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AVOCETTINOPS YANOI, A NEW NEMICHTHYID EEL FROM THE SOUTHERN INDIAN OCEAN

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The oceanic eels of the genus *Avocettinops* lack the prolonged jaws or snout typical of other snipe eels, although they do have fleshy anterior appendages; and they can be distinguished from all other apodal fishes by the complete absence of teeth, if not from their bizarre physiognomies alone. The number of known specimens is small: the type of *A. schmidtii* (Roule and Bertin, 1924); a second specimen taken off Zanzibar during the "John Murray" expedition (Norman, 1939; the specimen rather casually christened *Avocettinops normani* by Bertin in 1947); a specimen collected from the *Arcturus* by William Beebe, New York Zoological Society, off New York and reported as *A. schmidtii* by Böhlke and Cliff (1956) (SU 47758); and the fish described below. Böhlke and Cliff (1956) also discussed in some detail the nomenclatorial and taxonomic entanglements generated by earlier authors, and reviewed the relationship of the genus to other snipe eels.

AVOCETTINOPS YANOI, new species

Figure 1

Holotype. — A specimen 620 mm long collected by R/V *Anton Bruun* during the International Indian Ocean Expedition, Cruise VI, Sta. 350 B, APB label 7314; 27 June 1964; 28°05' S, 64°58' E to 28°28' S, 65°04' E; depth of bottom 2200-4000 m; 10-ft. Isaacs Kidd Midwater Trawl with catch dividing device nominally set to operate at 350 m; deep fraction of catch the probable depth of capture between the maximum depth reached, 1750 m and 125 m. MCZ Catalog No. 44404.

Distinctive characters. — *Avocettinops yanoi* differs from its congeners in the position of the dorsal fin, which originates well in advance of the gill slit, and by the more anterior anal origin, the preanal distance being about 1.3 times the length of the head (cf. 2.0 or 2.1 in specimens hitherto described). The species has a correspondingly low number of preanal vertebrae (13 cf. 20 or more), and of lateral line pores between the temporal pore and that above the origin of the anal fin (13 cf. 18 or more).

Description. — Meristic data and measurements, which are expressed in per cent of head length to facilitate comparison with prior catches, are provided in Table 1.

Body about two-thirds as broad as deep anteriorly, becoming more compressed posteriorly. Head 12 in total length. Jaws coterminous and bearing fleshy protuberances anteriorly both of which were damaged during capture. Angle of gape under posterior edge of eye. Mouth without teeth but with minute denticles on skin overlying jaws and roof of mouth. Anterior nostril before center of orbit, the tube anteriorly directed. Posterior nostrils large deep pits, the posterior edges of which lie on a tangent with anteriormost points of orbits. Gill slits short (13 in length of head), ventrally directed, and placed below bases of pectoral fins. Eye circular, its diameter 7 in length of head. Acustico-lateralis system on head well developed (Fig. 1), the pores large. The system includes series of lappets, which are presumably sensory, such as the vertical row behind and the horizontal series above and behind the eye. Similar lappets are interspersed at irregular intervals between pairs of pores in the lateral line along the flank. These lappets are not bilaterally symmetrical. The lateral line is continuous and complete.

Dorsal and anal fins originating far forward and nearly continuous around tip of tail. Predorsal distance 17 in total length, preanal 10 in length. Pectoral fin broad, short, and lying in a horizontal plane when expanded. Anus and urogenital openings immediately anterior to origin of anal fin. The fish is completely black externally. Internally, the peritoneum, linings of mouth, and pharyngeal cavities are white. The coelom extends posteriorly far beyond the anus to about the midpoint of the total length. Most of this space is filled by the swollen, convoluted and apparently mature pair of gonads. These appear to be ovaries, although they are too decomposed for close study. The muscular stomach, which is placed anterior to the anus, is empty.

The success of any trawling expedition is dependent in no small measure on those responsible for the maintenance and operation of the nets and associated equipment. Throughout the trawling activities which produced the collections of which this specimen is a part, Mr. Shigeru Yano and his associate, Mr. C. P. Lee, devoted themselves to this equipment with ability, understanding, and scrupulous care; without these master fishermen these cruises would have fallen short of their goals. With respect and professional admiration we take pleasure in naming this new eel in honor of Shigeru Yano, friend and fellow fisherman.

Remarks. — The identity of the nominal species of *Avocet-tinops* remains in doubt. The type of *A. schmidt*i has been cleared in potassium hydroxide and stained with alizarine. Norman's "John Murray" specimen from off Zanzibar lacks the tail, and has a fragmentary head which has also been cleared and stained, while the Atlantic individual discussed by Böhlke and Cliff is also fragmentary. Hence meaningful morphological comparison is impossible. A qualitative study of the latter specimen and the published accounts of the two others, in comparison with *A. yanoi*, suggests that the Zanzibar specimen is probably identical with *A. schmidt*i, while the western North Atlantic specimen of Böhlke and Cliff probably represents a distinct and unnamed species.

This specimen was taken during the American Program in Biology, International Indian Ocean Expedition, a program financed by the National Science Foundation and under the general scientific direction of Dr. John H. Ryther of the Woods Hole Oceanographic Institution. To the National Science Foundation, which has also financed the research of which this is a part through GF 147 with Harvard University, and to Dr. Ryther the authors express here their sincere appreciation.

TABLE 1

Proportional dimensions, expressed as per cent of length of head, of *Avocettinops schmidt* and *A. yanoi*. Data for the type of *A. schmidt* taken from the descriptions and figures of Roule and Bertin (1924, 1929); those of the Stanford University specimen from Böhlke and Cliff (1956), and from the specimen.

