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Draft Policy Brief on Improving Governance: Achieving Integrated, Ecosystem-Based Ocean and Coastal Management



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Draft Policy Brief on

**Improving Governance: Achieving
Integrated Ecosystem-Based Ocean and
Coastal Management**

**Prepared by David Freestone, Biliana Cicin-Sain,
Indumathie Hewawasam, and Gwenaelle Hamon***

**Policy Briefs on each of the three major themes of the Global Oceans Conference 2010—Climate and Oceans, Marine Biodiversity, and Integrated Governance—have been prepared to elicit discussion and debate at the Global Oceans Conference.*

Any opinions expressed in the Policy Briefs are solely the opinions of the contributing authors and do not reflect institutional positions on the part of the Global Oceans Forum nor of any of the Conference sponsoring organizations.

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Improving Governance: Achieving Integrated Ecosystem- Based Ocean and Coastal Management

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Introduction

Over half of the world's population lives along the coast on only 10% of the Earth's land, creating intense pressure on coastal habitats and resources. Much of the booming global population relies on oceans for food, waste disposal, energy production, marine transportation supporting an increasingly global economy, and views the coasts as source of inspiration and a preferred leisure destination. Indeed the management of multiple uses and expectations from ever more crowded oceans and coasts is a major challenge for developed and developing countries alike.

At the same time, the oceans are feeling the pressures of increased human activities-- through unsustainable fishing, increased maritime transportation, and pollution from land-based sources as well as the impacts of climate change. The 1982 Law of the Sea Convention recognizes certain high seas freedoms for all states in areas beyond 200 miles from the coast (so called areas beyond national jurisdiction or ABNJ)--over 60% of the planet surface. These freedoms, such as fishing, navigation, laying of submarine cables, need to be exercised in accordance with corresponding duties, but we do not have an effective and comprehensive system for ensuring that states and the vessels that fly their flags honour these obligations. We have separate treaties and bodies to oversee dumping from vessels, oil pollution, land-based pollution; different bodies to oversee fishing for tuna and for other species and different bodies in different regions. Despite the fact that the 1995 UN Fish Stocks Agreement mandated the uses of the precautionary approach and an ecosystem-based approach to conservation and management, some of these regional bodies

have been ineffective in preventing major fish stock depletion.¹ There is virtually no coordination among many of these bodies, enforcement is poor and there are still major gaps in the system² that allows, for example, chronic levels of illegal, unregulated and unreported (IUU) fishing to continue--some estimate as much as 30% of global catch.

This lack of a comprehensive governance system means, for example, that there is no international mechanism to grant protection to vulnerable marine ecosystems or to protect areas beyond national jurisdiction from known or new threats. The Law of the Sea Convention envisages environmental impact assessment for activities that may cause significant or harmful changes to the marine environment, but there is no global international oversight procedure to ensure such assessments are done, or done properly, before new activities begin. Such procedures would have controlled the rapid expansion of bottom trawling in unique and vulnerable ecosystems and would have ensured an orderly process for reviewing the potential impacts of experiments in geo-engineering such as ocean fertilisation.

In addition, the oceans face increasing threats from climate change: warming of ocean temperatures impacts the productivity of ecosystems and has resulted in migration of fish stocks, sea level rise poses real challenges to coastal and island systems--threatening the very survival of some small island states. And rising atmospheric CO₂ concentrations

¹ Worm, B. et al (2009) Rebuilding Global Fisheries. *Science* 325: 578 – 585.

² Gjerde et al, *Regulatory and Governance Gaps in the International Regime for the Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction*. IUCN Marine Series 1, 2008.

are already causing alarming increases in ocean acidity which threatens the shell formation capacity of corals and molluscs and maybe even the skeletons of plankton.

The 1992 UN Conference on Environment and Development (UNCED) and the 2002 World Summit on Sustainable Development WSSD have recognised the importance of integrated ocean and coastal zone management. The 2002 Johannesburg Plan of Implementation (JPOI) of the World Summit on Sustainable Development (WSSD) calls for “the application by 2010 of the ecosystem approach,”³ and “promotion of integrated coastal and ocean management at the national level and encouragement and assistance to countries in developing ocean policies and mechanisms on integrated coastal management.”

The significance of these key management techniques should be apparent. The management of multiple uses and expectations from ever more crowded oceans and coasts is a major challenge for developed and developing countries alike. Faced with increasing resource and user conflicts over sectoral and political boundaries, national governments and even the general public are recognizing the need to take a more comprehensive, or ecosystem approach to natural resource management policies. At the same time, coastal managers are recognizing the challenges inherent in managing coastal resources based on small scale, political boundaries and are also embracing a more integrated approach to management. Consequently, some national resource managers are now augmenting existing single species, and resource-specific management plans to incorporate ecosystem-based management (EBM) approaches to natural resource management and integrated coastal management.

Integrated coastal and ocean management (ICM) is closely related to EBM. ICM is a well-documented approach with a history of implementation in

³ Noting the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem and Decision V/6 of the Conference of Parties to the Convention on Biological Diversity.

countries worldwide, ICM shares a number of basic principles with EBM, and the two concepts are generally regarded as complementary, yet with differing areas of emphasis. The driving force of ICM is typically accommodating multiple uses to achieve sustainable development of coastal and ocean areas. EBM offers a more explicit focus on maintaining ecosystem service functions. Although ICM is articulated and embraced in a number of international and national policies and agreements, and EBM is a more recent paradigm with conceptual work still underway, the two practices will both be needed in concert to address the huge challenges facing the world’s coastal and ocean areas. The most pressing of these are now arguably the various challenges posed by climate change.

It is clear that the overall WSSD goal on the implementation of ICM and EBM by 2010 has not been met, although significant progress has made. It is also clear that current predictions of climate change by the IPCC and others pose major problems to coastal managers and also to those concerned with ocean management issues. The purpose of this policy brief is to assess the progress that has been made in addressing the WSSD goals by assessing progress in the operationalization of ecosystem management and integrated coastal and ocean management; by identifying gaps in implementation and needs for further investment. In a decade when climate change has become a dominant issue, the brief will also assess the potential ICM/EBM has for meeting some of these challenges and suggest some priority areas for improvement, recommending tangible priority next steps to decision makers.

Assessment of Progress: Progress Made But Efforts and Investments Must be Scaled Up

EBM and ICM and their Interrelationship

There has been significant conceptual development in defining the elements of ICM and of EBM and applying these in practice (especially so in the case of ICM). The concepts are complementary and mutually supportive and reinforce one another. As well, the concept of marine spatial planning is one that has attracted considerable attention in recent

years and represents a useful approach to implementing EBM/ICM.

Although there is not a single set of agreed principles or operational objectives for EBM, there is substantial overlap among the efforts.

For the purposes of gauging progress toward the JPOA goals, it would be useful for the 5^h Global Conference to establish a general set of principles for EBM so that governments, NGOs, IGOs and others can establish performance measures of EBM implementation and assess future accomplishments. Below is a proposed common set EBM principles taken from multiple sources. *Table 1* shows the sources of the principles.

limited.

- EBM recognizes that ecosystem change is inevitable. Hence, priority targets of EBM should include the conservation of ecosystem structure and function.
- In EBM, management should be decentralized to the lowest appropriate level and should encourage participation from all relevant stakeholders and scientific disciplines.
- EBM should strive to balance diverse societal objectives that result from resource decision making and allocation.

