Title of the symposium:

Marine habitats and seascapes: from discovery to management

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Symposium abstract

While landscape ecology studies have been developed for and applied in terrestrial systems for nearly 50 years, the description of spatial patterns in marine contexts has only recently emerged. Developments in seascape ecology have been closely linked to technological advancements that strongly improved our capability of investigation at multiple scales. Understanding the causes and ecological consequences of spatial patterning in the seas requires conceptual and analytical frameworks developed in an array of disciplines, including marine biology and ecology, geosciences, and management sciences. The quantification of patterns in seascape geometry at multiple spatial scales allows in particular the assessment of their influence in the ecological function and connectivity of marine habitats. Uniformity is an exception and the seascape appears as an intermixed multiple patches of different habitats. Marine habitat engineers in particular may constitute spatial heterogeneous mosaics, and their structure deeply modulates associated ecological processes.

In the last decade, an increased attention has been given to the application of tools, models, and methods to estimate the spatial properties and connectivity of most marine habitats, with an emphasis to ecosystem engineers. Structural patterns at multiple spatial and temporal scales influence marine species distributions, and marine management requires operationally relevant information on biodiversity patterns and historical baselines. In addition, since seascapes can also be used to describe variation in chemical composition throughout the water column, chemical 'landscapes' play now huge and influential roles in the ecology of pelagic organisms, some of which never encounter benthic geography. Yet, sound plays a relevant role in the ecological processes like recruitment, and it acts as an orientational cue towards suitable settlement habitat. The sea is heterogeneously filled with varying sounds forming an underwater 'soundscape' that could be as familiar to marine animals as the visual landscape is to humans.

This session aims at collecting contributes that can amplify the perspective of seascape ecology research with a particular interest for marine priority habitats, bio-construction, and seascape-

controlled ancient biodiversity assessments pre-dating the Anthropocene, aimed at good practices for environmental monitoring, management and marine spatial planning.

How your symposia will improve landscape ecology science?

Seascape ecology is a large and still underexplored section of landscape ecology. This session aims at collecting contributes that can amplify the perspective of seascape ecology research and also document how a sound knowledge of seascape ecology is key to management practices in marine environment (i.e. marine spatial planning). The Anthropocene represents indeed an epoch of dramatic impacts on marine life (coastal-land exploitation, marine transport, pollution, overfishing, climate changes). Seascape studies can deeply contribute both a better understanding of the effects produced by anthropogenic pressures and a more efficient implementation of environmental monitoring programmes (such as the Marine Strategy Framework Directive).

Broad thematic areas

1st choice(mandatory) and 2st choice(optional)

Broad thematic areas 1st choice: Specific landscapes (i.e. Mediterranean landscapes, rice landscapes, …)

Broad thematic areas 2st choice: Landscape ecosystem functions and services

Free Keywords

Seascape, Marine Spatial Plannig, Marine Frameworks, Coastal ecosystems,