

Distribution of Macrozoobenthic Invertebrates in the South Marmara Sea

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Abstract: A study was undertaken between 2007-2009 in the Dardanelles. Monthly sampling was carried out in 4 stations up to 10 m of water depths by using dredge. The samples were fixed and preserved in 5% formalin prepared in marine water. Moreover, anatomical and morphological characteristics of identified species were illustrated with photographs. The specimens were examined the macroscopic and then microscopic under the light of binocular microscope. According to the results; total of 22 species belonging to 7 Order, 5 Kalssis was found in the South Marmara Sea.

Key words: Diversity, mollusca, *Crustacea decapoda*, bivalvia, *Echinodermata* taxonomy, morphology, Marmara Sea

INTRODUCTION

In the present study, we investigated the distribution macrozoobenthic invertebrates in the South Marmara Sea tasconomical charecteristic and bioecology of these species according to location in the South Marmara Sea and has extremelly specific hydrodynamic structure. So four stations chosen for sampling in the South Marmara Sea are as follows: Sarköy, Karabiga, Denizkent and Musakca (Fig. 1). Sampling was done in monthly intervals using dredge were brought to the laboratories in either 0.5-1 L. Glass jars or 1 L plastic bags containing ice (to preserve the freshness of samples). Samples were dispersed according to their sex, fixed in glass jars containing 5% formaldehyde and the information about the specimen was recorded on the labels which were stuck on glass jars.

Besides, anatomical and morphological charecteristics of the specimens were recorded with the pictures taken from tese specimens. Macroscopic and microscopic features of specimens were studied and according to the definitions of Zariquiey (1968), Ingle (1980), Holthuis (1987), Kocatas (1981), Noel (1992) and Balkis (1994) and with the help of previous studies done by Ninni (1923), Demir (1952), Monod (1956), Kocatas and Mater (1967), Kocatas (1981), Muller (1986) and Koukouras *et al.* (1992), the species were identified. In addition, the structure of bottom was tried to be determined during the course of samplings.

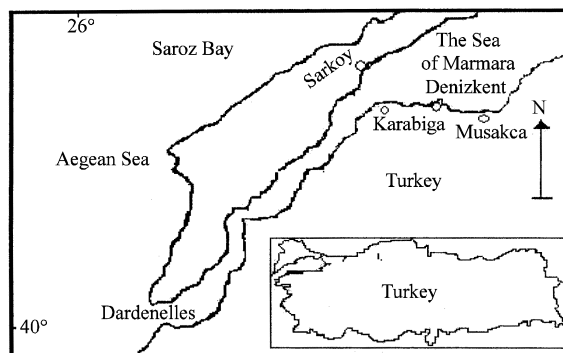


Fig. 1: The map of the study area

MATERIALS AND METHODS

Sarkoy location: This sandy-muddy ground is intensively inhabited by sea-urchins, mussels and oysters covers. The specimens of this ground consist of *Donax trunculus*, *Chamelia gallina*, *Spisula subtruncata*, *Bittium reticulatum*, *Tapes phillippinarum*, *Eriphia verrucosa*, *Mytilus galloprovincialis*, *Rudicardium tuberculatum*, *Cardium edule*, *Astropecten spinulosus*, *Liocarcinus depurator*, *Paracentrotus lividus*, *Carcinus aestuarii*, *Cyclope nerita* and *Rapana thomasiana*.

Karabiga location: Stony and muddy bottom of this region also contains algae and shell. Species found in this region are *Donax trunculus*, *Chamelia gallina*,

Spisula subtruncata, *Bittium reticulatum*, *Tapes decussatus*, *Tapes philippinarum*, *Eriphia verrucosa*, *Carcinus aestuarii*, *Cyclope nerita*, *Astropecten spinulosus*, *Murex trunculus*, *Gourmya vulgata*, *Xantho poessa*, *Aconthocardia eculata*, *Paracentrotus lividus*, *Liocarcinus depurator*, *Donax trunculus* and *Donax variabilis*.

Musakka location: In general, bottom of this region is muddy and contain algae and small rocks. The species inhabit this region are *Chamelia gallina*, *Donax trunculus*, *Spisula subtruncata*, *Bittium reticulatum*, *Tapes philippinarum*, *Xantho poessa*, *Tapes decussatus*, *Carcinus aestuarii*, *Gourmya vulgata*, *Astropecten spinulosus*, *Paracentrotus lividus*, *Raphana thomasi*, *Liocarcinus depurator*, *Eriphia verrucosa*, *Xantho poessa*, *Mmytilus galloprovincialis*, *Cyclope nerita*, *Murex trunculus* and *Donax variabilis*.

