Journal of Fisheries
Volume 14 Issue 1 April 2026
Peer Reviewed | Open Access

eISSN 2311-3111
pISSN 2311-729X

DOI: https://doi.org/10.17017/j.fish.1019

Short Communication

First record of the toxic shadow goby *Yongeichthys nebulosus* (Gobiidae: Gobiinae) from West Bengal, eastern India

Priyankar Chakraborty[1] • **Andrew Arunava Rao**[2]

[1] *Sundarban Tiger Widow Welfare Society (STWWS), Arampur, Gosaba 743370, West Bengal, India*
[2] *Malabar Tropicals, Kolkata 700017, West Bengal, India*

Correspondence
Priyankar Chakraborty; Sundarban Tiger Widow Welfare Society (STWWS), Arampur, Gosaba 743370, West Bengal, India
priyankar.jour@gmail.com

Manuscript history
Received 2 July 2025 | Accepted 24 November 2025 | Published online 3 December 2025

Citation
Chakraborty P, Rao AA (2026) First record of the toxic shadow goby *Yongeichthys nebulosus* (Gobiidae: Gobiinae) from West Bengal, eastern India. Journal of Fisheries 14(1): 141401. DOI: 10.17017/j.fish.1019

Abstract
Herein, the first specimen-based record of *Yongeichthys nebulosus* (Forsskål, 1775) (Gobiidae) is reported from West Bengal, eastern India. Three individuals were collected from mangrove-associated waters in the Indian Sundarbans, one of which was preserved as a voucher specimen at the Zoological Survey of India. This record represents a north-eastward range extension for the species, which has previously been recorded from other parts of the Indian coast, including the neighbouring state of Odisha. Morphological and meristic features of the voucher specimen are consistent with published diagnoses. The discovery highlights the importance of specimen-based documentation for accurately recording species distributions and emphasises the need for sustained biodiversity monitoring in estuarine habitats.

Keywords: Gobiidae; range extension; Sundarbans; *Yongeichthys suluensis*; *Yongeichthys tuticorinensis*

1 | INTRODUCTION

The shadow goby, *Yongeichthys nebulosus* (Forsskål, 1775), is a widely distributed Indo-West Pacific species, typically inhabiting sandy, gravelly, or muddy substrates in brackish and shallow marine environments (Shibukawa 2009). Along the Indian coast, its occurrence has been reported from both the eastern and western seaboards, including the Andaman Islands (Vadher *et al*. 2024). This goby is notable for its unusual ability to accumulate tetrodotoxin, a potent neurotoxin more commonly associated with pufferfish (Noguchi *et al*. 1971). Human poisoning cases linked to *Y. nebulosus* have been documented in Taiwan (Lin *et al*. 2000), but no such incidents have been reported from India to date.

During fieldwork in the Indian Sundarbans, three specimens of *Y. nebulosus* were collected from the Bidyadhari River, one of which was deposited as a voucher specimen. This short note documents the first confirmed record of *Y. nebulosus* from West Bengal, India, representing a north-eastward extension of its known distribution along the Indian east coast. A brief morphological description is provided, along with comparisons with other Indian congeners, to facilitate future work on this species.

2 | METHODOLOGY

A specimen of *Y. nebulosus* was collected from the Bidyadhari River (22°03′08.0″N 88°44′07.6″E) in the Sundarbans, West Bengal, India. The fish was euthanised using clove oil, fixed in 10% formalin, and preserved in 70% ethanol as a voucher (Chakraborty *et al*. 2025) in the National Zoological Collection at the Zoological Survey of India (ZSI, Kolkata). Sampling was conducted in compliance with relevant regulations. Meristic and morphometric data were recorded following Allen (2015), with measurements taken from the left side of the specimen using

digital callipers (standard length [SL] to the nearest 0.1 mm, all other measurements to the nearest 0.01 mm) and later expressed as percentages of SL. Colour patterns were documented in life and after preservation.

