

First Record of the Oblique-banded Grouper, *Epinephelus radiatus* (Perciformes: Serranidae) from Korea

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ABSTRACT A single serranid specimen of *Epinephelus radiatus* was collected by a hook for the commercial longline fisheries occurred near Marado, Jeju Island, Korea. The present specimen was characterized by five irregular dark brown bands passing downward and forward from upper edge of body, scales in longitudinal row 107, and pored lateral line scales 55. This species is easily distinguishable from the morphologically similar Korean serranid species of *E. poecilnotus* based on band patterns on body. That is, the former has five irregular oblique dark-edged brown bands, and the latter has several long horizontal bands on lateral body. We propose a new Korean name, "Ma-ra-ba-ri," for *Epinephelus radiatus*.

Key words : First record, *Epinephelus radiatus*, Serranidae, Jeju Island

INTRODUCTION

The family Serranidae, comprising three subfamilies of about 64 genera with about 475 species, are widely distributed tropical and temperate seas of the world (Nelson, 2006). Among them, 12 genera with 29 species of serranid fishes were known in Korea (Kim *et al.*, 2005; Kim *et al.*, 2009; Kim and Song, 2010; Myoung *et al.*, 2013). Among 85 species of the genus *Epinephelus* distributed in the world, 14 species of *Epinephelus* have been reported in Korea so far (Kim *et al.*, 2005; Kim and Song, 2010; Eschmeyer, 2011). These *Epinephelus* species are of considerable economic value, and thus become a target species of coastal longline fisheries in Korea.

In this study, one specimen of *Epinephelus radiatus* was collected by a hook for the commercial longline fisheries in Marado, locating about 11 km away from the south-western tip of Jeju Island, Korea. The morphological characteristics of *E. radiatus* were described to be added to the list of the Korean fish fauna. Counts and measurements followed the method of Nakabo (2002). The examined specimen was deposited at the Fish Genetics and Breeding Laboratory, Jeju National University (JNU), Korea.

Epinephelus radiatus (Day, 1867)

(New Korean name: Ma-ra-ba-ri)

(Fig. 1; Table 1)

Serranus radiatus Day, 1867: 699 (type locality: near Madras, India).

Epinephelus radiatus: Heemstra and Randall, 1986: 530 (Natal, Japan); Allen and Swainston 1988: 56 (North Western Australia); Lee, 1990: 52 (East China Sea); Randall and Heemstra, 1991: 243 (Red sea, East Africa, Gulf of Oman, India, Western Australia, Japan); Heemstra and Randall, 1993: 222 (Hong Kong, Japan, Sri Lanka); Randall in Randall and Lim, 2000: 610 (South China Sea); Senou in Nakabo, 2002: 716 (Japan).

Material examined. JNU-315, one specimen, 371 mm in standard length (SL), off Marado, collected by longline, Gapa-ri, Daejeong-eub, Jeju-si, Jeju-do, Korea. 15 April 2011.

Description. Dorsal fin rays XI, 14; anal fin rays III, 8; pectoral fin rays 16; ventral fin ray I, 5; lateral-line scales 55; scales in longitudinal row 107; gill rakers 8+15 (Table 1).

Measurements are shown as a percentage against standard length: Body depth 35.1; body width 18.7; head length 40.7; upper jaw length 19.0; snout length 10.7; eye diameter 5.6; interorbital width 7.9; predorsal length 33.1; prepectoral length 38.7; preanal length 71.7; length of longest dorsal fin ray 13.6; length of longest pectoral

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Fig. 1. *Epinephelus radiatus*, JNU-315, 371 mm SL, Marado, Jeju Island, Korea.

Table 1. Comparison of morphological characters of *Epinephelus radiatus*

Morphological characters	Present study	Day (1867)	Lee (1990)	Randall and Heemstra (1991)
Standard length (mm)	371 (n=1)	102* (n=1, holotype)	191 (n=1)	109-416 (n=9)
Counts				
Dorsal fin rays	XI, 14	XI, 15	XI, 15	XI, 13-15
Anal fin rays	III, 8	III, 8	II, 8	III, 8
Pectoral fin rays	17	19	18	17-18
Pored Lateral line scales	55	–	–	52-66
Scales in longitudinal row	107	120	–	102-120
Gill rakers	9+17	–	8+15	8-9+16-18

* indicates total length instead of standard length.

fin ray 21.5; length of longest anal fin ray 15.9; caudal peduncle depth 11.3; caudal peduncle length 15.5.

