using the appropriate language is crucial to engaging stakeholders. Different stakeholders talk different languages. The MSP process and the role stakeholders are expected to play in the process have to be communicated in a way that is understandable for each and every party involved. Stakeholders may not be familiar with integrated thinking and decision-making, therefore careful explanation, including expected trade-offs may be necessary.

Ideally, stakeholders become involved in MSP at an early stage and stay involved throughout the entire process, including evaluation and monitoring. Stakeholder involvement is hence as iterative as the MSP process itself (see figure 1 above).

²⁶ For further information see Ehler et al., Marine Spatial Planning. A Step-by-Step Approach toward Ecosystem-based Management, page 43 ff.

Appropriate communication is of utmost importance. An explicit communication strategy should be developed for stakeholders to explain:

- When and at which stages during the MSP process they will be involved;
- How often stakeholders will have their say and upon which topics (are they going to be involved in the determination process for certain marine zones? Or will they have their say once a first pattern of management areas has been designed by experts?)
- What the results of each stakeholder involvement were;
- How their contribution is going to be used;
- What role they have to play during implementation of the marine spatial plan;
- What the next steps are.

“Communication or dialogue must be regular and continuous if you are to gain and keep the trust and interest of stakeholders during the MSP process.”²⁷

Besides influencing the MSP process and its results, stakeholder involvement fulfills other important purposes. It provides a platform for parties with diverging and sometimes conflicting interests to meet and discuss their concerns. Stakeholder involvement aids the development of a common and shared comprehension of the desirable future of a given marine area, including requirements, expectations, goals and objectives for the use of marine space. It creates dialogue across industry borders and thus enhances the appreciation of different sectors for each other.

Engagement of stakeholders also provides a fora for parties involved to discuss mitigation

measures in case certain sectors face limitations or losses through MSP. Trust must be built between stakeholders that not everybody may win, but everybody’s concerns are listened to.

7.2. INVOLVEMENT LOOPS

There are various ways to organize stakeholder involvement in an MSP process. “Just as it is not necessary to involve all stakeholders throughout every step in the MSP process, it is similarly not necessary to involve stakeholders in the same manner.”²⁸

The vision and related objectives for MSP development in an area should be widely discussed among all stakeholders. Information seminars could provide access to the best available knowledge and aid informed positioning by stakeholders.

Once responsible authorities develop a draft marine spatial plan it is often made available for public consultation. The consultation period may even legally regulated.

For MSP several loops of consultation or stakeholder involvement should be considered. Lessons can be learned from the revised zoning scheme developed for the Great Barrier Reef Marine Park (GBRMP).

GBRMP zoning was developed following extensive research and the most comprehensive community consultation process undertaken on an Australian environmental issue. Beginning from the development of the first zoning plan the GBRMP Authority developed stakeholder processes that went beyond the minimum legal requirements. This was done in order to ensure adequate and appropriate opportunities as well as sufficient time to engage stakeholders in the development of the zoning plans.

²⁷ Ehler et al., Marine Spatial Planning. A Step-by-Step Approach toward Ecosystem-based Management, page 46

²⁸ Ehler et al., Marine Spatial Planning. A Step-by-Step Approach toward Ecosystem-based Management, page 48



Draft zoning plans were discussed with stakeholders, revised accordingly and returned for a second loop of stakeholder contribution and consultation.

This approach increased the acceptance of any consequences and management measures related to a certain designated zone and helped to increase stakeholder involvement from the first consultation round. Increased stakeholder involvement during the second consultation phase was due to the fact that “unwilling” participants became interested in the process and had, due to mapping of the initially debated zoning plan, a solid visual basis upon which to debate and express their concerns. The extra time spent on the consultation processes paid off in the end.

After the initial zoning plans came into effect, ongoing consultative groups were established for the GBRMP. The aim of these groups is to balance representation of the different interests of local people affected and involved in the management or use of the GBRMP. The participants are either independent, or represented a community or industry group. The groups provide coordinated feedback through local forum discussions on conflicting views on issues such as habitat conservation and resource sharing.

The Australian example illustrates that using stakeholder groups who remain active after MSP implementation is beneficial. This process should therefore be considered for Canadian areas as well.

