

Workshop Tools for Ecosystem Based Management: What are the criteria for successful uptake and use of a tool in exploring trade-offs in Ecosystem Based Management?

Task Group 6 - Tools for Ecosystem Based Management

Background: The Vision of the Atlantic Ocean Research Alliance (AORA) Working Group on the Ecosystem Approach to Ocean Health and Stressors (EA2OHS) is to promote research to understand the North Atlantic Ocean in support of ecosystem-based management (EBM). EBM is recognized as the best means to advance knowledge to both manage marine ecosystems and their associated resources, across multiple ocean-use sectors, and across multiple stressors. Within the broad AORA EA2OHS effort, several task groups have been formed to deliver an [eight step process](#). One is a task group on **Tools for Ecosystem Based Management**.

All task groups for EA2OHS are requested to explore what it would take to enhance the uptake of science for EBM and potential alignment of research priorities in the North Atlantic. EBM recognizes that trade-offs are needed in the management of resources and human activities in ocean and coastal ecosystems. As EBM recognizes the interconnections between the physical, biological, and socioeconomic components of marine ecosystems, tools for addressing trade-offs associated with EBM must have some capacity to consider these major components. Given the complexity and breadth of trade-offs associated with EBM, addressing them may seem a daunting task. Despite widespread interest in Ecosystem Based Approaches as a management tool for ocean use, and a wide body of research on potential approaches, society has largely failed to operationalize ecosystem approach. This task group will facilitate a workshop to explore how to move from good intentions and research ideas to a roadmap for successful application through review of existing tools and dialogue with practitioners on knowledge needs.

Overarching goal: Create a document on what are the criteria for successful uptake and use of a tool in exploring trade-offs in EBM?

Expected outcomes:

- Improved understanding of the process leading to successful development and uptake of tools in management

Expected products:

- Report back to EA2OHS, AORA and national entities to advance EBM
- Manuscript to be submitted to a peer reviewed journal

This AORA workshop is organised by [AORA Coordination and Support Action](#) (AORA-CSA) that assists the AORA Working Groups. The above workshop is supported by the AORA-CSA [Work Package 4](#).

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Exploring tools for the provision of knowledge for the Ecosystem Approach

Dates: March 16-18 May, 2018

Venue: InterContinental Hotel

Montreal, Quebec

(In connection to the 4th World Conference on Marine Biodiversity 13-16 May)

Conveners: M.Robin Anderson, Paul Snelgrove, Howard Townsend, Anna Rindorf, Mark Dickey-Collas

Overarching Goal: Create a document on what are the criteria for successful uptake and use of a tool in exploring trade-offs in EBM?

Expected participants: Providers of operational tools for EBM that use tools and have experienced tangible challenges. 10-15 participants are expected.

Terms of Reference:

1. Define what is meant by successful uptake
2. Explore the potential criteria for successful uptake
3. Explore factors that hinder uptake
4. Use examples to highlight success and poor uptake.
5. Synthesise result into a report and include ways to improve use of existing tools

Back ground material will include the table of tool classification from the 2017 AORA report (Annex 1).



Draft Agenda:

Day 1 Wednesday 16 May (13:00- 17:00)

13:00 Welcome and introductory session

13:30 Discuss aims of workshop, agree agenda and working practice

15:00 Clarify what is meant by the word tools in this context and define what is meant by successful uptake

Day 2 Thursday 17 May (9:00 -17:00)

9:00 Explore the potential criteria for successful uptake using use examples to highlight success and poor uptake.

14:00 Agree structure of manuscript

15:00 Working in sub-groups

Day 3 Friday 18 May (9:00 – 17:00)

9:00 Report back

10:00 Work in sub-groups

13:00 Concluding session and production of manuscript



Suggested reading

Begg, G.A., Stephenson, R.L., Ward, T., Gillanders, B.M., Smith, T. (2015). Practical steps to implementation of integrated marine management: report of a workshop, 13-15 April 2015: final report for the Spencer Gulf Ecosystem and Development Initiative and the Fisheries Research and Development Corporation.

Fletcher, W.J., Bianchi, G., (2014). The FAO EAF toolbox: Making the ecosystem approach accessible to all fisheries. *Ocean & Coastal Management*.

Harvey, C. J., Kelble, C. R., and Schwing, F. B. (2017). Implementing “the IEA”: using integrated ecosystem assessment frameworks, programs, and applications in support of operationalizing ecosystem-based management. *ICES Journal of Marine Science*, 74: 398–405.

Smith, A. D. M., Fulton, E. J., Hobday, A. J., Smith, D. C., and Shoulder, P. 2007. Scientific tools to support the practical implementation of ecosystem-based fisheries management. – *ICES Journal of Marine Science*, 64: 633–639.

Work on decision support tables from MYFISH and MAREFRAME.

Outputs on tools from DEVOTES.



Annex 1. Table of categorisation of tools for EBM trade-off analysis.

Tool	Use Level	Data requirements	Strengths	Limitations
Mental Modeling	Heuristic	Low	Developing a shared understanding among stakeholders of key ecosystem interactions	Represents the perception of trade-offs in a system, not necessarily actual ecosystem interactions
Ecosystem Indicators	Heuristic to Tactical	Medium	Provide context on the status of the ecosystem and information on how management actions might affect ecosystem structure and productivity.	Necessary to obtain parsimonious set of indicators, too many can be overwhelming, too few may not adequately represent ecosystem functioning.
Systemic Reference Points	Strategic to Tactical	Medium to High	Support decision making on a wide range of human actions that influence the ecosystem structure.	Additional work necessary to familiarize management with ecosystem function and to develop "intuition" about reference points.
Risk Analysis	Strategic	Medium	If developed in a way that incorporates stakeholders, this can be useful for understanding risk-tolerance levels of stakeholder groups, which may inform managers on the acceptability of management actions.	Tolerance for risk can be highly variable among stakeholders, so additional work is necessary to account for risk tolerance.
Spatial Planning	Strategic and Tactical	Medium High	Helps to inform where resource conflicts may arise. For resources that are not highly spatially variable, this may be appropriate for tactical decisions.	Provides a static, spatial snapshot of key indicators, but it is difficult account for dynamic rates and processes.
Trait based and size based modeling	Strategic	Low	Individual and size based ecosystem theoretical models are used to challenge management questions. They are useful to explore future scenarios using different underlying assumptions compared to end to end models. They often result in evidence of alternative stable states and counter intuitive outcomes due to the impact of density dependence.	This type of modeling may be unfamiliar to some managers, so some additional work is necessary to familiarize managers.



Models of Intermediate Complexity	Tactical	Medium	Used to make single sector or single species decisions cognizant and inclusive of broader ecosystem considerations	Captures the indicators of ecosystem function that are considered to be key; however, broader analytical work is necessary to ensure key interactions are not left out of the model.
End-to-end models	Strategic	High	Useful for developing a quantitative understanding of the spatial and temporal dynamics of the interactions between biological, physical, and socioeconomic components.	Considerable time and effort is needed to build these comprehensive models.
Visualization tools	Heuristic	Variables	Better way to communicate information from which to make decisions	Care must be taken not to oversimplify key ecosystem functioning with visualizations.
Management Strategy Evaluation	Strategic and Tactical	High	Provides a formal framework for testing management actions and understanding relative changes in biological and socioeconomic components of the ecosystem for given actions.	Considerable effort is necessary to build modeling system for holistic MSE as well as familiarize managers with the approach.