Both body and head are compressed; maxilla reaching to hind margin orbit; mid-lateral part of lower jaw with two rows of palatine teeth; posterior margin of preopercle serrated and five enlarged serrae at coner; three spines on opercle and one spine hided membrane; dorsal spines easily distinguished from rays; third dorsal spine longest; second and third anal spines subequal; pelvic fins not reaching anus; caudal fin convex to moderately rounded.

Color when fresh. Grayish brown with five irregular oblique dark-edged brown bands; first band curvilinearly extending from upper half of orbit to nape; second band branching from first band just behind eye, crossing anterior dorsal margin of operculum, broadening on back and extending fourth dorsal spine; third band began basally to second band at opercular flap, expanding into posterior spinous of dorsal fin; fourth band runs from rear end of dorsal fin, branching at midside, with one branch going towards origin of anal fin, the other to rear end of base

of anal fin, fifth band on caudal peduncle, also branching ventrally.

Color after preservation. Grayish brown with five irregular oblique dark-edged brown bands paler than alive; expressly, margin of body paled.

Distribution. Widely known from Indo-West Pacific: Red Sea, East Africa, Gulf of Oman, India, South China Sea, East China Sea, Japan (Heemstra and Randall, 1986; Lee, 1990; Randall and Heemstra, 1991; Heemstra and Randall, 1993; Randall in Randall and Lim, 2000; Senou in Nakabo, 2002), North Western Australia (Allen and Swainston, 1988), and Korea (Jeju Island, present study)

Remarks. The present specimen was characterized and easily distinguishable from similar species by having five irregular oblique dark-edged brown bands on body. The morphological characteristics of the specimen matched the species description given by previous studies (Randall and Heemstra, 1991; Senou in Nakabo, 2002), and all counts of the present specimen coincide with those of Randall and Heemstra (1991), but were partly different

from those of Day (1867) and Lee (1990) (see Table 1) probably due to intra-specific variation of meristic characters and their examination with only one specimen. *E. radiatus* is morphologically similar to *E. poecilonotus*, *E. morrhua* and *E. tuamotuensis*, and thus these four species are called as the members of “*E. morrhua* species-complex” which are often misidentified because they do not have obvious meristic and morphological characters that will separate them (Heemstra and Randall, 1993). In the early days, Katayama (1960) suggested to classify them by using subspecies such as *E. morrhua radiatus*, *E. morrhua morrhua*, and *E. morrhua poecilonotus*. Later, Chen and Yu (1986) combined those three species into a single species of *E. morrhua*. However, other researchers, such as Lee (1990) and Heemstra and Randall (1993), considered *E. morrhua* species-complex as four separate species that can be distinguishable by using band patterns on the body. That is, *E. radiatus* differs from *E. poecilonotus* and *E. morrhua* by the lack of horizontal band on body side (Lee, 1990), and is also distinguishable from *E. tuamotuensis* by having neither dark bands on postorbital head or coarse reticulum on the body, but having diagonal bands passing to ventral part of body (Heemstra and Randall, 1993). Among four species of *E. morrhua* species-complex, *E. poecilonotus* and *E. radiatus* have been known to inhabit the southern coastal waters of Korean peninsula up to the present.

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한국산 바리과(family Serranidae) 어류 1 미기록종, *Epinephelus radiatus*

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요 약 : 바리과(family Serranidae), 능성어아과(subfamily Epinephelinae)에 속하는 *Epinephelus radiatus* 1개체가 제주도 서귀포시 마라도 주변 해역에서 채집되었다. 본 종은 체측을 가로지르는 5개의 불규칙한 암갈색의 대각선 줄무늬와 측선비늘수 107개, 측선비늘공수 55개의 형태적 특징을 갖고 있다. 형태적으로 유사한 바리과 어류인 닳줄바리(*E. poecilonotus*)는 체측에 긴 수평 줄무늬를 가지는 반면, *E. radiatus*는 체측의 앞에서 뒤쪽으로 대각선 모양의 불규칙한 줄무늬를 가지고 있어서 쉽게 구분할 수 있다. 이 종의 새로운 국명은 우리나라 최남단 섬인 마라도 인근 해역에서 처음으로 채집되었기 때문에 “마라바리”로 명명하였다.

찾아보기 낱말 : 바리과, 마라바리, 미기록종, 제주도