



## Note

# First record of the Japanese bigeye *Pristigenys nipponia* (Cuvier & Valenciennes) (Perciformes: Priacanthidae) from the Indian seas

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### Abstract

Eighteen species of priacanthids have currently been reported worldwide of which maximum diversity is recorded in the Indo-Pacific region. A new record of a priacanthid *Pristigenys nipponia* from Indian waters is described herewith. Morphometric and meristic measurements of the two specimens of *P. nipponia* collected bear close resemblance to that reported by Smith (1966) from Algoa, Western Indian Ocean samples as well as to those of Fowler (1931) from Japan.

Priacanthids, commonly called bigeyes comprise of a relatively small circumtropical family of marine percoid fishes. Besides the tropics, their distribution also extends into temperate regions in association with warm ocean currents. They show maximum diversity in the Indo-Pacific region, with one species confined to the eastern Pacific and two to the Atlantic Ocean. Eighteen species have currently been recorded worldwide in this family. The fishes are characterized by the remarkable eyeshine, the brilliant reflective layer of their large eyes, or *tapida lucidum*, which may be unique among teleosts (Starnes, 1988). Bigeyes are epibenthic in habit and are generally associated with rock formations or coral reefs where they lurk in or near crevices most of the daytime; however, a few species are often trawled in open bottom areas. They occur from depths of less than 5 m to perhaps 400 m. Species of priacanthids are known to feed primarily on crustaceans, small cephalopods, polychaetes and small fishes. They are most active nocturnally. The family Priacanthidae is represented in India mainly by *Priacanthus hamrur* along with three other species which occur rarely in Indian waters – *Heteropriacanthus cruentatus*, *Priacanthus tayenus* and *P. macracanthus*. *Pristigenys nipponia* differs from other species of the genus in having higher gill raker counts and more distinct white vertical bars on body; and from *P. hamrur* in the shape of its body and from other *Priacanthus* species in the absence of spots on its fins.

### Materials and methods

During a routine field collection, two specimens of priacanthids were collected, one by a drift gill unit at a depth of 215 m and the other by a trawl unit from 250 m off the Kerala coast. They measured 305 mm and 232

mm in total length and had body weight 700 g and 525 g respectively. The specimens were identified as *Pristigenys nipponia*. Both the specimens have been deposited at the Marine Biodiversity Museum of CMFRI, Cochin, India (CMFRI Reg. No.GB.31.124.4.3) after taking the photographs and noting the body colouration in the fresh condition. They were preserved in 5% formalin.

Since the present specimen is from a new locality, descriptions, comments and figure are given herein. Counts and measurements are as prescribed by Hubbs and Lagler (1949).

### Results

*Pristigenys nipponia* (Cuvier & Valenciennes, 1829)

*Priacanthus nipponius* Cuvier and Valenciennes, 1829, 107; Temminck & Schlegel, 1842, 21, pl. 7 a; Gunther 1859, 217; Bleeker, 1860, 73.

*Pristigenys nipponia* (Cuvier, 1829); Kyushin *et al.*, 1982, 188; Dor, 1984, 110.

*Myripristis refulgens* Valenciennes, 1862, 1169.

*Pseudopriacanthus nipponius* Bleeker, 1869, 241; Boulenger, 1895, 358; Smith and Pope, 1936, 474; Fowler, 1931, 80; Smith, 1951, 53, fig. 3; Smith, 1953, 18; Smith 1953b, 517, pl. 106, fig. 406 a; Smith and Smith 1963, 13, pl 9, B.

*Priacanthus meyeri* Gunther, 1872, 656.

*Priacanthus refulgens* Sauvage, 1891, 129, pl. 5, fig 5.

