

Short Communication

First record of *Gerres infasciatus* Iwatsuki and Kimura 1998 (Perciformes: Gerreidae) from North-eastern coast of India

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Abstract

The present paper reports the occurrence of *Gerres infasciatus* (Perciformes: Gerreidae), the third species in the “*G. filamentosus*” complex, for the first time from coastal waters of Andhra Pradesh, Odisha and West Bengal states of India, Bay of Bengal. From India, this species was earlier known only from Chennai, Tamil Nadu. Their relationship within the complex is also discussed for correct identification.

Keywords: Bay of Bengal, Gerreidae, *Gerres infasciatus*, New Record, North-Eastern Coast

Introduction

The fishes of the family Gerreidae, commonly known as mojarras, are distinguished in having strongly protrusible mouth, which point downward when extended; a single long dorsal fin with IX or X spines and 9 to 17 soft rays; long and pointed pectoral fin; scales usually cycloid and deciduous; tail deeply forked; usually silvery in colour. The family contains 8 genera and more than 50 species (Froese and Pauly, 2017). The genus *Gerres* Quoy and Gaimard, 1824 contains 28 species distributed in most warm seas (Atlantic, Indian and Pacific). They are primarily marine fishes, occasionally brackish and rarely freshwater. Indian waters harbour 2 genera and 11 species (Gopi and Mishra, 2015) including 10 species in the genus *Gerres*. Only two genera of the family are known from the Indian as well as Indo-Pacific Region, the other genus being *Pentaprion*. The genus *Pentaprion* has anal fin with V or VI spines and 12 to 14 soft rays, while in the genus *Gerres*, anal fin have III spines (occasionally II) and 6 to 8 soft rays (Woodland, 2001).

Among the species of the genus *Gerres*, four species, *G. filamentosus*, *G. infasciatus*, *G. macracanthus* and *G. microphthalmus*, are considered as members of ‘*Gerres filamentosus*’ complex, characterised in having elongate second dorsal-fin spine, often more than 50% of standard length (Iwatsuki *et al.*, 2015). *Gerres infasciatus* Iwatsuki

and Kimura has been reported from Indian coast based on only 8 specimens collected from Madras (= Chennai), Tamil Nadu (Fukuhara *et al.*, 2006). *G. infasciatus* is characterized in having yellow tips to the first and second (rarely third) soft dorsal-fin rays in fresh specimens, and no obvious vertical bands on the body in either fresh or preserved specimens (Iwatsuki and Kimura, 1998).

During our regular surveys in different occasions, the authors collected two specimens from West Bengal, two from Odisha and three from Andhra Pradesh, which were identified as *Gerres infasciatus*. The present paper is intended to report this species herein for the first time from these three states along east coast of India.

Material and Methods

Two specimens have been collected from Azadgarh Fish Market, Tollygunge, Kolkata during October 2013 which was said to have transported from Digha, West Bengal. The other two specimens were found at Balugaon fish market during Chilika Expedition in February 2017. Doubting its occurrence inquiry was made about collection site of the specimens and confirmed that the specimens were captured off Paradeep, Odisha. Three specimens of *Gerres infasciatus* were also collected from Visakhapatnam fishing harbour by the first author during April 2017. The specimens were identified following

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Iwatsuki *et al.* (2015). Counts and measurements were following Fukuhara *et al.* (2006). All measurements were made with digital callipers and are recorded to the nearest 0.1 mm. Meristic counts and proportional measurements, expressed as percentages of SL, are given in Table 1. The specimens were deposited in the Marine Fish Section, Zoological Survey of India, Kolkata.

Results and Discussion

Gerres infasciatus Iwatsuki and Kimura, 1998

1998. *Gerres infasciatus* Iwatsuki and Kimura, *Ichthyol. Res.*, 45(1): 79, Fig. 1 (Type locality: Samut Prakan, Thailand, northern Gulf of Thailand).

Material examined: ZSI F 11896/2, 2 ex., 108.8-114.6 mm SL, Azadgarh fish market, Tollygunge, Kolkata, West Bengal, 25/10/2013, S.S. Mishra; ZSI F 11887/2, 2 ex., 108.9-127.7 mm SL, Balugaon fish market, Odisha, 06/02/2017, Dr. Basudev Tripathy and party; ZSI F 12520/2, 3 ex., 125.7-143.8 mm, Visakhapatnam Fishing harbour, Andhra Pradesh, 31/08/2016, Dr. A. Mohapatra and party.

