



Ophiuroids (Echinodermata; Ophiuroidea) of biogenic habitats on the continental shelf of New Zealand

V. SADIE MILLS¹ & TIMOTHY D. O'HARA²

¹National Institute of Water and Atmospheric Research, Private Bag 14901, Wellington, 6241, NEW ZEALAND,

E-mail: Sadie.Mills@niwa.co.nz

²Museum Victoria, GPO Box 666E, Melbourne, 3000, AUSTRALIA, E-mail: tohara@museum.vic.gov.au

Abstract

The taxonomy of ophiuroids collected in 2009 and 2011, from biogenic habitats across the New Zealand continental shelf, is reviewed. *Ophionereis novaezelandiae* Mortensen, 1936, and its junior synonym *Ophionereis terba* Baker & Devaney, 1981 from South-Eastern Australia, is now recognised as a distinct species, and has been removed from synonymy with *Ophionereis fasciata* Hutton, 1872. *Ophiacantha abyssicola* var. *otagoensis* Fell, 1958 is also recognised as a distinct species and has been removed from synonymy with *Ophiacantha brachygnatha* Clark H L, 1928. *Amphiura eugeniae* var. *latisquama* Mortensen, 1924 is raised to species rank and *Amphioplus longirima* Fell, 1952 treated as a synonym of *A. latisquama*. *Ophiolycus farquhari* McKnight, 2003 is transferred to the genus *Ophiologimus*. The diagnostic characters of several other species are reviewed and colour descriptions and images are included where available. The tropical species *Ophiacantha longidens* Lyman, 1878, *Ophiotreta valenciennesi* (Lyman, 1879) and *Ophiobyrssa intorta* (Koehler, 1922) are reported from New Zealand waters for the first time.

Key words: Ophiurida, Euryalida, snakestar, brittlestar, New Zealand EEZ, biodiversity, shallow

Introduction

The Ophiuroidea are a ubiquitous group living on the seafloor, and are well suited to macroecological and biogeographical studies (O'Hara *et al.* 2011). The Ophiuroidea fauna of the New Zealand Continental shelf, however, has not received much taxonomic focus since Mortensen's (1924) insightful monograph of the New Zealand echinoderm fauna.

Areas of large habitat forming organisms such as corals, sponges or worm tubes (biogenic habitats), through their increased structural complexity, increase an area's biodiversity, for example, by increasing the richness and number of species (e.g., Cranfield *et al.* 2004). These fragile shelf habitats are impacted by anthropogenic activities such as fishing, so are of interest to agencies that manage these areas. The New Zealand Ministry for Primary Industries (Fisheries) funded *Biogenic Habitats on the Continental Shelf project* voyages (TAN1105 and TAN1108) targeted known historical biogenic 'hotspots' around the coastline of New Zealand from the Three Kings Islands in the north down to Stewart Island in the south (Figure 1). The *Oceans Survey 20/20 Bay of Islands Biodiversity and Seabed Habitats project* voyages (KAH0907, inner bay and TAN0906, outer bay) were extensive surveys to determine all seafloor habitats and describe biodiversity within this bay (Bowden *et al.* 2010, Mitchell 2009; Morrison 2009). The types of biogenic habitats sampled by the four voyages included sponge gardens, worm tube meadows, bivalve beds (horse mussels and dredge oysters), bryozoan thickets, gorgonian coral canyons, rocky reefs, rhodolith beds and muddy or sandy sediments adjacent to these biogenic habitats. Echinoderms represented 15 % of the total number of invertebrate specimens collected on these surveys, a larger percentage than any other phyla. While not a comprehensive survey of the entire New Zealand continental shelf (gaps remain in sampling from certain habitats, e.g., seagrass beds, and certain localities, e.g., the west coast of the South Island) the ophiuroid material now available is sufficient to resolve several taxonomic issues and includes live colour images of many of the species.

The aim of this paper is to review the taxonomy of the Ophiuroidea from selected habitats in depths of 10–200 m on New Zealand's continental shelf.