

Characterization of the upper bathyal megasponge fauna of the Azores

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INTRODUCTION

Sponges constitute an important and diverse group in deep-sea communities (Boury-Esnault *et al.*, 1994; Van Soest & Lavaleye, 2005). In some areas high densities of large specimens (i.e. > 5 cm) are found - sponge aggregations or sponge grounds (Klitgaard & Tendal, 2001). Due to biological and ecological features these aggregations are vulnerable to the impact of human activities, and therefore became classified as Vulnerable Marine Ecosystems (VMEs). The Azores is known to harbour a diverse deep-sea sponge fauna and a few sponge-dominated biotopes are reported in circalitoral and bathyal zones.

The aim of this study was to characterize the non-lithistid megasponge fauna of the upper bathyal (200-800 m).

RESULTS

Sixteen species, representing six orders (eight families) were identified. Axinellidae and Petrosiidae were the best represented families, with six and four species, respectively (Table 1). No significant differences were found regarding the historical and recent geographical and/or bathymetric distribution records for the identified species (Fig. 1).

It is clear from the data that upright (digitate, branching, flabellate) forms are the most commonly bycaught in fishing gear.

Table 1. Species inventory obtained from taxonomic identifications of the biological material analyzed

	Depth no.	(m)
ASTROPHORIDA		
Pachastrellidae		
<i>Pachastrella cf. nodulosa</i> Cardenas & Rapp, 2012	6	258-567
HADROMERIDA		
Polymastiidae		
<i>Pseudotrachya hystrix</i> (Topsent, 1890)	4	133-300
Stylocordylidae		
<i>Stylocordyla pellita</i> (Topsent, 1904)	1	468
HALICHONDRIDA		
Axinellidae		
<i>Axinella vasonuda</i> Topsent, 1904	4	241-238
<i>Axinella hironellei</i> (Topsent, 1890)	3	219-249
<i>Axinella rugosa</i> (Bowerbank, 1866)	1	783
<i>Auletta sessilis</i> Topsent, 1904	1	67
<i>Auletta syncynularia</i> Shimth, 1970	2	239
<i>Phakellia ventilabrum</i> (Linnaeus, 1767)	1	457
POECILOSLERIDA		
Microcionidae		
<i>Clathria (Microcionia) sp.</i>	1	-----
Raspailiidae		
<i>Raspailia humilis</i> Topsent, 1892	1	150
HAPLOSCLERIDA		
Petrosiidae		
<i>Petrosia sp. 1</i>	3	259-432
<i>Petrosia sp. 2</i>	7	192-524
<i>Petrosia cf. pulitzeri</i> Pansini, 1996	2	210-223
<i>Xestospongia sp.</i>	2	238-473
DICTYOCERATIDA		
Irciniidae		
<i>Ircinia sp.</i>	4	232-363

MATERIAL & METHODS

Study Area: The Azores EEZ (area within 33.5° - 43°N, 21° - 35.5° W); Biological Material: Sponges bycaught by bottom longline (2007-2011) that are deposited in the Department of Oceanography and Fisheries of the University of the Azores (DOP/UAc) biological collection (COLETA);

Taxonomic identification and morphological characterization: examination of cross sections and spicules slides under optical microscopy.

