

**CIESM Congress Session : Soft-bottom ecology**  
**Moderator : Tom Moens, Biology Dept., Ghent Univ., Belgium**

*Moderator's Synthesis*

The moderator focused his introduction on key ecosystem services (ES), such as the mineralization of organic matter, which link to other marine ES such as food production and carbon sequestration. Ecosystem services provide one way of assessing the 'value' of marine ecosystems and to 'brand' ecological research. They are affected by community composition as well as by species diversity, although the relation between them is rarely straightforward and heavily depends on the system studied. An improved mechanistic understanding of that relationship is much needed. But while a majority of studies to this end focus on single processes or functions, ES are inherently multifunctional.

Hitherto, most pertinent research has either focused on monitoring particular ES with a limited understanding of the supporting processes and functions, or – vice versa – on a detailed understanding of specific processes and functions, with a limited understanding of how this should translate in rates of ES. Similarly, while most research has focused on the effects of single stressors in isolation, organisms live in multistressor environments, and the response to a single stressor may deviate profoundly from the response of the same organism to that same stressor but in combination with other stressors. Both of these key issues highlight the necessity (a) to bridge the gap between laboratory-scale, single-impact or single-function studies and the real-life complexity of ecosystem responses to a multistressor environment, and (b) to maximize our mechanistic understanding of community functioning and its responses to stress.

In the discussion that followed the different pitch presentations, several participants emphasized that the gap between measuring ES and investigating the underlying factors is even larger for the system(s) they study, because baseline information on community composition, biodiversity and taxonomy are often lacking. There is clearly an urgent need for baseline research and baseline information in several areas, to describe the multitude of soft-bottom invertebrates which are new to science and to investigate little described systems. Unfortunately funding for baseline biodiversity research, such as taxonomy and description of community composition patterns, is extremely limited.

Another issue that emerged from the discussion is the question whether and when biodiversity conservation needs to be a prime management goal. The trigger for this discussion was the correct observation that one should not over-generalize the positive relationships between biodiversity and ES. In fact, particularly at local scales, certain ES may score better in lower-diversity communities. As such, scientists should take a diversified stand towards ecosystem management and not automatically enter it from a single perspective, be it that of biodiversity per se or that of particular ES. On a larger geographical scale, this may require locally diversified management strategies.

