

## First record of Grunting toadfish, *Allenbatrachus grunniens* (Linnaeus, 1758) (Batrachoidiformes: Batrachoididae) from Odisha Coast, India

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Received 22 May 2018; revised 06 August 2018

This paper reports *Allenbatrachus grunniens* (Linnaeus, 1758), a toadfish species for the first time from Odisha coast. The specimen was collected from the mangrove area of Mahanadi estuary at Paradeep. From Odisha coast only one species of fish from the Batrachoididae family, *Austrobatrachus dussumieri* (Valenciennes 1837), presently known as *Colletteichthys dussumieri* (Valenciennes, 1837) was reported. Here a systematic account of *Allenbatrachus grunniens* (Linnaeus, 1758) with its morphometry is reported for the first time as an additional record to the fish fauna of Odisha.

**[Keywords:** Batrachoididae; First record; Mangrove associate; Mahanadi estuary]

### Introduction

Odisha state lies along the north-eastern part of peninsular India with a stretch of 482 kilometres of coastline adjoining the Bay of Bengal<sup>1</sup>. In Odisha, mangrove forests spread over an area of 195 sq. km in Paradeep, Dhamra and Bhitarkanika located in the estuaries of Mahanadi, Brahmani and Baitarani rivers<sup>2</sup>. Sir Francis Day<sup>3</sup> studied the fishes of Odisha in two parts, inventorizing both marine and fresh water species. Since then, several works on fish faunal study of this maritime state have been carried out. A total of 605 species of fishes under 138 families and 27 orders has been reported from Odisha Coast<sup>1</sup>. During past one decade, few more fishes were also reported to occur in this region, but none of those works included any toadfish. As listed in earlier report the order Batrachoidiformes along Odisha coast was represented by only one species, *Austrobatrachus dussumieri*, presently known as *Colletteichthys dussumieri* (Valenciennes, 1837) belonging to family Batrachoididae<sup>1</sup>.

While observing fish faunal components of the mangrove areas of Mahanadi estuary near Paradeep, one interesting specimen of toadfish was collected and later identified as *Allenbatrachus grunniens* (Linnaeus, 1758). This paper reports *Allenbatrachus grunniens* (Linnaeus, 1758) from the Odisha coast for the first time with the taxonomic details of collected specimen.

### Materials and Methods

One specimen of toadfish was collected from mangrove area of Mahanadi estuary near Paradeep from Boitarakuda village (20° 18' 10.28" N, 86° 41' 35.88" E) on 3<sup>rd</sup> December, 2017. The fresh specimen was preserved in 10 % formaldehyde after collection. The details of morphometric measurements were taken in mm by dial callipers up to 0.1 mm accuracy. Meristic counts and morphometric measurements of the *Allenbatrachus* species was taken following standard methods<sup>4</sup>. The identification of the species was done following standard literatures<sup>4-7</sup>. The specimen was deposited in the Estuarine Biological Station, Zoological Survey of India, Gopalpur-on-Sea, Odisha with the reg. no. EBRC/ZSI F 9861 (Fig. 1).

### Results

Meristic counts and morphometric measurements of the collected specimen are presented in Table 1. Taxonomic account of the species are given hereunder.

Class: **Actinopterygii** Klein, 1885

Order: **Batrachoidiformes** Nelson, 1994

Family: **Batrachoididae** Jordan, 1896

Genus: ***Allenbatrachus*** Greenfield, 1997

Species: ***A grunniens*** (Linnaeus, 1758)  
(Grunting toadfish)



Fig. 1 — *Allenbatrachus grunniens* (Linnaeus, 1758) 01 ex., 146 mm TL, EBRC/ZSI F 9861.

Table 1 — Morphometric measurements of *Allenbatrachus grunniens* (Linnaeus, 1758), EBRC/ZSI F 9861.

