

Report on Rare Occurrence of Queensland Grouper, *Ephinephelus lanceolatus*, (Bloch, 1790) From Cuddalore Waters, South East Coast Of India

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Abstract

*The giant grouper also recognized as the Queensland grouper or brindle grouper is one of the largest extent species of bony fish. A single specimen of Giant grouper which is the Queensland grouper occurrence was noted from Annankoil fish landing centre, parangipettai, Cuddalore waters, Southeast coast of India during March 2019. Based on the key identification characters like having tubules on lateral-line scales with four to six radiating branches; cycloid scales on the lateral sides of the body; this species is identified as *Ephinephelus lanceolatus*. The morphometric and characteristics of the recorded specimen is also described and calculated along with the percentage of Total Length. However previously this species has no proper morphometric records also this recorded from the limited areas around the world along with this the extension range distribution of this species to this Coromandel coastal region is fully discussed here.*

Keywords: *Ephinephelus lanceolatus; Queensland grouper; rare occurrence; Coromandel region; South east coast of India.*

INTRODUCTION

Among all of the Bony-fishes Order: Perciformes occupies nearly about 41% of total species (Nelson), as this order constitute of about 156 families (Carroll, 1988) (Helfman *et al.*, 1997). Among these above Families Serranidae is one of the important fish family under this (order:perciformes) as many of the commercially important food fishes falls under this family

(Nelson, 1994). The Family: Serranidae comprises of 75 Genera and 556 valid species (Eschmeyer, 2020). Serranids include Groupers and Sea basses. Whereas in case of grouper the Genera *Ephinephelus* is the most deceptive case (Randall and Heemstra, 1991). The *Ephinephelus* includes 92 valid species (Frable *et al.*, 2018). Among all of the serranids Giant grouper is the largest growing species *Ephinephelus lanceolatus* (Bloch, 1790) also called as Queensland grouper or Reef cod (Heemstra and Randall, 1993). *E.lanceolatus* inhabits tropical and sub-tropical waters in the main oceans of the blue-planet (Lieske and Myers, 1994) and mostly giant grouper occurs in shallow coastal water regions and also in estuaries; which prefers caves or wrecks, coral reef, rocky, artificial reef and muddy substratum (Kuiter and Tonozuka, 2001). Concerning fisheries, it is not caught as the targeted fish species they are generally caught by trawler, Hook and lines in some areas giant grouper is caught through by multi-targeted gears (Heemstra and Randall, 1999). *E.lanceolatus* is the most widely distributed grouper in the world. It occurs throughout the Indo-Pacific region from the Red Sea to Algoa Bay, South Africa and eastward to the Hawaiian and Pitcairn Islands. In the western Pacific, it ranges northward to southern Japan and southward to Australia (Kailola and Jones, 1981). Around the world the Queensland grouper is recorded from the sea areas such as Atlantic – southeast, Indian Ocean - Eastern; Pacific - Eastern Central, Pacific – Northwest, Pacific – Southwest, Pacific - Western Central (Froese and Pauly, 2004) and Atlantic - Western Central (BEST Commission, 2003), Here in this article we are reporting the rare occurrence of the Queensland grouper which is not having the common landing to the Coromandel region particularly in this Cuddalore coastal waters, Southeast coast of India.

MATERIALS AND METHODS

Annankovil fish landing centre (11° 29' N; 79° 46' E) is located in Parangipettai coasts, Cuddalore waters, Southeast coast of India (Fig.1). A single Queensland grouper specimen was caught (Fig.2) on the date of 02.03.2019 through by the otter trawler which is specifically targeted for shrimps and demersal fishes at depth of 60 meters. The caught specimen was identified through the help of the FAO field identification guide western Indian ocean. Photographs were taken and morphometric measurements were recorded (Table 1).

RESULTS

The study revealed the rare occurrence of the *Ephinephelus lanceolatus*, Queensland grouper from the Cuddalore coastal waters (Fig.2). The Total length of the Giant grouper caught in the Cuddalore coast on the date of 02.03.2019 measured to Total length of 405 mm, it weighs about 3 kg that the caught specimen was landed at the Annankovil fish landing centre.

