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C.M. 1974 K30

International Council for the  
Exploration of the Sea

Shellfish and Benthos Com.

A quantitative survey of the macrobenthos communities on  
the continental shelf off North-West-Africa

by

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The off-shore regions of the North-West African continental shelf between  $26^{\circ}$  N and  $12^{\circ}$  N were investigated from aboard the fisheries research vessel "Ernst Haeckel" and the research vessel "Alexander von Humboldt" during the period from 1970 to 1971. The purpose of these investigations was to obtain an idea of the animal communities existing in the area.

The samples evaluated comprised 430 bottom grab samples (Van-Veen, 0,12 m<sup>2</sup>) and 36 dredges.

The following animal communities were found:

1. A Venus community is situated between  $25^{\circ}$  N and  $23^{\circ}$  N off Spanish Sahara. The sediment consists solely of mussel shells. The community above the 40 m isobath was designated as a Venus verrucosa - Branchiostoma senegalense, - Eurydice truncata - community. Further typical representatives of this community are various amphipodes, anisopodes and polychaets as well as the brachyura Macropipus corrugatus and Atelecyclus undecimdentatus, the sea star Patiria rosea and the tunicate Pyura dura. Branchiostoma and Eurydice are absent below the 40 m isobath. A polychaet of the genus Ditrupa and the sea cucumber Cucumaria dubiosus were frequently found in this area.

The highest biomass and numbers of individuals for the whole area which was investigated were found in the shallower parts of the Venus community. The biomass values per square metre are about 500 g on average as a result of the high abundance of the lancelets. Up to about 20,000 individuals per m<sup>2</sup> can be expected.

2. The animal communities between Bahia de Gorei (23°N) and Cap Tiniris (19°20'N) differed with respect to their composition. In the north, the community starts with elements of the Venus community described previously. This merges with increasing depth and in areas with a large proportion of fine sand gradually with a *Ophiotrix tomentosa* - *Munida speciosa* community. The number of samples taken from this region is, however, too low to permit more precise statements.
3. The above mentioned species *Ophiotrix tomentosa* and *Munida speciosa* as well as various sea pens of which *Pennatula phosphorea* is the most frequent, are found regularly in a slightly muddy sediment in the deeper regions off the Mauritanian coast. Mention must also be made of the sea urchin *Centrostephanus longispinus*, the snail *Xenophora senegalensis* and a large number of polychaets. The values obtained for the biomass in this region vary between 16 and 32 g/m<sup>2</sup>; the numbers of individuals lie between 2,400 and 4,800 animals/m<sup>2</sup>.  
According to the investigations performed by BUCHANAN (1957) and LONGHURST (1958), this community extends into the Bay of Guinea.
4. The benthos of the southern part of the continental shelf region investigated off Senegal is distinguished from the two communities to the north particularly by the large variety of species found. Although the number of individuals per unit area was the same or lower, considerably more species occurred than in the northern communities. Various crustacea formed a large percentage of the population here, and the community was named after them: *Ampelisca brevicornis*, *Apseudes spec.*, *Albunea paretoi* and *Lanbrus massena*. A

considerable role is played in this area the bivalves, e.g. *Pinna nobilis*, *Cardium ringens* and *Cardium costatum*, but these occur only in isolated areas. Representatives of the polychaets also always belong to the characteristic species, particularly in deeper regions.

These animal communities colonise different types of sediment and different geographical regions. The differences in the composition of the northern and southern communities, which both inhabit fairly coarse sediment, are due to their geographical situations. The Venus community off Spanish Sahara is composed primarily of species from the northern and Mediterranean seas, whereas the animal community off Senegal comprises, at least in the shallow areas, tropical West African forms. Colonisation within these communities remained constant in the face of slight variations in the sediment (coarse, medium and fine). It was observed that colonisation by *Branchiostoma* is dependent upon the detritus content.

The *Ophiotrix* community, on the other hand, was always found in slightly muddy sediment. Not the composition of the sediment however, but the low temperatures of the lower shelf regions are probably decisive for several of the species in this community.

This paper represents an attempt to broaden our knowledge of a region which has previously been only slightly investigated. Due to the large extent of area concerned, only a rough qualitative and quantitative assessment was initially possible.

Reference:

- BUCHANAN, J.B. (1957): Benthic fauna of the continental edge off Accra, Ghana. *Nature*, London 179: 634-635.
- LONGHURST, A.R. (1953): An ecological survey of the West African marine benthos. *Colon. Off. Fish. Publ.* 11 : 1-101