

## **New Records of Marine Fishes, *Arius maculatus* and *Luciogobius saikaiensis* from Korea**

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### **ABSTRACT**

*Arius maculatus* (Thunberg) of the family Ariidae collected from Wando, Chollanam-do Province is a new family and genus to the fish fauna in Korea. *Luciogobius saikaiensis* Dōtu of the family Gobiidae collected from Haenam, Chollanam-do Province is also a new record. Their diagnostic characters, distribution, remarks and photos of each species are given.

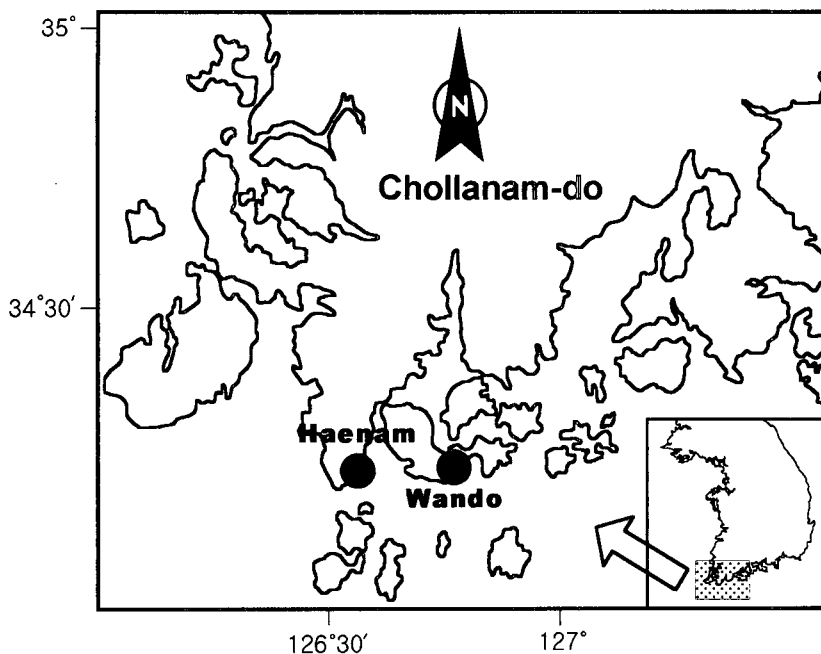
Key words: *Arius maculatus*. Ariidae. *Luciogobius saikaiensis*. Gobiidae.  
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### **INTRODUCTION**

The fish fauna of the Yellow Sea coast of Korea and the Cheju Island coast have been reported by Kim and Lee (1994, 1995) and Lee (1994), and that of the Kumo Islands was reported by Kim *et al.* (1994). In the course of the investigation of the fish fauna from the southwestern coast of Korea, two species are new to Korea.

### **MATERIALS AND METHODS**

The specimen of *Luciogobius saikaiensis* was collected from Kaldu-ri, Songji-myon, Haeman-gun, Chollanam-do on 21 April 1996 and *Arius maculatus* was collected from Mangnam-ri, Wando-up, Wando-gun, Chollanam-do on 16 June 1996 (Fig. 1). These specimens were caught by the small seine and fixed net respectively. The specimens were fixed in 10% formalin solution immediately and measured with digital caliper to the nearest 10th of a millimeter. The methods of counters and



**Fig. 1.** Map showing the collection localities in southwestern coast of Korea

measurements were followed by Hubbs and Lagler (1964). Vertebral and fin-ray counts were taken from the radiographs by soft X-ray. All the specimens were deposited in Department of Biology, Chonbuk National University, Chonju, Korea (CNUC).

## SYSTEMATIC ACCOUNT

Family Ariidae

Genus *Arius* Cuvier et Valenciennes, 1840

***Arius maculatus* (Thunberg, 1792)** 바다동자개(신칭) (**Figs. 2, 4A**)

*Silurus maculatus* Thunberg 1792, p. 314 (Type locality: Japan).

