SOME DATA ON THE RECENT OSTRACOD FAUNA FROM THE CONTINENTAL SHELF OF THE BLACK SEA IN THE CRIMEA AND SINOP AREAS

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Abstract. Results of benthic investigation concerning the abundance and community structure of living ostracod fauna from two opposites areas of the Black Sea coasts (Crimea and Sinop peninsulas) are presented. The studied material was collected from eleven stations during the IAEA – 2000 Research Cruise "*Radeux*". A total number of 18 species pertaining to 12 genera have been found, 15 of which were encountered in the Crimea, and 10 in the Sinop area. The number of species and the densities generally tend to decrease with depth.

Key words: Ostracoda, Crustacea, micro and meiobenthos, Black Sea

INTRODUCTION

Ostracods are by far one of the most complex organisms studied within the field of micro- and meiofauna. With a wide global distribution (from freshwater to deep marine environments) and an extensive fossil history, ostracods have been successfully used as indicators for recent and past environmental changes.

The aim of this study was to determine the recent benthic ostracod distribution in two opposites areas of the Black Sea, the Crimea and Sinop peninsulas.

Papers concerning ostracod fauna of this two areas are relatively few.

The ostracod distributions in the Crimean waters have previously been investigate by Schornikov (1969, 1972), who described 45 species for this sector. Recent studies deal only with ostracods as a whole group (Vorobyova, 1999; Vorobyova *et al.* 1992).

The ostracods of the Black Sea coasts of Turkey are at present very poorly known. To date only two papers mention a few species (Mutlu *et al*., 1992; Kilic, 2001)

MATERIAL AND METHODS

Eleven sediment samples (Fig. 1) were collected with a Mark II-400 multicorer in the autumn of 2000 during an IAEA International cruise Radeux organized in the framework of the Technical Co-operation Project "*Marine Environmental Assessment in the Black Sea Region*". The inner diameter of the multicorer tube was 9.8 cm. For meiofauna determinations the first 5 cm from the sediment surface were retained. All the sediment samples were fixed in 4% buffered formalin in seawater and stained with 1% Congo Red solution. In the laboratory the preserved material was wet sieved (the sieve sizes were: 0.500, 0.250 and 0.125 mm), and the ostracods were picked up, identified and counted under a stereomicroscope.

RESULTS AND DISCUSSION

Faunal analysis has shown the presence of a total of 18 ostracod species, 15 of them in the Crimean waters and 10 in the Sinop sector, 7 species being common to both sectors (Fig. 2). The greatest densities and number of species were recorded in the Crimean sector, in the bathymetric interval between 18 and 40 m, and in the Sinop sector in the bathymetric stations situated at depths of 57 and 71 m (Fig. 3).

The ostracod association of the Crimean sector is mainly composed of euryhaline and eurythermal species, capable of tolerating the lower salinities of the shallow waters in the vicinity of the Sea of Azov. Species such as *Sclerochilus gewemülleri* and *Bythocythere turgida*, the latter being classified as a cryophilic species (Shornikov, 1972), were only encountered at depths of over 50m. The species characterized by the highest densities was *Cytheroma variabilis*, a species which was also characterized by the highest frequency (100%), followed by *Lepto-cythere multipunctata*, *Callistocythere crispata* and *Loxoconcha granulata*, whereas the other species rarely exceed 500 sps.m^{-2}. There is a gradual reduction both in terms of density values and in terms of the number of species with the increase in depth. (Fig. 4). Thus, while 13 species were encountered in the shallow (18-40m) water area, only 5 species are to be found at greater depths (60-80m), three of which, *Cytheroma variabilis*, *Carinocythereis rubra* and *Loxoconcha granulata*, are common to both intervals (Fig. 2). Sample collection depths, ranging from 18 to 77 meters didn't cover all the bathimetric zones, and a significant interval between 40 and 60 meters was left unstudied.

Out of the 10 species identified in the Sinop sector, the one characterized by the greatest frequency was *Loxoconcha granulata*, followed by *Carinocythereis rubra*. The densities of all species are very low, only those of *Loxoconcha granulata* exceeded 500 sps.m^{-2} in two stations. A very low tendency of increases in density and number of species with depth were noticed here as well (Fig. 4).

Previous studies have shown the presence in this area of only three of the species encountered now, that is: *Carinocythereis antiquata*, *Carinocythereis rubra* and *Xestoleberis cornelii* (Mutlu *et al*., 1992). Significant differences were noticed in the abundance values of two of the common species, that is

Carinocythereis antiquata with densities of 4,469 sps.m^{-2} in 1992, and only 200 sps.m^{-2} in 2000, and *Xestoleberis cornelii* with 1,377 sps.m^{-2} in 1992 and 133 sps.m^{-2} in 2000.

Comparing the vertical distribution of the species found in Crimea with those from Sinop it has been noted that some of the species in common show a different bathymetric range: such as *Carinocythereis antiquata* and *Cytheridea acuminata* which occur in Crimea on shallow bottoms compared to deeper ones in the Sinop area (Fig. 2). The depth range for *Carinocythereis antiquata* in the Sinop area is similar to those for this species in the near Bosforus region (Caraion, 1959).

CONCLUSIONS

This research suggests the following conclusions:

- the 18 ostracods species which were identified represent preliminary results, and it is expected that further studies will permit the identification of a greater number of species.

- two main ostracod assemblages have been recognized in the Crimean area; the species distribution is controlled by the bathymetric factor.

- the number of species and the densities generally decrease with depth in both areas - it is expected that further studies will permit the identification of a greater number of species.

