Siphonogobius nue, a new genus and species of gobiid fish from Japan

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Abstract

A new genus and species of gobiid fish, *Siphonogobius nue*, based on 15 specimens, is described from temperate Pacific coasts of Japan. It is unique amongst gobiods in having a simple tube-like infraorbital canal extending below the eye and the ocucluscular canal between pores A' and L' without openings, except for the terminal pores and pore D. Although well-developed infraorbital canals occur in two other gobioid genera, the rhyacichthyid *Rhyacichthys* and the gobiid *Lophiogobius*, such are distinct from that of *Siphonogobius* in having several branches and openings. Furthermore, the new taxon is distinguished from all other gobioids by the following combination of characters: first dorsal-fin spines 7–9 (usually 8); pectoral-fin rays 24–26, the upper 7–9 rays free from the fin membrane; pelvic frenum thick, robust and slightly emarginate posteriorly; scales small and cycloid, 87–96 in longitudinal series; vertebrae 14–15 + 19–20 = 33–34 (usually 14 + 20 = 34); P-V usually 3/I II 1/II 1; anal-fin pterygiophores anterior to the first haemal spine 3–4 (usually 3); a row of short fleshy flaps on the ventral surface of the head, extending from the lower edge of the preopercle to the chin; anterior nostril with a minute skin flap. Axial skeletal features indicated that *Siphonogobius* is closely related to a group which includes *Acanthogobius* and its relatives.

Key words. — *Siphonogobius nue*; new genus and species; Gobiidae; “Acanthogobius Group”; Japan.

Materials and Methods

Specimens examined in this study are deposited in the following institutions: the Australian Museum, Sydney (AMS); Biological Laboratory, Imperial Household, Tokyo (BLIH); the Natural History Museum, London (BMNH); National Science Museum, Tokyo (NSMT); National Museum of Natural History, Smithsonian Institution, Washington (USNM); Yokosuka City Museum, Japan (YCM).

The methods for measurements and counts followed Hubbs and Lagler (1958) and Akihito (1984), except for the following: head width, measured at the uppermost part of the preopercular margin; body depth, measured at the pectoral-fin origin; and pectoral-fin length, represented by the length of the new goby, which is herein described as a new genus and species, was simple and tube-like, lacking additional branches and openings except for its termination.
longest ray. Measurements were made with calipers. Counts of dorsal- and anal-fin pterygiophores, vertebrae and epurals were taken from radiographs. Other osteological characters were observed on three specimens cleared and stained following the method of Potthoff (1984). Cephalic sensory canals and papillae were observed on specimens stained with suminol cyanine. The notations of cephalic sensory canal pores follow those of Akihito (1984), except for the infraorbital canal pore (“pore R”) which follows Iwata and Jeon (1995). The pattern of interdigitation of the dorsal-fin proximal pterygiophores between the neural spines (“P-V”) follows Akihito (1984), except for “10-11” just behind the second slash, indicating that the first two proximal radials of the second dorsal fin are mounted over both the 10th and 11th neural spines. Intermuscular bones were identified as epineurals rather than epipleurals, following Johnson and Patterson (1993).

**Siphonogobius** gen. nov.  
(New Japanese name: Nue-haze-zoku)  

**Type species.** *Siphonogobius nue* sp. nov.

**Diagnosis.** *Siphonogobius* is unique amongst goboids in having the following cephalic sensory canal features: a simple tube-like infraorbital canal extending below the eye; oculoscapular canal between pores A' and L' without openings, except for the terminal pores and pore D. The genus is also distinguished from other goboids by the following combination of characters: first dorsal-fin spines 7-9 (usually 8); pectoral fin rays 24-26, upper 7-9 rays free from fin membrane; vertebrae 14-15+19-20=33-34 (usually 14+20=34); P-V usually 3/I II I I I O/I; anal pterygiophores anterior to the first haemal spine 3-4 (usually 3); pelvic frenum thick, robust and slightly emarginate posteriorly; scales small, cycloid, 87-96 in longitudinal series; a row of short fleshy flaps on ventral side of head, extending from lower edge of preopercle to chin; anterior nostril with a minute skin flap.

