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First Record of *Bathymaster signatus* (Perciformes: Bathymasteridae) from Japan

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The fishes of the genus *Bathymaster* are represented by four species, *B. signatus* Cope, 1873, *B. caeruleofasciatus* Gilbert and Burke, 1912, *B. derjugini* Lindberg, 1930, and *B. leurolepis* McPhail, 1965, all of which are distributed in offshore waters of the North Pacific Ocean. The latter two species have been reported from Japanese waters, but *B. signatus* and *B. caeruleofasciatus* have been documented only in the area of the central North Pacific east to Kamchatka (Soldatov and Lindberg, 1930; Sato and Ueno, 1953; Matsubara, 1955; McPhail, 1965).

In May 1990, a female specimen of *B. signatus* was captured off Kushiro, Hokkaido, Japan by a bottom gill net. We report this specimen as the first occurrence of *B. signatus* from Japanese waters.

Methods for making counts and measurements follow those of Hubbs and Lagler (1958). Vertebrae were examined from radiographs. The present specimen was deposited in the Laboratory of Marine Zoology, Faculty of Fisheries, Hokkaido University (HUMZ).

Bathymaster signatus Cope, 1873
(Japanese name: Soko-medamauo)
(Fig. 1)

Material examined. One specimen, female, 264.5 mm SL: HUMZ 113842, 42°03′N, 144°25′E (Pacific coast off Katsurakoi, Kushiro, eastern Hokkaido, Japan), 100 m in depth, bottom gill net, 16 May 1990.

Comparative materials. Six specimens, 100.0–213.6 mm SL: HUMZ 76657, 59°50.2′N, 178°13.2′W (Bering Sea), 145 m in depth, otter trawl, 22 June 1978; HUMZ 83275, 56°51.84′N, 173°19.70′W (Bering Sea), 218–230 m in depth, trawl, 20 June 1979; HUMZ 88214–88216, 88218, 52°21.32′N, 174°09.77′E (east to Agattu Is., Aleutian Chain), 255 m in depth, trawl, 16 Aug. 1980.

Description. Counts and measurements are shown in Table 1. Body elongate, moderately compressed; depth of body greatest at origin of dorsal fin. Head large and slightly pointed. Mouth large, terminal and oblique. Teeth on upper jaw canine-like in an outer row, small conical in inner rows. Teeth on lower jaw conical in outer rows, canine-like in an inner row. Vomerine and palatine teeth present. Nostrils double, anterior nostril forming a short cylindrical tube. Eye large and oval. Interorbital space broad, width more than half orbital diameter. Lower margin of opercle separated from isthmus, not forming a free fold. Origin of dorsal fin above upper tip of gill opening. Dorsal fin of soft rays only, three anteriormost rays simple, remaining rays branched. Posterior margin of dorsal fin when depressed not reaching base of caudal fin. Outer margin of pectoral fin rounded, not reaching a vertical line at anus. Lower rays of pectoral fin thick. Pelvic fin small and thoracic. Origin of anal fin on a vertical line at 16th dorsal-fin ray. Length of anal-fin base two-thirds of that of dorsal-fin base. Pelvic-fin length less than double orbital diameter. Dorsal and anal fins not incised. Caudal peduncle compressed, length about equal to depth. Caudal fin almost truncate. Ctenoid scales covering body. No scales on head except around neck. Proximal one-third of dorsal fin, proximal one-half of pectoral fin and base of pelvic fin covered with small ctenoid scales. Anal fins scaleless. Several small prickles on gill rakers. Sensory pores well developed and scattered on head (Fig. 1B, C). Eggs globular in form, small, ca. 0.9 mm in diameter.

Color in alcohol. Head and body brown. Dorsal, pectoral and caudal fins light brown. A black blotch on 1st to 5th rays of dorsal fin. Distal part of lower pectoral-fin rays black. Anal and pelvic fins black. Eggs orange.

