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Short Communication

First record of *Lutjanus indicus* Allen, White & Erdmann, 2013 (Perciformes: Lutjanidae) from Andhra Pradesh, East Coast of India

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Abstract: In this study, presence of the snapper, *Lutjanus indicus* Allen, White & Erdmann, 2013 (Lutjanidae) is reported for the first time from the Visakhapatnam coastal waters, East coast of India and detailed characteristics of the collected specimens (158-296 mm SL) are provided. In addition, significant color differences, especially a series of eight narrow yellow to brown stripes on the side, obliquely rising dorsally and posteriorly on body which are useful for separating the two closely related congener species (*L. indicus* and *L. russellii*) are presented. Here, we confirm the occurrence of *Lutjanus indicus* in Indian coast and extend the range of the occurrence of this species to Bay of Bengal.

Key words: Morphology, *Lutjanus*, Distribution, Range extension, Bay of Bengal.

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Introduction

Fishes of the family Lutjanidae is one of the largest in the order Perciformes and comprises 4 subfamilies, 17 genera and 110 species, mainly found on coral reefs in tropical and subtropical regions of the Atlantic and Indo-Pacific, (Allen 1985; Eschmeyer 2012; Froese & Pauly 2016, Nelson et al. 2016). The Lutjanidae family is divided into four subfamilies. The largest subfamily is Lutjaninae with six genera, *Hoplopagrus, Lutjanus, Macolor, Ocyurus, Pinjalo* and *Rhomboplites* (Nelson et al. 2016) with about 84 species. The genus *Lutjanus* has about 73 species (Allen et al. 2013; Iwatsuki et al. 2015,2016; Froese & Pauly 2016). The snappers are a diverse family of carnivorous marine fishes, found in rock and reef habitats, especially coral rubble (Allen 1985). Snappers are the dominant predatory fishes in coral reef habitats (Randall et al. 1987), feeding mainly on fish, crustaceans and cephalopods (Allen 1985). In recent years, a number of ichthyologists have studied the snappers represented in different areas (Allen & Talbot 1985; Smith & Heemstra 1986; Randall et al.1987; Iwatsuki et al. 2015,2016). There is still considerable confusion in the identification of the species in snappers because of the changes that take place in colour and in body proportions with growth and because of some difference between sexes. Recently, *L. indicus* was described from the Indo-West Pacific region (Allen et al. 2013). Here we provide the morphological characteristics of *Lutjanus indicus* and add it to the Indian Ichthyofauna. Several new and other first reports from Visakhapatnam, East coast of India and Indian waters are available (e.g., Muddula Krishna & Govinda Rao 2015; Muddula Krishna Naranji & Govinda Rao Velamala 2016; Govinda Rao

& Muddula Krishna 2016; Govinda Rao et al. 2016; Muddula Krishna et al. 2016) indicating rich diversity of the region.

Materials and Methods

Thirty-three specimens of the *Lutjanus indicus* were collected from Visakhapatnam coastal waters, East Coast of India (17º44'N, 83º23'E) during 2013-2015. Specimens were examined and identified as *Lutjanus indicus* hitherto not reported so far. The colour of the specimens was noted in fresh condition. Morphometric and meristic data of the fresh specimens were taken. Data on other characters, including pyloric caeca and vertebrae are also taken. X-ray photographs were also used to analyze the vertebrae count. Measurements were made with calipers. Specimens of the *Lutjanus indicus* were identified based on (Allen et al. 2013; Froese & Pauly 2016). Methodology for morphometric measurements follows (Hubbs & Lagler 1958). The specimens were preserved in 5% formaldehyde for further analysis.

Results

Lutjanus indicus Allen, White & Erdmann, 2013 (Fig. 1)

Meristic characters. D X, 13-14; III,8; P 15-16; V I,5; C 16-17; gill Rakers 14-18; LLS 48-52; lateral transverse scales 7-8+17-18; cheek scales 6-8; vertebrae 24 (33 specimens). See Figure 1 for general appearance and Tables 2-3 for morphometric and meristic data.

Description. Body spindle shaped, dorsal profile convex than the ventral; dorsal profile of head steeply sloped; mouth large and maxilla reaches below the middle of the eye; eyes are large in size; interorbital slightly convex; profile of snout slightly concave; preorbital bone width slightly less than eye diameter; teeth pointed; two curved canine teeth are present on upper jaw; in upper jaw outer row being larger; in outer row of upper jaw fourteen to sixteen canine teeth present and inner row of upper jaw three to fourth rows of minute tooth patch present at besides the canine teeth; in lower jaw fourteen to eighteen teeth present in outer row; in lower jaw outer row being larger, in inner two to three rows of teeth minute villiform teeth present; vomer with diamond shaped to narrowly crescent shaped patch of teeth with medial posterior projections; tongue with a patch of granular teeth narrow band of teeth on palatine; pharynx toothed; preopercular notch and knob poorly developed. Origin of dorsal and pelvic on the same line where as the origin of pectoral slightly anterior; fourth and fifth dorsal spines longest and succeeding spines decreases in length; first anal spine shorter than second and second anal spine stouter, shorter than third spine; pectoral fin pointed extending up to anus; caudal fin emarginated; body covered with ctenoid scales arise obliquely and below lateral line straight.

Coloration. Body generally whitish with silvery sheen above lateral line light brownish in colour and below lateral line silver brownish colour and lower side of the body, a large black spot present at above lateral line; it is origin at vertically below anterior most of the soft dorsal fin, it is present vertically between the first soft dorsal ray and seventh dorsal ray; eight golden brown to yellowish stripes are present on body; first, second, third, fourth and fifth stripes runs arise obliquely and sixth, seventh and eighth stripes are runs horizontally to dorsal profile; dorsal fin usually light silver colour and margin with dusky brownish in colour; ventral, pectoral and anal fins are yellowish in colour; caudal fin dusky brownish in colour.