Principle	Source						
	Australia	CBD	EPAP	FAO	McLeod et al (2005)	Sissenwine Murawski (2004)	U.K.
#1 – Geographically specified		X			X	X	X
#2 – Takes into account uncertainty	X		X	X	X	X	
#3 – Change is inevitable		X	X			X	
#4 – Conserves ecosystem structure and function	X	X		X	X	X	
#5 – Management should be decentralized		X					X
#6 – Involves all relevant sectors	X	X	X		X	X	
#7 – Balances diverse societal objectives		X				X	
#8 – Recognizes temporal scales and lag effects		X			X	X	X
#9 – Implemented incrementally and adaptively	X		X		X	X	

Table 1: Various sets of Principles for an Ecosystem approach:

Source: Steven Murawski et al, 2008. Policy Brief: Ecosystem-based Management and Integrated Coastal and Ocean Management and Indicators for Progress, Global Oceans Conference 2008, Hanoi, Vietnam

Common EBM Principles

- EBM is geographically specified, with ecosystem units corresponding to the temporal and spatial scales of management challenges that takes into account ecosystem knowledge and uncertainties and applies a precautionary approach in cases where predictive ability is

- Recognizing that ecosystem processes are characterized by varying temporal scales and lag-effects, objectives for EBM should be set for the long term, and EBM should be implemented incrementally and adaptively.

ICM: An Established Framework

With several decades of application, much has been written about ICM and numerous case studies of ICM implementation and associated lessons learned have been documented (Clark 1996⁴; Cicin-Sain and Knecht 1998⁵; Chua 2006⁶). A

⁴ Clark, J.R., 1996, *Coastal Zone Management Handbook*. Lewis Publ., Florida.

⁵ Cicin-Sain B. et Knecht R.W., 1998, *Integrated coastal and ocean management, concepts and practices*. Island press, Washington D.C., 518 p.

number of international agreements and organizations, such as the Convention on Biological Diversity (CBD), the United Nations Environment Programme (UNEP), and the Food and Agriculture Organization (FAO) have articulated frameworks, goals, and principles of ICM, and despite minor variations, there is generally a great degree of consensus on what distinguishes ICM from other management approaches. The World Bank (1998) offers the following distinguishing characteristics of ICM:

- ICM moves beyond traditional approaches, which tend to be sectorally oriented and fragmented in character and seeks to manage the coastal zone as a whole using an ecosystem approach where possible.
- ICM is an analytical process that advises governments on priorities, trade-offs, problems, and solutions.
- ICM is a dynamic and continuous process of administering the use, development, and protection of the coastal zone and its resources towards transparently-agreed objectives.
- ICM employs a multidisciplinary, holistic systems perspective, which recognized the interconnections between coastal systems and uses.
- ICM maintains a balance between protection of valuable ecosystems and development of coast-dependent economies. It sets priorities for uses, taking account of the need to minimize the impact on the environment, to mitigate and restore if necessary, and to seek the most appropriate siting of facilities. These are the activities contained in Environmental Impact Assessments.
- ICM operates within established geographic limits that usually include all coastal resources, as defined by governing bodies.

⁶ Chua, T. E., 2006, *The Dynamics of Integrated Coastal Management : Practical Applications in the Sustainable Coastal Development in East Asia. Global Environment Facility/United Nations Development Programme/International Maritime Organization Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)*. Quezon City, Philippines. 468 pp.

- ICM seeks the input of all important stakeholders to establish policies for the equitable allocation of space and resources in the coastal zone. An appropriate governance structure is essential for such decision making and oversight.
- ICM is an evolutionary process, often requiring iterative solutions to complex economic, social, environmental, legal, and regulatory issues.
- ICM integrates sectoral and environmental needs. ICM should be implemented through specific legal and institutional arrangements at appropriate levels of the government and the ICM provides a mechanism to reduce or resolve conflicts that may occur, involving resource allocation or use of specific sites as well as the approval of permits and licenses.
- ICM promotes awareness at all levels of government and community about the concepts of sustainable development and the significance of environmental protection. It is proactive (incorporating a development planning element) rather than reactive (waiting for development proposals before taking action).

EBM and ICM: Similarities and Differences

There are broad similarities between EBM and ICM, especially regarding the shared goals of maintaining functioning ecosystems and the sustainable use of coastal and marine resources. A further examination of the operation of EBM and ICM also highlights important similarities, particularly the guiding principle of integration (inter-sectoral and intergovernmental) and the emphasis on management of human activities (de Mooy 2007⁷). In both approaches a managed area is defined for the purposes of governance, though, ecosystems processes influence coastal and marine environments at many scales. Thus, the influences to the coastal area that should be considered will

⁷ Paper written by Jennifer de Mooy on *Ecosystembased Management (EBM) and Integrated Coastal and Ocean Management (ICM): Issues and Implications for Operationalization* as part of the Working Paper Series on Progress on Meeting the Global Goals of Achieving Ecosystem Management and Integrated Coastal and Ocean Management by 2010 in the Context of Climate Change

range further out to sea as well as further inland. The issue of priority rests on whether EBM assumes an implicit primacy of the ecosystem.

EBM and ICM in the Context of Development Issues

As documented earlier in this paper, these approaches are recognized and applied worldwide. This section assesses how these approaches may be used to address some of the current and emerging issues, particularly in the developing world, especially the following issues:

- persistent poverty and inequality in large parts of the developing world;
- the growing threat of insecurity which is a global issue, but played out more dramatically in certain parts of the world;
- global climate change which affects both developed and developing nations' increasing vulnerability of both ecosystems and the poor;
- impacts of the global financial recession;
- global trade in ocean products, the inequities and lack of a sound framework for benefit sharing;
- governance issues which plague many developing nations and certainly some developed nations, posing major obstacles to the ocean and coastal agenda.

Persistent poverty and inequality in large parts of the developing world

Reducing poverty and inequality in many parts of the world appears to be a greater challenge than most development partners envisaged. While specific nations particularly in East Asia and Latin America have emerged as middle developing countries with significantly higher GDP during the last couple of decades, even in these nations poverty exists. Poverty also exists in developed nations such as the United States, particularly concentrated among some ethnicities. These numbers have increased due to the global recession and resulting unemployment. The worrying situation in many parts of Sub-Saharan Africa and

in South Asia is the inequality, where a growing percentage of the population is as wealthy as their counterparts in the developed world while the rest of the population lives in abject poverty. The middle class, particularly in Sub-Saharan Africa is far too small to make an impact or graduate into the wealthy segment. This growing inequality contributes to the increase in crime, violence and corruption, particularly among the disenfranchised and unemployed youth. Corruption is often a result of frustration in civil service who are paid an insignificant salary in comparison to the rising cost of living. Corruption is also sometimes systemic when no amount of donor assistance will make a real impact on poverty reduction.

How can EBM and ICM address this issue which is multi-dimensional? Many of the poor in the semi or less industrialized nations are dependent on natural resources for their livelihoods. If the management of these resources is governed by approaches such as EBM and ICM, there is a chance to make the playing field level and a sustainable living possible. These approaches can enable the poor to have a voice in the management of natural resources, so that they will no longer be marginalized. It will be possible to prevent a monopoly of resource use and the exclusion of the poor by the spread of one industry, for example tourism, shrimp trawling or large scale fishing industry which could displace the small fisherman. Sometimes donors also encourage different activities such as seaweed farming or oyster farming without adequate consultation with other sectors which may have activities in the area. At other times the local authorities are not adequately consulted which could lead to conflict, frustration and ultimate poverty through the loss of livelihoods. EBM and ICM have the tools to minimize conflict over resource use. However, it must also be mentioned that these approaches may not be a panacea for all situations particularly when they take a long time to be fully internalized into the governance system. Additionally, poor populations often have a short term vision where they focus on day-to-day pressures which are very high. The level of patience is usually very low for considering benefits in the future. It is therefore

important to introduce initiatives which will generate some short term benefits while engaging the population on the longer term approaches of EBM and ICM.

