

## *Bythites matsubarai*, a New Brotulid Fish from Japan

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**Abstract** Four brotulid fish referred to the genus *Bythites*, one collected from Suruga Bay and the others from Tosa Bay, were examined. All these specimens are distinguished from *Bythites lepidogenys* Smith and Radcliffe by the arrangement of its lateral lines, number of the pectoral fin-rays and width of the interorbital space. *Bythites matsubarai* sp. nov. is proposed for the fish in the waters of Japan.

The brotulid genus *Bythites* has been known in the world by only two species, i.e. *Bythites fuscus* Reinhardt from Greenland and *B. lepidogenys* Smith and Radcliffe from Philippine Islands. The Japanese specimen of the genus *Bythites* has currently been identified with *B. lepidogenys* (Matsubara, 1943 and 1955: 802; Kamohara, 1950: 274 and 1954). Matsubara (1943), however, had already noticed several characters that differ from those of the holotype of *B. lepidogenys* Smith and Radcliffe in Radcliffe (1913: 172, pl. 16, fig. 3). Since he could examine only a single specimen, Dr. Matsubara hesitated in erecting new species.

Recently, a specimen of the brotulid which is considered to be conspecific with Matsubara's specimen was collected from Suruga Bay, Japan, by the deep-sea trawler operated at the depth of 100 to 400 meters. This fish and 3 specimens of the same species from Tosa Bay were also examined. All of these 4 specimens are believed to represent a new species and described here.

Genus *Bythites* Reinhardt, 1837

Key to the species

A<sub>1</sub> Head naked . . . *Bythites fuscus* Reinhardt.

A<sub>2</sub> Head partially covered with scales.

B<sub>1</sub> Pectoral fin-rays 20; lateral lines overlapping in the same vertical . . . . .

*Bythites lepidogenys* Smith and Radcliffe.

B<sub>2</sub> Pectoral fin-rays 23–24; lateral lines not

overlapping in the same vertical . . . . .  
. . . . . *Bythites matsubarai* sp. nov.

*Bythites matsubarai* sp. nov.

Japanese name: Fusa-itachi-uo

*Bythites lepidogenys*: Matsubara, 1943: 44, figs. 5–8, off Heta, Suruga Bay, Japan; Kamohara, 1954: 4, fig. 2, off Mimase, Tosa Bay, Japan. (not Smith and Radcliffe)

**Material examined.** Holotype: NSMT-P. 7102 of the Department of Zoology, National Science Museum, Tokyo, 97 mm in standard length (106 mm in total length), off Heta, Suruga Bay, Sept. 16–20, 1968. Paratypes: No. 3475 of the Biological Laboratory, Kôchi University, 98.7 mm in standard length, off Mimase, Tosa Bay, Dec. 21, 1953. Nos. 7181 and 7194 of the same Laboratory, 96.0 and 134.0 mm in standard length, off Mimase, Tosa Bay, Apr. 2–10, 1957.

**Description of the holotype.** D. 80; A. 53; P. 24; V. 1. Vertebrae including hypural plate, 45. Head 3.80; greatest width of head 4.62; depth of head 5.11; greatest depth of body 3.29; distances from tip of snout: to origin of dorsal 2.93, to insertion of anal 1.59, to upper end of pectoral base 3.96, to origin of ventral 4.47 in standard length. Snout 4.11; orbit 6.38; maxillary 1.96; interorbital space 3.27; length of pelvic 2.55; same of pectoral 1.92 in head. Length of anal base 0.95 in distance from origin of pelvic to origin

of anal.

Body rather short and compressed, tapering posteriorly from the vent into a pointed caudal. Head rather plump, occiput swollen. Mouth large, oblique; lower jaw entirely included under the upper jaw. Maxillary broad, extending for about half an eye diameter beyond vertical from posterior margin of eye, the anterior two-thirds of it concealed by expanded suborbital; posterior margin truncate. Narrow bands of villiform teeth on jaws, vomer and palatines. Snout very broad and blunt. Nostrils two on each side, the anterior one opening at the tip of an elongated nasal tube at the anterior extension of the snout, the posterior one opening before the eye. Eye small, circular, 1.55 in snout. Interorbital space very broad and flattened, 1.95 times of orbit. Postorbital part of head 1.50 times of the distance from