7.3. RECOMMENDATIONS

25. Define key stakeholders to be involved in both development and implementation of MSP in Canada by capitalizing on experience gained through the IOM process.
26. Develop communication strategy that clearly defines stages, timelines and purpose of stakeholder participation.
27. Develop reiterating consultation rounds.
28. Establish permanent stakeholder groups as a means to ensure balanced representation of different interests and coordinated feedback.
29. Support stakeholder groups with scientific advice on certain topics to strengthen and inform their stance.

8. WHEN? TIMELINES AND ORGANIZATIONAL PROCESS

“Vision without action is a dream. Action without vision is simply passing time. Action with vision is making a positive difference.”

(Joel A. Barker)

8.1. WHAT IS APPROPRIATE TIMING?

There is no single definition for creating an MSP timeline. It is central, however, that **a timeline is defined**. What constitutes

appropriate timing depends on several factors, including the:

- Required level of detail and sophistication of data and information to be used;
- Complexity of issues to be incorporated , such as high versus low density use areas and areas shared by several provinces versus areas bordered by one province;
- Number of sectors to be involved;
- Type and duration of stakeholder involvement to be organized;
- Public consultation process that is required;
- Legal obligations to be followed.

According to international experience with MSP anything from 18 to 24 months is a reasonable estimation for developing a marine spatial plan. The development process is subsequently followed by implementation, enforcement, as well as an evaluation and monitoring process.

Monitoring is an integral aspect of MSP as it ensures adaptability. An appropriate monitoring system should be established along with the entire MSP approach. This evaluation enables involved government departments, authorities as well as stakeholders to judge the effectiveness of the implemented MSP process and objectives. It provides the basis to redefine the goals and objectives as necessary.

There is no common rule regarding the ideal timeframe for evaluation and revision of implemented plans. International examples regard a period of five to seven years as reasonable for meaningful evaluation.

Less than five years is generally felt to be too short as results of MSP might not yet be recognizable and the administrative burden would be disproportional.

More than seven years between the development of a marine spatial plan and the

evaluation of its performance might still work for some regions or marine areas, depending on specific framework conditions. A longer period bears the risk of diminishing the adaptability of a marine spatial plan. As time passes, new up-to-date information concerning the status of a given marine ecosystem, its capacity and the cumulative impact of human activities in this area would be available. Taking new data into consideration may change the spatial management strategy in a given area and should be included in an MSP evaluation and monitoring process.

8.2. IMPORTANCE OF ACTION PROGRAMS

Canadian stakeholders stressed that action programs would be of utmost importance to achieving an MSP approach. As previously stated, implementation is key, particularly for marine industries. There is a desire to accomplish planning certainty for investments and avoid appraisals of areas that end up being inappropriate for the specific use.

The MSP process should be accompanied by concrete action plans to achieve the sought after deliverables of each individual steps of the entire process. This would help break a complex planning regime into easier steps and increase the transparency of the process.

8.3. RECOMMENDATIONS

30. **Define appropriate time frame to develop and implement marine spatial plans in Canadian waters.**
31. **Define an evaluation period for marine spatial plans.**



32. Communicate both the time frame and evaluation period to all concerned stakeholders.
33. Develop action plans according to each step of the MSP process that are tailor-made for the Canadian framework conditions.

9. WHOSE OCEAN IS IT? RESPONSIBILITIES AND ADMINISTRATIVE STRUCTURE

“It is the responsibility of leadership to provide opportunity, and the responsibility of individuals to contribute.”

(William Pollard)

9.1. LEGAL BASIS AND PLANNING AUTHORITY

Accountability is a key factor for successful MSP implementation. Although Canadian stakeholders generally believe that the *Oceans Act* and the *Oceans Strategy* provide a sound basis for MSP implementation there is a current lack of accountability for MSP. The question of who is to be held accountable for MSP, its implementation, and its enforcement, remains unsolved.

There are generally three options for creating a legal basis and designating a responsible planning authority:

- (a) Create new legislation tailor made for MSP;

- (b) Depart from existing legislation. For example, modify land use legislation to be adapted to a marine environment; or

- (c) Re-interpret existing legislation.

International examples can be found especially regarding the first two options. Re-interpretation of existing legislation is difficult to identify as it happens mainly internally within governments and is often not documented.

As Canada has the *Oceans Act* new legislation seems unnecessary. It might essential, however, to develop regulations and implementation enforcement, including guidance how to build the MSP process, achieve government involvement and to clarify who is accountable for MSP.

