

First Record of the Deep-Sea Fish *Xyelacyba myersi* (Ophidiidae, Ophidiiformes) from Japan

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During my researches on the deep-sea benthic organisms on the continental slope off Ashizuri Cape, southern Japan, I obtained two specimens of *Xyelacyba myersi* on 2 Nov. 1986. Possibly the genus *Xyelacyba* contains two or more species (Cohen and Nielsen, 1978), one of which *X. myersi* was described by Cohen (1961). Though this species is known from the Atlantic (Cohen, 1961; Golovan, 1976; Cohen and Pawson, 1977; Sulak, 1982), the mid-Pacific sea mounts (Hughes and Iwai, 1978) and the Indian Ocean (Shcherbachev, 1980), its occurrence in the waters off Japan has not been recorded. In this paper I report these specimens which represent the first record of *X. myersi* from Japanese waters and compare them with other specimens.

Methods of counts and measurements follow those of Okamura and Kitajima (1984) except for the following: the eye diameter is the horizontal diameter of the dermal cornea, the interorbital width is the least width of the fleshy interorbital, and the method of gill raker counts follows that of Cohen and Nielsen (1978). Median fin rays and vertebrae were counted by soft-X-ray negatives.

The present materials are deposited in the Department of Biology, Faculty of Science, Kochi University (BSKU).

Xyelacyba Cohen, 1961

For the characters of the genus *Xyelacyba* see Cohen and Nielsen (1978).

Xyelacyba myersi Cohen, 1961

(New Japanese name: Haridashi-ashiro)
(Figs. 1-3)

Xyelacyba myersi Cohen, 1961: 289, fig. 1 (original description; type locality: Gulf of Mexico, 27°48'N, 88°45'W, 1,551-2,006 m); Cohen and Pawson, 1977: 426; Hughes and Iwai, 1978: 164; Cohen and Nielsen, 1978: 20, fig. 32; Shcherbachev, 1980: 112; Sulak, 1982: 70.

Xyelaciba myersi (misspelt): Golovan, 1976: 308.

Materials examined. BSKU 43452, 311 mm SL, female, Pacific off Ashizuri Cape, Kochi Prefecture, southern Japan, 32°32.7'N, 132°26.0'E-32°33.0'N, 132°29.2'E, R. V. Tansei Maru KT-86-16 Cr. St. C, 1,075-1,092 m, 3 m ORE beam trawl, 2 Nov. 1986; BSKU 43453, 199 mm SL, male, collected with BSKU 43452.

Description. Counts and proportional dimensions of the materials are shown in Table 1. Head massive, compressed, length slightly longer than one-half of length of preanal in BSKU 43452, nearly equal to it in BSKU 43453 (Fig. 1). Body and tail strongly compressed. Snout round and short, no spine on tip. Anterior nostril in the middle of snout, circular, with a fleshy, weakly raised rim. Posterior nostril crescent-like slit, just in front of eye. Eye (dermal cornea) circular. Interorbital space broad and convex. Mouth large; in BSKU 43452 gape nearly horizontal, and maxillary extending backward 1.5 times of horizontal eye diameter beyond posterior margin of eye, in BSKU 43453 gape oblique, and maxillary slightly beyond posterior margin of eye. Upper margin of maxillary strongly sheathed by a dermal fold of cheek. Posterior end of maxillary expanded, deeper than horizontal diameter of eye. Supramaxillary single. Opercular spine strong, with a prominent lateral ridge, extending much beyond posterior margin of opercular membrane, directed posteriorly. A single, lateral ridged spine at lower angle of preoperculum in larger specimen (BSKU 43452), directed posteroventrally at an angle of about 30 degrees, a flat and blunt spine in front of it. Two strong, ventrally directed preopercular spines in smaller specimen (BSKU 43453); a long and lateral ridged spine directed at an angle of about 45 degrees at the lower angle of preoperculum, a small but sharp spine directed nearly ventrally in front of the latter. Narrow villiform tooth bands on premaxillary, prevomer, palatine and dentary (Fig. 2). Prevomerine tooth band widely U-shaped. Median basibranchial tooth patches narrow, the anteriormost one longest and narrowest. Long and developed gill rakers on first arch 0+1+15=16; long raker at the angle of gill arch as long as the horizontal diameter of eye (Fig. 3). Four or five short gill rakers anterior to the developed rakers on the lower arm, those on the upper arm five. Pseudobranchial filaments much reduced, shorter than one-third of the horizontal diameter of eye.

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Table 1. Comparison of meristic counts and proportional dimensions of *Xyelacyba myersi* from different localities. ¹⁾ According to Shcherbachev (1980) 20 specimens of *Xyelacyba myersi* collected from the Indian Ocean have been deposited in the Zoological Museum of Moscow State University (ZM MGU). ²⁾ Body depth at anteriormost anal ray. ³⁾ A single specimen 174 mm SL.