**Description:** Body deep, broadly ovate, maximum

overall width at preopercle. Head and body covered with relatively large scales resulting in a rough texture; scales on dorsal and ventral parts of body small, on middle of sides large, striated, rough, without an intramarginal plate-like ridge, their margin strongly ctenoid; scales of midlateral region broadly rounded posteriorly. Eyes, large, round, prominent; preoperculum strongly denticulated, with a spine at the angle in the smaller specimen. Mouth very oblique, maxillary reaching to below anterior half of eye; lower jaw longer, chin prominent. Numerous minute teeth in jaws in a single row. Lateral line strongly curved, its top situated below the 4<sup>th</sup> and 5<sup>th</sup> spine, then descending to middle of caudal peduncle. Dorsal origin above base of pectoral; spinous portion of fin rounded, spines strong, grooved, fourth to sixth spines longest; interspinous membrane deeply incised; soft ray part of fin broadly pointed. Pectoral fins relatively short, broadly pointed. Pelvic fins inserted beneath pectorals. Caudal fin rounded. (Fig.1). The morphometric measurements of the two samples collected along with the comparative details with the earlier recorded samples are given in Table I.

**Colour:** Body, head and fins dark orange red; five vertical bars on body, the first bar on dorsal fin origin, the second beneath fifth dorsal fin spine, third at origin of soft dorsal, fourth at end of soft dorsal and fifth at base of caudal fin. Iris of eye silvery. Dorsal fin spines and outer portion of interspinous dorsal membrane creamy pink, posterior portion dusky. Opercular area silvery red. Soft portions of dorsal, anal and caudal fins with black prominent margin. Pectoral fin slightly pink, distal one third of pelvic black.

Colour of the specimen changes to white in formalin preserved specimens; the outer fin tips of pelvic and anal fins retain the black colour.

**Distribution:** *P. nipponia* has a widespread distribution in the Western Pacific Ocean, Western Indian Ocean, Queensland and Western Australia northward to southern Japan. In Indian Ocean, this species has been recorded from South Africa, Mozambique Channel, Reunion and Seychelles (Smith, 1966), in Red Sea at Elliat, Israel (Diamant in litt.).

### Discussion

Fritzsche (1981) studied fossil material of priacanthids and noted that "species now assigned to *Pseudopriacanthus* and *Pristigenys* share the presence of the predorsal bone, which although primitive is unique with the priacanthids"; but no evidence was available to prove this generic separation. Hence, in the absence of contrary evidence, Fritzsche (1981) concluded that "we concur with White (1936) and Myers (1958) in

considering *Pristigenys* the senior synonym of *Pseudopriacanthus*." Hence the generic name *Pristigenys* is valid for the present specimen.

The morphometric measurements of the two samples collected bear close resemblance to that of Smith (1966) from Algoa, Western Indian Ocean as well as to those of Fowler (1931) from Japan. Lateral line counts of the present specimen closely match with the results of Starnes (1988). Fin counts of the present specimen are in agreement with the results of earlier studies as given in Table 1. Anal fin count given in Fishbase (Froese and Pauly, 2000) as II, 10-11 could be a typographical error instead of III, 10-11 as the genus *Pristigenys* is characterized by three spines in the anal fin. Starnes (pers. comm.) also agrees with the findings of the author that the present specimen is *Pristigenys nipponia*. Starnes remarks that the present specimen is clearly different from other *Pristigenys* of the area in the presence of the white bars on the body. It is probable that this genus has already been found in Indian seas, but not recognized. Day (1875) in a footnote under *Priacanthus blochii* Bleeker states "*Priacanthus*, I possess drawings of apparently two species of this genus. The one is entirely of a fine red colour and was named *Paswa* (Tamil). The other is reddish above, white on the sides and the ventrals spotted dusky. D 10/11, A 3/11, it was named *Kewai*". Though Starnes (1988) questions the distributional record of Day (1875), it is probable that the "*Kewai*" reported by Day is a species of the genus *Pristigenys*, probably *P. nipponia*, which has dorsal X 11-12 and anal III 10-11. With the confirmation of the present specimens, the number of species of Priacanthids from Western Indian Ocean, especially from Indian waters goes upto five, with a new distributional record of the genus *Pristigenys* – *Pristigenys nipponia*.