Two options are utilized internationally to identify a responsible authority for MSP development and implementation:

- (a) Create a new authority that is responsible for marine planning and may even receive jurisdiction to issue related licenses; or

- (b) Establish MSP by using existing responsibilities and mandates.

European examples provide important lessons to creating responsible authorities. The **UK Coastal and Marine Access Act** and the **Marine (Scotland) Act** received Royal Assent in November 2009 and March 2010 respectively. Both Acts create a strategic marine planning system that clarifies marine objectives and priorities for the future, and directs decision makers and users towards more efficient, sustainable use and protection of resources.

The Acts create streamlined licensing and decision-making processes. In the case of the UK, a new Marine Management Organization (MMO) was established to be responsible for issuing of the majority of marine licenses. Scotland intends to

streamline its marine licensing system in order to improve and hasten decision-making processes for marine developments. The license application procedure will be simplified for operators, through single licenses being issued for all marine activities.²⁹

Sweden has adopted the **Government Bill 2008/09:170 A coherent Swedish Maritime Policy** and launched an initiative to create a new agency for marine and water issues. Responsibilities to this authority will be shifted mainly from the Swedish Environmental Protection Agency, the Swedish Board of Fisheries and the five Swedish Water Authorities. The agency is expected to start operations on 1 January 2011. It is intended to use MSP to implement the Swedish maritime policy. Planning responsibility will likely be shared by the Swedish state and municipalities. A government agency will be given responsibility for planning in the EEZ and an inquiry has been appointed to propose legislation for this planning.

Although there is a current lack of accountability for Canadian marine planning, stakeholders do acknowledge the leading and facilitating role of the DFO. A strong commitment of all government departments and a clear link between the departments is urgently needed to establish MSP in Canada. This requires an assignment of appropriate resources for MSP development and implementation. Therefore, MSP can not and should not be promoted by DFO alone.

A cross-departmental agreement to span all relevant government departments could be an appropriate way forward. At minimum such an agreement should be signed at the Deputy Minister's level. It might be challenging to fit MSP into existing

government structures and responsibilities and merge the necessary "modi operandi". High level political commitment is key to move MSP forward in a meaningful way.

To overcome every departments own agenda, interests and objectives, the development of an independent body for MSP could be beneficial. This could either be a temporally established Task Force, as done by the USA and the European Union, or an interdepartmental agency. the body would not need a large organizational structure, but would provide a neutral forum to coordinate MSP development and implementation.

Another option is to **establish authority for MSP within existing legislation and responsibilities.**

Germany, for example, extended its *Federal Spatial Planning Act* to the EEZ in 2006, giving the marine spatial plans in the North and Baltic Sea EEZs the status of legal ordinance. The MSP is therefore legally binding. It is expected that licensing procedures for activities like offshore wind farms will be quickened as a strategic environmental assessment has been completed for the entire MSP.

Germany is a federal state. The planning responsibility for the territorial waters lies with the Federal States (Länder) while the Federal Government has responsibility for planning in the EEZ. Structures have been established to ensure proper coordination between the Länder and the Federal Government. In practice cooperation works largely unofficially, at the working level before formal consultation processes are launched. Generally, younger plans have to appropriately consider older plans and take relevant regulations into account.

²⁹ For further information please visit <http://www.defra.gov.uk/environment/marine/legislation/mcaa/index.htm> and <http://www.scotland.gov.uk/Topics/marine/seamanagement/marineact>



The Netherlands has developed MSP through an inter-ministerial consultation body for the North Sea composed of representatives from all relevant ministries. The Ministry for Transport and Public Works coordinates the Integrated North Sea Policy and Management. The plan is legally binding for the central government that issues all permits for marine use. Since 2008, the Netherlands have a new planning law which allows the development of a legally binding spatial plan for the entire EEZ. It was decided to develop a “Strukturvisie” (structural vision) for MSP which is legally binding for the government that makes the plan. The marine spatial plan has been agreed by the cabinets of all ministers.

Norway has taken a similar approach, where MSP has been developed through a governmental steering group that involves all relevant ministries and is chaired by the Ministry of Environment. The steering group decides the overall framework for MSP, but implementation remains the responsibility of sectoral ministries. Due to MSP implementation some powers have been shifted in which it differs from the Netherlands or Germany where the power division was not touched. Sectoral ministries had a hard time accepting this. The Integrated Management Plan for the Barents Sea and the Lofoten Area resulted in several cases where sectoral ministries did not agree with the power shift. Sectoral proposals were put forward after the adoption of the plan that were in conflict with its regulations.

