

On the Occurrence of the Eel *Neenchelys buitendijki* Weber & de Beaufort in Indian Waters¹

BY

K. H. MOHAMED

Central Marine Fisheries Research Sub-station, Ernakulam

(With one plate)

While examining a collection of eels from Sassoon Dock—the principal fish landing place of Bombay City—a few specimens of *Neenchelys buitendijki* Weber & de Beaufort were obtained in April 1953. The species not having been recorded from India so far, regular searches were made in the subsequent fish catches for further material and relevant data regarding its occurrence. It was revealed that the species is not rare in this locality, and a large number of specimens was obtained. Since the original description of this eel (Weber & de Beaufort, 1916) was based on only two specimens it is thought desirable to describe the species in greater detail in the light of the present good series:

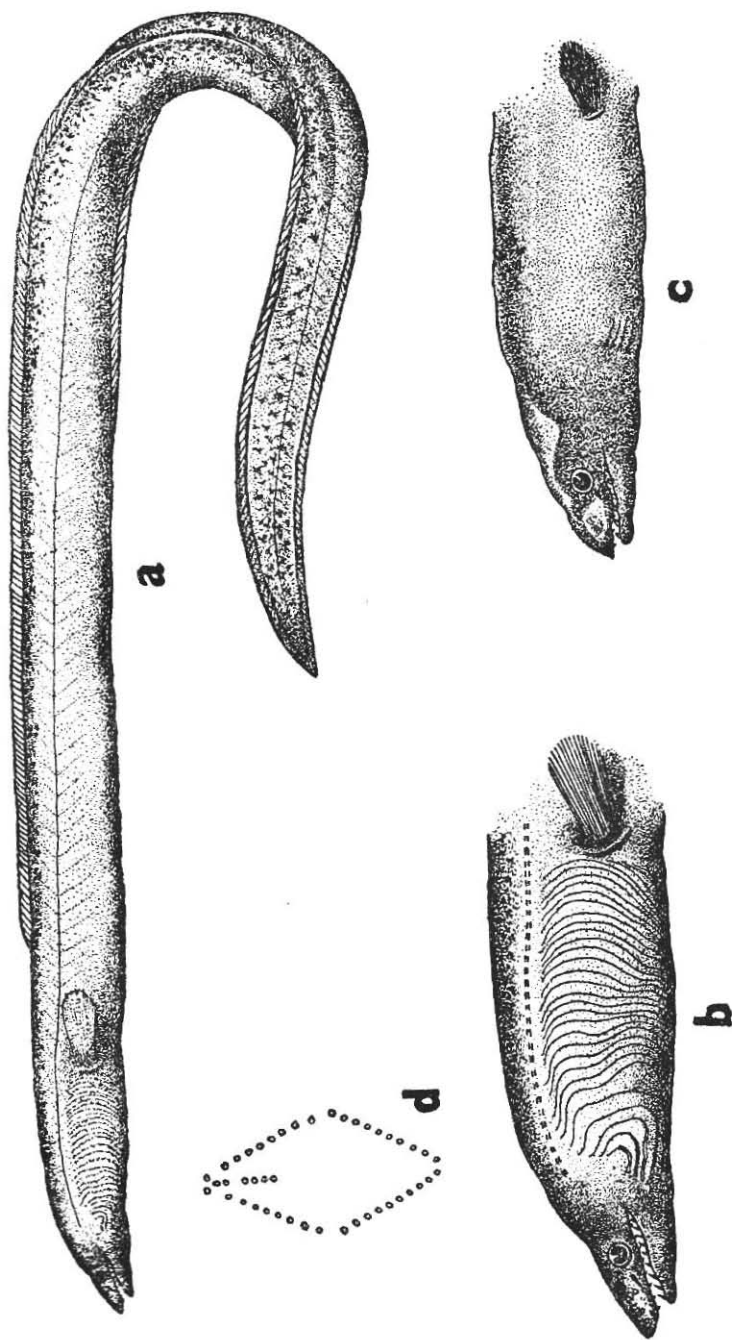
GENUS *Neenchelys* BAMBER

Gill openings separate, lateral. Distance from anus to gill opening much more than length of head. Body scaleless. Caudal confluent with anal and dorsal. Nostrils lateral. Pectorals present. Anus in anterior half of length. Tongue not free. Teeth acute, uniserial. Branchial openings in pharynx narrow slits. Intermaxillary plate pointed.

