



Diversity and ecology of Pilargidae (Annelida: Polychaeta) from the Gulf of Carpentaria and Arafura Sea, northern Australia

SHONA A. HOCKNULL^{1,3} & CHRISTOPHER J. GLASBY²

¹*Benthic Australia Pty Ltd, PO Box 5354, Manly, Queensland 4154, Australia. E-mail: shona.hocknull@benthicaustralia.com*

²*Museum and Art Gallery of the Northern Territory, GPO Box 4646, Darwin, NT 0801, Australia. E-mail: chris.glasby@nt.gov.au*

³*Corresponding author*

Abstract

This study identifies to species or species units 572 lots (>1000 specimens) of pilargids from six localities in the Arafura Sea and Gulf of Carpentaria (including the ports at Gove and McArthur River). We analyze the taxonomic data against geomorphic unit, depth, and sediment type. Preliminary results show that pilargid fauna of northern Australia comprises 13 species in seven genera (*Ancistrosyllis*, *Cabira*, *Litocorsa*, *Loandalia*, *Pilargis*, *Sigambra*, and *Synelmis*). Although all four localities have a similar diversity of species (six or seven species each), the species composition differs between each region: *Litocorsa annamita* and *Synelmis rigida* were found in all sediment types in the Arafura Sea and Gulf of Carpentaria; *Ancistrosyllis* cf. *hartmanae* (mud and sand dominated sediments only) and *Sigambra pettiboneae* (all sediment types) were restricted to the inshore localities of Gove and McArthur River; *Loandalia gladstonensis* and *Sigambra* sp. 2 were found on the shelf and in the inshore habitats of the Gulf of Carpentaria only; *Litocorsa* sp. 'arafura', *Sigambra* sp. 'arafura' and *Synelmis gibbsi* were found only in the Arafura Sea, with sediments dominated by sand and gravel; and *Cabira* sp. 1 and *Sigambra* cf. *tentaculata* were found at all locations, in all sediment types. Based on these distribution patterns and the Recent Quaternary geological history of the area, hypotheses of post-glacial colonization of the Gulf of Carpentaria are presented. The pilargid species composition in northern Australia is also compared to neighboring Indo-west Pacific regions.

Key words: Indo-west Pacific, Arafura Sea, Gove, McArthur River, systematics, ecology, habitat, biogeography, diversity

Introduction

Pilargids are free-living sediment dwellers, found throughout the oceans from abyssal plains to inshore shelf waters, estuaries, and lagoons (Glasby 2000). Members of the group are normally thought of as being rare (e.g., Salazar-Vallejo 1987; Salazar-Vallejo & Orensanz 1991; Fiege & Böggemann 1999), but other studies (e.g., Flint & Rabalais 1980; Nishi et al. 2007) and the present data suggest that members of some genera, particularly *Litocorsa* or *Sigambra*, may be well represented in shelf sediments. In the Australasian region there is a lack of published records on the group, even though pilargids are regularly collected in benthic samples. Consequently little is known about habitat preferences and biogeography of Australian pilargids. Moreover, studies on polychaetes of the northeastern Australian shelf are limited to a few reports and ecology papers including Long & Poiner (1994), Wilson (2006) and Russell & Smit (2007). Other studies of benthic invertebrates in the Gulf of Carpentaria have only considered the larger epibenthic forms.