

## Occurrence of the Deep-Sea Ophidiid Fish *Eretmichthys pinnatus* in the Pacific off Japan

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The deep-sea ophidiid genus *Eretmichthys* was established by Garman in 1899. The type species *E. pinnatus* is characterized by having elongated lower rays of the pectoral fin forming an oar-like structure. According to Cohen and Nielsen (1978), two more species have been described in the genus, viz: *E. ocella* Garman, 1899 and *E. remifer* Smith and Radcliffe, 1913. Recently, Shcherbachev (1980) synonymized *E. remifer* with *E. pinnatus*, and strongly suggested that *E. ocella* was based on a female example of *E. pinnatus*.

In 1986 the R. V. Tansai Maru of the Ocean Research Institute, University of Tokyo, trawled a single specimen of *E. pinnatus* from the Kumano Basin off Mie Prefecture, Japan. The specimen is reported in this paper, as it is not only the first record of this species from Japanese waters, but also the largest specimen of *E. pinnatus* yet recorded. Further, the four lateral lines of *E. pinnatus* are described here in some detail.

Methods of counting and measuring follow Okamura and Kitajima (1984) except for the following: gnathoproctal length is the distance from the lower jaw tip to the middle of the vent; interorbital width is the least width of the fleshy interorbital; and the manner of counting the developed gill rakers on the first arch follows that of Cohen and Nielsen (1978).

The present material is deposited in the Ocean Research Institute, University of Tokyo (ORIUT).

*Eretmichthys pinnatus* Garman, 1899  
(New Japanese name: Furisode-ashiro)  
(Figs. 1-3)

*Eretmichthys pinnatus* Garman, 1899: 165, pl. 35, figs. 1-4, pl. 79, fig. 2; Norman, 1939: 87; Cohen and Nielsen, 1978: 31; Shcherbachev, 1980: 144, figs. 12a, 13a.

*Eretmichthys remifer* Smith and Radcliffe in Radcliffe, 1913: 155, pl. 11, fig. 2; Norman, 1939: 87; De Beaufort in De Beaufort and Chapman, 1951: 428; Cohen and Nielsen, 1978: 31.

?*Eretmichthys ocella* Garman, 1899: 166, pl. 37, fig. 1, pl. 79, fig. 1; Norman, 1939: 87; Cohen and Nielsen, 1978: 31; Shcherbachev, 1980: 147, fig. 12b, 13b.

**Material examined.** ORIUT·8606·06·0100, 386 mm SL, male, Kumano Basin, east of Mie Prefecture, Japan, 33°46.6'N, 136°37.6'E, 2,029-2,045 m, 3 m ORE beam trawl, trawled by the R. V. Tansai Maru at St. KN-6 during the cruise of KT-86-06, 28 May 1986.

**Description.** Dorsal fin rays 124; anal rays 104; caudal rays 8; pectoral rays 28 (left)/29 (right); pelvic ray 1; branchiostegal rays 8; developed gill rakers on 1st arch 0+1+16=17; median basibranchial tooth patch 1; pseudobranchial filaments 2; pyloric caecum absent; vertebrae 13+55=68; scales in lateral series from dorsal fin origin ca. 27. As % of SL: head length 19.3; body depth 12.2; body width 7.0; predorsal length 17.3; preanal length 37.2; gnathoproctal length 34.0; pectoral fin length 27.6; pelvic fin length 12.4. As % of head length: head depth 44.1; snout length 24.8; eye diameter 8.6; interorbital width 30.0; upper jaw length 46.7; lower jaw length 55.9.

Body low and strongly compressed, tail long and attenuate (Fig. 1). Head compressed, small, 1.9 in preanal length. Snout blunt, short, 1.9 in upper jaw length. Eye elliptical, small, 2.9 in snout length, 3.5 in interorbital width. Mouth large, slightly oblique; maxillary extending backward far beyond eye, its upper margin sheathed with dermal cheek fold. Supramaxillary single. Lower jaw completely included in upper jaw. Nostrils not tubular. Anterior nostril near snout tip, noticeably above upper lip. Posterior nostril midway between anterior nostril and eye. A parallel pair of thin, low crests extend backward behind eye on top of skull. Operculum thin; spine flat, weak, flexible. Lower margin of preoperculum thin, a dermal unarmored fringe present.

