



## A systematic review of the genus *Chasmodes* (Teleostei: Perciformes: Blenniidae)

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### Abstract

A systematic review of the Atlantic blenniid genus *Chasmodes* was conducted. Principal components analysis (PCA) of 18 box-truss measurements revealed little variation in overall body shape among the three recognized *Chasmodes* species. In contrast, PCA of six more standard ichthyological measurements and the number of segmented dorsal-fin rays showed significant differences among the three. The species-level classification presented herein agrees with nomenclature in recently published works. Cladistic analysis of partial 12S rRNA gene sequences indicates *Chasmodes* is sister to a lineage comprising *Hypleurochilus*, *Scartella*, and *Hypsoblennius*. Based on our conclusions about phylogenetic relationships, we infer that sea-level fluctuations were likely associated with speciation in *Chasmodes*. Remarks on the critical habitats of these blennies are given.

**Key words:** morphometric analysis, taxonomy, Blennioidei, mtDNA

### Introduction

The perciform suborder Blennioidei is a large group of fishes, representing over 800 species in 136 genera (Nelson 2006) and six families (Springer 1993): Dactyloscopidae (sand stargazers), Tripterygiidae (triplefin blennies), Labrisomidae (labrisomid blennies), Clinidae (kelp blennies), Chaenopsidae (tubeblennies), and Blenniidae (combtooth blennies). Most blennioids are relatively small and elongate in shape, occupying nearshore benthic habitats, with some involved in mimetic or symbiotic relationships with other species. Springer (1993) proposed blennioid monophyly by citing specializations in five character complexes: dorsal gill arches, caudal skeleton, pelvic girdle, anal-fin rays, and pectoral girdle. Stepien *et al.* (1997) obtained a concordant result with genetic sequence data. The present study addresses the taxonomic status, nomenclature, and relationships of a small subset of the Blennioidei: the genus *Chasmodes* Valenciennes and some other northwestern Atlantic blenniid species.

Blenniid fishes of the genus *Chasmodes* are encountered as part of the benthic fauna from New York, New York, to Veracruz, Mexico. They are typically collected in shallow, brackish (salinity ~20‰) habitats, including oyster reefs, mud, and grassy areas with shell and sand. Springer (1959) reviewed the genus and recognized two species, *C. bosquianus* (Lacepède) and *C. saburrae* Jordan and Gilbert. The Striped Blenny, *C. bosquianus*, was considered to consist of two disjunct populations: an eastern population ranging from Chesapeake Bay to Marineland, Florida, and a western population ranging from Pensacola, Florida, to southern Texas. The range of *C. saburrae*, the Florida Blenny, is situated between these two populations. A small area of sympatry was evidenced by the capture of “a few specimens” of *C. bosquianus* at Pensacola and one specimen of *C. saburrae* west of Florida, at Cat Island, Mississippi (Springer 1959). The shape of dentary teeth and the length of the upper jaw were used to discriminate the two species (Springer 1959).

The next taxonomic treatment of *Chasmodes* was that of Williams (1983), who noted difficulties in using Springer's characters to distinguish among the species. In particular, maxillary-length and mandibular-tooth