

New Record of the Snake Mackerel, *Gempylus serpens* (Perciformes: Gempylidae) from Jeju Island, Korea

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ABSTRACT A single specimen (506 mm SL) of *Gempylus serpens*, belonging to the family Gempylidae, order Perciformes, was firstly collected from Jeju Island, Korea in April 2013. This specimen was characterized by having the lower jaw protruded than upper jaw; three big fangs on upper jaw; five dorsal finlets and seven anal finlets; two lateral lines split at the dorsal origin, upper line interrupted at the end of the first dorsal fin, but lower line extend to the caudal fin base. The new Korean name “Se-jang-gal-chi-ggo-chi-sok” is proposed for the genus *Gempylus*, and “Se-jang-gal-chi-ggo-chi” for the species *G. serpens*.

Key words : *Gempylus serpens*, new record, Gempylidae, Korea, Jeju Island

INTRODUCTION

The family Gempylidae belonging to order Perciformes consists of about 24 species and 16 genera in the World (Nelson, 2006), 10 species and 10 genera in Japan (Nakabo, 2002), 2 species and 2 genera in Korea (Kim *et al.*, 2012): *Rexea prometheoides* (Bleeker, 1856), *Thyrsitoides marleyi* (Fowler, 1929). They are distributed worldwide in the tropical and subtropical seas. This family is characterized by having very elongated and compressed body, strong teeth, rudimentary or no pelvic fin (Nakamura and Parin, 1993). In the family, the genus *Gempylus* contains single species (*Gempylus serpens*) worldwide. The genus *Gempylus* is characterized by having two lateral lines originating below first dorsal fin spine, rudimentary pelvic fin and several finlets behind the dorsal and anal fins (Masuda *et al.*, 1984).

In the present study, a single specimen of *Gempylus serpens* Cuvier, 1829 was collected from the coastal waters of Jeju Island, Korea, and we described the species as the first record based on specimen (Fig. 1). Counts and measurements followed Nakabo (2002) and the vertebrae were counted by radiograph (SOFTEX HA-100, Japan). The specimen is deposited at National Institute of Biological Resources (NIBR), Korea.

SYSTEMATIC ACCOUNTS

Genus *Gempylus* Cuvier, 1829

(New Korean genus name: Se-jang-gal-chi-ggo-chi-sok)
Gempylus Cuvier, 1829: 200 (type species, *Gempylus serpens* Cuvier, 1829).

Description. Body very elongated and compressed; lateral line bifurcated; pelvic fin minute; maxillary largely hidden under the infraorbital membrane; lower jaw protruded than upper jaw. Only one species recognized worldwide (Matsubara and Iwai, 1952; Nakamura, 1986; Nakamura and Parin, 1993).

Gempylus serpens Cuvier, 1829

(New Korean name: Se-jang-gal-chi-ggo-chi)
(Figs. 1, 2; Table 1)

Gempylus serpens Cuvier, 1829: 200 (type locality: Sloane); Jones, 1960: 85 (Laccadive sea); Nakamura and Parin, 1993: 27 (Rome); Nakabo, 2002: 1339 (Japan).

Material examined. NIBR-P0000020418, one specimen, 506 mm in standard length (SL), with a bottom trawl, 127° 72E, 33° 34N, eastern sea of Jeju Island, Korea, 18 April 2013.

Description. First dorsal fin rays XXX; second dorsal fin rays II, 13+5; anal fin rays III, 10+7; pectoral fin rays 14; pelvic fin rays I, 3; vertebrae 50 (Table 1).

