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Explorations on Senegal in the Cervigón Collection (Museum of Fishes) of the Spanish Scientific Research Council (CSIC) at Cádiz (Spain)

by

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SUMMARY

*The Cervigón Collection, from the Fish Museum sited at the Institute of the Spanish Scientific Research Council (Cádiz), where is preserved the holotype for *Cottunculus costacanae*, provides the paradigm (Rey Lozano, 1928; Lozano Cabo, 1950) on the transition zone between the Atlanto-Mediterranean and the Tropical faunas. The Banc d'Arguin is the central area of dispersion for the species. Added to the Internet Resource Guide for Zoology of BIOSIS and the Zoological Society of London, the collection exposes 48 fishes from the Senegal coasts. *Priacanthus arenatus* reveals its northern limit in the zone where it has been fished, 14°26' and 12°51'. *Gobius niger* L., concerns to the species described by F. De Buen, 1928. *Erythrocles monodi*, rarely captured far from the south of C. Verde, belongs to an Indopacific genera. Totally from Senegal, and never up to the 17° parallel, *Otopercra aurita*. Part of the fauna of Casablanca, and fished in April 1958 south of St. Louis, *Otolithus senegalensis*. Very frequent facing Senegal, but captured at the western Sahara and Mauritania, *Parapristipoma mediterraneum* and *Paracubiceps ledanoisi*. The *Pagellus erythrinus* (L., 1758) in this collection display interesting differences in sizes with the Senegal ones, perhaps due to the prevalent regimes of temperature. For the prediction of community-wide character displacement a *Macrorhamphosus scolopax* (L., 1758), substituted in Senegal by *M. Gracilis*, Lowe, could be consulted. Captured in the Banc d'Arguin, *Anodontus mauritanicus* is nov.gen. nov.sp. and *Cottunculus costae-canariae* is nov.sp. The collecting work was initiated by Dr.Cervigón, now at the Marine Museum, Isla Margarita (Venezuela).*

INTRODUCTION

A computer facility for testing the interaction between tropical and Atlanto-Mediterranean faunas in Senegal coasts has been designed [1]. It electronically manages specimens from the CSIC Fish Museum (Cádiz), the Cervigón Collection. The museum has been involved in Species 2000: CODATA '99 DSAO, Tsukuba, Japan.

([http://www-sp2000ao.nies.go.jp/english/whats_new/year_1999/pos_pre/abstract.html#Enrique Wulff-Barreiro](http://www-sp2000ao.nies.go.jp/english/whats_new/year_1999/pos_pre/abstract.html#Enrique_Wulff-Barreiro)).

This is an "Inadvertent collection". The fish ages have not been determined. The collection catalogue has never been published. A global taxonomic review concerning it should be performed as a policy at higher levels. From its information content, after the properties of a specimen, the collection could be named a "library of life" [5]. The fish museum is seeking to be involved in CODATA Africa activities.

THE FOUR CAMPAIGNS ABOARD THE "COSTA CANARIA", THE YEARS 1958 AND 1959, TO THE SENEGAL RIVER BASIN COASTS

The four Cervigón (CSIC) Spanish expeditions from Cádiz south Bojador Cape (1958-1959) had as their goals [2]:

To study the Senegalese hake.

To explore the abundancy and diversity of species in the zooplankton.

To enrich the distribution data and the systematics of the distinct fish species.

And their reasons were that:

the area between the Juby Cape and Verde Cape offered a bottom fauna of special economic richness,

Spanish and Portuguese intensively fished in it,

Cádiz and Huelva harbours were the main bases for these fleets,

the accidental bottom of the Banc d'Arguin was not enough known.

The campaigns were conducted in February, April, October 1958, and on March 1959.

RESULTS OF CERVIGÓN (1958-1959) EXPEDITIONS

The interpretation provided by the Senegal Fishes, from the Cervigón Collection sited at CSIC (Puerto Real), supports the theory, advanced by Lozano [3], in terms of underlining the distance between the ichthyological fauna from Senegal and the Mediterranean fauna. In fact, the southern limit of the Atlanto-Mediterranean area could be attributed, after the observations of the four CSIC expeditions from the Cádiz labo, to the bottom fauna between Cabo Blanco and the Banc d'Arguin. Nevertheless the species eventually encompass a wide area of dispersion. Gridded data, that are displayed for featuring frontier case studies relevant for Senegal coastal fishes specimens, can be obtained from the computer facility. If considering only the specimens caught off the coasts between 12° and 17° (Senegal), 22% resulted from the Atlanto-Mediterranean, all the other fishes coming from the area Dahomey-Senegal (after Cadenat). [4]

Three animals justify singular attention to this collection. *Anodontus mauritanicus* (caught at 19°N, depth 242 m) then considered as nov.gen. nov.sp., and nowadays assimilated to the Highfin tadpole fish; *Cottunculus costaecanariae* is nov.sp (caught at 20°45'N, depth 450 m), a deep water fish (depth range 318-600 m, without English name, also known as *Ebinania costaecanariae*) specifically named after the ship employed along the campaign, the "Costa Canaria". Another deep-water fish (depth range 200 - 2600 m) available from the museum is *Harriotta Raleighana*.

Looking to improve the data on distribution and systematics of the different fish species, another spatial pattern appears depending on bathymetric distribution. For the specimens off Senegal we range the material in those which were more abundant between tidal flat fauna and 100 m depth fauna, and those which can be considered as mid-water species, between 100-200 metres. Distribution is irregular, beyond this depth. This distribution helps to understand the species distribution after the characteristics of the bottom. As a general statement, size bathymetric distribution means that young exemplars come from the coasts, and that aging fishes appear at increasing depth. Season is also important, e.g. *Johnius regius* adopts shoal behaviour in

Spring, but is dispersed individually in Autumn. Typically, this bathymetric data set should be prepared for further analysis, by checking for errors, and redisplaying it within a geographic information system.

IN SENEGAL COASTS A COMPUTER FACILITY FOR THE INTERACTION BETWEEN TROPICAL AND ATLANTICO-MEDITERRANEAN FAUNAS

This "tool for the job" focuses on computer analysis of an initial sparse data region. The regional biota is described throughout the designed labelling, cataloguing, and field note-taking system employed by those who created the collection. Basic fields employed are: Species, Collecting from, Year, N° of exemplars, Collected by. 48 Species depicts research from Senegal (16°-12°N); 26 were collected from Senegal, 17 from Mauritania (Banc d'Arguin), four from former Spanish Sahara coasts, and one was caught off Guinea Bissau (10°N). Archival samples are all fixed in formaldehyde. External morphological data available refers to size. Growth histories are incomplete, as in the case of many old fishes. Dr. Cervigón collected 93% of the reported cases, half time working alone, half time also having Dr. Durán.

The primary array of the Senegal collection database architecture is composed of boxes representing the Specimens displayed by families. 31 fish families are represented. A second array of data, and a differential development, is the provision of a list of bibliographic references, when available from the database ASFA, on the geographical distribution of the fishes. 78 articles and two web resources are thus linked to the collection. Based on the available material through Species 2000 [6], a variety of links is provided to enrich the data for every matching specimen, in components such as order and class, commercial importance, diagnosis, biology, and eventual inclusion into the IUCN red list.

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