Systematic classification

Kingdom: Animalia

Phylum: Chordata

Class: Actinopterygii

Order: Perciformes

Family: Serranidae

Genus: *Ephinephelus*

Species: *Ephinephelus lanceolatus*

Description to the species

Body robust, the depth contained 2.4 to 3.4 times in standard length; the body width contained 1.5 to 1.75 times in the depth. Head length contained 2.2 to 2.7 times in standard length; interorbital width contained 3.3 to 6.2 times in head length; interorbital area flat to slightly convex, the dorsal head profile convex; pre-opercle subangular, finely serrate, the corner rounded; upper edge of operculum convex; eye diameter contained 5.8 to 14 times in head length; nostrils sub-equal; maxilla reaching past vertical at rear edge of eye; mid-lateral part of lower jaw with 2 or 3 rows of teeth (specimens of 20 to 25 cm standard length) increasing to 15 to 16 rows in a fish of 177 cm standard length; canine teeth at front of jaws small or absent. The 3rd to 11th spines sub-equal, their length contained 3.1 to 5.7 in head length and much shorter than longest rays in adults. Anal fin with 3 spines and 8 rays. Pectoral fin rays 18 to 20; pectoral fin length contained 1.8 to 2.2 times in head length. Pelvic fins not reaching anus, their length contained 2.1 to 2.6 times in head length. Caudal fin rounded. Lateral body scales smooth, with auxiliary scales. Lateral-line scales 54 to 62, the anterior scales with branched tubules. Lateral scale series 95 to 105.

Colouration of fresh specimen

The Queensland grouper consists of irregular sized white spots over the black body surface area and the fins consists of the black spots over the yellow surfaced fins.

DISCUSSION

E. lanceolatus is one of the largest species of groupers in the world; whereas, the other is *E. itajara* of the Atlantic and eastern Pacific oceans. A total length of 231 cm and weight of 214 kg specimen from Bikini Atoll (Schultz, 1966). A massive specimen of 288 kg from Queensland Grant (1982). According to (Fourmanoir and Laboute, 1976), *E.lanceolatus* can attain 400 kg. From the present study that our caught specimen measured to a total length of 40.5 cm and weight of 3kg where this is the small adult specimen. *E. lanceolatus* differs from other species occurring in *Ephinephelus* genus by having tubules on lateral-line scales with four to six radiating branches. Except for large adults of *E. malabaricus*, *E.itajara*, and *E. coioides* (which have a few foremost lateral line scales with branched tubules and posterior lateral-line scales with a single tubule), the lateral-line scales of other *Epinephelus* have unbranched tubules (Randall and Heemstra, 1991). *E.lanceolatus* closely resembles to *E. itajara*; both species attains to enormous size and both will exhibit similar body morphological shape, small eye, wide interorbital area, short dorsal-fin spines and similar fin counts. However, *E.lanceolatus* differs from *E.itajara* in having cycloid scales (whereas *E.itajara* has ctenoid scales) on the sides of the body, and adults are vaguely mottled dark brown, the fins have numerous small black spots (whereas *E.itajara* have small black spots on the head and dorsal part of the body) (Heemstra and Randall, 1993, 1999). Overfishing is the major threat to this species (Pogonoski *et al.*, 2002) in which due to heavy fishing pressure the *E.lanceolatus* population is estimated as showing the declining trend (Fennessy *et al.*, 2018). Looking over the conservation aspects the Queensland grouper range is not known yet research still needed on Age, Growth, Reproduction and fisheries management monitoring is also needed. However, the occurrence of this species in Cuddalore coasts indicates the range extension of its distribution to Coromandel coast, southeast coast of India and additional recordings are needed to estimate the true range extension of this species around the world.