Body very elongated and compressed, body depth 14.5

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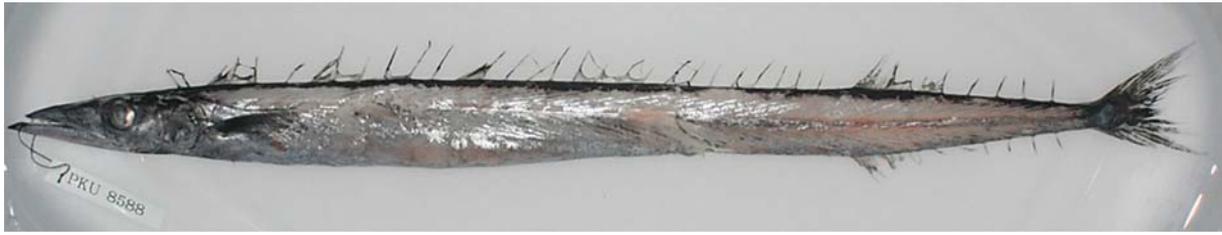


Fig. 1. *Gempylus serpens* Cuvier, 1829, NBIR0000020418 (Previously PKU 8588), 506 mm SL, Jeju Island, Korea.

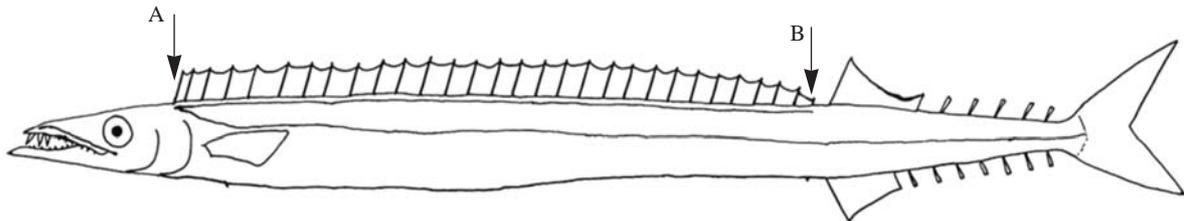


Fig. 2. (A) Lateral line is split at the first dorsal fin origin; (B) upper lateral line is interrupted at the end of first dorsal fin.

Table 1. Comparison of counts and measurements of *Gempylus serpens*

Morphological characters	Present study	Jones (1960)	Nakamura and Parin (1993)	Nakabo (2002)
No. of specimens	1	2	–	–
Standard length (SL, mm)	506	507	–	–
Counts				
First dorsal fin rays	XXX	XXVIII	XXVI-XXXII	XXVIII-XXXII
Second dorsal fin rays	I, 13+5	IV, 9+6	I, 11-14+5-6	I, 11-14+5-7
Pectoral fin rays	14	14	12-15	13-16
Pelvic fin rays	I, 3	I, 4	I, 3-4	I, 3
Anal fin rays	III, 10+7	I-II, 9-10	III, 10-12+6-7	II, 10-13+5-7
Vertebrae	50	–	48-55	–
In % of SL				
Head length	5.7	5.1-5.7	5.5-6.0	–
First predorsal distance	6.6	5.9-6.1	–	–
Base of first dorsal fin	1.6	1.7-1.8	–	–
Second predorsal distance	1.3	1.3	–	–
Base of second dorsal fin	11.7	12.4-12.8	–	–
Snout to pectoral fin	5.5	4.9-5.1	–	–
Snout to pelvic fin	5.0	4.4-4.5	–	–
Snout to anal fin	1.6	1.3	–	–
Pelvic origin to anal fin	2.3	1.9	–	–
Base of anal fin	11.8	12.0-12.9	–	–
Length of pectoral fin	10.8	9.4-10.3	–	–
Length of anal fin	18.1	19.3-20.6	–	–
Body depth	14.5	15.4-16.1	15.0-18.0	–
Body width	29.8	28.0-29.0	–	–
In % of HL				
Snout length	2.1	2.1-2.2	–	–
Eye diameter	6.0	6.1-6.3	–	–
Interorbital distance	6.8	6.8	–	–
Head depth at occiput	2.9	2.8-3.1	–	–
Head width	4.8	4.3-4.5	–	–
Length of pectoral fin	1.9	1.8-2.0	–	–