3 | RESULTS AND DISCUSSION

Yongeichthys nebulosus (Forsskål, 1775)
Common name: Shadow goby
(Figures 1–2; Table 1)

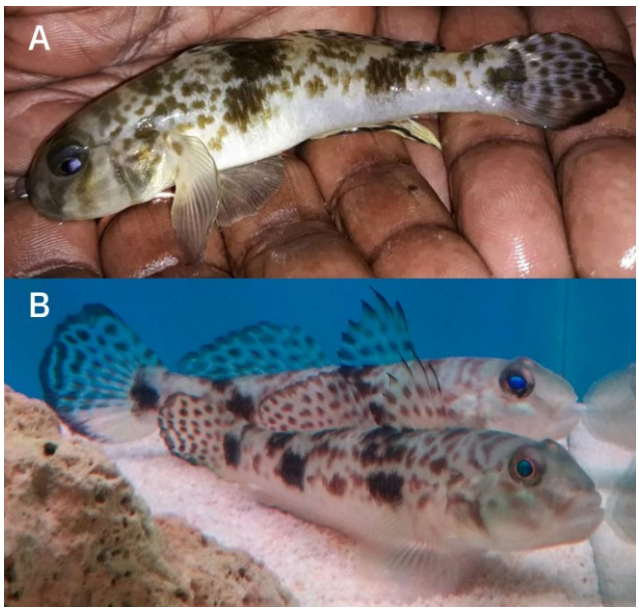

FIGURE 1 Live *Yongeichthys nebulosus*: (A) voucher specimen (ZSI/F 16552/2) immediately after capture; (B) non-voucher specimens in an aquarium. All specimens were collected from the Bidyadhari River, Sundarbans, West Bengal, India.

FIGURE 2 Preserved specimen of *Yongeichthys nebulosus* (ZSI/F 16552/2, 73.02 mm SL) from the Bidyadhari River, Sundarbans, West Bengal, India.

3.1 Material examined

ZSI/F 16552/2, 1 ex., 73.02 mm SL; Bidyadhari River (22°03′08.0″N 88°44′07.6″E), near Bally-I Island, Sundarbans, West Bengal, India; 12 December 2023; coll. P. Chakraborty.

3.2 Description

Meristic counts and morphometric data (as % SL) are provided in Table 1. Body moderately elongate, slightly compressed posteriorly; body depth 21.7% SL. Head rounded, slightly compressed; head length (HL) 30.2% SL; eye diameter 23.5% HL; interorbital region narrow and flat. Snout short, rounded. Mouth terminal, its posterior margin below anterior eye margin. Jaws with irregular rows of fine conical teeth. Gill cover posteriorly pointed; gill membranes fused at isthmus.

Dorsal fins separate: first dorsal triangular, elongate, with VI spines (second spine longest); second dorsal with I,9 rays. Anal fin with I,9 rays; origin below third soft ray of second dorsal fin, terminating below second dorsal-fin base. Pelvic fins united by membrane and frenum. Pectoral fins rounded, extending below first dorsal-fin base. Caudal fin rounded. Body with ctenoid scales, absent on breast and pectoral-fin base; head largely scaleless.

TABLE 1 Counts and proportional measurements (expressed as percentages of standard length) of *Yongeichthys nebulosus* from the Bidyadhari River, Sundarbans, West Bengal, India.

Measurements	Values
Standard length (mm)	73.02
Meristic counts	
Dorsal-fin rays	VI–I,9
Anal-fin rays	I,9
Pectoral-fin rays	17
Pelvic-fin rays	I,5
Caudal-fin branched rays	13
Scales in longitudinal row	30
Scales in transverse rows	11
Morphometric measurements (% SL)	
Body depth	21.7
Body width	16.2
Head length	30.2
Snout length	9.3
Eye diameter	7.0
Postorbital length	15.0
Interorbital width	5.8
Pre-dorsal-fin length	36.9
Pre-anal-fin length	56.7
Pre-pelvic-fin length	34.9
First dorsal-fin base length	18.6
Second dorsal-fin base length	27.9
Anal-fin base length	20.1
Pectoral-fin length	21.1
Pelvic-fin length	24.6
Caudal-fin length	23.6
Caudal-peduncle length	20.8
Caudal-peduncle depth	10.2

3.3 Colouration

In life, head and body pale grey with yellowish-brown to brown fine spots and faint mottling along back and sides. Three distinct brown blotches along sides, last at caudal-fin base. Two broad brown bars from edge of eye across jaw and cheek. Dorsal fin spines blackish.

In ethanol, body yellowish with three large, rounded brown blotches on sides; most markings retained.

