

On the Little Known Species of Threadfin Breams *Nemipterus mesoprion* (Bleeker) and *Nemipterus delagoae* (Smith)

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Among the fish species of the family Nemipteridae, the two little known species, namely, *Nemipterus mesoprion* (Bleeker) and *Nemipterus delagoae* (Smith) are recorded from the Cochin waters. *Nemipterus mesoprion* is a new distributional record from the west coast of India. *N. delagoae* is described with adequate numbers of specimens for the first time from Indian waters. Moreover, the results of the present study show that the colour of the viscera, the number of pyloric caeca and the gill rakers can also be used for the diagnosis of the species of the genus *Nemipterus*. The affinity of the above species with other related species of the genus *Nemipterus* and their geographical distribution are presented.

Fishes of the family Nemipteridae constitute an important fishery along the Cochin coast. No attempt was made so far to study in detail the Nemipterid fishes of this region. The identity of many of the species in the family *Nemipteridae* is still doubtful and most of them lack proper systematic description. Day (1878) reported five species of threadfin brems from Indian waters under the genus *Synagris* (Klein) Gunther, namely, *S. straitus*, *S. tolu*, *S. bleekeri*, *S. notatus* and *S. japonicus*. The fishes of the Indo-Australian Archipelago by Weber & de-Beaufort (1936) includes twenty species of *Nemipterus*. Recent reports of the Nemipterid fishes from Indian coast are those of Rajagopalan *et al.* (1975) and Murty (1978).

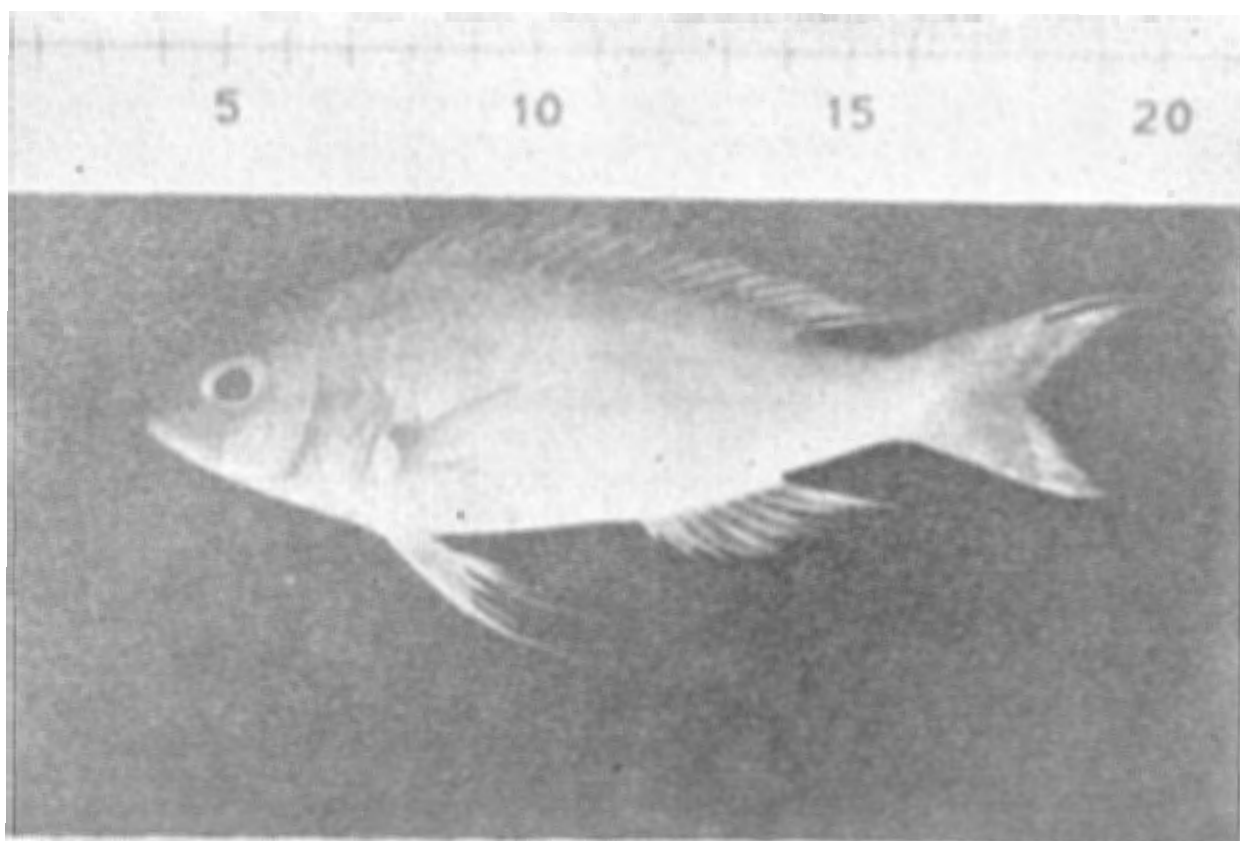
During the present investigation from Cochin, two little known species of the genus *Nemipterus*, namely, *N. mesoprion* (Bleeker) and *N. delagoae* (Smith) were encountered. Rajagopalan *et al.* (1975) described *N. delagoae* from Indian waters based on a single specimen. There is no positive report of *N. mesoprion* from the west coast of India and so it is reported as a new record. The result of the present study also revealed some new taxonomical characters which can be used in the diagnosis of these two species.

