

New record of five ornamental triggerfishes (Tetraodontiformes: Balistidae) from West Bengal coast, India

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The present paper reports five ornamental triggerfishes (Tetraodontiformes: Balistidae) for the first time from the coastal waters of West Bengal. The five species namely, *Balistapus undulatus* (Park, 1797) *Balistoides viridescens* (Bloch & Schneider, 1801), *Canthidermis maculata* (Bloch, 1786), *Odonus niger* (Ruppell, 1836) and *Sufflamen fraenatum* (Latreille, 1804) are reported here for the first time from West Bengal coast with detailed morphometry.

[Keywords: Balistidae, East coast of India, First report, Fish]

Introduction

The live ornamental fauna trading is a multimillion dollar industry globally, worth an estimated US \$ 200-300 millions annually and operating throughout the tropics¹. The internal and export trade for the ornamental fish are estimated at US \$ 3.26 million and US \$ 0.38 million in India². From Indian coast about 454 species of marine ornamental fishes are listed³ as having trading potentiality. Among them, members of family Balistidae are considered as good ornamental fishes due to their unique shape, colourful body and as they thrive well in aquarium⁴⁻⁵. The family Balistidae comprises of 42 species under 12 genera worldwide⁶. During local surveys along Digha coast of West Bengal, India, the authors collected several Balistid fishes and subsequently they were identified as *Abalistes stellatus* Lacepede, 1798), *Balistapus undulatus* (Park, 1797), *Balistoides viridescens* (Bloch & Schneider, 1801), *Canthidermis maculata* (Bloch, 1786), *Odonus niger* (Ruppell, 1836), and *Sufflamen fraenatum* (Latreille, 1804). After literature review⁷⁻¹², it was observed that except *Abalistes stellatus* (Lacepede, 1798), the other five species were not reported from West Bengal coast. Hence, the present paper reports five fishes from the family Balistidae for the first time from Bay of Bengal coast.

Methodology

The specimens were collected from Digha Mohana, West Bengal, India. The fishes were collected mainly

by the trawl nets at different times between the years 2010 to 2013. Photographs of the species were taken in fresh condition before preservation. All measurements were made by digital calipers with an accuracy of 0.1 mm. Specimens are deposited in Marine Aquarium and Regional Center, Zoological Survey of India museum with 10 % formaldehyde solution. Identification of the species was done following Matsuura¹³⁻¹⁴; Sahayak et al.¹⁵; and Padmavathi et al. 2017¹⁶. Abbreviations used are as follows: D – Dorsal fin; A – Anal fin; P – Pectoral fin; LL – lateral line scales. The details of morphometric measurements in standard length are given in Table 1.

Results

The following five species are reported for the first time from West Bengal of India. These species are having a great value in ornamental live fish trading, thus are important from socioeconomic point of view for the greater benefit of the local fishermen.

1. *Balistapus undulatus* (Park, 1797): Orange-lined triggerfish
Balistes undulates Mungo Park, 1797, Trans. Linn. Soc., London., 3 : 37.

Balistapus undulatus: Smith & Heemstra, 1986, Smith's Sea Fishes, p. 877, pl. 136.

Material examined: MARC/ZSI/F2100; 1 ex. SL: 175; 12/06/2011; collected from Digha Mohana (Fig. 1).

Table 1 — Morphometric measurements of fishes of family Balistidae collected from West Bengal

Character	In Percentage of SL				
	<i>Balistapus undulatus</i> SL: 175 mm	<i>Balistoides viridescens</i> SL: 285 mm	<i>Canthidermis maculata</i> SL: 201 mm	<i>Odonus niger</i> SL: 135	<i>Sufflamen fraenatum</i> SL: 260 mm
HL	33.14	36.14	29.85	33.33	31.54
BD	45.71	56.14	47.26	51.85	53.85
EYE	6.29	6.32	5.47	5.93	4.62
Snout	22.86	29.47	19.90	26.67	23.08
IOS	10.29	15.79	18.41	11.11	8.46

Fig. 1 — *Balistapus undulatus* (Park, 1797)

Characters: D III+27; A 23; P 12; LL 39. Body compressed and deep, covered with plate like scales in regular rows. Scales larger, in the surroundings above the base of pectoral fin and behind the gill opening; scales on compressed caudal peduncle with two longitudinal spines projecting towards anterior end. Terminal mouth, with pointed teeth, and larger teeth is the middle pair in both jaws. Groove absent in front of eyes. Caudal fin rounded.

