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Waters Adjacent to Taiwan

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長新鼬鳚-台灣新紀錄種鼬鳚科魚類

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Neobytites longipes Smith & Radcliffe, 1913 (Pisces: Ophidiidae), a New Record from the Waters Adjacent to Taiwan

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ABSTRACT

Five specimens of Neobytites longipes Smith & Radcliffe in Radcliffe, 1913, a new record of ophidiid fish, were collected by the chartered commercial bottom trawler and the R/V ‘Ocean Researcher III’ from 300-457 meter depth off southwestern Taiwan during August 2005-March 2006. Thus, the total number of ophidiids in the waters adjacent to Taiwan is 17 genera and 27 species. Our specimens are the first record of N. longipes trawled from the South China Sea, and the northern distribution of N. longipes is extended from 6°2′N to 22°24′N. This paper includes diagnostic characters and geographical distribution of N. longipes. A color photo, station data, and a key to the species are also given.

Key words: Neobytites longipes, Ophidiidae, New record, Deep-Sea fish, Taiwan.

INTRODUCTION

Neobytites Goode & Bean, 1885 is the largest genus in the oviparous family Ophidiidae, and is known from all oceans except for the eastern Atlantic Ocean. Fifty species are recognized in the genus. Besides the eight endemic species in the western Atlantic Ocean, 42 species occur in the Indo-Pacific, where are collected from 67-950 meters of depth near the bottom (Nielsen, 1995; Nielsen, 1997; Nielsen, 1999a; Nielsen, 2002). Three species, N. sivicola (Jordan and Snyder, 1901), N. stigmosus Machida, 1984, and N. unimaculatus Smith and Radcliffe in Radcliffe, 1913, are recorded from Japanese waters (Nakabo, 2002; Nielsen, 2002). In the adjacent waters of Taiwan, Machida (1984) collected N. sivicola and N. stigmosus from the Okinawa Trough, however from the same area Xu and Wang (1988) found no species of Neobytites. Randall and Lim (2000) compiled a checklist of fishes in the South China Sea, including four Neobytites species, N. fasciatus Smith and Radcliffe in Radcliffe, 1913, N. sivicola, N. stigmosus, and N. unimaculatus.

In Taiwan, Nielsen (2002) listed three Neobytites species, namely, N. sivicola, N. stigmosus, and N. unimaculatus. Recently Yeh et al. (2005) reviewed ophidiid fishes from waters around and recognized the fourth species, N. fasciatus.

In this paper, we report five specimens of Neobytites longipes, a new record of ophidiid fishes to Taiwan totalling the number of ophidiids from Taiwan to 17 genera and 27 species. This paper includes diagnostic characters and geographical distribution of N. longipes. A color photo, station data, and a key to the species are also given.

MATERIALS AND METHODS

One specimen (ASIZP 66713) was caught by the CT3-class commercial otter

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trawler (SN: CT3-5692) under the bottom trawl project of the Council of Agriculture, and four specimens by the R/V 'Ocean Researcher III' under the project of Deep-Sea Biodiversity II (August 2004 – July 2007) of the National Science Council. Each tow usually lasted for one hour except abnormal high tension of wire during trawl operation. The towing speed of commercial otter trawl was kept between 1.4 and 2.2 knot, and that of beam trawl was between 1.0 and 1.5 knot by the ground speed. The construction of the commercial otter trawl had been well documented by Chow and Su (2002). The construction and operation of the French type beam trawl had also been described (Yeh et al., 2005).

All samples were sorted on board to main taxa. Fishes were then preserved in -20°C deep freezer on the vessels and temporarily stored in the laboratory. After defrost for examination, digital images of specimens were taken for each specimen. Morphometric characters and weight of specimens were measured and recorded in millimeters and milligrams, respectively. The numbers of vertebrae, dorsal-fin, anal-fin and caudal-fin rays were counted from radiographs. Methods for taking counts and measurement followed Nielsen et al. (1999) and Nielsen (2002). Counts and measurements from this study were in parenthesis. Then specimens were fixed in 10% neutralized formalin for more than 4 weeks. After the fixation, the samples were rinsed with tap water, and then preserved in 70% alcohol permanently and deposited at the museum of Research Center for Biodiversity, Academia Sinica (RCBAS) with the catalog number of ASIZP. Fish names in Chinese were based on Latin-Chinese dictionary of fishes names (Wu et al., 1999).

Abbreviations: SL, standard length; HL, head length.

RESULTS

Table 1 lists the sampling information of the stations where Neobythites longipes was collected. For synonyms see Nielsen et al. (1999).