Materials and Methods

The specimens for the present study were collected from the trawl catches (30–36 m depth at 9° 10'N, 70° 6'E) of the Integrated Fisheries Project, Cochin. The colour and pigmentation were noted in fresh specimens, but detailed observations were made on preserved specimens. All measurements were taken from point to point on the left side of the fish. A pair of dividers and vernier calipers were used for the measurements and rounded off to the nearest millimetre. The morphometric data are presented in percentage of standard length except the snout length, orbit diameter and inter-orbital distance which are given in percent of head length. Scale counts, meristic counts, teeth counts and vertebral counts were made on Alizarin-stained materials. Measurements and counts were taken according to Holden & Raitt (1974). The gill raker numbers were noted on the first left gill arch.

Nemipterus mesoprion Bleeker 1853 (Fig. 1)

Dentex mesoprion Bleeker, 1853: 256.
Synagris mesoprion Machan, 1930: 435.
Synagris mesoprion Fowler, 1933: 105.
Nemipterus mesoprion Weber & de-Beaufort, 1936: 374, Fischer & Whitehead, 1974; Murty, 1978:207.

Fig. 1. *Nemipterus mesoprion***Table 1.** Morphometric proportions in *Nemipterus mesoprion* and *Nemipterus delagoae*

Characters	<i>Nemipterus mesoprion</i>				<i>Nemipterus delagoae</i>			
	Mini-	Mean	Maxi-	S.D.	Mini-	Mean	Maxi-	S.D.
Per cent in standard length	mum		mum		mum		mum	
Depth of body	28.20	30.59	32.47	1.13	25.00	27.46	29.88	1.45
Head length	29.47	32.06	33.53	1.10	30.10	31.24	32.95	0.72
Pectoral origin	29.47	32.66	35.85	1.22	29.11	31.22	32.81	1.01
Dorsal origin	29.27	32.45	35.89	1.61	29.56	32.65	32.22	1.38
Anal origin	58.84	61.43	64.43	1.51	58.04	61.48	64.06	1.80
Ventral origin	32.14	34.49	36.46	1.29	31.63	32.95	34.37	0.78
Pectoral length	25.89	29.27	32.04	1.41	21.45	24.26	25.88	1.48
Pelvic length	27.17	32.49	43.11	3.41	25.72	29.38	35.22	2.33
Dorsal base length	50.61	52.74	54.45	1.02	47.95	52.82	56.01	1.74
Anal base length	17.30	19.01	20.44	0.83	18.40	19.85	21.49	0.75
Dorsal fin height (5th spine)	11.88	13.54	14.28	0.62	11.45	12.34	13.51	0.56
Anal fin height (3rd spine)	11.57	11.98	12.65	0.30	9.56	10.61	11.49	0.53
Caudal peduncle length	14.02	16.88	19.02	1.28	17.75	19.15	20.54	0.84
Depth at caudal peduncle	9.00	10.92	11.58	0.61	8.87	10.31	11.62	0.58
Caudal fin length with thread	40.82	62.41	76.78	7.35	—	—	—	—
Per cent in head length								
Snout length	27.39	30.45	34.78	1.98	31.74	34.45	37.28	1.65
Orbit diameter	28.37	31.38	34.78	1.71	30.00	32.79	35.00	1.61
Inter-orbital space	20.00	23.19	28.26	1.87	21.05	23.83	26.47	1.58
Sub-orbital bone height	14.06	16.03	18.18	1.22	18.64	20.69	22.64	1.00

Description

Based on 20 specimens ranging from 78.0 to 117.5 mm S. L. (99.0–145.0 mm T.L.). Details of morphometric proportions, pyloric caeca number and gill rakers are summarized in Tables 1, 2, 3.

Meristic formula: D X, 9; A III, 7;
V I, 5;
P 15–16; C 17; L.lat.
45–40;
L.tr. $\frac{3}{10}$

Murty (1978) described the morphological characters of *N. mesoprion*. In addition to this, the following characters can be used for its identification. Vertebrae 24, gill rakers 6–7 in upper limb and 7–8 in lower limb. Pyloric caeca 7–8, colour of viscera red. A bright yellow blotch below lateral line near its anterior end. Abdomen yellowish. Base of the spinous dorsal with a blue tinge extending upto the head.

