

# First Record of *Glossogobius olivaceus* (Perciformes: Gobiidae) from Korea

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**ABSTRACT** A single specimen of *Glossogobius olivaceus* was collected from Ulsan, Korea in May 2015, representing the first identification of the species in Korean waters. This species is characterized by several blackish dots on the nape, developed sensory pores and papillae on the head, 33 lateral line scales, and 27 vertebrae. The newly proposed Korean names of the genus and species are “Geom-eun-ban-jeom-mang-duk-sok” and “Geom-eun-ban-jeom-mang-duk”, respectively.

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**Key words:** First record, *Glossogobius olivaceus*, Gobiidae, Hoe-ya river, East Sea, Korea

## INTRODUCTION

The family Gobiidae (generally referred to as gobies) is the most species fish group, comprising 189 genera and 1359 species (Nelson *et al.*, 2016). In Korea, 39 genera and over 70 species have been reported to date (NIBR, 2018). Most gobiid species live in marine, but some are in freshwater or estuarine habitats (Hastings *et al.*, 2014). The genus *Glossogobius* Gill, 1859, the most species within the family, currently comprises at least 35 species worldwide (Hoese and Allen, 2009; Froese and Pauly, 2019), but none has been reported from Korea to date.

In the present study, a single specimen of the genus *Glossogobius* collected from Ulsan, on the East Sea coast of Korea, is reported. It was identified as *G. olivaceus* (Temminck and Schlegel, 1845) based on its morphology, and this is the first report of the species in Korea.

## MATERIALS AND METHODS

A single specimen of *G. olivaceus* was collected from an estuarine region of the Hoe-ya river in Ulsan in May 2015. The specimen was preserved in 10% formalin and transferred in 70% ethanol. Counts and measurements

were made according to Hubbs *et al.* (2004), and measurements were made to the nearest 0.1 mm with a digital vernier caliper. The vertebrae were counted from a radiograph (CMB-2, Softex, Japan). Sensory canal pores and papillae followed Akihito and Meguro (1975). The specimen was deposited at the National Marine Biodiversity Institute of Korea (MABIK).

### *Glossogobius* Gill, 1859

(New Korean name: Geom-eun-ban-jeom-mang-duk-sok)  
*Glossogobius* Gill, 1859: 46 (type species: *Gobius platycephalus* Richardson, 1846).

*Aloricatogobius* Munro, 1964: 179 (type species: *Glossogobius asaro* Whitley, 1959).

*Cephalogobius* Bleeker, 1874: 320 (type species: *Gobius subtilis* Cantor, 1849).

*Illana* Smith and Seale, 1906: 79 (type species: *Illana cabet* Smith and Seale, 1906).

*Stupidogobius* Aurich, 1938: 149 (type species: *Stupidogobius flavipinnis* Aurich, 1938).

**Description.** Head depressed and longitudinal papilla pattern on cheek. Lower jaw protruding. Mental frenum typically lobed. A bony process long and extending from preoperculum to symplectic. Several rows of teeth on both jaws and 27~30 vertebrae present (Gill, 1859; Hoese and Allan, 2009).

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Fig. 1. *Glossogobius olivaceus*, MABIK PI00045858, 123.8 mm SL.

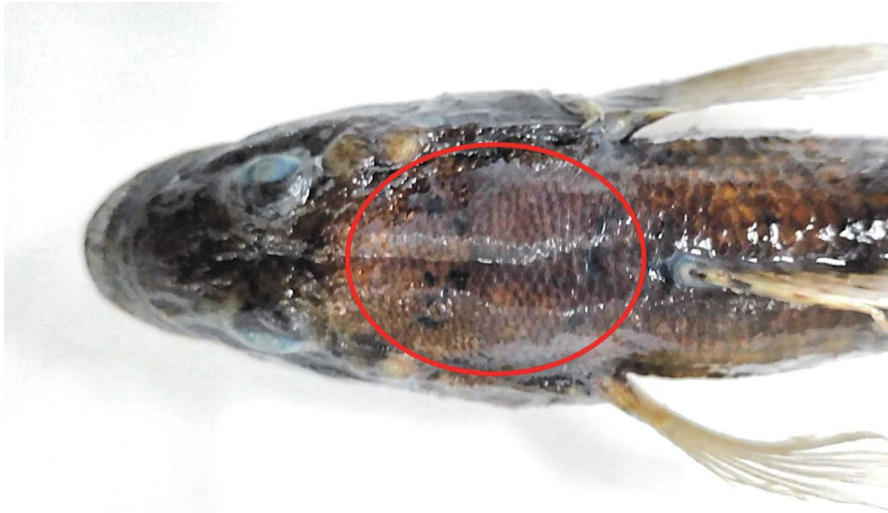


Fig. 2. Blackish dots (red circle) on the nape of *Glossogobius olivaceus*, MABIK PI00045858.

