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First Record of *Bryozoichthys lysimus* from Japan and Second Record of *B. majorius* from Aleutian Islands and Gulf of Alaska

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Abstract

The prickleback genus *Bryozoichthys* with complex cirri on head and teeth on vomer and palatine consists of only two species known from the northern waters. This paper describes some recently caught specimens; three specimens of *B. lysimus* from off Abashiri and near Rebun Island, Hokkaido, and four specimens of *B. majorius* from the Aleutian Islands and Gulf of Alaska. The former specimens are the first record from Japan and the latter specimens are the second record since the species was originally described from the water of Alaska[1].

Introduction

The genus *Bryozoichthys* belongs to the subfamily Chirolophinae which is characterized by the cirri on head region in the family Stichaeidae[2]. It consists of two species, *B. lysimus* (Jordan et Snyder, 1903) known from the Bering and Okhotsk Seas, Tarter Strait and Aniwa Bay, and *B. majorius* McPhail 1970 from the Forrester Island and southeast Alaska. The authors recently obtained three specimens of the former from off Abashiri, Okhotsk Sea and near Rebun Island, Japan Sea, and four specimens of the latter from the Aleutian Islands and the Gulf of Alasaka. The present specimens of *B. lysimus* are the first record of this species from Japan, while the present specimens of *B. majorius* are the second record of this species. In the present paper they are briefly described, compared and since it is possible that the two species are caught together, a key to separate them is given.

Fin rays and vertebrae were counted from soft X-ray negative films and the specimens. The last two dorsal spines supported by a single element were counted as one.

All specimens used in this study are deposited in the Laboratory of Marine Zoology, Hokkaido University (HUMZ).

Description

1. *Bryozoicthys lysimus* (Jordan et Snyder) Fig. 1, A

Japanese name: Fusakake-ginpo

Three specimens: HUMZ 53184 (193.9 mm SL, female), HUMZ 53221 (184.4 mm SL, female), 45°28′N, 140°28′E, near Rebun Island, Japan Sea, 260～335 meter

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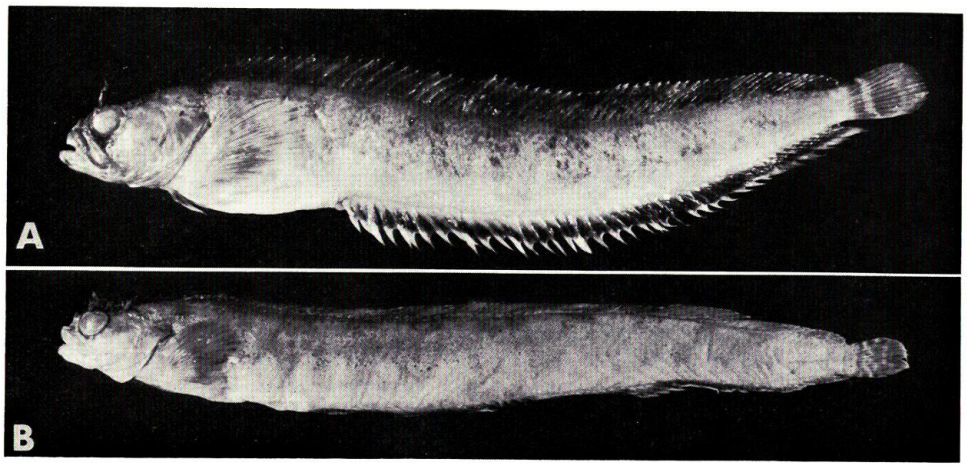

Fig. 1. *Bryozoichthys lysimus* (A) from off Abashiri, HUMZ 55524 (201.4 mm SL, female) and *B. majorius* (B) from the Aleutian Islands, HUMZ 44914 (265.0 mm SL, male).

deep, May 27, 1976; HUMZ 55524 (201.4 mm SL, female), 44°52′N, 144°25′E, off Abashiri, Okhotsk Sea, 160～180 meter deep, June 18, 1976.

Counts and proportional measurements are shown in Table 1.

Body well compressed and deep. Snout short and blunt, its length slightly shorter than eye diameter. Nasal tube very short, about 1/4 of eye. Posterior end of upper jaw extending below middle of eye. Lower jaw slightly projecting. Interorbital width about equal to eye diameter. Teeth on jaws small and conical in narrow bands. Vomer and palatine toothed. Gill membrane broadly united, entirely free from isthmus.

