

## Species diversity and phylogeny of the deep-sea genus *Pseudomma* (Crustacea: Mysida)

KENNETH MELAND

University of Bergen, Department of Biology, PO Box 7800, N-5020 Bergen; Kenneth.Meland@bio.uib.no

### Abstract

The mysidacean genus *Pseudomma* G.O. Sars, 1870 occurs throughout the world's oceans, containing 38 highly endemic and primarily deep sea species. The taxonomic history of the genus and taxonomic status of species currently included in *Pseudomma* is reviewed. *Pseudomma kruppi* W.M. Tattersall, 1909 is for the first time recorded from the Pacific Ocean.

A comparative study of morphology suggests morphological stasis within the genus *Pseudomma*, possibly a result of stabilizing selection in a homogeneous deep-sea environment. 71 morphological characters are used to reconstruct *Pseudomma* phylogeny. The general frequency coding method (GFC) was applied in re-coding 14 polymorphic characters. Fifty-seven conventional characters were treated in separate analyses as either ordered or unordered to investigate how assumptions on character transformation influenced phylogeny. Maximum parsimony searches with both assumptions produced incongruent trees with conflicting branching patterns particularly in deeper nodes. A meaningful interpretation of origin and radiation in early lineages proved to be difficult. Recognition of consistent and more robust branching patterns in several recent lineages suggest monophyletic species groups that are confined within three major geographic areas, North Atlantic, northern Pacific and Antarctic. Branching order could be attributed to speciation events that were in accordance with recent geological history, such as the closing of the Panama Isthmus and establishment of the Norwegian Sea.

**Key words:** Mysida, *Pseudomma*, taxonomy, phylogeny, general frequency coding

### Introduction

The mysid genus *Pseudomma* was established by G.O. Sars (1870a). It is characterized by transformed compound eyes that have been reduced and fused into a single, flattened ocular plate. The eye reduction found in *Pseudomma* and other closely related deep-sea genera, such as *Amblyops* G.O. Sars, 1872 and *Parapseudomma* Nouvel & Lagardère, 1976, is considered an adaptation to the low light intensities found in deep-sea habitats (Elofsson & Hallberg 1977). Degrees of eye modification seen in other genera of tribe Erythropini may