

New Record of Three Percoids (Pisces : Perciformes) from Cheju Island, Korea

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Three species of the order Perciformes collected from coastal waters of Cheju Island, Korea were documented with photographs, all of which are newly known to Korea. *Nemipterus bathybius* Snyder, 1911 of the family Nemipteridae is distinguished by seven anal soft rays and the most upper ray at the caudal fin elongated. *Cirrhitichthys aureus* (Temminck et Schlegel, 1842) of the family Cirrhitidae (New Korean name : Hwangbokdom-kwa), is characterized by the five to six light black spots on the dorso-lateral sides, 12 dorsal soft rays and a dorsal fin without spots and bands. *Parapercis aurantiaca* Döerlein, 1884 of the family Pinguipedidae, has several taxonomic characters. The dorsal spines and the soft rays of the dorsal fins were connected without a notch. The five to six dark yellow bands with the same size of eye length were shown on the lateral region. A new Korean name Kinsilkkoridom is proposed for the *Nemipterus bathybius*, and *Cirrhitichthys aureus*, Hwangbukdom, and *Parapercis aurantiaca*, Hwangssangdonggari.

Introduction

Since the fish report on fish fauna by Uchida and Yabe (1939) cataloged 162 species, additional faunal surveys have classified 418 species in 140 families (Mori, 1952; Chyung, 1977; Back, 1982; Kim and Lee, 1994).

The coast of Cheju Island is located in the southmost region of Korea and is affected by various kinds of ocean currents. The Taiwan Current, the Yellow Coast Water and seasonally the Yangtze River affect the surrounding coastal waters of Cheju Island (Yang and Kim, 1991). This oceanological environment provides for the capture of more warm water fishes, the percoid fishes, than any other coastal area of

Korea.

In process of studying the fish fauna of Cheju Island, I discovered three unrecorded species of the order Perciformes. I will describe the morphological characteristics and the microhabitat of these fishes and index their similarities with related species

Materials and Methods

The specimens used in this study were collected annually during a one week periods in July from 1996 to 1998 with the assistance of fisherman from around Cheju Island. After being fixed with 10% formalin, the specimens were measured and counted following Hubbs

and Lagler (1964). The numbers of fin rays and vertebrae were counted from the soft X - radiographs. The specimens examined were deposited in the laboratory of the Department of Biology, Chonbuk National University (CNUC) and Department of Biology, Seonam University (SNUB).

Results and Discussion

Family Nemipteridae

Nemipterus bathybius Snyder, 1911

(New Korean name : Kinsilkkoridom)

**Photo. 1. *Nemipterus bathybius* Snyder, 1911.
309.3 mm SL., Cheju-shi.**

Nemipterus bathybius Snyder, 1911, p. 532;
Masuda *et al.*, 1988. p. 176; Chen et Zheng,

1987, p. 336; Russell, 1990. pp. 30~31; Nakabo *et al.*, 1993, p. 742.

Euthyopteroma bathybius Jordan et Thompson, 1912, p. 566~567; Jordan *et al.*, 1913, p. 171.

Material examined : CNUC 22314(1), 209.2 mm SL, Tongmun-market, Cheju-shi, Cheju-do. July 4, 1996.

Description : D. X - 9, A. III - 7, P. 18, Pred. S (Predorsal scales). 16, LL. 45, Gr. 5 + 10, Vert. 24. In length of the body, body depth 2.63; head length 2.95; caudal penduncle depth 8.44. In length of the head, eye diameter 4.15; snout length 3.1; length of maxilla 2.93; interorbital length 4.44 (Table 1). The body compressed. Mouth sharpened and projected at the snout region. The maxilla was relatively short, it did not extended beyond the anterior of eye. The opercular region had no spines, it was smooth. The dorsal fin originated from the base of pectoral fin and occupied most of dorsal region. The middle and edge of the dorsal fin had dark yellow bands. The spines and soft ray of the dorsal fin were connected without a

Table 1. Comparison of the morphometric and meristic characters of the *Nemipterus bathybius*

