



A redescription of *Carcharhinus dussumieri* and *C. sealei*, with resurrection of *C. coatesi* and *C. tjtjtjot* as valid species (Chondrichthyes: Carcharhinidae)

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Abstract

A taxonomic re-evaluation of the *Carcharhinus sealei-dussumieri* group using meristic and morphological data revealed that this group consists of 5 species. Two species, *Carcharhinus coatesi* (Whitley, 1939) from northern Australia and probably New Guinea and *C. tjtjtjot* (Bleeker, 1852) from Indonesian to Taiwan, are resurrected as valid species and together with *C. dussumieri* and *C. sealei* are redescribed. Garrick's lectotype designation of *C. dussumieri* and *C. tjtjtjot* are retained. A neotype for *C. sealei*, collected from the same locality as the holotype which was destroyed during World War II, is designated. A fifth, possibly undescribed species (*Carcharhinus* sp.) is also noted from the Western Indian Ocean and its affinities briefly discussed. The four redescribed species are very similarly morphologically but can be distinguished by a combination of meristic, morphological, dental and colour characters. The most important characters for distinguishing these species are: vertebral counts, tooth counts, tooth morphology, shape of first dorsal and pectoral fins, second dorsal fin colouration, and mouth width. Two independent molecular studies have produced results which closely correlate with and support the findings of this study.

Key words: *Carcharhinus dussumieri/sealei* group, resurrection, redescription, neotype, taxonomic resolution

Introduction

The whaler sharks of the genus *Carcharhinus* (Family Carcharhinidae) are among the most economically important groups of sharks in tropical regions of the world (White & Sommerville, 2010). Since many of these species are morphologically similar, accurate identifications are often difficult, particularly when ontogenetic changes may lead to misidentification issues. Many fisheries land finned carcasses making identification using traditional field characters particularly difficult. Molecular methods have become an important species identification tool in those instances when only fins or carcasses are available (Holmes *et al.*, 2009). A detailed revision of the genus *Carcharhinus* was conducted by Garrick (1982) and since this date only one new species was described, i.e. *Carcharhinus leiodon* Garrick 1985. Recent taxonomic investigation of members of this family have shown that a number of the smaller, inshore species, considered to be wide ranging, are complexes of narrower ranging species (White *et al.*, 2010b, c).

Garrick (1982) divided most of the *Carcharhinus* species into groups based on shared characteristics. One of these groups is the *sealei-dussumieri* group, which are small Indo-Pacific species that possess a black-tipped second dorsal fin with all other fins plain, and also have similar dentition, snout shape and fin shapes and sizes. Garrick (1982) placed two species in this group, *Carcharhinus dussumieri* (Müller & Henle, 1839) and *C. sealei* (Pietschmann, 1913), both with wide ranges in the Indo–West Pacific. *Carcharhinus dussumieri* was described based on four specimens collected from off Bombay and Pondicherry in India. Day (1873) described *Carcharias malabaricus* based on several specimens collected off Cochin and Calicut in India. However, Garrick (1982) examined these specimens and placed them in the synonymy of *C. dussumieri*. Bleeker (1852) described two similar species from off Jakarta (as Batavia) in Indonesia, *Carcharias javanicus* and *C. tjtjtjot*, which were also both placed into the synonymy of *C. dussumieri* by Garrick (1982). The confusion of the species in the synonymy of *C. dussumieri* began in Day's (1878) monograph on the fishes of India where he placed *C. malabaricus* in the synonymy of *C. menisorrhah* (Müller & Henle, 1839), together with *C. tjtjtjot*. He based this on a specimen of *C. menisorrhah* provided by Bleeker which was actually a specimen of *C. dussumieri*, evident from the illustration