Bands of minute, granular teeth in jaws and on prevomer, palatine and basibranchial. Prevomerine tooth band widely V-shaped. Median basibranchial tooth patch single, its base short, as long as eye diameter. Tongue short, edentate, the tip pointed and free from mouth floor. Two short pseudobranchial filaments, length about 3 in eye diameter. Longest gill raker on 1st arch nearly equal to eye diameter. Four short, knobby tubercles on upper limb of 1st gill arch, 5 somewhat elongate tubercles on lower limb.

Dorsal and anal fins continuous with caudal fin. Origin of dorsal fin slightly anterior to posterior

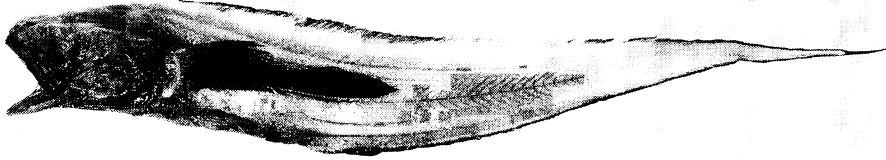


Fig. 1. Lateral aspect of *Eretmichthys pinnatus*, ORIUT·8606·06·0100, 386 mm SL, from the Kumano Basin, Pacific off Japan.

margin of opercular membrane, inserted above 3rd vertebra. Origin of anal fin below 25th dorsal fin ray, or 16th vertebra. Dorsal fin ray above vent usually 1.3–1.4 times longer than anterior anal rays. Caudal peduncle narrow, its depth nearly equal to one-half eye diameter; middle caudal fin rays as long as distance between snout tip and posterior margin of eye. Pectoral peduncle deep, about 2.5 in body depth. Actinosts 4, anterior lower angle of 4th actinost protruded antero-ventrally (Fig. 2). Upper 14 rays of pectoral much shorter than postorbital length of head. Lower pectoral rays stout, very elongate, forming an oar-like structure 1.4 times as long as head length and reaching 16th anal fin ray. Pelvic fin ray filamentous, inserted slightly anterior to posterior margin of preoperculum, extending past midpoint between its base and vent.

Head and body completely covered with small cycloid scales. Bases of dorsal and anal fins probably scaled. Four lateral lines, each consisting of separated pored scales (Fig. 3). Uppermost lateral line begins slightly above upper angle of gill opening, rises, thence runs along dorsal fin base to tip of pectoral fin, with one pored scale for every 2 or 3 transverse scale rows. Second lateral line begins at upper end of pectoral axil, thence runs along side of body to above tip of pectoral fin; first 4 pored scales distinct, close-set, arranged transversely; thereafter one pored scale for every 5 or 6 transverse scale rows. Third lateral line begins at upper pectoral axil, runs along middle of body past pectoral fin tip; one pored scale for every 2 or 3 transverse scale rows. Lowermost lateral line begins slightly above midway

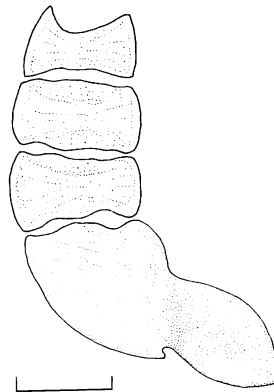


Fig. 2. Right actinosts of *Eretmichthys pinnatus*, ORIUT·8606·06·0100. Scale bar indicates 5 mm.

between lower end of pectoral axil and base of pelvic fin, extending backward along anal fin base to about level of 29th ray; one pored scale for every 2 or 3 transverse scale rows.

Stomach large, U-shaped. No pyloric appendage. Swim bladder large, thick walled.

