



Thalasseleotrididae, new family of marine gobioid fishes from New Zealand and temperate Australia, with a revised definition of its sister taxon, the Gobiidae (Teleostei: Acanthomorpha)

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Abstract

Thalasseleotrididae **n. fam.** is erected to include two marine genera, *Thalasseleotris* Hoese & Larson from temperate Australia and New Zealand, and *Grahamichthys* Whitley from New Zealand. Both had been previously classified in the family Eleotrididae. The Thalasseleotrididae is demonstrably monophyletic on the basis of a single synapomorphy: membrane connecting the hyoid arch to ceratobranchial 1 broad, extending most of the length of ceratobranchial 1 (= first gill slit restricted or closed). The family represents the sister group of a newly diagnosed Gobiidae on the basis of five synapomorphies: interhyal with cup-shaped lateral structure for articulation with preopercle; laterally directed posterior process on the posterior ceratohyal supporting the interhyal; pharyngobranchial 4 absent; dorsal postcleithrum absent; urohyal without ventral shelf. The Gobiidae is defined by three synapomorphies: five branchiostegal rays; expanded and medially-placed ventral process on ceratobranchial 5; dorsal hemitrich of pelvic-fin rays with complex proximal head. This study represents a contribution to our ongoing clarification of the family Eleotrididae, which has served historically as a repository for genera not classified among the more derived gobioids (= Gobiidae as defined here).

Key words: Gobioidae, Gobiidae, Thalasseleotrididae new family, Eleotrididae, osteology, systematics

Introduction

The internal relationships and classification of the perciform suborder Gobioidae represent a major challenge in systematic ichthyology. There is no consensus on the number of families recognized (Akihito *et al.* 2000a: tab. 1; Thacker 2000) and the bulk of genera are undiagnosed by synapomorphies. The lack of resolution of relationships in part reflects the large size of the clade (which numbers more than 2,000 species), but also the paucity of comprehensive character surveys. In recent years we have been conducting a broad survey of osteological and myological characters of gobioids, particularly concentrating on “basal gobioids” (those with six branchiostegal rays), with the aim of contributing to an understanding of the internal relationships and classification of the Gobioidae. These ongoing anatomical studies and phylogenetic analyses have retrieved a sister-group relationship between a clade consisting of the five-branchiostegal-rayed taxa (which we herein define as the Gobiidae), and a clade consisting of two Australian and New Zealand marine eleotridid genera, *Thalasseleotris* Hoese & Larson and *Grahamichthys* Whitley. Although these genera have been noted as atypical among eleotridids (Hoese & Larson 1987; Hoese & Gill 1993), they have not been included in recent examinations of gobioid relationships. The purposes of this paper are to describe a new family for *Thalasseleotris* and *Grahamichthys* in order to reflect their sister-group status with the Gobiidae, and to document supporting evidence for the relationship, as well as for the monophyly of the new family and for the newly defined Gobiidae.