The Integrated Management Plans are not legally binding, however, when ministries implement the plan this is done in line with existing legislation. The Integrated Management Plan for the Barents Sea and the Lofoten Area, for example, excludes certain areas from petroleum exploitation. Existing

Norwegian law requires a positive decision to open any given area for petroleum related activities. Such a positive decision will not be made in the areas in question at least for the period specified in the management plan. The regulations are subject to revision based on a monitoring and evaluation process.

A public annual review and reporting scheme has been established that identifies cases where commitments and objectives of the plan are not being followed. This process is not equivalent to enforcement, but shows that non-compliance with MSP is not neglected.

Two new government acts have been developed, adopted and implemented in parallel to the Integrated Management Plans:

- (a) a new *Ocean Resources Act* and
- (b) a new *Biodiversity Act*.

These Acts modernize existing legislation and impose stricter standards for ocean management.

In the **United States**, the CMSP process will be carried out consistent with existing powers and responsibilities of the State, tribal, and local authorities. The CMSP framework seeks to provide all agencies with agreed upon principles and goals to guide their actions and to develop mechanisms for proactive and cooperative work between the Federal, State, tribal, local authorities, and regional governance structures. CMSP is intended to enhance the framework for the application of existing laws and agencies, but it is not intended to supersede them.

Where pre-existing legal constraints, either procedural or substantive, are identified, the National Ocean Council (NOC) will work cooperatively with the Federal agency concerned to evaluate whether a legislative solution or changes to regulations are necessary and appropriate. In general,

agencies are to comply with existing legal requirements but are asked, to the maximum extent possible, to integrate their actions with those of other partners to the CMS Plan.³⁰

9.2. EXAMPLES OF POSSIBLE ADMINISTRATIVE STRUCTURES

Canada's administrative structure is very specific and complex, with responsibilities at different levels (federal, provincial, territorial, indigenous people). The MSP structure, in particular for implementation must, respect and reflect this organization.

From national and international experiences there are two examples of administrative structures that may be applicable for MSP implementation in Canada:

- (a) The Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) and the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB) ("the Offshore Petroleum Board"); and
- (b) Regional Planning Bodies as planned to be established through the CMSP framework in the USA.

The **Offshore Petroleum Boards** are independent joint agencies of the Government of Canada and the Governments of Newfoundland and Labrador, and Nova Scotia respectively. They are responsible for the regulation of petroleum activities in the offshore areas.

The boards were established pursuant to *Offshore Petroleum Accord Implementation Acts* and passed as mirror legislation by the Parliament of Canada and the Legislatures of the involved Provinces. Decisions of the Board, referred to in legislation as 'Fundamental Decisions', are referred to government for approval or rejection.

The Offshore Petroleum Boards report to both the federal and provincial ministers responsible for natural resources. They consist of seven members (C-NLOPB) and five members (CNSOPB) respectively. The chair of each board is jointly appointed by the federal and provincial government. The other members are in equal shares appointed by the federal and provincial governments.³¹

Given the heterogeneity of Canadian waters, as well as the variability of economic, environmental, and social aspects among different marine areas, a regional approach to MSP may be the only reasonable way forward. If so the provinces and territories will have to play an essential role in MSP implementation.

The models of the Offshore Petroleum Boards provide valuable insights to possible MSP implementation and organization. The Boards form independent agencies with clearly defined tasks to fulfill and have clear structures to report back to the provincial and federal governments. They involve the federal and regional level equally and thus create ownership of the process at different levels. The Boards also utilize knowledge and expertise from both levels, which would be beneficial to MSP. If similar federal-provincial boards were established for MSP implementation, further discussion would be necessary.

The **United States** is intending to implement CMSP through a **regional approach** in accordance with the variability of US marine areas. Given the likely involvement of existing regional governance structures in developing CMS Plans, large marine ecosystems ("LMEs" which are similar to the LOMAs in Canada) have been created to provide a consistent planning scale.

³⁰ For further information please visit <http://www.whitehouse.gov/administration/eop/ceq/initiatives/oceans/>

³¹ For further information on the boards and their function please visit http://www.cnlopb.nl.ca/abt_board.shtml and <http://www.cnsopb.ns.ca/>



For CMSP purposes, the United States will be subdivided into nine regional planning areas based on LMEs to ensure enclosure of the entire EEZ and continental shelf area, and to allowing incorporation of existing state or regional ocean governance bodies.