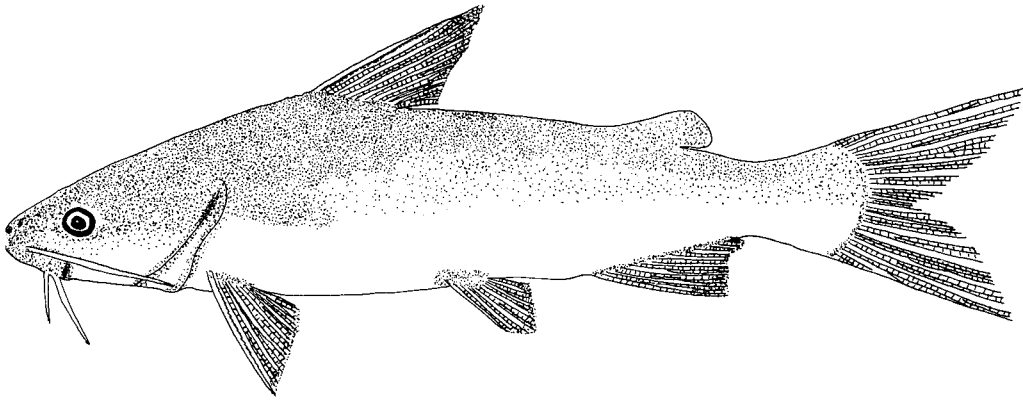
*Tachysurus maculatus*: Jordan et Fowler, 1903, 900-902; Fowler, 1941, 753-758.

*Arius sinensis*: Chu, 1984, 394-396; Ni and Wu, 1986, 171-172.

*Arius maculatus* Masuda *et al.*, 1984, 60, pl. 60. G.

**Material examined:** CNUC 22720, 208.3mm SL., Mangnam-ri, Wando-up, Wando-gun, Chollanam-do, Korea on June 16, 1996.

**Description:** D: I, 8; A: 20; P: I, 9; vert: 49; gill raker: 7 + 11. Head length 3.2; body depth 4.5; caudal peduncle depth 12.8; caudal peduncle length 7.1; predorsal length 2.5; prepectoral length 3.5; preanal length 1.4; preventral length 1.9 in standard length. Eye diameter 7.5; snout length 2.4; interorbital length 2.0; maxillary length 3.3; length of first dorsal spine 1.5 in head length. Body elongated. Head depressed. Eyes placed on middle part of head. Tail laterally compressed. Three pairs of barbels around mouth; no nostril barbel. Gill membrane fused with isthmus. Maxillary extending middle part of eye. Tooth patch a pairs of palatines. First ray of dorsal and pectoral fin



**Fig. 2.** *Arius maculatus* (Thunberg)

spinous and serrated. Posterior margin of caudal fin deeply forked. Dorsal fin situated over middle part of body. Pelvic fin small and placed middle part of abdomen. Body surface no scales.

**Color:** In live, body color is gray. In 10% formalin, dorsal part of body blue-gray, abdominal part silvery and fins gray.

**Distribution:** Korea, South Japan, Southeast China, Philippines, Thailand and India.

**Remarks:** The family Ariidae includes 14 genera and about 120 species (Nelson, 1994). They swim about feeding on benthic invertebrates and make a noise by the clicking of pectoral spines and the vibration of the swimbladder. In most, the male carries the relatively large eggs in its mouth until hatching (Moyle and Cech, 1996). The family Ariidae was treated as Siluridae or Tachysuridae (Fowler, 1941; Jordan and Fowler, 1903; Nelson, 1994), but many workers have classified them into the family Ariidae based on the characters of 3 pairs of barbels, an adipose fin and a forked caudal fin (Chu, 1984; Lindberg and Legeza, 1965; Masuda *et al.*, 1984; Nakabo, 1993; Nelson, 1994; Ni and Wu 1986).

