

Infralittoral ostracode fauna of Porto Puddu Rias (northern Sardinia)

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The knowledge of the infralittoral ostracodes presents an increasing interest since it is an essential tool for several fields of research such as human impact of the coastal environments, including environmental monitoring, geoarchaeology and reconstruction of ancient shorelines.

The study of the infralittoral ostracode fauna of a small bay of northern Sardinia may represent an useful piece of this knowledge. This bay near Porto Puddu is characterized by shallow seafloors presenting wide vegetated areas, progression of the shoreline and seasonal strem (southern sector). Moreover, its water column is conditioned by winds along the year (Astraldi *et al.*, 1980).

Within a survey in 1995-1996, the scuba-divers sampled there 22 bottom sediments which yielded a rich ostracode fauna consisting of 82 species.

Integrating sedimentological and geomorphological data, 7 bottom-facies were identified: *Posidonia oceanica* meadow (F1), *Posidonia oceanica* mattes (F2), *Posidonia oceanica* spots and *Caulerpa prolifera* (F3), *Caulerpa prolifera* meadow and dead *Posidonia oceanica* (F4), bed of dead *Posidonia oceanica* (F5), sand of channel with *Posidonia oceanica* mattes (F6), infralittoral sand (F7).

Several ostracode species were present in two or more facies. However, some species were found in only one facies:

F4: • *Semicytherura paradoxa*, *Semicytherura sulcata*.

F5: • *Aglaiocypris rara*, *Semicytherura* sp.1

F7: • *Leptocythere multipunctata*, *Urocythereis flexicauda*.

Applying Shannon Weaver (SW) index, the sampling stations have been subdivided into three categories, each one characterized by i) low SW values, ii) intermediate SW values and iii) high SW values. Most ostracode species occur in all the categories. Few species may record bad conditions (*Cythereis frequens*, *Loxoconcha ovulata*, *Paracytheridea* gr. *depressa*, *Propontocypris intermedia* and *Xestoleberis communis*), but they also are present in other categories.

On the contrary, other species seem to be exclusive of the best conditions (*Aglaiocypris rara*, *Loxoconcha rhomboidea*, *Paradoxostoma versicolor*, *Pontocypris acuminata*, *Pontocypris obtusa*, *Semicytherura* spp., *Xestoleberis* gr. *dispar*). However, the real position of these species in these categories shall be under discussion. For example, some species of *Semicytherura*, that here records good conditions, occur in stressed conditions elsewhere.

Thus, for the environmental monitoring it is preferable to use the structure of the ostracode assemblage, which includes both opportunists and equilibrium species. Assuming that low-to-high SW values represent unfavourable-to- favourable environmental conditions, the bottom facies may represent bad, intermediate and good life for the benthic ostracodes respectively.

The worst conditions are exclusively present in the bottom facies F4; the best conditions are recorded in the bottom facies F1, F4 and F5. Intermediate conditions occur in all the other facies. It is evident that several factors may influence the quality of the ostracode fauna. For example, F4 presents two environmental extremes: the worst one corresponding to the southern sector of the bay, within a sandy belt with the prograding shoreline and seasonal stream; the best one within a central close depression.

References

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