**Etymology.** The generic name, *Siphonogobius*, is derived from the Greek *siphonos*, meaning “tube” or “pipe,” and *Gobius*, a genus of goboid fish, in reference to the unique simple tube-like infraorbital canal extending below the eyes. The gender is masculine.

**Siphonogobius nue** sp. nov.  
(New Japanese name: Nue-haze)  
(Figs. 1-9; Table 1)

**Holotype.** NSMT-P 53949, 79.4 mm SL, male, Tomioka, Fukushima Pref., Japan, 8 Sept. 1995.  

**Paratypes.** AMS L 138159-001, 1 specimen, 82.5 mm SL, male, same locality and date as holotype; BLIH 1969254, 1, 46.1 mm SL, sex unknown, Kamogawa, Chiba Pref., Japan, 14 Sept. 1969; BLIH 1988347, 1, 35.8 mm SL, sex unknown, Tomioka, Fukushima Pref., Japan, 6 Aug. 1988; BLIH 1988348, 1 (cleared and stained), 76.0 mm SL, female, Oraga-hama Beach, Fukushima Pref., Japan, 9 July 1988; BLIH 1988349, 2 (including 1 cleared and stained), 62.4–62.5 mm SL, Namie, Fukushima Pref., Japan, 13 Oct. 1988; BLIH 1993045, 1, 68.3 mm SL, female, Sohma, Fukushima Pref., Japan, 17 July 1993; BLIH 1995032, 1, 45.8 mm SL, sex unknown, same locality as holotype, 7 Sept. 1995; BMNH 1997.10.22.1, 1, 45.2 mm SL, male, same locality and date as holotype; NSMT-P 53950, 1, 83.3 mm SL, female, same locality and date as holotype; NSMT-P 53951, 1 (cleared and stained), male, 80.1 mm SL, same locality and date as holotype; NSMT-P 53952, 1, 39.7 mm SL, female, same locality and date as NSMT-P 53950; USNM 345963, 1, 45.2 mm SL, male, same locality and date as holotype; YCM-P 34800, 1, 92.1 mm SL, male, same locality and date as holotype.

**Non-type material.** BLIH 1988345. 2 (juveniles), 17.6-19.4 mm SL, Tomioka Fishing Port, Fukushima Pref., Japan, 18 Aug. 1988; BLIH 1988346. 1, 45.2 mm SL, mouth of Kuma-kawa River, Fukushima Pref., Japan, 8 Sept. 1995.  

**Description.** In the following description, holotype counts are given first, followed by those of the paratypes in parentheses. Dorsal-fin rays VIII-I, 12 (VII-IX-I, 12-13); anal-fin rays I, 10 (I, 9–11); pectoral-fin rays 25 (24–26), upper 8 (7–9) rays free from fin membrane: pelvic-fin rays I, 5 (I, 5); branched caudal-fin rays 8+7 (8–9+7–8); upper unbranched caudal-fin rays 12 (11–14), the last 1 (0–1) ray segmented; lower unbranched caudal-fin rays 13 (12–14), the last 1 (0–1) ray segmented; longitudinal scale rows 92 (87–96); transverse scale rows 32 (31–35); predorsal scales 34 (31–34); gill rakers on outer face of first gill arch 3-7 (2–3+6–7); pseudobranchial filaments 10 (10–12).

Proportional measurements are given in Table 1. Body stout, subcylindrical, slightly compressed posteriorly. Head relatively large, slightly depressed. Interorbital space wide, subequal or greater than eye diameter. Mouth terminal, slightly oblique, forming an angle of about 25 degrees with body axis. Upper jaw projecting a little beyond lower jaw, posterior end of jaws below posterior margin of eye. Anterior nostril a short tube with a minute skin flap (Fig. 1C). Posterior nostril with low rim, closer to anterior nostril than an-