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Observed Best Practices in Ecosystem-based Oceans Management in the Arctic Countries

Background and objective

The need for oceans management based on an ecosystem approach is widely recognized by the international community, as reflected in calls for the implementation of the ecosystem approach by 2010 in the 2002 Johannesburg Plan of Implementation from the World Summit on Sustainable Development (WSSD), in recommendations from the UN General Assembly, in the work under the Convention on Biological Diversity, and in the 2001 Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem. These international commitments have proved particularly important in the Arctic region, where this project represents a collective attempt at demonstrating progress towards the WSSD goals in the region.

Many Arctic communities and settlements are based on the sustainable use of natural resources, and see themselves as integrated parts of these ecosystems. The importance of the non-renewable resources is growing, and offshore petroleum developments are expanding to new areas of the Arctic. Likewise, tourism is growing in importance, and with it cruiseship traffic. Other economic developments include expansion of mining, bioprospecting, aquaculture, and marine transportation. At the same time, climate change, increased pollution and other human-induced pressures brings unprecedented rates of change in marine ecosystems.

The aggregate effects of these multiple pressures on the oceans call for an ecosystem-based and integrated approach to oceans management. This is critical to the protection and sustainable use of marine ecosystems and the natural resources there. To aid in this process, the Arctic Marine Strategic Plan, which describes the ecosystem approach and calls for its application, was adopted by the Arctic Council in November 2004. Ecosystem-based management is the key principle of the Arctic Marine Strategic Plan.

Many countries are now in the process of reviewing and developing their oceans management policies in order to base their management and use of the oceans on ecosystem considerations. In the Arctic, for instance, most countries are working to implement ecosystem-based management of their oceans.

The Best Practices in Ecosystem-based Oceans Management project, carried out by the Arctic Council working groups on Sustainable Development and Protection of the Arctic Marine Environment, has observed a number of Best Practices in this regard, which governments may want to consider. These practices have proved useful and may be relevant also to other Arctic countries as well as in the world beyond, in order to provide for sustainable development and protection of the marine environment.

Core elements

Although definitions may differ, some core elements are essential to ecosystems based oceans management:

- The geographical scope of ecosystems defined by ecological criteria.

- the development of scientific understanding of systems and of the relationship between human actions and changes in other system components.
- the application of the best available scientific and other knowledge to understand ecosystem interactions and manage human activities accordingly.
- an integrated and multidisciplinary approach to management that takes into account the entire ecosystem, including humans.
- area-based management and use of scientific and other information on ecosystem changes to continually adapt management of human activities.
- the assessment of cumulative impacts of different sectors on the eco-system, instead of single species, sectoral approaches.
- a comprehensive framework with explicit conservation standards, targets and indicators in order to facilitate responses to changes in the eco-system
- transboundary arrangements for resolution and handling of transboundary ecosystems and issues.

Conclusions

In reviewing the practices countries have established in developing and implementing ecosystem-based oceans management, the following have been found useful: 1) flexible application, 2) integrated and science based decision-making, 3) commitment to ecosystem-based oceans management, 4) area-based approaches and transboundary perspectives 5) stakeholder participation , and 6) adaptive management.

1) Flexible application of effective ecosystem-based oceans management

Differences in circumstances and contexts have to be taken into consideration as ecosystem-based oceans management is context sensitive. There is not one single method for ecosystem-based management. A number of different practices and understandings of the concept appear to work.

Ecosystem-based management is a work in progress and should be considered a process rather than an end state.

Rule-based relationships between countries in oceans affairs, based on applicable international law and agreements, have to be promoted.

Recognition of humans as an ecosystem component, and increased consideration of social effects when food security and poverty alleviation are issues of concern.

Management must be based on best available science. Open lines of communication between managers, resource users, and the general public are necessary to foster mutual understanding and recognition of shared interests.

Biodiversity conservation strengthens the structure and functions of ecosystems, thus ensuring the long term delivery of ecosystem services.

2) Decision-making must be integrated and science based

Increased communication and exchanges among both states and sectors are also key components of successful ecosystem-based management. A great deal of scientific knowledge already exists. However, much of this information needs to be better synthesized and communicated to a variety of audiences. Cooperation in science and exchange of relevant information within and between countries is important for

understanding the cumulative impacts to the marine environment. Another challenge is to address what information exists and what information still needs to be gathered. Knowledge gaps can be closed through development/identification of key ecosystem indicators and comprehensive modelling, mapping, monitoring, and analysis.

Various forms of scientific, traditional, and management knowledge need to be integrated to improve ecosystem-based management. Potential advantages of integrating various forms of knowledge include decision-making that is better informed, more flexible, and incorporates traditional ecological knowledge.

A multi-sector approach lies at the core of the ecosystem approach as it contributes to a common understanding of challenges in oceans management and thereby an increased trust between authorities with different sector responsibilities/interests. Ecosystem-based management calls for coordination and shared responsibility between all levels of government and cooperation across sectors, both with respect to monitoring, mapping and research. The challenge of monitoring, however, is both a scientific challenge and a policy issue. Monitoring programs can provide the ongoing basis for management, but require a long-term commitment of resources. Secondly, a multi-sector approach depends on providing opportunity for stakeholder comments on how a specific sector is to be managed or how to assess the impact of that sector in relation to the ecosystem. This is a difficult process, requiring care and time.

3) National commitment is required for effective management

National commitment to conservation and sustainable use of ocean resources is necessary. A “roadmap”, management plan or national action plan for addressing priorities in oceans management is developed in many of the Arctic countries.

An integrated organizational structure (framework) to support the coordination of a holistic approach to the implementation of EBM at the national level through inter-agency cooperation seems to be effective. In this respect, harmonization of domestic laws governing use of ocean resources with EBM principles, as well as with regional and international management efforts may be appropriate. This requires legislation and enforceable policy tools to provide government strategic directions and overall framework for ecosystem-based management implementation.

4) Area based approaches and transboundary perspectives are necessary

Area based management approaches are central to ecosystem-based management. The identification of management units within ecosystems should be based on ecological criteria. Management measures should reflect the status of areas and take into account the human element.

Ecosystem-based management requires specific geographical units at various scales.

Issues of scale can be addressed viewing ecosystems as nested systems.

The identification and protection (including through protected areas and networks) of key areas, species, and features that play a significant role within the marine ecosystem help management set priorities and ensure ecosystem structure and function are maintained.

Increased international cooperation in shared ecosystems could be addressed through existing regional management bodies and, as necessary, new collaborative efforts focused on individual ecosystems.

Effective area-based approaches include mechanisms for addressing effects of land-based activities and atmospheric deposition on ocean ecosystems.

5) Stakeholder participation is a key element

Stakeholder consultation is important to build understanding and foster development of knowledge.

Stakeholder participation can be encouraged by providing for public participation in a manner that enables stakeholders and members of the public who lack the capacity to prepare for/attend numerous meetings to make their voices heard in a meaningful fashion.

Stakeholders can be engaged to develop and strengthen cooperative processes to sustain ecosystem structure and function.

Effective stakeholder participation can encourage and achieve compliance with necessary conservation measures through education and enforcement.

6) Adaptive management is critical

Effective management requires adaptive management strategies that reflect changing circumstances. This is especially important in view of the accelerating effects of climate change on marine ecosystems.

Implementation of ecosystem-based management should be approached incrementally.

Conservation objectives and targets, benchmarks and action thresholds should be set for the measurement of achievement of ecosystem health.

Flexible mechanisms should be used for implementing ecosystem-based management