

On the use of Crustacea as a surrogate taxon for the environmental quality assessment in the Hellenic coastal waters (WFD)

Naletaki Maria¹, Plaiti Wanda² and Simboura Nomiki¹

¹ Institute of Oceanography, HCMR, P.O. Box 2214, Gournes Pediados, 7103, Crete, Greece
E-mail: mnalet@hcmr.gr

² Institute of Marine Biology, Biotechnology and Aquaculture, HCMR, P.O. Box 2214, Gournes Pediados, 7103, Crete, Greece

Coastal waters are usually exposed to anthropogenic pressure, such as aquaculture, sewage, or maritime traffic, which can cause a significant decrease of the water quality. Benthic invertebrate biodiversity is often used as an indicator for the water quality, since these organisms are susceptible to environmental changes. Thus, monitoring of the macrobenthos status is very important, as it can lead to an early detection of environmental disturbance, and -consequently- to immediate measures of restoration.

Scientific knowledge plays a pivotal role in informing policy makers and stakeholders, in order to take proper action in water management, regarding human pressures and environmental recovery processes. Therefore, every piece of information allowing to understand the complexity of coastal environments is urgently needed for the future conservation planning.

Crustacea is one of the most important macrobenthic taxa. As a matter of fact, they are used by many scientists as an indicator or surrogate of the total macrobenthic assemblage composition and diversity. In our study, carried out within the context of the Water Framework Directive (WFD) implementation for the Hellenic coastal waters, over a period of four consecutive years, Crustacea was the second group after Polychaeta, in terms of species richness and abundance.

From a dataset of 80 stations around Greek coasts, 28,631 individuals belonging to 931 species were identified, in total, whereas the number of Crustacea found was 3,653, belonging to 265 species.

The present work examines the potential use of Crustacea as a surrogate for the estimation of the water body quality, comparing their multivariate patterns of abundance and species richness with the values of the BENTIX (Simboura and Zenetos, 2002) index, as calculated by the entire macrobenthic fauna datasets in order to provide indication on the ecological quality of the respective stations sampled.

Keywords: crustacean; macrobenthos; coastal waters; bio-indicators