Growing Threat of Insecurity

The easy access of arms and their movement across borders and the poverty and inequities discussed in the section above have led to growing insecurity in many parts of the world. The oceans and coastal areas are generally more impacted due to the ease of movement. A well know example is the crime, violence, kidnapping in the Niger Delta which is largely due to the inequities, lack of development and the lack of a sound revenue sharing framework for energy resources exploited from the delta. Another fairly well known example is the piracy by Somali youth, holding large tankers and cruise ships to ransom and exploiting the fisheries within the jurisdiction of neighboring nations such as Kenya and Tanzania.

Can EBM and ICM address such a global challenge? Perhaps this is an issue that is too complex for complete resolution by EBM and ICM. However, both approaches engage local stakeholders and aim to give a voice and a stake in the approach and the opportunity to be involved in the design coastal programs. The approaches can help engage disaffected poor and particularly the youth, giving them a voice, giving them a role, perhaps giving them a chance to help get out of the poverty and hopelessness trap. They can play a leadership role in their community, help mobilize community members, promote sustainable livelihoods. It is possible that if the youth were occupied and saw the potential for income and livelihood, they will be less likely to engage in criminal activity.

Global Climate Change and Increased Vulnerability of Ecosystems and the Poor

This subject is dealt with in another Policy Brief, so here the focus is on the threat to the survival and livelihood of millions of people in the developing world and in particular, in Sub-Saharan Africa and South Asia. In these regions, millions of people and local economies are highly dependent on

marine resources as well as rain-fed agriculture along the coastal margin. They face increased poverty, food insecurity, loss of livelihood and living space through climate variations. The linkages among climate change and sustainable land and marine resource management are well documented. The opportunities and constraints to promoting mitigation and adaptation are still being developed. The policy and institutional options to overcome barriers are becoming available. The donor community has established funds for the poorer countries, some of which are managed by the World Bank and others by bilateral entities to help in promoting mitigation and adaptation. The resources available, however, are still at a very low level in comparison to the needs of developing nations to adapt to the serious threats linked to climate variability. Adaptation to the catastrophic conditions that result from monsoons and tsunamis in East and South Asia and severe drought in Sub-Saharan Africa require funds of a far greater magnitude that what is currently available.

How can EBM and ICM help? EBM and ICM can help address the issue by taking proactive steps to help coastal communities adapt to climate change. Tools such spatial planning can be used in association with the ICM approach to identify vulnerable areas. This information can be used by decision makers to demarcate set-back lines for construction and settlements; promote mangrove afforestation as natural barriers; promote drought resistant crops; and invest in monitoring sea surface temperatures, earthquakes, wave and tidal action and change, monsoons, hurricanes and tsunamis. Coral reef monitoring, pollution and sedimentation monitoring, water quality monitoring are all associated with EBM. The information gathered can help with developing appropriate policy and regulations and in the establishment of appropriate institutions to promote adaptation. EBM and ICM can also integrate current climate mitigation and adaptation mechanisms such as the Reduced Deforestation and Forest Degradation (REDD) and advocate for new mechanisms for the oceans.

Impacts of the Global Financial Recession

The global financial recession has had far reaching impacts on the broader development agenda which includes marine and coastal management. Among the multilateral and bilateral donors, national priorities, capacities and governance systems are much more strictly monitored prior to decision-making on investments. This invariably means that investments in marine and coastal management will need to compete with other priorities such as agriculture, infrastructure, energy, health and education. Unless a compelling case can be made which combines marine conservation with poverty reduction, growth and perhaps infrastructure, it will be difficult to move such a program to the top of that list of priorities. The NGO community has also suffered with global financial recession, being dependent on donors. They have also been affected by the poor performance of their endowment funds. They have had to cut back on many of their programs and personnel. While they will recover, and many have already done so, the impact is felt by the recipients. At the national and local levels some countries have suffered more than others due to the disappearance of markets, lack or reduction of available credit, reduced tourism, reduced revenues all leading to reduced funds for infrastructure, water, energy and social programs.

How can EBM and ICM help in this difficult issue? In the case of donor support, if a framework such as EBM and ICM exists, there is greater potential for making a credible argument for resources to implement this framework. If there is political will and commitment towards such a program, the donor community is more likely to assist both in the development of the framework and in its implementation. Similarly, these frameworks can assist in promoting sustainable tourism, in branding certain areas and products to attract new markets and niche markets. The activities within EBM and ICM will also be able to attract credit facilities to the area being planned and managed. The promotion of special areas under sound planning and management and the identification of alternative and sustainable businesses will make credit more accessible and affordable.

Global Trade in Ocean Products, Inequities, Lack of Capacity and Lack of a Sound Framework for Benefit Sharing

For poor countries which are starved for capital, trade is the answer. And it does not matter whether the trade comes as a package tied to aid, or whether the trade agreement is skewed in favor of another country or private party. Some in government see the entry into such agreements as fodder for political advancement and others in government see such agreements as possibilities for corruption. Trade in the developing world, while it can provide much needed revenue and the opportunity to reduce the national debt and dependence on donors, often it helps a few to the detriment of others. The few might be a distant water fishing nation (DWFN) entering into an inequitable agreement to exploit valuable tunas. Or it might be an ocean energy development company also incorporating less than equitable terms in its agreement. It could be the head of a government department in charge of the particular trade or a local government authority which is mandated with the harvesting of a coastal forest. The issues for the failure of grasping the real benefits from trade can range from: the lack of sound policy and institutions; the lack of capacity to negotiate equitable agreements; the lack of capacity, information, skills or equipment for monitoring; corruption among government officials; and the lack of a sound framework for benefit sharing. The losers may range from the national treasury, the civil society, the uninformed, the weak and the poor.

How can EBM and ICM help address this challenge? Ecosystem-based management involves developing capacity for sound management of the ecosystem and its resources. It helps establish a transparent framework for resource exploitation and for sharing of the benefits. EBM can support build capacity to develop a sound policy and legislative framework for resource management, e.g. for fisheries, oil and gas, tourism, mining and infrastructure development and urban planning. EBM planners can work closely with those in charge of the particular sectors to identify and put in place a

framework that is acceptable to all parties. Such a framework will be accessible to all stakeholders and thus be more transparent. It will minimize potential for corruption and at the same time optimize potential for equitable trade agreements. Other potential benefits include increased revenue for national treasuries, improved incomes for local communities through diversified employment opportunities and improved management of the ecosystem and valuable species.

Governance Issues.

