

First Record of the Trans-Pacific *Sebastes*, *S. glaucus* (Scorpaeniformes: Scorpaenidae) in the Korean Waters

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ABSTRACT A single specimen (276.9 mm standard length) of the scorpaenid *Sebastes glaucus* was collected by a gill net from Dokdo, East Sea, Korea. The specimen is characterized by yellowish brown body color, deep body, convex frontal region and nape, broad occipital region, 14 spines at dorsal fin, and no scales at maxilla. This is the first record of *S. glaucus* in Korea; we therefore add the species to the Korean fish fauna. According to the NFRDI (1999), we propose the Korean name, "Cheong-hoe-bol-rak" for this species.

Key words: Scorpaenidae, *Sebastes glaucus*, new Korean record, Dokdo, East Sea

INTRODUCTION

Subfamily Sebastinae comprises seven genera and about 131 species and genus *Sebastes* Cuvier, 1829, is the largest taxonomic group with about 110 species. Almost of them are known to the ovoviviparity living at rocky shore in the North Pacific (Kai *et al.*, 2003; Nelson *et al.*, 2016). Some authors, for example, Imamura and Yabe (2002) and Nakabo and Kai (2013) suggested that subfamily Sebastinae has been elevated to family Sebastidae status. However, we followed about status of the family Scorpaenidae recently by Nelson *et al.* (2016). There are five trans-Pacific *Sebastes* spp: *S. aleutianus*, *S. alutus*, *S. borealis*, *S. ciliatus*, and *S. glaucus* (Kai *et al.*, 2003). *Sebastes glaucus* is a lower sublittoral species distributed in the northwestern Pacific, along the coast of the Bering Sea, Sea of Okhotsk, and northern East Sea (Orr *et al.*, 1998; Nakabo and Kai, 2013). This species rarely occurs in commercial catches in spite of the wide distribution. Hence, there are few studies about its biology (e.g., Panchenko, 1995).

Recently, a single specimen having a unique yellowish brown body color was collected by gill net (90 m depth) from coastal waters off Dokdo, Korea. The specimen was identified as *Sebastes glaucus* Hilgendorf, 1840, based on the number of dorsal fin spines and no scale at upper jaw. Korean name and brief description of *S. glaucus* using Pacific Ocean samples instead of Korean's them were previously reported by NFRDI (1999). This species has not yet found in Korean waters. Therefore, we describe the morphological characteristics of *S. glaucus* in order to register on the Korean fish fauna.

Counts and measurements follow those of Hubbs and Lagler (2004). Each body part was measured to the nearest 0.1 mm using digital Vernier caliper. Pored scales along the lateral line were counted by stereomicroscope. The specimen was deposited at the Fisheries Resource Management Division, National Institute of Fisheries Science (NIFS), Korea.

Sebastes glaucus Hilgendorf, 1880

(Korean name: Cheong-hoe-bol-rak)

(Fig. 1, Table 1)

Sebastes glaucus: Hilgendorf, 1880: 170 (type locality: Hokkaido, Japan); Matsubara, 1943: 180 (Hokkaido,

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Fig. 1. *Sebastes glaucus*, NIFS00001, 276.9 mm SL, Dokdo, East Sea, Korea.

Table 1. Comparison of meristic and morphometric characters of *Sebastes glaucus*

	Present study	Matsubara (1943)	Orr and Baker (1996)
Number of specimens	1	19	2
Standard length (mm)	276.9	358.0~427.0	222.0~440.0
Count			
Dorsal fin rays	XIV, 15	XIV, 14~17	XIV, 14~15
Anal fin rays	19	18~20	19~20
Pectoral fin rays	I, 5	—	—
Pelvic fin rays	III, 7	III, 7~9	III, 8
Gill rakers (upper + lower)	38 (11 + 27)	35~41 (11~13 + 24~29)	34~35 (9~10 + 25)
Pored scales in lateral line	53	48~54	50~52
In % of Standard length			
Body depth	38.1	33.0~37.6	30.5~33.5
Body width	17.9	—	—
Postorbital length	17.0	—	—
Head length	32.1	32.6~35.3	—
Predorsal length	31.1	—	27.6~28.7
Prepectoral length	32.6	—	—
Preanal length	69.0	—	—
Prepelvic length	40.4	—	—
Preanus length	63.5	—	—
Pectoral fin length	27.6	—	—
Pelvic fin length	20.9	—	—
Dorsal fin length	21.3	—	—
Dorsal fin base length	63.6	—	—
Anal fin length	22.8	—	—
Anal fin base length	15.0	—	—
In % of Head length			
Snout length	23.4	23.2~28.3	23.9~25.2
Upper jaw length	50.6	47.4~55.6	51.4~55.2
Eye diameter	22.0	20.5~25.5	20.9~24.3
Suborbital width	13.5	—	—
Interorbital width	32.5	26.1~31.1	29.9~31.3
3rd dorsal spine length	34.9	—	38.3
The longest anal spine length	33.4	—	31.3
Caudal peduncle length	64.7	52.6~61.0	64.2~77.6
Caudal peduncle depth	32.9	26.3~30.5	24.6~27.1