	Type of <i>A. schmidt</i>	Western North Atlantic (SU 47758)	Type of <i>A. yanoi</i>
Total length (mm)	510.0	—	620.0
Length of head (mm)	32.0	32.0	50.0
Depth of body at anus (% of h.)	21.9	—	24.4
Greatest depth of body	43.8	28.4	35.8
Width of body at anus	9.4	ca. 7.8	15.4
Greatest width of body	10.9	—	16.4
Greatest depth of head	25.6	ca. 23.4	26.4
Greatest width of head	18.8	17.5	19.8
Length of snout	25.0	25.0	24.0
Diameter of orbit	15.6	12.5?	13.4
Postorbital length of head	59.4	55.9	62.4
Length of upper jaw	39.1	33.1	34.8
Length of lower jaw	32.8	24.7	32.8
Length of gill slit	13.1	17.2	7.6
Interorbital width	14.1	—	16.6
Predorsal length	90.6	108.8	73.8
Preanal distance	203.1	207.8	127.4
Width of base of pectoral fin	14.1?	9.7	9.0
Length of pectoral fin	28.1	24.7	29.0
Dorsal fin rays	340	—	285
Anal fin rays	315	—	266
Pectoral fin rays	16-17	15-15	12-13
Total number of vertebrae	194	—	184
Preanal vertebrae (± 1)	20	24	13
Total number pores in lateral line	188	—	185
Lateral-line pores, temporal pore to anus	18?	23	13

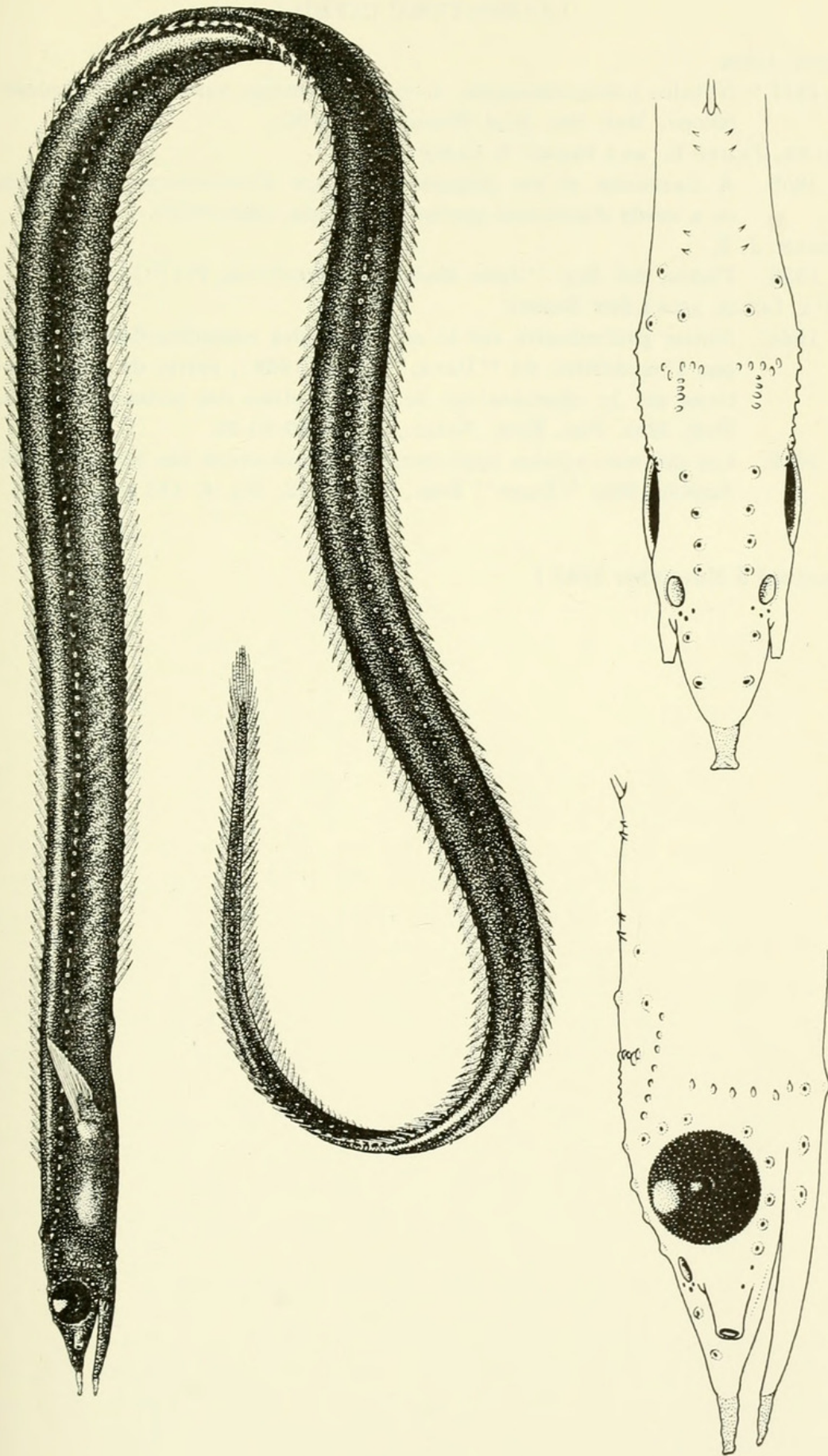


Figure 1. *Avocettinops yanoi*, holotype, 620 mm in total length, MCZ 44404. (Drawn by Nicholas Strekalovsky.)

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