Character	Actual in mm	% SL	% HL
Total length	146		
Standard length	125.5		
Head length	49	39.04	
Body depth	39	31.07	
Pre-dorsal length	53.5	42.62	
Pre-anal length	64	50.99	
Length of pectoral fin	26.5	21.11	
Length of caudal fin	25.5	20.31	
Caudal peduncle length	4	3.1	
Caudal peduncle depth	14	11.15	
Snout length	15.5		31.63
Inter orbital length	15		30.61
Eye diameter	6		12.24
Dorsal spine	3		
Dorsal rays	21		
Pectoral rays	30		
Pelvic spine + rays	I+2		
Anal spine + rays	0+18		
Caudal rays	18		

*Cottus grunniens* Linnaeus 1758, *Systema Naturae* (ed. 10), 1: 1209 (Type locality: East Indies).

*Halophyrne gangene*: Hamilton, F 1822. *Edinburgh & London*. i-vii + 1-405, Pls. 1-39.

*Materials examined*: EBRC/ZSI F 9861, 01 ex., 146 mm Total Length (TL), 125.5 mm Standard Length (SL), Mangrove area of Mahanadi estuary near Paradeep from Boitarakuda village (20° 18' 10.28" N, 86° 41' 35.88" E), D. Dash and R. Yadav, 03/xii/2017.

#### Description

D III, 21; A 0, 18; P 30; V I, 2. Body depth is 3.2 times in standard length (SL). Head length (HL) 2.5 times in SL. Eye diameter is 8.2 times in HL

which is less than snout length. Snout length is 3.2 times in HL. Inter-orbital space is 0.4 times in eye diameter. Pre-dorsal length is 2.3 times while Pre-anal length is 1.9 times in SL. Pectoral fin length is 4.7 times in standard length. Caudal fin length is 4.9 times in SL. Caudal Peduncle depth is 0.28 times in peduncular length. Head pointed and flattened with protruding lower jaw; interorbital space much greater than eye diameter; gill opening at pectoral fin base. Two subopercular spines present; axillary foramen absent at pectoral fin base. Body naked and colour is light reddish brown, with dark marbled pattern. Head black with numerous cirri along the mandibular region.

#### Distribution

Generally the species is benthic, occurring mainly in the coastal waters of Indo-West Pacific: Recorded from Persian Gulf and from the Cambodian Mekong delta<sup>8</sup>. Only four species of toadfish, *Colletteichthys dussumieri*, *Allenbatrachus grunniens*, *Colletteichthys flavipinnis* and *Perulibatrachus aquilonarius* are known to inhabit Indian waters<sup>9-11</sup>.

#### Discussion

Batrachoididae, or toadfish is the only family in the order Batrachoidiformes (Haplodoci). The first toadfish to be described was *Cottus grunniens* (presently known as *Allenbatrachus grunniens*) by Linnaeus (1758). Greenfield *et al.*<sup>7</sup>, represented 25 genera and 78 species with four subfamilies: Halophryninae, Batrachoidinae, Porichthyinae and Thalassophryninae<sup>7</sup>. Currently there are 83 valid species of Batrachoididae reported till date<sup>8</sup>. Eighteen species of toad fish are reported from the Indo Pacific and Indian Ocean regions<sup>4</sup>. Three species of toadfish only belong to the genus *Allenbatrachus* with the absence of apical foramen at the tip of pectoral fin. *Allenbatrachus grunniens* differs from *A. reticulatus* by the structure of teeth. All teeth in jaws pointed; vomer and palatines with single row, while in case of *A. reticulatus* all teeth in jaws rounded, without sharp points; vomer with two rows and palatines with single row. *Allenbatrachus meridionalis* Greenfield & Smith, 2004 has been only reported from Western Indian Ocean has a much darker body color with total of 22 dorsal soft rays, (21 in *A. grunniens*) moreover its size is much smaller than that of *A. grunniens*. The occurrence of the species from mangrove region adds significant habitat information of the species. Previously only *Austrobatrachus dussumieri*

(Valenciennes, 1837) was reported from Mahanadi estuary<sup>12</sup>. From Indian waters *Allenbatrachus grunniens* was reported from Ganga river, West Bengal<sup>6</sup> and from Gulf of Mannar, Tamil Nadu<sup>13</sup>. This report extends the range of the species to Odisha coast. The occurrence of this species in Odisha coast suggests its distribution is all along the east coast of India.

### Acknowledgement

We are thankful to Professor R.P. Das, Vice Chancellor, Berhampur University and Dr. Kailash Chandra, Director, Zoological Survey of India, for providing necessary working facilities.

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