

MACROFAUNA RESTITUTION IN A LITORAL POLLUTED SANDY BOTTOM

Anna Maria BONVICINI PAGLIAI

Istituto di Zoologia - Università di Modena

A comparison of quantitative analyses of sandy bottom macrofauna of the gulf of Follonica (Tuscany), carried out in 1975 and 1977 respectively, shows a marked increase in species diversity, probably due to industrial pollution abatement.

Une comparaison entre les analyses quantitatives sur la macrofaune des sables fins littoraux du golfe de Follonica (Tuscane), effectuées dans les années 1975 et 1977, montre une marquée augmentation de la diversité. Il est très probable que cette variation soit liée à la réduction de la pollution industrielle.

The western area of the gulf of Follonica (Tuscany) was heavily polluted by industrial wastewater effluents till 1975 (Cognetti & Morselli, 1976). At the end of 1975 plants for industrial pollution abatement started functioning and pollution markedly diminished.

Quantitative analyses of sandy bottom macrofauna, sampled in November 1975 and in October 1977 respectively, are reported and compared. The sampling stations were located 1.5 Km. (Sta. A) and 3 Km. (Sta. B) far from effluents and 150 metres offshore. The bottom was sandy in both stations.

Table 1 shows the list of taxa and their abundance expressed as number of species and as number of individuals/m².

Table 1.

SITES	ABUNDANCE							
	Polychaetes		Crustaceans		Molluscs		Echinoderms	
	Sp.	ind./m ²	Sp.	ind./m ²	Sp.	ind./m ²	Sp.	ind./m ²
A 1975	12	552	1	144	7	266	1	4
A 1977	24	1987	9	281	14	901	1	10
B 1975	22	1274	9	126	5	19	1	11
B 1977	16	1029	8	164	7	189	1	5

Total species number (S), the actual number of individuals/sample (N), the Shannon's index of species diversity (H), the Margalef's index of species richness (SR) and the Pielou's index of species evenness (J) are reported in Table 2.

Table 2.

Sites		S	N	H	SR	J
A	1975	23	265	2,98	3,94	0,66
	1977	47	621	4,19	7,15	0,75
B	1975	37	386	2,77	6,04	0,53
	1977	32	272	4,03	5,53	0,81

Comparison of the data in table 2 shows an increase of species diversity. A marked species enrichment (particularly of Polychaetes and Amphipoda) in the station A has been detected, while there is a more balanced distribution of benthic macrofauna in the station B.

This phenomenon may be related with the decrease of industrial pollution.

Cognetti G. & Morselli I., 1976 - Effects of an industrial pollution on Polychaetes of sandy bottoms. *IIIes Jour.étud.Pollutions*, pp.159-161, Split, C.I.E.S.M.