***Glossogobius olivaceus***

(Temminck and Schlegel, 1845)

(New Korean name: Geom-eun-ban-jeom-mang-duk)

(Figs. 1~3; Table 1)

*Gobius olivaceus* Temminck and Schlegel, 1845: 143  
(type locality: unknown).

*Gobius fasciatopunctatus* Richardson, 1845: 145 (type  
locality: Canton, China).

*Glossogobius olivaceus*: Pan *et al.*, 1991: 460 (China); Bo-  
gutskaya and Naseka, 2004: 221 (Russia); Shen and Wu,  
2011: 688 (Taiwan); Akihito *et al.*, 2013: 1463 (Japan).

**Material examined.** MABIK PI00045858, a single spec-  
imen, 123.7 mm in standard length (SL), estuary of Hoe-  
ya river (35°23'39.83"N, 129°20'3.9"E), Seosaeng-myeon,  
Ulju-gun, Ulsan, 27 May 2015, cast net.

**Comparative materials.** *Acanthogobius flavimanus*:

PKU 53683, PKU 53685, 2 specimens, Sacheon, Gyeong-  
sangnam-do, 14 Jan 2015.

**Description.** Counts are shown in Table 1. Proportions as  
% SL: body depth 20.6; head length (HL) 35.4; predorsal  
length 39.7; preanal length 65.3; prepectoral length 36.3;  
prepelvic length 39.4; caudal peduncle depth 11.2; caudal  
peduncle length 22.4. Proportions as % HL: snout length  
34.7; eye diameter 16.9; interorbital width 16.2.

Body oblong and tapers posteriorly. Head large, de-  
pressed dorsally and snout slightly pointed. Mouth moder-  
ate and posterior margin of maxilla beyond vertical to ante-  
rior margin of eye. Anterior tip of lower jaw protrudes be-  
yond upper jaw. Conical teeth on both jaws. Mental frenum  
slightly lobed. Eye moderate, and interorbital slightly wide  
and concave. Two pairs of nostrils present, anterior nos-

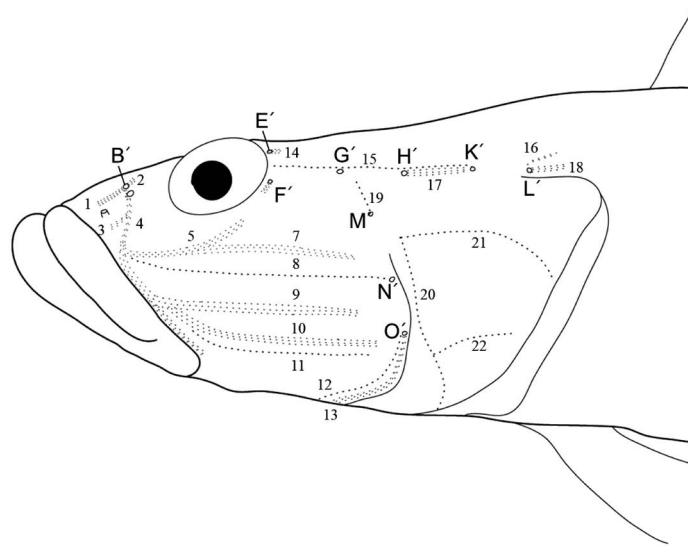


Fig. 3. Sensory canal pores and papillae of *Glossogobius olivaceus*, MABIK PI00045858.