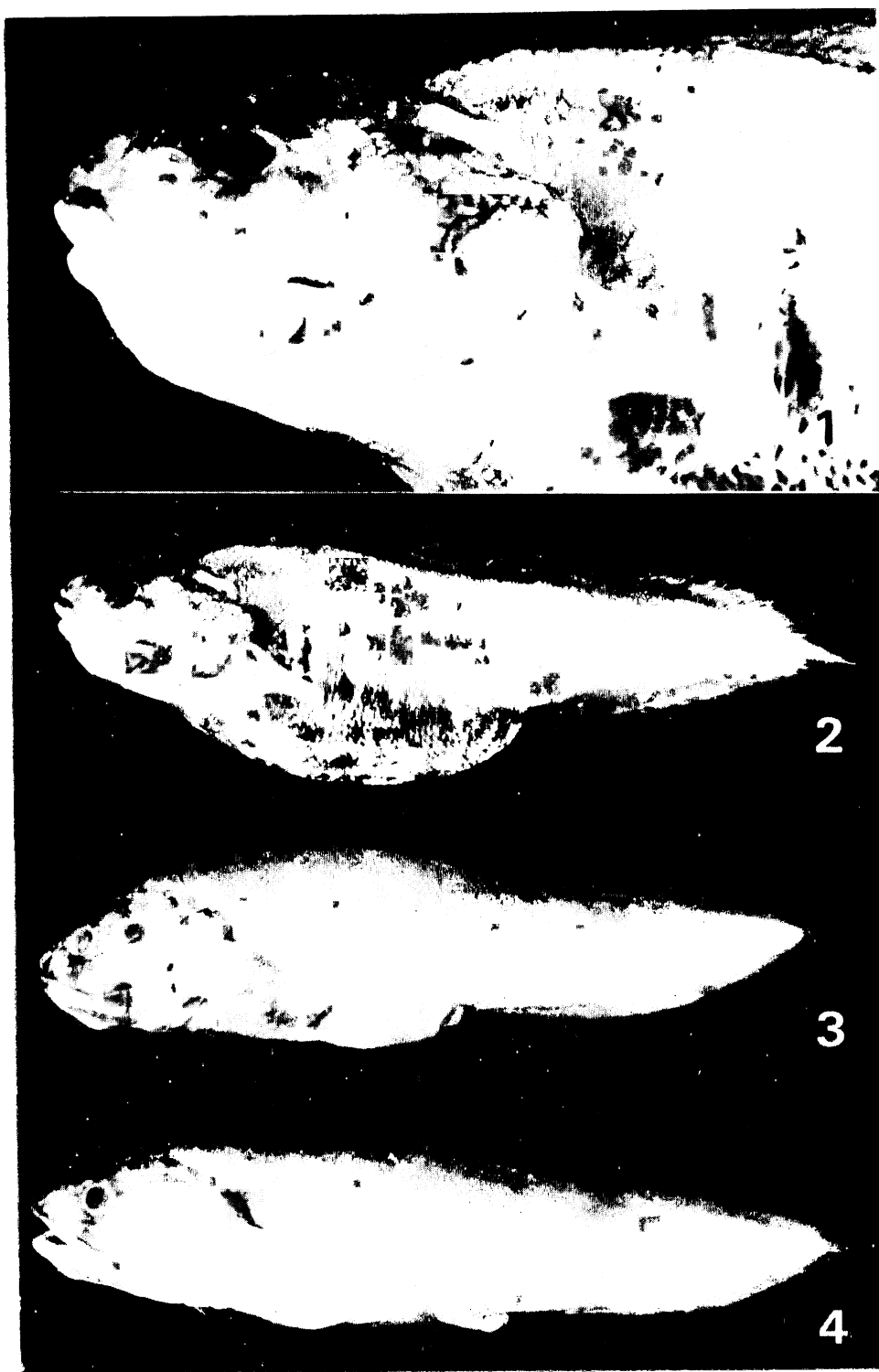
the tip of snout to the posterior end of eye. Preopercle unarmed, opercle armed with a single sharp spine. Sensory cavities on the mandibular and suborbital regions; 3 mandibular cavities and 6 suborbital cavities on each side. Small papillae scattered on the head and lateral lines. Dorsal and anal continuous with caudal. Lateral line interrupted mesially, the two parts not overlapping in the same vertical. Cheek, opercle and occiput covered with scales, the rest of the head naked; 8 scales in a series from the origin of dorsal to lateral line, and 14–15 from the origin of anal to the lateral line.

