











Coastal and Ocean Governance: Principles and Practices,” held, respectively, at the Coastal Zone 2003 Conference in Baltimore, USA on July 12–14, 2003 and at the Fifth World Parks Congress, Durban, South Africa, on September 10, 2003 [4].

#### 1.4.1. Strategic Management of MPA and the Coastal Area

**Principle 1.** Connectivity between the terrestrial and marine side of the coastal area and between MPAs and the surrounding coastal and marine area should be recognized and maintained. To this end, a good scientific understanding of the ecological, socio-economic, and cultural linkages and connectivity between ecosystems and humans in the coastal zone has to be developed. This is essential for ensuring that management of MPAs and the wider coastal and marine area is well integrated.

Understanding ecological, socioeconomic, cultural and institutional connectivity of MPAs and MPA networks to the broader coastal and marine area is essential to the credibility, support and success of MPAs and of ICM. MPAs are often affected by activities carried out outside the established boundaries of the MPA, including discharges of pollutants from coastal watersheds, as well as marine uses in proximity of an MPA. Also, MPAs provide the broader coastal and marine area with a number of goods and services, including conservation of biodiversity; protection of critical habitats; increased productivity of fisheries through stock regeneration; increased knowledge of the marine environment; a refuge for, and protection of, genetic diversity; and protection of cultural heritage and diversity. In other instances, the restrictions of access to resources within MPAs may affect outside users who rely on such resources, such as seasonal fishermen, to the benefit of just a small portion of the population. All these environmental, socioeconomic, and cultural linkages between MPAs and the wider coastal and marine area and users have to be recognized fully and strengthened through appropriate institutional arrangements to ensure an equitable distribution of benefits.

**Principle 2.** MPA management should be based on the best available knowledge and information, and much of this information is relevant to, and should draw from, the basis of broader coastal and marine area management.

Research and monitoring are essential tools in MPA management, and MPAs are often spaces where relatively rich information and knowledge exist. This information, however, is often not accessible to, or applied within, ICM programs in the coastal and marine areas in which the MPAs are situated. It is also usually biased towards biophysical information about the MPA, with less emphasis on the socioeconomic and cultural aspects. Furthermore, research and monitoring programs for MPAs often do not focus on linkages between the MPA and adjacent coastal and marine areas, or exploit the opportunities that MPAs can provide as benchmarks of the state of coastal and marine environments.

**Principle 3.** Successful integration of ICM and MPAs depends on sustained management processes and programs that will produce perceived benefits and tangible outcomes that contribute to improved quality of life:

Awareness of the interactions between the management of an MPA and its surrounding physical and human environment helps to identify opportunities and constraints for an integrated approach to MPAs and the wider coastal and marine area. Involvement of

regulatory changes. The creation of political will and an enabling environment to support MPA networks framed in the broader coastal and marine area will allow

People, facilities and funds are essential for proper and full implementation and plan and program sustainability. The management of MPAs can be financed through a combination of instruments, including government support, donor funding, and user fees and charges. Tourism fees and charges, and royalties and levies on commercial operators, in particular, can provide a source of revenue. Remittance of revenues at the central level and returning of a proportion to individual MPAs can contribute to ensuring a balance between commercial use and conservation management. Collaborative initiatives on financing between MPA and ICM authorities can help avoid competition and mutually reinforce sustainability.

*P c e* 8. The effectiveness of MPAs and their incorporation into ICM frameworks has to be assessed through appropriate tools, guidelines, and trained personnel. Evaluation of MPAs should be conducted at the individual site, subnational, national, and regional levels.

Increasing threats on MPAs make it critical that their management be effective. As MPAs are connected into networks and incorporated into ICM frameworks, it is essential that best practices and results from MPAs collectively accomplish the objectives of the network.

*P c e* 9. Ecologically coherent networks of MPAs, including geological and oceanographic considerations, provide a spatial management tool to prioritize biodiversity conservation and ensure maintenance and enhancement of environmental goods and services, which are essential objectives of ICM.

Scaling up of existing MPAs and ICM initiatives can be limited by administrative boundaries, therefore, larger scale ecological coherence is required. To this end, it is important to establish MPAs and no-take areas that contribute to networks of national and international protected areas in accordance with a strategic approach that fills gaps and conserves priority marine conservation areas. The network must strategically link broad-area integrated coastal management with fully protected areas and multiple use/sustainable-use areas.

