A NEW DISTRIBUTIONAL RECORD OF *NEMIPTERUS DELAGOAE* SMITH FROM BOMBAY WATERS WITH NOTES ON ITS BIOLOGY

ABSTRACT

The occurrence of *Nemipterus delagoae* Smith is recorded for the first time from the northwest coast of India. A total of 191 specimens were collected, ranging in total length from 132 to 306 mm, from the trawler landings at Sassoon Dock, Bombay. A detailed description of the species is given and difference with that of the most common species *Nemipterus japonicus* are mentioned. Preliminary account on some aspects of its biology is also given.

The genus *Nemipterus*, popularly called thread fin breams and locally known as *Rani fish* (Marathi), constitutes a commercially important group of fishes in India (Krishnamoorthi, 1973). At Bombay, on the northwest coast of India, *Nemipterus* forms a major component of the trawler catches. Day (1878) recorded five species from the Indian Seas under the genus *Synagris* namely; *S. striatus, S. tohu, S. bleekeri, S. notatus* and *S. japonicus*. The present report records the occurrence of *N. delagoae* (Fig. 1) for the first time in trawler catches at Sassoon Dock, Bombay. The known distribution of this species is along the east coast of South Africa-Delagoa to Beira. A single male specimen of this species, 231 mm in total length

was reported from Cochin southwest coast of India (Rajagopalan *et al.*, 1975). The present record of *N. delagoae* from Bombay extends its known distribution to the northwest coast of India. The following description is based on the study of various body measurements (given in percentage of Standard length) of 38 specimens out of 191 specimens collected.

Material: 191 specimens measuring 132–306 mm in total length (weight 31–316 gm) were collected from the trawler landings at Sassoon Dock, Bombay in the second fortnight of December, 1978.

Description: Total length 125.2–130.3; head length 34.2 (33.1–35.4); snout to pectoral 36

Fig. 1. *Nemipterus delagoae* Smith.

Since nothing is known on the biology of this species, preliminary observations on its food, sex ratio, maturity and spawning are reported here.

We are grateful to Shri K. V. Narayana Rao for the valuable suggestion for the improvement of this paper and to Dr. B. Krishnamoorthy for the interest shown in this work and for critically going through the manuscript.

Nemipterus delagoae Smith 1961 (Fig. 1)

Nemipterus delagoae Smith, 1961. *Fishes of Southern Africa*, p. 257, pl. 21, fig. 672 (Type locality: Delagoa Bay).

Nemipterus delagoae Smith, FAO species identification sheets for fishery purpose. Vol. III PNEMIP NEM 2, 1974.

(36.3–37.0); pectoral 26.4 (24.1–29.8); pelvic 29.8 (25.7–34.6); predorsal 35 (32.1–37.5); prepelvic 36.4 (32.3–38.4); pre-anal 60.9 (61.4–66.5); body depth 28.4 (26.8–30.9); depth at anal fin 24.1 (22.4–24.8); depth at caudal peduncle 9.3 (9.3–9.9); dorsal base 50.7 (48.3–53.2); anal base 18.9 (17.8–20.0); caudal length 27.7 (26.0–29.1); height of the fourth dorsal spine 10.7 (10.3–11.8); first dorsal ray 13.3 (12.3–14.1); second anal spine 8.8 (7.1–12.8) in percentage of standard length.

Suborbital 32.8 (28.0–37.3); postorbital 43 (32.0–46.0); eye diameter 22.9 (23.4–28.0); head width 55.3 (51.0–60.7); interorbital 22.3 (20.7–26.0); snout length 33.4 (31.6–38.4);

maxillary 31.6 (31.2–33.8); mandible 30.2 (29.2–32.1) in percentage of head length.

Body elongate with fairly large scales, mouth moderate, the lower limb of 1st gill arch has seven knobular gill rakers while the upper limb has 5. Pectoral short; outer ray of pelvic fin elongated and almost reaching first anal ray. Caudal deeply forked, pelvic fin with an auxiliary scale.