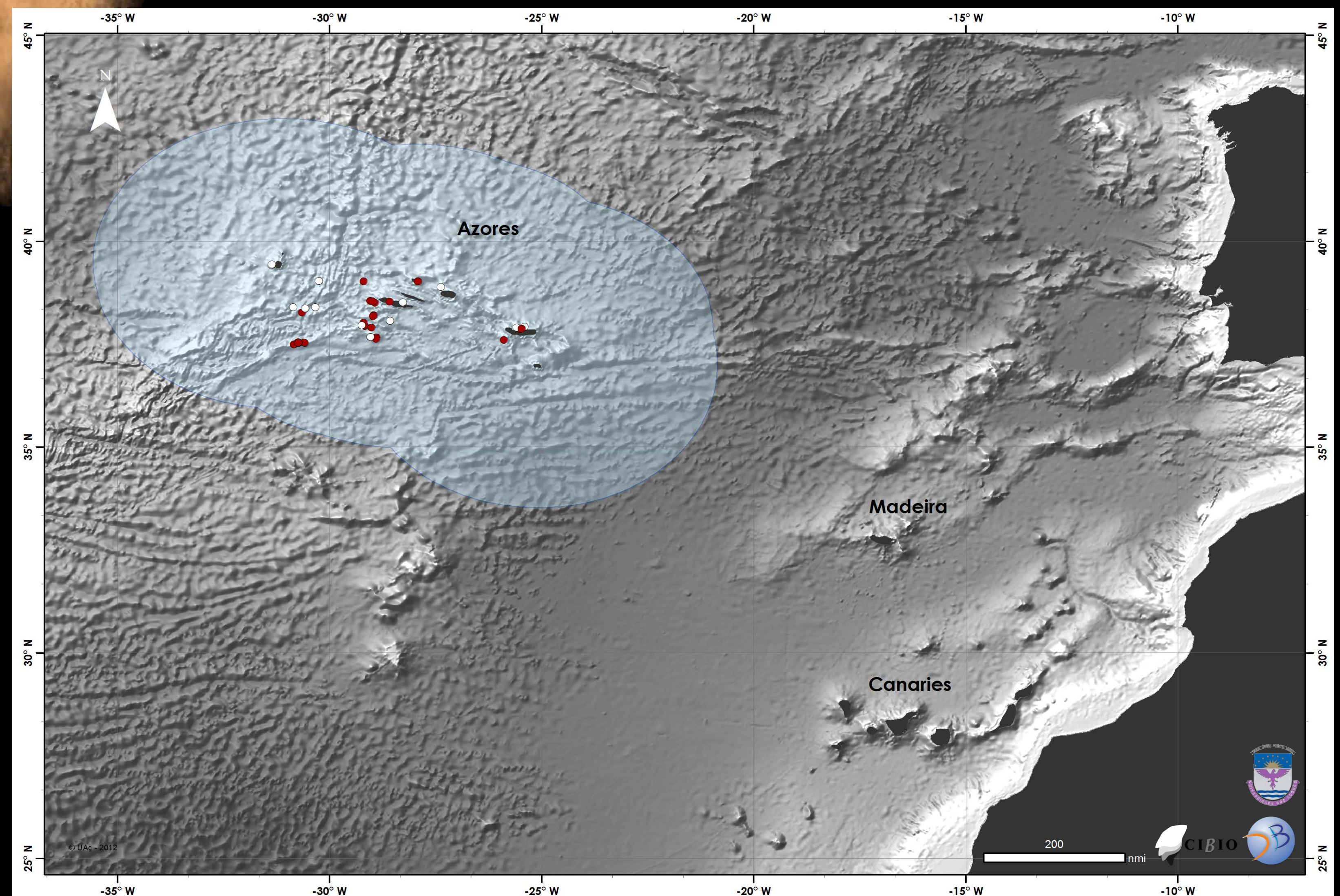


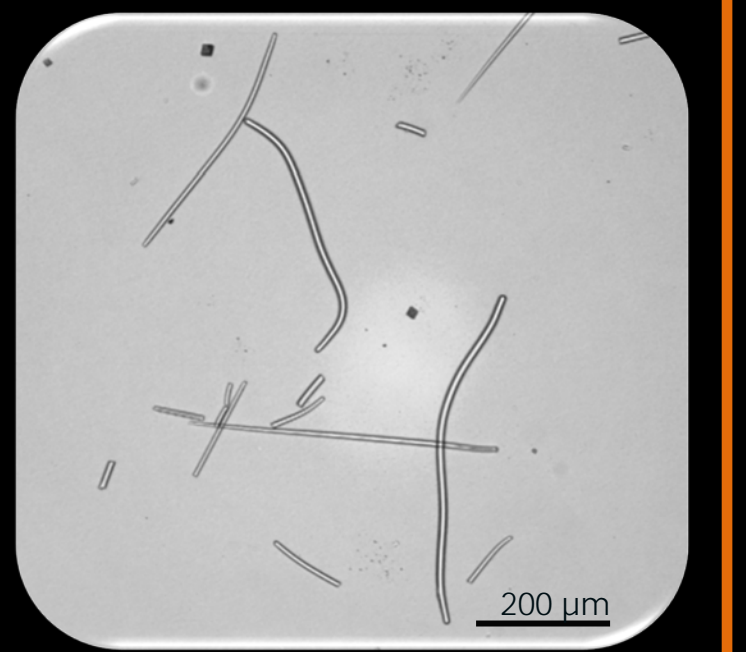
Figure 1. Map of the Study Area - The Azores EEZ (), with the literature records (●) and recent records (○) for identified species

Auletta sessilis Topsent, 1904



Ramified; tubes connected by a common basal plate; surface slightly hispid; compressible consistency;

Spicules:
Strongyles: 512,1- 1528,7 x 12,2- 26,4 μm
Styles: 443,0 -1425,0 x 13,1 - 26,2 μm