Key to the species of Ophidiidae occurring in the adjacent waters of Taiwan
1a. Barbels present on snout or chin..............

Brotula multibarba
1b. No barbels present on snout or chin........2

2a. Main body of ventral arm of cleithrum meeting its mate at about level of preopercle, but a slender, elongate filament of bone extending anteriorly to pelvic fins and inserted beneath eye...

Ophidion muraenolepis
2b. Ventral arm of cleithrum meeting its mate and terminating at about level of preopercle or farther anteriorly; anteriorly directed bony filament absent..................3

3a. Pelvic fins below or slightly behind eye.4
3b. Pelvic fins below preopercle or absent.7

4a. Pelvic fin with a single ray; no spines on preopercle............Sirembo imberbis
4b. Pelvic fin with 2 rays; spines variously developed on preopercle........5

5a. Spine on opercle short, hardly extending beyond rear margin of head; snout spine long, sharp and strong..............Hoplobrotula armata
5b. Spine on opercle long, extending well beyond rear margin of head........6

6a. Bifid spine prominent protruding on tip of snout; body slender............Acanthonus armatus
6b. No spine on snout; body robust...........Xyelacyba myersi

7a. Long gill rakers four or fewer, on anterior gill arch................Luciobrotula bartschi
7b. Long gill rakers five or more, on anterior gill arch........................8

8a. More than ten pairs of spines on head.9
8b. Head without spines.....................10

9a. Lachrymal with two to three spines........Porogadus guentheri
9b. Lachrymal with five to seven spines...............Porogadus miles

10a. Lateral line covered with small scales, beneath which lie vertically oriented, spindle-shape neuromasts, each of which is mounted on a large, vertically elongate scale......................Lamprognathus brunswigi
10b. Lateral line not as above................11

11a. Opercular spine absent or weak, if
## Table 1. Information for Trawl Stations

<table>
<thead>
<tr>
<th>Station</th>
<th>Vessel</th>
<th>Date</th>
<th>Place</th>
<th>Time of Operation</th>
<th>Start to Trawl</th>
<th>Start to Retrieve</th>
<th>Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fish trawler</td>
<td>2005/8/24</td>
<td>off Donggang, SW Taiwan</td>
<td>05:02-06:06</td>
<td>22°13.106' N</td>
<td>120°28.988' E</td>
<td>22°13.263' N</td>
</tr>
</tbody>
</table>

*: otter trawl; PCP: French type beam trawl of 3 m span
present rather broad, flattened and flap-like and incorporated in opercular bone. ..........................12
11b. Opercular spine strong and narrow, sometimes hidden, usually rounded in cross-section. ..........................17
12a. Eye diameter equal to or greater than snout. ..........................Glyptophidium lucidum
12b. Eye diameter less than snout. ..........................13
13a. Lower pectoral fin rays free, prolonged or fin divided ..................Bathyonus caudalis
13b. Lower pectoral fin rays normal and fin not divided ..........................14
14a. Ventral fin rays less than about 3% of SL; long gill rakers 17-22 ..........................Bassozetus multispinis
14b. Ventral fin rays more than 5% of SL; long gill rakers 11-21 ..................15
15a. Scale large (less than 25 in oblique row) ..........................Bassozetus compressus
15b. Scale small (more than 25 in oblique row) ..........................16
16a. Sagittal otolith large; long gill rakers 11-16 ..................Bassozetus robustus
16b. Sagittal otolith small; long gill rakers 15-21 ..................Bassozetus glutinosus
17a. Pectoral fins with lower rays free; pelvic fins with two rays in each ..........................18
17b. Pectoral fins entire; pelvic fins with one or two rays in each ..........................20
18a. Eye diameter much less than 1/2 snout length; pelvic fin rays flattened ..........................Holcomycterous aequatoris
18b. Eye diameter equal to 1/2 or more of snout length; pelvic fin rays filamentous ..........................19
19a. Two median and a pair of basibranchial tooth patches; two pelvic fin rays ..........................Dicroleone tristis
19b. One median and a pair of basibranchial tooth patches; one pelvic fin ray ..........................Dicroleone quinquarius
20a. Median basibranchial tooth patch one ..........................21
20b. Median basibranchial tooth patches two ..........................23
21a. Pelvic fins longer than head; pectoral fins placed closer to ventral edge than to midline ..........................Homostolus acer
21b. Pelvic fins not longer than head; pectoral fins placed closer to midline than to ventral edge ..........................22
22a. Teeth in outer series on both jaws enlarged ..........................Monomitopus pallidus
22b. No teeth on either jaw enlarged ..........................Monomitopus kumae
23a. Pelvic fins extending beyond anus ..........................Neobythites longipes
23b. Pelvic fins not extending beyond anus ..........................24
24a. Dorsal fin with ocelli or dark blotches ..........................25
24b. Dorsal fin without ocelli or dark blotches ..........................Neobythites sivicola
25a. Dorsal fin with one ocellus; anal fin without ocelli ..........................Neobythites unimaculatus
25b. Dorsal fin with three or more ocelli; anal fin with two to four ocelli or blotches ..........................26
26a. Anterior gill arch with eight to ten long rakers; anal fin with three to four distinct blotches; body with distinct, dark, vertical bars ..........................Neobythites fasciatus
26b. Anterior gill arch with 11-12 long rakers; anal fin with two to four distinct ocelli; body with or without distinct, dark, vertical bars ..........................Neobythites stigmosus

