



Mauritanian deep-water Plumularioidea (Cnidaria, Hydrozoa)

Marta Gil^{1,2}, Fran Ramil¹ and Ana Ramos²

¹ Facultad de Ciencias do Mar, Universidade de Vigo
² Instituto Español de Oceanografía, Centro Oceanográfico de Vigo
E-mail: martag_g@hotmail.com



INTRODUCTION

Deep-waters are one of the most unknown habitats on Earth, but the displacement of fishing fleets into ever deeper waters and the emerging exploitation of mineral resources threaten to destroy these ecosystems whose functioning we just begin to understand (Levin & Sibuet, 2012).

Superfamily Plumularioidea is the most important group of deep-water Hydrozoa, both in species richness and abundance. Despite that hydroids are typical representatives of epifaunal communities on hard substrata, many species have developed different strategies that allow them to colonize soft bottoms. Some species modified their hydrorhiza for anchoring the colony to the substrate and others are epizoic on a wide range of invertebrates, including some symbiotic or mutualistic associations. Moreover, the morphology of their colonies, feather shaped, often branched, and with sizes that can exceed one meter length, contributes effectively to the development of a three-dimensional habitat and provide secondary substrata for other hydrozoans (auto-epizoism sensu Millard, 1973) and for other invertebrates (see Ansin Agis et al. 2001), thus enhancing the biodiversity. The aim of this work is the study of the Plumularioidea collected off Mauritania for the four Maurit surveys.



MATERIAL AND METHODS

Four multidisciplinary surveys (*Maurit*)
Zone: Mauritania
Depth: 80–2000 m
Stations: 329 trawling
Date: November–December (2007–2010)
Research vessel: R/V *Vizconde de Eza*
Gears: Commercial trawl, Agassiz trawl and rock dredge

Most samples were collected using a commercial trawl (*Lofoten* type) following a stratified random sampling methodology. In addition 25 stations distributed in five bathymetric strata along perpendicular transects to the coastline were accomplished, and 26 samples were collected over the cold-water coral reef, the canyon edges and the seamount with a rock dredge.

RESULTS

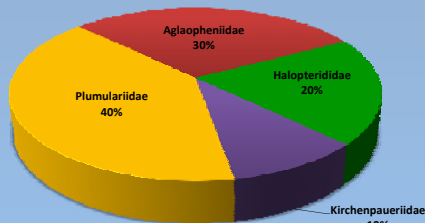
A total of 4,073 colonies were collected and 20 species were identified; nine of them (*A. tubulifera*, *H. catharina*, *H. diaphana*, *K. bonnevieae*, *K. pinnata*, *N. ventriculiformis*, *P. filicula*, *P. flabellata* and *S. multiseptatus*) are reported for the first time in Mauritanian waters.

Plumulariidae showed the highest specific richness with 8 species, followed by Aglaophenidae (5 species), Halopterididae (4 species) and Kirchenpaueriidae (2 species).

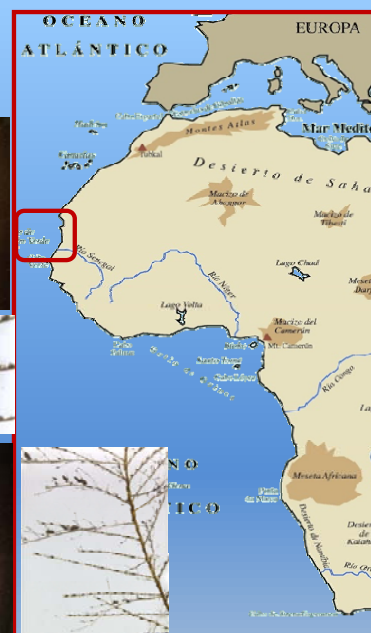
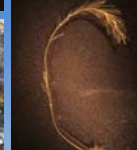
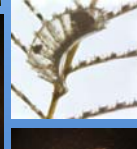
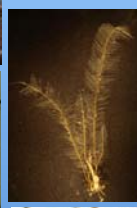
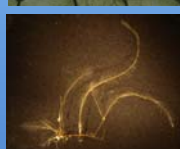
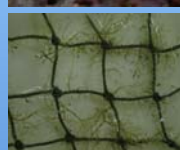
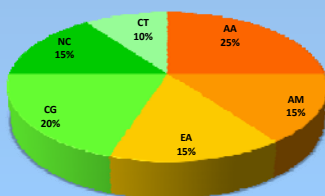
Class Hydrozoa