Japan); Chen, 1986: 6 (redescription, Japan); Orr and Baker, 1996: 94 (Atka and Aleutian Islands); Nakabo, 2002: 589 (key, Iwate Prefecture northward, Japan); Love *et al.*, 2002: 184 (the northern East Sea, Okhotsk, and western Bering Sea).

Material examined. NIFS00001, single specimen, 276.9 mm in standard length (SL), 35°15'11.78"N, 131°51'10.89"E, Dokdo, East Sea, 90 m depth, 20 June 2016, Daeheung-ho, gill net, collected by S.J. Lee.

Description. Meristic and morphometric characters are shown in Table 1. Body oblong and very compressed, tapering posteriorly; five preopercular spines fairly strong; two hard spines with opercle, but not pointed; serrated and dulled spines on the subopercle; eyes small; no spine on lower margin of eye and parietal region; small teeth on jaws and vomer; maxilla without scales; gill slit broad and extending to ventral; every spines at fin strong; posterior margin of pectoral fin rounded with upper unbranched rays 1, middle branched rays 8 and lower unbranched rays 10; all rays at dorsal, pelvic and anal fins branched; lateral line curved; posterior margin of caudal fin shallowly emarginated; whole body covered with small scales.

Color of specimen. When fresh, overall body yellowish brown; head blackish brown; sclera light orange. After fixation, body dark brown flecked yellow; three dark bands, little narrower than the diameter of the pupil, radiate posteriorly from eye.

Distribution. Dokdo, East Sea, Korea at 90 m depth (present study), Hokkaido, Iwate, Yamagata, Toyama (Nakabo and Kai, 2013), the Okhotsk Sea and Bering Sea (Orr and Baker, 1996).

Remarks. The present specimen was identified as *Sebastes glaucus* Hilgendorf, 1880 on the basis of body color, no spine below margin of orbit, 14 dorsal fin spines, and no small scales at maxilla (Nakabo and Kai, 2013). Meristic and morphometric characters of the present specimen agree well with those of previous descriptions of *S. glaucus* (Table 1).

The species is easily distinguished from others by both the number of dorsal spine and no scales at upper jaw. According to Kim *et al.* (2005), there are two species (*S. hubbsi* and *S. koreanus*) have 14 dorsal spines in Korean waters. However, most of *S. hubbsi* has 13 dorsal spines (Nakabo, 2002). *S. koreanus* has the same number of dorsal spine *S. glaucus*, but they are different from dorsal rays (12~13 in *S. koreanus* vs. 14~17 in *S. glaucus*).

There are 26 and 68 *Sebastes* spp. in the Northwest and Northeast Pacific, respectively, excluding five trans-Pacific species (Kai *et al.*, 2003). *S. glaucus* is known to

occurring at coastal deep waters and northern East Sea, however, our specimen was collected at shallow water, at a depth of approximately 90 m and the northwestern Dokdo. Therefore, we describe the first Trans-Pacific record of *S. glaucus* in the Korean waters, thus expanding its geographic distribution. We herein propose the Korean name, "Cheong-hoe-bol-rak" for this species.

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한국산 환태평양 볼락속 (Genus *Sebastes*), *Sebastes glaucus*의 최초 보고 (솜뱅이목: 양볼락과)

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요 약 : 솜뱅이목 양볼락과에 속하는 *Sebastes glaucus* 1개체 (표준체장 276.9 mm)가 독도 북서쪽에서 자망으로 채집되었다. 본 개체는 황갈색 체색, 높은 체고, 전두부와 목덜미 부분은 불룩하고 후두부는 넓다. 또한 14개의 등 지느러미 극조 및 주상악골에 비늘이 없는 것이 특징이다. 우리나라에서 처음 보고되는 환태평양 볼락속인 이 어류의 국명으로 NFRDI (1999)에 따라 “청회볼락”을 제안한다.

찾아보기 낱말 : 양볼락과, 청회볼락, 한국 미기록종, 독도, 동해