Characters	Present study	Russell (1990, 1993)	Nakabo <i>et al.</i> (1993)
No. of individuals	1		
Standard length(mm)	209.2	-	-
In standard length			
head length	2.95	2.9 - 3.6	-
body depth	2.63	2.9 - 3.6	-
In head length			
body depth	0.90	0.9 - 1.1	
snout length	3.10	-	-
eye diameter	4.15	2.7 - 3.6	-
length of maxilla	2.93	-	-
In eye diameter			
interorbital width	1.06	1.3 - 1.9	-
No. of dorsal fin rays	X, 9	-	X, 9
No. of anal fin rays	III, 7	-	III, 7
No. of gill rakers	5 + 10	13 - 16	4 + 9
No. of lateral scales	45	-	45
No. of vertebrae	24	-	-
Upper lobe of caudal fin	filament	filament	filament

notch, and the last spine was a little longer than other spines. Caudal fin bifurcated, the first soft ray of the upper lobe was relatively elongated. The pectoral fins were long and did not reach the base of the anal fin. The ventral fin also did not reach the base of the anal fin. The anal fin had a very light yellow band. The dorso-lateral sides had five to six light yellow bands, and dark yellow bands on the ventral region. The color of body surface was a light yellow.

Distribution : Korea (Cheju - do), Indian Ocean, Southern Japan and South China Sea.

Remarks : Chyung (1977) was classified *Scolopsis inermis* into the family Haemulidae, however, I think it should be included into the family Nemipteridae since it has a continuous dorsal fin and a separated caudal fin in accordance with the system of Nelson (1994). Accordingly, the family Nemipteridae was composed of 4 species of 2 genera with new record species, *Nemipterus bathybius* from Korea. The key is as follows ;

1a. 4 to 6 scales from eye to preopercle
 네둥가리 *Scolopsis inermis*

1b. 3 scales from eye to preopercle 2
 2a. Anal fin is III, 8
 설꼬리돔 *Nemipterus virgatus*
 2b. Anal fin is III, 7 3
 3a. Pectoral fin is relatively long, it reaches the
 anterior of the anus
 황줄설꼬리돔 *Nemipterus japonicus*
 3b. Pectoral fin is relatively short, it does not
 reach the anterior of the anus
 긴설꼬리돔 *Nemipterus bathybius*

Family Cirrhitidae

(New Korean name : Hwangbokdom - kwa)
Cirrhitichthys aureus (Temminck et Schlegel, 1842)
 (New Korean name : Hwangbukdom)

Photo. 2. *Cirrhitichthys aureus* (Temminck et Schlegel, 1842), 92.1 mm SL., Seokwiposhi.

Table 2. Comparison of the morphometric and meristic characters of *Cirrhitichthys aureus*

Characters	Present study	Lindberg and Krasnyukova (1969)	Nakabo et al. (1993)
No. of individuals	1		
Standard length(mm)	92.1	-	-
In standard length			
head length	3.05	-	-
body depth	2.10	-	-
In head length			
snout length	3.21	-	-
eye diameter	4.51	-	-
length of maxilla	2.67	-	-
interorbital width	4.65	-	-
No. of dorsal fin rays	X, 12	X, 12 - 13	X, 12
No. of anal fin rays	III, 6	III, 6 - 7	III, 6
No. of pectoral fin rays	I+7+6	I+6-7+6-7	I+7+VI
No. of gill rakers	13+4	4-6+1+9	-
No. of lateral scales	43	40-44	41-45
No. of vertebrae	26	-	-

Cirrhites aureus Temminck et Schlegel, 1842,
p. 15. (Nagasaki)

Cirrhitichthys aureus Jordan and Herre,
1907, p. 161; Jordan *et al.*, 1913, p. 185; Lind-
berg et Krasnyukova, 1969, pp. 433~434; Masu-
da *et al.*, 1988, p. 199; Nakabo *et al.*, 1993. p.
835.

Material examined : CNUC 22316(1), 92.1
mm SL, Seokwipo-shi, Cheju-do. July 5, 1996.