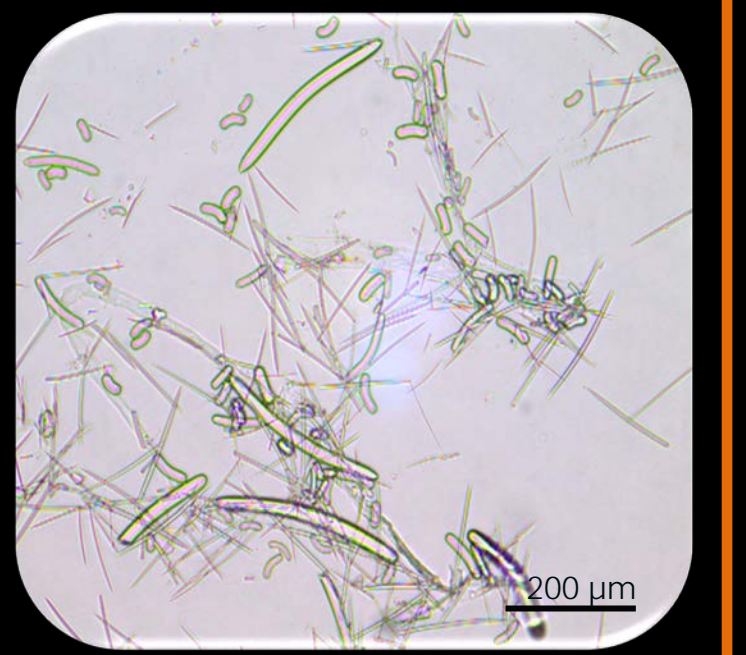


Petrosia cf. pulitzeri Pansini, 1996



Massive irregular, surface turberculated, colour yellowish White;

Spicules:
Strongyles: (1) 21,8-113,5 x 6,9-26,1 μm;
(2) 191,8- 354,6 x 15,5-26,2 μm
Oxeas: (1) 189,9-302,6 x 13,2-26,1 μm;
(2) 58,5-187,7 x 3,9 -7,0 μm;



Axinella vasonuda Topsent, 1904



Lobulate/ cylindrical shape with profound grooves along the length colour yellowish white;

Spicules:
Oxeas: 1210,5-1435,1 x 19,7 - 34,6 μm;
Styles: 736,4-1377,8 x 19,7 -34,6 μm

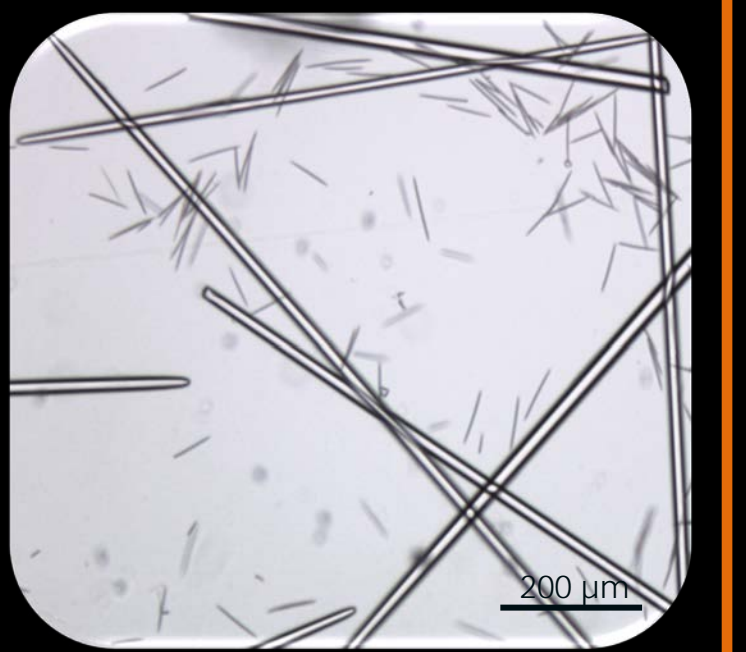


Pseudotrachya hystrix (Topsent, 1890)



Finger-like shape (digitate); heavily hispid; colour pale yellow;

Spicules:
oxeas: 127,4- 255,9 x 4,9- 10,7 μm
styles: 567,4 -3558,944 x 11,4- 85,4 μm



FUTURE RESEARCH

This preliminary results allowed us to start an image-guide to assist in the identification of sponge species in scientific underwater imagery or resulting from fisheries bycatch.

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