

Two New Species of the Genus *Luciogobius* (Family Gobiidae) from Japan

Masaru Shiogaki and Yoshie Dotsu

(Received July 13, 1976)

Abstract Two new gobiid fishes, *Luciogobius platycephalus* and *Luciogobius dormitoris* were collected from Kyushu. A key to 11 Japanese species in the genus *Luciogobius* and its allied genera, *Inu* and *Expedio*, was presented.

Over three hundred specimens were found to belong to a new species of the genus *Luciogobius* Gill. They were collected from the intertidal zone in Nomozaki-cho and Sanwa-cho near Nagasaki City, the western coast of Kyushu, in 1972 and 1973.

A single specimen of blind goby, collected in

1971 from the tidal area of a small stream on the eastern coast of Kyushu, was found to be a new goby belonging also to the genus *Luciogobius*.

A key to Japanese species of the genus *Luciogobius* and its allied genera, *Inu* and *Expedio* is presented.

Key to Japanese species of the genera *Luciogobius*, *Inu*, and *Expedio*

- I. Posterior part of body scaly
 - a¹ dermal ridge present below eye *Inu koma* Snyder, 1909
 - a² dermal ridge absent below eye *Inu ama* Snyder, 1909
- II. Body naked
 - b¹ eyes subcutaneous
 - c¹ vertebrae 31; head 3.6~3.8 in standard length *Luciogobius albus* Regan, 1940
 - c² vertebrae 35~36; head 5.2~5.4 in standard length
 - d¹ pectoral 15; body depth 7.6 in standard length *Luciogobius dormitoris*, sp. nov.
 - d² pectoral 12; body depth 11.1 in standard length *Luciogobius pallidus* Regan, 1940
 - b² eyes normal
 - e¹ vertebrae 31~32 *Luciogobius saikaiensis* Dôtu, 1957
 - e² vertebrae 36~44
 - f¹ anus just before anal insertion
 - g¹ pectoral with one free ray; head 4.0~5.1 in standard length; vertebrae 36~38 *Luciogobius guttatus* Gill, 1859
 - g² pectoral with 3~7 free rays; head 5.9~6.4 in standard length; vertebrae 40~41 *Luciogobius grandis* Arai, 1970
 - f² anus in advance of anal insertion by a distance nearly equal to body depth
 - h¹ pelvic fin present
 - i¹ pelvic fin forming normal sucker, I, 5; pectoral with 2~4 free rays *Luciogobius platycephalus*, sp. nov.
 - i² pelvic fin flap-like, I, 2~4; pectoral without free rays *Luciogobius elongatus* Regan, 1905
 - h² pelvic fin absent *Expedio parvulus* Snyder, 1909

Luciogobius platycephalus, sp. nov.

Figs. 1 and 2

(New Japanese name: Yari-mimizuhaze)

Diagnosis: The present new species is easily distinguished from other related species in following features: anus opens by a distance nearly equal to depth of body in advance of anal insertion, pelvic fins normal sucker, pectoral with 2~4 free rays in upper lobe and high caudal peduncle.

The following description is given on the measurements and counts of the holotype, with data (in parentheses) on counts for 36 paratypes and measurements for ten paratypes.

In standard length: head 6.0 (5.8~6.4), body depth 10.7 (9.3~12.6), body width 11.4 (11.1~13.4), dorsal fin base 7.7 (7.7~9.4), anal fin base 6.3 (6.3~7.7), caudal peduncle length 4.5 (4.2~5.4). Eye diameter 18.2 (16.0~18.9) in head, orbit 2.6 (2.2~3.1) in interorbital space.

D. 12 (10~13); A. 13 (13~15); P₁. 14 (13~15); P₂. I, 5; C. 19 (17~20). Vertebrae counted on radiograph 41 (40~42, 16~17+23~25) including urostyle; branchiostegals 5.

Body naked. Body cylindrical but com-

pressed at caudal peduncle; body width 1.1 (1.0~1.2) in its depth. Caudal peduncle high and body depth 1.1 (1.0~1.3) in peduncle depth. Head depressed and broader than body, its width 1.5 (1.4~1.7) in head length. Muscles on each side of cheek and top of head well developed, bulging outward and upward and forming a pair of circular swell behind eyes. Eyes small and directed upward. Two nostrils on either side, anterior one located at tip of snout and distinctly tubular, the posterior one in front of eye with low rim. In lateral view head tapers anteriorly and pointed when mouth closed. Mouth cleft large, reaching to vertical through posterior end of eye. On each side of head, from the snout to infraorbital portion, a longitudinal crenulate dermal ridge present, but not developed to dermal processes. Many pit organs on head along the orbit and preoperculo-mandibular lines, few on top of head (Fig. 2). Teeth on both jaws villiform. Tongue deeply notched at median part and free anteriorly. Gill slit subequal to pectoral base. Gill rakers on the first gill arch (5~7). Dorsal and anal fins short and low; dorsal fin base 1.2