Distribution. Widespread in the Indo-West Pacific from the Fiji Islands to East Africa, and from Australia to Southern Japan. Indian Ocean, including Western Thailand, Myanmar, Andaman Islands, Sri Lanka and India. It was generally encountered solitary or in small groups in about 5-15m depth (Allen et al. 2013). Live mostly in coral reef habitat.

Discussion and Conclusions

Meristic and morphometric characters are almost in agreement with that of previous studies (e.g., Allen et al. 2013; Froese & Pauly 2016). *Lutjanus indicus* has invariably been

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confused with its sibling species, *L. russellii* (Bleeker, 1849) from the western Pacific.

Significant colour pattern and body stripes or blotches differences such as it differs most conspicuously from *L. russellii* in possessing a series of eight narrow, yellow to brown stripes on the side, obliquely rising dorsally and posteriorly. Although, small juveniles of the Pacific fish also have stripes, these are generally much wider (Allen et al. 2013). Allen & Talbot (1985) identified that *L. russellii* was unique among Indo-West Pacific species of *Lutjanus* in having different colour patterns related to broad geographic areas. There is also difference

Table 1. Meristic characters of *Lutjanus indicus* in the present study and that of Allen et al. (2013).

	Dorsal	Anal	Pectoral	Ventral	Caudal	GR	Lateral line scales	Lateral transverse scales
Allen et al. 2013	X,13-14	III,8	15-16	I,5	-	13-15	47-49	8+1+15-16
Present study	X,13-14	III,8	15-16	I,5	16-17	14-18	48-52	7-8+17-18

Table 2. Comparison of morphometric characteristics data of *Lutjanus indicus* represented in the catches of Visakhapatnam and that of Allen et al. (2013).

Morphometric	**Allen et al. 2013**	**East Coast of India**	
Standard Length	225mm SL	158-296, mm SL	
		Min–Max(=33)	Mean ± SD
% of standard length			
Total Length	-	120.25-133.80	124.11±2.89
Body depth	39.8	32.43-39.44	35.07±1.77
Head length	38.9	32.62-39.47	36.90±1.61
Pre dorsal distance	46.1	40.50-47.36	44.08±2.10
Pre pectoral distance	27.0	30.40-37.89	34.59±2.02
Pre pelvic distance	39.1	35.67-40.40	38.65±1.39
Pre anal distance	69.4	64.18-74.73	69.42±2.95
Dorsal fin base	25.4	46.74-53.65	50.81±1.85
Pectoral fin base	-	4.38-6.32	5.18±0.60
Anal fin base	14.8	56.74-53.65	50.81±1.85
5thDorsal spine height	14.6	12.65-17.56	14.76±1.42
Longest soft dorsal ray	11.7	10.07-14.5	12.31±1.16
2nd anal spine height	8.2	6.33-11.73	9.91±1.35
3rd anal spine height	9.8	7.04-12.79	10.66±1.45
Soft anal height	15.3	12.83-16.84	14.87±1.09
Pectoral length	27.0	23.14-31.25	27.39±1.78
Pelvic spine length	12.0	9.85-15.30	12.90±1.44
Soft pelvic length	20.0	16.89-24.32	21.51±2.02
% Head length			
Head depth	-	72.22-80.76	76.96±2.93
Head width	-	34.84-43.87	40.04±2.95
Eye diameter	-	16.48-26.92	22.62±2.60
Pre orbital distance	-	15.30-25.00	20.52±2.55
Post orbital distance	-	36.36-47.05	43.25±2.98
Inter orbital	6.1	12.08-19.73	15.95±2.05
Upper jaw length	-	33.33-42.85	38.89±2.97
Lower jaw length	15.8	30.00-40.96	34.06±2.66
Maxillary width	-	9.58-15.38	13.16±1.55
Snout length	13.7	24.48-35.71	31.30±2.95

Fig. 1. *Lutjanus indicus*, 286mm, TL.

in the position of the large dark blotch on the posterior back in relation to the lateral line. The spot on *L. indicus* is mostly well above the lateral line with only about one-scale row within the spot laying below it. In contrast, the more horizontally elongate spot of *L. russellii* is approximately bisected by the lateral line.

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یافته‌های کوتاه

اولین گزارش *Lutjanus indicus* Allen, White & Erdmann, 2013 (سوف‌ماهی شکلان: سرخوماهیان) از آندرا پرادش، ساحل شرقی هند

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چکیده: در این مطالعه برای اولین بار حضور یک گونه سرخوماهی هندی *Lutjanus indicus* Allen, White & Erdmann, 2013 از ساحل شرقی هند در آندرا پرادش گزارش و جزئیات ویژگی‌های نمونه‌های جمع‌آوری شده (به طول استاندارد ۱۵۸ تا ۲۹۶ میلی‌متر) ارائه می‌گردد. بعلاوه، تفاوت‌های مهم در رنگ بویژه ۸ نوار باریک رنگی زرد تا قهوه‌ای در دو طرف بدن که بطور مایل به سمت پشت و عقب بدن کشیده شده و در تشخیص و جداسازی دو گونه هم جنس نزدیک به هم (*L. indicus, L. russellii*) مفید است، شرح داده شده است. در این مقاله حضور و گسترش دامنه پراکنش گونه *L. indicus* تا خلیج بنگال تأیید می‌گردد.

کلیدواژه‌ها: ریخت‌شناسی، سرخو، پراکنش، دامنه گسترش، خلیج بنگال.