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## A Lump sucker, *Eumicrotremus birulai*, Caught in the Gulf of Alaska

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### Abstract

There has been no formal report of captures of *Eumicrotremus birulai* in the Gulf of Alaska, except for two specimens reported by Ueno. In this paper, two specimens of *E. birulai* were described, which were captured in the trawl of "Taiyo-Maru" off the coast of Kodiak Is.

*Eumicrotremus birulai* was first described by Popov<sup>1)</sup> from the Okhotsk Sea and Tatar Strait. Lindberg and Legeza<sup>2)</sup> treated *Cyclohumpus asperrimus* which was reported prior to Popov by Tanaka<sup>3)</sup> from Niigata, Japan as a synonym of *E. birulai* for reasons of the description to a transformed specimen with drying.

According to Ueno<sup>4)</sup>, *E. birulai* is distributed in the Sea of Japan, the southwestern part of the Okhotsk Sea, off the Kuril Islands, off the pacific coast of Hokkaido and in the northwestern part of the Bering Sea. The Gulf of Alaska is also shown by Ueno as a distributional range, based on two specimens secured there by Hamada. Since then, there has been no other formal report made of captures of this species in the Gulf of Alaska. This species is however not rare in that water, and is caught occasionally together with shrimps in a trawl. Crews of a shrimp trawler amuse themselves by making a stuffing of this fish. In this paper, two young specimens captured by the shrimp trawler, "Taiyo-Maru" are described.

### Materials and Methods

Two specimens, 39.6 and 43.0 mm in body length, were caught in the shrimp trawl of "Taiyo-Maru" on Aug. 15, 1963 off the coast of Kodiak Is., Lat. 55°34'N, Long. 153°16'W, at a depth of about 140 m. The sex was not distinguishable. The bottom of the fishing banks was green and muddy. The headrope of the trawl net was 123.4 *shaku* (about 37 m) in length. The specimens were measured after preservation in 10% formalin solution. The measurements of body parts were made in accordance with the method of Ueno<sup>4)</sup>. The rows of tubercles were termed in accordance with the diagram of arrangement of tubercles shown by Lindberg and Legeza<sup>2)</sup>. As for the tubercles, only the larger specimen, 43.0 mm in body length, was used for description, because of a transformation of the abdomen of the smaller specimen. And the description of the row of tubercles on the sides of the body was made only for the row on the left side.

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### Description

Depth of body 1.7–1.8, length of head 2.2–2.3, diameter of eye 7.1–7.2, width of interorbital space 3.9–4.5, width of mouth cleft 3.9–4.3, length of snout 7.8–8.2, length of caudal peduncle 7.1–7.9, depth of the same 10.2–10.4, longitudinal diameter of sucking disk 3.1–3.7, horizontal diameter of the same 3.3–3.4, distance from tip of lower jaw to origin of sucking disk 3.0–3.1, distance between dorsal fins 7.9–9.7, distance between posterior margin of sucking disk and vent 7.1–9.9, distance between vent and origin of anal fin 5.3–(7.9)\*\*, width of gill opening 10.7 in body length. Horizontal diameter of inner square of sucking disk nearly equal to half the distance between posterior end of inner square of sucking disk and vent.

First dorsal VII; Second dorsal 10–11; Anal 9–10; Pectoral 26–27; Caudal 10. Gill-rakers on the first arch 0+6–7; Pyloric caeca 7–8.

Body very swollen, spherical rather than oval and compressed strongly in the part posterior to a vertical from the origin of second dorsal fin (Fig. 1). Length of compressed part, stated above, 3.9–4.6 in body length. Cheek projects laterally. Forehead extremely steep. Lower jaw protruded slightly beyond upper jaw. Eye large, its diameter almost equal to one-third of head length. Interorbital space broad and flat. Mouth horizontal, moderate in size, and width of mouth cleft almost equal to interorbital width. Teeth all similar, conic; those in maxillary arranged in a single row laterally, becoming two rows and then irregular, roughly three rows toward the anterior part of maxillary. Teeth in mandible also in a single row laterally, becoming irregular, roughly three rows toward symphysis. Nostril short, tubular and the anterior one much longer than the posterior one. First dorsal fin very low in comparison with second dorsal, enveloped in thick skin, only the tips of fin rays visible. A few minute tubercles arranged along the base of first dorsal fin. Second dorsal and anal fins situated opposite each other. Six tubercles arranged along the base of second dorsal fin. Teeth on the upper pharyngeal bone numerous in comparison with those on the lower one. Gill-rakers short and conic.

