

Caribbean and North Brazil Shelf Large Marine Ecosystem (CLME+) Project
Ecosystem-Based Management Strategy and Guidance Notes
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Photo credit: David Gill

Ecosystem-based Management (EBM)

What is ecosystem-based management (EBM)?

“Ecosystem-based management (EBM) regards marine and coastal ecosystems as units with many ecological and social links. These connections can be numerous and complex, with disruptions to any part of an ecosystem - such as changes to habitats or fluctuations in the population of a species - having many knock-on effects.”

Integrated watershed coastal area management (IWCAM)

EBM can also be considered “as an integrated watershed and coastal area management (IWCAM) approach; it is an innovative way to address the additional challenges faced by human activities...The activities threaten the ability of coastal and marine ecosystems...to provide benefits such as seafood, safe and clean beaches, and shoreline protection from storm surges and flooding.”

(UNEP 2011; Fanning et al (2011) also online has guidance for marine EBM concerning all sections)

Human activities on land, along the coasts and in the ocean seriously affect marine ecosystems by altering marine food webs, changing the climate, damaging habitat, eroding coastlines, introducing invasive species, and polluting coastal waters — which is why we need EBM.

The concept of EBM sets out the most meaningful way of meeting the challenges of sustainable development in relation to the utilization of natural resources, and their inter-relationships between land and sea.

CLME+ Strategic Action Programme (SAP)

- The Large Marine Ecosystem (LME) approach is seen as “an engine for achieving SDG 14” and is aimed at operationalizing EBM.
- Key to the Wider Caribbean Region is the ten year (2015-2025) Strategic Action Programme (SAP) (CLME+ website).
- The CLME+ Project implements EBM in the CLME+ region in the first 5 years of the SAP.

Component 3 - Implementing EBM/EAF in the CLME+ Region

Output 3.4 - Demonstrating the transition to EBM approach at the sub-regional level

Sub-Project 4 - EBM approach to specific sites in the CLME+

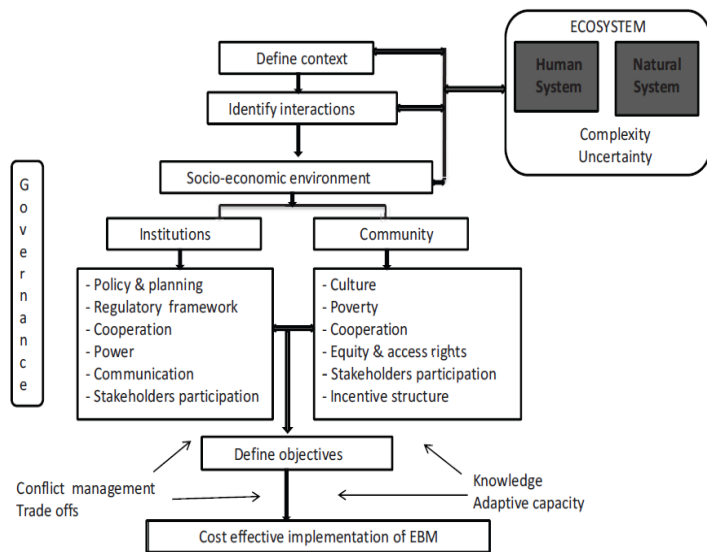
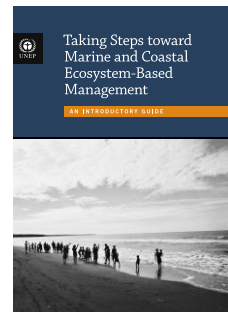
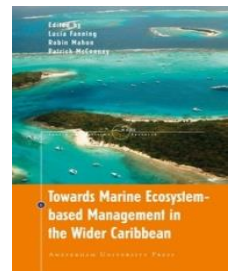
- Objective 1:**
Establish an inter-sectoral mechanism that links local national and regional levels for management planning;
- Objective 2:**
Define EBM approaches and ocean governance arrangements most effective in the mitigation of pollution, restoration and/or rehabilitation of degraded areas and/or preventative actions in coastal mangroves wetlands; and
- Objective 3:**
Effectively reduce pollution levels and undertake ecosystem rehabilitation in coastal mangroves.

