

# First Record of the Atka Mackerel, *Pleurogrammus monoptyerygius* (Hexagrammidae: Scorpaeniformes) from Korea

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*Pleurogrammus monoptyerygius* was first collected from Daejin-ri, Goseong-gun, Gangwon-do, Korea on April 1999. This species is distinguished from its related species by having four to five broad blackish bands on the side of its body and different patterns of lateral lines. We gave *P. monoptyerygius* the new Korean name, "Dan-Gi-Im-Yon-Soo-Eo" and described the species in detail based on the study of specimens.

**Key words :** *Pleurogrammus monoptyerygius*, lateral line, Hexagrammidae

## Introduction

The genus *Pleurogrammus* which inbelongs to the family Hexagrammidae, is distributed in the Sea of Okhotsk and the Bering Sea of the Northern Pacific Ocean, as well as in the waters of Korea and Japan. It has one or two species: *P. azonus* and *P. monoptyerygius* (Amaoka, 1984; Nelson, 1994; Shinohara, 1994).

The fish of this genus that are commercially important food species, are identified by the five pairs of irregular lateral lines on the lateral part of their bodies, the long base of their dorsal fins (without notches between the spines and soft rays of the dorsal fin), and their deeply forked caudal fins (Shinohara, 1994).

Only the species *Pleurogrammus azonus* among the genus *Pleurogrammus* is recorded as living in Korean waters (Jordan and Metz, 1913; Mori, 1952; Chyung, 1977; Kim and Kang, 1993).

In the present study, four specimens of *P. monoptyerygius* that were collected from Daejin-ri, Goseong-gun, Gangwon-do are described in detail. The key characteristics used to classify the species of the genus *Pleurogrammus* are also

discussed.

Counts and measurements followed Hubbs and Lagler (1964), and materials examined are deposited in the Department of Biology, Seonam University, Namwon, Korea (SNUB).

## Systematic Account

**Family Hexagrammidae** 쥐노래미과  
**Genus *Pleurogrammus* Gill 1861** 임연수어속  
***Pleurogrammus monoptyerygius***  
**(Pallas, 1810)** 단기임연수어  
(New Korean name: Dan-Gi-Im-Yon-Soo-Eo)  
(Fig. 1)

**Fig. 1.** *Pleurogrammus monoptyerygius* from Korea. SN-UB 1390, 325.0 mm in SL, Daejin-ri, Goseong-gun, Gangwon-do.

*Labrax monoptyerygius* Pallas, 1810. 391. (Aleutian Is., Alaska, U.S.A.)

*Pleurogrammus monoptyerygius* Jordan *et al.*, 1913. 253; Schmidt, 1950. 121; Eschmeyer and Herald, 1983. 157; Amaoka, 1984. 321; Shinohara, 1994. 79.

**Materials examined** : SNUB 1388 ~ 1391, four specimens, 315.8 ~ 355.9 mm in SL, April 1999, Daejin-ri, Goseong-gun, Gangwon-do.

**Description** : Dorsal fin rays, XXI ~ XXIII, 23 ~ 27; anal fin rays, 24 ~ 25; pectoral fin rays, 23 ~ 25; pelvic fin rays, I, 4 ~ 5; gill rakers, 4 ~ 7 + 14 ~ 17; vertebrae, 57 ~ 59. In the percentage of the standard length; body depth 22.5%, head length 25.3%, length from the tip of the snout to the pre-1st lateral line 15.9%, length from the tip of the snout to the pre-3rd lateral line 48.0%, predorsal length 23.3%, prepectoral length 27.0%, prepelvic length 32.2%, preanal length 60.8%, and preanus length 55.5%. In the percentage of head length, snout length 30.1%, eye diameter

18.7%, interorbital width 30.1%, and maxillary length 36.2% (Table 1). The body is moderately elongated and somewhat compressed. The lower jaw projected further than the upper jaw. One pair of cirri in the postorbital region is very small. Teeth on both jaws and the vomer small and sharpened. The posterior tip of the upper jaw extends to below the middle of the pupil. The base of the dorsal fin was without notches between the spines and soft rays, it was so long that it extends along the upper back from the upper part of the pectoral fin to the posterior tip of the anal fin. The gill membrane fused, and free at the isthmus. The entire body except for a narrow region of the above of maxilla was covered with ctenoid scales. The caudal fin was deeply forked. There were five pairs of irregular lateral lines on the sides of the body (Fig. 2). The 1st lateral lines extend from the front of the dorsal fin to caudal part, connected with each other at the front of dorsal fin (Fig. 3); the 2nd lateral lines extend from the upper-posterior of the gill opening to