Colour: Body brown with diagonal curved orange lines on head and body; areas around caudal peduncular spines black; a diagonal band with narrow blue and orange stripe surrounding the mouth and below pectoral fin region. The soft dorsal fin rays, anal and pectoral fin rays are orange. The colour of the caudal fin is orange.

Distribution: Widely distributed along the tropical Indo-West Pacific, from East Africa, including the Red Sea¹³. In Indian coast, *Balistapus undulatus* was reported along Andaman and Nicobar Island¹⁷, Lakshadweep¹⁸, Maharashtra¹⁹, Tamil Nadu²⁰. Present

study reports this species for the first time from West Bengal, north eastern Indian coast.

2. *Balistoides viridescens* (Bloch & Schneider, 1801): Titan triggerfish

Balistes viridescens: Bloch & Schneider, 1801, Syst. Ichth, p. 477.

Balistoides viridescens: Smith & Heemstra, 1986, Smith's Sea Fishes, p. 878, pl. 136.

Material examined: F1966; 1 ex. SL: 285; 12/11/2010; collected from: Digha Mohona (Fig. 2).

Characters: D III+25; A 24; P 14; LL 32. Body deep and compressed, covered by plate like scales in regular rows; scales absent around lips. Larger scales surrounding in above base of pectoral fin and behind the gill opening; 4 rows of small spines present on caudal peduncle. Mouth was terminal with pointed teeth having the central pairs the largest in both jaws. Groove present in front of eyes. Caudal fin rounded; caudal peduncle compressed.

Colour: Body yellow in colour but paler in posterior part. Centre of the scales greenish brown. A broad black zone with yellow spots extending from dorsal part of the head to pectoral base; a broad black band along a pale line runs from above the mouth to half way of cheek; base and margin of soft dorsal fin, anal and caudal fins are with broad black borders.

Distribution: Widely distributed along the tropical Indo-West Pacific¹³. From the Indian waters *Balistoides viridescens* was reported from

Andaman and Nicobar Island¹⁷; Lakshadweep¹⁸ and Tamil Nadu²⁰. Present study reports this species for the first time from West Bengal waters.

3. *Canthidermis maculata* (Bloch, 1786): Rough triggerfish

Balistes maculatus : Bloch, 1786, Nat. Ausl and Fische., 2 : 25.

Canthidermis maculatus: Rao et al., 1992, J. Andaman Sci. Assoc., 8(2): 115.

Material examined: F2303; 1 ex. SL: 201; 16/04/2013; collected from: Digha Mohona (Fig. 3).



Fig. 2 — *Balistoides viridescens* (Bloch & Schneider, 1801)



Fig. 3 — *Canthidermis maculata* (Bloch, 1786)

Characters: D III+24; A22; P 14; LL59. Body was elongated, deep and compressed, dorsal and ventral profile equally concave. Smaller scales present along the body ridges, above pectoral-fin base and just behind the gill opening. Mouth was terminal and teeth rectangular with conical edge. A deep groove was present in front of eye and below the nostril. Caudal peduncle was compressed and devoid of spine. Dorsal and anal fin were angular; and caudal fin double emarginated.

Colour: Body dark bluish with white spots, spots are more in ventral side; dorsal and anal fin with grey spots.

Distribution: Wide spread in all tropical and subtropical Ocean except Mediterranean⁶. Along Indian coast, this species is reported from Andaman and Nicobar Island¹⁷, Kerala²¹, Chennai, Tamil Nadu²²; Gulf of Mannar²³; Visakhapatnam and Andhra Pradesh¹⁶. Present study reports this species first time from the coast of West Bengal.