## 2. Integrated coastal management: concepts, guidelines, and major development in practice

ICM can be defined as “a continuous and dynamic process by which decisions are taken for the sustainable use, development, and protection of coastal and marine areas and resources” [7]. The goals of ICM are to attain sustainable development of coastal and marine areas; to reduce vulnerability of coastal areas and their inhabitants to natural hazards; and to maintain essential ecological processes, life support systems and biological diversity in coastal and marine areas.

ICM acknowledges the interrelationships that exist among coastal and ocean uses and the environments they potentially affect, and is designed to overcome the fragmentation inherent in the sectoral management approach. ICM is multi-purpose oriented, it analyzes and addresses implications of development, conflicting uses, and interrelationships between physical processes and human activities, and it promotes linkages and harmonization among sectoral coastal and ocean activities [7]. Ideally, an ICM program should operate within a closely integrated, coherent management framework within a defined geographical limit [8].



## 2.1. ICM functions

The major functions of ICM are presented in Table 2 (based on Cicin-Sain and Knecht [7]):

## 2.2. ICM principles

ICM involves the application of a set of principles: each principle, in itself, is a goal in itself, and each goal is a goal in itself. Overarching principles guiding ICM are: (1) sustainable development, and (2) integration (by integration we mean to unify, or to put parts together into a whole). Several dimensions of integration are of special importance in ICM, i.e. [7]:

*Inter-agency integration* (bringing together agencies and groups from different sectors such as fisheries, tourism, oil and gas development, etc.).

*Integration of government levels* (bringing together the several levels of government: national, provincial, local) which typically have authority in the coastal zone and ocean).

*Land-ocean integration* (bringing together management issues concerning the land side of the coastal zone (including up-river issues related to watersheds and river basins) and issues related to the ocean side).

*Science-policy integration* (applying practical knowledge from the natural and social sciences to managerial decisions about the oceans and coasts).

*Transboundary integration* (especially in cases where there are important transboundary issues that cross national boundaries).

ICM is also guided by the principles of sustainable development which were endorsed by the international community at the 1992 United Nations Conference on

environmental assessment; precautionary principle; polluter-pays principle; and openness and transparency in decisionmaking.

Finally, ICM is also guided by principles related to the special character of oceans and coasts and to the public nature of the oceans and to the use of coastal ocean resources [7]:

*P r i n c i p l e s g u i d i n g t h e m a n a g e m e n t o f c o a s t a l o c e a n r e s o u r c e s :*

Coastal and ocean systems require special planning and management approaches due to their high productivity, great mobility, and interdependence.

The significant interactions across land–water boundary require recognizing and managing the whole system.

Activities well inland can significantly affect coastal resources.

Land forms fronting the water's edge (e.g., beaches, dunes) that help as buffers against erosion and sea level rise should be conserved.

Interruptions of the natural longshore drift system should be minimized.

The biodiversity of rare and fragile ecosystems and endangered/threatened species should be protected.

Efforts to stabilize the coast should be “designed with nature” using, e.g., special vegetation instead of physical structures.

*P r i n c i p l e s g u i d i n g t h e m a n a g e m e n t o f t h e b e a c h a n d d u n e e c o s y s t e m s :*

Since ocean resources are part of the public domain, management must be guided by a stewardship ethic, fairness and equity.

Historically based claims of indigenous peoples should be recognized.

While ICM is intended to foster the coexistence of multiple uses in an area, in case of irreconcilable conflicts, protecting renewable living resources and their habitats should have priority over exploitation of nonliving, nonrenewable resources.

New coastal developments that are marine dependent should have priority over those that are not.

### 2.3. ICM and the coastal zone

There is generally a recognition in ICM projects of the need to work from two directions—“bottom up” (involving the local community, as well as provincial authorities) and “top down” (involving the national government) since, in cases, provincial, and local governments share jurisdiction over the coastal zone and ocean.

A key aspect of ICM is the design of institutional processes of integration/harmonization to overcome the fragmentation inherent in the sectoral management approach and in the splits in jurisdiction between levels of government at the land–water interface. This generally entails the creation of a coordination mechanism that brings together coastal and ocean sectors, different levels of government, users, and the public into the ICM process. Attributes of a successful institutional coordination mechanism for ICM include:

Based on appropriate legal/legislative authority.

Able to affect the activities of all the agencies and levels of government and.

Perceived as a legitimate and appropriate part of the process.

Capable of making informed decisions (with the assistance of a technical secretariat and scientific advisors).

Whenever possible, the coastal management entity should be at a higher bureaucratic level than the sectoral agencies to give it the necessary authority to harmonize sectoral actions.

The effort should be adequately financed and staffed.

The planning aspects of ICM should be integrated into national development planning.

