



A review of the Caribbean hamlets (Serranidae, *Hypoplectrus*) with description of two new species

PHILLIP S. LOBEL

Dept. Biology, Boston University, Boston MA 02215, USA; plobel@bu.edu

Abstract

Thirteen species of the Western Atlantic genus *Hypoplectrus* (Serranidae) are currently recognized, two of which are described as new. *Hypoplectrus maya* n. sp. (Maya hamlet) is restricted to the coastal lagoon of the Meso-American Barrier Reef system in Belize. It is a solid iridescent blue, lacks nose spots and lacks black margins on fins. *Hypoplectrus randallorum* n. sp. (Tan hamlet) is found widely in the central and western Caribbean. Its color varies from light brown to tan and it has spots on the nose, at the base of the pectoral fin and occasionally on the upper part of the caudal peduncle. All identified species of *Hypoplectrus* are illustrated in live coloration along with examples of color variations in *H. nigricans* and *H. unicolor*. A historical review of *Hypoplectrus* is included with a discussion of issues concerning their taxonomy.

Introduction

The hamlets are small (max about 20cm SL) reef fishes found throughout the Caribbean (Randall 1968, Domeier 1994, Heemstra *et al.* 2002, Aguilar-Perera & Gonzalez-Salas 2010, Holt *et al.* 2010). They are predatory fish that feed on small crustaceans and tiny fishes (Randall 1967, Whiteman *et al.* 2007, Holt *et al.* 2008). Hamlets are simultaneous hermaphrodites, which broadcast spawn in the water column (Barlow 1975, Fisher 1980a, 1981, 1987; Lobel & Neudecker 1985). Individual fish maintain pair bonds and the paired fish exchange positions between mating bouts whereby they take turns spawning as male or female. Mating hamlets produce a unique sound while gametes are dispersed which may help to synchronize spawning (Lobel 1992, 2002). The fish also produce a very low amplitude pre-mating sound. Preliminary acoustic field recordings suggest that different hamlet species possibly produce different pre-mating sound patterns, although this has yet to be statistically validated (Lobel 1992).

On any given coral reef location in the tropical western Atlantic ocean, several hamlet species are typically sympatric, maintaining reproductive isolation with occasional hybridization (Barlow 1975, Fisher 1980a, 1981, Lobel and Neudecker 1985, Domeier 1994, Puebla *et al.* 2007). These fishes are intriguing both because of their hermaphroditic behavior as well as the possibility of their exhibiting sympatric speciation (e.g. Fisher 1980b, 1987; Charnov 1982, Rocha & Bowen 2008, Salzburger 2008). It has been proposed that the hamlets have evolved as aggressive mimics of non-predatory reef fishes (Randall & Randall 1960, Thresher 1978, Fisher 1980b, Randall 2005). This scenario of mimicry driving the evolution of hamlet species was reviewed by Puebla (2009).

Defining the species in the genus *Hypoplectrus* has been a classic taxonomic problem in ichthyology for decades. No clear morphological or meristic characters delineate the hamlet “species” except color patterns (Randall 1968, Fisher 1980b, Domeier 1994). Color pattern and geographic distribution appear to be reliable characters for defining the hamlet species (Randall 1968, Heemstra *et al.* 2002, Aguilar-Perera 2003, Puebla *et al.* 2007, Aguilar-Perera & Gonzalez-Salas 2010, Holt *et al.* 2010). Hamlets display strong mating preference for individuals of the same color pattern. However, the boundaries of the species as defined by color are confounded by occasional mixed matings and hybrids (Barlow 1975, Fisher 1980b, Rao & Lakshmi 1999). The results of these mixed mating are offspring with mixed coloration (Domeier 1984, Whiteman *et al.* 2007). Mating between same colored (i.e. species) hamlets produce offspring of the same color pattern as the parents (Domeier 1994). The difficulty of defining the hamlet species flock is similar to that found for African rift-lake cichlids (Puebla 2009). In this regard, the