{rokbox title=|Imagen de un ejemplar de Serranus cabrilla captada con un ROV :: Foto: COB-IEO| thumb=|images/stories/ieo/imagenespublicaciones/serranuscabrilla_640_thumb.jpg|}images/stories/ieo/imagenespublicaciones/serranuscabrilla_640.jpg{/rokbox}

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Connections between hydrodynamics, benthic landscape and associated fauna in the Balearic Islands, western Mediterranean.
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Abstract: Linking the abiotic and biotic traits of ecosystems is a critical step towards understanding their structure and functioning. Here we attempt to determine the connections between the hydrodynamics, benthic landscape and the associated fish communities on the coastal continental shelf off the Balearic Islands (western Mediterranean). Specifically we investigate the role the hydrodynamics play in shaping the benthic landscape, and whether the hydrodynamics affect the composition and structure of demersal fish communities. A realistic numerical model was used to establish the hydrodynamic characteristics of the area. The study area showed high hydrodynamic variability on a medium spatial scale (tens of km) in terms of mean water velocity ($\bar{U}$). Principal component analysis was used to determine the main gradients of macro-epibenthic variability. Redundancy analysis (RDA) was used to model the effect of the hydrodynamics on macro-epibenthic species. RDA was also used to model the effect of the hydrodynamics and macro-epibenthos on the abundance of the associated fish fauna, and on its biomass at a community level using biomass spectra classes. The results showed that the hydrodynamics had a significant influence on the distribution of both macro-epibenthic species and the associated fish species. The latter was also influenced by the macro-epibenthos. Fish size appeared to be a key attribute for the distribution of species across gradients of $\bar{U}$ and macro-epibenthic change. Our findings can be applied in ecosystem-based fisheries management, as they show that it is necessary to take into account both the biotic and abiotic traits of the habitats when the habitat use and requirements of the associated species are defined.

Keywords: Hydrodynamics; Benthic landscape; Associated species; Habitat selection; Essential fish habitats; Western Mediterranean.