Distribution

Nemipterus mesoprion is known to occur in Sumatra (east and west coasts) Singapore and along the east coast of India. The present report extends the range of its distribution to the west coast of India.

Table 2. Frequency of number of pyloric caeca in *N. mesoprion* and *N. delagoae*

	<i>N. mesoprion</i>		<i>N. delagoae</i>		
No. of caeca	7	8	7	8	9
No. of specimen	18	2	3	15	2

Table 3. Frequency of number of gill rakers in *N. mesoprion* and *N. delagoae*

	<i>N. mesoprion</i>				<i>N. delagoae</i>			
	Upper	limb	Lower	limb	Upper	limb	Lower	limb
No. of gill rakers	6	7	7	8	5	6	7	7
No. of specimens	1	19	17	3	1	18	1	19

Remarks

The present specimens agree well with the description by Murty (1978). The present collection from the south west coast of India is of particular interest as it extends its known distribution further to the west coast of India. In *N. mesoprion*, Murty (1978) reported that the body depth and head length in per cent of standard length are 31.6–37.5 (33.6) and 34.5–40.6 (37.5) respectively, but in the present specimens comparatively lesser body depth 28.2–32.47 (30.59) and head length 29.47–33.53 (32.06) were observed. This shows that the specimens from west coast are more streamlined than the specimens from east coast. The difference may be due to the difference in habitat. Murty (1978) stated the colour of the blotch is reddish in this species where as in the present specimens the blotch is bright yellow with a pink reflection.

N. mesoprion has a marked resemblance to *N. japonicus* in several characters, but it differs mainly in colour. In *N. mesoprion*, the head length and the pelvic fin length are more and the snout length and sub-orbital length are not comparable to those of *N. japonicus* (Murty 1978). In addition to the morphological characters, *N. mesoprion* can be easily differentiated from *N. japonicus* by noting the number of the pyloric caeca, gill raker number and the colour of viscera (Table 4).

Nemipterus delagoae Smith 1949 (Fig. 2)
Nemipterus delagoae Smith, 1949:672;

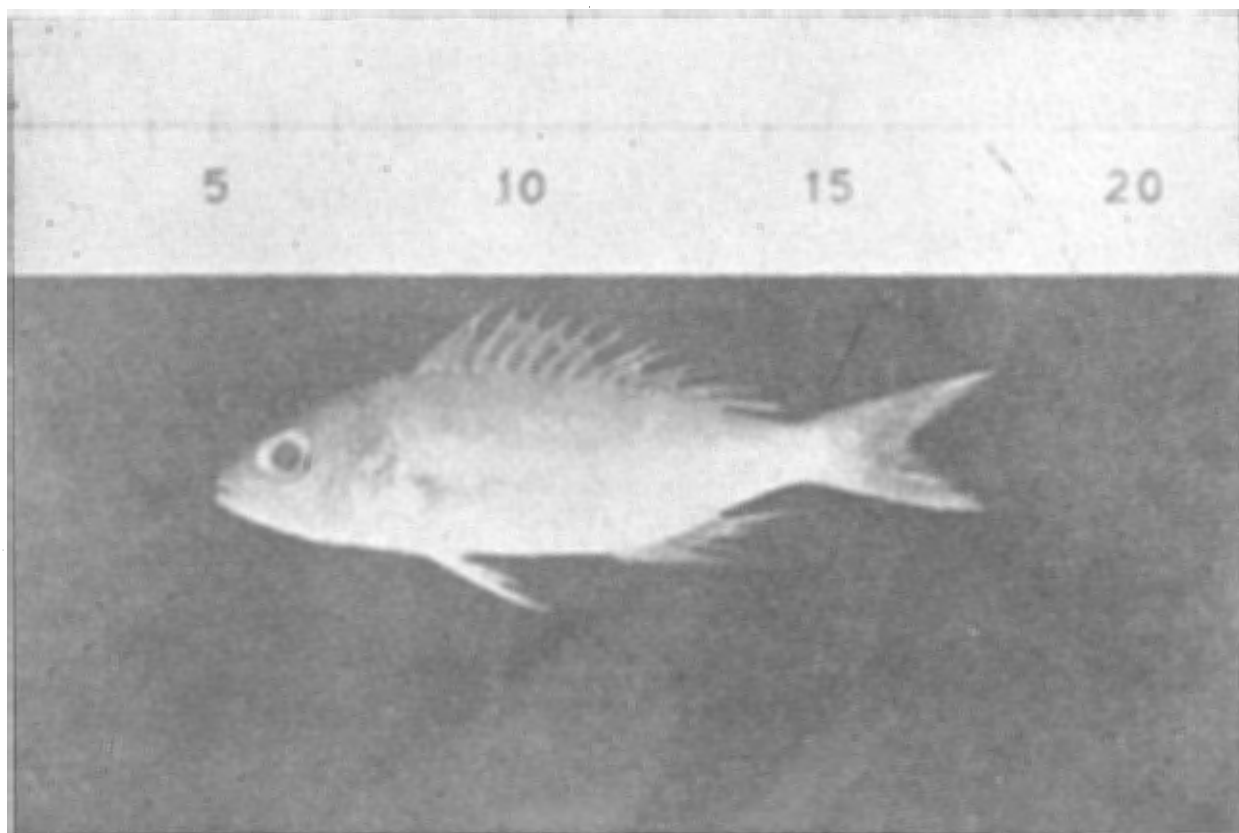
Fischer & Whitehead, 1974;