The NOC will work together with states and federally-recognized tribes to create **regional planning bodies**, coinciding with the regional areas, for the development of regional CMS Plans. The membership of each planning body will consist of federal, state, and tribal authorities as well as indigenous community representatives with jurisdictional responsibilities relevant for the regional marine areas. Members would be of an appropriate level of responsibility within their respective governing body to ensure authority for decision-making and commitment to implement the given CMS Plan.

Each regional planning body is requested to ensure representation from all states within a regional area. Due to interrelations between activities taking place outside the planning area and CMSP decisions inside the area, *ex officio* membership on regional planning bodies can be extended to neighboring states to aid integration and planning consistency.

The immediate framework for CMSP as developed by the U.S. is domestic in its nature. It is however recognized that the U.S. share maritime boundaries with other nations such as Mexico and Cross-border cooperation in the mid to long term is envisaged regarding marine planning and respected management decisions. It is thus foreseen that representatives from neighboring countries may become either *ex officio* members or observers of regional planning bodies.³²

9.3. RECOMMENDATIONS

34. **Elaborate alternatives for a Canadian MSP authority using the *Oceans Act* as a basis.**
35. **Elaborate on different administrative structures to implement and enforce MSP through a regional approach.**
36. **Establish an authority and administrative structure for MSP in Canada by deciding from the best and most functional alternatives.**

10. WHAT ELSE IS NEEDED?

“For tomorrow belongs to the people who prepare for it today.”

(African Proverb)

10.1. GAP ANALYSIS

A number of stakeholders highlight the need for a gap analysis to establish the added value of MSP in Canada. A thorough investigation should be undertaken to identify existing sectoral legislation and regulations that would either have an impact on MSP, the management of ocean space or would be affected by an MSP regime in place.

The analysis should identify current weaknesses, contradictions and gaps in existing regulations and identify how MSP would be beneficial in addressing these concerns. Additionally, the analysis should

³² For further and more detailed information please visit <http://www.whitehouse.gov/administration/eop/ceq/initiatives/oceans/>, in particular the “Interim Framework for Effective Coastal and Marine Spatial Planning”, published December 9, 2009

define aspects that MSP would add over and above the currently used processes.

One of the leading questions to be answered in this regard is:

- What would be done differently with MSP in place and what are the expected trade offs?

10.2. APPLIED RESEARCH

Further applied research is necessary to support MSP development and implementation. Most tools currently used internationally are derived from land-use planning, such as zones and areas with priority rights for certain uses like resource extraction.

MSP tools must be spatial and temporal to reflecting the three-dimensional character and dynamics of marine ecosystems. Planning tools must be fit for MSP and amendments of existing planning may be required. Currently, no specific MSP tools exist.

Sound MSP has to be based on cumulative impacts and effects of human activities at sea. First attempts notwithstanding, methodologies to measure cumulative effects are not yet in place, both regarding the occurrence of human activities and their differing intensity. Approaches are also lacking that would reflect such effects in legally required, like environmental impact assessments. Applied research is urgently needed to achieve progress in this field.

It is anticipated that MSP will lead to economic and ecosystem benefits. Attempts to prove positive effects and concretely measure them remain scarce. A clear picture of expected MSP benefits would aid marine industries buy-in and receive support from critical stakeholders.

Ecosystem benefits are even more challenging to measure than economic

benefits. Positive developments are often not retraceable to one particular alteration but are multi-causal in nature. This adds high complexity to any measurement of benefits.

Appropriate methodologies are urgently needed to measure both economic and ecosystem benefits of MSP to make positive effects of the process more tangible.

10.3. SCIENTIFIC ADVICE THROUGHOUT THE MSP PROCESS

Sufficient scientific resources must be allocated to accompany MSP implementation. This can be assured by different means:

- Redesigning existing sectoral scientific programs and activities in accordance with an ecosystem-based approach and to address ecosystem needs;
- Using sectoral scientific resources to support cross-sectoral cooperation and collaboration;
- Identifying potential synergies between existing scientific programs and activities with regard to integrated ocean management and MSP;

Marine industry stakeholders acknowledge that the traditional way of doing business is unsustainable and that solutions demand interaction and collaboration between ocean users. Scientific advice used by different sectors has to reflect the new way of policy and decision-making.