#### 2.4. *I e a a g de e ICM*

All of the major agreements emanating from the 1992 UN Conference on Environment and Development have endorsed the application of the ICM approach, including: the Framework Convention on Climate Change, the Convention on Biological Diversity, the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, the Programme of Action for the Sustainable Development of Small Island Developing States, and the International Coral Reef Initiative. In addition, a number of efforts have been made by international entities to further define, interpret, and operationalize the ICM concept. The main international guidelines developed for ICM, listed in Table 3, are important for they set standards of an international model or norm for countries to follow. In some cases, a country's adherence to such international standards, or lack thereof, can be used by international funding agencies as a basis for approving or disapproving program funds.

Table 3  
Main guidelines on ICM

Year	Organization	Guidelines
1992	UN	Agenda 21, Chapter 17
1993	OECD	Coastal Zone Management: Integrated Policies
	World Bank	Guidelines for Integrated Coastal Zone Management
	IUCN	Cross-Sectoral, Integrated Coastal Area Planning (CICAP): Guidelines and Principles for Coastal Area Development
1995	UNEP	Guidelines for Integrated Management of Coastal and Marine Areas: With Special Reference to the Mediterranean Basin
1996	UNEP	Guidelines for Integrated Planning and Management of Coastal and Marine Areas in the Wider Caribbean Region
1998	FAO	Integrated Coastal Management and Agriculture, Forestry and Fisheries
1999	UNEP	Conceptual Framework and Planning Guidelines for Integrated Coastal Area and River Basin Management
	EC	Towards a European Integrated Coastal Zone Management (ICZM) Strategy: General Principles and Policy Options
	Council of Europe	European Code of Conduct for Coastal Zones
2000	CBD	Review of Existing Instruments Relevant to Integrated Marine and Coastal Area Management and Their Implementation for the Implementation of the Convention on Biological Diversity
2004	CBD	Integrated Marine and Coastal Area Management (IMCAM) Approaches for Implementing the Convention on Biological Diversity



The review undertaken by the CBD of existing international and regional guidelines for ICM [12] highlights a number of common features of ICM that can serve biological conservation purposes, as noted in Table 6. While the analyses of the guidelines carried out by the CBD show a high degree of consistency in terms of general guidance on ICM, they do not provide specific operational guidance for the management of biological diversity. For example, they do not provide guidance on how to determine the spatial integration needed in ICM to address the protection of migratory species or the transboundary impacts of pollution on biological diversity.

3.1. *Integration of biological diversity into ICM : a case study of the CZMC/RIKZ*

[13]. The analysis revealed that the following elements were sufficiently covered by the

Protection and encouragement of customary use of biological resources in accordance

local level and sectoral initiatives led by line agencies at the national level. In Belize,



communities or communities living inside protected areas. Buffer zones could also provide a source of revenues to help cover the costs of protection (such as, for example, from tourism fees) [21].

land/habitat use analysis;  
environment/development scenarios;  
environmental impact assessment;  
strategic environmental assessment;  
rapid appraisal techniques;  
zoning;  
sustainable tourism planning and management.

*Integrating MPA management into coastal and marine management:* The interests of MPAs should be represented in existing institutional arrangements for coastal and marine management. As a way to pursue such representation, MPA managers should be able to participate in governing bodies, commissions or working groups established at the local, regional, and national level to coordinate coastal and marine management:

coordinating arrangements at the local, regional, and national level.

*Mainstreaming coastal and marine biodiversity concerns:* The goals and objectives of the conservation of coastal and marine biodiversity have to be “mainstreamed” into other sectors, so as to reduce the pursuit of inconsistent objectives at the sectoral level and unwanted impacts on MPAs. Funds made available to specific sectors such as agriculture, transportation, tourism, etc., in particular, should be subject to

*Enhancing management and adaptive effectiveness*  
*Conclusion*: The quality and effectiveness of the implementation of MPAs can be enhanced through the use of general and more specific instruments:

- monitoring and evaluation systems;
- rapid assessment techniques;
- management effectiveness assessment;
- environmental standards and controls;
- reporting on the state of the environment.

