

MARINE RECORD

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First record of *Pyramodon lindas* (Markle and Olney, 1990) (Ophidiforms: Carapidae) from Indian Seas

K. K. Joshi^{1*}, K. Kannan², P. U. Zacharia¹, J. A. Johnson³ and Gimy George¹

Abstract

Background: The present report is the first record of the *Pyramodon lindas* (Markle and Olney, Bull Mar Sci 47: 269-410, 1990) from India waters. A specimen of *Pyramodon lindas* measuring 483 mm total length was obtained from Tuticorin of Gulf of Mannar which is the largest specimen of so far recorded.

Results: The *Pyramodon lindas* measured 483 mm in TL, 85 mm in Head length, 18.1 mm in snout length. Body elongate, compressed to round and eel like, supramaxilla absent, anal fin origin advanced. The specimen was deposited in the National Biodiversity Museum at the Central Marine Fisheries Research Institute, Kochi (GB.28.3.3.1). Detailed morphometric and meristic characters described and discussed.

Conclusion: The *Pyramodon lindas* reported in the present study makes the total species reported from India as four in family Carapidae. The other reports were *Carapus homei* (Richardson, 1846), *Pyramodon punctatum* (Regan, 1914), *Carapus margaritiferae* (Rendahl, 1921) *Brotula multibarbata* Temmink & Schlegel, 1846 *Antennarius hispidus* (Bloch & Schneider, 1801).

Keywords: First record, *Pyramodon lindas*, Carapidae, Indian Seas, Gulf of Mannar

Background

Gulf of Mannar is known to harbour over 3600 species of flora and fauna, making it one of the richest coastal regions in Asia. This region is also home to over 450 species of fish, 79 species of crustaceans, 108 species of sponges, 260 species of mollusks and 100 species of echinoderms. Three species in the family Carapidae, *Carapus homei* (Richardson, 1846) *Pyramodon punctatum* (Regan, 1914) *Carapus margaritiferae* (Rendahl, 1921) (Mahadevan, 1961) was reported from Indian seas. The genus name *Pyramodon* was described by Smith and Radcliffe in 1913.

They are eel like with large single vomerine fang and pelvic fin rays present. Dorsal fin originates anterior or directly over anal fin origin. They occur in shallow to deep waters of continental shelves and slopes in tropical water of Indo-west Pacific. The genus *Pyramodon* is mainly contains four species namely *Pyramodon lindas*, *Pyramodon*

parini, *Pyramodon punctatus* and *Pyramodon ventralis* (Strasburg 1965, Gosline 1960, Trott 1981, Robins and Nielsen 1970, Cohen & Nielsen 1978, Nielsen, et al. 1999). The present study is intended to discuss morphology of *Pyramodon lindas*, Black edge pearl fish from Gulf of Mannar, India. The length of *Pyramodon lindas* (Total length 483 mm) is more than the reported maximum length of 36.0 cm TL male/unsexed Western Pacific (Markle and Olney, 1990).

Materials and methods

A single specimen of fish was collected from Tuticorin fish harbour, 23 February, 2010. The specimen was caught by using Mechanized vessel boat, Trawler net. All counts and measurements were taken according to those methods described in Markle and Olney 1990. The specimen was identified as *Pyramodon lindas* based on morphometric and meristic characters described by Markle and Olney 1990. The morphometric measurements were taken to the nearest mm using a digital vernier caliper following Markle and Olney 1990. All measurements and count of the present specimen are

* Correspondence: joshiyuru@gmail.com

¹Central Marine Fisheries Research Institute (CMFRI), Post Box 1603, Ernakulam North P.O., Kochi 682018, Kerala, India

Full list of author information is available at the end of the article

Table 1 Morphometric characters of *Pyramodon lindas* from Tuticorin, Gulf of Mannar (current study)

Morphometric Characters	Measurements (mm)	As % HL
Total length	483	
Head length (HL)	85	
Snout length (SNL)	18.1	0.21
Body depth (BD)	48.2	0.57
Pre orbital length(POB)	18.3	0.22
Post orbital length (PSB)	58.6	0.69
Eye diameter (ED)	11.4	0.13
Upper jaw length (UJL)	35.1	0.41
Lower jaw length (LJL)	37.9	0.45
Dorsal fin length (DL)	17.4	0.20
Dorsal fin base length (DBL)	39.8	0.47
Pectoral fin length (PFL)	45.3	0.53
Pectoral fin base length (PBL)	14.1	0.17
Pre Pelvic fin length (PPL)	95.2	1.12
Pelvic fin length (PL)	35.0	0.41
Pelvic fin base length (PLB)	5.7	0.07
Pre dorsal length (PDL)	70.6	0.83
Pre anal length (PAL)	95.3	1.12
Snout to anus length (STA)	98.7	1.16
Anal fin length (AL)	14.2	0.17
Anal fin base length (ABL)	260	3.06

given in Table 1. The specimen was deposited in the National Biodiversity Museum at the Central Marine Fisheries Research Institute, Kochi (GB.28.3.3.1)

Results

Systematics

Kingdom Animalia
 Phylum Chordata
 Class Actinopterygii
 Order Ophidiiformes
 Family Carapidae Jordan and Fowler (1902)

Subfamily Pyramodontinae

Genus *Pyramodon* Smith and Radcliffe, 1913

Species *Pyramodon lindas* (Markle & Olney, 1990) (Fig. 1).