10.4. FUNDING

Implementation of MSP is key and sufficient funding is a *conditio sine qua non* for the initiation of MSP, the establishment of the entire process including stakeholder involvement, development of scenarios, the marine spatial plan, monitoring and evaluation.



A concrete figure or budget is difficult to estimate at this point in time as it is dependent on a number of as of yet undecided framework conditions, such as determination of areas where MSP shall be implemented, type of stakeholder involvement, authority and administrative structures. It is fair to say that a significant amount of effort has already been expended in the development of IMPs for some Canadian LOMAs.

MSP can be founded on the previously gathered information and can capitalize on established governance relations which will help to reduce the costs for MSP, making it less expensive than the IOM processes. These kinds of synergies are likely to be strongest for the more advanced IM Plans like ESSIM and the Beaufort Sea.

IM processes that have just begun like PNCIMA, or are under development, would profit from a framework that accounts for the potential needs and requirements of MSP. Data collection and stakeholder involvement could be designed to serve both the development of an IM Plan and a subsequent MSP process to implement the IM Plans.

If a cross-departmental government agreement is signed and budgets are available from departments other than DFO, they may be reassigned or redistributed in order to support MSP implementation.

It must be ensured that MSP links well to other department initiatives, mandates and processes. For instance the current review of the *Canadian Environmental Assessment Act* that intends to replace the project-by-project approach with a more integrated and place-based approach, and the development of a Marine Cadastre, should be carefully examined and the synergies with MSP identified. Capitalizing on synergies would increase the efficiency of policy making and consequently may help to reallocate currently

bound resources for the sake of MSP implementation.

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WWF-Canada Position on Marine Renewable Energy in NS

The Province of Nova Scotia is seeking advice and feedback on its approach to advance marine renewable energy projects through the development of legislation.

WWF position as further expressed in this submission aims at addressing a number of issues raised in the Marine Renewable Energy Legislation for Nova Scotia – A Discussion Paper,¹ particularly in respect to: opportunities, challenges and participation; global experience; economic opportunities; and environmental issues.

WWF strongly supports pursuing renewable energy alternatives. The shift to renewables is urgent and necessary to fight climate change. However, it is necessary to ensure that appropriate cumulative impact assessments are undertaken and appropriate measures are put in place in order to minimize the respective environmental impacts.

In our view, the best available tool to first assess and then manage cumulative impacts in line with the capacity of the given marine ecosystem, as well as to minimize use conflicts, ensure participation, and maximize the economic benefits of any investments in the sector, is Marine Spatial Planning (MSP).

¹ Nova Scotia Department of Energy, Marine Renewable Energy Legislation for Nova Scotia – A Discussion Paper, at 24.

1. Opportunities, Challenges and Participation

Nova Scotia has the opportunity to take a significant step towards the reduction of green house gas (GHG) emissions, promote research, and create jobs by promoting renewable energy projects in the Province. However, in order to maximize the economic benefits, minimize use conflicts through forward looking planning and management and better manage potential cumulative environmental impacts, the Province should also support the development and implementation of a marine spatial planning process carried out by the Federal Government. MSP can also benefit the sustainable management of limited marine space through the assessment for the most appropriate location for certain uses, e.g. renewables. Such management would not only benefit renewable ocean energy but also other marine uses.

MSP is defined by Ehler and Douvere as “(...) a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process.”² According to Ehler and Douvere, the characteristics of an effective marine spatial planning are:³

- (i) Ecosystem-based, where balance among ecological, economic and social objectives is achieved;
- (ii) Integrated across sectors, agencies, as well as different levels of government;
- (iii) Place-based or area-based;
- (iv) Adaptive;
- (v) Strategic and anticipatory with a focus on the long-term;
- (vi) Participatory (stakeholders are actively involved in the process).

² C. Ehler, F. Douvere, (2009). “Marine spatial planning: A step-by-step approach toward ecosystem-based management”, Intergovernmental Oceanographic Commission and Man and the Biosphere Programme, No. 53, IOCAM Dossier No. 6, Paris, UNESCO, at 18.

³ Ibid, at 18.

In this light, ideally, any new provincial legislation should recognize the Oceans Act (1997) and the Oceans Strategy (2002) as overarching legal and policy frameworks under which MSP could be developed and implemented. Furthermore, by supporting marine spatial planning at the Federal level, the Province will be able to provide certain assurances to the renewable energy industry as demonstrated in section 3 below.