In fresh condition, the upper half of the body is pink to rose coloured becoming silvery at sides and beneath. Four slightly yellowish longitudinal bands are present below the lateral line. The upward curved first band starts just below the lateral line and after the ninth dorsal spine it runs close to the lateral line. The second one is just below the pelvic fin, the third one starts from the upper margin of the pelvic fin and the fourth starts from the lower part of the pelvic origin. Below that 3–4 thin longitudinal white bands are present. Central portion of the caudal fin is deeply reddish pink. Anal fin milky white with 2–4 longitudinal yellow stripes. Also, the number of longitudinal stripes in the anal fin is variable, increasing with age.

Distribution: Delagoa Bay to Beira along the east coast of South Africa and west coast of India.

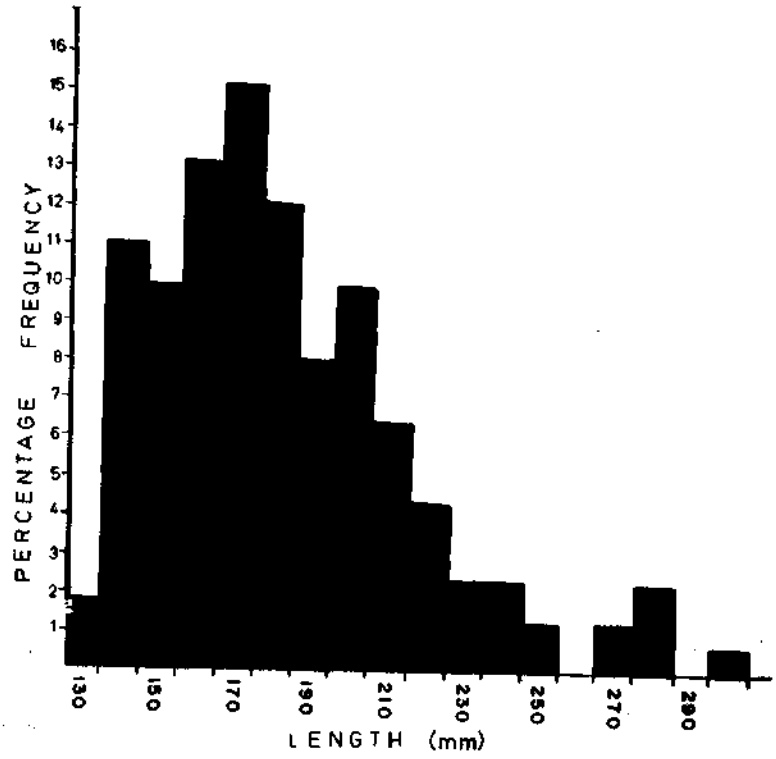

Fig. 2. Length frequency of *N. delagoae* during December, 1978.

The *N. delagoae* can be distinguished from *N. japonicus* by comparatively longer head, narrower body and longer snout.

Biology

Size distribution: A total of 191 fishes were collected during December 1978. Their length ranged from 132 to 306 mm with modal sizes at 140–149, 170–179 and 200–209 mm (Fig. 2). According to Smith (1949), this fish attains 10 inches (250 mm). The maximum size recorded in the present material is 306 mm (12 inches) in total length (Fig. 1).

Length weight relationship: The length-weight relationship for 81 males and 63 females of the species was studied separately by the method of least squares using the formula $W = a\ L^{b}$. The following formulae describe the relationship in male and female fish;

Males: $W = 0.00001592\ L^{2.9289}$ or
Log W = − 4.7983 + 2.9289 Log L
Females: $W = 0.00002552 + L^{2.8370}$ or
Log W = − 4.5931 + 2.8370 Log L

Krishnamoorthi (1971) observed significant difference in length weight relationship between males and females of *Nemipterus japonicus* of Andhra and Orissa Coast; whereas Vinci and Kesavan Nair (1974) reported no significant difference between males and females of the same species from the Kerala Coast. The present study on *N. delagoae* also shows no significant difference between males and females.

Sex ratio and maturity condition: Out of a total of 144 specimens examined 81 were males and 63 females. Females dominated in the 140–169 mm size group whereas males predominated females in the 170–249 mm size group.

