Two New Deep-water Species of Ampharetidae (Annelida: Polychaeta) from the Eastern Australian Continental Margin

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Abstract. Two new species, *Melinnopsis gardelli* sp. nov. and *Melinnopsis chadwicki* sp. nov. (Annelida, Ampharetidae, Melinninae), are described from deep waters off the east coast of Australia. One hundred and 11 specimens were collected during RV *Investigator* voyage IN2017_V03 in May–June 2017 using a beam trawl at lower bathyal depths (1000–2500 m). This is the first record of *Melinnopsis* from the eastern Australian coast. The two new species are morphologically similar, but differ by methyl blue staining pattern, shape of thoracic uncini and pigmented glandular bands above the nuchal slits. *Melinnopsis gardelli* sp. nov. has a conspicuous stained band on the dorsum ending between chaetigers 9 and 10, uncini with three teeth above the rostral tooth and lacks glandular bands, while *M. chadwicki* sp. nov. has a faint stained band on the dorsum ending at chaetiger 5, uncini with two teeth above the rostral tooth and possesses glandular bands. They also show differences in bathymetric distribution as *M. gardelli* sp. nov. was collected around 2500 m and *M. chadwicki* sp. nov. around 1000 m depth. Phylogenetic relationships among the new species and other members of the family Ampharetidae were assessed using the nuclear 18S and the mitochondrial 16S and cytochrome oxidase subunit I (COI) gene fragments. The results revealed that *M. gardelli* sp. nov. and *M. chadwicki* sp. nov. form a monophyletic clade and are genetically distinct from each other and all other analysed species. This is the first time molecular data have been used to describe a species in the genus *Melinnopsis*.

Introduction

Ampharetidae Malmgren, 1866 is a family of tubicolous annelids. They inhabit soft sediments from intertidal to abyssal depths in all oceans (Aguirrezabalaga & Parapar, 2014; Böggemann, 2009; Rouse & Pleijel, 2001) and can be well-represented and specioise in deep-sea benthic samples (Böggemann, 2009; Holthe, 2000; Saeedi & Brandt, 2020). The majority of recent species descriptions and molecular data published on deep-sea ampharetids has focused on specimens from chemosynthetic hydrothermal vents and methane seeps (Kongsrud *et al.*, 2017; Reuscher *et al.*, 2009; Stiller *et al.*, 2013; Zhou *et al.*, 2019) as well as organic matter falls (Bennett *et al.*, 1994; Queirós *et al.*, 2017), habitats which represent a small fraction of the deep seafloor.

The family Ampharetidae comprises 312 species (Read & Fauchald, 2020) with high numbers (32 out of 62) of accepted monotypic genera. Currently, Ampharetinae and