Remarks. *Bathymaster signatus* is distinguished from other species of the genus *Bathymaster* by having 15 or more gill rakers on the lower limb (14 or less in others), dorsal-fin membrane covered with small scales (naked in *B. caeruleofasciatus* and *B. derjugini*), 19–21 pectoral-fin rays with thickened rays on lower half (17–19, without thickened rays in others), a conspicuous black ocellus on the anterior part of the dorsal fin (no black blotch on body in *B. caeruleofasciatus* and *B. leurolepis*, and a large blotch on opercular flap in *B. derjugini*) (Sato and Ueno, 1953; McPhail, 1965).

Sato and Ueno (1953) documented a single specimen of this species collected from the Bering Sea, and added the following characters: teeth on lower jaw arranged in double rows, vomerine and palatine teeth in a single row, tongue spatulate, gill raker on

outer side armed with many prickles, posterior end of dorsal fin not reaching base of caudal fin, pectoral fin not reaching anal-fin origin, pelvic-fin length less than double orbital diameter, caudal fin truncate. The present specimen agrees with the description of Sato and Ueno (1953), except in the shape of the tongue. They described a spatulate-shaped tongue for this species (Fig. 2E), while the present specimen has a triangular tongue, similar to that in other species of the genus (Fig. 2A). We examined other specimens collected from the Bering Sea and the difference in shape was confirmed as intraspecific variation (Fig. 2). Also, comparison of meristic and morphometric characters with those of the comparative specimens (Table 1) showed no clear differences except in number of caudal-fin rays, head length and snout length. With examination of a larger number of specimens, these small differences would probably be included within the range of variation for this species. Consequently, the specimen from Kushiro is identified as *B. signatus*.

Bathymaster signatus is known from the North Pacific: from off Washington State, to the Gulf of Alaska, Aleutian Islands, southern Kamchatka Peninsula, and the Bering, Chukchi and East Siberian Seas (Jordan and Evermann, 1898; Taranetz, 1933; Andriashev, 1937; Clemens and Wilby, 1949; Sato and Ueno, 1953; McPhail, 1965; Hart, 1973; Eschmeyer et al., 1983). Therefore, the present specimen collected from Kushiro (ca. 42°N, 144°E) is the southernmost record in the western North Pacific for this species and the new record for Japan.

The breeding period of this species is almost unknown and there is no published information on

Table 1. Counts and measurements of *Bathymaster signatus*.

Characters	HUMZ 113842	Comparative material
	N=1	N=6
Counts		
Dorsal-fin rays	47	47–48
Anal-fin rays	35	34–36
Pectoral-fin rays	20	20–21
Pelvic-fin rays	I, 5	I, 5
Caudal-fin rays (total)	32	33–36
Lateral line scales	98	98–99
Gill rakers	7+17	7+14–17
Vertebrae (abdominal+caudal)	16+37	16+37–38
Measurements		
Total length (mm)	303.2	116.0–246.5
Standard length (mm)	264.5	100.0–213.6
(% of standard length)		
Body depth	20.2	16.2– 20.2
Body width	13.5	12.3– 13.9
Head length	27.6	28.9– 31.1
Predorsal length	23.4	23.3– 26.7
Dorsal-fin base length	72.2	68.1– 72.9
Prepelvic length	23.6	23.4– 29.6
Preanal length	47.6	44.1– 48.9
Anal-fin base length	48.8	48.3– 50.4
Pectoral-fin length	19.1	14.1– 20.9
Pectoral-fin base length	7.8	7.3– 8.1
Pelvic-fin length	10.6	10.5– 12.1
Caudal-peduncle length	7.1	6.4– 8.0
Caudal-peduncle depth	7.0	6.6– 7.2
(% of head length)		
Snout length	28.6	22.4– 26.2
Orbital diameter	21.7	21.0– 29.7
Upper-jaw length	43.4	41.4– 43.9
Postorbital head length	52.8	49.7– 55.0
Interorbital width	14.4	10.5– 15.6