In alcohol, side of body yellowish brown, much darker on belly; side of head grayish brown, becoming paler above, darker below. Jaws, underside of head and branchiostegal membranes dark chestnut brown. Margins of dorsal and anal fins, and pectoral fin except for its peduncle and proximal portion of rays, blackish. Pelvic fin ray yellowish brown. Mouth cavity bluish gray. Stomach and intestine creamy yellow; peritoneum dark chestnut

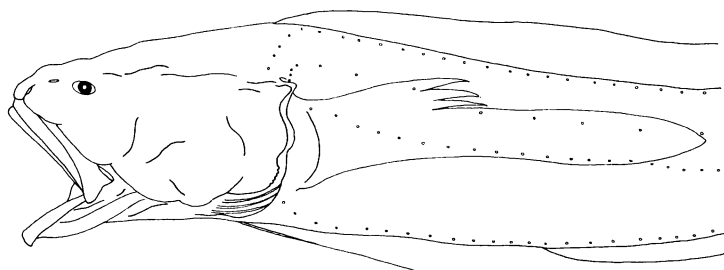


Fig. 3. Semi-diagrammatic drawing of four lateral lines of *Eretmichthys pinnatus*, ORIUT·8606·06·0100. (Squamation omitted.)

brown.

**Remarks.** Except for the lateral lines, our material agrees well with the original description of *E. pinnatus*. Proportional measurements and meristic counts of our material also fall within the ranges of *E. pinnatus* from 23 specimens from the Indian Ocean (Shcherbachev, 1980). Shcherbachev (1980) stressed that the shape of the fourth actinost of the genus *Eretmichthys* differs from that of the closely related genus *Bassozetus* and we confirmed this from our material; that is, it is well characterized by having a large projection from the anterior lower angle.

The lateral lines of *E. pinnatus* have not previously been described (Garman, 1899; Shcherbachev, 1980). Radcliffe (1913) gave no account of them in the original description of *E. remifer*. Shcherbachev (1980) found that *E. ocella* does not differ from *E. pinnatus* in meristic characters, the differences in the form and the length of the pectoral fin in both species being explained by sexual dimorphism (*ocella* being female). According to Shcherbachev (1980), all specimens of *E. ocella* taken from the region of Maskaren and the Eastern-Indian mountain range were fished in the same trawls as *E. pinnatus*. Furthermore, the type locality of *E. ocella* is adjacent to that of *E. pinnatus* (Garman, 1899). It is our opinion that the number of lateral lines and the arrangement of the pored scales on the lateral line in both nominal species support Shcherbachev's conclusion.

*E. pinnatus* is known from the tropical eastern Pacific off Colombia (Garman, 1899), the western Pacific, in the Gulf of Tomini, Sulawesi, Indonesia (Radcliffe, 1913), and the tropical Indian Ocean between 9°49'S and 14°51'S, and between 60°42'E and 114°53'E (Shcherbachev, 1980). The recorded capture depth in these three areas ranges from 1,500

to 2,380 m. The largest fish previously described was 342 mm SL (Shcherbachev, 1980).

Okiyama (unpublished) obtained a single specimen, 320 mm SL, referable to *Eretmichthys* trawled by the R. V. Tansei Maru from Suruga Bay, off central Japan, at a depth between 1,390 to 1,530 on 22 November, 1978. It is probable that the specimen was *E. pinnatus* (Okiyama, pers. comm.). Although we have only a single specimen of 386 mm SL, it is clear that *E. pinnatus* occurs in the Pacific off Japan at depths from about 1,400 to 2,000 m.

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熊野海盆産のアシロ科のフリソデアシロ (新称)

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1986年5月28日に熊野海盆の水深2,029-2,045mでアシロ科の深海魚フリソデアシロ(新称) *Eretmichthys pinnatus* を1個体採集した。*Eretmichthys* (フリソデアシロ属: 新称) はオール状の極めて長い胸鰭を持つことで他のアシロ科の属と容易に区別できる。この標本を詳しく報告し、従来記載されていなかった側線について特に言及した。本種はインド洋、スラウェシ島近海、およびコロンビア沖の太平洋から知られているのみであり、未確認の1個体があるもの本報告が日本からの初記録となる。なお、我々の標本(雄、標準体長386mm)はこれまでの最大個体であり、また、新称は特徴的な長い胸鰭に由来する。

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