**Table 1.** Morphometric and meristic characters of the genus *Pleurogrammus*

Characters	<i>P. monoptyerygius</i>		<i>P. azonus</i>	
	Present study	HUMZ <sup>3)</sup>	SNUB <sup>4)</sup>	HUMZ
Number of specimens	4	5	5	4
Standard length (mm)	315.8 ~ 355.9	235.0 ~ 278.0	221.0 ~ 281.7	215.1 ~ 301.1
In percentage of standard length				
body depth <sup>1)</sup>	22.5 ± 1.5	24.0 ± 1.0	21.2 ± 1.5	22.3 ± 1.5
head length <sup>2)</sup>	25.3 ± 0.9	26.0 ± 0.8	24.6 ± 0.9	25.3 ± 0.9
TM1LL	15.9 ± 1.5	17.3 ± 0.9	13.6 ± 0.9	14.7 ± 2.0
TM3LL	48.0 ± 3.5	47.7 ± 2.0	38.7 ± 2.9	35.7 ± 2.3
length of predorsal fin	23.3 ± 1.2	24.2 ± 2.1	24.1 ± 1.2	24.1 ± 1.4
length of prepectoral fin	27.0 ± 1.8	28.0 ± 0.9	26.4 ± 0.8	27.5 ± 0.8
length of prepelvic fin	32.2 ± 1.8	34.2 ± 1.2	31.4 ± 0.9	32.6 ± 1.6
length of preanal fin	60.8 ± 0.9	59.0 ± 2.0	56.0 ± 1.7	55.5 ± 1.2
length of preanus	55.5 ± 1.6	55.7 ± 0.8	52.6 ± 1.3	53.3 ± 1.1
caudal penduncle length	12.2 ± 0.4	12.2 ± 0.2	11.4 ± 0.7	11.1 ± 0.9
caudal penduncle depth	6.1 ± 0.1	6.0 ± 0.1	5.4 ± 0.3	5.8 ± 0.4
In percentage of head length				
snout length	30.1 ± 1.1	31.8 ± 0.5	33.5 ± 2.4	33.1 ± 1.7
eye diameter	18.7 ± 2.7	18.8 ± 0.5	18.8 ± 0.7	19.6 ± 1.8
interorbital width	30.1 ± 1.1	31.1 ± 1.4	32.0 ± 1.7	32.0 ± 0.8
length of maxilla	36.2 ± 1.0	34.9 ± 2.0	32.7 ± 2.5	35.8 ± 1.1
Dorsal fin rays	XXI ~ XXIII, 23 ~ 27	XXI ~ XXII, 25 ~ 27	XXI ~ XXII, 26 ~ 27	XXI ~ XXIII, 24 ~ 29
Anal fin rays	24 ~ 25	24 ~ 28	24 ~ 27	24 ~ 28
Pectoral fin rays	23 ~ 25	23 ~ 25	23 ~ 26	22 ~ 24
Pelvic fin rays	I, 4 ~ 5	I, 4 ~ 5	I, 4 ~ 5	I, 4 ~ 5
Gill rakers	4 ~ 7 + 14 ~ 17	—	5 + 17 ~ 20	—
Vertebrae	57 ~ 59	58 ~ 61	59 ~ 62	58 ~ 60

<sup>1)</sup> TM1LL : length from tip of mouth to 1st lateral line, <sup>2)</sup> TM3LL : length from tip of mouth to 3rd lateral line, <sup>3)</sup> HUMZ: Laboratory of Marine Biodiversity, Graduate School of Fisheries Sciences, Hokkaido University, <sup>4)</sup> SNUB : Department of Biology, Seonam University

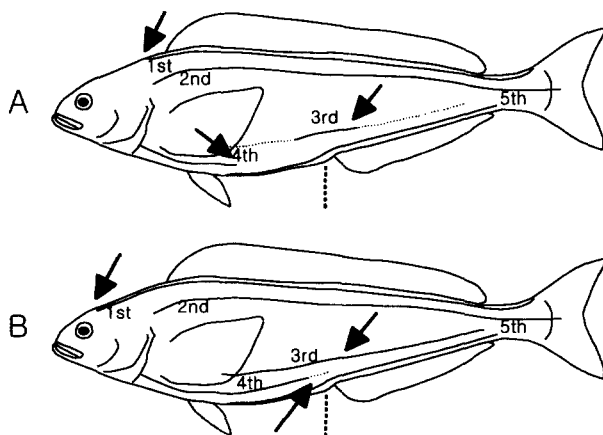


Fig. 2. Patterns of five lateral lines of *Pleurogrammus monopterygius* (A) and *P. azonus* (B).

the middle of the caudal fin; the length of the 3rd lateral line varied, extend from the posterior of the pectoral fin or the front of the anus to the 5th or 20th soft ray of anal fin; the 4th lateral line extend from the lower-posterior of the gill to the posterior of the ventral fin; the 5th lateral line originated at the isthmus and separated into two branches at the margin of the 4th or 5th ventral soft ray, extending to caudal parts (Fig. 2).