4. *Odonus niger* (Ruppell, 1836): Redtooth triggerfish

***Xenodon niger*:** Ruppel, 1836, Neue Wirbelthiere zu der Fauna von Abyssiniengehörig. Fische des Rothen Meeres. Siegmund Schmerber, Frankfurt am Main., 1-28.

Material examined: F2453; 1 ex. SL: 135; 16/01/2012; collected from: Digha Mohona (Fig. 4).

Characters: D III+34; A28, P 15, LL 34. Body deep and compressed; scales above pectoral-fin base and just behind gill opening much enlarged, cheek scaly. A prominent groove present on snout, before eyes. Mouth upturned, chin protruding; the two upper teeth canine

like and visible when mouth closed. Posterior part of the body was with seven rows of small spine. Dorsal and anal fin elevated at anterior part; and caudal fin lunate shaped with prolonged lobe.

Colour: Body bluish black; dorsal, anal and caudal fin bluish at margin; teeth red.

Distribution: Widely distributed along the Indo-Pacific⁶. From Indian coast, this species was reported from Andaman and Nicobar Island¹⁷, Lakshadweep¹⁸, Kerala²⁴ and Tamil Nadu²⁵. Here, the species is reported for the first time from West Bengal coast, India.

5. *Sufflamen fraenatum* (Latreille, 1804): Bridled triggerfish

***Balistes fraenatus*:** Latreille, 1804, Tableau méthodique des poissons. Pp. 71-105.

***Balistes capistratus*:** Shaw, 1804, General zoology or systematic nat. hist., v. 5 (pt 1): i-v + 1-25

Material examined: F2600; 1 ex. SL: 260; 23/08/2012; collected from: Digha Mohona (Fig. 5).

Characters: DIII+29; A 25; P 15, LL 53. Body deep and compressed, Scales above pectoral-fin base and just behind gill opening much enlarged deep groove present below the nostril and below eye. Upper and lower profile of head straight; mouth terminal; and small spines in longitudinal rows present on the posterior third of the body. Soft dorsal and anal fin anteriorly elevated; and caudal fin truncate.

Colour: Body light brown, upper lips with narrow light yellow bands.

Distribution: Widely distributed along the Indo-Pacific⁶. From Indian coastal water, this species



Fig. 4 — *Odonus niger* (Ruppell, 1836)



Fig. 5 — *Sufflamen fraenatum* (Latreille, 1804)

was reported along Andaman and Nicobar Island¹⁷, Kerala²⁴, Tuticorin²⁵, and Andhra Pradesh²⁶. Here, it is reported for the first time from West Bengal coast.

Discussion

From Indian coastal waters, a total of 22 species of family Balistidae, under 11 genera were reported²⁷. Previously, only one species: *Abalistes stellatus* (Lacepede, 1798) of Balistidae was reported from West Bengal⁸. In Digha, locally triggerfishes are known as “chapta bang” and “sukor”. Triggerfishes are frequently found in Digha Mohana but due to the less market value and lack of awareness of the local fishermen these fish species are normally thrown as bycatch in the trashes and not valued at all in fish market. But these fishes are having a huge potential market value in live ornamental fish trading^{4,5}. Balistidae fishery is also cost effective²⁵ and beneficial for human nutrition²⁸. During survey, it was observed that triggerfishes are found in huge quantity in northern part of east coast of India but due to lack of awareness among fishermen, and suitable infrastructure for keeping livestock selling; a huge quantity of ornamental fishes are simply thrown out as trashes. Thus, present study demands increased awareness among fishermen, trawler owner, fishing community and local public on the importance of trigger fishes as well as ornamental fishes. Also infrastructure like shore base stock facilities (FRP tank, quarantine tank, recirculating and water filtration system) in harbor or fish landing center and

transportation facilities for live fish trading may be facilitated for promoting the ornamental fish industries as an alternate livelihood for the fishermen of the areas.

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