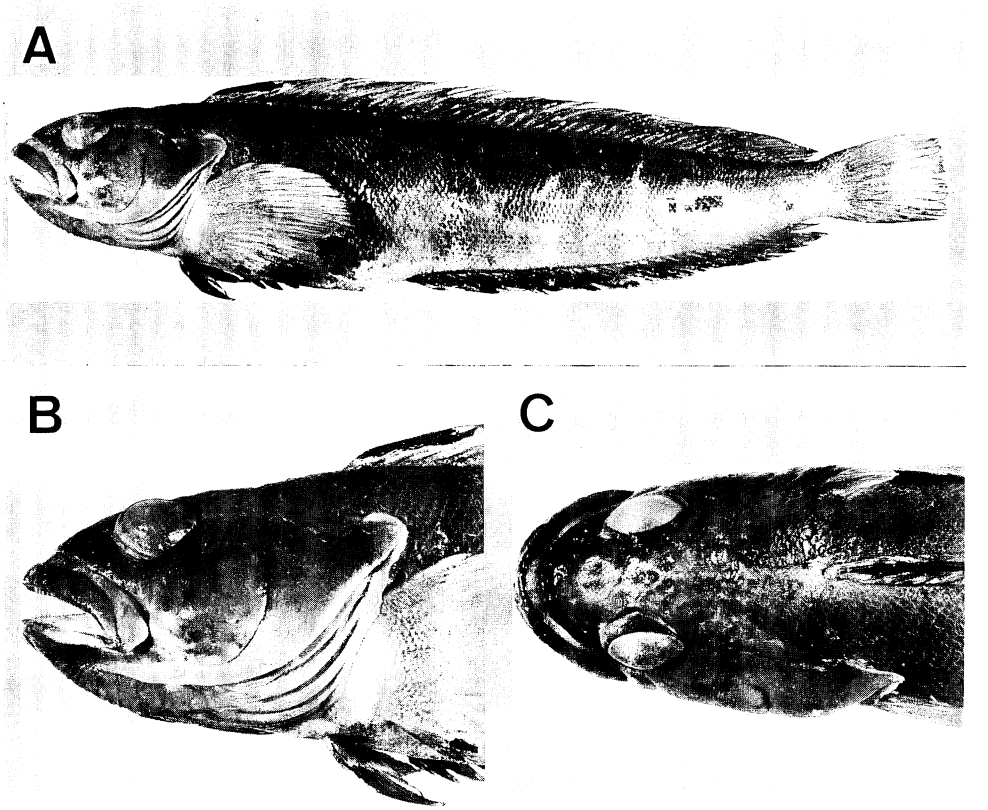

Fig. 1. *Bathymaster signatus*, new to Japan (HUMZ 113842): A, lateral view; B, lateral view (head); C, dorsal view (head).

reproduction (Hart, 1973; Eschmeyer et al., 1983; Matarese et al., 1989). This species is considered to spawn in early summer around Japan because the present specimen, caught in the middle of May, has well-developed ovaries containing numerous eggs.

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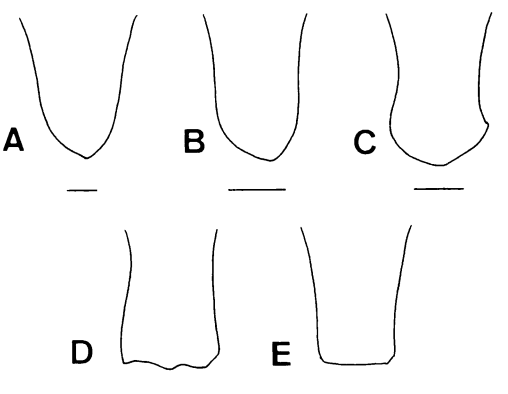

Fig. 2. Variation in the shape of tongue of *Bathymaster signatus*: A, present specimen, HUMZ 113842; B, HUMZ 76657; C, HUMZ 83275; D, HUMZ 88218; E, redrawn from Sato and Ueno (1953). Bars indicate 3 mm.

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日本初記録のメダマウオ科魚類ソコメダマウオ

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北海道釧路沖水深 100 m の海底から底刺網により良く発達した卵巣卵を持つ雌のソコメダマウオ (*Bathymaster signatus*) 1 個体 (264.5 mm SL) が採集された．これは本種の日本初記録と同時に西部北太平洋で最も南方の記録となる．また本個体とベーリング海から得た他の個体とを詳細に観察した結果，従来本種の分類形質のひとつと考えられてきた舌部の形状に個体変異があることが明らかになった．なお本種の標準和名は Sato and Ueno (1953) が，アリューシャン海域から得た同種を記載した際に命名されたものである．

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