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***Chriolepis bilix*, a new species of goby (Teleostei: Gobiidae) from deep waters of the western Atlantic**

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Abstract

A new species of seven-spined goby of the genus *Chriolepis* is described from four specimens from four widely separate western Atlantic localities (Little Bahama Bank; off southwestern Florida; Tobago Island; and northeastern Colombia) from depths ranging from 62 to 138 m. The species is distinct from all other western Atlantic species currently assigned to the genus *Chriolepis* in having a fully scaled body, the first two dorsal-fin spines greatly elongated in both sexes, especially so in females, and two anal-fin pterygiophores inserted anterior to the first haemal spine. It differs from members of the similar genus *Varicus* in having branched pelvic-fins rays, a longer fifth pelvic-fin ray and more numerous meristic elements. It closely resembles *Chriolepis atrimelum*, known from a similar depth at Isla del Coco in the eastern Pacific Ocean.

Key words: Gobiidae, *Chriolepis*, *Varicus*, Caribbean, Gulf of Mexico

Introduction

Most species of gobies currently allocated to the New World genus *Chriolepis* are poorly known. All are small, and many occur in relatively deep waters, being known from a few trawled or dredged specimens that are often in poor condition. As currently defined, *Chriolepis* differs from other genera of seven-spined gobies in lacking head pores, in lacking a pelvic interspinal frenum and an interradiial membrane thus having the left and right pelvic fins completely separate, and by having at least some pelvic-fin rays branched. It is similar to the western Atlantic genus *Varicus* which has unbranched pelvic-fin rays, but the distinction between the two genera in other characters remains unclear and the monophyly of either genus has not been conclusively demonstrated (Hastings & Bortone 1981; Birdsong *et al.* 1988; Van Tassell 2011).

Several years ago, while examining gobiids in the collections of the Natural History Museum of the United States (USNM), Smithsonian Institution, one of us (LF) encountered three unidentified specimens, all in poor condition, from separate localities in the Caribbean Sea and southeastern Gulf of Mexico, which were identifiable as an undescribed species of *Chriolepis*. Shortly thereafter, the other of us (PH) encountered an additional USNM specimen (in better condition) of a relatively large and distinctive species of *Chriolepis* that (for a goby) had been collected from significant depth (138 m) at Little Bahama Bank. Comparison of the four specimens led us to conclude that all represented the same new species, but its description was delayed in anticipation of encountering additional specimens in better condition. Because none have been forthcoming, we describe the species herein and briefly compare it with other known species of *Chriolepis* in the western Atlantic and with species of *Varicus* which are known only from the western Atlantic.

fin spine in *C. bilix*, but shorter than the spine in the other two species. Finally, it differs from those two species in number of elements in the second dorsal fin: 12 in *C. bilix*, 10 in *C. vespa* and 9 in *C. benthonis*. The only other currently recognized species of *Chriolepis* in the western Atlantic, the shallow-living *C. fisheri*, differs from all of these species in having a small body, a relatively flat head, and in lacking scales on the lateral aspect of the body (two specialized basicaudal scales are present in *C. fisheri*). *Chriolepis bilix* differs from morphologically similar gobies in the genus *Varicus*, known only from the western Atlantic, in having branched pelvic-fin rays (unbranched in *Varicus*), the fifth pelvic-fin ray longer than the pelvic-fin spine (shorter than the spine in *Varicus*), and greater numbers of second dorsal-fin, anal-fin and pectoral-fin elements (Table 1).

Chriolepis bilix closely resembles the eastern Pacific species *Chriolepis atrimelum* Bussing, 1997, known from a single specimen collected at a depth of 137–146 m at Isla del Coco (Bussing, 1997). They have similar numbers of second dorsal-fin elements (12), anal-fin elements (11–12 in *C. bilix* versus 11 in *C. atrimelum*), and pectoral-fin rays (19–20 versus 20). Both have a fully scaled body, elongate anterior dorsal-fin spines, and two anal-fin pterygiophores inserted anterior to the first haemal spine. They differ in number of mid-lateral scale rows, estimated to be 30–35 in *C. bilix* and 41 in *C. atrimelum*, dorsal fin configuration (spines I and II elongated with the first the longer in *C. bilix* versus I–III elongated with the second the longest in *C. atrimelum*). They may also differ in coloration. *Chriolepis atrimelum* has a dark oval blotch on the operculum, while no such pigment is evident in the faded *C. bilix* specimens.

The presence of the first two anal-fin pterygiophores inserted anterior to the first haemal spine in *C. bilix* is unique among western Atlantic species of *Chriolepis*, as well as the related genus *Varicus*; all other known western Atlantic species of these genera have only the first anal-fin pterygiophore inserted anterior to the first haemal spine (Table 1; Birdsong *et al.* 1988). This feature is shared with *C. atrimelum*, as well as some other eastern Pacific species of *Chriolepis* (Birdsong *et al.* 1988). Thus the importance of this character in determining relationships among the species of these poorly known genera remains unclear.

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