

Theme Session BB – An Ecosystem Approach to Fisheries Management: Worked Examples

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This Theme Session was held to address a major concern arising from the 13th ICES Dialogue meeting, in Dublin, in April 2005. At that meeting clients of ICES advice in fisheries management, policy, and the fishing industry stressed that although the concepts behind an ecosystem approach to fisheries management were reasonable, there was little clarity about exactly how an ecosystem approach would actually change the jobs of managers and policy-makers, and affect those engaged in fishing. This Theme Session was intended to attract progress reports from attempts around the world to implement a more ecosystem-oriented approach to fisheries science and management. It was hoped that consolidation of experience to date would contribute to a better understanding of what sorts of changes would be expected as fisheries management took greater account of ecosystem consideration. This initial goal was augmented when leaders of the new EU project Eur-Ocean suggested that the Theme Session include some contributions from that project, which is intended to build a network of European researchers who work on marine ecosystem dynamics and their uses. Their inclusion in this session linked the ongoing efforts to implement an ecosystem approach with the research interests of this network.

The Theme Session included 17 presentations and a poster. Case histories were presented from the US Northeast, the Canadian Atlantic and Pacific coasts, Australia, South Africa, Morocco, and the North Sea. Papers also presented ways to use ecosystem indicators as a tool for implementing an ecosystem approach to fisheries management, the potential of MPAs as an important tool in an ecosystem approach, and how the strategic plans for NOAA in the US and the Eur-Oceans network could contribute to strengthening the scientific basis for implementing an ecosystem approach. Several presentations used tropho-dynamic models to explore possible consequences of different management scenarios, or to seek explanations for changes that have been observed in harvested resources or fish communities.

The modelling papers underscored that for many parts of the world, researchers are still trying to understand basic dynamic relationships in the marine ecosystem. Many of the results suggested there may be so much scientific uncertainty that it actually is premature to inform industry, policy, and management of the likely consequences of implementing an ecosystem approach to fisheries. However, there was remarkable convergence in the messages from all the case histories. The points of convergence indicate that even though the implementation of an ecosystem approach is in its infancy, we do know some aspects of it that seem to be crucial to progress, and have at least partial knowledge of some of the likely consequences.

Points of convergence from the case histories include:

- The need for clear, operational objectives, agreed upon by all the groups which eventually affect decision-making.
- The need for reliable indicators which can be used in support of decision-making, and whose information content and performance characteristics are known.
- The importance of explicit risk assessment, qualitative or quantitative, as a part of support to management. Correspondingly, it is important that modelling and analysis tools that are used deal realistically with uncertainty.
- There are already several tools available to use in applying an ecosystem approach, and we have partial knowledge of the effects of the tools and conditions under which they can be effective. Key tools include management strategy evaluation methods, incentives – particularly economic ones, and spatial management approaches including marine protected areas.

- Social and economic science experts need to be well integrated with experts from the traditional marine science disciplines.
- Multi-sectoral engagement among science, management, policy, the fishing industry, and other stakeholder groups is essential. This engagement is essential at the objective-setting step, to have societal agreement on what management should be attempting to achieve, but is important at many other steps as well.
- Good communication among all groups is essential, and often requires different approaches to transferring information to different audiences.

The case histories also provided a few insights into the context for implementation of an ecosystem approach. The first is that it is easy for science to make the problem so complex and multi-dimensional that it cannot be solved, at least in the short or medium term. The second is that we are not currently using effectively all the information and knowledge that we have at present. These two insights may appear contradictory, but they are not: it is not necessary to understand all relationships in an ecosystem before it is possible to apply what is known to improve practice.

The final message from all the case histories is that progress can be made, and is being made, at implementing an ecosystem approach to fisheries. However, in doing so, it is clear that an ecosystem approach is much more likely to result in reductions in harvesting opportunities (sometimes large), than to result in increases in harvesting. Hence, there will be large medium-term transition costs associated with an ecosystem approach, and progress will only be possible if these transition costs are acknowledged and addressed in ways which are acceptable to the industries being affected.