Description : D. X - 12, A. III - 6, P. 14, LL.
43. Gr. 13+4, Vert. 26. In length of the body,
body depth 2.10; head length 3.05; caudal pen-
duncle depth 7.55. In length of the head, eye
diameter 4.51; snout length 3.21; length of max-
illa 2.67; interorbital length 4.65 (Table 2). The
body compressed and mouth projected. The max-
illa was relatively short, it reaches the anterior
of eye. The palatine teeth presented. The margin
of the opercular region was arranged with twen-
ty one to twenty three sharp spines. The eyes
were located at the dorsal region of the head.
The dorsal fin originated from the base of the
pectoral fin, and was separated from the spine
region and soft ray region, and did not have
spots and bands; the each terminal of spines had
a cirrus, and the first soft ray was relatively
elongated. The caudal fin was bifurcated with
an upper lobe and a lower lobe. The dorso - lat-
eral body had five to six very light black spots.
The color of the body surface was a bright red
color.

Distribution : Korea (Cheju - do), Indian
Ocean and South Pacific Ocean.

Remarks : The hawkfishes live at rocky and
coral habitats in the Indian and Pacific Ocean
(Lindberg and Krasnyukova, 1969; Nelson, 1994).
The hawkfishes was not collected from Korea, and
did not included at the list of order Perciformes
from Korea until now. A new Korean name
"Hwangbokdom-kwa" is proposed for the family
Cirrhitidae.

Family Pinguipedidae

Parapercis aurantiaca Döderlein, 1884
(New Korean name : Hwangssangdonggari)

Photo. 3. *Parapercis aurantiaca* Döderlein, 1884.
128.3 mm SL., Seokwipo-shi.

Parapercis aurantiaca Döderlein, 1884, p.
191; Okamura *et al.*, 1985, p. 552; Yamada *et al.*,
1986. p. 298; Chen et Zheng, 1987, p. 390;
Masuda *et al.*, 1988, p. 290; Nakabo *et al.*,
1993, p. 942.

Neopercis aurantiaca Jordan *et al.*, 1913, p.
366.

Material examined : SUNB 00949(1),
128.3mm SL, Seokwipo-shi, Cheju-do, July 11,
1998.

Description : D. V - 23, A. I - 20, P. 20, V.
I - 5, LL. 62, Gr. 5+9, Vert. 31. In the percent-
age of the body, body depth 20.8%; head length
25.6%; length of pre-dorsal fin 30.9%, caudal
peduncle length 7.5%. In the percentage of the
head, eye diameter 36.3%; snout length 31.5%;
length of maxilla 40.5%; interorbital length
11.5%, the longest dorsal spine length 28.2%,
the longest anal ray length 45.0%, the longest
pectoral ray length 76.9%, the longest ventral
ray length 74.2% (Table 3). The form of the
head was fusiform; one of the anal fin from pos-
terior was compressed. The mandible and the
maxilla were the same length and its snout
was relatively sharp and projected, the posteri-
or of the maxilla reached the anterior of pupil
of the eye. The eyes were at least the same size
or a little larger than the snout. The gill raker

Table 3. Comparison of the morphometric and meristic characters of *Parapercis aurantiaca*

Characters	Present study	Okamura(1985)	Masuda <i>et al.</i> (1988)
No. of individuals	1		
Standard length(mm)	127.95	-	-
In percentage of standard length			
head length	25.6	26.9 - 29.5	-
body depth	20.8	16.8 - 20.0	-
length of pre - anus	47.8	44.2 - 48.4	-
length of pre - dorsal	30.9	31.0 - 33.1	-
In percentage of head length			
snout length	31.5	28.6 - 31.6	-
eye diameter	36.3	32.8 - 38.8	-
length of maxilla	40.5	37.6 - 40.1	-
length of longest dorsal spines	28.2	22.9 - 26.3	-
length of longest anal rays	45.0	40.1 - 41.2	-
length of longest pectoral rays	76.9	85.9 - 91.4	-
length of longest pelvic rays	74.2	71.8 - 84.9	-
No. of dorsal fin rays	V, 23	V, 23	V, 23
No. of anal fin rays	I, 19	I, 19	I, 19
No. of pectoral fin rays	20	20	18 - 19
No. of gill rakers	5+9	5 - 6+8	2 - 5+9 - 13
No. of lateral scales	64	57 - 62	61 - 65
No. of vertebrae	31	-	-