KEY TO THE SPECIES OF *Neenchelys* BAMBER

- i. Origin of dorsal fin as far from gill opening as latter is from angle of mouth. Pectorals shorter than snout. ... *N. microtretus*
- ii. Origin of dorsal fin not as far from gill opening as latter is from angle of mouth. Pectorals longer than snout. ... *N. buitendijki*

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a. *Neechelys buitendijki* Weber & de Beaufort x 1 ; b. Head of *N. buitendijki* x 2 ; c. Head of newly metamorphosed eel of *N. buitendijki* x 8 ; d. diagrammatic representation of the arrangement of teeth in *N. buitendijki*.

Neenchelys Buitendijki Weber & de Beaufort

Description: D. 335-346; A. 225-228; C. 9; P. 14-16; B. 31-36. Head 7.6 to 8.5 in total length and more than two in trunk. Height 19.8 to 24.6 in total length and 2.3 to 3.6 in length of head. Snout 6.5 to 7.3 in head length. Head and body 1.2 to 1.6 in length of tail and 2.3 to 2.7 in total length. Diameter of eye 19.3 to 25.5 in head and 3 to 3.4 in snout.

The body proportions generally agree with the description of Weber and de Beaufort (1916) but since a large number of specimens have been examined during the present study the range in variation has shown some increase. The detailed precision measurements made from fifteen specimens are given in Table I.

The body is scaleless, sub-cylindrical and posteriorly compressed. The head is conical and pointed and the eyes are very small without eyelids. The snout is conical and somewhat prominent due to the intermaxillary plate being produced forward into a sharp point. The anterior nostril is in the form of a small opening just behind the tip of the snout. A small flap of skin, present on either side of this opening, gives it an apparently tubulate appearance. The posterior nostril is a small, elongated, slit-like opening in front of the eye, more or less on a level with its lower half. A few mucilage pores are present on the nape and snout. The cleft of the mouth reaches far behind the orbit, for a distance equal to more than one diameter of the eye. The mouth is inferior, the lower jaw being smaller than the upper. The throat is silvery and the characteristic arrangement of the branchiostegals can be seen externally in the fresh condition (Plate, fig. b). Specimens stained in alizarin revealed 31 to 36 branchiostegals on each side, whereas Weber and de Beaufort (1916) have observed only 25. Teeth in the jaws are uniserial, acute, long and widely set in a slanting backward direction. The number of teeth in the jaws is variable, but generally number 8 on the maxillaries and 10 on the mandibles (Plate, fig. d). There are four teeth on the intermaxillary plate and an equal number on the vomer. On the anterior end of the intermaxillary plate two teeth are arranged side by side while all the others including those on the vomer are placed in a series one after the other. The tip of the intermaxillary plate is pointed and often appears as a horizontally directed median tooth. All the four teeth on the intermaxillary plate are depressible and can be considered as homologous with the mesial teeth of the genera *Muraena*, *Gymnothorax*, etc. The teeth on the front part of the

TABLE I

Precision measurements made on 15 specimens of *Neechelys buitendijki* Weber & de Beaufort

(Recorded in thousandths of the total length)

Serial No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total length in mm.	58.5	66.0	79	92	115	117	122	128	149	155	158	161	179	222	273
Head	126	121	123	119	126	120	123	125	123	125	120	125	127	117	117
Height	32	31	42	41	41	43	43	45	42	46	51	48	50	47	46
Snout	17	18	18	8	17	17	18	18	17	15	18	18	19	18	15
Eye	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5
Preanal distance	357	369	367	380	383	393	418	429	409	419	402	416	435	428	407
Predorsal distance	167	167	177	173	165	154	164	169	172	180	168	179	190	167	170
Tail	643	631	633	620	617	607	582	571	591	581	598	584	565	572	593

jaws are longer than those on the posterior part. Those on the vomer and the intermaxillary are large.