Diagnosis

Body elongate, compressed to round and eel like, supra-maxilla absent, anal fin origin advanced.

Fin formula

D₃₀ (dorsal fin rays to 31st vertebra) 53, P₁ (pectoral fin rays) 23, A₃₀ (anal-fin rays to 31st vertebra) 50, DRAO (dorsal fin rays to anal origin) 16 and the data of the Holotype (AMS 1.22825-011) was 50, 22, 50 and 13 respectively (Markle and Olney, 1990).

Description

Eel-like, moderate to relatively deep body depth; a large single vomerine fang; pelvic fin rays present; swim bladder large, filling visceral cavity and extending past anus; dorsal and anal fin radials robust and elongate; dorsal fin anterior or directly over anal fin origin; lacking rocker bone, cardiform teeth, and intrinsic swim bladder constrictions or tunic ridges Margins of dorsal and anal fins edged in black over entire length; head and body generally unpigmented. Larvae not extremely elongate with vexillum adjacent to first dorsal fin ray, with large head and deep body and enlarged premaxillary cartilage. The morphometric data and data expressed as percentage of head length are given in Table 1. The comparison of data with the holotype is given in the Table 2. The size varies from 229 to 360 mm in TL. This is the largest carapid known to date. It has 21–25 pectoral fin rays. Pectoral fin length is relatively short. The tips of its rays falling 0–13 mm short of the posterior end of the swim bladder.

Colour

Lightly coloured with the exception of the dorsal and anal fin margins which are quite dark head and body are generally unpigmented. There is an unpigmented patch on the cheek that over lies the adductor mandibulae.



Fig. 1 Lateral view of the specimen *Pyramodon lindas* (Markle & Olney, 1990) collected from Indian sea

Table 2 Comparison of *Pyramodon lindas* with holotype and paratypes

Parameter	Markle and Olney 1990	Holotype (mm) AMS 1.22825-011	Present specimen (mm)	Present specimen % of HL
TL (mm)	229–360	287	483	
HL (mm)	36.6–58.5	50.9	85	
SNL (% HL)	0.2	10.7	18.1	0.21
ED (%HL)	0.2	13.8	11.4	0.13
UJL	0.5	26.7	35.1	0.41
LJL	0.6	28.6	37.9	0.45
PDL	1.1–1.2	57.5	70.6	0.83
PAL	1.6–1.7	82.8	95.3	1.12
STA	1.6–1.7	81	98.7	1.16
PL	0.7–0.8	34.2	45.3	0.53
BD	0.7–0.9	46.7	48.2	0.57