**Color in life** : The color of the dorso-lateral body was blackish brown, while the ventral and ventro-lateral regions of the body were light yellow. There were four to five broad blackish bands on the lateral body. The dorsal spine part, the posterior of the caudal fin and the middle upper of pectoral fin were light yellow, all fins except the above stated fins were brown and black.

**Distribution** : Korea (Goseong), Japan, the Sea of Okhotsk, the Bering Sea (Amaoka, 1984).

**Remarks** : *P. monopterygius* differed from *P. azonus* in the following several characteristics: the maxillary length and the length from the tip of the snout to the pre-1st lateral line, and the length from the tip of the snout to the pre-3rd lateral line of the former species were longer than those of the latter species (Table 1). As well, *P. monopterygius* was well distinguished from *P. azonus* because of having four to five broad blackish bands on its lateral body, no spots of the same size as the eye in dorsal fin (Fig. 4), and different patterns of lateral lines (Figs. 2, 3).

Although Nakabo (1993) stated that the pattern of the 3rd lateral line becomes the key character for classification of the genus *Pleurogram-*

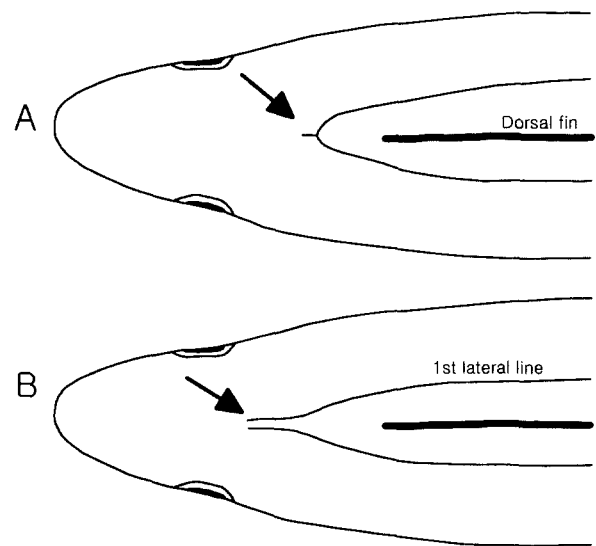


Fig. 3. First lateral lines of *Pleurogrammus monopterygius* (A) and *P. azonus* (B).

Fig. 4. A. *Pleurogrammus monopterygius*. HUMZ 55435, 278.0 mm SL; B. *P. azonus*. SNUB 1380, 281.7 mm, Jumunjin-eup, Gangneung-si, Gangwon-do; C. *P. azonus*. HUMZ 40923, 301.1 mm.

*mus*, we found that it is an unsuitable character for classifying species in this genus, because *P. monopterygius* has various types of 3rd lateral

lines in its length.

**Comparative materials.** *Pleurogrammus monoptygius*: HUMZ 55435, 278.0 mm SL, Oct. 1976, Komandorskie; HUMZ 67094, 248.5 mm SL, June 1977, Eastern North Pacific; HUMZ 131112, 131156, 131182, 3 specimens, 235.0~254.9 mm SL, June 1994, Okhotsk Sea.

*Pleurogrammus azonus*: SNUB 1377~1387, 11 specimens, 221.1~281.7 mm in SL, Apr. 1999, Jumunjin-eup, Gangneung-si, Gangwon-do, Korea; HUMZ 40923, 301.1 mm SL, Sep. 1969, Hokkaido, Japan; HUMZ 45200, 245.2 mm SL, Aug. 1975, Hokkaido; HUMZ 52816, 262.6 mm SL, Jan, 1976, Niigata, Japan; HUMZ 131109, 215.1 mm SL, June 1994, Okhotsk Sea.

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### 한국산 임연수어속(쥐노래미과) 어류의 1미기록종, *Pleurogrammus monoptygius*

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1999년 4월, 강원도 고성군 대진리에서 임연수어속 *Pleurogrammus*의 한국산 미기록종인 *P. monoptygius*의 4개체가 채집되었다. 본 종은 체측에 4~5개의 폭넓은 흑색의 횡반문이 있는 점과 측선의 배열구조에서 유사종인 임연수어 *P. azonus*와 쉽게 구분된다. 본 종의 국명은 “단기 임연수어”로 신칭하였으며, 계수·계측형질과 사진을 제시하였다.