



New species of *Psolus* Oken from Antarctica (Echinodermata: Holothuroidea: Psolidae)

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Abstract

Three new species of *Psolus* Oken from Antarctica are described: *Psolus byrdae* **sp. nov.** from the Marie Byrd Seamount; *Psolus carolineae* **sp. nov.** from South Georgia; *Psolus lockhartae* **sp. nov.** from the South Orkney Islands.

Key words: Amundsen Sea, Antarctic Peninsula, Scotia Sea, South Georgia, South Orkney Islands, BAS, BIOPEARL, US AMLR

Introduction

An overview of Antarctic and Sub-Antarctic species of Psolidae Forbes, 1841 assigned to *Psolidium* Ludwig, 1886 was provided by O'Loughlin & Ahearn 2008. That paper anticipated a further work on Antarctic and Sub-Antarctic species of Psolidae assigned to *Psolus* Oken, 1815. Molecular analyses are currently providing significant insight into the systematics of these species, and further molecular data are expected in the near future to enable us to further clarify the systematics of Antarctic species of Psolidae. Meanwhile we have recently had the opportunity to study holothuroid specimens from the Amundsen Sea, Antarctic Peninsula and the Scotia Sea that were collected by the BIOPEARL I and II British Antarctic Survey (BAS, 2006 & 2008; currently on loan to Museum Victoria—NMV) and 2009 US Antarctic Marine Living Resources cruise (AMLR; made available to NMV by the US National Oceanic and Atmospheric Administration—NOAA), and the collections in the United States National Museum (USNM, Smithsonian Institution, Washington) that include the US AMLR 2006 collection lodged there by NOAA. Examination of these holothuroids has led us to recognize the three morphologically distinctive new species of *Psolus* that are described here. Two of these species occur at significantly greater depths (up to 2897 and 3446 m) than previously described species of *Psolus*.

Methods

Photographs of specimens were taken by Caroline Harding using a SLR Canon EOS5D digital camera with 65 and 100 mm lenses. Ossicles were cleared for observation using commercial bleach. Photographs of ossicles were taken by Caroline Harding, with Mark O'Loughlin, using a Leica CTR5000 compound microscope, Leica DC500 digital camera, and Auto-Montage software. Figures were prepared by Caroline Harding. Museum Victoria echinoderm registration numbers are NMV with prefix F. Historically three types of registration number have been used for United States National Museum specimens. Echinoderm catalogue numbers prior to 1920 did not have a prefix, subsequently had the prefix E, and since 2001 the EMU on-line system has been used and registrations reported as USNM without an E prefix.