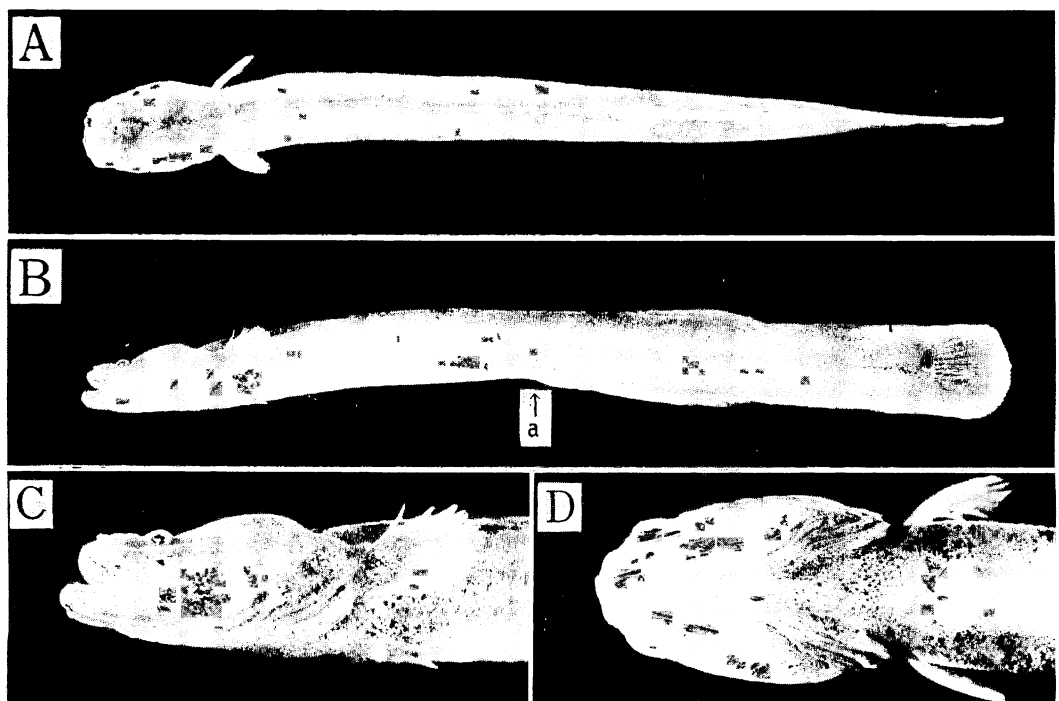


Fig. 1. Holotype of *Luciogobius platycephalus* sp. nov., 80 mm TL. A, dorsal view; B, lateral view; C, lateral view of head; D, ventral view of head. a, anal opening.

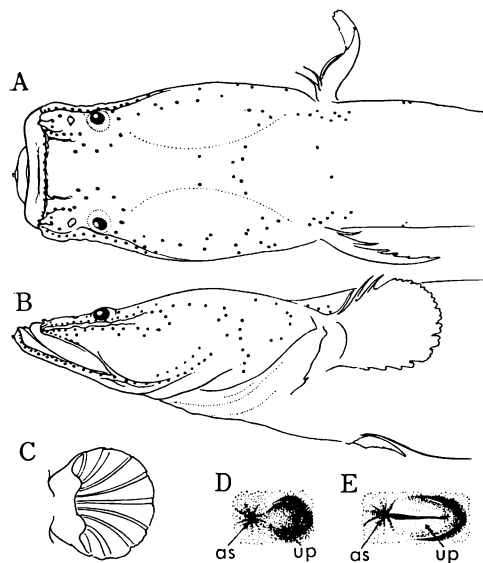


Fig. 2. Head, pelvic fin and urogenital papillae of *Luciogobius platycephalus* sp. nov. A, dorsal view of female, 72.3 mm TL., each black point indicating a pit organ; B, lateral view of A; C, pelvic fin; D, urogenital papilla of male; E, the same of female. as, anus; up, urogenital papilla.

(1.1~1.5) in anal fin base; longest dorsal ray 2.2 (2.0~2.5) in body depth. Anal fin a little in advance of dorsal. Distance from tip of snout to dorsal insertion 1.5 (1.5~1.6) in standard length, to anal insertion 1.6 (1.6~1.7). Anterior two to four rays in both dorsal and anal fins small and not segmented. Pectoral small, 2.2 (2.3~2.4) in head, with 3 (2~4) free rays in upper lobe. Pelvic fins forms a small sucker, 4.7 (4.6~5.4) in head (Fig. 2C). Anus opens by a distance nearly equal to depth of body in advance of anal insertion.