was short and rounded. The front of the maxilla and the mandible had several sharp teeth, the posterior had several rounded teeth. The vomer and the palatine were separated from each other, and each one had relatively sharp teeth. The lateral line that extended from the gill pore to the pectoral fin was curved slightly upward, while the other lateral line was straight and passed through the middle. The entire body was covered with scales except for the interorbital region and the nasal pores. The dorsal fin originated from just behind the base of the pectoral fin. The dorsal spines and soft rays were connected with each other by the ray membrane without a notch; the 5th spine was longer than the other spines. The posterior of the pectoral fin reached little beyond the anus. The ventral fin was a little shorter than pectoral fin so that its posterior part did not reach the anus. The four to five black narrow bands were shown on two thirds of caudal fin and there were no bands on the remaining parts.

The entire body color was a light yellow with five to six dark yellow bands with the same size of eye length were shown on the lateral region. the light orange narrow bands were shown around dark yellow bands.

Distribution : Korea (Cheju-do), Southern Japan, Taiwan.

Remarks : The genus *Cilias* of Dongmiri and Nundongmiri (Korean name) used by Chyung (1977), has not been confirmed by all the literature (Eschmeyer, 1990; Eschmeyer, 1998). Instead, the genus *Percis* used by Chyung (1977) is confirmed as the genus *Parapercis* (Eschmeyer, 1990; Eschmeyer, 1998). The genus *Neopercis* of Yeolssangdogari and Ssangdonggari (Korean name) used by Mori (1952) and Chyung (1977), is found to be a synonym to *Parapercis* Bleeker, 1863 (Eschmeyer, 1990; Nelson, 1994; Eschmeyer, 1998). Accordingly, I think the genus of all species of the family Pinguipedidae should be corrected as *Parapercis* Bleeker, 1863 in Korea. The family

name of Yangdongmiri - kwa (Korean name) was corrected from the family Mugiloididae into the family Pinguipedidae (Rosa and Rosa, 1987; Nelson, 1994). Accordingly, the family Pinguipedidae is composed of 5 species of 1 genus from Korea. The key is as follows ;

- 1a. Dorsal spines and soft rays are connected without a notch 2
- 1b. Dorsal spines and soft rays are connected with a notch 4
- 2a. Entire body is color when it is alive
..... 쌍둥가리 *Parapercis sexfasciatus*
- 2b. Entire body color with yellow when it is alive 3
- 3a. Seven to eight dark brown bands with the same size of eye length are shown on the lateral part
..... 열쌍둥가리 *Parapercis multifasciata*
- 3b. Five to six dark brown bands with the same size of eye length are shown on the lateral part 황쌍둥가리 *Parapercis aurantiaca*
- 4a. The most upper soft ray of caudal fin is elongated. No black spot on the base of pectoral fin 눈둥미리 *Parapercis pulchella*
- 4b. All soft rays of caudal fin are round. Black spot of less than pupil is on the base of pectoral fin 둥미리 *Parapercis snyderi*

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제주도에서 출현한 농어목 어류의 3 미기록종

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1996년부터 1998년까지 매년 7월에 1주일 동안 제주도 주변에서 출현하는 어류를 채집, 동정한 결과, 농어목 어류의 한국산 3미기록종이 출현하였다. 실꼬리돔과의 *Nemipterus bathybius* Snyder, 1911(국명신칭: 긴실꼬리돔)는 뒷지느러미 연조가 7개이며, 꼬리지느러미의 최상단 연조가 사상으로 길게 뻗은 특징으로 구분된다. Family Cirrhitidae(국명신칭: 황북돔과)의 *Cirrhitichthys aureus* (Temminck et Schlegel, 1842)(국명신칭: 황북돔)는 체측상단부에 5~6개의 연한 흑색 반점들이 산재되어있고, 등지느러미 연조가 12개인 점 및 등지느러미에 반점이나 반문이 없는 특징으로 구분된다. 또한 양동미리과의 *Parapercis aurantiaca* Döderlein, 1884(국명신칭: 황쌍동가리)는 결각없이 등지느러미의 극조부와 연조부가 연결된 점과 체측부에 눈 크기와 비슷한 짙은 황색반문이 5~6개 있는 특징에 의하여 구분된다.