Locality	Pacific off Japan		Gulf of Mexico		Western Atlantic off Guinea		Indian Ocean
Depth (m)	1,075–1,092		1,551–2,006		1,300–1,920		1,260–2,000
Author	Present study		Cohen (1961)		Golovan (1976)		Shcherbachev (1980)
Cat. No.	BSKU 43452	BSKU 43453	USNM 187058 holotype	USNM 187059 paratype	(2 specimens)		ZM MGU (10 specimens) ¹⁾
SL (mm)	311	199	464	80	495	570	174–463
In % of SL							
Head length	22.8	22.6	22.4	21.9	23.2	21.7	22.2–27.4
Head width	14.5	14.7	21.1	15.9			
Body depth	26.4	25.9	29.1	26.3	28.4	28.4	
Body depth at vent	24.0	23.0	27.1	21.5	25.3	22.3	20.6–25.9 ²⁾
Body width at vent	10.7	8.2	13.8	6.1			
Predorsal	32.5	30.7					27.7–36.6
Preanal	40.4	45.5	44.8	31.9	43.8	39.2	38.0–48.9
Prepelvic	16.0	18.1	12.4	10.8	13.2	13.9	14.4–21.0
Pectoral fin	12.4	15.4	12.7	11.9	11.6	12.1	10.5–14.6
Pelvic fin	16.1	16.8	24.8	17.5	24.8	27.7	21.9–36.4
Pectoral peduncle depth	8.3	7.9	7.9	8.8	7.9	7.1	
Snout	7.0	7.2	6.2	6.3	6.1	6.2	6.6–8.6
Eye diameter	3.1	3.3	2.8	3.8	2.9	2.7	2.9–3.6
Interorbital	10.6	10.3					8.8–11.2
Upper jaw	13.5	13.9	11.0	12.5	13.4	12.8	13.7–16.2
Depth of maxillary end	4.9	4.6	5.8	5.6	5.3	5.8	
Counts							
Dorsal rays	89	87	87	—	87	87	(75+)83–94
Anal rays	74	74	71	—	70	71	(61+)69–80
Pectoral rays	19	20	19	19	19	19	18–20
Pelvic rays	2	2	2	2	2	2	2
Caudal rays	9	9	9	9	9	9	8–9
Long gill rakers on 1st arch	0+1+15 =16	0+1+15 =16	0+1+15 =16	0+1+17 =18	0+1+14 =15	0+1+15 =16	0+1+13–16 =14–17
Short gill rakers on lower arm	5	4	4	4	4	4	4–6
Short gill rakers on upper arm	5	5	4	5	4	4	4–5
Branchiostegals	8	8	—	8	8	8	
Pseudobranchial filaments	4	4	2–3	4			3–5
Basibranchial tooth patches	4	3					3
Pyloric caeca	absent	absent					absent
Vertebrae	12+40 =52	12+40 =52	49				11+40=51 ³⁾
Lateral scale rows	ca. 115	ca. 115	ca. 105				

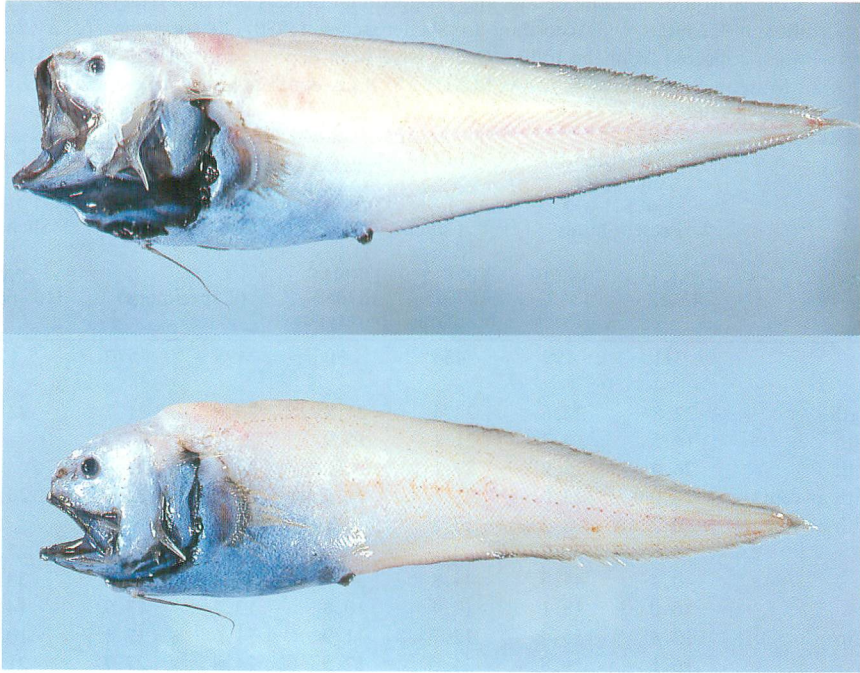


Fig. 1. *Xyelacyba myersi* from the Pacific off Cape Ashizuri, southern Japan. Top, BSKU 43452, 311 mm SL; bottom, BSKU 43453, 199 mm SL.

