

## THE BENTHIC FAUNA OF PALAU BAY (NORTH-EAST SARDINIA) : AMPHIPODA

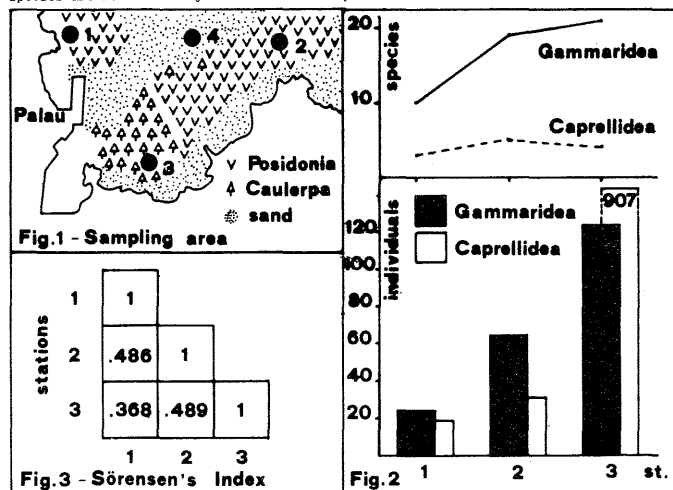
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Resumé: On a étudié la distribution des Amphipodes dans la baie de Palau (Sardaigne) dans deux biotopes différentes, caractérisées par la phanerogame *Posidonia oceanica* (L.) Delile et l'algue *Caulerpa prolifera* (Forsskål) Lamouroux.

To investigate the status of the marine environment in an area subject to anthropomorphic changes, a study on the animal benthic communities has been undertaken in the bay of Palau (North-East Sardinia). The above mentioned area is colonized by *Posidonia oceanica* (L.) Delile and *Caulerpa prolifera* (Forsskål) Lamouroux. For further informations on the aim of the project and characteristics of the study area see: Syllidia (COLOGNOLA et al., 1983), whole Polychaeta (GAMBI et al., 1985) and Mollusca (RUSSO et al., 1985). This paper takes into consideration the Amphipod fraction of these samples. The fauna was collected "in situ" in January 1982 using an air-lift sampler. A 50x50cm area was sampled at 4 stations. Station 1 (-8m), colonized by *Posidonia*, was situated in proximity of the harbour. Station 2 (-3,5m), colonized by *Posidonia*, was more exposed to water movements. Station 3 (-4m), colonized by *Caulerpa*, was located in the inner part of the bay. Station 4 (-4,5m) was situated over a sandy bottom (Fig.1). Population parameters such as species richness, abundance and quantitative dominance were computed. A qualitative comparison between stations was made using Sørensen's similarity index. Thirty-nine species belonging to 2 Suborders (Gammaridea and Caprellidea), 17 Families and 28 Genera were identified for a total of 1169 individuals. We did not find Amphipods in st.4. Twelve of these species were rare, with only 1 individual present at the sampling site. The remaining 27 species showed an irregular distribution pattern. In fact, only 5 species, *Aora spinicornis* Afonso (2.82%), *Apherusa chierrehini* Giordani-Sotika (1.36%), *Dexamine spinosa* (Montagu) (1.11%), *Caprella acanthifera* discrepans Mayer (50.38%) and *Phthisica marina* Slabber, were present in all stations. With the exception of *C. acanthifera* d., these species are considered as "typical" of *P. oceanica* prairies (LEDOYER, 1968; SCIPIONE & FRESI, 1984). *Amphithoe ramondi* Audouin (0.94%), *Apherusa vexatrix* Krapp-Schickel (0.51%), *Perioculodes aegiptianus* Schellenberg (0.34%) and *Pseudoprotella phasma* (Montagu) (0.34%) occurred only in *Posidonia* samples whereas *Ampelisca* sp. (0.17%) *Microdeutopus* sp. (0.34%), *Maera grossimana* (Montagu) (0.51%), *Perioculodes longimanus* (Bate & Westwood) (0.59%), *Metaphomus pectinatus* (Walker) (0.42%) and *Stenothoe monoculoides* (Montagu) (1.71%) only in the *Caulerpa* sample. Some of these latter species are common on soft substrata, but also in *Posidonia* "matte" and leaf strata (HARME LIN, 1964; LEDOYER, 1968; SCIPIONE & FRESI, cit.).

