

Theme session R – The ecosystem approach: what’s the impact on marine science, science-based advice, and the management of marine ecosystems

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The broad aim of this session was to examine whether the introduction and implementation of the ecosystem approach has had any effect on marine science, advice and management of human activities in marine ecosystems.

Nineteen oral and one poster paper were presented in the session. Attendance exceeded 160 scientists during the first part of the session, but competition with another theme session covering similar ground (and completion of the session very early on the last day of the conference) meant that only around 60 people were present towards the end.

There was a wide diversity of subjects covered by papers in the session, reflecting perhaps the all-encompassing scope of the ecosystem approach. At one end, a UN process to examine the global quality of Assessments, while at the other end of the scale, the restoration of oyster beds was considered.

Given this wide range in scale of the ecosystem approach, it was difficult to pick out common themes. The nature of ICES meant that there was much focus on fisheries issues, with very little mention of other pressures in the marine environment that might be subject to management using the ecosystem approach (e.g. contaminants). Social and economic considerations are built into the ecosystem approach, but these too received little attention. A fleet-based approach may help integrate these factors, as does well-designed stakeholder participation (these aspects were described in two papers).

The implementation of the ecosystem approach in fisheries management is progressing slowly. In some cases this appears due to a “too difficult, we do not understand enough” attitude, while in others it appears that scientists are not supplying the tools needed to support management decisions. One contribution pointed out the need of management for three types of indicator: those for control, those for audit and those for communication. It is rare to find a good indicator covering all of these functions. Such indicators may derive from information collected under the revised EU data collection regulation.

One of the aspects of the ecosystem approach that has received much attention is the bycatch of unwanted organisms – especially of charismatic species such as marine mammals. Public expectation is high to quantify and reduce lethal interactions, but often the demands made of science for monitoring exceed scientific capacity or rationality (demanding a high certainty in the bycatch estimates). An alternative approach that sets a bycatch limit with a high probability to avoid breaching that limit may provide the basis for a more rational bycatch monitoring scheme.

One paper examined the use of seabird diet to monitor the state of stocks of small fish (which in this case are very difficult to monitor by any other technique. While this approach showed promise, the key difficulty is understanding the relationship between fish abundance and prey availability.

Mapping and modelling are also important aspects of the ecosystem approach. New mapping (the Eastern Channel Habitat Atlas for Marine Resource Management) and modelling (EcoFish) initiatives were described. Perhaps though the most useful tools revolve around assessments of activities; in some legislatures these are “Environmental Impact Assessments”,

while in others (e.g. Canada) ocean-based planning incorporates these assessments. Off Europe, the ECOVUL/ARPA project integrates science and fisheries information to research the interaction between fisheries and habitats and guide appropriate management.

Discussion of the science and tools needed to underpin understanding of, and appropriate management of, issues relating to the effects of the ecosystem on fisheries was confined to one paper on the Baltic sprat fishery. Predictions using oceanographic variables gave more reliable recruitment estimates in historical retrospective analyses than recruitment estimated using long-term geometric means (the current procedure).