ICES Theme Session N

Resilience and marine ecosystem services

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Marine ecosystems are being increasingly altered as a result of anthropogenic threats to which they are subjected. The concentration of population in coastal areas, overexploitation of marine resources, climate change, loss of biological diversity, eutrophication, damage to natural habitats, and pollution (from waste, oil spills, nuclear testing, and shipping, among others) act cumulatively and often have diffuse effects on the coastal environment.

In this context, this theme session was designed to act as a platform for discussion and information sharing between the main groups involved within the fisheries sector (scientists, regulators and policy makers). The session also aimed to discuss key aspects for managing marine ecosystem services such as a) Emerging tools and methodologies of ecological, socio‐economic and institutional topics of marine ecosystem services, b) Spatial and social distribution and potential conflicts between marine eco‐ system services and users, c) Resilience and ecosystem services under global change, d) Understand the ecological, economic, cultural and social factors undermining the use of marine ecosystem services, e) Participatory experiences to manage marine ecosystem services, and f) From science to decision‐making process: alternative strategies for the use of ecosystem services.

The session was highly attended (60-70 participants) and dynamic, with 16 oral and 2 poster presentations from South America and a wide range of different European countries (e.g., Atlantic Ocean and the Mediterranean Sea), and 1 h of lively discussion afterwards. Several presentations demonstrated ecosystem services modelling relevant to managers, including the development of analysis to respond to new scientific needs linked to new legislation contexts, such as the Common Fisheries Policy and the Marine Framework Strategy Directive in Europe. Other presentations provided new insights of quantification and mapping of spatial distribution of marine ecosystem services are critical for different stakeholders by using participatory approaches with special focus on the social and economic dimensions of ecosystem services. Other examples were focused on the key challenge of managing complex adaptive systems under interconnected drivers.

Discussion was devoted to provide a chance to highlight scientific challenges just around the corner, but also to identify what needs and capabilities of current methods and tools are missing, what are needed, and what would be exciting extensions to them. One of the key points of this session was that the empirical evidence from local/regional studies have matured enormously beyond an exclusive focus on commercial fisheries issues, but the social and economic contributions of marine ecosystem services are still unexplored and need to be expanded in the near future.

**Papers of exceptional merit**

There were several papers in our session that we considered of exceptional merit be-cause of their relevance to the better management of marine ecosystem services as complex marine social-ecological systems. The session award to best presentation went to Mr Paris Vasilakopoulos and C. Tara Marshall for their stimulating paper “*Quantifying ecological resilience in shifting complex natural systems: an application on Barents Sea cod*” which empirically show how adaptability, complexity, and regime shifts can be addressed jointly in order to increase the scientific evidence on multiple-stability domains and thresholds of European marine ecosystems. As result of this Theme Session, selected papers will be published as Special Issue in the ICES Journal of Marine Science during 2015.