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First records of two gobiid fishes from Ishigaki Island, Okinawa, Japan

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(With 7 text-figures)

沖縄県石垣島で採集された日本初記録のハゼ科魚類2種について

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南西諸島方面の浅海魚類相を明らかにする目的で行われている調査資料の中から，沖縄県石垣島で採集したハゼ科魚類の2種は *Asterropteryx ensiferus* (BLEEKER) と *Oplopomops atherinoides* (PETERS) と同定され，両種は日本初記録である。

本報告では両種の頭部感覚器や形態的特徴を記し，*A. ensiferus* にヒメホシハゼ，*O. atherinoides* にトンガリハゼの和名を付した。

ヒメホシハゼは熱帯および亜熱帯海域に広く分布する近縁種のホシハゼ *Asterropteryx semipunctatus* RÜPPELL に非常に類似するが，前鰓蓋骨に強靱な1棘を持つことが特徴である。トンガリハゼはインド洋西部のセイシェル諸島や南アフリカ（モザンビーク，ザンジバル）および太平洋中部（キャントン島）からの報告がある。

Recent investigations of the fish fauna of the Ryukyu Islands have yielded two gobiid fishes new to Japan: *Asterropteryx ensiferus* (BLEEKER) and *Oplopomops atherinoides* (PETERS). *A. ensiferus* has possibly been overlooked in the Ryukyu Islands due to its close resemblance to *A. semipunctatus* which is common in the tropical and subtropical waters. *O. atherinoides* has been recorded from two regions, *i.e.*, the western Indian Ocean (Seychelles Is., Mozambique and Zanzibar) and the central Pacific Ocean (Canton Is.).

Oplopomops atherinoides (PETERS)

New Japanese name: Tongarihaze

(Fig. 1)

Gobius atherinoides PETERS, 1855; 254; original description; type locality, Mozambique. JATZOW and LENTZ, 1898: 506; list; Zanzibar.

Oplopomus diacanthus SCHULTZ, 1943: 242; original description; type locality, Canton Is.

Oplopomops atherinoides: SMITH, 1959: 189; description; Seychelles Is.

Favonigobius sp.: HAYASHI and ITOH, 1978: 74 (No. 68); list; Ishigaki Is.

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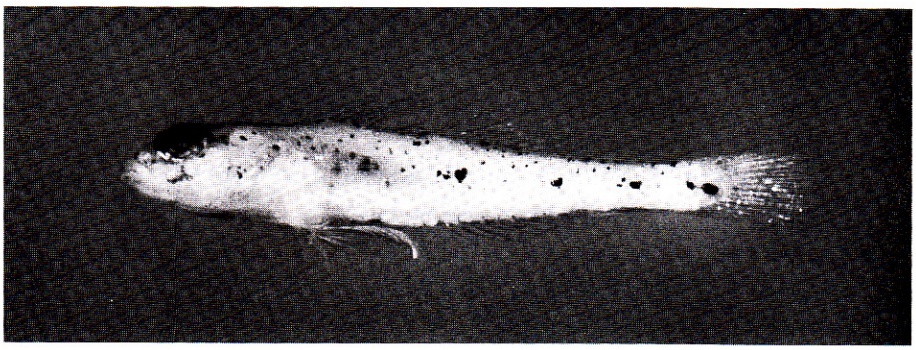

Fig. 1. *Oplopomops atherinoides*, YCM-P 4171, 24.4 mm SL, collected from Ishigaki Is.

Material. A specimen, MTUF (Museum, Tokyo University of Fisheries) 23455, 47.0 mm SL, 59.7 mm TL, male, collected from Kabira Bay, Ishigaki Is., Okinawa Pref., Japan, on Aug. 1977, by Mr. M. SATO. A specimen, YCM-P (Yokosuka City Museum) 4171, 24.4 mm SL, 30.8 mm TL, sex unidentified, collected from Kabira Bay, Ishigaki Is., Okinawa Pref., Japan, on May 1977, by M. HAYASHI.