SPECIES ACCOUNTS

**Neobythites Goode & Bean, 1885**

**Neobythites longipes Smith & Radcliffe, 1913**

**Fig. 1, Pl. 1**


Specimens examined (5 specimens, SL 145-211): ASIZP 66713, 1 specimen, SL 155, stn. 5T300Aug; ASIZP 66918, 3 specimens, SL 145-152, stn. PCP347; ASIZP 66923, 1 specimen, SL 211, stn. PCP348.

Description:
Snout pointed and slightly longer than diameter of eye window; mouth subterminal; maxilla ends well behind eye; teeth granular; vomer tooth patch boomerang shaped; one large ocellus on dorsal fin; distal part
of anal fin black; pelvic fins reaching to or well beyond anus; opercular spine straight; hind margin of preopercle without spines; 2 median basibranchial tooth patch; dorsal fin rays 96-103 (103-106); caudal fin rays 8 (8); anal fin rays 79-86 (83-87); pectoral fin rays 27-30 (27-29); pelvic fin rays (2+2); pseudobranchial filaments 5-10 (6-8); precaudal vertebrae 13-14 (14); total vertebrae 57-60 (58-60); long rakers on anterior gill arch 8-10 (2+1+5-6); anterior dorsal ray above vertebra number 5-6 (5); anterior anal ray below dorsal ray number 19-22 (20-22); anterior anal ray below vertebrae number 15-17 (15-16); pelvic fins with 2 rays in each; length of head 22.5-25.5 (21.9-23.0)% SL; depth at origin of anal ray 13.5-17.5 (13.6-15.2)% SL; upper jaw 12.0-13.5 (11.6-12.4)% SL; horizontal eye window 3.9-5.0 (3.8-4.5)% SL; postorbital 12.5-
Pl. 1. *Neobythites longipes*, ASIZP 66923, SL 211 mm.

15.5 (12.9-13.8)% SL; preanal 41.0-48.5 (39.3-41.3)% SL; predorsal 23.0-28.5 (23.5-25.8)% SL; from base of ventral fins to anal fin 23.5-30.5 (22.1-25.3)% SL; ventral fin 28.5-54.0 (28.3-32.3)% SL; snout to 1st ocellus 40.5-53.0 (43.2-46.7)% SL; Longest filaments on anterior gill arch 5.7-11.0 (8.3-9.4)% HL.

**Distribution:**

Indo-West Pacific: off southwestern Taiwan, Philippines, and off western Australia; bentholopelic at bathyal depth (150-481 m).

**Remarks:**

*Neobythites longipes* was known from 16 localities between 6°2'N and 18°46'S of the western Pacific Ocean (Nielsen, 2002). Our paper extends its northern range to 22°24' N, and it is the first record of *N. longipes* from the South China Sea. Our material differs from the Philippine and Australian specimens described by Nielsen (2002) in the counts of dorsal fins rays (103-106 vs. 96-103).

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長新鼬鱸 - 台灣新紀錄種鼬鱸科魚類

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本研究記載自2005年8月至2006年3月在台灣深海海域內水深300-457 m，使用底拖漁船和海研三號所採集到5個體的台灣新紀錄種鼬鱸科魚類 - Neobytmites longipes Smith and Radcliffe, 1913 長新鼬鱸。總計台灣目前共有17屬27種鼬鱸科魚類。本研究為長新鼬鱸在南中國海的首次採集記錄並更新長新鼬鱸的採集北限由北緯6度2分至北緯22度24分。本研究除描述此新記錄種之形態特徵及地理分布外並附上其標本照和採集測站資料，同時亦提供台灣鼬鱸科魚類新的檢索表。

關鍵詞：長新鼬鱸，鼬鱸科，新紀錄，深海魚，台灣。

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