This is a subject which is being written about and commented on by many. Here we are mainly concerned about how governance affects sound management of marine and coastal areas and coastal people. Governance issues are not particular to the developing world. However, the resultant impacts can be more devastating given the absence of safety mechanisms. The issues can include fishing, shrimp or forest licenses issued unofficially where one or more government individuals benefit at the expense of the nation. The issue of concessions to favorites to put up tourist hotels or holiday homes, displacing fishermen or seaweed farming women are common problems. Sometimes these concessions may be issued in contravention of environmental regulations in which case there could be serious ecosystem degradation in addition to the displacement of people and their livelihoods. A few people in government and perhaps some in the community may benefit at the expense of the poor and the uninformed. Shrimp trawling is a big business which is expected to be monitored and licensed to adhere to closed seasons and closed areas. However, corrupt officials may pay scant attention to these rules with the result of ecosystem degradation and loss of livelihoods for those who depend on the nearshore fisheries. The problems don't always stem from corruption. Natural resource management agencies and local governments are not strong in coastal districts in poor countries and are chronically underfunded. The number and skill levels of implementing staff are also poor. Addressing issues in the 200 nautical mile zone as well as in the nearshore areas require capacity, equipment, vessels and

negotiation skills. Support for Monitoring, control and Surveillance (MCS) is an important need in developing nations if the ecosystem and valuable marine species are to be protected and sustainably managed. Monitoring and supervision by more than one government agency and by civil society can promote transparency and efficiency.

How can EBM and ICM help address the above situations? Both of these approaches involve a range of stakeholders, who will be in possession of information. As in the old adage, "information is power," access to information will empower the poor enabling them to demand and negotiate their rights. EBM and ICM can help put in a framework for awarding concessions which is fair and transparent. These approaches can also augment capacity in government departments to carry out monitoring, control, and surveillance. Resource management activities under these approaches will be determined through a participatory process. Participation and information sharing are powerful tools to minimize corruption. The media can play a significant role in these processes as can parliamentarians who can demand clarity in the decisions pertaining to resource extraction.

Marine Spatial Planning (MSP) based on an ecosystem approach is also a cross-cutting management tool. It aims at coordinating actions and optimizes the use of marine space to benefit economic development and the marine environment. MSP is a tool for improved decision-making with the objective to balance sectoral interests and achieve sustainable use of marine resources and provides stability and transparency. This generates a favorable climate for investment in maritime activities. In turn, that investment helps create growth and jobs in maritime sectors. The use of MSP will lead to a more competitive maritime economy while ensuring a comprehensive protection of the habitats.

Cross-border cooperation and consultation in MSP is promoted in order to ensure coherence of plans across ecosystems.

Implementation of EBM and ICM at the National Level

Coastal/Near shore Management

ICM has now been implemented in about 100 countries around the world. However, many of these initiatives have been focused on estuaries and small areas of coasts instead of national programs. Successful pilot projects should now be scaled up to national efforts on ICM. Furthermore, implementation of ICM and EBM at the national level is not being tracked systematically. Informal efforts have nonetheless been made. A study by Sorensen in 2002⁸ showed that there were more than 700 ICM initiatives (including at the local level) in more than 90 nations around the world (Sorensen 2002). Data collected by Cicin-Sain et al⁹ in 2000 showed significant increase in ICM efforts around the world from 1993 to 2000 (Table 2), although there were substantial differences in the extent of ICM activity in various regions

Continent	Coastal countries	1993		2000	
North America	3	3	100%	3	100%
Central America	7	4	57%	7	100%
Europe	33	11	31%	30	91%
Asia	17	13	62%	14	82%
South America	11	5	45%	8	73%
Caribbean	13	5	45%	8	62%
Near East	15	6	40%	7	47%
Oceania	17	7	33%	8	47%
Africa	37	5	13%	13	35%
Total		59		98	

Source: Cicin-Sain et al 2000.

Table 2: Coastal Countries with ICM Efforts, 1993 and 2000 Comparison

A key aspect of near shore spatial planning for ICM/EBM is the establishment of marine protected areas. Approximately 6.3% of territorial waters are now protected, demonstrating considerable action at the national level towards the conservation of the marine environment. Almost all countries now have one or more marine protected areas, and many have established national networks of MPAs. Recently, the establishment of spatially expansive marine protected areas, such as the Phoenix Islands

⁸ Sorensen, J. 2002. Baseline 2000 background report: The status of integrated coastal management as an international practice. Second iteration, 26 August 2002.

⁹ Cicin-Sain B, Knecht R, Vallega A, Harakunarak A., *Education and training in integrated coastal management: lessons from the international arena*, Ocean & Coastal Management 2000; 43:291-330.

Protected Area in Kiribati, the Papahānaumokuākea Marine National Monument in the Northwestern Hawaiian Islands, and the Chagos Islands MPA by the United Kingdom has greatly increased the area of ocean protected. Ambitious regional initiatives, such as the Micronesia Challenge, the Caribbean Challenge and the Coral Triangle Initiative are also set to protect important marine biodiversity and demonstrate a positive trend in the use of MPAs to protect marine biodiversity and sensitive ecosystems. (see Marine Biodiversity Policy Brief 2010)

ICM and IWRM: Freshwater to Ocean Integration

One of the main problems in near shore waters is water quality degradation due to siltation and pollution. UNEP's Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), offers guidance as to actions needed to achieve the JPOI 2010 EBM target, as well as the 2005 WSSD goal for the development of national integrated water resources management (IWRM) and water use efficiency plans.

The GPA calls upon governments to integrate more effectively the ecosystem approach and use it with international or regional partners to identify specific technical and other capacity-building needs, including to ensure the quantity, quality and reliability of freshwater required to maintain the ecological functions of coastal ecosystems. Despite periodic calls for integration of ICM and IWRM, they remain largely separate spheres of activity. There is some progress, however, in addressing nutrient over-enrichment and the mitigation of nitrogen pollution to address eutrophication and dead zones in the coastal and ocean environment. For example, nutrient reduction in the Danube river basin resulting in significant reduction of the Black Sea dead zone is encouraging, and cooperation has been established between the Danube basin and Black Sea commissions. The Global Environment Facility (GEF) has consistently encouraged cooperation between transboundary basin and LME management regimes. This translates to over

a decade of GEF investment involving over 180 countries in applying the ecosystem approach towards linking upstream management with coastal and marine efforts in transboundary action programmes. For example, the Guinea Current Strategic Action Programme specifies as a measurable and quantifiable governance indicator the incorporation of integrated Coastal Area and River Basin Management (ICARM) principles into national environmental legislation (GCLME 2008¹⁰).

Exclusive Economic Zone Management

There is also increasing evidence that a growing number of coastal states have begun to incorporate principles of integrated oceans management into the management of their 200-mile Exclusive Economic Zones (EEZ). This has been reflected in national efforts to articulate and implement an integrated vision for the governance of their EEZ areas—to harmonize existing uses and laws, to foster sustainable development, to protect biodiversity and vulnerable resources and ecosystems, and to coordinate the actions of the many government agencies that are typically involved in ocean affairs.

At the 2005 Ocean Policy Summit,¹¹ countries and regions reported on their efforts to develop integrated ocean policies to deal with multiple use conflicts among uses, users, and management agencies, degradation of marine resources, and missed opportunities for economic development. These different national policies are remarkably congruent in terms of overall principles and most recognize the need for transparency, public and stakeholder involvement, incentives for cooperative action, and a national ocean office with clearly articulated responsibilities. Countries which have adopted such principles in their national ocean policies include Australia, Brazil, Canada, China, Germany, United Kingdom, Russian Federation, Jamaica, Netherlands, New Zealand, Norway, Portugal, United States, India, Japan, Mexico, Philippines, and Vietnam.

¹⁰ Guinea Current Large Marine Ecosystem

¹¹ Held in Lisbon, Portugal, October 10-14, 2005

In 2008 it was estimated that about 40 countries have taken concrete steps toward cross-cutting and integrated national ocean policy.¹² Principles which have been incorporated into national ocean policies include sustainable development/sustainability, integrated management, ecosystem-based management, good governance, adaptive management/best available science, precautionary approach, preservation of marine biodiversity, stewardship, multiple use management, and economic/social development and poverty alleviation. (Cicin-Sain, VanderZwaag and Balgos, 2008¹³).