Sexual dimorphism appears in the shape of head and urogenital papilla. In mature male, muscles on the top of head and cheeks well developed and bulging, but in female these muscles not much developed, making head slender in dorsal view (Fig. 2A). Urogenital papilla in male small and rounded with a small opening at rear end, but in female the organ spatulate with a median slit (Figs. 2D, 2E).

Coloration: Body uniformly light tawny, pectoral, pelvic, and anal fins colorless; dorsal and caudal fins yellowish orange. Belly unpigmented. In the preserved specimens, body light

gray.

Holotype: FNU (Faculty of Fisheries of Nagasaki University) 101,001—mature male, 80.0 mm in total length, 70.9 mm in standard length, collected on October 23, 1972 under the stone deposit lying in intertidal zone on the coast of Kawahara, Sanwa-cho, near Nagasaki City.

Paratypes: FNU 101,002~101,010, 101,021~101,037—51.0 to 82.3 mm TL, collected on January 23, 1973 from the same place. NSMT (National Science Museum, Tokyo) -P 18295~18304—62.7 to 74.0 mm TL, collected on the same day from the same place.

Luciogobius dormitoris sp. nov.

(Figs. 3 and 4)

(New Japanese name: Nemuri-mimizuhaze)

Diagnosis: The present new blind goby is easily distinguished from other blind gobies of the genus *Luciogobius* in following features: number of vertebrae (36), pectoral rays (15), and peculiar shape of head.

In standard length; head 5.2, body depth 7.6, dorsal fin base 5.7, anal fin base 6.0, peduncle length 6.2. Eye diameter 22.2 in head.

D. 1, 11; A. 1, 11; P₁. 15; P₂. 1, 5; C. 16. Vertebrae counted on radiograph 36=18+18 including urostyle; branchiostegals 5.

Body naked. Body cylindrical, but compressed at caudal peduncle, body width 1.1 in its depth. Head moderately depressed and broader than body; its width 1.2 in its length. Eyes very small and subcutaneous. Two nostrils on each side; anterior one located at the tip of snout and tubular. No dermal processes on infraorbital. Pit organs numerous, in a characteristic straight line on the opercular region. Mouth cleft moderate, reaching to vertical through posterior end of rudimentary eye. Teeth minute, in a band at front of both jaws. Gill slit limited to the length of pectoral fin base. Muscles on the top of head and cheeks bulging outward and upward in each side and form a swell in front of nape. Dorsal and anal fins rather low. Dorsal fin a little in advance of anal fin; their bases subequal in length. Longest ray of dorsal 1.5 in body depth. Basal halves of dorsal and anal fins swelled outward. Pectoral large and circular without free filamentous rays, 1.4 in head.

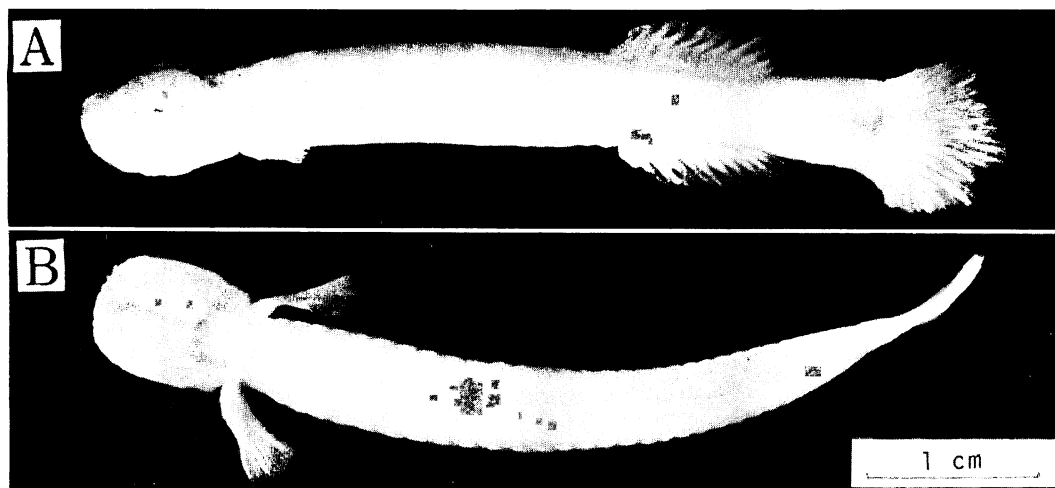


Fig. 3. Holotype of *Luciogobius dormitoris* sp. nov., 53.0 mm TL. A, lateral view and B, dorsal view.

