

Notes on the Bivalve and Gastropod Fauna in the region of Abou Kir Bay (Alexandria)

by

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The region of Abou Kir Bay is one of the important fishery grounds along the Egyptian Mediterranean coast. Until recently Abou Kir Bay was considered one of the best nursery grounds for many endemic fishes. The area of the bay receives fresh and brackish water supply from 3 main sources : Nile water through Rosetta Nile mouth at the extreme eastern side, brackish water from the adjoining Lake Edku through El-Maadia channel in the western side and the industrial wastes of two paper factories through the outfall of the Tabia Pumping Station at the south western side. However, as a result of the erection of the High Dam of Aswan, and since 1966, the amount of Nile water reaching the Mediterranean Sea became almost negligible. Furthermore, with the expansion of industrial enterprise, the increased amount of industrial waste discharged into the bay would be hazardous to marine organisms.

With the aim of studying the effect of the prevailing conditions, a recent survey of the Shelf fauna of Abou Kir Bay region has been carried out during 1969-1970. In most cases samples were obtained by trawling and/or dredging both in the shallows Bay (maximum depth 16 m) and the adjoining deeper waters down to about 300 m. This paper entails a summary of the results concerning the ecology and distribution of the bivalve and gastropod Molluscs recorded.

In this study a total of 120 Mollusc species comprising 70 bivalves and 50 gastropod species have been identified. Out of them, 75 species (31 gastropod and 44 bivalves) are new to the region of Abou Kir. Most of the species recorded belong to the Mediterranean-Atlantic fauna, and are widely distributed in the Mediterranean Sea [B.D.D., 1868; BELLINI, 1929; STEUER, 1939]. Immigrants from the Red Sea are strikingly scarce. No new erythrean immigrants were recorded, *Pinctada radiata* (Leach) and *P. margaritifera* Linné have long been recognised. However, of the species recorded, several examples are known from the Red Sea as well, [PALLARY, 1912; STEUER, 1939; MOAZZO, 1939] e.g. : *Modiulus barbatus* Linné, *Lima lima* Linné *Lopha (ostrea) stentina stentina* (Payraudean), *Diplodonta rotundata* (Montagu), *Chama corbieri* Jonas, *Donax (Serrula) trunculus trunculus* Linné, *Gastrana fragilis* Linné, *Pirenella conica*, Blainville, *Murex tribulus* Linné, *Thyas carnifera* Lamarck and *Fusus marmoratus* Philippi.

It is not improbable that the populations of such species are, at least partly, enriched from that of the Red Sea and Suez Canal. Introduction of individuals of Red Sea species already represented in the Mediterranean, is immigration at least from the numerical point of view [STEINITZ, 1968]. It is worth mentioning that the present conditions prevailing in the south eastern Mediterranean would favour the successful immigration of Red Sea organisms through the Suez Canal and their subsequent establishment in the adjoining South Eastern Mediterranean region. As a result of cessation of the Nile flood discharge into the Mediterranean Sea, sedimentation in the South Eastern Mediterranean is greatly diminished, the annual dilution of the waters of the Northern part of the Suez Canal in late summer no longer prevails, the Southward current set up in the canal during summer months probably no longer exists or at least its velocity decreased [MORCOS, 1968; DOWIDAR, 1971], the salinity of the Great Bitter Lake (44 ‰ -

46 ‰) is probably now no obstacle for many Red Sea organisms and finally the stoppage of traffic in the Canal since 1967. All these factors formed at one time great obstacles to the migration of many erythrean species.

Of the species recorded, 94 species (79 %) occur in the shallow Abou Kir Bay. The distribution of them on the different types of bottom encountered in the Bay was as follows :

Rocky-sandy bottom; 57 %, common species were : *Lima lima* Linné, *Arca noae* Linné, *Trunculariopsis trunculus* (Linné), *Fusinus (Aptyxis) syracusanus* (Linné).

Sandy bottom : 47 %, common species were : *Psammophila magna* (Costa), *Angulus (Peronidia) albicans* (Gmelin), *Columbella rustica* (Linné), *Tricolia speciosa* (Muhl.).

Silty sandy bottom : 37 %, common species : *Chlamys varia* (Linné), *Barbatia barbata* (Linné), *Sphaeronassa mutabilis* (Linné), *Tonna galea* (Linné), *Buccinulum (Euthria) corneum* (Linné).

Muddy bottom : 30 %, common species were : *Solen marginatus* (Pennant), *Chamelea gallina* (Linné), *Thias carinifera* Lamarck and *Murex tribulus* Linné.

Clayey-silt bottom : 29 %, common species were : *Diluvarka diluvii* (Lamarck), *Modiolus barbatus barbatus* Linné, *Pinctada radiata* (Leach), *Pecten jacobaeus* Linné, *Anomia ephippium* Linné, *Lopha (ostrea) stentina*, *stentina* (Parya.), *Macoma cumana* (O.G. Costa), *Murex (Bolinus) brandaris* Linné, *Aporrhais pespelecani* Linné and *Galeodea echinophora* Linné.

It is worth mentioning that the polluted area (salinity 2 ‰-20 ‰) directly subjected to the effect of the industrial waste discharge of the paper factories was completely devoid of bottom fauna; not a single species (alive or dead) was encountered in it. Pelagic larvae of bottom invertebrates were totally absent in plankton hauls taken from that area. The boundaries of that area is as yet, limited to about 5-7 km² in front of the outfall of the Tabia pumping station. However, at times, the wind pushes this polluted water further north and eastward, and in this case may cause damage to greater or smaller number of pelagic larvae, depending on the extent of mixing. On the other hand the area influenced by the brackish water discharge of Lake Edku contain but few molluscs. The following extremely euryhaline species were most common : *Loripes lacteus lacteus* Linné, *Pirenella conica* Blainville and *Hinia reticulata* Linné. Vertically the number of species decreased by increasing depth. Thus 41 species (i.e. 34 % of the total population) were recorded from the sublittoral zone down to 100 fathom line. These comprise 30 bivalve and 11 gastropod species. The following were more or less common : *Anomia ephippium* Linné, *Astarte sulcata* (Dacosta), *Glossus humanus* (Linné), *Glycymeris glycymeris* (Linné), *Barnea candida* (Linné), *Spondylus gaedropus* (Linné), *Abra longicallus* (Scacchi), *Aporrhais pespelecani* (Linné), *Murex (Bolinus) brandaris* (Linné), *Naticarius stercusmascarum* (Gmelin) and *Semicassis (Tylocassis) undulata* (Gmelin).

The mollusc population of the deeper waters (> 200 m) was scarce, comprising only 11 species (8 bivalves and 3 gastropods) : *Pseudamussium septemradiatum* (Müller) and *Striarca (Galactella) lactea lactea* (Linné) were more or less confined to this zone.

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