Body and head covered with small tubercles, except the throat, the chin, the part laid by pectoral fin, the part posterior to the sucking disk and the margin of vent. Tubercles separated from each other, especially widely on side of body, not attached to each other at the base. Even the base of the largest tubercle is not over 2.4 mm in diameter, smaller than one-half of the diameter of pupil. Snout and interorbital regions are covered with small tubercles. On the interorbital space, small tubercles are arranged irregularly. Eight rows, however, are distinguishable with difficulty. Interorbital row continuing to dorsal row consists of 9 tubercles. Supplementary interorbital row is also distinguished between interorbital and postorbital rows, and contains 10 tubercles. On the side of the body, supraorbital row including 3 tubercles is visible. Postorbital row begins from the tubercle located above the gill-opening and continues backward; there are 12 tubercles there. Dorsal row consisting of 6 tubercles is distinct and begins at a point slightly anterior to the origin of the 1st dorsal fin. A pair of relatively

\*\* *The specimen was somewhat transformed due to pressing against other specimens preserved together in a bottle filled with 10% formalin solution; therefore the measurement 7.9 is uncertain.*

HAMADA: A lumpsucker caught in the Gulf of Alaska.

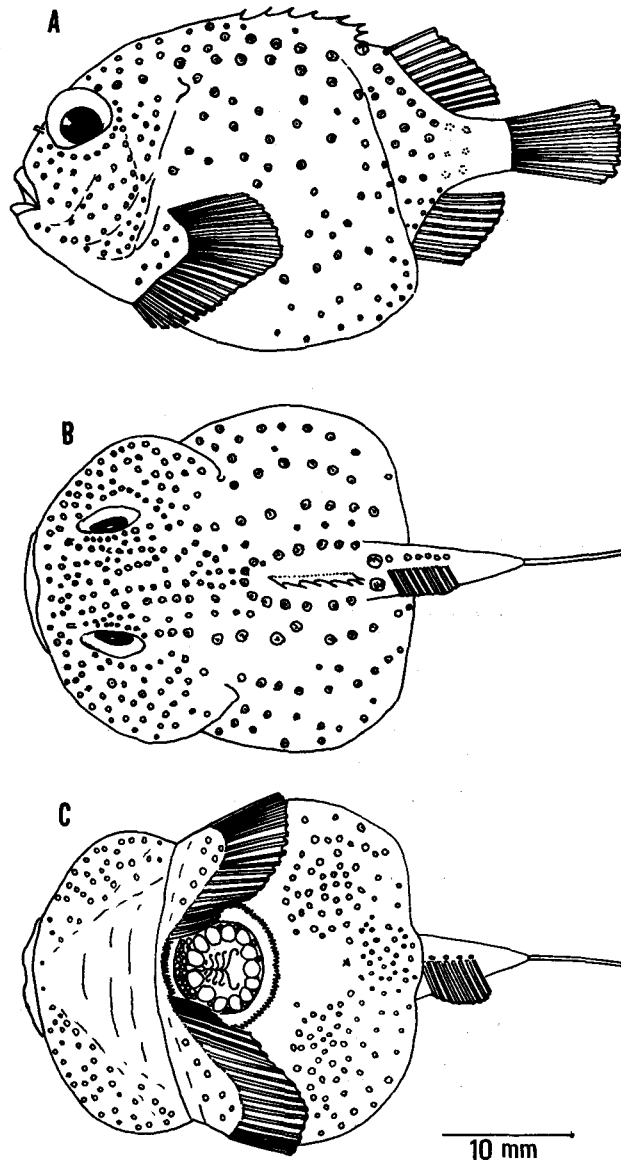


Fig. 1. *Eumicrotremus birulai*, 43.0 mm in body length, caught in the Gulf of Alaska on Aug. 15, 1963. A, lateral view; B, dorsal view; C, ventral view.

large tubercles is located in the space between the first and the second dorsal. Postbranchial row, beginning from the tubercle located just behind the gill-opening, continues backward on the side of the body in an oblique row, and then it descends obliquely downward across the belly in slightly advance of vertical line from the origin of the 2nd dorsal; there are 10 tubercles in that row. Circumpectoral

row begins under the 2nd tubercle of the postbranchial row. Four tubercles are arranged in a slightly curved oblique row along the side of the body, and then it descends downward around the pectoral fin as a curved row consisting of 6 tubercles on the belly. At the base of the pectoral fin, there are 7 tubercles. The arrangement of rows on the side of the body is roughly similar to the figure indicated by Popov<sup>1)</sup>. The chin and the throat are not covered with tubercles, but in the region of the throat, there are skin folds. Minute papillae are visible on the chin.

