

Sediment – biota interactions and mapping marine habitats: an Introduction

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Acknowledging the growing number of national and international policies highlighting the importance of mapping of marine benthic habitat in support of marine spatial planning, a theme session on “Sediment–Biota Interactions and Mapping Marine Habitats” was held at the ICES Annual Science Conference in Halifax, NS, Canada, in 2008. Presented were studies on multiple uses of the seabed (e.g. aggregate extraction, dredging, fisheries, wind turbine facilities) and how these activities affect the distribution of species and habitats. Further, although the composition, abundance, and functionality of benthic communities are dependent on sediment character, the systematic role of sediments as regulators of the benthic communities is still elusive. Therefore, papers were also presented on the use of habitat maps as tools to support the management of sustainable use of the seabed.

The theme session attracted great interest from resource managers and researchers involved in a suite of activities including establishment of Marine Protected Areas, dredging, aggregate extraction, wind turbine facilities, offshore mariculture, and bottom trawling. A wide array of sampling techniques and mapping approaches was presented. Recent developments in acoustic technologies with a combination of ground-truth techniques were shown to offer valuable opportunities to explore and map the seafloor at high levels of resolution. However, it was clear that aerial and sediment sampling techniques had an important place in habitat characterization and mapping.

Some of the highlights from the session included talks that focused on

- (i) marine benthic habitat mapping in support of the ecosystem approach, and in relation to sensitive species such as corals;
- (ii) integration of data from diverse sampling technologies and sources with a focus on biodiversity;
- (iii) ecosystem processes and sediment–biota interactions as regulators of community structure and biodiversity;
- (iv) coupled sediment–biota models and their application for management and research, including studies on lobster;
- (v) impacts of fisheries on habitats in relation to finfish and bivalves;
- (vi) prediction of fish distributions in relation to habitat using modelling techniques;
- (vii) new or less common mapping techniques to map marshland ecosystems by aerial surveys and visual sediment profiling to describe the sediment geochemistry.

Seven of the presentations from the theme session were submitted for publication as a suite of papers and represent many of the topics covered. Those manuscripts follow this Introduction. We trust that this suite of communications will be as informative and interesting now as it was at the Annual Science Conference in Halifax.

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