The genus *Arius* is represented by 3 species: *A. maculatus* (= *sinensis*), *A. thalassinus* and *A. leiotecephalus* from Japan and China (Chu, 1984; Nakabo, 1993; Ni and Wu, 1986). *A. maculatus* is closely related to *A. leiotecephalus* and *A. thalassinus* distributed in the southern coast of Japan, but the former differ from the latter in having a pair of tooth patch on the palatines (Lindberg and Legeza, 1965; Nakabo, 1993). The present record of *A. maculatus* is the northmost known distribution of the genus *Arius*.

Family Gobiidae

Genus *Luciogobius* Gill, 1859

***Luciogobius saikaiensis* Dōtu, 1957** 왜미끈망둑 (신칭) (Figs. 3, 4B)

*Luciogobius saikaiensis* Dōtu, 1957, 69-76 (Type locality: Tomioka, Japan), fig. 1 pl. 2; Masuda *et al.*, 1984; 281, pl. 255. B.

**Material examined:** CNUC 22721, 28.9 mm SL., Kaldu-ri, Songji-myon, Haenam-gun, Challanam-do on April 21, 1996.

**Description:** D: I, 9; A: I, 9; P: 18; vert: 34. Head length 3.5; body depth 7.3; caudal peduncle depth 9.9; caudal peduncle length 4.7; predorsal length 1.6; prepectoral length 3.3; preanal length

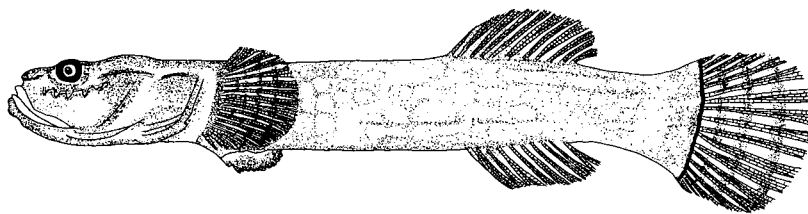


Fig. 3. *Luciogobius saikaiensis* Dötu



Fig. 4. A: *Arius maculatus* (Thunberg); 280.7 mm SL., B: *Luciogobius saikaiensis* Dötu; 28.9 mm SL.

1.5; preventral length 3.4 in standard length. Eye diameter 12.5; snout length 4.7; interorbital length 5.5; width of head 1.6 in head length. Body elongate. Head depressed. No first dorsal fin and no scale. Seven fleshy barbels below eye and a large in front of eye. Eyes placed in fore head. Maxillary extending backward to a point beneath posterior part of eye. Caudal fin rounded. Pectoral fin rounded, upper and lower rays free. Teeth very small, arranged in narrow bands on both jaws,

**Color:** In live, body color was dark-gray. In 10% formalin, body color is dark-brown, white spotted. Dark stripes on pectoral and caudal fin.

**Distribution:** Korea and Japan.

**Remarks:** Although Kim *et al.* (1986) listed 3 species of *Luciogobius*: *L. grandis*, *L. guttatus* and *L. koma* from Korean waters, 10 species of *Luciogobius* were recorded from Japan (Dötu, 1976; Nakabo, 1993). Among them, *Luciogobius saikaiensis* described originally by Dötu (1957) in Japan and known only to Japan. In the present study a single specimen was collected from the intertidal zone in Haenam, Chollanam-do Province, Korea in 1996. The present record includes the westernmost known distribution of *L. saikaiensis*. *L. saikaiensis* differ from the other species of the genus in having fleshy barbels below eye and black bar on the base of caudal fin (Fig. 3).

