

# A New Genus and Five New Species of Phoxocephalidae (Crustacea: Amphipoda) from the Eastern Tasman Sea, the Otago Shelf, and The Snares, New Zealand

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**ABSTRACT.** One new genus and five new species of the family Phoxocephalidae G. O. Sars, 1891 are described from material collected in waters off Aotearoa New Zealand. Within the subfamily Harpiniinae Barnard & Drummond, 1978, *Palabriaphoxus lowryi* sp. nov. and *P. barnardi* sp. nov. share morphological affinities, including the narrow basis of pereopod 5 and powerful pereopod 6 with *P. palabria* (J. L. Barnard, 1961), which is herein redescribed. Within the Phoxocephalinae, a new species, *Protophoxus munida* sp. nov. is described and the type species of the genus, *Protophoxus australis* (K. H. Barnard, 1930), is redescribed based on material collected from the Otago shelf. Additionally, *Zeaphoxus* gen. nov. is erected for two new species, *Z. senecio* sp. nov. and *Z. zealandicus* sp. nov., collected from the Tasman Sea, Otago Shelf, and The Snares.

## Introduction

New species discoveries of Phoxocephalidae G. O. Sars, 1891 over the past two decades frequently do not strictly conform to the described subfamilies or genera of Barnard & Karaman (1991). The inability to assign new taxa to existing subfamilies and genera has resulted in significant revisions or the erection of new, often monotypic genera (Alonso de Pina, 1993, 2001; Ortiz & Lalana, 1999; Taylor & Poore, 2001; Taylor, 2002, 2006; Senna, 2010; Chiesa & Alonso, 2011; Andrade & Senna, 2020). Several of the new genera were established based on the recombination of known character traits rather than new or advanced ones, or on the grounds of a few unusual characteristics, with several paraphyletic taxa remaining (Taylor, 2003, 2006).

Alonso de Pina *et al.* (2008) proposed that the division of nine phoxocephalid subfamilies (Barnard & Drummond, 1978) be no longer recognized until such time that further

phylogenetic studies are done. Over subsequent years, the current classification of Phoxocephalidae, based on morphology, came to recognize only two subfamilies: Harpiniinae Barnard & Drummond, 1978, diagnosed mainly by pereopod 5 with a narrow basis; and Phoxocephalinae Sars, 1891, characterized by pereopod 5 with a stout basis (De Broyer *et al.*, 2007; Senna & Souza-Filho, 2011; Lowry & Myers 2017; Andrade & Senna, 2019a, b, 2020; Horton *et al.*, 2022).

Phoxocephalid collections from the eastern Tasman Sea, the Otago Shelf, and shallow waters of The Snares, housed in the National Institute of Water & Atmospheric Research (NIWA), were examined by Jerry Barnard in the mid-1980s. Together with Jim Lowry, they identified five species as new and noted that the morphological diversity among the species was so great that the argument could be made to assign several to new genera. After Barnard's passing in 1991, the draft manuscript was further developed

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