The color of the living fish is black on the back and sides, and whitish on the underside of the abdomen. Small black spots are scattered on the body except the underside of the abdomen.

### Remarks

Lindberg and Legeza<sup>2)</sup>, treated *Cyclolumpus asperrimus*, which was reported by Tanaka<sup>3)</sup>, as a synonym of *Eumicrotremus birulai*, and they identified *Cyclolumpus birulai*, included to the genus *Cyclolumpus* by Ueno<sup>5)</sup>, with *Eumicrotremus birulai*. Ueno<sup>4)</sup> agreed afterwards with Lindberg and Legeza's opinion<sup>2)</sup>.

The specimens examined in this study were young. No tubercles were visible on the chin or throat. In adult specimens of *E. birulai*, these regions are covered densely with tubercles<sup>1),2),6),7),8),9),10),11)</sup>. However, there are sometimes skin folds in the throat region instead of tubercles<sup>4)</sup>. According to the schematic table of distinctive attributes among the main 4 Pacific species belonging to the genus of *Eumicrotremus* shown by Popov<sup>1)</sup>, *Eumicrotremus birulai* is distinguished from *E. pacificus* and *E. derjugini* by the presence of tubercles on the base of the pectoral fin and on the chin. *E. birulai* is also distinguished from *E. orbis* in that the anterior nostril is much longer than the posterior one in the former, and in the latter the posterior nostril is conversely longer than the anterior one. The ratio of the distance from the anus to the posterior margin of the sucking disk to the body length is 9.0–14.1% in *E. birulai* and 1.9–7.6% in *E. orbis*. Furthermore, *E. birulai* is covered with small and almost equal sized tubercles in contrast to the other three species.

In the table of identification for young of species belonging to the genus *Eumicrotremus*, shown by Lindberg and Legeza<sup>2)</sup>, they bring up following as characteristics of *E. birulai*; 1) body covered with tubercles arranged far apart from each other, so that, apart from the throat and the space laid by pectoral fin, a considerable amount of the body surface area remains as naked skin, and the distance between tubercles is larger than the diameter of the base of the largest tubercle, 2) abdomen covered with small tubercles (smaller than the diameter of pupil) except in region around anus, 3) circumpectoral row consisting of 8–10 small tubercles. On the other hand, the main characteristics brought up in the table of identification for adult fish are as follows: 1) base of pectoral fin covered with tubercles, even in juvenile (body length about 16 mm), 2) chin covered with small tubercles, in the same way as the throat, 3) tubercles on body arranged in rows, and the distance between tubercles smaller than the diameter of their bases, 4) circumpectoral row consisting of (7)8–10 tubercles.

In two specimens examined in this study, the body and the head were covered

with small tubercles except the throat, the chin, the part laid by the pectoral fin, the region posterior to the sucking disk and the marginal region of vent. These specimens were 39.6 and 43.0 mm in body length. Accordingly, they are young rather than adult. The main differences between these 2 specimens and the adult were that they had no tubercles on the chin or throat, the tubercles on the side of the body were widely separated from each other and small in size, and the abdomen was covered with small tubercles (smaller than one-half of the diameter of pupil) except for the marginal region of vent. The distributional pattern of tubercles of these specimens corresponded fundamentally to that of the adult of *E. birulai* except for the differences noted above. Other characteristics of the specimens also corresponded with those of the adult; for example, low sickle-formed 1st dorsal fin enveloped by thick skin, anterior nostril longer than posterior one, distance between sucking disk and anus 10.1–13.9% of body length, and base of pectoral fin covered with tubercles. The peculiarity of the distributional pattern of tubercles appears to be a result of the difference in age<sup>2)</sup>. The specimens examined in this study were therefore identified as young *E. birulai*, yet not matured.

#### Acknowledgements

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