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FIRST RECORD OF BLUELINED HIND *CEPHALOPHOLIS FORMOSA*, SHAW 1812 (FAMILY: SERRANIDAE) IN THE PAKISTANI WATER

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ABSTRACT

First record of *Cephalopholis formosa* from the coast of Pakistan is reported, based on one specimen (23.5 cm TL) collected from the waters from the coasts of the Sindh on 28-09-2019. This species has not been reported from this area and just limited to Indian waters. This document provides confirmation for the presence of this species in the further extension to North Arabian Sea and first record from Pakistani waters. Morphometric and meristic information are provided of this specimen, comparing with authentic published data. The descriptions and morphometrics of this species are presented in this study.

Key-words: *Cephalopholis formosa,* Serranidae, Northern Arabian sea, First records, Pakistani water.

INTRODUCTION

Genus Cephalopholis (Bloch and Schneider, 1801) of family serranidae (Swainson, 1839) is differ from other genus on the basis of rounded caudal fin (except one species *C. polleni* in which it is truncate), head length 2.2 to 3.1 time in standard length; maxilla of mature specimen with knob or protuberance at lower edge; membrane between dorsal fin distinctly incised. Worldwide this genus represents 22 species, of which most are groupers found within or near coral reefs (Heemstra and Randall, 1993). However, only two species of this genus *C. Hemistiktos* and *C. sonnerati* has been reported to occur in the Pakistani water (Psomodakis *et al.*, 2015). *C. formosa*, recorded in many places in the Indo-West Pacific region (Heemstra and Randall, 1993), but not from Pakistan. This document reports the existence of *C. formosa* in Pakistani waters of the Northern Arabia Seaof Sindh coast for the first time, as evidenced through phenotypic character and photograph and reviewed its distribution after compilation with available reliable literature.

This species first time recorded from Vizagapatam, Coromandel Coast, Andhra Pradesh of India by Shaw in 1812 (Eschmeyer, 2019) with the synonyms of *Sciaena formosa.* Most common name is Blue line hind but also called as Bluelined Grouper, Bluelined Rock cod, Chocolate hind. (Froese and Pauly, 2019).

MATERIAL AND METHODS

During regular study on fish biodiversity at Karachi harbor, an unidentified colorful specimen of family serranidae found on 01-10-2019.Relevant information regarding area of catching, net used in this operation and depth was obtained. According to concerned fishermen the specimen was caught on 28-09-2019 from the shallow water of Sindh coast about 18 meter depth in bottom set gillnet which is the first ever record from Pakistan.

For identification purpose useful photograph and measurement of various body parts taken and sent to concerned ichthyologist. After confirmation of first record from Pakistan specimen was fixed in 10% formalin solution and kept in the museum of Marine Fisheries Department, Karachi

DESCRIPTION

Species has a large frontal body that then tapers towards their caudal fin, eyes is locate forward on their head with a extremely large mouth and strong pectoral fins. Body depth 2.5 to 2.9 times in standard length (SL). Head length 2.4 to 2.6 in SL. Preorbital depth 3.6 to 4.3 of SL more than half of maxilla width; inter orbital area convex. Preopercle rounded serrate, lower edge flashy sub opercle and interopercle flat, maxilla naked reaching close to corner of eye.8 to 10 gill rakers on upper limb, 14 to 18 on lower limb. Dorsal spines IX,with15-17 soft rays; membrane concave between the spines. Analspines III with 8 (hardly 7) rays. Second dorsal spine 12 to 14.6 % of SL and shorter to third spine. Pectoral rays 16 to 18 which is longer to pelvic fin. Pectoral fin length 1.5 to 1.8 time in head length. Pelvic fin reaching to close to anus which length is 1.6 to 2.0 time in head length, caudal fin rounded. Scales ctenoid including abdomen. 91 to 109 lateral scale. Characterized by dark brown to yellowish brown body with series of narrow dark irregular blue stripe across the body and on head. Fins, snout, lips, and ventral part of

head and chest with small blue spot. Diagonal stripe mostly on dorsal fin, a black spot between two spines of operculum membrane (Randall *et al* 1997) (Fig.1).

These morphometric and meristic character of this specimen were according to the publish data of Fischer and Bianchi 1984, Heemstra and Randall, 1993, Craig *et al* 2011,with the detail description of this specimen below.

The total length measure 235 mm(TL), standard length 186 mm(SL), head 70 mm, Body depth is 74 mm which is 2.5 times of SL, head length 2.6 time of SL, second spine 15 mm which is 12.5 time of SL, pectoral fin 46 mm which is 1.5 time of head length, pelvic fin is 37 mm which is 1.8 time of head length,gill rakers 10 upper and 16 lower including developed and rudimentary, dorsal fin IX with 16 soft rays, Anal fin III spine with 8 rays, pectoral fin 16 rays and lateral scale 94.

This species is sometimes mystified with *Cephalopholis boenak* which has vertical blackish brown bar on the body whereas this species has horizontal blue line on brown body color.

