



Review of the role of GIS for an Ecosystem Approach to Fisheries

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4th Fishery GIS Symposium. Rio de Janeiro, Brazil. 25- 29 August 2008



Purpose

- Understanding EAF principles
- Define the potential role of GIS in EAF
- Present selected case studies

to:

- stimulate discussion and information sharing
- create opportunities

Presentation outline

- **EAF concepts and principles**
- **FAO role in EAF**
- **GIS role in EAF**
- **GIS opportunity**
- **Showcase**
- **Future challenges and opportunities**

EAF concepts and principles

- Why did EAF come about?
- Concept development
- Principles
- Comparisons of approaches
- Demystification
- FAO role

EAF concepts and principles – Why EAF?

- **Advances in science (environmental effects on fishery resources and effects of fishing on non-target species and habitats, food-chain effects and biodiversity)**
- **Increasing societal awareness of the impacts of fisheries on marine ecosystems**
- **Poor performance of current management practices**
- **Recognition of a wide range of societal interests in marine ecosystems**

Concept development



UNCLOS

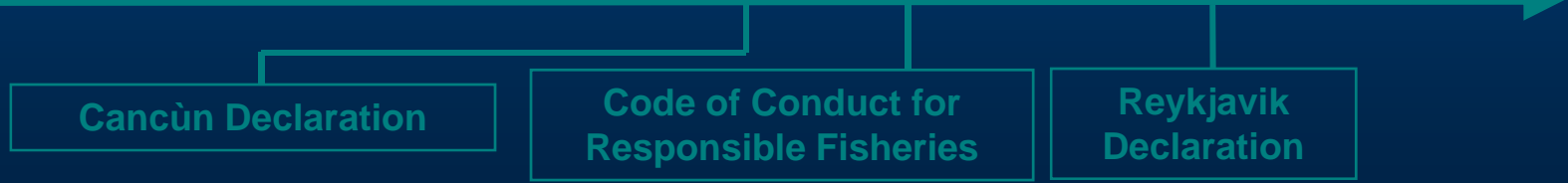


UNCED



- Rio Declaration
- CBD
- Agenda 21 (Chapter 17)

FAO



Ecosystem Approach to Fisheries



Principles

- **None of the principles that underlie the EAF are new. They can all be traced in earlier instruments, agreements, declarations.**
- **Implementation of these principles lags behind in relation to their formulation in agreed international instruments**
- **The EAF highlights and reorganizes the principles of sustainable development making their application more imperative**

Principles (Normative)



- Maintaining ecosystem integrity
- Improving human well-being and equity



Principles (Operational/implementation)

- Apply the precautionary approach
- Ensure compatibility of management measures (across jurisdictions)
- Broaden stakeholder participation
- Use incentives
- Promote sectoral integration



Principles (Cognitive)



- Improve research to better understand ecosystems in all its components
- Conservation and management decisions should be based on the best available knowledge
- Encourage research towards selective and environmentally safe fishing gear and practices

Comparison with other approaches

- **Many approaches are proposed in the context of sustainable development for aquatic ecosystems:**
 - **Ecosystem-based fisheries management (EBFM)**
 - **Ecosystem-based management (EBM)**
 - **Ecosystem approach (EA)**
 - **Ecosystem approach to fisheries (EAF)**
 - **Integrated coastal zone (or area) management (ICZM, ICAM)**
 - **Integrated ocean management (IOM)**
 - **Community-based fisheries management (co-management)**
 - **Large Marine Ecosystems (LME)**
 - **Territorial user rights for fisheries (TURFS)**
 - **Marine protected areas (MPAs)**
 - **Sustainable Livelihood Approach (SLA)**

Demystifying the EAF¹

Myth 1: The Ecosystem Approach to Fisheries is not well defined

- **REALITY:** EAF has been extensively defined both in terms of their purpose and characteristics. There are now several examples of actual application in individual countries.

(1) Inspired by Steven A. Murawski (2007). Ten myths concerning ecosystem approaches to marine resource management . Marine Policy 31:681-690.



Demystifying the EAF

Myth 2: There are no examples of EAF in practice anywhere in the world

- **REALITY:** There are many international, regional and local examples where EAF principles have been implemented
- EAF has been implemented in both formal and informal ways at local, national and international levels.
- There has been a broadening of management concerns... and wider ecosystem impacts, bycatch and habitat interactions are now being often considered



Demystifying the EAF

Myth 3: There is insufficient information currently available to answer ecosystem questions necessary for applying an EAF

- **REALITY: EAF builds on existing institutions and knowledge and provides a framework for combining data collected for a variety of purposes. EAF is about decision making for achieving well defined objectives, based on the best available knowledge**

Demystifying the EAF

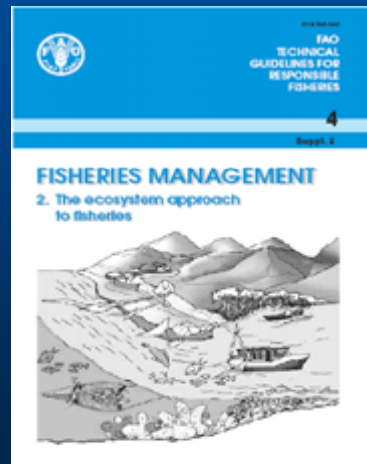
Myth 3: EAF is too difficult a concept to apply in multinational regional management organizations (RMOs), and EAF can only apply to a few developed countries

- **REALITY: Regional EAF programs are being implemented in a large and diverse set of the world's large marine ecosystems (LME). In particular, many developing nations seem especially open to the EAF/EBM concept.**

Demystifying the EAF

Myth 4: There are no existing principles and guidelines for implementing EAF

- **REALITY:** Both principles and guidelines have been articulated both at the national and international levels



Demystifying the EAF

Myth 5: A complex model of species interactions among all components of an ecosystem is necessary to guide EA

- **REALITY: Potential effects and consequences at ecosystem level of management decisions must be considered, however even simple models of ecosystem function can establish a plausible subset of potential outcomes**

Demystifying the EAF

Myth 6: It is very difficult if not impossible to establish the boundaries necessary to implement EAF

- **REALITY: Fisheries management problems should be dealt with at the appropriate spatial and temporal scales. The scope of the problem will determine the size of the area to be managed**

FAO role in EAF

- Promoting the principles (guidelines, publication, workshops)
- Informing (GISFish)
- Creating enabling environment (capacity building, fora, data and resources sharing)
- Supporting developing countries and RFMOs



next...

- what's the role GIS can play in EAF...