Implementation of EBM and ICM at Regional (Transboundary) Level

Over the last twenty years more effort has been focused on managing regional ocean areas, in recognition of the interdependencies of marine resources and ecosystems. Still unclear, however, are the ‘on the ground’ effects of these efforts. Most regional programs have incorporated principles of ICM and EBM, and many have agreed upon indicators inherent in each concept, but as yet there is not much available information on the extent to which nations have operationalized the concepts in ocean and coastal management, and even less information on the effects these management provisions are having in regional ocean areas. Further research and analysis is needed to determine the direct effects ICM and EBM provisions incorporated within each program are having on regional ocean areas.

The European Case

In 2007, the European Union set out its model for oceans and coastal management, in the form of the Integrated Maritime Policy (the Blue Paper on an Integrated Maritime Policy for the European Union and the accompanying Action Plan),¹⁴ The main environmental pillar of this policy is the Marine Strategy Framework Directive (adopted in 2008), which endorses an ecosystem approach to the

¹² Nippon Foundation Research Task Force on National Ocean Policies: Cicin-Sain, VanderZwaag, and Balgos, 2008.

¹³ Cicin-Sain, B., VanderZwaag, D. and Balgos, M.C.

Integrated National and Regional Ocean Policies: Comparative Practices and Future Prospects.

¹⁴ COM(2007) 575 final

management of human activities.¹⁵ and aims at achieving and maintaining good environmental status in all EU waters by 2020. It needs to be incorporated into the national laws of the EU Members states by July 15, 2010, Decision making may no longer be organized exclusively along traditional sectoral lines but needs to reflect the large transfrontier marine ecosystem which must be preserved to maintain the resource base of all maritime activities. The Directive even makes references to the need to think in terms of marine basins and marine regions and sub-regions. Guidelines suggest that national governments create internal co-ordinating structures for maritime affairs and that the input of local and regional stakeholders be actively sought in the development of maritime policies.

MSP also is an instrument which by definition works as an integrator of the maritime management functions and is one of the main driving forces behind the development of an integrated maritime policy in the EU. It highlights the need for horizontal policy tools that cut across sectoral sea-related policies to support joined up policy making.¹⁶

The rationale behind MSP is that increased activities on Europe's seas and oceans leads to growing competition for limited marine space for uses such as shipping and maritime transport, offshore energy, ports development, fisheries and aquaculture, as well as an increased need to deal with their environmental impacts and preserve the health of eco-systems.

The European Commission also adopted a Roadmap for maritime spatial planning: "Achieving Common Principles in the EU" in November 2008. The Roadmap identifies 10 key principles for MSP, firmly based on the ecosystem approach. Through the publication of this document, the European Commission encourages implementation of MSP at national and European

¹⁵ Directive 2000/56/EC of 17 June 2008 establishing a framework for community action in the field of marine environmental policy. OJ L 164/16

¹⁶ COM(2007) 575 final, p. 5.

level and fuels a debate on a common approach to MSP in the EU.

The maritime surveillance and the comprehensive marine knowledge and data (EMODNET) are other important cross-cutting tools developed at the European level for the effective implementation of an integrated approach to maritime governance. The integration of maritime surveillance strives to bring together control efforts for fisheries, merchant shipping or environmental purposes under a coordinated mechanism. While the EMODnet project fosters the exchange of ocean data among the different communities, so that all reach a better understanding of ocean.

Large Marine Ecosystems and the Global Environment Facility

The Global Environment Facility has played a major role in financing the preparation and execution of some 16 Large Marine Ecosystem (LME) projects to address issues of overfishing, fishing down food webs, habitat loss, and coastal pollution in more than 100 countries. All these LME projects have incorporated principles of ICM and EBM, and those in operation have adopted ICM and EBM indicators. Wovk 2007¹⁷ has summarised the application of EBM and ICM in LMEs and Regional Seas Programmes (Wovk 2007). The GEF/LME programs represent the largest scale application of the ecosystem approach.¹⁸

The global GEF 'Community of Practice' that has been established in these projects can serve as a means of advancing the science of EBM and the practical application to management issues. A

¹⁷ Paper written by Kateryna Wovk on *Achieving Ecosystem Management and Integrated Coastal and Ocean Management in Regional Ocean Areas* as part of the Working Paper Series on Progress on Meeting the Global Goals of Achieving Ecosystem Management and Integrated Coastal and Ocean Management by 2010 in the Context of Climate Change

¹⁸ Kenneth Sherman, *Adaptive Management Institutions at the Regional Level: the Case of Large Marine Ecosystems*. NOAA 2010, Kenneth Sherman, Marie-Christine Aquarone, and Sally Adams, *Global Applications of the Large Marine Ecosystem Concept, 2007 – 2010*, NOAA Technical Memorandum NMFS-NE-208.

target would be to increase the current number of 2500 LME practitioners to 10,000 by 2012.¹⁹ Similarly continued GEF support for the LME projects is essential to allow them to become financially self-sustaining in the longer term.

The Regional Seas Programme

Under the UNEP Regional Seas Programme eighteen regions are mobilizing to address issues of sustainable management of ecosystems and biodiversity, land- and sea-based pollution, and coastal development and integrated coastal zone management.²⁰ Twelve Regional Seas Programmes (RSPs) have adopted legally binding conventions, most with associated protocols on specific issues, and 15 of the RSPs have adopted Action Plans. The majority of RSPs have incorporated principles of ICM, and have agreed upon ICM indicators to measure success.

Also the non-UNEP Regional Seas Programmes such as HELCOM and OSPAR work on the basis of the ecosystem base approach.

In 2008 the parties to the Barcelona Convention negotiated a Protocol on Integrated Coastal Zone Management. The ICZM Protocol to the Mediterranean Barcelona Convention was signed in Madrid on January 21, 2008, although it has yet to enter into force – with ratifications as of January 2010 only by France and Slovenia. The ICZM Protocol mandates the establishment of a common framework for the integrated management of the Mediterranean coastal zone and provides for the implementation of necessary measures to strengthen regional co-operation for this purpose.

¹⁹ Kenneth Sherman, *Adaptive Management Institutions at the Regional Level: the Case of Large Marine Ecosystems*. NOAA 2010, p. 11.

²⁰ Thirteen are administered by UNEP: Six UNEP/RSPs administered by the UNEP/RSP: Caribbean Region, East Asian Seas; Eastern Africa Region; Mediterranean Region; North-West Pacific Region; and Western Africa Region. Seven UNEP/RSPs are administered by a regional organization: Black Sea Region; North-East Pacific Region; Red Sea and Gulf of Aden; ROPME Sea Area; South Asian Seas; South- East Pacific Region; and Pacific Region. 5 partner programmes for the [Antarctic](#), [Arctic](#), [Baltic Sea](#), [Caspian Sea](#) and [North-East Atlantic](#) Regions are members of the RS family.

The implementation of this new legal instrument for international cooperation is acknowledged as an opportunity to provide a model for the management of other regional seas. In February 2010 the Indian Ocean Commission completed a Feasibility Assessment of an ICZM Protocol to the Nairobi Convention which recommends further exploration of a similar protocol for East Africa—suggesting that the negotiation process itself would be a major capacity building exercise for the region.