Denizkent location: Bottom of this region is sandy muddy, covered with alga and small rocks. The species inhabits in this region are *Chamelia gallina*, *Donax trunculus*, *Donax variabilis*, *Cyclope nerita*, *Spisula subtruncata*, *Bittium reticulatum*, *Paracentrotus lividus*, *Astropecten spinulosus*, *Tapes philippinarum*, *Tapes decussatus*, *Eriphia verrucosa*, *Liocarcinus depurator*, *Carcinus aestuarii*, *Gourmya vulgata*, *Rapana thomasi*, *Mmytilus galloprovincialis* and *Murex trunculus*.

RESULTS

Klassis : CRUSTACEA
Subklassis : MALACOSTRACA
Order : DECAPODA Latreille, 1803
Süperseksiyon : REPTENTIA
Seksiyon : BRACHYURA Latreille, 1803
Section : BRACHYRHYNCHA Borradaile, 1903
Familya : PORTUNIDAE Rafinesque, 1815
Genus : *Liocarcinus* Stimpson, 1870
Liocarcinus depurator (Linnaeus, 1758)
Genus : *Carcinus* Leach, 1814
Carcinus aestuarii Nardo, 1847
Familya : XANTHIDAE Mac Leay, 1838
Genus : *Eriphia* Latreille, 1817
Eriphia verrucosa (Forsk., 1775)
Genus : *Xantho* Leach, 1814
Xantho poessa (Oliv., 1792)
Klassis : BIVALVIA
Order : FILIBRANCHIATA
Familya : MYTILIDAE Rafinesque, 1815
Mytilus galloprovincialis Lamarck, 1822

Order : VENEROIDA
Familya : VENERIDAE Rafinesque, 1815
Tapes decussatus (Linnaeus, 1758)
Tapes philippinarum Adams and Reeve, 1850
Chamelia gallina (Linnaeus, 1758)
Familya : CARDIIDAE Lamarck, 1809
Cardium edule (Linnaeus, 1758)
Rudicardium tuberculatum (Linnaeus, 1758)
Aconthocardia aculeate (Linnaeus, 1758)
Familya : MACTRIDAE
Spisula subtruncata Da Costa, 1778
Familya : DONACIDAE Fleming, 1828
Donax turunculus Linnaeus, 1758
Donax variabilis Say, 1822
Klassis : GASTROPODA
Order : CAENOGASTROPODA
Familya : CERITHIIDAE Fleming, 1822
Bittium reticulatum Da Costa, 1778
Familya : MURICIDAE Da Costa, 1776
Rapana tomasiana (Crosse, 1861)
Murex trunculus (Linnaeus, 1758)
Familya : NASSARIIDAE
Cyclope nerita (Linnaeus, C., 1758)
Order : NEOTAENIOGLOSSA
Familya : CERITHIIDAE
Gourmya vulgata (Bruguiere, 1789)
Klassis : ECHINOIDEA
Subklassis : EUECHINOIDEA
Order : ECHINOIDA
Familya : ECHINIDAE
Paracentrotus lividus (Lam., 1816)
Klassis : STELLEROIDAE
Subklassis : ASTEROIDEA
Order : PAXILLOSIDA
Familya : ASTROPECTINIDAE
Astropecten spinulosus (Philippi, 1837)

DISCUSSION

The structure and the distribution of bivalves on the shelf of straits and Sea of Marmara is poorly known (Demir, 1952; Artuz and Erdagan, 1962). Whereas many various investigations were conducted on bivalves adjoined seas by Dolfus (1887, 1898), Milashevich (1916), Wood (1950, 1961), Neveskaja (1965), Geldiay and Uysal (1971) and Geldiay and Kocatat (1988). The studies done by Muller (1986) and Ostroumoff (1893) reported 24 species in the Sea of Marmara. Muller (1986) reported

45 species belonging to 11 families in the Sea of Marmara and system of straits and he compared the previous reports using the scientific terms. Demir (1952) identified 25 crab species belonging to 13 families along with their taxonomic compositions, morphology and location where they were caught Demir's list of species.

Holthuis (1987) reported 15 crab species in Turkish Seas. Fifteen of those from Mediterranean and Aegean Seas, 9 from Sea of Marmara and 5 from Black sea were identified. Five species out of 9 species identified from Sea of Marmara. Kocatas (1981) investigated the Decapod crustacea of the coasts of Seas surrounding Turkey and reported 7 species from Black sea, 9 species from Sea of Marmara, 64 species from Aegean Sea and 41 species from Mediterranean 81 species in total. Balkis (1994) reported 21 species of crabs belonging to 8 families in the Sea of Marmara.

CONCLUSION

Owing to the previous studies, we determined total 22 species. A low number of species was determined with this study. This may be because of the limited research area, currents in the stations chosen for the study, weather conditions encountered during the study, different ecological conditions compare to the research areas of previous studies or the length of the present study.

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