The maturity condition of the fish ranged from stage I to IV with majority of fish in stage II–III. Figure 3 shows the frequency polygon of ova-diameter measurements of ovaries representing stages I (A), II (B), III (C) and IV (D). It is seen from the figure the nature and frequency of maturation of developing ova in different stages of maturity. It may be seen that in the mature ovary (stage IV, represented by polygon D) the mature group of ova 'c' is clearly separated from the immature and matuing group of eggs 'a'; and may be spawned in

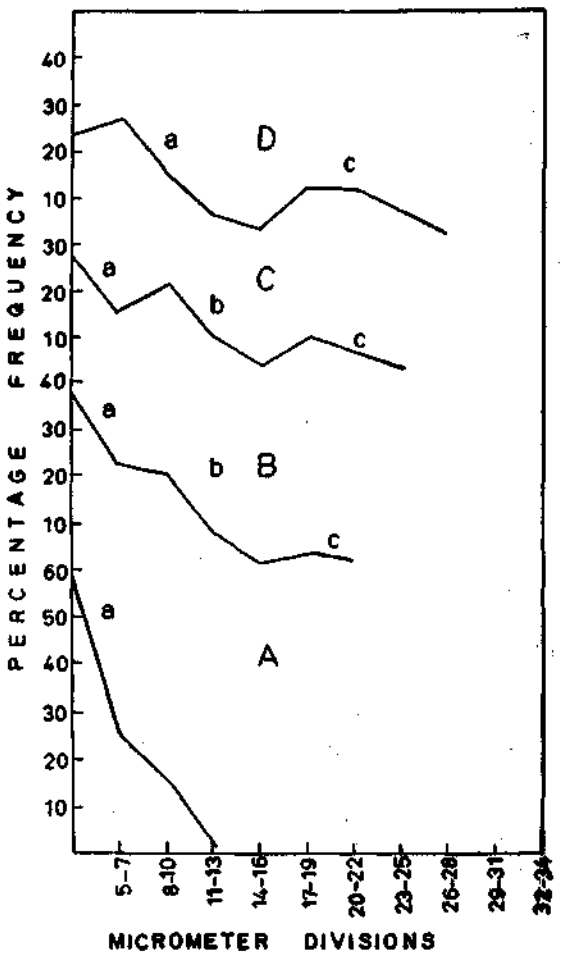

Fig. 3. Ova–diameter distribution in different stages ovary of *N. delagoae*

the ensuing spawning season. Hence spawning in this species may probably be restricted to a definite short period.

Of the 156 fish examined, twentyeight had full, thirty $\frac{3}{4}$ full, eighteen $\frac{1}{2}$ full and twenty-two $\frac{1}{4}$ full stomachs. Others had either empty or everted stomachs.

The food consisted of *Acetes indicus, Mysctophids*, teleost fish remains, prawn remains, *Solenocera indica, Squilla, Cynoglossus, Trypauchen vagina*, juveniles of sciaenid, *Polynemus heptadactylus*, eel, *Palaemon tenuipes* and *Sepia*.

Central Marine Fisheries Research Institute, Cochin - 682 018.

C. MUTHIAH
S. KRISHNA PILLAI

REFERENCES

DAY, F. 1878. *The fishes of India.* Vol. I. William Dawsons Ltd., London, pp. XX + 778.

FAO. 1974. Species identification sheets for fishery purpose. Vol. III PNEMIP NEM 2.

KRISHNAMOORTHY, B. 1971. *Indian J. Fish.*, **18** (1–2): 1–21.

———— 1973. *Proc. Symp. The Living Resources of the seas around India. Spec. Publ.* Central Marine Fisheries Research Institute, Cochin-18, pp. 496–516.

RAJAGOPALAN, M. P. KARUPPASWAMY AND A. REGHUNATHAN 1975 *Indian J. Fish.*, **22** (1–2) : 274–276.

SMITH, J.L.B. 1949. *The Sea Fishes of Southern Africa.* Central News Agency Ltd., South Africa.

VINCI, G. K. AND A. K. KESAVAN NAIR 1974. *Indian J. Fish.*, **21** : 299–302.