Lateral line commences from a little distance behind the eye, the distance being more or less equal to the length of snout. It continues in the form of a straight line in the dorso-lateral aspect of the body. This line generally appears to be a dotted line because of the presence of numerous ossified subcutaneous tubes wherein the sensory nerves end. These bony elements are seen to take stain very readily when specimens are treated with alizarin.

The vertical fins are low and are supported by unbranched rays. The pectoral fins are longer than the snout and they originate from close behind the gill openings. Branched fin-rays support these fins. The caudal is continuous with the dorsal and the anal fins. The origin of the dorsal fin is more than half as far from the gill opening as the latter is from the angle of the mouth. The anal fin originates from close behind the vent.

In the fresh condition, the fish is yellowish pink in colour. The portion of the body above the lateral line is pigmented with closely distributed, brown, branching chromatophores. In the tail region the pigmentation is more intense and uniform. The fins are generally whitish in colour and are unpigmented, but the posterior end of the dorsal and anal fins, as well as the whole of the caudal fin are black in colour due to intense pigmentation.

The size of the specimens in the collection varied from 58.5 mm. to 273 mm. in total length; the one which is 273 mm. is the largest known so far as the previous record was only 218 mm. (Weber and Beaufort). The number of vertebrae generally varies from 145 to 148 of which 53 are preanal.

OCCURRENCE

N. buitendijki is found to occur in fair numbers among the shrimp catches landed at Sassoon Dock and Versova—the two fish landing places of Bombay City. They are generally caught in 'Dol' nets (bag nets used with the help of stakes or buoys) from depths varying from 8 to 10 fathoms. Although there are no data regarding its quantitative occurrence during any particular season, it appears more frequently in the catches from December to May, during which period the majority of the present collection was obtained.

DISTRIBUTION

Bamber (1915) first created the family Neenchelidae to include a single specimen she had collected from the Sudanese Red Sea.

This specimen had been named by her as *Neechelys microtretus*. There appears to be no further record of this species from anywhere. Weber and de Beaufort (1916) added another species (*N. buitendijki*) to this family based on only two specimens; one—the type 218 mm. long in Amsterdam Museum—probably from the Moluccas and the other, 129 mm., collected by Mr. Buitendijk from Java. Hardenberg (1931) noted this species as occurring 'very rarely' in the Rokan River mouth, off Sumatra, but added no further comment on the species. The present record extends the distribution of *N. buitendijki* to the west Coast of India (Bombay) where it is fairly common.

BIOLOGICAL NOTES

The fact that the species was obtained from the 'Dol' net catches indicates that it is a bottom-living form. Specimens above 160 mm. were found to possess mature or maturing gonads. About 20 specimens were examined for stomach contents and it was found that the majority of the stomachs were gorged with polychaets while the others were empty.

The smaller specimens in the collection seem to be newly metamorphosed elvers of the species. In the smallest, which is 58.5 mm. long, the head is more conical and the upper profile less convex (fig. c). The olfactory pit still exists in the form of a depression and the contour of the brain is fairly evident. The full complement of the adult set of teeth is not seen at this stage, there being only 6 on the upper and 7 on the lower jaw. The tip of the intermaxillary plate projects out in the form of a large median tooth. In the throat region four branchiostegal rays are discernible. The pigmentation of the head is very feeble and consists of only one group of brown, branching chromatophores on the nape. In the body the most striking pigmentation is a few (generally 8-9) large pigment cells distributed at regular intervals along the lower portion of the lateral line. The brown pigment cells on the upper part of the body, which are so characteristic of the adults, have just begun to appear very faintly and the body is more or less transparent in the fresh condition. The position of the anus is slightly ahead of that of the adult (vide table I). It is seen from the measurements of the pre-anal distance and the tail that the position of the anus gradually shifts backwards as the fish increases in length. The diameter of the eye is greater in the smaller individuals.

ACKNOWLEDGEMENTS

My grateful thanks are due to Dr. N. K. Panikkar and to Dr. S. Jones for their encouragement and guidance, and to Shri. C. Mukundan for his help in the preparation of the illustrations.

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