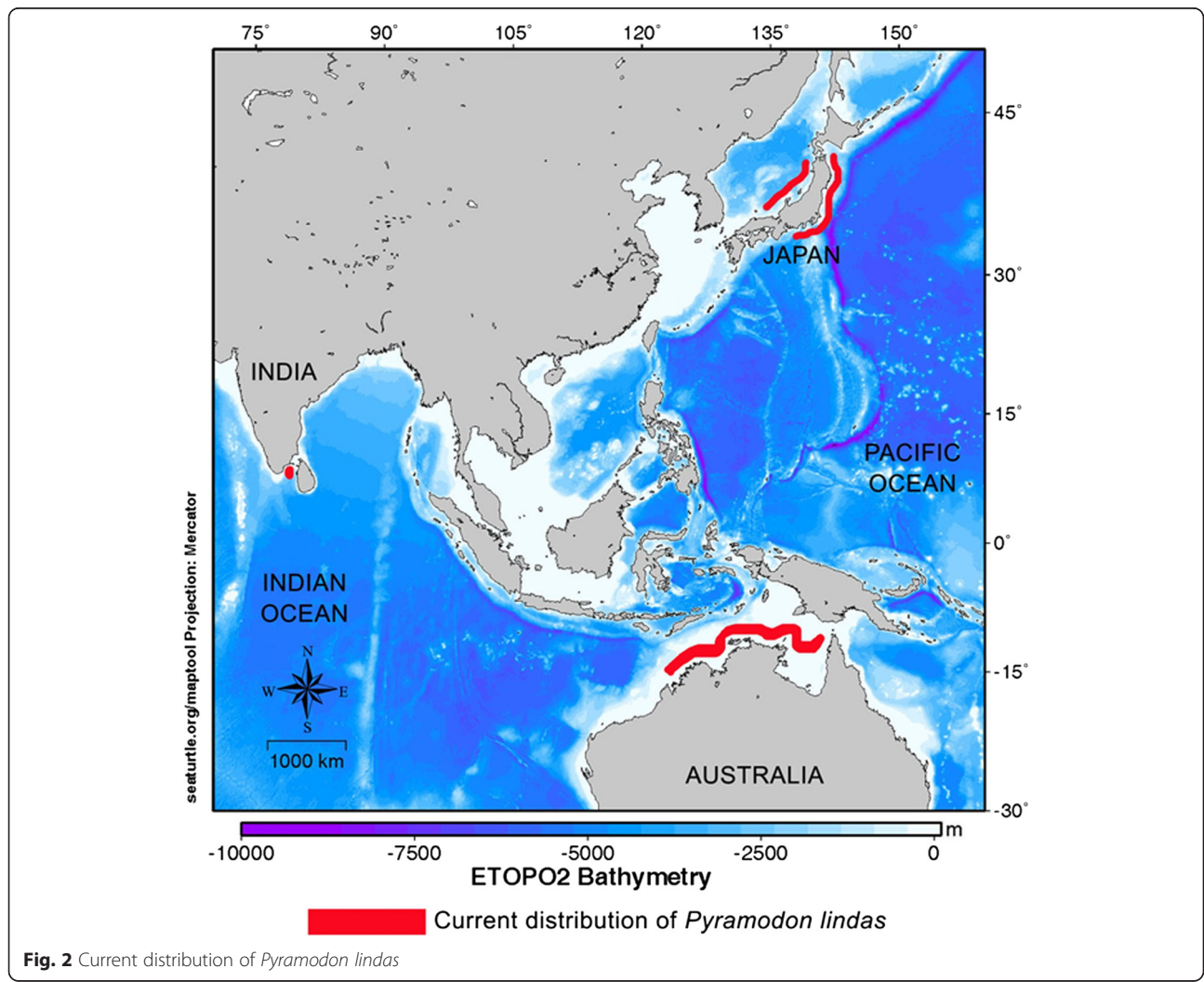


Fig. 2 Current distribution of *Pyramodon lindas*

Difference between other species

Mainly the head and body of *Pyramodon lindas* are generally unpigmented. Other three species are generally pigmented. These *P. lindas* have 21–25 pectoral fin rays while others have more than 25 pectoral fin rays compared to other three species pectoral fin length of the *Pyramodon lindas* is relatively short.

Pyramodon parini

The size ranges from 169 to 305 mm in TL. These are the most darkly pigmented in the species. It has paired gonads. The pectoral fin is relatively long. The main distribution area is south eastern pacific.

Pyramodon punctatum

The size ranges from 62 to 619 mm in TL. These are moderately pigmented. The pectoral fin is relatively short. The tips of its rays falling 3–10 mm short of the posterior end of the swim bladder. *P. punctatus* is a species inhabiting the southern hemisphere, known from off South Africa, south eastern Australia and Newzealand at depths of 120–731 m.

Pyramodon ventralis

The size ranges from 62 to 564 mm in TL. These are the most lightly pigmented in the genus and have a generally more delicate appearance than other species of *Pyramodon*. The pectoral fin is relatively long, extending 8–23 beyond the posterior end of the swim bladder. Pectoral fin length is also strongly allometric (Markle and Olney, 1981).

Distribution

Northern Australia, Japan, India. Benthopelagic in 250 to 385 m and rare species (Fig. 2).

Taxonomic note

The species *Pyramodon lindas* is first described by Markle and Olney in 1990. They collected the specimen from North West shelf, Australia, 18°59'S, 117°10'E depth 300–326 m. The holotype of the species is deposited at a museum as a number of AMS1.22825–011. The geographical distribution area of the species is tropical and temperate Indo-Pacific, the habitat is marine, apparently free living at depths of 120–731 m and the size is 360 mm.

Conclusion

The *Pyramodon lindas* reported in the present study makes the total species reported from India as four in family Carapidae. The other earlier reports were *Carapus homei* (Richardson, 1846), *Pyramodon punctatum* (Regan, 1914) and *Carapus margaritiferae* (Rendahl, 1921) (Mahadevan, 1961). The present report on *Pyramodon lindas* is a new record from the Indian water adding diversity to Indian marine resources.

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Authors' contributions

KKJ conceived the study and drafted the manuscript. KK collected, measured the specimens and deposited in the Museum. PUZ, JAJ & GG participated in the design, coordinated and helped to draft the manuscript. All authors have read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

Author details

¹Central Marine Fisheries Research Institute (CMFRI), Post Box 1603, Ernakulam North P.O., Kochi 682018, Kerala, India. ²Tuticorin Research Center (TRC), Central Marine Fisheries Research Institute, (CMFRI), South beach road (near Rochi park), Tuticorin 628 001, Tamil Nadu, India. ³Wildlife Institute of India, Chandrabani, Dehradun 248001, India.

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