Diagnostic characters: Body oblong and laterally compressed; body depth 2.1 to 2.2 times in Standard Length (SL); dorsal profile of body forms almost a sharp angle at the origin of dorsal fin (elevated back); mouth terminal, small, strongly protractile; interorbital width little shorter than eye; snout length shorter than eye diameter; jaws with minute teeth; predorsal distance equal to or slightly less than greatest body depth. Dorsal fin long, single, with IX spines and 10 rays, second spine elongate, more than half of SL; anal fin with III spines and 7 rays; pectoral fin with 15-16 rays (17 in one specimen); pelvic fin with I spine and 5 rays. Gill rakers short, 4 + 8 on first arch; upper gill rakers shorter than lower. Pectoral fin long and pointed, reaching to anal fin origin; caudal fin deeply forked. Sides of head and body covered with large cycloid to finely ctenoid deciduous scales; lateral line scales 40 or 41 to caudal fin base, with 3-4 scales on caudal fin; 3 rows of cheek scales; 4½ scale rows between lateral line and 5th dorsal spine base. Normally the second dorsal fin in *G. infasciatus* is more than 50% of SL. In the specimens studied here

have broken spines and so measured less than 50% of standard length (Table 1).

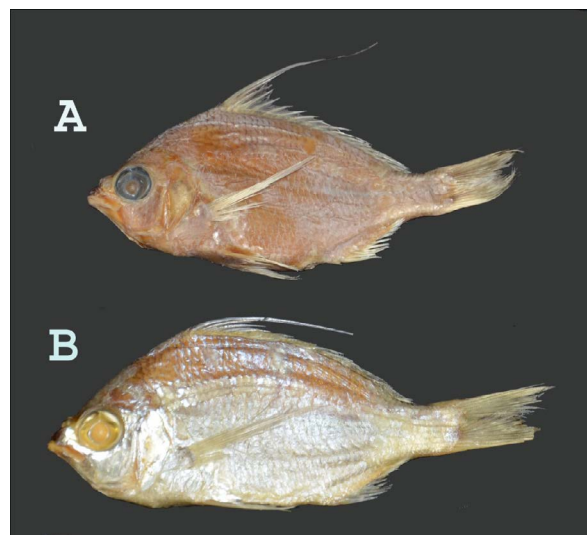


Figure 1. *Gerres infasciatus* from (A) West Bengal (114.6 mm) and (B) Odisha (127.7 mm) coast.

Colour: Generally silvery, with brownish tinge dorsally and yellowish tinge ventrally; no vertical bands on body at the time of collection and in preserved condition; distal part of pelvic fin white.

Distribution: Gulf of Thailand (Iwatsuki and Kimura, 1998), east coast of India (Fukuhara *et al.*, 2006), Red Sea and Arabian Gulf (Iwatsuki *et al.*, 2015).

Discussion

In Indian literature, *Gerres macracanthus* was recognised as a distinct species (Talwar and Kacker, 1984; Talwar and Jhingran, 1991) prior to it was treated as valid by Iwatsuki *et al.* (1996). Juveniles of *Gerres infasciatus* are usually have 4-10 faint dark bars on body and probably for that reason smaller specimens might have misidentified as *G. macracanthus* in Indian waters. However, the former can easily be distinguished as the later have predorsal distance more than greatest body depth. Further, in having predorsal distance equal to or slightly less than maximum depth of body, *G. infasciatus* is similar to *G. filamentosus*, which have 4-8 columns of ovoid spots dorsally on body.

Table 1. Meristic counts and proportional measurements (expressed as percentages of SL) of *Gerres infasciatus* from India, compared with Red Sea and Arabian Gulf specimens