% in standard length (SL); head length 5.7% in SL; eye large, located laterally, its length 6.0% in head length (HL); snout very long, its length 2.1% in HL; lower jaw

extruded than upper jaw; 3 fangs (2 fangs on right side and 1 fang on left side) on upper jaw; no fangs on lower jaw; single series of canine-like, small and compress

teeth on both jaw; no teeth on vomer. First dorsal fin starts above edge of opercle, end above the anus; second dorsal fin short and starts backside of the first dorsal fin; 5 finlets behind the second dorsal fin; anal fin similar to second dorsal fin; 7 finlets behind anal fin; small pelvic fins present below pectoral fins. Two lateral lines start below the first dorsal fin origin (Fig. 2); upper line running near dorsal contour to end of the first dorsal fin, lower line along middle of body to end of caudal fin base; caudal fin large and forked.

Coloration. When fresh, body dark brown dorsally and white ventrally, and all fins dark. Coloration shows no change after fixation.

Distribution. Jeju Island, Korea (Present study), Pacific Ocean, Atlantic Ocean, Indian Ocean, Caribbean Sea and worldwide in tropical and subtropical seas (Jones, 1960; Masuda *et al.*, 1984; Nakamura, 1986; Nakamura and Parin, 1993).

Remarks. The present specimen, collected around Jeju Island, is characterized by having compressed and very elongated body, two lateral lines, protruded lower jaw, 3 fangs on upper jaw, rudimentary pelvic fin, several finlets behind dorsal and anal fins, and very large forked caudal fin. When compared with other references (Nakamura, 1984; Nakamura, 1986; Nakamura and Parin, 1993; Nakabo, 2002), most of counts of our specimen were corresponded well. Although we did not compare meristic counts with original description because it did not presented counts, our specimen corresponded well in counts and measurements presented by Jones (1960) except the number of second dorsal fin spines, anal fin spines and pelvic fin rays. These differences seem to be intraspecific variation, but it needs to study geographic variation of the species after collecting more specimens. There are 2 genera in Korea (Kim *et al.*, 2012): *Rexea promethoides* (Bleeker, 1856), *Thyrsitoides marleyi* (Fowler, 1929). *Gempylus serpens* is easily distinguished to *R. promethoides* (Bleeker, 1856) in having the dorsal fins (XVIII-XIX vs XXX), a slender body (vs. not slender) (Nakabo, 2002; Kim *et al.*, 2012). *G. serpens* is similar to *T. marleyi* (Fowler, 1929) in morphological characters such as body shape and the number of lateral line, but differed in size of pelvic fins (rudimentary in *G. serpens* vs. development in *T. marleyi*), presence of finlets behind dorsal and anal fins (present vs. absent), starting point of bifurcated lateral line (first dorsal spine vs. forth dorsal spine) (Nakabo, 2002; Kim *et al.*, 2012). Therefore, we suggest the new Korean name “Se-jang-gal-chi-ggo-chi-sok” for the genus *Gempylus*, and “Se-jang-gal-chi-ggo-chi” for *G. serpens*.

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한국 제주도에서 채집된 갈치꼬치과(Gempylidae) 어류 1 미기록종, *Gempylus serpens*

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요 약 : 농어목 갈치꼬치과에 속하는 *Gempylus serpens* 1개체가 2013년 4월 18일 제주도 동부지역에서 채집되었다. 본종은 아래턱이 위턱보다 돌출되어 있고 위턱에는 3개의 송곳니가 있으며, 등지느러미와 뒷지느러미 뒤에는 각각 5개 및 7개의 토막지느러미를 가지며, 측선은 첫번째 등지느러미 제1극조에서 2갈래로 갈라지는 특징을 가진다. 본 연구에서 본종의 새로운 속명 및 종명으로 “세장갈치꼬치속” 및 “세장갈치꼬치”를 제안한다.

찾아보기 낱말 : *Gempylus serpens*, 미기록종, 세장갈치꼬치, 갈치꼬치과, 한국, 제주도