Comparative material. Two specimens, RUSI (J.L.B. SMITH Institute of Ichthyology, Rhodes University) 7652, 26.8 mm and 32.0 mm SL, sex unidentified, collected from Mahé Is., Seychelles Is., date of collection unknown.

Description. D. VI-I, 10; A. I, 10; P_1. 16; segmented caudal rays 8+7; vertebrae including unrostyle 10+16=26; gillrakers 2+1+7; scales in longitudinal series 28+2; scales in transverse series 9; predorsal scales 9. Head just from behind eye and body covered with ctenoid scales except for the ventral part around pelvic fins where the scales are cycloid. Shape of transverse section of head and anterior part of the body almost triangular. Mouth oblique. Posterior tip of maxillary scarcely reaches below front of eye. Tongue truncate and its tip free from bottom of the mouth. The first spine in each dorsal fin very stout and thick. No spine or bony ridge present on head. Pelvic fins are connected completely. Velum well developed. The dentition is shown in Fig. 2.

Arrangement of the cephalic sensory canal system and pit organs is shown in Figs. 3 and 4.

Measurements expressed in hundredths of standard length based on MTUF 23455: body depth, 21.7; head length, 23.4; caudal peduncle depth, 11.1; pectoral fin length, 23.4; pelvic fin length, 21.7; second dorsal spine (longest) length, 20.6.

Measurements expressed in hundredths of head length: snout length, 34.7; eye diameter, 25.8; suborbital length, 20.2; interorbital width, 8.9.

Color in formalin: brownish small spots are arranged in several vague longitudinal lines on dorsal and lateral sides of the head and body, and on the caudal fin against a uniformly white background. Paired fins whitish. Anal fin

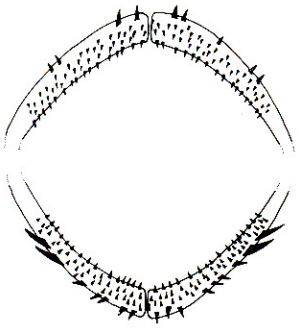

Fig. 2

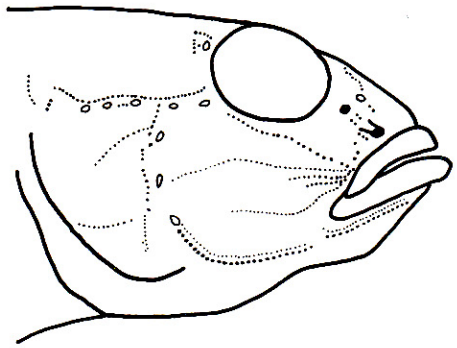

Fig. 3

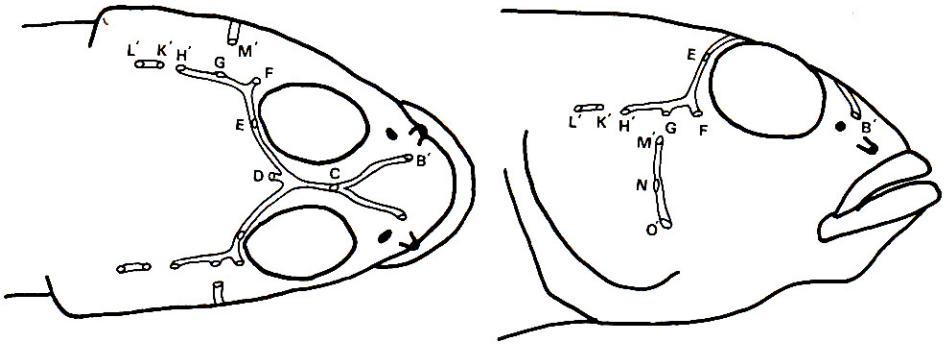

Fig. 4

Fig. 2. Diagrammatic drawing of the teeth on upper and lower jaws of *O. atherinoides*, MTUF 23455 (not stained sample).
Fig. 3. Pit organs of *O. atherinoides*, MTUF 23455.
Fig. 4. Cephalic sensory canal system of *O. atherinoides*, MTUF 23455. Nomenclature of the canal openings follows Prince AKIHITO (1977: 125, fig. 8).

somewhat dusky. First dorsal fin, two to three small spots present on each ray near its base. Second dorsal fin, four to five small spots present on each ray. Other parts of the dorsal fins white.

