



## Two new species of *Pseudoscopelus* (Teleostei: Chiasmodontidae), with a new diagnosis for the genus

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### Abstract

Two new species of the deep-sea fish genus *Pseudoscopelus* are described, *P. lavenbergi* from the eastern Pacific, and *P. bothrorrhinos* from the western Pacific and Indian Oceans. A new diagnosis for *Pseudoscopelus* based on two synapomorphies is proposed: the dorsal margin of the orbit is formed by infraorbital 6; the last pore of the infraorbital canal is on the dorsal edge of the orbit, anterior to the middle of the pupil. Twelve species of the genus are considered valid, with *P. microps* confirmed as a junior synonym of *P. altipinnis*, and *P. stellatus* regarded as *species inquirenda*.

**Key words:** bathypelagic, deep-sea, swallows

### Introduction

Four genera are currently recognized in Chiasmodontidae, one of the few families of bathy- and mesopelagic fishes in the large actinopterygian order Perciformes (Nelson, 2006): *Chiasmodon* Johnson (1864); *Pseudoscopelus* Lütken (1892); *Dysalotus* MacGilchrist (1905); and *Kali* Lloyd (1909). *Pseudoscopelus* is the most species rich genus with 15 nominal species, 12 of which are valid (Table 1). Most of these species have light organs, which are restricted to *Pseudoscopelus* within the family. The genus has a worldwide distribution, being found in all major ocean basins, even off Antarctica, but is absent from the Mediterranean and Red Seas. In the present study, two new species of *Pseudoscopelus* are described, *P. lavenbergi* from the eastern Pacific, and *P. bothrorrhinos* from the western Pacific and Indian Oceans.

The genus *Pseudoscopelus* was initially diagnosed by Lütken (1892) based on the presence of lines of mucous pores [sic] along the body. This definition had been followed by subsequent authors (e.g., Tanaka, 1908; Norman, 1929), until Beebe's (1932) discovery that instead of mucous pits, the lines over the body of *Pseudoscopelus* were actually formed by photophores that produce a clear, bright light. Since Beebe's work, the genus has been defined by the presence of discrete photophores along the body (e.g., Mooi and Paxton, 2001; Nelson, 2006). In 1974, Lavenberg revised the genus *Pseudoscopelus* for his PhD; he considered six species to be valid and listed six other new taxa, but never published his results according to the ICZN (1999) rules. The most recent works have been published by Prokofiev and Kukuev (2005, 2006a, b, c) who described four new species; two of which, *P. aphos* and *P. parini*, totally lack discrete photophores. Prokofiev and Kukuev (2006c), however, still regarded the presence of photophores as a generic character.

*Pseudoscopelus* is diagnosed herein by two synapomorphies, present in all species. Using this as the diagnosis would also include *Myersiscus* Fowler (1934), which was erected during the description of *P. obtusifrons* and was then considered a junior synonym of *Pseudoscopelus* exclusively because of the presence of photophores (Mooi and Paxton, 2001; Prokofiev and Kukuev, 2005, 2006c).