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Materials on the Distribution of Marine Fishes of the
Coast of the Republic of Guinea

by

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Seasonal changes in the rate of reproduction of the biomass of plant and animal populations in temperate and high latitudes of our planet are well known. What are the dynamics of this phenomenon in the tropical zone of the World Ocean? What are the interrelations between the fishes inhabiting the coastal waters of the oceans and the ichthyofauna of the open oceanic waters? Studies of these and other peculiarities of the marine ichthyofauna of the tropical regions are not only of a general biological interest; they are important too as a practical approach to the solution of many problems associated with marine fisheries in southern latitudes. Obviously the appropriated investigations require much time and the co-operation of many specialists. In this paper are merely given some preliminary data on the fish population of the Atlantic, at the coast of the Republic of Guinea, obtained during our three months' investigation in this country. An accumulation of such data will contribute to the understanding of the problems on the extensive plan mentioned above.

For the collection of material we accepted the kind offer to work onboard the trawlers of the Polish-Guinean Fishery Society. The work on these vessels was carried out mostly during late April and early May 1963 in the region of Conakry. Some data on the composition of the trawl catches were obtained in June during a cruise of the ship "Hilda" especially equipped for marine research. Some catches were analysed too taken with gill-nets set inshore near the National Institute of Investigations and Documentation (town Conakry). Occasionally, specific and size composition of young fish left on the littoral by the ebb were recorded. The hydrobiological material collected simultaneously by Prof. P.V. Ushakov - Head of the laboratory of Marine Research at the Academy of Sciences of the USSR - is presently being worked up.

Data on the qualitative composition of the trawl catches taken at different depths, representing the ratio of the fish species in the bottom layer, are given in Table 1. They show a more varied specific composition of bottom fishes in depths of 18-30 m; trawl catches from these depths contained 52 species, whereas in catches from depths below 12 m, only 18 species were recorded. Although many species were common in the whole zone investigated, the differences in the specific composition of the fish population at the depths mentioned are very significant. In shallow depths the bulk of the catch is composed of representatives of the families Polynemidae, Sciaenidae, Soleidae and Tachisuridae, whereas in catches from depths of 20-30 m fishes of the families Sparidae, Albulidae and Carangidae predominated (other families recorded at these depths are present in the catch by comparatively insignificant quantities). This agrees well with the data published by E. Postel, (1954).

The reproductive products of most fishes taken in the coastal zone at depths not greater than 12 m were found to be in a condition more or less near spawning. Trawl catches from these depths generally contained many young fishes. Thus, on April 17, 10 miles to the west of Conakry, the mean weight of fishes of the genus *Otolithus*, which generally reach a weight of several kilograms, was as low as 100 gr. Three trawl hauls taken on May 3, some miles to the south of the Los islands consisted almost entirely of young *Pentaceros* *Corvina*, *Otolithus*, *Galeoides*, *Arius* and others. That a mass spawning of several species takes place in the coastal zone is evidenced by the occurrence of their young on the littoral during the ebb where they are frequently found in great quantities. We have observed here the fry of *Sardinella aurita* Val., *Pellona africana* Bloch, *Ethmalosa fimbriata* Boddich, *Gerres melanopterus* Blecker, *Micropterix chrisurus* L. and other species. Thus the coastal zone up to depths of some 15 m (at least in the region from the borders of Sierra Leone in the south and to Cape Berg in the north) is a spawning and nursery ground of many fish species, whether permanent dwellers of this zone, or approaching the coast for spawning. This is probably connected not only with the higher food supply of the coastal waters, but also with their low transparency, which makes the young less vulnerable to

predators that are oriented by sight. These fishes are indeed much scarcer in these waters than at depths of some 30 m; sharks occur in far lesser numbers, and such typical predators of the transparent oceanic waters as Barracuda, tuna, representatives of the family Carangidae and others are entirely absent. On the contrary, the coastal turbid zone is inhabited by fish with other well-developed receptors. Thus representatives of the family Polynemidae, especially the genus Pentanemus which, at shallow depths account for more than 30% (by weight) of the trawl catches, have numerous long barbels, organs of touch and "chemical sense". Other fishes occurring in these waters in mass quantities - representatives of the family Sciaenidae (genera Otolithus and Corvina) - are, as is known, able to emit sounds by means of their swimming bladder, probably for orientation and signalisation purposes, in conditions of low visibility.

The relatively low fluctuations in the trawl catches in the coastal turbid zone, both in time and space, indicate that bottom fish do not form large or dense shoals here. On the basis of the material obtained it may be inferred that despite the predominance of relatively late stages of sexual maturity there are still many individuals with only feebly developed reproductive products. This seems to indicate a prolonged spawning period at least in some species.

The problem of seasonal fluctuations in the breeding of fishes in the tropics is, as already stated, of general interest and requires further and more detailed studies. In this relation it would be very important to elucidate the content of organogene elements in the river discharge and in the waters brought to the coastal zone by marine currents, as well as the seasonal changes in the balance of these substances.

As regards the development of local fisheries in the coastal zone - the spawning ground of many fish species - it should be pursued with caution. It is necessary to ascertain previously which fish may or may not be taken here, and when and where they are to be fished. The author feels that an increase of fish production in this region should be achieved by an extension of pelagic fisheries.

References

- Postel, E. 1954 "Le plateau continental guinéen et ses ressources ichtyologiques". Bull. Inst. Afr. Noire, XVI, (2) Avril. Série A. Dakar.

Table 1 Composition of Trawl Catches Taken at Different Depths in the Region of Conakry, April/May 1963.

Families	Depth 4-12 m		Depth 18-30 m	
	Number of species	% of the weight of total catch	Number of species	% of the weight of total catch
Carcharinidae	1	0.6	2	3.4
Sphirmidae	1	0.1	-	-
Dasyatidae	1	1.6	-	-
Clupeidae	1	2.6	3	1.3
Albulidae	-	-	1	22.7
Tachisuridae	1	8.0	1	0.1
Soleidae	2	9.1	-	-
Polynemidae	2	34.1	1	1.5
Scombridae	1	0.1	1	0.8
Trichiuridae	1	1.9	1	1.1
Sphyraenidae	-	-	1	1.0
Carangidae	-	-	7	21.3
Scyaenidae	4	39.1	3	1.3
Pommadasyidae	-	-	1	6.0
Sparidae	-	-	3	20.5
Serranidae	-	-	3	2.0
Corridae	-	-	1	0.2
Pristipomatidae	-	-	2	0.8
Mullidae	-	-	2	0.2
Ephippidae	-	-	2	11.6
Acanthuridae	-	-	1	0.2
Labridae	-	-	3	0.1
Echeneidae	-	-	1	0.1
Balistidae	-	-	1	0.4
Tetraeontidae	1	0.9	1	1.3
Monacantidae	-	-	1	0.1
Other families	2		8	