Table 1. Meristic characters of *Glossogobius olivaceus*

|                      | <i>Glossogobius olivaceus</i> |                             |                | <i>Glossogobius fasciatopunctatus</i> |
|----------------------|-------------------------------|-----------------------------|----------------|---------------------------------------|
|                      | Present study                 | Temminck and chlegel (1845) | Akihito (1966) | Richardson (1845)                     |
| Number of specimens  | 1                             | —                           | 150            | —                                     |
| Standard length (mm) | 123.8                         | —                           | 56.0~164.0     | —                                     |
| Dorsal fin rays      | VI-I, 9                       | VI-I, 9                     | V~VI-I, 8~10   | VI-I, 9                               |
| Anal fin rays        | I, 8                          | I, 7                        | I, 7~9         | I, 8                                  |
| Pectoral fin rays    | 19                            | 18                          | 17~20          | 20                                    |
| Lateral line scales  | 33                            | 32                          | 28~36          | —                                     |
| Predorsal scales     | 24                            | —                           | 19~31          | —                                     |
| Vertebrae            | 27                            | —                           | —              | —                                     |

tril short tube and posterior nostril pore. Gill membranes broadly attached to isthmus. Posterior margin of preopercular without spine. Caudal peduncle relatively slender. Two dorsal fins completely separated. Origin of second dorsal fin located vertically in front of origin of anal fin. Body covered in ctenoid scales. Small ctenoid scales present on occipital and nape. Cheek and base of pectoral fin naked. Sensory pores and papillae on head well-developed (Fig. 3): Papillae lines mostly in two or three-rows. Line 5 reaching to line 7 below eye. Line 6 absent. Line 7, 9, 10 are three-rows and 8, 11 are single-row longitudinal lines. Line 20, 21 and 22 in single-row, line 20 branched and line 21 strongly curved downward posteriorly.

**Coloration.** When preserved ethanol, head and body darkish brown, abdominal region whitish. Lateral region of body with five blackish blotches, and predorsal region with

several small blackish dots (Fig. 2). All fins semi-transparent, except anal fin and pelvic disc, which have darkish membranes and whitish margins. Dorsal and caudal fin membranes show several small darkish dots.

**Distribution.** *G. olivaceus* is distributed across East Asia, including the Philippines (Hoese and Allen, 2009), China (Pan *et al.*, 1991), Taiwan (Shen and Wu, 2011), Japan (Akihito *et al.*, 2013), and Russia (Bogutskaya and Naseka, 2004), as well as Africa, including South Africa and Madagascar (Hoese and Allen, 2009). The present study confirms its presence in Korea, in an estuarine region in Ulsan. **Remarks.** Temminck and Schlegel (1845) first described *G. olivaceus* from Japan in the Fauna Japonica. However, Boeseman (1947) stated that the type specimen of this species was unknown, and therefore its plate in the original description may not be *G. olivaceus*. Subsequently, Akihito

(1966) suggested that the Japanese goby, called “urohaze” in Japan, is similar in morphology to not only *G. fasciatopunctatus* but also to *G. olivaceus* as described in the Fauna Japonica. Therefore, *G. olivaceus* that was described in the Fauna Japonica has been established as a valid species, because *G. fasciatopunctatus* is the junior synonym of *G. olivaceus*.

In the present study, a single specimen was assigned to the genus *Glossogobius* based on the following characters: papillae present on the cheek, 27 vertebrae, and a depressed head (Hoesse and Allen, 2009). Among the known species in the genus, it was identified as *G. olivaceus* because this specimen has several blackish dots on the nape (Fig. 2) (Akihito, 1966; Akihito *et al.*, 2013). When compared with the original description of *G. olivaceus*, Korean specimen is similar in coloration, fins and scale counts (Fig. 1; Table 1). Also, this species is similar to *Acanthogobius flavimanus* in external shape but differs in the number of first dorsal fin spines (six in *G. olivaceus* vs. eight in *A. flavimanus*) (Present study, Akihito *et al.*, 2013).

I propose the new Korean names of “Geom-eun-ban-jeom-mang-duk-sok” for the genus *Glossogobius* and “Geom-eun-ban-jeom-mang-duk” for the species *G. olivaceus*.

## ACKNOWLEDGEMENTS

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## 한국산 망둑어과(Gobiidae) 어류 1 미기록종, *Glossogobius olivaceus*

권혁준

국립해양생물자원관

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**요 약** : 2015년 5월 우리나라 울산에서 *Glossogobius olivaceus* 1개체가 처음 채집되었다. 본 종은 목덜미에 검은 점이 다수 있고 머리에 감각공과 돌기가 발달되었으며, 측선비늘은 33개, 척추골은 27개이다. 본 속 및 종의 새로운 국명으로 “검은반점망둑속” 및 “검은반점망둑”을 제안한다.

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**찾아보기 낱말** : 미기록종, *Glossogobius olivaceus*, 망둑어과, 회야강, 동해, 대한민국