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***Bathydorus laniger* and *Docosaccus maculatus* (Lyssacinosa; Hexactinellida): Two new species of glass sponge from the abyssal eastern North Pacific Ocean**

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Abstract

Two new species of glass sponge were discovered from the abyssal plain 200 km west of the coast of California (Station M). The sponges have similar gross morphology—an unusual plate-like form with basalia stiling the body above soft abyssal sediments. *Bathydorus laniger* **sp. n.** differs from its congeners by the presence of dermal and atrial stauractins; it is also supported by smooth hypodermal pentactins and hypoatrial hexactins. Microscleres include oxyhexasters and oxyhemihexasters. *Docosaccus maculatus* **sp. n.** contains large hexactins (>1 cm), characteristic of the genus. Megasccleres include dermal hexactins, atrial pentactins, and choanosomal hexactins and diactins. Microscleres include oxy-tipped hemihexasters and floricomeres. Several features serve to differentiate this species from its only known congener.

Key words: *Docosaccus*, *Bathydorus*, Lyssacinosa, sponge, Hexactinellida, Rossellidae, Euplectellidae

Introduction

Gross body morphology of sponges, which includes tubular, vase-like, and encrusting shapes, can vary depending on surrounding current, water flow, and oceanographic conditions (Palumbi 1984, 1986). Thus, while gross morphology can be important in the taxonomic assessment of a sponge, it might also reflect an ecological response to localized conditions. Taxonomic categorization of sponges primarily uses hard skeletal components, the spicules, for its organization (when present—some groups in Classes Demospongiae and Homoscleromorpha lack spicules). Two new species of glass sponges were found from the same area in the eastern North Pacific; their spicule composition places them in two separate families within Order Lyssacinosa (Reiswig 2002), yet both share a similar plate-like morphology.

Glass sponges occur in many shapes, including stalked, encrusting, massive, tube-like, vase-like, and plate-like, or flat. Although reference to a plate-like morphology is made in *Systema Porifera* (Hooper & Van Soest 2002), the current taxonomic reference for higher-level poriferan systematics, no specific genera are identified as having that morphology. Inquiries with researchers at the video analysis laboratory of the Monterey Bay Aquarium Research Institute yielded no recollection of plate-like sponges in any of their hundreds of hours of video. The discovery of two species with plate-like morphology, yet of different families, in the same area prompts questions regarding the ecological significance of their morphology.

The two new species were found at Station M, a long-term study site in the abyssal northeast Pacific (Fig. 1; Smith & Druffel 1998). The particular conditions at Station M that may have prompted plate-like morphology cannot be determined with present data; however, several parameters have been measured at this site and are summarized below, for comparison with conditions of future discoveries of plate-like sponges. Similarities between the sites will help form hypotheses regarding the cause of a flat body form.