Implementing EBM in CLME+ social-ecological systems (SES)

Social – Ecological Systems (SES)



Human direct or indirect use of marine ecosystems takes place in the context of social-ecological systems (SES). The SES view emphasises that social and ecological systems are inevitably linked and that the delineation between the two systems is artificial and arbitrary. The social dimension is prominent in the conceptual underpinning of marine EBM. Social and institutional factors can drive, support, or constrain EBM implementation accompanying the ecosystem approach to fisheries (EAF).



SES perspective on implementing EBM (Source: Fanning et al. 2011)

No EBM or Low EBM	Incremental EBM	Comprehensive EBM
Individual species management	Managing groups of species	Managing whole ecosystems
Single sector management — fisheries, for example	Integrated management of two sectors — fisheries and offshore energy, for example, to avoid user conflicts	Integrating all sectors that impact, or are impacted by, the ecosystem
Restricted scale management — local only, for example	Coordinated management at local and state levels	Coordinated management at all levels relevant to the ecosystem
Short-term perspective: what do we need from the ecosystem this year?	Medium-term perspective: what services do we need the ecosystem to provide 5 years from now?	Long-term perspective: what will the ecosystem look like in 20 years with climate change?
Managing commodities	Managing activities with those commodities in mind	Managing activities with system functioning in mind

Marine EBM implementation can be from low to comprehensive. It encompasses several sets of arrangements, approaches, processes, methods, tools and activities relevant to ocean governance. Familiar examples include the **ecosystem approach to fisheries (EAF)**, ecosystem-based fisheries management (EBFM), marine protected areas (MPA), marine spatial planning (MSP); integrated watershed coastal area management (IWCAM), ecosystem approach (EA) to biodiversity conservation, marine pollution control, sustainable tourism etc. See the Strategy and Guidance Notes for EAF within EBM for the main ecosystem types (reef, pelagic and continental) in the CLME+ region.

EBM implementation spectrum (Source: UNEP 2011)

EBM PRINCIPLES

The ecosystem approach emphasises sustainability principles, making their application more compelling.

The 12 ecosystem approach principles are:

1. The objectives of management of land, water and living resources are a matter of societal choices.
2. Management should be decentralized to the lowest appropriate level.
3. Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
4. Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context.
5. Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.
6. Ecosystem must be managed within the limits of their functioning.
7. The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.
8. Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.
9. Management must recognize the change is inevitable.
10. The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
11. The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
12. The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

USEFUL RESOURCES

- CLME+ Project Overview (<http://bit.ly/CLMEOv>)
- The LME approach: An engine for achieving SDG 14 (<http://bit.ly/2umyv7d>)
- Convention on Biological Diversity (CBD) (<http://bit.ly/ebmprinciples>)
- CBD Guidelines: The Ecosystem Approach (http://bit.ly/CBD_EA)
- Caribbean Environment Programme (CEP) (<http://bit.ly/CaribEnvProg>)
- Cartagena Convention and its Protocols (<http://bit.ly/CartConv>)
- Taking Steps toward Marine and Coastal Ecosystem-Based Management (<http://bit.ly/StepsEcoBM>)
- Implementation of the 1995 FAO Code of Conduct for Responsible Fisheries (<http://bit.ly/FAOCode>).

EBM OPERATIONAL GUIDELINES

In applying the 12 EA principles, the following five points are proposed as operational guidance, bearing in mind the level of EBM that is being attempted, often in support of EAF:

1. Focus on the relationships and processes within ecosystem;
2. Enhance benefit-sharing;
3. Use adaptive management practices.
4. Carry out management actions at the scale appropriate for the issue being addressed, with decentralization to lowest level, as appropriate.
5. Ensure intersectoral cooperation.

“The goal of EBM is to maintain an ecosystem in a healthy, productive and resilient condition, so that it can continue to provide services that humans want and need” (Fanning et al., 2011).