Notwithstanding the relatively high values obtained for the similarity index (0.486) (Fig.3), st.2 seems to be characterized by a better structured Amphipod community due to its greater species richness and abundances (Fig.2). By contrast, the different environmental conditions at st.1 (high sedimentation due to the proximity of the station to the harbour and very low hydrodynamic forcing) probably contribute to modify the *Posidonia* community structure. In the *Caulerpa* station the Amphipod fauna seems to be very similar to that of station 2 (0.489). According to LEDOYER (1966), we can attribute this biotope to the *Posidonia* community, with some contamination from adjacent bare soft bottoms. The high abundances in the *Caulerpa* bed were primarily due to the presence of the Caprellidae: *Caprella acanthifera* discrepans Mayer (54.9%), which also occurred on *Posidonia* but only with a limited number of individuals; and *Parilambus typicus* (Krøyer) (28.61%), considered as "preferential" in SFT (BELLAN-SANTINI, 1962) but completely absent in adjacent bare soft bottoms (st.4). Further studies are auspicious to verify if these species are more strictly related to *Caulerpa* beds.



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## SOME NOTES ON THE AMPHIPODA COLLECTED DURING BENTHIC SURVEYS IN GREEK WATERS

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## Résumé

Ce travail présente l'influence des facteurs écologiques sur la distribution de 93 espèces d'Amphipodes récoltées en cinq régions de Grèce durant des recherches sur les biocénoses benthiques.

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In spite of their importance in marine benthic communities the Amphipoda is a group very little studied in creek seas. The few papers published exclusively on Amphipods from greek waters are those of Ledoyer (1969), Myers (1969), Karakiri & Nicolaidou (1985) and Bellan-Santini (1985). A few workers give some information about certain species in reports about general benthic surveys (Bogdanos & Satsmadjis (1983).

The present paper presents a list of the amphipods collected during benthic surveys at five areas in Greece and suggests the ecological factors which possibly influence their distribution. For identification of the species and information on their ecological characteristics the following studies of mediterranean and north-atlantic species were used: Ruffo (Ed.) 1982; Stock, 1967; Bellan-Santini, 1985; Marques & Bellan-Santini, 1985; Myers & McGrath, 1984; Dridi & Prunus, 1980. For the identification of some species the key of Chevreux & Page (1925) was used.

Around the islands of the Northern Sporades, thirteen stations were sampled including hard substrata, covered to a various degree by photophilous algae, calcareous algae and sponges, and soft substrata with muddy sand, sand and muddy gravel. The depth ranged between 2 and 20 m on the hard and from 9 to 40 m on the soft bottom. 71 species were found of which the most abundant were *Elasnopus pocillimanus* and *Caprella acanthifera*. The last species together with *Dexamine spiniventris* were also the most widely distributed. The major factors governing the distribution of amphipods, as suggested by a principal components analysis, are the type of substratum, grain size and wave exposure.

The site of Evoikos Gulf received metalliferous residue from a laterite processing factory. In the three shallower stations (21-32m) the sediment was muddy sand and muddy gravel with some weathered metal grains. The most numerous species was *Lysianassa longicornis*, while *Monoculodes carinatus* and *Microdeutopus stationis* were exclusively found in this group of stations. The deeper stations (51-58m) included nine clean and polluted muddy sand stations and nine mud stations. They were all characterised by low numbers of species and individuals. Over the whole area 20 species were found with *Ampelisca diadema* most widely distributed. The distribution of amphipods was related to depth and to the pollution by solid wastes.

In Amvrakikos Bay, at depths from 7 to 27 m five stations were sampled. The bottom was mud and muddy sand with shell breccia. Only 9 species were identified, most of them characteristic of open sea biotopes and photophilous algae.

Mazoma is a brackish water lagoon in the same bay. Ten stations were visited seven times. The depth ranged between 0.9 and 2.0 m and the sediment was mud or sandy mud covered in places by *Zostera noltii* and *Chaetomorpha*. 11 species were identified of which the most abundant were *Corophium insidiosum*, *Dexamine spinosa*, *Gammarus inensibilis* and *Microdeutopus gryllotalpa*. The distribution of these species was closely related to the plant species and the percentage cover of vegetation and was controlled by interspecific competition.

Finally, five samples were collected from two yacht marinas in the Saronikos Gulf from depths of 1.5-6.5 m. The sediment ranged from mud to gravelly sand with dense *Cladophora* in places. Most of the species identified, were characteristic of shallow waters with organic enrichment such as *C. insidiosum* and *M. gryllotalpa*. Other abundant species were *G. inensibilis* and *Corophium orientale*.

On the whole 93 species were identified belonging to 22 families. 18 of the species were mediterranean endemics. There are similarities in the species found in Greece with those reported from similar biotopes in other mediterranean areas. For example, 12 species were identified both on hard bottom at the N. Sporades and on hard bottom at Ischia (Scipione et al. 1981). A few species identified in Mazoma lagoon, are also present in a coastal lagoon in Italy (Diviacco, 1982).

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