Other Examples

From a wider global perspective, in May 2008, the CBD Ninth Conference of the Parties (COP9) adopted criteria for identifying ecologically or biologically significant areas in the open ocean and deep sea in need of protection (CBD EBSA criteria), as well as guidance for designing representative networks of marine protected areas. COP9 further urged Parties and invited other Governments and relevant organizations to apply the criteria and guidance as well as to implement appropriate conservation and management measures, including networks of MPAs.²¹

To assist governments to implement the criteria and guidance, in 2009 the CBD convened an Expert Workshop on Scientific and Technical Guidance on the Use of Biogeographic Classification Systems and Identification of Marine Areas beyond National Jurisdiction in Need of Protection.²² The resulting scientific and technical guidance was submitted to the UN Ad Hoc Informal Working Group in February 2010, and for review by the CBD Subsidiary Body on Scientific, Technical and Technological Advice in May 2010 and will go to the CBD COP10 in October 2010. In addition to the draft guidance, the Ottawa Workshop report also describes work underway within governments, regional seas conventions, regional fisheries management organizations and non-governmental organizations in applying the

²¹ CBD Decision IX/20

²² Expert Workshop on Scientific and Technical Guidance on the Use of Biogeographic Classification Systems and Identification of Marine Areas beyond National Jurisdiction in Need of Protection, 29 September -2 October 2009, Ottawa, Canada.

CBD EBSA criteria or similar criteria to areas within and beyond national jurisdiction.

A number of countries, such as the US are incorporating EBM into their fisheries management regimes and in relation to the management of straddling fish stocks and highly migratory fish stocks, the 1995 UN Fish Stocks Agreement commits its parties to the sustainable use of such stocks. Article 5 mandates an ecosystem approach and Article 6 a precautionary approach to the conservation of these stocks. These, and other provisions of the UNFSA, are reflected in the Code of Conduct for Responsible Fisheries concluded by FAO in 1995 immediately after the finalisation of the UNFSA text.

The most recently established Regional Fisheries Management Organisations (RFMOs) – notably the Western and Central Pacific Commissions, the South-East Atlantic Fisheries Organization (SEAFO) and the new 2009 South Pacific Regional Fisheries Management Organisation--incorporate ecosystem maintenance and conservation of biological diversity concerns introduced by UNCED and UNFSA. Others such as NEAFC have incorporated these concerns retrospectively, but attempts to update the founding treaties of the older bodies are not progressing rapidly.

Implementation of EBM and ICM in Areas Beyond National Jurisdiction

The question of governance of the 64% of the oceans that lies beyond national jurisdiction looms as a major issue that countries will need to address and negotiate over in the next decade. This is an area where many ocean industries operate producing important benefits to the global and regional economies. While there has been substantial progress in recent years in achieving integrated oceans governance in areas under national jurisdiction and in regional seas areas, governance of areas beyond national jurisdiction at present remains largely sectorally based and fragmented. This means that it is difficult to address interconnected issues (such as fishing issues; extraction of genetic resources; maritime transportation; pollution; offshore oil and gas development; marine scientific research; climate

change; carbon sequestration and storage. There are, moreover, significant differences of opinion among developed and developing countries, industries, and environmental interests, on what needs to be done to improve governance of these important ocean areas.

In the case of deep seabed habitats such as hydrothermal vents, information is needed on how specific human uses affect ecosystem structure, functions, and properties. It is important to emphasize that ecosystem-based management aims to maintain the integrity of the ecosystem not only for its value in providing human needs and wants, but also for its intrinsic value. Although research activities and/or bioprospecting currently represent a threat to hydrothermal vents, it is also important to study the potential impacts of potential uses such as seabed mining and development of hydrogen fuel as well as of global climate change.

Applying marine spatial planning in marine regions is still at an experimental stage of development. Recently, however, there has been an increase in interest in the establishment of high seas marine protected areas (MPAs), which would be an important component of a system of EBM in ABNJ. Discussions have been ongoing in the North East Atlantic over the protection of parts of the Charlie Gibbs Fracture Zone through OSPAR and NEAFC, and in October 2009 the world's first entirely high seas MPA was established by CCAMLR, south of the South Orkney Islands. The Bermuda Government has recently expressed interest in leading an international initiative to protect the Sargasso Sea, an important and threatened high seas ecosystem that straddles the Bermuda EEZ.

There have also been advances in the development of scientific and technical guidance on the use and further development of biogeographic classification systems, and guidance on the identification of areas beyond national jurisdiction which meet the scientific criteria (details in the Biodiversity Policy Brief).

One important mechanism for assessing and controlling human impacts on marine biodiversity in ABNJ would be through environmental impact

assessment (EIA). Strategic environmental assessment (SEA) could also define a procedure for determining the extent of (cumulative) impacts on marine biodiversity in ABNJ as a result of a human activity, and by establishing criteria according to which such activities are allowed to proceed.

Under Articles 204-206 of the 1982 Law of the Sea Convention, States are to assess the potential effects of activities under their jurisdiction or control which may cause substantial pollution of, and/or significant or harmful changes to, the marine environment. Such results are to be communicated through reports to competent international organizations and made available to all States.

Similarly, under the 1992 Convention on Biological Diversity, Article 4 in combination with Article 14(1), requires Parties to assess the consequences of their actions and to conduct EIA of proposed projects under their jurisdiction or control when these are likely to have significant adverse effects on biodiversity, with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedure. This obligation appears to apply to activities in ABNJ. The CBD also encourages the conclusion of bilateral, regional and multilateral arrangements as appropriate. The CBD Conference of the Parties (COP) has further elaborated on Art 14 by adopting several decisions concerning impact assessment, including decision VIII/28, which endorsed the voluntary guidelines on biodiversity-inclusive impact assessment for both project and strategic level impact assessment. Nevertheless, further elaboration and specificity is needed.

In this regard, in November 2009 the CBD convened an Expert Workshop on Scientific and Technical Aspects relevant to Environmental Impact Assessment in Marine Areas beyond National Jurisdiction.²³ The workshop did not develop draft guidelines for EIAs or SEAs, but rather focused on identifying the ecological,

practical and governance differences that make guidelines developed for terrestrial, freshwater and coastal areas inappropriate for the open ocean and deep sea characteristic of areas beyond national jurisdiction. It also identified special considerations in the application of the CBD Voluntary Guidelines on Biodiversity-inclusive Environmental Impact Assessment and CBD Draft Guidance on Biodiversity-inclusive Strategic Environmental Assessment.

There are a number of other sectoral examples of regimes that call for EIA for activities in ABNJ. These include bottom fishing activities under UNGA Res 61/105 on sustainable fisheries. The resolution calls for (§83) the prior assessment of individual bottom fishing activities to determine whether they would have significant adverse impacts on vulnerable marine ecosystems. If such impacts would occur, they must be prevented or the activities are not allowed to proceed. The resolution calls for the implementation of these measures by RFMOs and Flag States. International guidelines for the management of deep-sea fisheries in the high seas have been developed by FAO that provide guidance to RFMOs and Flag States for preventing significant adverse impacts on vulnerable marine ecosystems.

Other examples include dumping under the London Convention of 1972 and its Protocol of 1996. No permits for dumping of wastes and other matter are to be issued absent a comprehensive evaluation of potential impacts and means to avoid, prevent or minimize them. The Madrid Protocol on Environmental Protection to the Antarctic Treaty mechanism requires advance notification and prior and cumulative impact assessment of human activities in a given area. The Madrid Protocol differentiates the assessment procedure for different expected levels of impacts, and requires remedies in case of environmental damage. And the OSPAR Convention for the Northeast Atlantic produces every ten years a Quality Status Report, which takes into account the cumulative effects of human activities. In light of these cumulative effects, OSPAR suggests management actions and

²³ In Manila, the Philippines, 18-20 November, 2009, pursuant to Decision IX/20 of COP9.

measures be taken. This is in many ways similar to an SEA process.