Rajagopalan *et al.* 1975; 274.

Table 4. *Differences between N. japonicus and N. mesoprion*

Characters	<i>N. japonicus</i>				<i>N. mesoprion</i>	
Pyloric caeca no.	7 (2)	8 (14)	9 (4)		7 (18)	8 (2)
Gill rakers in upper limb	7 (2)	8 (18)			6 (1)	7 (19)
Lower limb	7 (1)	8 (1)	9 (9)	10 (9)	7 (17)	8 (3)
Colour of visceral membrane	Yellow				Red	

(The numerical numbers in parenthesis indicate the number of specimens)

**Fig. 2.** *Nemipterus delagoae***Description**

Based on 20 specimens ranging in body length 81.5 to 130.5 mm. S.L. (1020.0–168.0 mm T.L.). (Details regarding morphometric proportions, pyloric caeca and gill rakers are summarized in Tables 1, 2, 3).

Meristic formula:

D X, 9; A III, 7; VI, 5;
P 15–16;
C 17; L. lat. 47–49;
L. tr. $\frac{3}{1}$
 9

Teeth in jaws in several rows. Upper jaw with 3–4 caniniform teeth anteriorly in each ramus, but such teeth are absent in the lower jaw. Hind border of pre-operculum crenulate. The height of soft dorsal and spinous dorsal almost the same. The outer ray of pelvic fin elongated and reaching to the origin of anal. Vertebrae–24, gill rakers 5–7 in upper limb, 6–7 in lower limb. Pyloric caeca 7–9. Colour of visceral membrane dull white.

Distribution

Delagoae Bay to Beira along east coast of South Africa and south west of India.

Remarks

The present specimens of *N. delagoae* agree with the original description by Smith (1949) and also with the description of Rajagopalan *et al.* (1975) in several characters but differs in certain features. According to Smith (1949) the lateral line scale numbers are 49–50; but in present specimens, the number of lateral line scales ranged from 47–49. According to Rajagopalan *et al.* (1975) the number of caudal fin rays were 20, but in the present study it is noted as 17. According to Smith (1949) and Rajagopalan *et al.* (1975) the hind border of pre-operculum is naked, but in the present specimen the hind border of pre-operculum is found as crenulate. Smith (1949) stated that the gill raker number of *N. delagoae* as 7 short spiny structures and also did not specify the gill arches. During the present study, the gill rakers in the first left gill arch of this species are found to vary from 11–14 and the frequency of distribution of gill rakers in the studied specimens were given in the Table 3.

The description and the figure of *N. delagoae* given by Fischer & Whitehead (1974) also agree with the present specimens in all characters except for a slight variation in

the head length and the body depth. In the present specimens, the head length is more than body depth, where as Fischer & Whitehead (1974) stated that the head length and body depth are equal.

Colour is the most important character in distinguishing the species of Nemipteridae (Eggleston, 1973). Fischer & Whitehead (1974) reported that colouration of the pelvic axillary scale is silvery white, but in the present specimens, it was observed as yellowish.

Among the Indian Nemipterids, *N. delagoae* resembles *N. bleekeri* in several characters, but differs in a few features. In the fresh condition, *N. delagoae* is not having a bluish spot on the opercle; where as in *N. bleekeri* a prominent bluish spot is present on the opercle. In *N. bleekeri* the pectoral fin is as long as the head and the hind border of the pre-operculum is naked. In *N. delagoae* the pectoral fin is shorter than the head length and the hind border of pre-operculum is crenulate.

This report on the occurrence of the two species of *Nemipterus* extends their known distribution to the south west coast of India. The occurrence of *N. delagoae* appears to be seasonal being limited to February, March and April. *N. mesoprion* is more abundant than *N. delagoae* in the trawl catches off Cochin.

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