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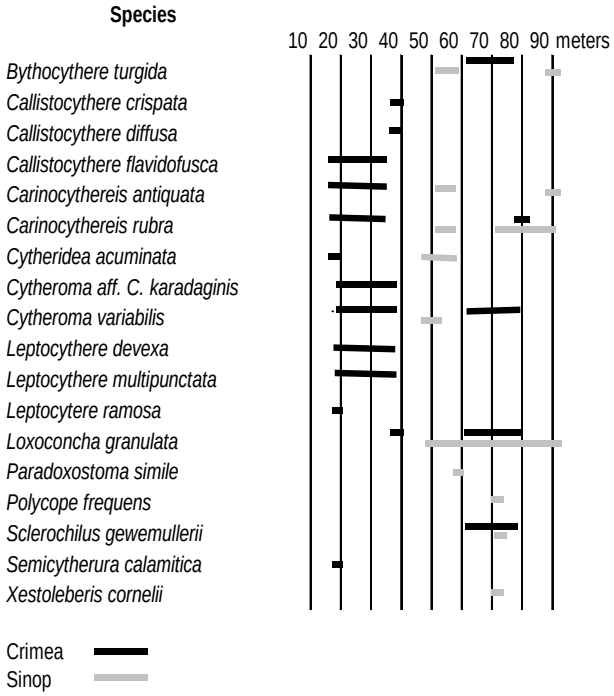

Fig. 2 Distribution of ostracods species with depth

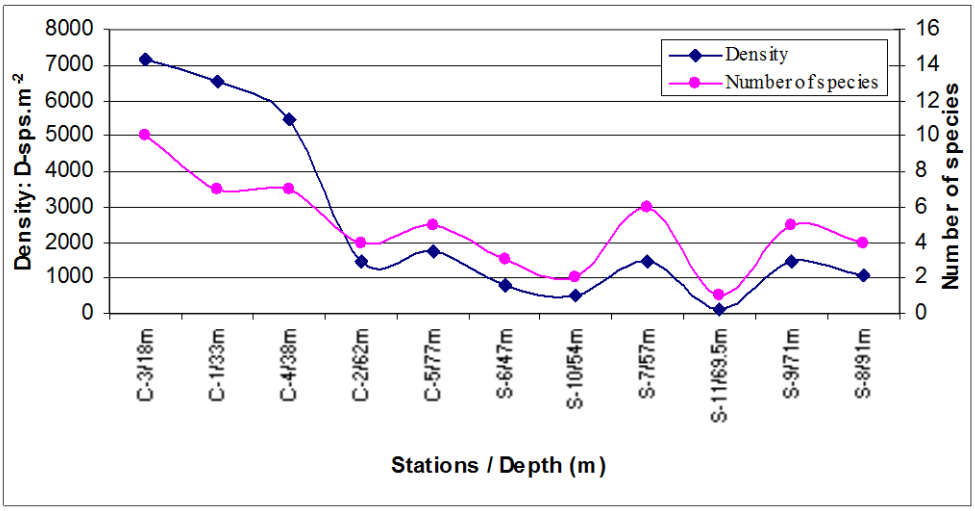

Fig. 3 Number of species and density of ostracod populations in the Crimean and Sinop areas

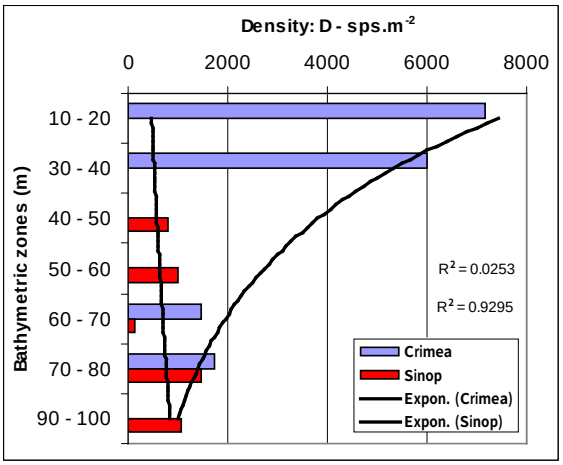

Fig. 4 Average density of ostacod populations on bathymetric zones in Crimean and Sinop areas

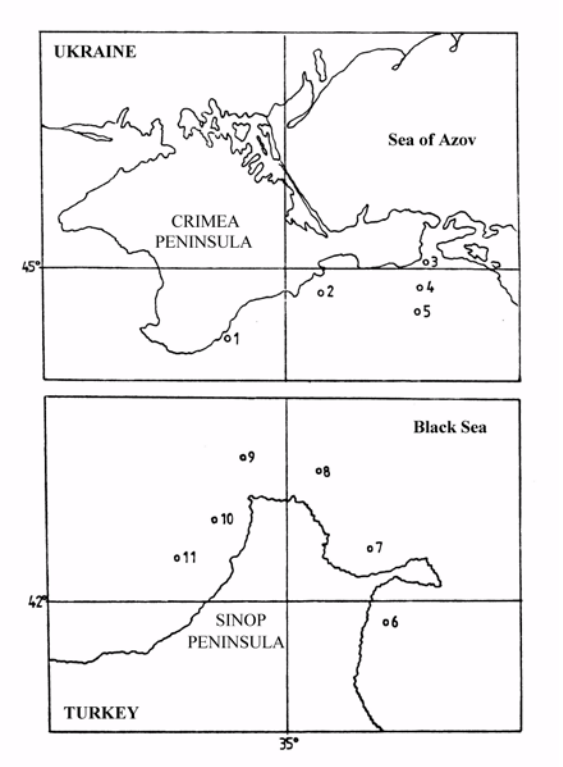

Fig. 1 Locations of the sampling stations