Body covered with minute cycloid scales, head and vertical fins completely naked. Lateral line double; upper one short and high in position, running from above upper corner of gill opening to a little anterior above anus; mediolateral one running along mid-lateral of body and ending near caudal peduncle. Head region provided with many cirri (Fig. 2, A); a long, slender one on middle of snout; two pairs of branched ones on interorbital region, anterior pair largest of all and united each other at base, and posterior one a little shorter than anterior one and widely separated each other; occiput and nape with very slender, more or less long many cirri; other short cirri on upper opercle, near upper lateral line, mandible and first 3 dorsal spines.

Dorsal fin continuing to caudal fin as a low fin membrane, but anal fin more or less deeply incised and discontinuous from caudal fin.

Color of fresh and formalin specimen. Body brownish with 11 obscure saddle-like bands. Belly and under side of body paler. Head somewhat darker than side of body. Dorsal fin mottled with dark brown. Anal fin dark at proximal half except for basal margin. Pectoral fin on its posterior half orange in fresh specimen, yellowish or light and translucent in formalin specimen. Caudal fin with 2 distinct, transverse dark bands (Fig. 2, C). Pelvic fin partly blackish. All cirri completely black.

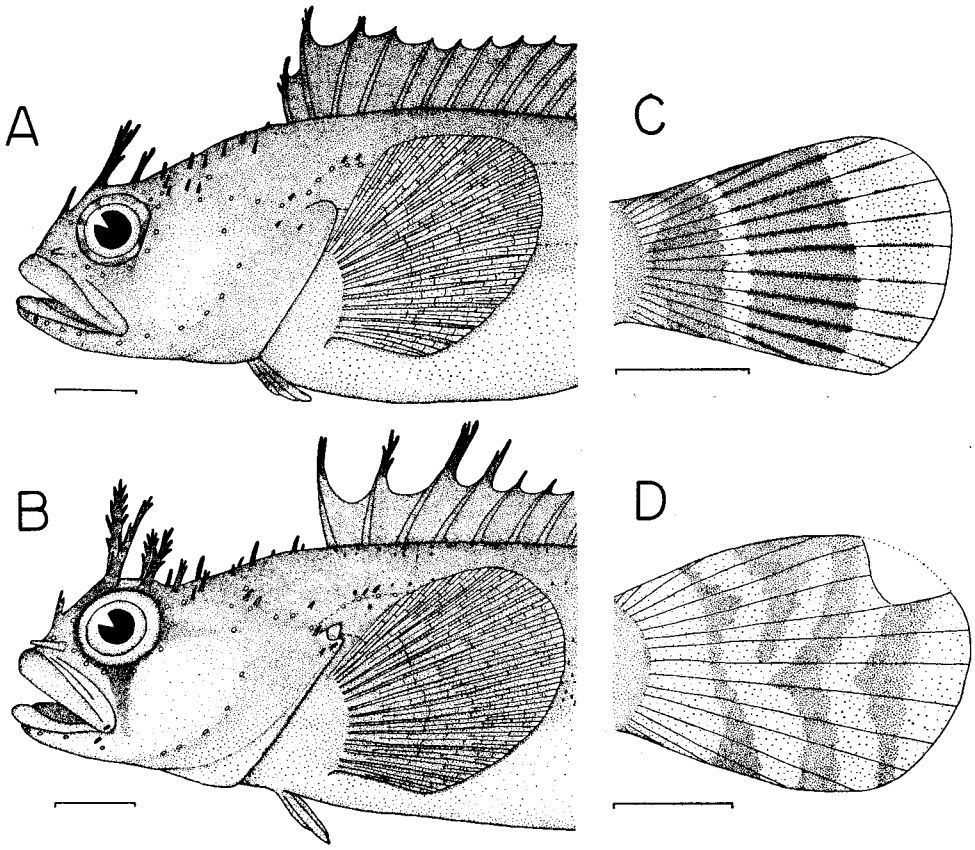

Fig. 2. Illustrations showing the anterior portions of body and bands on caudal fin in *B. lysimus* (A, C) and *B. majorius* (B, D). A, C; HUMZ 55524 (201.4 mm SL, female), B; HUMZ 44914 (265.0 mm SL, female), D; HUMZ 62549 (245.5 mm SL, female). Scales indicate 10 mm.

2. *Bryozoichthys majorius* McPhail Fig. 1, B

Four specimens: HUMZ 44904 (187.5 mm SL, sex unknown), 51°47′N, 175° 11′E, south of Adak Island, 305~310 meter deep, July 16, 1975; HUMZ 44919 (265.0 mm SL, male), 52°20′N, 179°39′E, Petrel Bank, 266~300 meter deep, June 18, 1975; HUMZ 62549 (245.5 mm SL, female), HUMZ 62550 (189.6 mm SL, sex unknown), 55°58′N, 135°18′W, Gulf of Alaska, 308~310 meter deep, July 18, 1969.

