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Short Communication

Occurrence record of Long-jaw goby *Gobiopsis macrostomus* Steindachner, 1861 (Gobiiformes: Gobiidae) from Chilika lagoon, Odisha coast, India

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Morphometrics and meristic study reveal the first record of Long-jaw goby, *Gobiopsis macrostomus* Steindachner, 1861 (Gobiidae), from Chilika lagoon, Odisha, India. The genus is reported for the first time from the Chilika lagoon. The genus *Gobiopsis* has a characteristic depressed barbled, naked head, a pug-nose snout, and a horizontal fleshy fold on mid-cheek area. The reported species has strongly ctenoid body scales, 38 – 39 scales on lateral series, only one pair of chin barbels, two preopercular pores, and the presence of both temporal pores. The present paper reports the species based on five specimens collected from Satapada (Puri), an addition to the ichthyofaunal diversity of Chilika lagoon, Odisha.

[**Keywords**: Chilika, Gobiiformes, Ichthyofaunal diversity, Ramsar site]

Introduction

Order Gobiiformes comprises three suborders *viz*. Apogonoidei, Trichonotoidei and Gobioidei, and the suborder Gobioidei consist of seven families[1] (Rhyacichthyidae**,** Odontobutidae**,** Eleotridae, Xenisthmidae, Thalasseleotrididae, Oxudercidae and Gobiidae). The family Gobiidae consists of 1417 valid species belonging to 167 valid genera[2]. In India, the family Gobiidae is represented by 176 species belonging to 44 genera[3-7]. Along the Odisha coast, 20 species of fish from the family Gobiidae were reported belonging to 15 genera[8-10]. The largest brackish water lagoon in India, the Chilika, is located between (19°28' to 19°54' N and 85°05' to 85°38' E) and is a well-known Ramsar site[11,12]. The Chilika lagoon has a unique hydrology, *i.e.* an inflow of fresh water and a saline water influx, which makes the lagoon unique for different flora and fauna[12]. Ichthyofaunal diversity of Chilika lagoon consists of 348 species belonging to 226 genera, 99 families, and 23 orders[13-17]. From Chilika lagoon, 29 species of gobioid fishes, including 13 species of the family Gobiidae, were reported[14,17] to date. Current study reports one more genus, *Gobiopsis* and the species, *Gobiopsis macrostomus* Steindachner, 1861 (Gobiidae) for the first time from the Chilika lagoon.

Materials and Methods

Survey was conducted during pre-monsoon season at the outer channel of Chilika lagoon, Satapada, Puri district on 21.08.2021. During the survey, collected a few fresh gobioid specimens from the box trap net (locally known as Khanda) from the outer channel sector of the Chilika (19°40'00.14" N and 85°26'14.13" E). The collected samples were sorted out, and fresh photographs were taken. After collection, specimens were preserved in 10 % formalin solution. All morphometric measurements of the preserved specimens were taken by using a digital caliper. Lateral series scales, pores, scale type, fin spines and ray counts were done using Leica S9i digital stereo microscope. Later, these specimens were identified following standard literatures[18,19] and deposited in the National Repository of Estuarine Biology Regional Centre, Zoological Survey of India, Gopalpur-on-Sea, Odisha, under the registration numbers ZSI/EBRC/F-14090 for *Gobiopsis macrostomus.*

Results

The gobioid species thus collected from the Chilika lagoon is discussed below, along with the details of the morphology of the specimens (Table 1).

***Gobiopsis macrostomus* Steindachner, 1861**

Systematic position

Phylum: Chordata
Class: Actinopterygii
Order: Gobiiformes
Family: Gobiidae Cuvier, 1816
Genus: *Gobiopsis* Steindachner, 1861
Gobiopsis macrostomus Steindachner, 1861

Materials examined

EBRC/ZSI/F14090, 5 specimens, 47.1 – 78.2 mm SL. Collection site: Satapada, Puri, Odisha, India.