- Family Aglaophenidae
 - Genus *Aglaophenia* Lamouroux, 1812
 - Aglaophenia lophocarpa* Allman, 1877
 - Aglaophenia parvula* Bale, 1882
 - Aglaophenia tubulifera* (Hincks, 1861)
 - Genus *Lycocarpia* Kirchenpauer, 1872
 - Lycocarpia myriophyllum* (Linnaeus, 1758)
 - Genus *Streptocaulus* Allman, 1883
 - Streptocaulus dollfusii* (Billard, 1924)
 - Streptocaulus multiseptatus* (Bale, 1915)
- Family Halopterididae
 - Genus *Antennella* Allman, 1877
 - Antennella secundaria* (Gmelin, 1791)
 - Antennella siliquosa* (Hincks, 1877)
 - Genus *Halopteris* Allman, 1877
 - Halopteris catharina* (Johnston, 1833)
 - Halopteris diaphana* (Heller, 1868)
- Family Kirchenpaueriidae
 - Genus *Kirchenpaueria* Jickeli, 1883
 - Kirchenpaueria bonnevieae* (Billard, 1906)
 - Kirchenpaueria pinnata* (Linnaeus, 1758)
- Family Plumulariidae
 - Genus *Nemertesia* Lamouroux, 1812
 - Nemertesia antennina* (Linnaeus, 1758)
 - Nemertesia perrieri* (Billard, 1901)
 - Nemertesia ramosa* (Lamarck, 1816)
 - Nemertesia ventriculiformis* (Markkannen-Turneretscher, 1890)
 - Genus *Plumularia* Lamarck, 1816
 - Plumularia filicula* Allman, 1877
 - Plumularia setacea* (Linnaeus, 1758)
 - Genus *Polyplumularia* G.O.Sars, 1874
 - Polyplumularia flabellata* (Sars, 1873)
 - Genus *Pseudoplumularia* Ramil & Vervoort, 1992
 - Pseudoplumularia marocana* (Billard, 1930)

SPECIFIC COMPOSITION

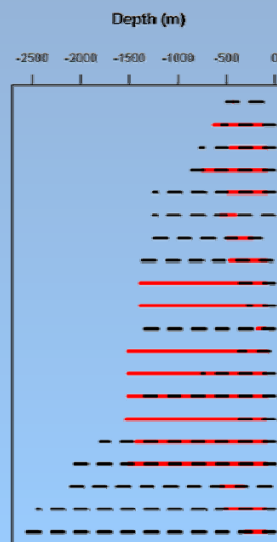


BIOGEOGRAPHICAL ANALYSIS



BATHYMETRY

The analysis of their bathymetric ranges reveals an absolute dominance of eurybathic species: only *Nemertesia ramosa* was found exclusively on the shelf but all the others were collected along the continental shelf and slope.



The geographical distribution patterns showed a slight dominance of Atlantic species (55%) over those with a wide distribution (45%). Within the first group, the most representatives were the ampho-Atlantic (25%), Atlantic-Mediterranean (15%) and Eastern Atlantic (15%).

DISCUSSION

The bathymetric distribution of hydroids was analysed in several recent papers summarized by Altuna (2007). Generally, the highest diversity was found in the shelf where many species are stenobathic; along the slope, the dominance of eurybathic species was also reported by Calder (1997) in western North Atlantic and by Peña Cantero (2004) in Antarctic waters.

The biogeographical analysis generally agrees with the results obtained by Ansin Agis et al. (2001). The absence of the medusa stage in the group is not a limiting factor for their geographical distribution that seems to be more dependent on their environmental tolerance than on the particularities of their life-cycle (Boero & Bouillon, 1993).

Their ability to spread by rafting (Cornelius, 1992) together with ocean circulation patterns in North-eastern Atlantic waters may explain the faunal composition in Northwest Africa (Ansin Agis et al., 2001). The importance of the Atlantic-Mediterranean component and the influence of the Canary Current as a southward larval dispersal route were also emphasized by Van Soest (1993) in his study about the distribution of sponges in the continental shelf off Mauritania.

References

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