Fig. 1.*Cephalopholis formosa* (Blue line hind)

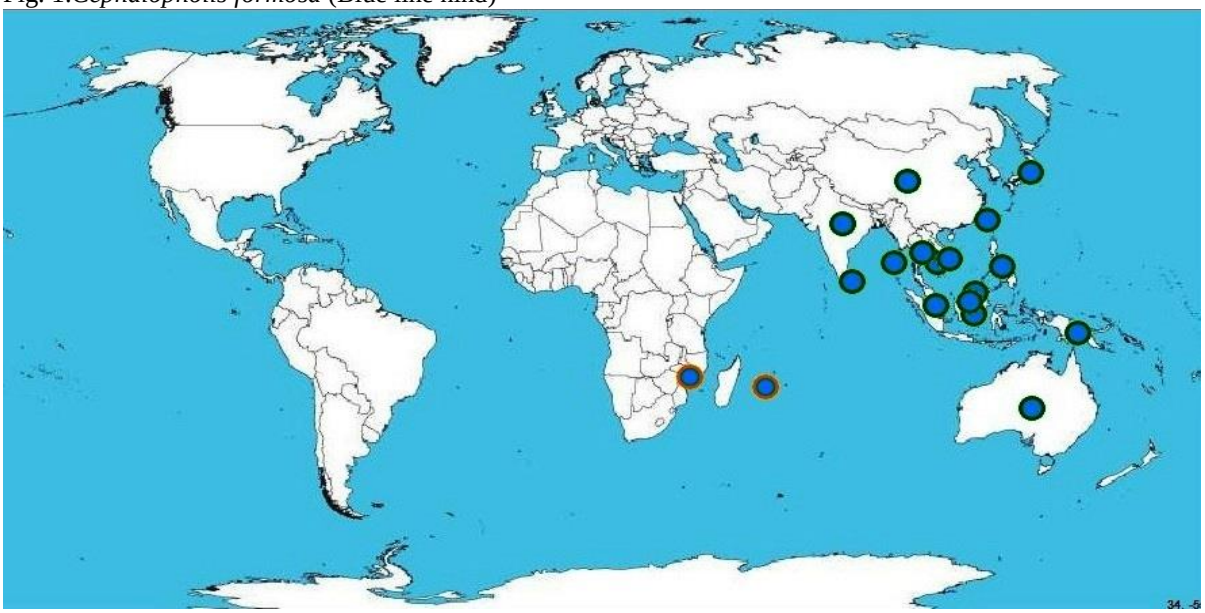

Fig.2. Distribution map of *Cephalopholis formosa* (Blue line hind).
http://www.fishbase.us/country/CountryList.php?ID=6446&GenusName=Cephalopholis&SpeciesName=formosa

DISTRIBUTION

A marine neritic species found on depth range 10-30 meters. Found in great barrier reef (Lieske and Myers, 1994; Gerry, 1999). Distribution of this species in many country of Indo-West Pacific like Andaman sea, Western India to Philippines, north to southern Japan (Honshu), south western Australia (Fig.2). Geographic range from 30° E - 80° E; 45° S - 30° N to 77°E - 150°E; 55°S - 24°N (Froese and Pauly, 2019). Now first time found from Sindh coast of Pakistan.

Specimens identified as '*Epinephelus formosa*' from Madagascar, Réunion and Mauritius are likely misidentifications of *Cephalopholis polleni*. (Heemstra and Randall, 1993) Records from the Persian Gulf (Tavakkoli and Kolour *et al.,* 2015) are also considered misidentifications. (Liu and Ma, 2018).

DISCUSSION

Bianchi (1985) not described any species of this genus from Pakistan. Psomadakis *et al.* (2015) described two species of this genus, *C. hemistiktos* and *C. sonnerati* from Pakistan.

Species has a single twist arrangement range of 7 to 10 pyloric appendages (Roy and Gopalakrishnan, 2011). On the basis of this study *C. formosa* was identified as first record in Odisa Coast, Bay of Bengal, India in 2018 (Barik *et al.,* 2018)

Separate statistical record of this species is very limited. This is a small species which usually not targeted in commercial fisheries. It is caught incidentally during fishing. This species is found in some part of western India (Sluka and Lazarus, 2010). It is uncommon in Taiwan Sea (Shen, 1984) and Chinese waters (Zhu *et al.,* 1963). This species was wide spread in India and reported in fishery statistics (Sujatha, 1986). In the north Andhra region of India it contributed 3% of the total grouper catches during 2009-2011 with the size range between 21-24 cm (Kandula *et al.,* 2015). According to a study in 2010-2011 at Kochi (Kerala) in India it as one of the most abundant and commercially important fish species with the size range of 26-31 cm (Bineesh *et al*., 2014).In another study in Visakhapatnam on the central east coast of India from 2008 to 2011, it's mainly caught by traps, trawls hook and line (Deepti *et al.,* 2013).

This species found in shallow, dead or silty coral and rocky reefs and usually does not occur around oceanic islands and atolls (apart from the Laksha dweeps which is a tropical archipelago consist 36 atolls and coral reefs in the Laccadive Sea, off the coast of Kerala, India).*C. boenak* also has the similar habitat (Froese and Pauly, 2019). The maximum length of *C. Formosa* recorded 34 cm TL. Species feeds mainly on dead or siltyreefs, fish and crustaceans (Deepti *et al.,* 2013).As to diet, this is a carnivores species and need a diet high in protein and amino acids (lipids/fats).

Species utilize the coral reef as shelter from larger predatory species, as well as a place to ambush prey with a rapid burst of speed with large open mouth.

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