Notes. SMITH (1959: 189) regarded *Oplopomus diacanthus* as synonymous with *Gobius atherinoides*, in spite of the following differences between the two: scales around the pelvic fins are ctenoid in the former, cycloid in the latter; shape of caudal fin is round in the former, subtruncate in the latter; the former species is distributed in the western Indian Ocean and the latter in the central Pacific.

The two specimens from Ishigaki Is. have cycloid scales around the pelvic fins. In this respect they are referrable to *O. atherinoides*. The caudal fin, however, is round in the specimen (MTUF 23455) and subtruncate in the speci-

men (YCM-P 4171). The shape of the caudal fin of this fish seems to be subject to considerable variation, ranging from subtruncate to possibly roundish. SMITH's (1943: 190) statement on the squamation of *O. diacanthus* is based only on SCHULTZ's (1943: 243) figure, which gives no accurate indication as to the nature of scales around the pelvic fins. In view of the characters of our Ishigaki specimens linking *O. diacanthus* and *O. atherinoides*, there seems to be no significant morphological difference separating the two nominal species. Though examination of the pit organs could not be made in this study due to the damaged condition of the comparative material, we tentatively follow SMITH's opinion that the two forms are identical (SMITH, 1959: 189).

Asterropteryx ensiferus (BLEEKER)

New Japanese name: Himehoshihaze

(Fig. 5)

Brachyeleotris ensifera BLEKER, 1874: 375; original description; type locality, Buru Is. WEBER, 1913: 454; description; Postillon Is.

Asteropteryx monacanthus REGAN, 1908: 240; original description; type locality, Seychell Is.

Asterropteryx semipunctatus: TOMIYAMA, 1936: 40 (in part); description; Japan. MUNRO, 1967: 517; (in part); description; New Guinea. CLARK, 1968: 4 (in part); key; Red Sea.

Asterropteryx ensifer: HERRE, 1953a: 720; list; Philippine. 1953b: 351; brief description; Suru Is.

Asterropteryx ensiferus: KOUMANS, 1953: 291; description. SMITH, 1958: 143; list.

Material. A specimen, MTUF 23457, 29.0 mm SL, 36.3 mm TL, male, collected from Kabira Bay, Ishigaki Is., Okinawa Pref., Japan, on Nov. 1977, by Mr. M. Sato.

Comparative material. Asterropteryx semipunctatus RÜPPELL, 40 specimens, YCM-P 1449, 1462, 1469, 1485, 1516, 1776, 2525, 2753, 2837, 4163, 4174, 8.9–35.9 mm SL, collected from Ishigaki Is., Kohama Is.

Description. D. VI-I, 9; A. I, 8; P_1. 17 (right; left broken); segmented

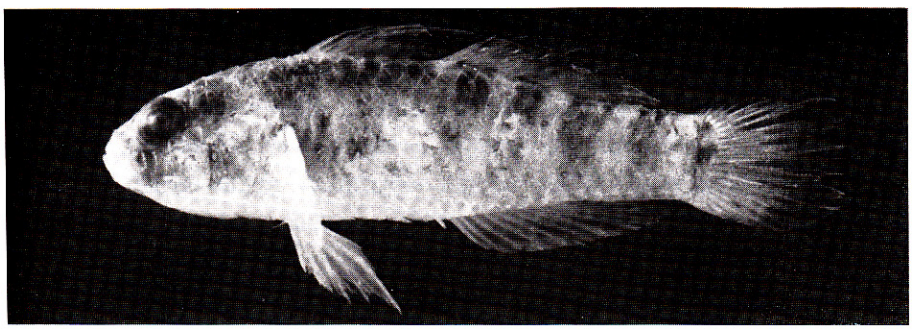

Fig. 5. *Asterropteryx ensiferus*, MTUF 23457, 29 mm SL, collected from Ishigaki Is.