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Tables and Figures

Morphometric Characters	mm	% of TL
Total length	405	
Fork length	397	96.5
Standard length	315	77.7
Pre anal length	240	59.2
Pre pelvic length	157	38.7
Head length	142.5	35.1
Head depth	130	32.1
Pre pectoral length	127	31.3
Pre orbital length	36	8.8
Inter orbital length	30	7.4
Diameter of eye	13	3.2
Snout length	37.5	9.2
Pre dorsal length	126	31.1
Body depth	129	31.8
Tail length	67.5	16.6
Tail width	82.5	20.3
Caudal height	60	14.8

Table 1. Morphometric measurements of Queensland grouper, *Ephinephelus lanceolatus*

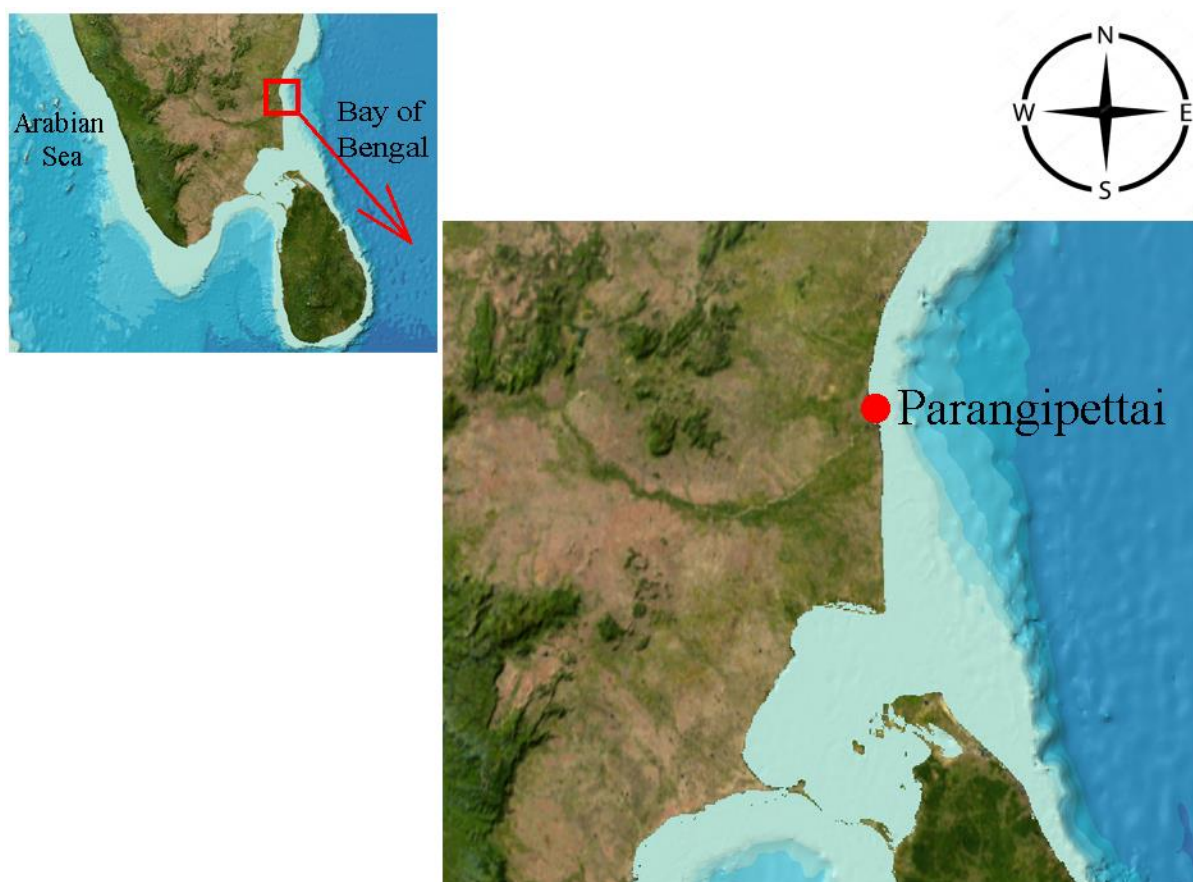


Fig. 1 The Red Mark Indicates the representation of Study area



Fig.2–Lateral view of *Ephinephelus lanceolatus*, Queensland grouper caught from cuddalore coastal waters, South east cost of India