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An uncommon or just an ecologically demanding species? Finding of aggregations of the brittle-star *Ophiothrix maculata* on the Northwest African slope

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Abstract

Ophiuroidea constitutes the largest class of the phylum Echinodermata. It includes families with suspension-feeder behaviour that can be found in dense aggregations in all oceans worldwide. *Ophiothrix maculata* was known as a rare suspension-feeder brittle star, with only four records in the Eastern Central Atlantic dating from almost 100 years ago.

During the ten multidisciplinary Spanish and Norwegian surveys carried out from 2004 to 2012 off Northwest Africa, between the Gibraltar Strait and the Sierra Leone border from 19 to 1888 m depth, we sampled 1298 stations. We gathered about one million individuals and 124 kg of brittle stars at 501 of the stations. Eight hundred and thirty-two specimens of *Ophiothrix maculata* were collected at six localities on the continental slope off Mauritania, Western Sahara and Guinea Bissau, at depths between 155 and 594 m. The Guinea Bissau samples represent the southernmost current record for the species. Even though *Ophiothrix maculata* has been previously recorded only in isolation, we discovered dense concentrations on the Mauritanian slope on the Wolof's Seamount (580 individuals) and off the Western Sahara, in a *Lophelia pertusa* reef (202 individuals).

In this paper, we describe these findings and discuss the association of this species to hard-bottom habitats and high primary production areas, outside of the oxygen minimum zone (OMZ). We also analyse what other factors may explain the patchy distribution of *O. maculata* on the Northwest African slope.

Keywords: new finding, dense aggregations, *Ophiothrix maculata,* Ophiuroidea, seamount, cold-water coral reef, Northwest Africa.

1. Introduction

Ophiuroidea is the largest class within the phylum Echinodermata. About 2200 species are distributed in all oceans, from the intertidal to hadal depths (Stöhr et al., 2012), constituting a common component of megabenthic communities (Metaxas and Giffin, 2004). Brittle stars can be numerically dominant in bathyal and abyssal bottoms, with almost half of its species found at depths between 100 and 1000 m (Metaxas and Giffin, 2004).

Some suspension-feeder ophiuroids—mostly belonging to the families Ophiotrichidae, Ophiactidae, Amphiuridae, Ophiocomidae and Ophiacanthidae (Warner and Woodley,