Counts and proportional measurements are shown in Table 1.

Body compressed and rather elongate. Snout short, about equal to eye diameter. Nasal tube long and projecting forward, its length about half of eye. Posterior end of upper jaw extending below middle of eye. Jaws about even or lower one slightly projecting. Interorbital width very narrow, much less than eye

Table 1. *The comparison of the various characters between Bryozoichthys lysimus and B. majorius.*

Characters	*B. lysimus*	*B. majorius*
Total length (mm)	205.2~224.7	201.6~286.4
Standard length (mm)	184.4~201.4	187.5~265.0
In SL:		
Head	4.8~5.3	6.0~7.0
Depth of body	5.4~6.0	7.8~8.9
Pectoral fin	7.0~7.5	8.0~9.2
In HL:		
Snout	5.3~5.9	4.9~6.2
Upper jaw	2.7	2.5~2.6
Eye	4.3~5.5	4.9~5.1
Orbit	3.5~4.0	3.6~4.1
Pelvic fin	3.0~3.7	2.8~3.5
Depth of caudal peduncle	4.5~4.6	3.6~4.2
Counts:		
Dorsal	LXIII~LXV	LXVI~LXIX
Anal	I, 49	I, 52~59
Pectoral	15	14~15
Pelvic	I, 3	I, 3
Vertebrae	16+53~54=69~70	15~17+56~59=73~75
Gill rakers	4~5+9~11=13~16	5~6+9~10=14~16

diameter. Teeth on jaws small and conical in narrow bands. Vomer and palatine toothed. Gill membrane united, entirely free from isthmus.

Body covered with small cycloid scales, but cheek completely naked. Lateral line double; upper one short and high in position, starting from above upper corner of gill opening and not reaching to above anus; mediolateral one traceable from upper corner of gill opening along mid-lateral of body to caudal peduncle. Many cirri on head region (Fig. 2, B); a short slender one on middle of snout; two pairs of antler-like ones on interorbital region, anterior pair largest of all and united each other at proximal half, posterior one shorter than anterior one and well separated each other; other small cirri on occiput, nape, mouth corner, upper flap of gill opening and near upper lateral line.

Dorsal fin continuing to caudal fin as a low fin membrane, but anal fin discontinuous from caudal fin. Pelvic fin greater than eye diameter.

Color of fresh and formalin specimens. Body light brown with 11 saddle-like bands, sometimes scattered with many small black spots. Pectoral fin dark with light margin. Pelvic fin greyish or blackish except for its margin. Dorsal fin darker than side of body. Anal fin dark except for distal half. Caudal fin with irregularly transverse many wavy dark bands (Fig. 2, D). A black bands extending from eye to downwards. Margin of opercle black. All cirri brownish.

Discussion

The present genus *Bryozoichthys* is included in the characteristic subfamily Chirolophinae that has many cirri on the head region, in the family Stichaeidae. Four genera are allocated to the subfamily; *Bryozoichthys, Chirolophis, Soldatovia*

and *Gymnoclinus*[2].

Bryozoichthys is clearly separable from all other related genera by the toothed vomer and palatine, and branched pelvic and anal rays[2]. In the genus two species have been reported; *B. lysimus* and *B. majorius*. These two species differ in fin rays, vertebrae, some proportional measurements, and coloration (Fig. 1, 2, Table 1). These differences are summarized by the following key.

Key to the species of the genus *Bryozoichthys*

A_1. Anal I, 49, vertebrae 16+53~54=69~70; head large, its length about 1/5 of SL; pectoral fin long, 7.0~7.5 in SL; caudal fin with 2 distinctly transverse dark bands; cirri on head dark. ..... *B. lysimus*

A_2. Anal I, 52~59, vertebrae 15~17+56~59=73~75; head small, its length about 1/6~1/7 of SL; pectoral fin short, 8.0~9.2 in SL; caudal fin with some wavy bands; cirri on head brownish. ..... *B. majorius*

B. lysimus has hitherto been known from Bering Sea, Iona Island, Tarter Strait, and Aniwa Bay[3),4),5)]. Thus, the present specimens caught from off Abashiri, Okhotsk Sea and near Rebun Island, Japan Sea, are the first record of this species from Japan, though the Japanese ichthyologists[6),7)] listed it, based on the Russian literatures and gave it the Japanese name.

While, *B. majorius* is known only from the type locality, the Forrester Island about 10 miles southeast from the continuation of the Canadian boundary, and south of Unalaska Island in the Aleutian Chain[1),8)]. No additional specimens have since been reported. Thus, the present specimens from the Aleutian Islands and Gulf of Alaska are the second record of this species.

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