



## Sharks of the Persian (Arabian) Gulf: a first annotated checklist (Chondrichthyes: Elasmobranchii)

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### Abstract

The first evidence-based checklist of sharks of the Persian (Arabian) Gulf is presented based on appraisal of primary literature and new data, including identifications verified by COI barcoding. Evidence of the occurrence of 26 species in the Gulf is presented, and the possible presence of a further 17 species is discussed. Carcharhinidae is the most species-rich family (16 species) present. The first substantiated Gulf records of the spinner shark *Carcharhinus brevipinna*, blacktip reef shark *C. melanopterus*, and scalloped hammerhead *Sphyrna lewini* are provided, along with a new record of the rarely reported grey nurse shark *Carcharias taurus*. The diversity of the Gulf's shark fauna, and possible influences on it, are briefly discussed.

**Key words:** COI barcoding, western Indian Ocean, elasmobranch, Carcharhinidae, biodiversity, fisheries

### Introduction

Records of sharks in the Persian (Arabian) Gulf (hereafter the Gulf) in the modern scientific literature date back over 130 years (Günther 1874). The diversity of Gulf sharks has been the focus of a targeted survey (Goubanov & Shleib 1980), new species have been described based on Gulf material (e.g. Compagno *et al.* 1996), and other records or range extensions have been reported (e.g. Al-Daham 1974; Bishop & Abdul-Ghaffar 1993; Moore *et al.* 2010). Yet no publication to date both lists the entire known Gulf shark fauna and provides evidence (e.g. material or diagnostic photographs, descriptions, measurements) of occurrence there. Evidence of occurrence in the Gulf itself is important, as the presence of widespread Indo-Pacific species cannot necessarily be assumed. This is due to the Gulf's very distinctive environment compared to adjacent waterbodies (e.g. the Gulf of Oman), notably its post-Holocene origins, semi-enclosed nature, shallow depth (average ~35 m) and extremes of temperature and salinity. As a result, the Gulf is reported to have a much lower total number of fish species than the adjacent waters of Oman (535 and 930 respectively; Carpenter *et al.* 1997a), and it is likely that these patterns are reflected with elasmobranchs.

Locally, national museum reference collections for fish and other taxa are rare (Bishop 2003), and where present can often be poorly maintained and difficult to access (pers. obs.). However on a few occasions sharks have been collected and well documented as part of broader studies: a fisheries survey in the late 1930s along the Iranian coast (Blegvad 1944; specimens in Universitetets Zoologiske Museum, Copenhagen), and ichthyological collections in the 1960s along the southern and western Gulf coast (Kuronuma & Abe 1986; reported as being deposited in the Tokyo Museum of Fisheries). John Randall collected a number of elasmobranch specimens in Bahrain and Kuwait in the 1970s and mid 1980s, which are deposited in the Bernice P. Bishop Museum, Hawai'i. High quality photographs of several of these appeared in subsequent texts (e.g. Randall 1986, 1995), and more are available online (Randall undated). Together these distant, dated collections form an important component of the known museum archive of Gulf sharks.