The Marine Renewable Energy Legislation for Nova Scotia Policy Background Paper (Policy Background Paper) highlights a number of complex issues related to the regulation of marine renewable energy, such as: the nature of the current jurisdictional and regulatory framework; the complexity of the marine environment and the potential impacts (including cumulative impacts) of the activity in question on the marine environment; multiple users and uses of the marine areas in question. All these complex issues could be more effectively addressed if a marine spatial planning process was in place.

Currently, the only integrated ocean management process in place in the respective area is the Eastern Scotian Shelf Integrated Management (ESSIM) Initiative. However, ESSIM does not comprise the entire area where the proposed activities will take place. For example, ESSIM does not include the Bay of Fundy. The unique characteristics of the Bay of Fundy could be altered by large scale wave and tidal energy projects. Moreover, notwithstanding the important role that ESSIM and its Stakeholders Advisory Committee can and should have during the planning stages of the marine renewable energy project in Nova Scotia, ESSIM's mandate is limited.

Integrated management (IM) is an intrinsic element of marine spatial planning, but MSP goes even further by advancing IM through the incorporation of a future-oriented spatial management plan, proper implementation mechanisms and monitoring mechanisms.⁴ The development of spatial management plans is an essential tool to avoid present and future use conflicts, better assess cumulative impacts and determine which mitigation measures should be put in place. Implementation and monitoring of the plan will provide all different sectors with the stability they need to go ahead with their projects in a sustainable way.

⁴ N. Schaefer, Recommendations on National Direction – Towards MSP implementation in Canada, WWF, 2010. This report is not yet public.

2. Global Experience

As also noted in the Policy Background Paper other jurisdictions have adopted marine spatial planning as a tool to better regulate activities at sea and protect the marine environment, such as the UK through its Marine and Coastal Access Act⁵ (2009). The Marine and Coastal Access Act creates a new decision-making authority (the Marine Management Organisation⁶) to oversee and streamline licensing processes. Other European states have also adopted marine *spatial planning processes, including: Sweden, Germany, the Netherlands and Norway.*

The United States has recently adopted an Executive Order on Stewardship of the Ocean, Our Coasts and the Great Lakes⁷, which among other things, provides for the development of regional coastal and marine spatial plans. The Executive Order defines coastal and marine spatial planning as:

“(...) a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas. Coastal and marine spatial planning identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives. In practical terms, coastal and marine spatial planning provides a public policy process for society to better determine how the ocean, our coasts, and Great Lakes are sustainably used and protected -- now and for future generations.”⁸

⁵ Marine and Coastal Access Act 2009 (c. 23), Part 3, Chapter 2.

⁶ Marine Management Organisation. Online: <http://www.marinemanagement.org.uk>

⁷ Executive Order, Stewardship of the Ocean, Our Coasts and the Great Lakes (July 19, 2010). Online: <http://www.whitehouse.gov/the-press-office/executive-order-stewardship-ocean-our-coasts-and-great-lakes>

⁸ Ibid, Sec. 3 (b)

A National Ocean Council, supported by Governance Coordinating Committee⁹ and Regional Advisory Committees, was also created by this Order and it is the authority responsible for certifying the marine spatial plans.

3. Economic Opportunities

A recent study commissioned by the DG Maritime Affairs and Fisheries of the European Commission identified the economic effects of environmentally sustainable marine spatial planning.¹⁰ The following 3 categories of benefits were identified if MSP is properly implemented:

- (i) Lower coordination costs (due to improved and integrated decision making process);
- (ii) Lower transaction costs for maritime activities (i.e., search, legal and administrative costs, as well as fewer conflicts (opportunity costs)). The study estimates a reduction of 1% in transaction costs if MSP is implemented. In Europe it could represent economic benefits ranging from €170 million to €1.3 billion in 2020;¹¹
- (iii) Enhanced investment climate (i.e., acceleration of economic activity due to enhanced certainty and economic growth). The study suggests that accelerating investments in wind-farm and aqua-farm activity¹² could generate between approximately €60 million and over €600 million in 2020 in Europe.¹³

The Study describes the case of wind energy in Germany and how maritime spatial plans have accelerated investments in the sector, as follows:

