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Paper:

Marine Spatial Planning: A Promising New Paradigm for Applying an Integrated, Ecosystem Approach to Ocean Management

Fanny Douvere¹ and Charles Ehler²

¹ *Contact Author: Consultant, Intergovernmental Oceanographic Commission (IOC) and Man and the Biosphere Programme (MAB), UNESCO, 1, rue Miollis, 75732 Paris, France. Tel.: +33674139361. URL: <http://ioc3.unesco.org/marinesp>. Email: fanny.douvere@mac.com*

² *Consultant, Intergovernmental Oceanographic Commission (IOC) and Man and the Biosphere Programme (MAB), UNESCO, 1, rue Miollis, 75732 Paris, France. Email: charles.ehler@mac.com*

Abstract:

Many scientists have advocated reforms centered on the concept of ecosystem-based management to reduce the degradation of the marine environment. Managing places, including the range of human activities affecting them, is a key characteristic of ecosystem-based management and is a marked departure from existing approaches that usually focus on a single species, sectors, concerns, or human activities. To date however, a feasible method for translating this attractive concept into operational management practice has not emerged. Although a range of measures will be needed to implement the multiple objectives of an ecosystem-based approach to ocean management, a focus on the spatial and temporal aspects, through marine spatial planning (MSP), is one way to make this process more tangible. MSP is a future-oriented activity that not only can address directly conflicts, fragmentation and spatial mismatches in current ocean management, but also facilitates efforts to adjust governance to the rhythms of human institutions and the dynamics of spatially-bounded ecosystems. A new UNESCO program on ecosystem-based marine spatial management has taken up this idea and is currently developing comprehensive, operational guidelines that outlines the steps to implement MSP. As part of the preparatory work, examples of MSP in Belgium, the Netherlands, Germany, the United Kingdom, China, Australia and New Zealand have been analyzed providing necessary information on what is crucial and what is not in the use and application of MSP. The focus of this presentation is to illustrate essential aspects of the new handbook and some results of the analysis.

Keywords: marine spatial planning, ecosystem approach, integrated management

1. Introduction

During the last decade, MSP has become increasingly recognized as a practical way to achieve integrated, ecosystem-based management in marine and coastal areas. While in the past, development and industrialization of ocean use has been most prominent in fisheries, maritime transport, communications, oil and gas exploitation, marine recreation, and coastal engineering, it is particularly the rise of new uses, such as renewable energy and nature conservation initiatives, that has made decision-makers recognize the need to develop and implement better integrated and more rational approach to the use of ocean space.

In most cases, it has been because growing and interactive pressures, often driven by incompatible demands for ocean space, have forced governance systems to face complex, multi-sectoral issues. In New Zealand, for example, the issues of Maori rights and marine conservation came to sharp political focus at the same time. In European countries, the cumulative crush of shipping, fisheries, renewable energy, recreation, land-based pollution sources, and conservation requirements could no long be ignored. In the case of the Australian Great Barrier Reef, the pressures of mineral exploitation, developing tourism, and national pride in an iconic ecosystem drove the process toward an adaptive, integrated marine spatial management process.

Increased activity in the marine environment has essentially led to two important types of conflict. First, not all uses are compatible with one another and are competing for ocean space or have adverse effects on each other (*user vs. user conflicts*). Examples include, among others, incompatibilities between the fast-growing, billion-dollar submarine cable industry and fisheries, causing damage to, or loss of, fishing gear and huge repair costs or lost revenues for cable disruption. Second, not all uses are compatible with the needs of a healthy and sustainable environment and cause conflicts between users and the environment (*user vs. environment conflicts*). Too often, ocean uses are located in sensitive biological and ecological areas without much consideration of their impact, causing degradation of the world's ocean biodiversity or collapse of important and valuable fish species, and increasingly impairing the ocean's ability to produce goods and services essential for all life on Earth.

2. The use of spatial planning in ocean and coastal management

Many conflicts can and have been avoided or reduced through MSP by influencing the location of human activities in space and time. MSP is a means *to create and establish a more rational organization of the use of marine space and the interactions between its uses, to balance demands for development with the need to protect the environment, and to achieve social and economic objectives through an open and planned process*. Marine spatial planning aims to provide a mechanism for a strategic and integrated plan-based approach for marine management that makes it possible to look at the “bigger picture” and to manage current and potentially conflicting uses to reduce the cumulative effects of human activities, and to deliver marine conservation.

Throughout the world, several countries have begun to move the conceptual work forward and have started implementing, or at least experimenting with, spatial planning in their marine and coastal environment.

Analysis of MSP efforts around the world, show a clear trend in its use. Early plans and initiatives toward MSP have been brought forward to establish and manage marine protected areas. Some of the best-known examples are Australia's Great Barrier Reef Marine Park (GBRMP) and the Florida Keys Nations Marine Sanctuary. In both cases, spatial planning is seen as a cornerstone of the management strategy for the protection of valuable and sensitive places in the protected area.