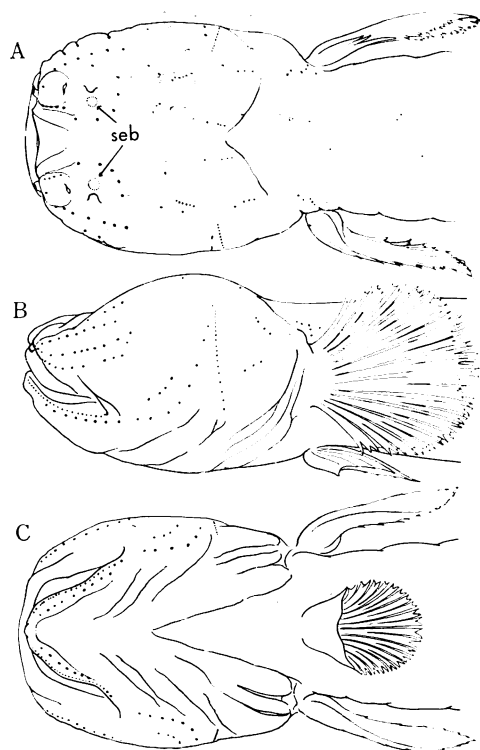


Fig. 4. Head of the holotype of *Luciogobius dormitoris* sp. nov. A, dorsal view; B, lateral view; C, ventral view. Each black point indicating a pit organ. seb, subcutaneous eye ball.

Caudal rounded.

Body light reddish brown; dorsal side brown before fixation. In the preserved specimen,

dorsal side of head and body slightly pigmented and light brown, but diffused to sides and ventral white. All fins white.

Holotype: FNU 101,038—53.0 mm TL, 45.8 mm SL, collected by Mr. Masao Shuto at Sashiu Harbor, Usuki City, Ōita Prefecture on September 1, 1971.

Acknowledgments

The authors thank Mr. Masao Shuto, a student in the Faculty of Fisheries of Nagasaki University, for his kindness presenting the holotype of *L. dormitoris* and to other students in the same Faculty for their helps in collecting the specimens. A part of the present study was supported by a grant from the Ito Funds for Promotion of Japanese Ichthyological Researches.

Literature cited

- Arai, R. 1970. *Luciogobius grandis*, a new goby from Japan and Korea. Bull. Nat. Sci. Mus. Tokyo, 13 (2): 199~206, figs. 1~4, pl. 1.
- Dôtu, Y. 1957. A new species of a goby with a synopsis of the Genus *Luciogobius* and its two allied genera. J. Fac. Agr. Kyushu Univ., 11 (1): 69~76, figs. 1~3, pl. 2.
- Gill, T. 1859. Notes on a collection of Japanese fishes, made by Dr. J. Morrow. Proc. Acad. Nat. Sci. Philadelphia, 1859: 144~149.
- Regan, C. T. 1905. On a collection of fishes from the Inland Sea of Japan, made by Mr. R. Gordon Smith. Ann. Mag. Nat. Hist., (7) 15: 17~26, pls. 2~3.
- Regan, C. T. 1940. The fishes of the gobiid Genus *Luciogobius* Gill. Ann. Mag. Nat. Hist., (11) 5:

462~465.

Snyder, J. O. 1909. Descriptions of new genera and species of fishes from Japan and Riu Kiu Islands. Proc. U.S. Nat. Mus., 36 (1688): 597~610.

(MS: Aquaculture Center, Aomori Prefecture. Moura, Hiranai-machi, Higashitsugaru-gun, Aomori-ken 039-34; YD: Faculty of Fisheries, Nagasaki University. 1-14 Bunkyo-machi, Nagasaki-shi 852, Japan)

日本産ミミズハゼ属魚類の二新種

塩垣 優・道津 喜衛

長崎市近郊の三和町および野母崎町の海岸で採集したミミズハゼ属の一新種 *Luciogobius platycephalus* (新称: ヤリミミズハゼ), および, 大分県佐伯市佐志生港から採集した同じくミミズハゼ属の一新種である盲魚の *Luciogobius dormitoris* (新称: ネムリミミズハゼ)について記載し, あわせて, 主として筆者が新たに得た材料にもとづき, 上記の二種を含む日本産の *Luciogobius*, *Inu*, *Expedio* の各属のハゼ 11 類種についてそれぞれの区別点を明らかにした。

(塩垣: 039-34 青森県東津軽郡平内町茂浦 青森県水産増殖センター; 道津: 852 長崎市文教町 1-14 長崎大学水産学部)