Color in formalin dark brown; belly purplish black; pectoral and posterior part of vertical fins and caudal grayish.

**Notes.** The characteristics of the four types with the data given by Matsubara (1943) and Kamohara (1954) are shown in Table 1.

Table 1. Comparison of proportional measurements and counts of *Bythites lepidogenys* and *B. matsubara*

	<i>B. lepidogenys</i>	<i>B. matsubara</i>					
	Radcliffe, 1913	Matsu- bara, 1943	Kamo- hara, 1954	Holotype	No. 7181	No. 3475	No. 7194
Standard length	79 mm	106 mm	111 mm	97.0mm	96.0 mm	98.7 mm	134.0 mm
D.	76	75	ca. 80	80	81	81	77
A.	52	49	ca. 54	53	56	53	51
P.	20	23	24	24	24	23	24
V.	1	1	1	1	1	1	1
C.	11	10		10	10	10	10
Vertebrae				45	45	45	45
S.L./Head	3.51	3.90	3.8	3.80	3.64	3.53	3.44
S.L./Body depth	4.16	3.68	4.4	3.29	3.87	4.06	3.85
S.L./Distance from tip of snout to dorsal	2.82	2.87	2.8	2.93	2.90	2.70	2.68
S.L./Distance from tip of snout to anal	1.68	1.68	1.8	1.59	1.81	1.68	1.62
Head/Snout	3.73	4.53	3.8	4.11	3.90	4.12	4.11
Head/Maxillary	1.86	1.94		1.96	1.85	1.87	1.94
Head/Orbit	6.0	6.48	6.0	6.38	6.22	6.83	7.13
Head/Interorbital space	4.10	3.78	3.6	3.27	3.23	3.41	3.47
Head/Length of pectoral	1.71	1.92		1.92	1.66	1.75	1.61
Head/Length of ventral	2.05	2.23	2.0	2.55	2.21	2.24	2.55
Length of anal base/ Distance from origin of pelvic to origin of anal				0.95	1.32	1.08	1.02



Figs. 1-4. *Bythites matsubarae* sp. nov. from Japan. Fig. 1, Head of the holotype; Fig. 2, The holotype; Fig. 3, The paratype (7181); Fig. 4, The paratype (3475). See Table for measurements.

The present new species differs from *B. fuscus* Reinhardt (Reinhardt, 1938: 179, pl. 7; Günther, 1862: 375) by the following points, i.e. (1) Head of the former is partially covered with scales, but that of the latter with no scales. (2) pelvic of the former is shorter than that of the latter; length of pelvic 2.0–2.55 in head in the former, but 1.5 in the latter. The new species is also distinguished from *B. lepidogenys* Smith and Radcliffe by the following characters:

<i>B. matsubarae</i>	<i>B. lepidogenys</i>
1. Lateral lines not overlapping in the same vertical	1. —overlapping
2. Pectoral fin-rays 23–24	2. —20
3. Interorbital space broader, 3.23–3.78 in head	3. —narrower, 4.10

The specimens of *Bythites matsubarae* from Suruga Bay are somewhat different from those of Tosa Bay. The former has deeper body and shorter anal base than the latter (Table 1). These differences, however, may be interpreted as a variation, because the number of vertebrae, the distribution of sensory cavities and papillae are all similar between the specimens from these two regions.

**Distribution.** Suruga Bay and Tosa Bay, Japan.

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#### 日本産フサイタチウオ属の一新種 新井良一

松原 (1943) および蒲原 (1954) は日本産の *Bythites* 属 (フサイタチウオ属) に属する標本を *Bythites lepidogenys* Smith and Radcliffe と同定して記載している。これ等の記載および 1968 年に駿河湾から採集された 1 個体、土佐湾産 3 個体を研究したところ、これ等はフィリピンが原産地である *Bythites lepidogenys* と比較して、側線の配列が異なること、胸鰭条数が多いこと、両眼間隔が幅広いことなどで区別できる。日本産の *Bythites* は *B. lepidogenys* と異なる新種と思われるので *B. matsubarae* sp. nov. として記載、報告する。

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