

Occurrence of *Odontamblyopus rubicundus* (Hamilton, 1822) (Actinopteri: Gobiiformes: Gobiidae) in Kalyani, West Bengal, India

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Abstract

Odontamblyopus rubicundus is a species of eel goby that has been recorded for the first time from Kalyani, West Bengal, India. It is included in the subfamily Amblyopinae of the family Gobiidae under the order Gobiiformes of class Actinopteri. The species is scheduled as “Least Concern” in the IUCN Red List.

Keywords: gobiidae, actinopteri, *Odontamblyopus*, least concern, West Bengal, India

Introduction

It has been estimated that more than 32,000 valid species of fish on earth included in 85 orders and 536 families, and 43% of fishes are freshwater fishes^[1, 2]. India contributes to about 7.7% of global fish diversity, of which 1,673 are marine and 994 are freshwater^[3, 2]. West Bengal is situated on the lower Gangatic flood plains and thus supports a high number of freshwater fish species. West Bengal has a total of 267 species of freshwater fish belonging to 12 orders, 40 families, and 123 genera^[4]. The family Gobiidae is a large family of marine fishes, with more than 1952 described species in more than 263 genera^[5]. The genus *Odontamblyopus* (Bleeker, 1874) under the family Gobiidae is endemic to Asia and consist of only 4 known species^[6]. The eel goby, *Odontamblyopus rubicundus* (Hamilton, 1822), has a restricted distribution in the South Asian countries of India, Bangladesh and Myanmar, inhabiting the marine and brackish water of the coastal areas, with an amphidromous nature^[9, 10].

The paper states the first record of *Odontamblyopus rubicundus* (Hamilton, 1822) from Kalyani, West Bengal, India.

Method and Material

On a regular field visit along the Hooghly River, a fisherman was seen catching fish from the low-lying bank of a creek of the Hooghly River, Kalyani, West Bengal (22°59'47.4"N, 88°25'02.2"E), on May 29, 2022, at a distance of approximately 600 metres from the main Hooghly River. On examining the catch, it was found to comprise only two species of fish. The majority of the catch was comprised of *Apocryptes bato* (Hamilton, 1822) along with a few numbers of *Odontamblyopus rubicundus* (Hamilton, 1822). Consequently, the fish were seen foraging on the muddy banks of the creek. The creek water and the water of the Hooghly River at the given location are freshwater in nature^[16].



Fig 1: Location from where the specimens were collected.

A total of 10 live specimens, comprising 4 *Apocryptes bato* (Hamilton, 1822) and 6 *Odontamblyopus rubicundus* (Hamilton, 1822) were collected from the location for further identification and study. After returning from the field, the specimens were observed in a controlled environment for better identification. However, the specimen couldn't be kept alive for more than 30 minutes. Following this, the length of the specimens was measured in cm scale (ruler) and the number of ray-fins of the dorsal and anal fins were counted for identification. The specimens were preserved in 70% alcohol and kept in the author's personal zoological collection. Specimens were identified following that.

Result and Discussion

The fishes were identified as *Apocryptes bato* (Hamilton, 1822) belonging to the subfamily Oxudercinae of the family Gobiidae of the order Gobiiformes and *Odontamblyopus rubicundus* (Hamilton, 1822) belonging to the subfamily Amblyopinae of the family Gobiidae under the order Gobiiformes. *O. rubicundus* has an elongated, cylindrical body with a tapering tail. The anterior end has a circular outline with the mouth obliquely present with the lower lips pointing slightly upward. It has 6-8 slightly concave needle-like teeth on the outer side of both the upper and lower jaws and an almost continuous row of minute teeth just behind them on the inner side of both the upper and lower jaws. The eyes are rudimentary but distinct, and are covered by skin; several short barbels may be present on the underside of the chin; the pectoral-fin rays are free and silky, while the caudal fin is very long; and three anal fin pterygiophores precede the first haemal spine^[6]. Cycloid scales embedded on head and body^[6]. Necessary measurements and the number of soft rays on the dorsal and anal fins of two of the biggest specimens are given in table 1. *O. rubicundus* has a reddish-brown appearance when alive and slowly attains either a paler red complexion or turns brown when it dies. Both in their natural habitat and during observation under controlled environment, they were seen not to perform any kind of active swimming. In their natural habitat, they were mostly seen either laying on the wet mud or inside their burrows along the small pools of water around the bank of the creek.

Odontamblyopus rubicundus is a species of marine and brackish water and is found along the coastal and estuarine areas that have a high to moderate salt content in their water^[11]. The presence of these fish at such a high upstream location was not expected. The marine zone of the Hooghly River extends from Diamond Harbour to the sea mouth in West Bengal, while the true estuarine zone is from Titagarh to Diamond Harbour and the true freshwater zone extends from Nabadwip to Barrackpore^[12]. The fish were collected from this true freshwater zone, which is at a distance of about 30 km from the boundary of the true estuarine zone. Its occurrence so high upstream was not expected given its dominant acceptance as a marine and estuarine species. The habitat from where the specimen was collected is an established freshwater zone^[16], and the presence of a marine species is not expected. The given location of specimen collection was also seen to be a stable habitat for *O. rubicundus* since juvenile individuals were seen both in the catch and in and around the bank of the creek. The habitat also sustained a host of other ichthyofauna, mostly of freshwater origin in nature, and was observed to be a nursery ground for other species of fish.

O. rubicundus is a restricted species along the coastal and estuarine areas of India, Bangladesh, and Myanmar and contributes moderately in coastal fishing in these areas^[6, 10]. It occurs in large number in the Hooghly estuary and forms a major part of the yield of gobioids^[17]. It is common in the districts of South 24 Paragana, East Medinipur, and Howrah, along with a few occurrences in the districts of Kolkata, Hooghly, and North 24 Paragana, in the state of West Bengal^[13, 14]. The species is listed as "Least Concern" under the IUCN Red List^[15] since it is widely distributed and supports large, stable populations, though rising sea levels, loss of habitat, and climate change could threaten this species in the future.



Fig 2: Anterior view of *Odontamblyopus rubicundus* (Hamilton, 1822) showing the 6-8 needle like teeth of both jaws forming the front row followed by a continuous row of minute teeth just behind it inside the mouth.



Fig 3: A live *Odontamblyopus rubicundus* (Hamilton, 1822) from the collected individual kept under controlled environment for observation and identification



Fig 4: Specimen 1 of *Odontamblyopus rubicundus* (Hamilton, 1822).



Fig 5: Specimen 2 of *Odontamblyopus rubicundus* (Hamilton, 1822).

Table 1: Length and number of dorsal and anal fin rays of two specimen of *Odontamblyopus rubicundus* (Hamilton, 1822) from the collected individuals.

	Specimen 1	Specimen 2
Length	9.5cm	7.7cm
Dorsal ray fins	39	40
Anal ray fins	35	37

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