Key to species of the genus *Luciogobius* from Korea

- 1a. Black bar on the base of caudal fin present ..... 2

- b. Black bar on the base of caudal fin absent ..... 3
- 2a. Fleshly barbels below eye present ..... *Luciogobius saikaiensis*
- b. Fleshly barbels below eye absent ..... *L. koma*
- 3a. Free rays on the upper and lower of the pectoral fin ..... *L. grandis*
- b. Free rays on the upper of the pectoral fin ..... *L. guttatus*

## REFERENCES

- Chu, W., 1984. The Fishes of Fujian Province. Fujian Science and Technology Press. Fujian. 394-397. (In Chinese)
- Dōtu, Y., 1957. A new species of a goby with a synopsis of the species of the genus *Luciogobius* Gill and its two allied genera. J. Fac. Agr. Kyushu Univ., **11**(1): 69-76, figs 1-3, pl. 2.
- Dōtu, Y., 1976. Two new species of the genus *Luciogobius* (Family Gobiidae) from Japan. J. Ichthyol., **23**(3): 125-129.
- Fowler, H.W., 1941. Contributions to the biology of the Philippine archipelago and adjacent regions. Smithsonian Institution U.S. Nat'l. Mus., **100**(13): 753-771.
- Hubbs, C.L. and K.F. Lagler, 1964. Fishes of the Great Lakes Region. Ann. Arbor Univ. Mich. Press; 19-27.
- Jordan, D.S. and H.W. Fowler, 1903. A review of the siluroid fishes or catfishes of Japan. Proc. U.S. Nat'l. Mus., XXVI-No. **1338**: 900-911.
- Kim, I.S. and W.O. Lee. 1994. Fish fauna from Cheju Island, from Korea. Study Group of Korean Fish Fauna, Records of Korean Fish Fauna. No. 1. 51 pp.
- Kim, I.S. and W.O. Lee. 1995. Updated fish list and their distribution along the Yellow sea coast of south Korea. Study Group of Korean Fish Fauna, Records of Korean Fish Fauna No. 2. 52 pp.
- Kim, I.S., W.O. Lee and C.H. Youn, 1994. Fish fauna of the Kumdo Islands, Chollanam-do, Korea. Report of KACN. **32**: 193-209.
- Kim, I.S., Y.U. Kim and Y.J. Lee, 1986. Synopsis of the family Gobiidae (Pisces, Perciformes) from Korea. Bull. Korean Fish. Soc., **19**(4): 387-408. (In Korean)
- Lee, C.L., 1994. A review on the fish fauna of the Yellow Sea. Korean J. Ichthyol. **6**: 172-192. (In Korean)
- Lindberg, G.U. and M.L. Legeza, 1965. Fishes of the Sea of Japan and the Adjacent areas of the Sea of Okhotsk and the Yellow Sea. Part 2. Teleostom (Order Acipenseriformes-Order Polynemiformes). Translated from Russian. Israel Program for Scientific Translations, Jerusalem 1969, 150-153.
- Masuda, H., K. Amaoka, C. Araga, T. Uyeno and T. Yoshino, 1988. The fishes of the Japanese Archipelago (2nd ed). Tokai Univ. Press. Tokyo. Text 456 pp. plate 378 pp.
- Moyle, P.B. and Cech, J.J., Jr., 1996. Fishes: An introduction to ichthyology. 3rd ed., Prentice Hall. New York. p. 263.
- Nakabo, T., 1993. Fishes of Japan with pictorial keys to the species. Tokai Univ. Press. Tokyo. 1162 pp.
- Nelson, J.S., 1994. Fishes of the World. 3rd ed., John Wiley and Sons, New York. p. 162.
- Ni, Y. and H.L. Wu., 1986. The Freshwater and estuaries fishes of Hainan Island. Guangdong Science and Technology Press. Guangzhou, China. 171-172. (In Chinese)
- Thunberg, C.P., 1792. Tvänne Japanske fiskar beskrifne. Kongl. Vet. Acad. Nya Handl. vol. 13, 29-32.

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한국산 어류 2 미기록종, *Arius maculatus*와 *Luciogobius saikaiensis*

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#### 요 약

한국 남해 서부 연안에서 채집된 *Arius maculatus*와 *Luciogobius saikaiensis*가 우리 나라에서 출현함을 처음으로 보고하고 이들 주요 외부 형질의 재기재와 분포에 대하여 기록하였다. *A. maculatus*의 국명은 「바다동자개」로, *L. saikaiensis*은 「왜미끈망둑」으로 명명하였다.