

First record of the cusk-eel, *Neobythites australiensis* Nielsen (Ophidiiformes: Ophidiidae), from the Northern Hemisphere

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Abstract. A single specimen (167 mm standard length) of the cusk-eel (Ophidiidae), *Neobythites australiensis* Nielsen, 2002, was collected from west of Okinawa Island, Japan. This species was previously known only from northwestern Australia. The Japanese specimen represents the first record of the species from the Northern Hemisphere; it is given a new Japanese name, Niten-itachiuo.

Key words: Ophidiidae, *Neobythites australiensis*, cusk-eel, distribution, Japan.

Introduction

The genus *Neobythites* Goode and Bean, 1885 is known from all subtropical and tropical oceans except for the East Atlantic and is the most speciose genus within the family Ophidiidae (Nielsen *et al.* 1999; 2009). In his revision of the Indo-Pacific species of the genus, Nielsen (2002) described 15 new species. One of them, *Neobythites australiensis* was described on the basis of seven specimens collected from off northwestern Australia, at depths of 42–350 m (Nielsen 2002).

There have been no reports of the species being collected since the original description. In 1998, a single specimen of genus *Neobythites* was collected from west of Okinawa Island, Japan. Recently, the specimen was identified as *N. australiensis* by the second author. The current paper documents the first record of the species from the Northern Hemisphere

based on the Japanese specimen.

Count and proportional measurement methods follow Nielsen (2002). Vertebral counts and osteological features were examined from soft X-ray negatives. The term “ocellus” on the vertical fin is used for a dark spot surrounded by a white ring (Uiblein and Nielsen 2005; fig. 1). Standard and head lengths are abbreviated as SL and HL respectively. The Japanese specimen of *N. australiensis* is deposited at the Kagoshima University Museum, Japan (KAUM), the data for which is as follows: KAUM-I. 37071, 167 mm SL, female, west of Okinawa Island, Japan, East China Sea, ca. 100 m depth, 16 May 1998. The following two specimens of *Neobythites unimaculatus* Smith and Radcliffe, 1913 deposited at the Laboratory of Marine Biology, Faculty of Science, Kochi University, Japan (BSKU) were examined for comparative purposes: BSKU 37006, 204 mm SL, Mimase Fish Market, Kochi, Japan, 250 m depth, 14 April 1982; BSKU 37542, 203 mm SL, Mimase Fish Market, Kochi, Japan, depth unknown, 19 October 1982.

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Results and Discussion

The Japanese specimen (Fig. 1) is identified as *Neobythites australiensis* on the basis of the following combination of characters: hind margin of preopercle with two spines, lower spine longer; dorsal fin with one ocellus positioned behind a line through anus; smaller black blotch on anterior dorsal fin; dorsal-fin rays 92; anal-fin rays 75; pectoral-fin rays 26; long rakers on anterior gill arch 10; pelvic-fin length 19.0% SL; longest gill filaments on anterior arch 7.0% HL; pseudobranchial filaments 6; vomerine tooth patch subtriangular; precaudal vertebrae 13; and total vertebrae 54. These characters of the present specimen agree with all diagnostic characters of *N. australiensis* given by Nielsen (2002), except

for 6 pseudobranchial filaments (vs. 8–11 in type specimens). This character varies considerably for some species in the genus (e.g., 5–10 in *N. longipes*, see Nielsen 2002: table 13). Also, there are two minor morphometric differences between the Japanese specimen and the type specimens: head length (23.0% SL in Japanese specimen vs. 23.5–24.5% SL in type specimens); and diameter of eye window (5.0% SL vs. 4.2–4.7% SL). We consider these minor differences as intraspecific variation.

The principal meristic and morphometric (expressed as percentage of SL except for the length of the longest filaments on anterior gill arch, HL) characters of the Japanese specimen are as follows: dorsal-fin rays 92; anal-fin rays 75; caudal-fin rays 8; pectoral-fin rays 26; pelvic-fin rays 2; long rakers



Fig. 1. *Neobythites australiensis*, KAUM-I. 37071, 167 mm SL, west of Okinawa Island, Japan.

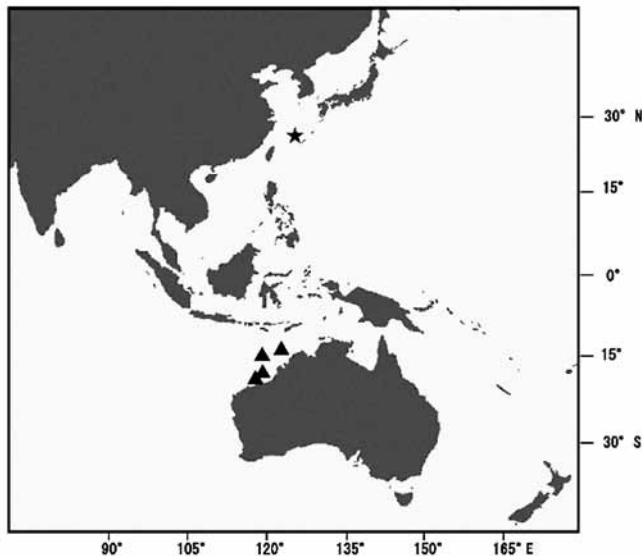


Fig. 2. Distributional records of *Neobythites australiensis*. Specimen examined in this study (star) and Nielsen (2002) (triangles).

on anterior gill arch 10; vertebrae 13 + 41; pseudo-branchial filaments 6; origin of dorsal fin above vertebra no. 5; origin of anal fin below dorsal-fin ray no. 22; origin of anal fin below vertebra no. 15; HL 23.0; depth at origin of anal fin 18.5; upper jaw length 12.0; diameter of eye window 5.0; postorbital length 14.0; preanal length 44.5; predorsal length 25.0; base of pelvic fin to anal-fin origin 28.0; pectoral-fin length 12.5; pelvic-fin length 19.0; and longest filaments on anterior gill arch 7.0% HL.

In the review of the Indo-Pacific species of *Neobythites* (Nielsen 2002), three congeners were recorded from Japanese waters: *Neobythites sivicola* (Jordan and Snyder, 1901); *Neobythites stigmus* Machida, 1984; and *N. unimaculatus*. *Neobythites australiensis* can be easily distinguished from these species by the presence of a black blotch and an ocellus on the dorsal fin (*vs.* blotches absent in *N. sivicola*; 3–7 ocelli or blotches in *N. stigmus*; and only one ocellus in *N. unimaculatus*, see Nielsen 2002).

Neobythites australiensis has a mottled pattern on the dorsal part of head and body; however, some older type specimens are less mottled apparently due to bleaching (Nielsen 2002). The mottled pattern in the present specimen was also indistinct, possibly due to fading during preservation (Fig. 1).

Because this species has been reported only from the northwestern Australia (Nielsen 2002; Hoese *et al.* 2006), our specimen represents the first record of *Neobythites australiensis* from the Northern Hemisphere (Fig. 2). A new standard Japanese name, “Niten-itachiyo” (meaning two spotted cuskeel), is proposed here for *N. australiensis*, reflecting the presence of a black blotch and an ocellus on the dorsal fin.

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