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Redescription of a Rare Cottid, *Zesticelus bathybius*

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Zesticelus bathybius (Günther), it still is a rare cottid species, was briefly described from a single specimen collected south of Tokyo off Misaki in 1887, and no additional specimens have been available. During deep-sea trawl surveys in Tosa Bay off Kochi Prefecture, Japan, two specimens of this species were collected at 700 m depth. In addition, we found a specimen collected in 1906 and deposited in the California Academy of Sciences (CAS) that had never been reported. We redescribe this species on the basis of the new material and compare it with related species. The specimens examined are deposited in the Department of Biology, Faculty of Science, Kochi University (BSKU) and CAS. Methods for taking counts and measurements follow Hubbs and Lagler (1958) and Yabe (1991).

Zesticelus bathybius (Günther, 1887)
(Figs. 1 and 2)
(Japanese name: Soko-kajika)

Cottus bathybius Günther, 1887: 62, pl. X, fig, C (original description: south of Tokyo, Japan, depth 1,017 m).
Zesticelus bathybius (Günther): Jordan and Starks, 1904: 288–289 (new combination).

Material. BSKU 44791, male, 47.1 mm SL, 33°02.35′N, 133°36.61′E, Tosa Bay, depth 700 m, May 24, 1988. BSKU 46135, female, 45.8 mm SL, 33°03.65′N, 133°37.29′E, Tosa Bay, depth 708 m, May 23, 1989. CAS-SU 22326, female, 49.0 mm SL, 33°25.45′N, 135°33.0′E, depth 805 m, off Siono-misaki, ALBATROSS sta. D-4972, Aug. 30, 1906.

Description. Dorsal fin rays VI-11 or VII-10; anal fin rays 8; pectoral fin rays 18–19; pelvic fin rays I, 3; lateral line scales 17; branchiostegal rays 6; vertebrae 9 + 19–20 = 28–29. Head length 41.5–43.3% SL, body depth 18.8–20.5%, body width 22.7–25.7%, predorsal length 39.5–41.2%, preanal length 56.1–58.5%, caudal peduncle length 22.4–23.6%, caudal peduncle depth 5.7–6.3%, snout length 8.5–9.6%, orbit length 12.2–14.2%, interorbital width 3.7–4.0%, upper jaw length 14.4–15.5%, lower jaw length 15.1–16.1%, basal length of first dorsal fin 14.4–15.9%, basal length of second dorsal fin 27.4–29.5%, basal length of anal fin 19.9–21.6%, pectoral fin length 27.5–28.7%, pelvic fin length 15.1–15.9%, caudal fin length 29.3–32.7%.

Body slightly depressed, depth at pectoral fin base 1.1–1.3 in its width. Head extremely depressed, head depth at base of first preopercular spine 1.5–1.7 in its width. Caudal peduncle slender, somewhat depressed, it depth 3.7–3.9 in its length. Lower jaw larger than upper jaw, protruding. Maxillary reaching to a vertical through anterior margin of pupil. Two spines on lachrymal; upper spine blunt, directed upward, lower spine sharp, directed downward, covering middle part of maxilla. Small teeth on prevomer, none on palatines. Snout short, its length 1.4–1.6 in orbital diameter. Nasal spine short, inclined with slope of head. Anterior nostril on outer base of nasal spine, with a slender tube. Posterior nostril on anterodorsal rim of orbit, with a short tube. Eye large, orbital diameter 3.0–3.4 in head length. Interorbital space narrow, flat, its width 3.2–3.6 in orbit length. Occipital region deeply concave between somewhat distinct fronto-parietal ridges. Nuchal spine long, sharp, its length the same as interorbital width. Two small spines on supratemporal. Five spines on posterior margin of preopercle. Upper two spines originate on same base; inner spine long and sharp, slightly curved upward, its length 2.7–3.2 in head length; outer spine directed posterolaterally, its length about half of the inner. Lower three spines sharply pointed, shorter than upper two. Two small spines on low angle of subopercle. Gill membranes broadly united, forming a fold over isthmus. Pores of infraorbital and mandibular sensory canals large, six on infraorbital, five on mandible. Terminal pores of mandibular sensory canal opening separately on each side of symphysis. Lateral line very slightly curved. Lateral-line pores between each lateral-line scale; anterior five or six pores with a double opening, upper opening much smaller than the lower; successive pores with only lower openings. Some minute pores on caudal fin just posterior to terminal pore of lateral line. Erected first dorsal fin roughly triangular; origin about over middle of opercular flap; its basal length 1.8–2.1 in that of second dorsal fin. Dorsal fin spines flexible; first and second spines closely spaced; third spine longest, its length