“Germany has two maritime spatial plans, one for the North Sea and one for the Baltic Sea, that have been legally binding since the end of 2009. Within these maritime spatial plans, zones for offshore wind farms have been designated. Although there is no single permitting

⁹ The Coordinating Committee is comprised by 18 members of State, tribal, and local governments. Subcommittees may be established and may include additional representatives from State, tribal, and local governments, as appropriate. (Sec. 7)

¹⁰ EC/Policy Research Corporation, Study on the economic effects of Maritime Spatial Planning – Final Report (April 2010), Brussels/Antwerp. For further information see document online at: http://ec.europa.eu/maritimeaffairs/studies/economic_effects_maritime_spatial_planning_en.pdf

¹¹ Ibid, at 35

¹² Benefits from combined activities were also analyzed, for example, aquaculture seem to benefit from wind farms.

¹³ EC/Policy Research Corporation, Study on the economic effects of Maritime Spatial Planning – Final Report (April 2010), supra note 10, at 36-7.

administration in place, licensing procedures are now quicker as a result of the Maritime Spatial Plan, as thorough discussion has already taken place between the different responsible authorities on why certain zones are suitable for offshore wind farms and why certain areas are not. In practice this means that the licensing process will be shortened by approx. one year. Before the plans were implemented, it could take three to four years to receive all permits needed to build an offshore wind farm, whereas with the implementation of the new maritime spatial plan, it will probably only take two to three years.”¹⁴

4. Environmental Issues

Despite the benefits of marine renewable energy production in respect to minimization of green house gas emissions, the activity can also generate environmental impacts. Some of these impacts include landscape and seascape effects, disruption of currents, waves, habitat alteration, interference with animal migration patterns, risks associated to birds collision, and noise. Moreover, the cumulative effects of these activities can be even more significant when combined with other existing and future activities occurring in the same area, such as fishing, shipping, oil and gas, etc.

Even though the *Canadian Environmental Assessment Act* (CEAA) requires an assessment of cumulative effects,¹⁵ there is no management plan in place to foresee where and what kind of future activities will be taken place in the assessed area. A Marine Spatial Plan would then operationalize the CEAA provision. Nevertheless, an appropriate methodology to measure cumulative effects still needs to be developed and implemented within this context.

Effective and timely monitoring and reporting are also important mechanisms to prevent and mitigate environmental impacts. Therefore, the proposed legislation should provide for a strong monitoring mechanism and respective methodology as part of the licensing and post-licensing process, particularly in respect to the activity’s effects on benthos, fish, coastal processes, birds, marine mammals,¹⁶ relevant habitats and vulnerable marine ecosystems. All monitoring reports should be made publicly available.

¹⁴ Ibid, at 16.

¹⁵ Canadian Environmental Assessment Act, S.C. 1992, c. 37, Section 16 (a).

¹⁶ See FERA/ CEFAS/ SMRU Ltda., *Strategic Review of Offshore Wind Farm Monitoring Data Associated with FEPA License Conditions*, 2010, for a number of recommendations on monitoring procedures. This report is available online:

http://www.marinemanagement.org.uk/works/energy/documents/strategic_review_monitoring_data.pdf

As further research on the effects of the projects on the marine environment can be very costly, the proposed legislation could provide for a percentage of the initial investment (e.g. 0.5 %) to be endowed to a special fund towards this end.

Conclusion

By encouraging the development and implementation of marine spatial planning, economic activities, such as marine renewable energy, would have more safeguards, as long-term planning is one of the main characteristics of MSP. Moreover, as demonstrated in the study commissioned by the EC, MSP can save industry millions if not billions of dollars if properly implemented. Environmental concerns can also be better managed under the scope of MSP, as it could provide the framework for shifting Environmental Impact Assessments from a project-by-project approach to a more strategic, regional approach. Interaction between different marine sectors is encouraged through MSP which aids the consideration of the capacity of a given marine ecosystem. Moreover, pre-assessments of appropriate location of certain marine uses, like renewable energy, help to minimize not only user-user conflicts but also user-environmental conflicts.

WWF strongly supports renewable energy initiatives. However, environmental impacts, including cumulative effects, should be minimized and mitigated. The development of marine renewable energy projects in NS has the potential of affecting a number of other users (e.g, fishing sector, coastal communities, shipping, oil and gas, etc). The best way to manage these and other negative effects is through the development and implementation of a marine spatial planning process led by the Federal Government and supported and encouraged by the Province.

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