S. N.	Characters	Present study (2017)			Fukuhara <i>et al.</i> (2006)	Iwatsuki <i>et al.</i> (2015)
		West Bengal (n=2)	Odisha (n=2)	Andhra Pradesh (n=3)	Tamil Nadu (n=8)	Red Sea & Arabian Gulf (n=9)
1	Standard length (mm)	108.8-114.6	108.9-127.7	125.7-143.8	101-143	99.5-153
2	Dorsal fin spines and rays	IX, 10	IX, 10	IX, 10	IX, 10	IX, 10
3	Anal fin spines and rays	III, 7	III, 7	III, 7	III, 7	III, 7
4	Pectoral fin rays	16-17	15-15	16-17	15-16	15-16
5	Lateral line scales to base of caudal fin	40-41	41-42	40-41	40-41	40-44
6	Scales above lateral line to 5 th dorsal spine base	4½	4½	4½	4½ -5	4½ -5½
7	Scales below lateral line	10½	10½	10½	10½	10½-11½
8	Gill rakers including rudiments	4 + 8	4 + 8	5 + 8	4-5 + 8	5-6 + 8
9	Greatest body depth	45.6-46.1	43.4-45.6	45.8-46.8	47-51	42.5-47.9
10	Body depth at first anal fin spine origin	37.9-36.9	35.8-37-8	37.8-40.5	39-43	35.9-39.2
11	Head length	31.5-32.6	31.4-31.9	32.8-34.4	32-34	31.5-34.8
12	Snout length	8.9-9.9	8.3-8.9	9.3-10.1	10-11	8.4-10.6
13	Eye diameter	11.2-11.7	11.3-11.4	11.5-11.6	12-13	11.3-14.4
14	Interorbital width	10.2-11.1	10.1-10.3	9.8-10.9	8-13	10.5-13.5
15	Upper jaw length	10.8-10.9	10.5-10.6	11.3-12.2	11-12	10.6-11.9
16	Caudal peduncle depth	11.9-12.5	12.2-13.4	12.2-13.1	13-14	11.9-13.3
17	Predorsal length	43.6-45.3	42-5-44.9	43.0-47.6	45-48	41.2-45.5
18	Preanal length	70.8-71.4	69.6-69.7	69.6-71.0	65-76	62.2-68.9
19	Prepelvic length	40.1-41.2	39.0-39.5	41.8-42.4	42-45	39.0-42.9
20	Dorsal fin base length	52.7-52.9	52.5-53.8	52.3-56.7	56-58	51.0-56.1
21	Anal fin base length	18.0-18.1	17.3-19.5	17.9-18.8	18-19	16.5-19.0
22	Pelvic fin spine length	13.6*-17.2	14.6*-17.6	17.3-19.1	16-19	15.1-21.5
23	First pelvic fin ray length	23.0-23.8	23.5-24.1	18.5-25.0	23-26	17.8-26.7
24	Longest pectoral fin ray length	35.3*-37.1	37.5-38.1	35.2*-39.7	39-44	35.7-39.5
25	First dorsal fin spine length	2.0-2.4	2.2-2.2	2.6-2.9	2-3	1.3-3.7
26	Second dorsal fin spine length	34.3*-49.6*	37.4*-38.1*	33.3*-39.8*	50-64	41.6-61.3
27	Third dorsal fin spine length	18.5*-23.1	14.3*-20.3	14.2*-25.5	23-26	20.6-29.5
28	Last dorsal fin spine length	7.2*-8.1*	8.9-9.1	9.0-9.7	9-11	8.5-11.1
29	First dorsal fin ray length	7.6*-11.6*	9.9*-11.9*	9.3*-12.2	14-17	13.9-17.2
30	First anal fin spine length	2.2-2.4	2.1-2.1	2.3-3.2	2-3	2.3-3.2
31	Second anal fin spine length	10.5-11.5	11.0-11.4	10.1-11.5	12-13	10.5-12.6
32	Third anal fin spine length	8.9*-9.0*	9.9-10.6	9.3-13.8	10-14	9.8-13.8
33	First anal fin ray length	10.7*-10.9	10.9-11.5	9.7-11.3	13-14	11.2-14.8

* Some rays and spines in these specimens are broken.

Key to the species of '*Gerres filamentosus*' complex occurring in India:

- 1a. Body relatively slender, depth 2.2-2.8 in SL; predorsal distance distinctly greater than body depth; usually with 6-10 dark bars on body*G. macracanthus*
- 1b. Body depth 1.9-2.4 in SL; predorsal distance equal to or slightly less than greatest body depth; juveniles with 4-8 faint bars, larger specimens (>10 cm SL) with columns of ovoid spots or no spot or no bars2
- 2a. Typically 44 or 45 (rarely 43 or 46) lateral line scales to base of caudal fin; juveniles with 4-8 faint bars on body; adults with 4-8 columns of ovoid spots dorsally on body, more obvious on removal of scales or in preserved specimens*G. filamentosus*
- 2b. Typically 39 to 44 (usually 40-42) lateral line scales to base of caudal fin; body usually without dark bars or bands of ovoid spots dorsally, even in fish >10 cm SL (rarely 5-6 very faint yellowish bars visible upon angled view), becoming more obvious on removal of scales or just after preservation *G. infasciatus*

Fishes of the '*Gerres filamentosus*' complex having elongated second dorsal fin spine had two representatives, *G. filamentosus* and *G. macracanthus*, in Indian waters (Talwar and Kacker, 1984; Talwar and Jhingran, 1991). Fukuhara *et al.* (2006) recorded presence of third species, *G. infasciatus*, from India (Chennai, Tamil Nadu). The fourth species, *G. microphthalmus* is currently known

only from Japan and is most similar to *G. filamentosus* in overall body appearance (Iwatsuki *et al.*, 2002). *G. infasciatus* was described based on only 3 specimens from the Gulf of Thailand (Iwatsuki and Kimura, 1998) which seems to be rare in that region. However, while recording *G. infasciatus* from India Fukuhara *et al.* (2006) observed that it was the most abundant gerreid species in a number of markets in Chennai, but could not even observe this species from other localities along the east and west coast of India, including the "vicinity of the Ganges River Mouth in West Bengal" during the period 1998-2000. The present report is provided with material evidence that *G. infasciatus*, in fact, occurs along West Bengal, Odisha and Andhra Pradesh coast. Thus, with this record from north-eastern coast of India, it may be concluded that *G. infasciatus* occurs all along the east coast of India, though it is yet to be reported from west coast.

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