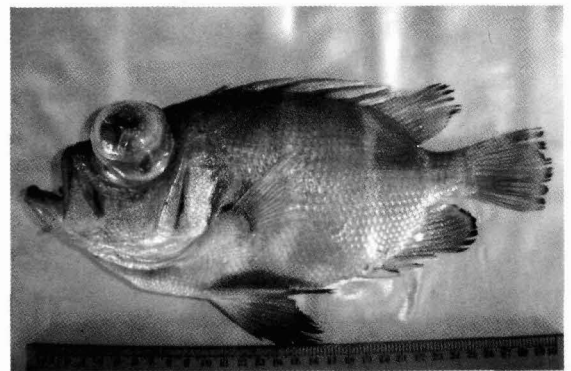


Fig. 1. *Pristigenys nipponia*

Table 1. Comparison of studies from different localities

Parameters	CAS 13611 E. China Sea	SU 18190	Boulenger (1895) Japan, Celebes	Fowler (1931) Japan	Algoa. W. Indian Ocean (1966)	Starnes (1988)	Fishbase	Present study India (2006) (n=2) - #
	(Times TL/SL/HL)							
Standard length	1.2	1.2	*	*	*	*	*	1.2; 1.2
Head length	2.3	2.7	2.5 (-3) in SL	*	2.5	*	*	2.7; 2.7
Body width	3.97	3.72	*	1.8	1.9 -2	*	*	2.4 ;2.5
Eye diameter	0.9	1.4	*	*	2.2 HL	*	*	2.2; 2.6 HL
Inter orbital	4	3.6	*	*	*	*	*	3.4; 4 HL
Upper jaw	2.02	2.3	*	*	*	*	*	2; 1.9 HL
Lower jaw	1.6	1.8	*	*	*	*	*	1.8; 2 HL
Dorsal fin length	4.0	4.3	*	*	*	*	*	5.23; 5.1
Anal fin length	3.9	4.7	*	*	*	*	*	5.1; 5.6
Pelvic fin length	2.9	3.5	*	*	1.3 HL	*	*	3.6; 4.2
Pectoral fin length	5.2	5.2	*	*	2 HL	*	*	5.1; 5.3
Anal fin base	3.8	3.6	*	*	*	*	*	4.8; 4.9
Dorsal fin base	1.7	1.7	*	*	*	*	*	2.03; 2.2
Pectoral fin base	11.4	13	*	*	*	*	*	15.8; 16.2
Pelvic base	15.3	16.2	*	*	*	*	*	14.9; 15.3
Caudal peduncle depth	3.28	7.94	*	*	*	*	*	9.5; 7.8
Pre dorsal length	3.8	3.2	*	*	*	*	*	3.2; 3.5
Pre pelvic	2.9	2.9	*	*	*	*	*	2.3; 2.6
Pre anal	1.4	1.4	*	*	*	*	*	1.4; 1.8
Pre pectoral	2.3	2.69	*	*	*	*	*	2.3; 2.7
Lateral line scale/ tubes	30	36	34 -40	34 - 36	35 - 38	39.7	*	36; 36
Scale series	*	*	55 - 59	45 - 56	50 - 53	45.2	*	45
Dorsal fin count	*	*	X, 11 - 12	X, 11 -12	X, 11	X, 11	X, 11 -12	X, 11
Anal fin count	*	*	III, 10 -11	III, 10 -11	10	III, 10	II, 10 - 11	III, 10
Pelvic fin count	*	*	*	*	*	*	I, 5	I, 5
Pectoral fin count	*	*	*	*	*	18 -19	18 -19	17
Vertical scale rows above LL	*	*	9	*	*	9 -12	*	9
Vertical scale rows below LL	*	*	31	*	*	28 -32	*	29
Gill rakers	*	*	17	9 + 21	7 + 1 + 15	*	7 -8, 23 - 28	7 +24

\* - Data not available

# -both values given

Results of the present study are as % TL unless otherwise mentioned

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