

THE EFFECTS OF POLLUTION ON THE MACROBENTHIC FAUNA OF THE
SOFT SUBSTRATUM IN THE URLA HARBOUR (Izmir-TURKEY)

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Résumé : Au cours de ce travail, à partir de 72 prélèvements effectués sur le substrat mou du port d'Urla, 193 espèces macrobenthiques ont été identifiées. Les Polychètes forment dans cette région le groupe le plus représenté avec 81 espèces et sont suivis par les Crustacés avec 61 espèces et les Mollusques avec 32 espèces.

Abstract : In this investigation, from the total of 72 samplings done at the soft substratum in the Urla Harbour, 193 macrobenthic species have been found. Polychaeta is the leading group with 81 species and it is followed by Crustacea with 61 species and Mollusca with 32 species in this region.

Introduction : The Urla harbour is situated in the Southern shore of the Izmir Bay which is becoming a densely populated area with the growing

population. In the inner part of the harbour pollution due to lack of observable water circulation and accumulation of domestic waste is becoming effective on the existing fauna and flora.

Methods : Monthly sampling has been done at 6 stations (Fig.1) by using an orange-peel with a capacity of 5 dm³. In the calculation of diversity indices for each station, Margalef's method has been used.

Results : During the investigation period (July 1980 - June 1981) from a total of 72 samplings, 193 macrobenthic species have been determined. Of these 15 species (Marphysa

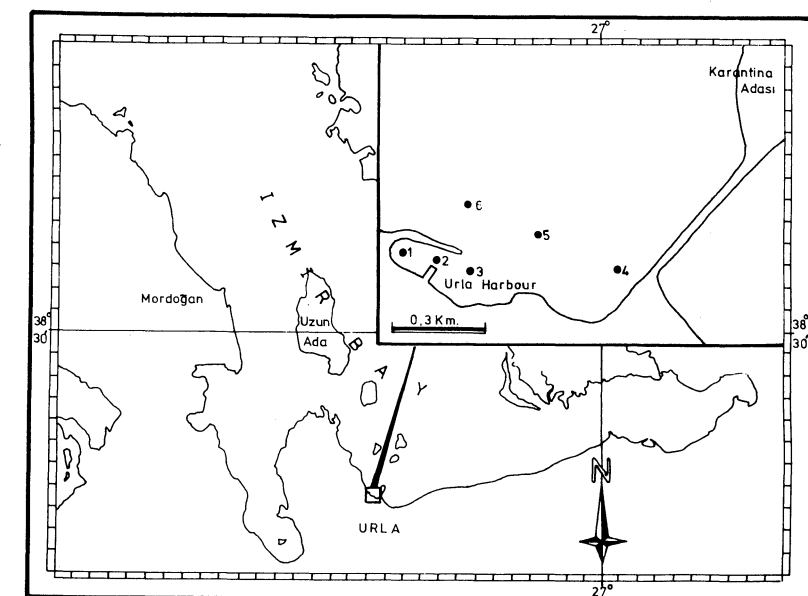


Figure 1 : The stations from which sampling has been done.

belli, Onuphis eremita, Drilonereis filum, Laonice cirrata, Aonides oxycephala, Spiophones bombyx, Magelona papillicornis, Heteromastus filiformis, Clymene praetermissa, Pherusa plumosa, Amphicteis gunneri, Melinne palmata,

Terebellides stroemi, Branchiomma vesiculosum, Chone filicaudata) for Aegean and Mediterranean coast of Turkey; 7 species (Sphaerosyllis erinaceus, Marphysa fallax, Polydora caeca, Nerine foliosa, Aricidea fauveli, Paraonis lyra, Pectinaria koreni) for all Turkish coasts are being newly reported. Notomastus cf. aberans to our knowledge, has never been reported in the Mediterranean before.

Table I : the taxonomical distribution of species and individuals.

Taxonomical group	Number of species	Percentage of species	Number of indiv.	Percentage of indiv.
Plathelminthes	1	0.51	2	0.03
Nemertea	1	0.51	2	0.03
Polychaeta	81	41.96	3136	60.51
Mollusca	32	16.58	874	16.86
Crustacea	61	31.60	1092	21.11
Pycnogonida	1	0.51	2	0.03
Echinodermata	15	7.77	67	1.29
Cephalochordata	1	0.51	7	0.13
T o t a l	193	-	5182	-

As can be seen from table I Polychaeta constitute the largest group with 81 species, followed by Crustacea with 61 species and Mollusca with 32 species. Variation from station to station are obvious (Fig.2). As can be observed from the figure, stations belonging to the polluted zone (St.1 and 2) have low number of species (41 and 44) and diversity indices (5.86 and 6.42) are lower in comparison to the other stations.

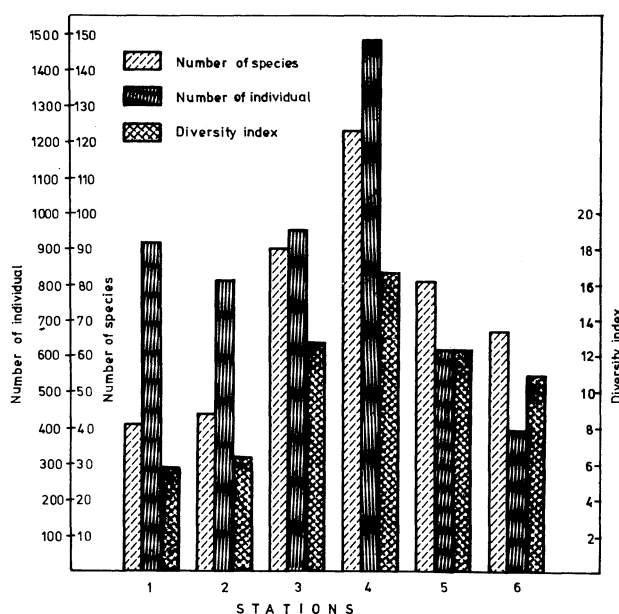


Figure 2: Distribution of the number of species and the number of individuals at the stations and the diversity indices.

Conclusion: In the Urla harbour pollution effects the macrobenthic fauna distributed in the soft substratum and especially in the inner part there is a decrease in the number of species. For this reason, according to the distribution of the benthic fauna and referring to previous descriptions (REISH, 1959 ; BELLAN, 1967 and KOCATAŞ, 1980) the inner part of Urla harbour can be classified as a semi-polluted zone.

References :

- BELLAN, G. 1967: Pollution et peuplements benthiques sur substrat meuble dans la région de Marseille. *Revue intern. Océan. med.* 6-7: 53-87 .
 KOCATAŞ, A., 1980: Effects of domestic pollution in Izmir Bay (Turkey). *Helgoländer Meeresuntersuchungen, Helg. Meeresunters.* 33, 393-400.
 REISH, D. J., 1959: An Ecological study of Pollution in Los Angeles-Long Beach Harbors, California, *Occ. Pap. Allan Hancock found* 22, 119 p.