Tongue very short, edentate.

Dorsal and anal fins continuous with caudal fin. Anteriormost dorsal ray behind pectoral axil. Origin of anal fin below 12th or 13th dorsal ray. Pectoral fin rays damaged, but probably not reaching to above vent. Pectoral peduncle deep, nearly equal to length of snout. Pelvic fin inserted below posterior end of maxillary, each with two rays, inner ray longer but not reaching to vent. Bases of pelvic fin separated by a distance four-fifths of the horizontal diameter of eye in larger specimen, two-thirds in smaller specimen.

Head and body fully covered with small, deciduous, cycloid scales. Maxillary, bases of median fins, and pectoral peduncle also scaled. Lateral lines two; each represented by a series of separated pored scales. Upper lateral line originates at upper angle of gill opening, extends posterodorsally to below base of fifth dorsal ray, and thereafter runs parallel to dorsal contour to anterior four-fifths of the body. Lower lateral line begins slightly before vent, runs on the

middle of body to near caudal peduncle. Vertebrae $12+40=52$. Pyloric caeca absent.

Color in fresh specimen as in Fig. 1. Color in alcohol: head and body uniformly whitish, margins of median fins light-brown, both jaws, pelvic fins, and mouth and gill cavities deep-brown. Peritoneum and stomach deep-brown, intestine yellowish.

Remarks. Meristic counts and proportional dimensions of *X. myersi* from different localities are given in Table 1. The present specimens agree with the original description of this species from the Gulf of Mexico (Cohen, 1961). Though slight differences can be seen in some morphometrics, e.g. head width, snout length, pelvic fin length, etc., between Japanese and type specimens, these could be explained as intraspecific variation considering the additional data given by Golovan (1976) and Shcherbachev (1980). Japanese specimens possess higher counts than the type specimens in the lateral scale rows and vertebrae. These differences are too small to be considered

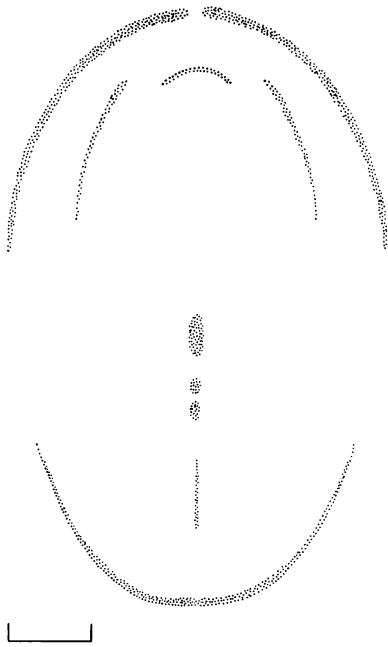


Fig. 2. Dentition in *Xyelacyba myersi*, BSKU 43452. Scale bar indicates 1 cm.

as differences at species level judging from the wide variation in other meristics such as dorsal and anal fin-ray counts reported by Shcherbachev (1980). Cohen and Nielsen (1978) regarded the number of the median basibranchial tooth patches, two or three, as one of the generic characters in *Xyelacyba*. As shown by BSKU 43452, the count of the median basibranchial tooth patches varies from two to four in *X. myersi*. Figures of the dentition and the first gill arch of this species

are given here for the first time.

It should be noted that the two lateral lines can be recognized in the present materials. This species has been known to have only a single lateral line in the previous descriptions. Scales on the body are small and deciduous in *X. myersi*. Therefore, the presence of the lower lateral line running on the mid-lateral of the body was probably overlooked by previous authors. I observed that many ophidiid species possess two lateral line nerves (Machida, unpublished). This indicates that the number of lateral lines in the ophidiids should be examined more carefully. I found that the directions of mouth and the longer preopercular spine are different in the present materials. Though there are no descriptions on the variation in these features, I think that these may change with growth in *X. myersi*.