From these examples it should be clear that there is a complex web of international and regional legal instruments relating to the conservation and management of ABNJ, relating to fisheries management, marine dumping and also mining of the deep sea bed. Some treaty regimes--such as the London Convention--are within the IMO family, others within FAO, and a number--such as the tuna fishery conventions--are autonomous. Recent research has systematized the major governance gaps and overlaps that exist (IUCN 2008) in ABNJ and reinforces the point that there is no comprehensive governance framework that can be automatically extended to the assessment and if necessary regulation of new activities in ABNJ that might pose threats to marine ecosystems.²⁴

IUCN members adopted a resolution on this topic at the IUCN World Conservation Congress in Barcelona, Spain on 14 October 2008. In particular, IUCN members urged that the UN General Assembly adopt a resolution calling on States to (a) develop assessment processes, including the assessment of cumulative impacts, of human activities with a potential for significant adverse impacts on marine biodiversity in areas beyond national jurisdiction; and (b) ensure that assessed activities with the potential for such significant adverse impacts are subject to prior authorization by states responsible for nationals and vessels engaged in those activities, consistent with international law, and that such activities are managed to prevent such significant adverse impacts, or not authorized to proceed.

There are ongoing formal and informal policy development initiatives underway, with the intent to contribute to clarifying the issues, laying out various perspectives, developing options, and identifying possible avenues for consensus-building among disparate interests. Under the auspices of the Global Oceans Forum, a series of

²⁴ Gjerde et al., *Regulatory and Governance Gaps in the International Regime for the Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction*. IUCN Marine Series 1, 2008.

informal workshops have been held in Nice,²⁵ Singapore²⁶ and Hanoi, which have identified a series of options to improve governance in ABNJ including by the use of EBM.

The options identified include:

- Enhanced implementation of existing international instruments and their scope of application
- Voluntary codes of conduct
- More effective implementation, strengthening of, or extending, mandates of existing institutions such as Regional Fisheries Management Organizations (RFMOs) and Regional Seas Programmes (RSPs)
- Forming new regional institutions as required
- A new Global Programme of Action on biodiversity in areas beyond national jurisdiction
- An amendment to UNCLOS²⁷
- A new implementing agreement to the United Nations Convention on the Law of the Sea (UNCLOS) in relation to activities in marine areas beyond national jurisdiction
- A Protocol to the Convention on Biological Diversity (CBD)

At the global level the annual United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS) provides a forum for discussion of these issues and within the UN family itself UN-Oceans, set up in 2005, is designed to ensure flow of information and co-ordination between various UN agencies with marine responsibilities. There have also been three meetings of the Ad hoc Informal Working Group established by the UNGA to look at issues

²⁵ Cicin-Sain, B. and D. Freestone. 2008. Report from the Strategic Planning Workshop on Global Ocean Issues in Marine Areas Beyond National Jurisdiction in the Context of Climate Change, Nice, France, January 23-25, 2008.

²⁶ Cicin-Sain, B. et al., *Workshop on Governance of Marine Areas Beyond National Jurisdiction: Management Issues and Policy Options* November 3-5, 2008, Singapore.

²⁷ Given the complex procedure involved to amend UNCLOS this is not regarded as a viable option.

of conservation of biological diversity in ABNJ.²⁸ Through this later process there has emerged some support for the development of a new Implementing Agreement or other instrument to build on the strengths of the 1982 Law of the Sea Convention so as to ensure a coordinated and comprehensive, ecosystem approach to high seas ocean issues, but it is still controversial with opposition from a number of different quarters.

With such a fragmented approach to ocean issues it is difficult for the UN system--let alone the international community more broadly--to respond to the challenges, risks, and very dangers posed to the world's oceans by climate change in a timely and effective manner. It may be that a more coherent approach might be provided by a new UN Environmental Agency as has been proposed again in the run up to the twentieth anniversary of the 1992 Rio UNCED. Rio+20 is due to meet in Rio de Janeiro in 2012 and this is likely to be on the agenda.

Obstacles to progress

There are a number of obstacles to progress in the implementation of both ICM and EBM. Some of these are more significant in the management of national waters, both near-shore or in the EEZ, and others are of particular relevance to regional ABNJ. Some apply to all areas. It is worth considering these general obstacles first and then considering national and regional international issues;

General Obstacles include:

- Insufficient data and information on marine ecosystem structure, function, and processes as well as lack of national capacity to permit a more comprehensive and technical EBM and ICM.
- Institutional and sectoral resistance and inertia and lack of appropriate decision frameworks to manage the complexity, uncertainty, and trade-offs inherent in EBM; sectoral institutions still

²⁸ The Ad Hoc Open-ended Informal Working Group to Study Issues Relating to the Conservation and Sustainable Use of Marine Biological Diversity Beyond Areas of National Jurisdiction has met in 2006, 2008 and February 2010.

dominate national governments and in the UN system.

- The economic and social values of coastal areas and oceans are often not sufficiently documented and disseminated. The result of this is often a lack of political will at the national level as the benefits that would accrue to marine industries need to be demonstrated.
- Limited funding for ecosystem science and management institutions is often the greatest challenge and appears to be a universal issue, particularly in the light of the existing world economic situation.
- Lack of widespread adoption of integrated ecosystem assessments as a framework for implementing EBM/ICM. It is widely recognized that an integrated approach to the integrated governance, ecosystem science and decision making is required to undertake complex management requirements of EBM/ICM.

At the **National** level, institutional inertia and competing bureaucratic competences are often the key obstacles as well as lack of resources within developing countries particularly. Support from the multilateral development agencies has been a key driver in many developing countries.

At the **Regional** level, there are also problems relating to allocation of political and legal competence to relevant institutions. Even among the Regional Seas Organisations (RSOs) ICM/EBM has been slow to develop, although progress is being made.

At the **International** level, EBM would be an appropriate mechanism for use by RFMOs but they have been slow to adapt to the agendas introduced by the UNCED and the 1995 UN Fish Stocks Agreement regarding EBM and use of the precautionary approach. It is not clear which other international bodies with a potential mandate for marine spatial planning could play a key role. Current controversies among the members of the UNGA over appropriate responses to challenges to ABNJ are also an obstacle to the development of a comprehensive global response.

Climate Change and ICM/EBM

The oceans play a significant role in regulating the global climate and in moderating weather systems around the world. Changes in climate can have a profound impact on the functioning of ocean, coastal and island ecosystems, such as through changes in coastal flooding, storm intensity, and changing current patterns. The 2007 Intergovernmental Panel on Climate Change reports significant warming, sea level rise, increased storm activity, changing precipitation and wind patterns, and ocean acidification, among other effects of increased greenhouse gases in the atmosphere, that affect each region differently. These trends are projected to increase and continue with a 2.0 to 11.5 Fahrenheit degree rise and a 7.08 to 23.22 inch sea level rise during the 21st century, and increasing threats to biodiversity and essential habitats. Unfortunately, the most severe effects will be felt by developing countries, those that least contributed to the problem and the least able to adapt.