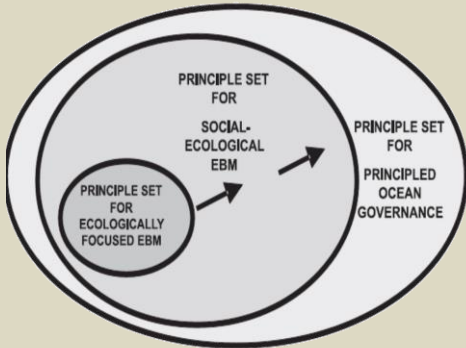
USEFUL RESOURCES

- Caribbean Large Marine Ecosystem Regional Transboundary Diagnostic Analysis (TDA) (<http://bit.ly/CLMETDA>)
- CLME+ SAP (<http://bit.ly/CLMESAP>)
- UNEP Caribbean Environment Programme (CEP) (<http://bit.ly/CaribEnvProg>)
- Specially Protected Areas and Wildlife Programme (http://bit.ly/CEP_SPAW)
- Caribbean Challenge Initiative (CCI) (<http://bit.ly/CaribCI>)
- Ecosystem-Based Management Tools Network (<http://bit.ly/EBMToolNet>)

PRINCIPLED OCEAN GOVERNANCE (POG)

EBM in ocean governance is evolving.

- EBM is set in the conservation end of the spectrum and occupies a specific and readily identifiable place in ocean governance.
- EBM can be seen as acting to maintain the integrity of the non-human aspects of ecosystems.



EBM principles coinciding with POG (Source: Fanning et al., 2011)

Stakeholders of the Wider Caribbean should proceed towards principled ocean governance; the process should include opportunities to reflect explicitly on the substantial principles that are most relevant to the issues of concern to them and the details of how these should be elaborated to meet their needs.

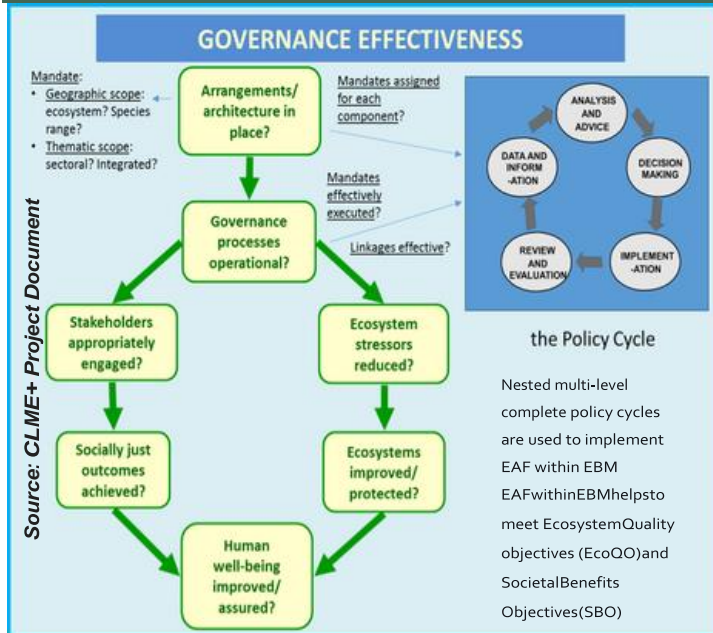
EBM

- Emphasizes the protection of ecosystem structure, functioning, and key processes
- Explicitly accounts for the interconnectedness within systems, recognizing the importance of interaction between many target species or key services and other non-target species
- Acknowledges interconnectedness among systems, such as between air, land and sea
- Integrates ecological, social, economic, and institutional perspectives, recognizing their strong interdependence.

USEFUL RESOURCES

- Marine ecosystem-based management in the Caribbean: an essential component of principled ocean governance (<http://bit.ly/PrincipleOG>)
- Ocean governance in the Wider Caribbean Region: communication coordination mechanisms by which states interact with regional organisations and projects (<http://bit.ly/OGintheWCR>)
- Governance arrangements for marine ecosystems in the Wider Caribbean Region (<http://bit.ly/GovWCR>)

GOVERNANCE FRAMEWORK



The "Governance Effectiveness Assessment framework" (GEAF), adapted from the Global Environmental Facility's (GEF) Transboundary Waters Assessment Programme (TWAP), "provides a useful tool for results-based planning, coordination and management of activities..." (UNEP, GEF, 2016). The CLME+ Project is using the GEAF throughout.

USEFUL RESOURCES

- Governance arrangements for marine ecosystems in the Wider Caribbean Region (<http://bit.ly/GovWCR>)
- Transboundary Waters Assessment Programme (TWAP) Assessment of Governance Arrangements for the Ocean, Volume 1: Transboundary Large Marine Ecosystems. (<http://bit.ly/TransLME>)

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