



***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 barbifer*, 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-