Cirrhigaleus australis n. sp., a new Mandarin dogfish (Squaliformes: Squalidae) from the south-west Pacific

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Abstract

A new species of Mandarin dogfish, Cirrhigaleus australis n. sp., is described based on specimens from southeastern Australia. Australian populations were previously considered to be conspecific with Cirrhigaleus barbifer from the western North Pacific and Indonesia, but recent investigations revealed that the two forms differ in morphology and in the structure of the CO1 gene. Cirrhigaleus australis has a smaller eye, shorter dorsal-caudal space, and smaller pectoral fins and dorsal fins and spines. These species are clearly separable from the only other congener, C. asper, and all other members of the family Squalidae, by the possession of a greatly produced barbel on their anterior nasal flap. The new species occurs in temperate waters of eastern Australia, and possibly New Zealand.

Key words: Cirrhigaleus australis, new species, Squalidae, Australia, New Zealand

Introduction

The genus Cirrhigaleus was proposed as a monotypic genus by Tanaka (1912) for a new dogfish, C. barbifer, from Japan. Soon after, Herre (1935) described another Mandarin dogfish Phaenopogon barbulifer, also based on Japanese material. Herre had overlooked Tanaka’s description but immediately synonymised his species with C. barbifer once he realised this oversight (Herre, 1936). Cirrhigaleus was synonymised with Squalus by Garman (1913), but was reinstated as a valid genus by Bigelow & Schroeder (1948, 1957). Cirrhigaleus is distinguishable from members of the closely related genus Squalus by its extremely elongated nasal barbels, similar dorsal fins, and absence of precaudal pits.

In 1973, Merrett described another distinctive dogfish, Squalus asper, from Aldabra in the western Indian Ocean. This species differed from other Squalus species in its possession of large dorsal fins of similar size, weak or absent precaudal pits, and a very short, broad head. Thus, at this stage, the only characteristic distinguishing Cirrhigaleus and Squalus was the extremely long nasal barbels of the former species. Although Bass et al. (1976) synonymised Cirrhigaleus with Squalus, Bass (1979) and Compagno (1984) retained Squalus asper and Cirrhigaleus barbifer in their respective genera, but noted their similarity. Cladistic analysis by Shirai (1992) reassigned Squalus asper in Cirrhigaleus, based largely on the similarity of their chondrocrania. Molecular studies of the family Squalidae may be required to assess the validity of this decision.

Cirrhigaleus barbifer is thought to have a sporadic distribution in the Indo–West Pacific, from southeastern Japan (Tanaka, 1912; Nakabo, 2002), Taiwan (Shen, 1993), Bali and Lombok in Indonesia (White et al. 2006), Torres Islands in Vanuatu (Fourmanoir & Rivaton, 1979), southeastern Australia (Bass, 1979), and New Zealand (Garrick & Paul, 1971; Paulin et al., 1989). However, recent examination of Cirrhigaleus spec-