More recent attention, however, has been placed on managing the multiple use of marine space, especially in heavily used areas where conflicts among users and environment are already clear. In Europe, and most particularly in the North Sea, the focus of MSP initiatives has become much broader allowing the establishment of ecosystem-based management beyond the rather narrow scope of marine protected areas. Marine spatial planning in Europe – and to some extent in China - pays more attention to enhancing the efficient use of ocean space as a whole, identifying opportunities for shared uses of space, and the resolution of conflicts. As early as 1999, the European Spatial Development Perspective recognized that all sectoral policies have a spatial impact and that a spatial plan is the most appropriate means of ensuring coherence and resolving conflicts between sectoral interests and policies. Most recently, the EU Green Paper "*Toward a Future Maritime Policy for the Union: A European Vision for the Oceans and Seas*" sees MSP as a key tool for the future management of a growing and increasingly competitive maritime economy, while at the same time safeguarding marine biodiversity. In the context of the EU Marine Strategy, the principle of ecosystem-based MSP has been introduced to provide a supportive framework for national initiatives toward spatial planning, designed to achieve good status for the environment. Both Belgium and the Netherlands have implemented marine spatial plans through which nature conservation requirements and new demands for ocean use were merged successfully. MSP is also underway in Germany (where draft spatial plans have been published and begun a public consultation phase) and the United Kingdom (where a Marine Bill is being developed that will allow a new direction in UK ocean management, based on the concepts of MSP). Several initiatives on MSP are also being considered and developed in the Baltic Sea. A major challenge in Europe, however, is to embed these national spatial plans in larger marine areas, with boundaries drawn on the basis of ecological considerations rather than political ones.

A number of other countries have started with more systematic efforts to underpin the design of multiple-use MSP with an ecosystem approach. Such efforts are developing in Australia (outside the GBRMP), New Zealand and to some extent in Canada. Such approaches are currently most advanced in Australia, where the concept of "marine bio-regionalization" is used as a platform for the development of spatial management.

3. The development of international guidelines for the implementation of ecosystem-based marine spatial management

Although critical voices about the potential, nature and scope of spatial management exist, the fact that ecosystem-based management is place-based and needs a more systematic spatial and temporal approach is generally accepted. What is missing, however, is a clear demonstration of how it can be implemented. As no single, readily applicable best practice of MSP exist, many have expressed the need for better-defined tools, procedures, and guidelines that support the implementation of ecosystem-based, MSP.

This assumption has been the main conclusion of the two years of work of the Ocean Zoning Working Group of the National Center for Ecological Analysis and Synthesis (NCEAS), University of California, Santa Barbara. A similar conclusion was drawn from the first UNESCO International Workshop on the use of MSP as a tool to implement ecosystem-based, sea use management. In its latest communication, the European Commission confirmed that integrated MSP is fundamental and announced its plans to develop a system for the exchange of good practices and guidance to facilitate and encourage implementation of ecosystem-based marine spatial management.

Under the auspices of UNESCO's Intergovernmental Oceanographic Commission (IOC) and the Man and the Biosphere Programme (MAB), a comprehensive set of guidelines and principles for the implementation of ecosystem-based MSP is under development. In the first phase, at least ten international examples of MSP, at different stages of development, have been analyzed and documented with the objective of providing necessary and fundamental information for applications of ecosystem-based MSP. The analysis and documentation of international examples focus on steps taken during the MSP process in various countries that have led to successful implementation and desired outcomes. An indication of crucial steps will allow decision-makers and resource managers to better determine their priorities in implementing ecosystem-based MSP. Key aspects of the guidelines will include:

- The pros and cons of different types of MSP **authority/legislation** (including the need for a strong rationale; ways to ensure environmental value in the plan);
- Ways to **involve stakeholders** in various phases of the MSP process that allow the engenderment of trust and cooperation by all interest groups of spatial planning initiatives;
- Essential **research and data** needed to develop MSP, including ecological/biological research and information that allows the human dimension of spatial planning initiatives to be addressed;
- Key elements of **the setting up of the planning phase** of MSP (including the identification of objectives, scope, scale, principles, management measures, tools, assumptions, projections for future use);
- Difficulties and gaps when moving from planning to **implementation** (including timeframes and human resources, incentives, political considerations, non-compliance issues);

- Methods for **monitoring and evaluation** of MSP performance;
- Mechanisms for **financing** MSP efforts.

In a second stage, a draft of the guidelines and principles will be tested, fine-tuned, and adapted to the context of two specific marine ecosystems through regional meetings and workshops. The final guidelines will be published in May 2009.

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