Abstract

Data from deep water hauls carried out during the Spanish Research trawling Survey ‘GUINEA -90’, conducted in Sierra Leone, Liberia, Ivory Coast and Ghana, between 100 and 700 m depth, were analysed. The taxonomic list of the survey showed a total of 91 fish species caught between 100 and 700 m depth. The maximum species richness and the highest abundances were found between 2000 and 300 m (60 species), depth range corresponding to the breaking of the continental shelf and to the upper part of the slope. Despite the local differences, the ‘GUINEA -90’ Survey showed the existence of fish assemblages.

Introduction

Data from deep water hauls carried out during the Spanish Research trawling Survey ‘GUINEA -90’, conducted in Sierra Leone, Liberia, Ivory Coast and Ghana, between 100 and 700 m depth, were analysed (Fig. 1).

Mean catches (kilograms in half hour trawling) presented maximum values in the Ivory Coast–Ghanian sector, while regarding the bathymetrical distribution of the assemblages, highest abundances were observed between 200 and 400 m depth (Fig. 2).

The taxonomic list of the survey showed a total of 91 fish species caught between 100 and 700 m depth: 13 belonging to Chondroichthyes, and 78 to Osphichthyes (Fig. 3). The maximum species richness and the highest abundances were found between 200 and 300 m (60 species), depth range corresponding to the breaking of the continental shelf and to the upper part of the slope. Depths above this bathymetric range exhibited lower species richness values (20 species at 100 m as well as at 550 m) (Fig. 4).

Despite the local differences observed in the faunistic composition, the results of the ‘GUINEA -90’ Survey showed the existence of fish assemblages very similar to those described by Fager and Longhurst (1968) and Longhurst (1969) for the Tropical Africa waters.

The deep shelf assemblage is the poorest in species (mean richness: 15.1 species by haul). It was represented by Spicara alta, Ariomma bondi and Antigonia capros being the former more abundant in Ivory Coast and the latter off Sierra Leone and Liberia. Both species were included by Longhurst in the Deep Sparids Community. Secondary species in this community were Aulopus cadenati, (in Sierra Leone and Liberia), Bembrops heterurus, Ponthinus kuhlii and Peristedom cataphractum (in the remaining countries)(Fig. 5).
The continental slope assemblage was located below 200 m depth. The absolute richness was of 82 species, with mean values of 28.9 species for the depth range between 200 and 400 m, and of 27.9 species for this between 400 and 700 m. According to the description of this community made by Longhurst (1969), which is characterized by the occurrence of Hypoclidonia bella, Macrouridae, Moridae and some Chondroichthyes, it was possible to distinguish two subgroups:

1) An upper slope community distributed down to 400 m and defined by high abundances of Hypoclidonis bella and Chorophthalmus sp. and a high number of accompanying fish species found across the whole surveyed zone, such as: Peristedium cataphractum, Malacocephalus sp., Coelorhynchus coelorhynchus, Trigla lyra, Synagrops microlepis, Zenopsis conchifer and Chascanopsetta lugubris.

2) A deep slope community distributed deeper than 400 m, characterized by a dramatic decrease in biomass, an stability in the species richness and the substitution of Macrouridae by other dominant fish taxa (Centrophorus granulosus, Lophiidae, Lamprogramus sp. and Cubiceps sp.).

Conclusions

Although with local differences the faunistic composition of the ‘GUINEA-90’ survey showed the existence of fish assemblages very similar to those described by Fager and Longhurst (1968) and Longhurst (1969) for the Tropical Africa waters, extending the knowledge about the deep fauna.

The maximum abundances founds in the Ivory Coast – Ghanian sector coincides with the up-welling of the Central Guinean Gulf where the highest productivities occur (Willimas, 1968). While that the highest values observed between 200 and 400 m depth are likely related with the inexistence of fishing activity in this area as a consequence of the low commercial value of the species on the fish communities inhabiting this depth range.

Due to overexploitation situation of shelf stocks, the FAO Working Groups have recommended the removing of fishing effort to deep shelf. Discarding deep species as A. bondi, S. alta, H. bella and demersal sharks would constitute alternative resources.

References


Fig. 1. Localization of surveyed area.
Fig. 2. Yields (kilograms in half hour trawling) by zone and depth range.

Fig. 3. Number of fish type.

Fig. 4. Species richness by depth.
Fig. 5. Faunistic composition of deep communities by zone and bathimetric range.