It is evident that *X. myersi* lives on the continental slope at bathyal depths in the Pacific off Japan. There are two findings of this species in the temperate western North Atlantic which are not shown in Table 1. Using the DSRV Alvin, Cohen and Pawson (1977) observed *X. myersi* on the ocean bottom near DWD-106 (ca. 30°N, 72°W) at depths ranging 1,704–2,148 m, while Sulak (1982) obtained specimens of this species trawled from depths between 1,436 and 1,977 m during ecological surveys off the Middle Atlantic Bight. Thus, the previously known localities of this species are restricted to the Atlantic, Indian Ocean and mid-Pacific sea mounts. This study clearly shows that *X. myersi* is more widely distributed on the continental slope at depths of about 1,000 to 2,000 m (Fig. 4).

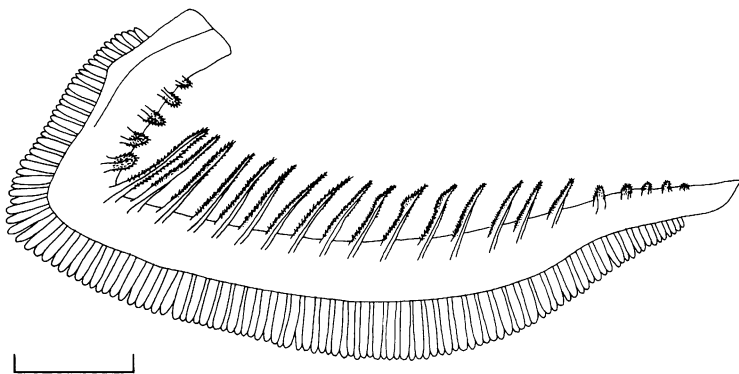


Fig. 3. Right first gill arch of *Xyelacyba myersi*, BSKU 43452. Scale bar indicates 1 cm.

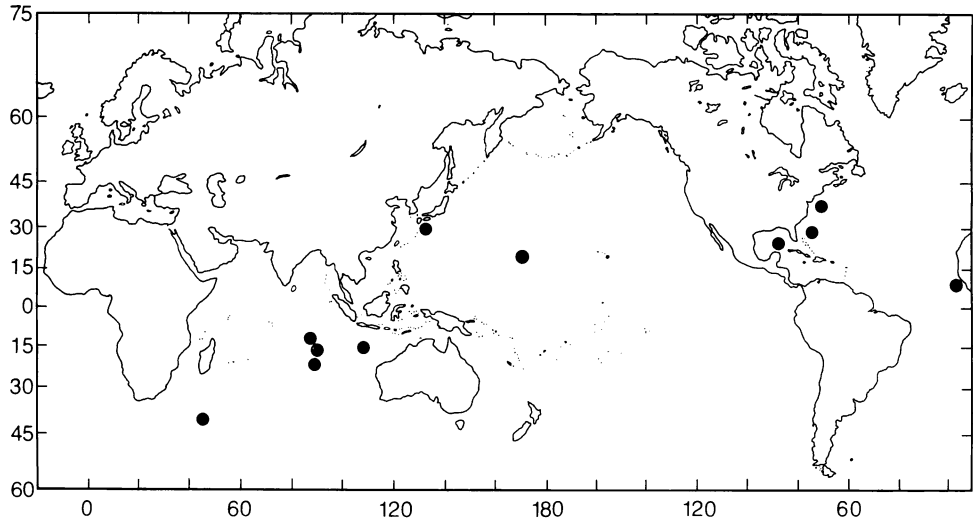


Fig. 4. Distribution of *Xyelacyba myersi*.

Acknowledgments

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日本初記録のアシロ科のハリダシアシロ (新称)

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1986年11月2日に足摺岬沖の水深1,075-1,092mから2個体の *Xyelacyba myersi* がトロールで採集された。*Xyelacyba* (ハリダシアシロ属: 新称) は複数の種を含むようであるが、現在まで *Xyelacyba myersi* 1種のみが記載されているにすぎない。本属は吻に棘がないこと、外側面に隆起線をもつ長い主鰓蓋骨棘および前鰓蓋骨棘があること、腹鰭は2軟条で、左右の基部は分離すること、眼が発達することなどで特徴づけられる。本研究で日本産の2個体を記載し、既知の標本との比較を文献に基づいておこなった。日本産の標本は頭幅、吻長、腹鰭長などの計測値や、脊椎骨および縦列鱗数の計

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数値が原記載とわずかに異なっている。しかしながら、本種のこれら諸形質にはかなりの変異があることが報告されており、本標本が *Xyelacyba myersi* であることは疑いない。本種が2本の側線をもつことと、基鰓骨に4歯帯をもつ個体が存在することを初めて報告した。また、口および最長前鰓蓋骨棘の方向が本標本間でわずかに異なるが、これらは成長に伴う変化であると考えた。

本種は従来大西洋、インド洋、中部太平洋からのみ知られていたが、日本近海にも生息することが明らかとなった。本標本の記録水深は従来の記録より僅かに浅く、本種はほぼ 1,000-2,000 m の深海底に生息する。

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