Table 1 — Morphometric comparison of currently studied specimens with previous recorded species of *Gobiopsis macrostomus*

	Gobiopsis macrostomus N = 5 (Current report)	*Gobiopsis macrostomus* N = 24 (Lachner & McKinney (1978))
In SL		
Head length	31–33	32.4–35.2
Body depth	18.6–19.8	15.7–18.9
Pre-dorsal	41.3–43.6	37.8–42.1
Pectoral fin length	25.3–26.5	25.1–26.0
In HL		
Eye diameter	15.2–18.5	-
Snout length	19–25	-
Inter-orbital space	19.3–22.2	-
Upper jaw length	53.2–54.9	-
Morphometric counts		
Dorsal fin rays	VI, I+10	VI, I+10
Anal fin rays	I+9	I+9
Pectoral fin rays	19–20	19–22
Lateral scales	38–42	36–44

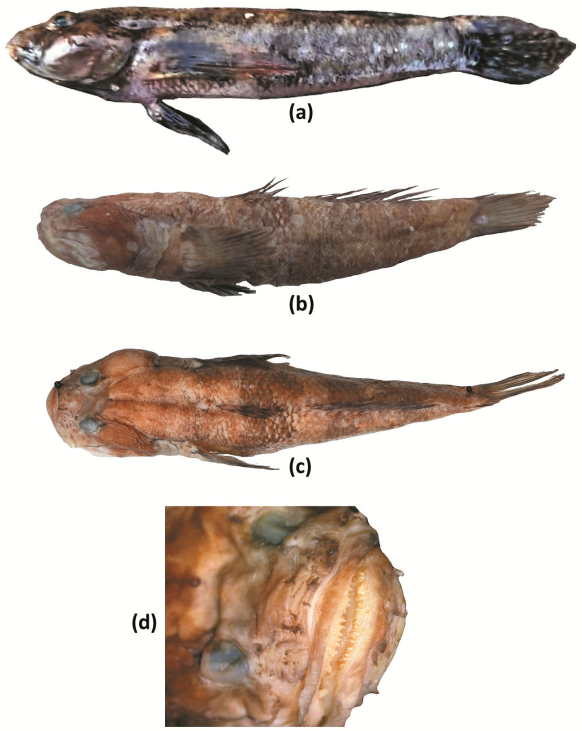

Fig. 1 — Different body profile of *Gobiopsis macrostomus*: a) Lateral view of fresh specimen, b) Lateral view of preserved specimen; c) dorsal view of preserved specimen; and d) canine-like teeth

Description

D VI, I 10; A I 9; P 19 – 20; V I 5; C 17, jointed pelvic fin, caudal and pelvic fin rounded, body laterally elongated and compressed having body depth 5 – 5.4 times in Standard Length (SL). Head flat with body depth slightly elevated than the head; its length 3.1 – 3.2 in SL, pre-dorsal 2.2 – 2.4 in SL, and pectoral fin 3.7 – 3.9 times in SL. Single barbel present at both sides of chin. Supraotic pore absent. Cutaneous papillae rows on cheek long, reaching the end of preopercle. Mouth large, both jaws are relatively equal in length and maxillary prolonged up to pre-orbit, canine-like teeth present on the outer row of both the jaws (Fig. 1d). Inter-orbital width 4.5 – 5.1 times in Head Length (HL), eye diameter in 5.1 – 6.5 in HL, snout 4 – 5.2 in HL. Scales strongly ctenoid, about 38 – 39 rows of lateral, 16 – 17 rows of transverse and 14 – 15 rows of pre-dorsal scales present.

Sensory pore: Anterior otic 1; anterior temporal 1; inter temporal 1; nasal 1; posterior interorbital 1; posterior temporal 1; preopercular 2 (Fig. 2).

Colour: Body brown in colour, head lightly darker, dark wedge on head not well developed, four saddle-like bars present which doesn't join laterally at trunk. First dorsal bar present across the base of the pectoral fin, 2nd bar present in-between trunk region of 1st dorsal fin, 3rd & 4th bar present in between trunk region of 2nd dorsal fin (Fig. 1a, b & c). Tip of dorsal and anal fins dark. Pectoral and ventral fins dusky, base of pectoral fin divided by a dark wedge.