*Regional approach*: On a regional level, MPAs could be conceived as a network or system rather than isolated efforts. A bio-regional approach can prove useful in the assessment and selection of candidate sites to be part of a regional system of

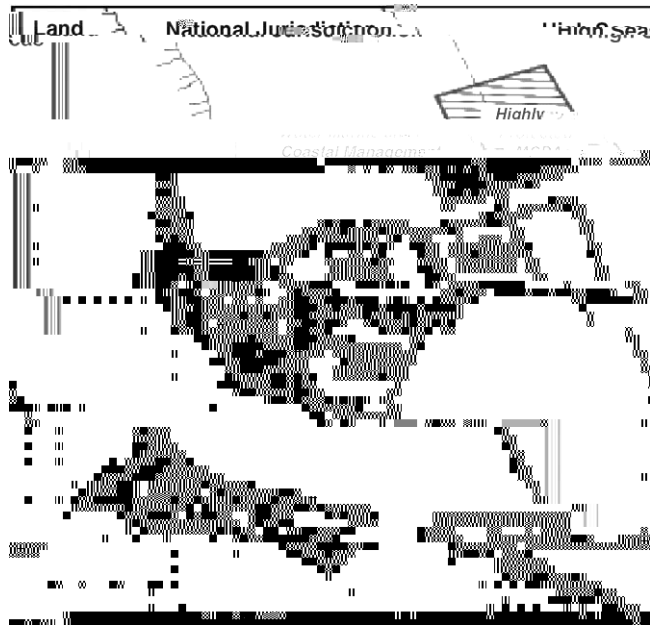


Fig. 1. Elements of a coastal and marine biodiversity management framework [22].

ensure that the integrity, structure and functioning of the ecosystem is maintained or restored;

- (b) in the ancillary network of multiple-use marine and coastal protected areas human uses are managed for the joint purposes of biodiversity conservation and sustainable use and certain extractive use may be allowed;
- (c) a broader framework for integrated ocean and coastal management provides the planning and management context for coastal and sea uses, recognizing the linkages between coastal areas, the adjacent watersheds, and offshore zones.

The system: (a) relies on an area-based approach to the management of marine and coastal resources, (b) makes use of approaches, tools and techniques such as the ecosystem approach, zoning of coastal and marine uses, conflict resolution mechanisms and strategic environmental assessment, and (c) implies the existence of institutional and legal arrangements adequate to represent and reconcile different and often conflicting interests in the perspective of sustainable development.

The institutional and legal arrangements for an integrated ocean and coastal management framework [23] require that:

- (a) ocean and coastal affairs are elevated in the public policy agenda so as to allow for the formulation of national coastal and ocean policy goals and priorities;
- (b) such goals and priorities are integrated into the national development planning framework;
- (c) all levels of governments as well as private and nongovernmental interests are represented in the formulation and implementation of a national ocean policy.

For the pursuance of the above, the following types of institutional arrangements are typically needed:

- (a) an inter-ministerial, inter-agency board or council, at the highest political level, presided over by the minister in charge of the lead marine-oriented agency of the country;
- (b) a national planning office charged with the formulation and implementation of the national ocean policy, possibly assisted by a technical advisory body;
- (c) parallel structures at the regional or local level, depending on the degree of decentralization of the administrative system;
- (d) existing government offices charged with the implementation of plans, eventually with an extended mandate and supported by technical forums or executive committees to address specific issues and ensure broad representation.

#### 4.4. The emergence of MPA, ICM, and integrated coastal management

While it is clear that many practitioners of ICM and MPA recognize the need for linkages between the two governance regimes, it will be difficult to put this goal into practice. The actors involved in MPA networks and in ICM programs are often different, and reflect different cultures, different networks of relationships, different ministries, and different goals and motivations. ICM practitioners will need to come together with MPA practitioners, as well as with watershed planners, to engage in national-level ocean and coastal planning, including designation of networks of MPAs. Similarly, they will need to engage in regional-level ocean and coastal planning to examine in detail ecological issues in an area, multiple-use interactions, and to determine areas that need to be protected, and procedures for avoiding adverse impacts in MPAs.

Such coming together for joint planning and, ultimately, joint governance will need to be facilitated by third parties knowledgeable about both ICM and MPA processes. There will be a need for capacity building to achieve collaborative nested governance of oceans and coasts, incorporating large ocean/coastal areas under ICM, networks of MPAs, and appropriate linkages to watershed and river basin issues.

#### 4.5. Setting coastal management targets

The World Summit on Sustainable Development enshrined, at the highest political levels of decisionmaking, very tangible targets on ocean and coastal management, and in a number of cases, also stringent timetables. Most applicable to our discussion are the targets noted below:

- establishment of MPAs consistent with international law and based on scientific information, including representative networks, by 2012;
- application of the ecosystem approach (by 2010);
- promote integrated, multidisciplinary and multisectoral coastal and ocean management at the national level, and encourage and assist coastal States in developing ocean policies and mechanisms on integrated coastal management.

These targets are a challenge to link MPA and coastal management and provide both with legitimacy and political support.

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