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Composition and distribution of recent marine ostracod assemblages in the bottom sediments of Central Aegean Sea (SE Andros Island, Greece)

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Introduction

The main goal of this study is to provide information about the ecological preferences of recent marine Ostracoda from the bottom sediments of the central Aegean Sea. Therefore, a detailed quantitative and qualitative study of living ostracod assemblages was carried out in marine environments of SE Andros Island.

Andros belongs to Cyclades islands, which are part of a morphologically complex plateau, shallower than 200 m. The average monthly sea surface temperature of the Aegean Sea ranges from 8 °C to 26 °C. The sea surface salinity of the Aegean Sea ranges from less than 31 psu to more than 39 psu. Salinity values present higher fluctuations during summer than during winter and autumn (Poulos et al. 1997).

Distribution and composition of ostracod assemblages in marine environments depend on many factors, but the type of the substrate, depth and salinity are considered as the most important ones (Bonaduce et al. 1975; Pokorny 1978; Yassini 1979; Lachenal 1989; Horne et al. 2002; Boomer 2002; Ruiz et al. 2006).

Materials and Methods

Samplings took place at Kastro and Korthi gulf, both located at the eastern coast of Andros island. Additional samples were collected outside the gulfs down to the depth of 120–180m, in order to study the composition and distribution of Ostracoda in the broader area of Andros eastern coast. A total of 49 bottom sediment samples were collected during 3 summer sampling expeditions (2002, 2003 and 2004), by using a Van Veen-type sediment sampler. 100 cm^3 of the collected sediment were treated with a solution of 5% formaline for micropalaeontological analysis (Athersuch 1979) and 100 cm^3 were used for granulometric analysis. Additionally, salinity and temperature measurements were taken with an YSI Model 65 instrument.

All Ostracoda were collected from the fraction $>125\mu m$ for each sample, counted and determined in species level. The specimens were considered living, when their carapaces were found containing appendages and the soft central part of the body (Hor-

NE 1982). Additionally, statistical analysis was carried out by using Past.exe 1.23 (HAMMER et al. 2001). Six assemblage indices were calculated: a) the number of species in each sample, b) the relative abundance of each species in every sample, c) Diversity, d) Dominance, e) Abundance and f) Equitability (J'). Finally, ostracod relative abundances were used in order to perform Q-mode hierarchical cluster analysis.

Results

The studied samples from the bottom sediments of SE Andros Island demonstrated rich ostracod assemblages and a total of 57 species were identified. Distribution patterns of these species present a strong relation to bathymetry and to the grain size of the substrate. Concluding, four main ostracods assemblages were distinguished based on the results from the application of Q-mode cluster analysis in the data set, the calculated assemblage indices for each sample, as well as the bathymetric and granulometric data:

i. *Hiltermannicythere rubra* assemblage, accompanied by *L. ovulata*, species of genus *Semicytherura* (mainly *S. inversa* and *S. paradoxa*), species of genus *Propontocypris* and *Callistocythere crispata*. This assemblage characterizes substrates of sandy mud in depths from 40–60 m down to more than 100 m.

ii. *Loxoconcha affinis*, *Xestoleberis sexmaculata* assemblage, a well-balanced assemblage as it is reflected by the assemblage indices (the highest diversity and abundance in the studied samples). Accompanied species are *L. ovulata*, species of genus *Semicytherura* (mainly *S. incogruens*) and *A. convexa*. This assemblage characterizes substrates of muddy very fine to fine sands and shallower environments than *H. rubra* assemblage.

iii. *Loculicytheretta pavonia*, *Neocytherideis fasciata*, *Pontocythere elongata* and *Loxoconcha rubritincta* assemblage characterizes mainly fine sands for depths 3.5–15 m. This assemblage presents important reduction of the diversity and abundance indices compared to assemblages from deeper environments.

iv. *Urocythereis neapolitana* assemblage, characterizes substrates of medium to coarse sand for depths less than 20 m. It presents high dominance index and the lowest diversity and abundance indices.

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