A number of major issues impact coasts and oceans and need to be addressed through a coordinated program of action:

- increasing acidification of the oceans and its impacts on sensitive plants and animals, such as coral reefs, bivalves, crustaceans, and plankton, This is technically not a result of climate change but a separate process resulting directly from increased concentrations of CO₂ in the atmosphere.
- Sea level rise and its impacts on island and coastal ecosystems and communities as well as on the maritime zone entitlements of island and coastal states. Sea level rise is a key challenge to ICM.
- Loss of sea ice at both poles, and the ensuing impact on Arctic and Antarctic ecosystems,
- Climate change impacts on fresh water flows and corresponding impacts on coastal habitats and anadromous species,
- Ocean warming effects on the productivity of marine ecosystems and distribution patterns of animals and invasive species, and

- Understanding the simultaneous impacts of long-term climate change on ocean ecosystems in the context of natural scales of variation in ocean climate.

SIDS are especially vulnerable to climate change with a high risk of beach erosion, sea level rise, coral bleaching, and water resource reduction. In addition, SIDS are heavily dependent upon marine and coastal resources to support local economies and livelihoods and have little capacity for adaptation. Also vulnerable are communities in river and coastal flood plains, areas with extreme weather, and areas of rapid growth and urbanization. The effects of climate change will exacerbate many of the problems and issues already occurring in the marine environment

The role of the oceans as a vitally important sink and also as a major victim of increased CO₂ concentrations has not been properly incorporated into the negotiation process of the UN Framework Convention on Climate Change (UNFCCC). There is a need for a comprehensive program related to oceans and coasts (including emission targets and timetables, mitigation measures, adaptation, capacity development, technology transfer, and public education on oceans and climate—both within and outside of the UNFCCC context)

The existing institutional mechanisms at a national and regional level that have responsibility or competence in ICM/EBM techniques are ideally placed to take a lead in the development of both mitigation and adaptation. There is considerable experience at national level experience. But capacity development is essential since coastal/ocean managers/decisionmakers need to adjust their existing programs/plans to address the climate change issues.

Recent work by IUCN suggests that protection of coastal ecosystems—particularly mangroves and salt marshes—plays an important in both mitigation and adaptation. Not only do they absorb and store carbon and methane, but they also provide important protection against sea level rise and

increased tidal surges (Laffoley and Grimsditch, IUCN 2009²⁹).

The threat of climate change therefore provides an important 'window of opportunity' for the enhancement of EBM/ICM institutions and processes at both national and regional level.

Opportunities to advance ICM/EBM in the future

The Rio+20 process

- Ensure ICM/EBM is on agenda for Rio plus 20 meeting
- Develop long term goals targets and specific priorities for consideration by this process
- Propose timelines for action on implementation at national, regional and international levels

The UNFCCC and other climate relevant processes

- Ensure that ocean management is regarded as an important aspect of the ocean/climate interface for both mitigation and adaptation.
- Hold an Oceans Day at UNFCCC COP 16 in Mexico City to press this agenda
- Develop a "Blue-REDD" program (comprehensive program on all aspects of oceans/climate)

The UNGA process on marine biodiversity

- Continue to provide information regarding policy choices to the process
- Encourage consensus on key policy approaches
- Provide evidence of working examples of ICM/EBN in practice at national, regional and international levels.

Vision for the Future: Key Elements of a Renewed Strategy to Advance ICM/EBM Over the Next Decade

Strategic Requirements at National Level

- Scaling up national programs to include larger portions of the coastal zone and of the ocean under national jurisdiction.

- Further development and implementation (with funding) of integrated coastal and ocean laws. Ocean Parliamentarians can play a key role here and networks among them should be promoted.
- Mitigation and adaptation to climate change in coastal areas needs to be brought under the aegis of existing ICM/EBM institutions. Extensive capacity development of national and local/regional officials needs to take place to develop and apply climate mitigation and adaptation strategies.
- Sharing of best practices and experience on ICM/EBM. A Network of National Ocean officials should be promoted.
- Certification of good practice in ICM/EBM (following the PEMSEA model)
- Long-term capacity development in ICM/EBM including climate change issues and biodiversity issues. Capacity development should be geared to three main targets:
 - high-level national officials,
 - subnational (provincial and local officials),
 - local communities.

These actions above will require a significant level of new investment. The UNFCCC has estimated that the cost of adapting the coastal zone to the impacts of climate change will be roughly \$11 billion per year. However, this estimate uses lower predictions of sea level rise and does not include potential impacts due to increased storm intensity, so actual costs are likely to be much higher (UNFCCC 2007, IIED 2009).

Strategic Directions at the Regional Level

- Encourage and assist the key role played by LMEs and the Regional Seas Programmes in harmonizing actions of governments in transboundary contexts. In particular:
 - Increase the current number of 2500 LME practitioners to 10,000 by 2012 to enhance the global GEF 'Community of Practice' as a means of advancing the

²⁹ Laffoley, D.d'A. & Grimsditch, G. (eds). 2009. *The management of natural coastal carbon sinks*. IUCN, Gland, Switzerland. 53pp

science of EBM and the practical application to management issues.

Continued GEF support for the LME projects is essential to allow them to become financially self sustaining in the longer term.

- Use UNEP LME Report as basis for regular 3 year reporting of global LME assessments.
- Using the Mediterranean model, encourage the development and implementation of ICZM protocols in regional seas programmes and their implementation at the national level.
- Encourage application of EBM/ICM approaches by the full range of bodies responsible for management of resources at the regional level, such as bilateral fisheries commissions, RFMOs and other regional resource management arrangements.

Strategic Directions for ABNJ

An informal Experts Workshop in Singapore in November 2008³⁰ identified a number of key elements of a strategy for advancing the application of EBM/ICM to marine areas beyond national jurisdiction:

- Enunciation and application of governing principles for both ICM and EBM
- Development of capacity for area-based assessment, planning, and ultimately decision-making
- Development of institutional capacity for addressing interactions among uses and their effects on biodiversity and the environment
- Development of capacity for monitoring and enforcement
- Funding to support the management interventions.

There has been significant conceptual development in terms of possible approaches and methodologies (such as area-based management, including use of MPAs) for the implementation of EBM within ABNJ. Major disagreements and widely varying

perspectives exist within the international community concerning how these ideas might be implemented and by which bodies. There is a pressing need for agreement on a number of key issues:

- International mechanisms for the designation of marine protected areas in ABNJ – either through existing institutions and treaty bodies or through new ones;
- International Standards and Procedures for Environmental Impact Assessment for new activities or enhanced levels of existing activity in ABNJ;
- Principles applicable to management of international ocean resources in ABNJ – including the vital principle of Ecosystem-Based management.
- Designation of an international body or agency to provide a coordinating role among the various agencies involved in management of resources in ABNJ

Strategic Priorities for the Global Forum include:

- Sponsoring further opportunities to bring together, informally, representatives of the diverse interests related to ABNJ to identify useful policy options and possible areas of commonality
- Experimentation in various regions of the world with possible approaches to the application of integrated ecosystem-based management in particular areas, including in the management of marine genetic resources, to test approaches through existing regional and national institutions
- Developing proposals for the establishment of MPAs in high seas areas using existing treaty regimes
- Identifying opportunities for the enhancement of existing international instruments or the development of a new instrument to provide a stronger basis for incorporation of EBM in management of ABNJ.

³⁰ See Biliana Cicin-Sain, et al., *Workshop on Governance of Marine Areas Beyond National Jurisdiction: Management Issues and Policy Options* November 3-5, 2008, Singapore

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