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Coryphopterus kuna, a new goby (Perciformes: Gobiidae: Gobiinae) from the western Caribbean, with the identification of the late larval stage and an estimate of the pelagic larval duration

BENJAMIN C. VICTOR

Ocean Science Foundation, 4051 Glenwood, Irvine, CA 92604 and Guy Harvey Research Institute, Oceanographic Center, Nova Southeastern University, 8000 North Ocean Drive, Dania Beach, FL 33004. E-mail: ben@coralreeffish.com

Abstract

A new goby, *Coryphopterus kuna*, is described from the Atlantic coasts of Panama and Mexico. The species is distinguished from other *Coryphopterus spp.* by the low median fin and pectoral fin ray counts and the morphology of the pelvic fin. The pelvic fins are fully joined with a rounded outline and have branched and longer innermost pelvic fin rays. There is no frenum connecting the two pelvic fin spines and the fin is heavily speckled with black spots in the male holotype. The late larval stage of *C. kuna* is identified by DNA sequence matching and is morphologically similar to other larval *Coryphopterus spp.* but has a distinct melanophore pattern. Examination of the otolith microstructure reveals a relatively long pelagic larval duration of 63 days with a narrowing of the later daily increments suggesting delayed metamorphosis. The species is the first vertebrate to include gene sequence barcoding under the Barcode of Life Data System (BOLD) in the species description.

Key words: Gobiidae, Goby, New Species, BARCODE, BOLD, Fish, Informatics, Larvae, Larval Identification, DNA, Larval Stage, Pelagic Larval Duration, Otolith, Panama, Mexico, Caribbean, Western Atlantic

Introduction

Although a number of gobioid species have been recently described from both coasts of the Americas, the genus *Coryphopterus* in the New World has seen few changes since the original treatment by Bohlke and Robins in 1960 and 1962. They listed nine Atlantic species and two eastern Pacific species. Since their treatise, *Coryphopterus venezuelae* (Cervigón) has been described from Venezuela (Cervigón 1966, 1994) and *Coryphopterus tortugae* (Jordan) has been redescribed and is widespread in the Caribbean (Garzon-Ferreira and Acero 1990, Greenfield & Johnson 1999). A number of new Indo-Pacific *Coryphopterus spp.* have been described by Randall (2001) who provided a key to the species for that region. However, the validity of including the Indo-Pacific species in this genus has been questioned recently by Thacker and Cole (2002) and they suggest that those species be returned to *Fusigobius spp.* Furthermore, they found the one temperate species (from the eastern Pacific) to be unrelated and returned it to *Rhinogobiops nicholsii* (Bean). In this paper I describe a new Atlantic species from the western Caribbean, *Coryphopterus kuna*. Individuals of this species have been found as an adult in Panama and as larvae northward to Banco Chinchorro, off of the coast of Yucatan, Mexico. The new species is remarkable for having the lowest fin ray counts of the benthic sand-perching group and a united, rounded, and darkly-pigmented pelvic fin without a frenum. Despite the morphological similarities, the mtDNA sequence (COI) for the new species is more than 25% divergent from other *Coryphopterus spp.*

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