

Periodicity and Distribution of Bottom Fauna in Hyper-Saline Bardawil Lagoon (Egypt)

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Bardawil Lagoon is a shallow hyper-saline water basin, located at the northern extremity of Sinai Peninsula (Egypt). Its depth ranges between 0.5 and 2 meters with a total area of about 65000 hectár. It is in the direct connection with the Mediterranean Sea through two narrow openings (Figure 1).

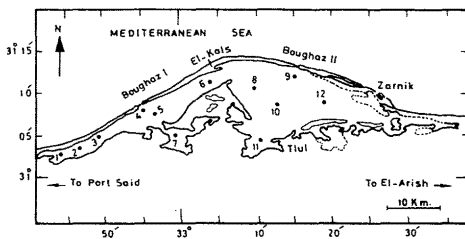


Fig. (1): Morphometry of Bardawil Lagoon and location of stations.

Quantitative sampling of bottom fauna was performed seasonally during the years 1986 and 1987. The samples were collected from twelve stations representing the different habitats in the lagoon, using a modified Ekman bottom sampler. Two dredges were taken from each station representing an area equivalent to 0.06 m^2 .

The different groups were counted and their biomasses were determined. Results were given as their total numbers per square meter as well as their biomasses in gram fresh-weight per square meter.

The living benthic macrofauna in Bardawil Lagoon comprised about 46 species belonging to the phyla; Annelida, Arthropoda, Mollusca, Echinodermata, Coelentrata and Nematoda. Most of the recorded species are typical hyper-saline or euryhaline water forms. The benthic community in the lagoon was dominated by members of Polychaeta (*Hydroides*, *Sabella* and *Nereis*), Crustacea (*Corophium* and *Gammarus*), Insecta (Chironomid larvae), Lamellibranchiata (*Brachiodontes*) and Gastropoda (*Cerithium*) which constituted respectively about 60.7 %, 12.3 %, 11.5 %, 9.8 % and 2.7 % by number of the total benthos. The other groups were less frequent or rare (table 1).

Table (1)

Annual distribution of the total bottom fauna (Organisms/ m^2) and their total Biomass (gram fresh wt/ m^2) in Bardawil Lagoon during 1986 & 1987.

groups	1986				1987			
	No/ m^2	%	gm/ m^2	%	No/ m^2	%	gm/ m^2	%
Polychaetes	2510	64.5	23.3	38.6	2010	57.0	8.5	14.1
Crustacea	298	7.6	9.2	15.2	571	16.2	8.3	13.8
Insecta	361	9.3			462	13.1		
Lamellibranchs	528	13.6	24.4	40.4	203	5.8	25.7	42.6
Gastropods	63	1.6	3.5	5.8	123	3.5	17.8	29.5
Other groups	134	3.4	--	--	159	4.5	--	--
	3894		60.4		3528		60.3	

The total biomass of benthos in the lagoon averaged $60.4 \text{ gram fresh weight}/\text{m}^2$. Lamellibranchs were the heaviest bottom dwellers during the two successive years, followed by Polychaetes in 1989 and Gastropods in 1987.

The highest counts of bottom fauna were recorded at the semiclosed station 7 due to polychaetes and insects larvae. While the highest biomasses appeared at stations 8 and 10 during 1986 and 1987 respectively due to the presence of big molluscs.

The benthic community was more diversified during the spring of the two successive years and harboured the highest biomasses. The middle part of the lagoon was more productive in bottom fauna. The dominant species of the benthic community slightly differed within the two successive years.

Results indicate that the distribution of benthos in Bardawil Lagoon were controlled by the prevailing ecological conditions. The dominant species are marine forms which usually inhabits muddy bottoms and are more resistant to low oxygen concentration.