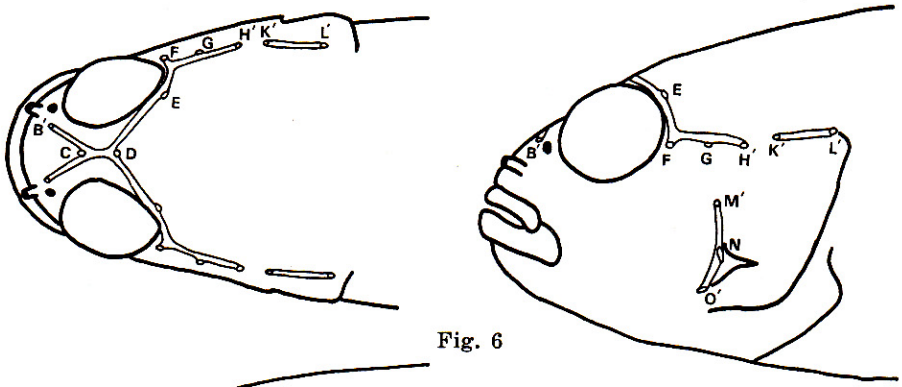

Fig. 6

Fig. 6. Cephalic sensory canal system of *A. ensiferus*, MTUF 23457. Nomenclature of the canal openings follows Prince AKIHITO (1977: 125, fig. 8).

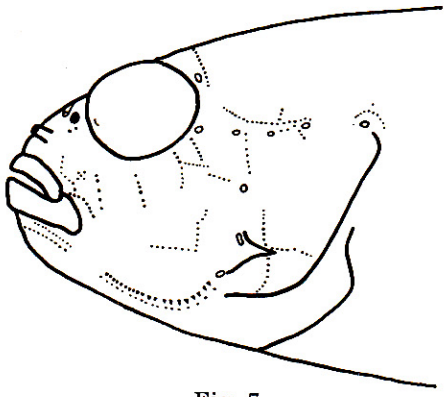

Fig. 7

Fig. 7. Pit organs of *A. ensiferus*, MTUF 23457.

caudal rays 8+7; vertebrae including urostyle 10+16=26; scales in longitudinal series 23+1; scales in transverse series 9; predorsal scales 8. Head and body except for snout covered with ctenoid scales. Head and body compressed. Mouth oblique. Posterior margin of maxillary scarcely reaches below front of eye. Teeth on both jaws in several rows, outer row enlarged and somewhat comb-like. Tongue rounded and its tip free from bottom of the mouth. A strong and backward-directed spine at angle of preopercle present. Neither uniting membrane nor velum observed.

Measurements expressed in hundredths of standard length: body depth, 29.7; head length, 29.7; caudal peduncle depth, 14.8; pectoral fin length, 28.3 (right); pelvic fin length, 25.2; third dorsal spine (longest) length, 33.5.

Measurements expressed in hundredths of head length: snout length, 24.4; eye diameter, 31.4; suborbital length, 12.8.

Arrangement of the cephalic sensory canal system and pit organs is shown in Figs. 6 and 7.

Color in formalin: dusky. Seven vague bars present on body. On each body scale a small circular blotch present which is presumed to be a blue spot in life, as in *A. semipunctatus*.

Notes. *A. ensiferus* closely resembles *A. semipunctatus* in body propor-

tions, arrangement of the pit organs and cephalic sensory canal system, and coloration, but can be distinguished by the presence of a backward-directed spine at the angle of the preopercle instead of two to six small spines as in *A. semipunctatus*. In view of the above point, TOMIYAMA (1936: 40) considered that the single preopercular spine in *A. ensiferus* represented a young form of *A. semipunctatus* and synonymized the former with the latter. However, smaller specimens of *A. semipunctatus* examined in this study have two to four preopercular spines. This indicates the distinct specific status of *A. ensiferus* and *A. semipunctatus*.

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