3.4 Distribution

Widespread in the Indo-West Pacific (Parenti 2021; Larson 2022), from the Red Sea (Golani and Fricke 2018) to New Caledonia (Fricke and Kulbicki 2007). In India, reported from Odisha (Roy *et al*. 2019), Andhra Pradesh (Mishra *et al*. 2019), Tamil Nadu (Joshi *et al*. 2016), Kerala (Koumans 1941), Karnataka (Barman *et al*. 2013), Maharashtra (Sundaram *et al*. 2014), Gujarat (Dutta *et al*. 2023), and the Andaman and Nicobar Islands (Rajan *et al*. 2024). This study represents the first record of the species from West Bengal, making the northeasternmost extent of its known range in India.

3.5 Remarks

The West Bengal specimen has nine soft rays in both the second dorsal and anal fins, 17 pectoral-fin rays, an elongated second dorsal-fin spine, 30 longitudinal scales, a naked cheek and opercle, and three dark blotches along the middle of the body. These features conform to the diagnosis of *Y. nebulosus* as provided by Koumans (1941 as *Ctenogobius criniger*), Allen (2015), and Larson (2022), confirming the identification.

Two other species of *Yongeichthys* recorded from India are *Yongeichthys tuticorinensis* (Fowler, 1925), originally described as *Ctenogobius tuticorinensis* from Tuticorin, Tamil Nadu (Fowler 1925), and *Yongeichthys suluensis* (Herre, 1927), originally recorded as *Acentrogobius suluensis* from South Andaman, Andaman and Nicobar Islands (Rajan 2015).

Yongeichthys nebulosus can be readily distinguished from *Y. suluensis* by having 7–9 sensory papillae rows on the cheek (vs. 4–5 in *Y. suluensis*), 10–12 transverse scale rows (vs. 8), and 3–4 large, rounded brown spots along the middle of the body, with the last located on the caudal-fin base (vs. 5 narrowly rectangular blotches with thin brown lines above and below) (Rajan 2015; Larson 2022).

Yongeichthys nebulosus shares several features with *Y. tuticorinensis*, including 7 rows of sensory papillae on the cheek, 11 transverse scale rows, brownish bars extending from the eye across the jaw and cheek, and 4 prominent blotches along the body, indicating a close morphological affinity. However, *Y. nebulosus* differs in having a shorter head length (3.3–3.6 times in SL vs. 3.0 in *Y. tuticorinensis*) and 30–32 lateral series scales (vs. 28–30) (Fowler 1925; Roy *et al*. 2019; Vadher *et al*. 2024). Further examination of the type series of *Y. tuticorinensis* and fresh material from its type locality in tuticorin, Tamil Nadu, is required to clarify the distinctions between the two species.

Before this study, *Y. nebulosus* had been recorded in Indian waters from several coastal states and the Andaman and Nicobar Islands. The present record from the Bidyadhari River, a mangrove-associated estuarine river in West Bengal, extends the known distribution of the species to the northeasternmost part of the Indian coastline. This represents the first confirmed record of *Y. nebulosus* from West Bengal and adds the species to the region's ichthyofaunal inventory.

ACKNOWLEDGEMENTS

Fieldwork during which the specimen was collected was supported in part by the THT Seed Grant (February 2023) for a study on guitarfishes in the Sundarbans. We thank Dr Dhriti Banerjee, Director, Zoological Survey of India (ZSI), Kolkata, and Dr Honey Pillai, Officer-in-Charge, Marine Fish Section, ZSI, Kolkata, for their support with specimen registration and curation.

CONFLICT OF INTEREST

The authors declare no competing financial or non-financial interests.

AUTHORS' CONTRIBUTION

PC: Conceptualisation, data curation, formal analysis, investigation, methodology, writing – original draft, writing – review and editing. AAR: Writing – review and editing, and validation.

DATA AVAILABILITY STATEMENT

The specimen used in this study and its supporting metadata have been deposited in the Marine Fish Section, Zoological Survey of India (ZSI), Kolkata (Voucher No. ZSI/F 16552/2). Data are available upon reasonable request from the Officer-in-Charge, Marine Fish Section, ZSI.

REFERENCES

Allen GR (2015) Descriptions of two new gobies (Gobiidae: *Acentrogobius*) from Milne Bay Province, Papua New Guinea. Journal of the Ocean Science Foundation 14: 1–13.