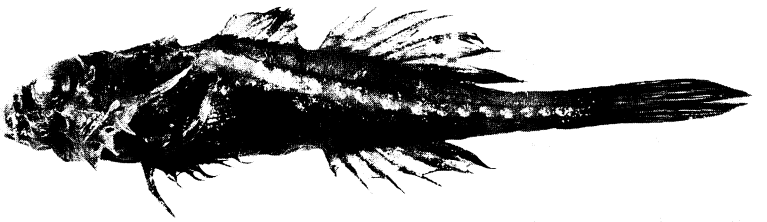

Fig. 1. *Zesticelus bathybius*, BSKU 44791, 47.1 mm SL, a male, from Tosa Bay, Kochi Prefecture, Japan.

Fig. 2. Dorsal view of head of *Zesticelus bathybius*, BSKU 46135, 45.8 mm SL, a female.

almost the same as orbit length. Second dorsal fin separated from first dorsal fin by an interspace almost half of pupil diameter; origin at vertical through anus; third to seventh rays elongated; sixth ray longest, its length 1.8–2.1 in head length; some posterior rays of second dorsal fin branched. Anal fin originates approximately under base of third ray of dorsal fin, its basal length 1.3–1.5 in that of second dorsal fin. Base of uppermost pectoral fin ray about under origin of first dorsal fin; distal tip of adpressed fin almost above base of second ray of anal fin. Pelvic-fin base below base of upper preopercular spine; middle ray longest, its length 1.3 times that of inner ray. Caudal fin almost truncate, its length the same as basal length of second dorsal fin; 10 rays supported by hypural plate (uppermost one and lowermost two rays branched), five upper and three lower procurrent rays. Genital papilla of male small, flat, its length about half of caudal peduncle depth.

Color when fresh.—Body uniformly dark brown. Operculum, gill membranes, and fins notably blackish. Nostrils, anus, and genital papilla white.

Remarks. Despite being known from a single specimen, *Zesticelus bathybius* has been clearly distinguished from the other two species of the genus by its having a unique condition of head spines: five preopercular spines, among which the upper two spines share a common base to form inner and outer spines; a prominent downward spine on the lachrymal covering middle part of upper jaw; and presence of a nasal spine (Neyelov, 1979). The present specimens have all of above features. Moreover, they differ from the closely related species *Z. profundorum* (Gilbert) by having the anteriormost two spines of the dorsal fin closely spaced. Although Bolin (1944) regarded the even-spaced placement of all spines of the dorsal fin as a diagnostic feature of the genus *Zesticelus*, this condition could be regarded as a feature only of *Z. profundorum*. They differ from another nominal species, *Z. japonicus* Oshima, which was suggested as a junior synonym of *Artediellus dydymovi dydymovi* Soldatov by Neyelov (1979), by the absence of the palatine tooth and of a hooked preopercular spine. The present specimens agree with the original description of *Z. bathybius* except for their higher fin-ray counts: dorsal fin VI-11 or VII-10 (V-10 in the original description); anal fin 8 (versus 7); and pectoral fin 18–19 (versus 17). We

regard these differences as intraspecific variation, because such variation has been reported for *Z. profundorum* by Bolin (1944) and Neyelov (1979).

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カジカ科の稀種ソコカジカの再記載

矢部　衛・岡村　収

1988年および1989年に高知県沖の土佐湾の水深 700 m 付近から2個体のソコカジカ *Zesticelus bathybius* が採集された．本種は Günther (1887) により土崎沖から得られた1個体に基づき原記載されて以来，採集例がまったく報告されていなかった．また本標本を比較検討した際に，カリフォルニア科学アカデミーの所蔵標本の中から1906年に和歌山県潮岬沖で得られた本種の第2番目の採集例にあたる1個体を見出した．本種の原記載は主要な標徴の記載に限られているので，これらの新たな標本に基づき本種を詳細に再記載した．本種は前鰓蓋骨最上棘が上後向棘と後側向棘の1対からなること，涙骨上に棘状の下向突起があることなどで特徴付けられてきたが，背鰭の第1棘と第2棘が近接することなどでも東部太平洋の深海域に生息する近縁種 *Z. profundorum* とは異なる．また本属のもう一つの公称種ニホンソコカジカ *Z. japonicus* Oshima は，コブオキカジカ *Artediellus dydymovi dydymovi* Soldatov のジュニア・シノニムである可能性が指摘されているが，口蓋骨歯を持つこと，前鰓蓋骨最上棘が反曲することなどが標徴とされており，本種とは明瞭に識別される．

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