Discussion

In the Chilika lagoon, the family Gobiidae is represented by seven genera (*Acentrogobius*,

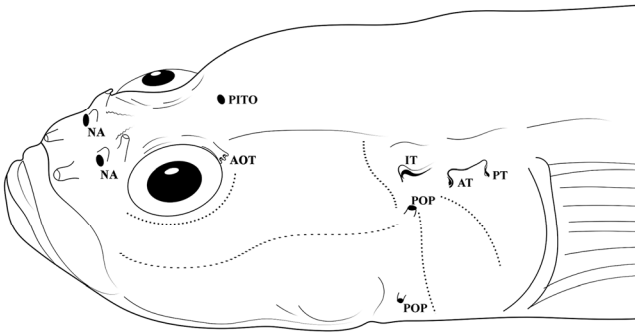

Fig. 2 — Schematic diagram, head and sensory pores of *Gobiopsis macrostomus* (AOT = anteriorotic; AT = anterior temporal; IT = intertemporal temporal; NA = nasal; PITO = posterior interorbital; POP = Preopercular; PT = posterior temporal)

Bathygobius, *Drombus*, *Favonigobius*, *Glossogobius*, *Psammogobius*, and *Yongeichthys*) with 13 species. The genus *Gobiopsis* was not reported earlier from the Chilika lagoon, thus, the present report forms the first record of the genus from the Chilika lagoon. Characteristically, this genus has a depressed naked head with well-developed barbels, snout pug-nose shaped, and a horizontal fleshy fold on mid-cheek area[18]. The genus *Gobiopsis* is represented by 16 species throughout the world[2], and only six species were recorded from the Indian Coast (including *G. macrostomus*)[3,4,20]. *Gobiopsis arenarea* was reported from the Great Nicobar[21] as *Pipidonia arenarius*; paratypes of *G. canalis* were from Kozhikode, Kerala[18], and recently recorded from West Bengal[20]; *G. quinquecincta* was described from the Gulf of Mannar[18] as *Macgregorella indica* and also reported from Andaman Islands[22]; *G. liolepis* was recorded from the Minicoy Island[23] as *Mucogobius liolepis*; *G. woodsi* was described based on specimens from Gulf of Mannar[18]. Earlier studies reported the species *Gobiopsis macrostomus* as widely distributed along the east coast of India: Andhra Pradesh[24], West Bengal[18,19,25], Tamil Nadu[26] and west coast: Maharashtra[27] and Kerala[28]. However, its report from the Odisha coast and the Chilika lagoon was absolutely lacking[8].

The reported species *G. macrostomus* has strongly ctenoid body scales, 38 – 39 scales on lateral series, only one pair of chin barbels, two preopercular pores, and both anterior and posterior temporal pores present. This is distinguished from all other reported species (*Gobiopsis liolepis*, *G. quinquecincta* and *G. arenarea*) from India[18] except *G. canalis* and *G. woodsi* in having anterior and posterior temporal pores (vs absent in others). This species is also distinguished from *G. canalis*, by having double preopercular pores and strongly ctenoid body scales, while *G. canalis* have single preopercular pore and cycloid body scales[18]. *Gobiopsis macrostomus* has closely similar characteristics as of *G. woodsi*, but differs in having one pair of chin barbel (vs 2 or more pairs in *G. woodsi*), no barbel on posterior mandible (vs 2 – 5 on each side), absence of supraotic pores (vs present), more scales on lateral series (36 – 44 vs 30 – 36)[18].

Conclusion

The current study extends the ichthyofaunal diversity of the Chilika lagoon to 349 species belonging to 226 genera, 99 families, and 23 orders. Further, the species *G. macrostomus* is reported here for the first time from the Chilika lagoon, coastal waters of Odisha.

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Conflict of Interest

There is no conflict of interest.

Ethical Statement

The fish species in this study are not listed under any schedule groups in the Wildlife Protection Act and collected in dead condition during fishing.

Author Contributions

RKB & SRM: Collection, preservation, identification and manuscript preparation; BB, SSM & AM: Identification, manuscript preparation and critical analysis.

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