Barman RP, Mishra SS, Kar S, Saren SC (2013) Marine and estuarine fishes. In: Director, Zoological Survey of India (Ed) Fauna of Karnataka. State Fauna Series 21. Zoological Survey of India, Kolkata.

Chakraborty P, Mishra SS, Saren SC, Sengupta A, Das D, … Chakraborty SB (2025) First confirmed record of the small-eyed loter *Prionobutis microps* (Butidae) for India, South Asia. Journal of Ichthyology 65(6): 994–1000.

Dutta S, Saren SC, Pillai HUK, Sengupta A (2023) First record of *Acentrogobius nebulosus* (Forsskal, 1775) from the coast of Gujarat, India. Records of the Zoological Survey of India 123(4): 317–321.

Fowler HW (1925) Notes and description of Indian fishes. Part III. Journal of Bombay Natural History Society 30(3): 640–651.

Fricke R, Kulbicki M (2007) Checklist of the shorefishes of New Caledonia. In: Payri CE, Richer de Forges B (Eds) Compendium of marine species from New Caledo-

nia. Documents Scientifiques et Techniques II7. Second edition. Institut de Recherche pour le Développment (IRD), Nouméa.

Golani D, Fricke R (2018) Checklist of the Red Sea fishes with delineation of the Gulf of Suez, Gulf of Aqaba, endemism and Lessepsian migrants. Zootaxa 4509(1): 1–215.

Joshi KK, Sreeram MP, Zacharia PU, Abdussamad EM, Varghese M, … Varsha MS (2016) Check list of fishes of the Gulf of Mannar ecosystem, Tamil Nadu, India. Journal of the Marine Biological Association of India 58(1): 34–54.

Koumans FP (1941) Gobioid fishes of India. Memoirs of the Indian Museum 13(3): 205–329.

Larson HK (2022) Family Gobiidae – gobies and mudskippers. In: Heemstra PC, Heemstra E, Ebert DA, Holleman W, Randall JE (Eds) Coastal fishes of the western Indian Ocean. Volume 5. South African Institute for Aquatic Biodiversity, South Africa.

Lin SJ, Hwang DF, Shao KT, Jeng SS (2000) Toxicity of Taiwanese gobies. Fisheries Science 66(3): 547–552.

Mishra SS, Gopi KC, Kosygin L, Rajan PT (2019) Ichthyofauna - fishes. In: Chandra K, Gopi KC, Mishra SS, Raghunathan C (Eds) Faunal Diversity of Mangrove Ecosystem in India. Zoological Survey of India, Kolkata.

Noguchi T, Kao HE, Hashimoto Y (1971) Toxicity of the goby, *Gobius criniger*. Bulletin of the Japanese Society of Scientific Fisheries 37(7): 642–647.

Parenti P (2021) A checklist of the gobioid fishes of the world (Percomorpha: Gobiiformes). Iranian Journal of Ichthyology 8: 1–480.

Rajan PT (2015) New Record of two species of *Acentrogobius* (Teleostei: Perciformes: Gobiidae) from Andaman Islands. Records of the Zoological Survey of India 115(1): 123–125.

Rajan PT, Mishra SS, Vikas N (2024) A review on the gobioid fishes (Gobiiformes: Gobioidei) of the Andaman and Nicobar Islands (India) with two new records. Journal of the Andaman Science Association 29(2): 129–141.

Roy S, Mohanty SR, Mohapatra A, Mishra SS (2019) First record of two gobioid fishes, *Myersina filifer* (Valenciennes, 1837) and *Yongeichthys nebulosus* (Forsskål, 1775), from Odisha Coast, India. Records of the Zoological Survey of India 119(3): 295–298.

Shibukawa K (2009) Gobiidae. In: Kimura S, Satapoomin U, Matsuura K (Eds) Fishes of the Andaman Sea. National Museum of Nature and Science, Tokyo.

Sundaram S, Bagade D, Sawant M (2014) Occurrence of Gobi *Yongeichthys criniger* (Valenciennes, 1837) off Ratnagiri, Maharashtra. Marine Fisheries Information Service; Technical and Extension Series 221: 12.

Vadher P, Kardani H, Bambhaniya P, Beleem I (2024) Records of three gobioid fishes (Actinopterygii: Gobiiformes: Gobiidae) from the Gujarat coast, India. Journal of Threatened Taxa 16(3): 24942–24948.

Priyankar Chakraborty https://orcid.org/0000-0001-5773-2446