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CONTENTS

Original Papers

Morphological characters of the rare velvetfish, *Cocotropus keramaensis* (Scorpaeniformes: Aploactinidae), including coloration and osteology

Gento Shinohara and Hisashi Imamura

First Japanese record of the snaggletooth *Astronesthes formosana* (Protacanthopterygii: Stomiidae)

Yudai Koizumi, Hiromitsu Endo and Hisashi Imamura

First record of *Lutjanus biguttatus* (Perciformes: Lutjanidae) from Japan

Mao Sato, Yuta Inoue, Kazuki Mizowaki, Hirozumi Kobayashi, Rei Matsuo, Taichiro Toyama and Yusuke Hibino

Notes

Habitat use of the loach *Misgurnus anguillicaudatus* in a paddy field ditch in wintering

Jyun-ichi Kitamura, Eun-Jin Kim, Jun Nakajima, Kosuke Takaku and Takahiro Morosawa

Record of *Anguilla bicolor pacifica* from Iriomote Island, southern Japan

Hiroyuki Inoue, Dai Suzuki, Tadashi Kitano and Hiroyoshi Kohno

Distribution of *Anguilla marmorata* and habitat water temperatures in Oita Prefecture, Japan

Hiroki Takano and Kazuo Hoshino

Records and genetic characteristics of exotic bitterling, *Acleilognathus tabira* subsp., from northern Mie Prefecture, Japan

Gen Ito, Jyun-ichi Kitamura, Ryota Noguchi, Nobuaki Nagata and Yasunori Koya

A record of the yellowtail amberjack *Seriola aureovittata* Temminck and Schlegel, 1845 (Carangidae) from the North Pacific

Toshiaki Shitamitsu, Takashi Yanagimoto and Makoto Okamoto

Original Papers

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Morphological characters of the rare velvetfish, *Cocotropus keramaensis* (Scorpaeniformes: Aploactinidae), including coloration and osteology

Gento Shinohara* and Hisashi Imamura

Abstract A single specimen of the rare velvetfish *Cocotropus keramaensis*, collected from the sandy bottom at 53–58 m depth off the Kerama Islands, Okinawa, Japan during dredge surveys in 2017, represents the second collection record for the species, and first with fresh coloration. Morphological characters, including squamation and osteology, are described in detail from radiographs, and scanning electron microscope (SEM) and computed tomography (CT) images. A published underwater photograph taken off Iriomote Island, Okinawa was also identified as *C. keramaensis*. Diagnostic characters of the species were revised as follows: XII, 9 or 10 dorsal fin rays; II, 7 anal fin rays; 12 or 13 pectoral fin rays; 25 or 26 vertebrae; 3 or 4 + 4–8 = 7–12 gill rakers; 5 distinct preopercular spines; upper jaw longer than lachrymal; 1 small papilla on posterior portion of maxilla; 4 distinct papillae on outer edge of lower jaw; 2nd sensory pore on lower jaw on both sides fused; anterior tip of isthmus attaining to position of 5th mandibular pore; 4 dorsal spines anterior to 3rd neural spine; a large light-colored region anteriorly on spinous dorsal fin; a dark region between maxilla, suborbital stay and lachrymal; many pupil-sized dark spots scattered on pectoral fin; a large blotch below bases of posterior dorsal fin spines; an eyesized blotch below bases of anterior dorsal fin soft rays; head and body reddish when fresh. CT scanning revealed a connection between the sensory pores on the lower jaw and the mandibular canal openings in this species.

(*Corresponding author: Department of Zoology, National Museum of Nature and Sciences, 4-1-1 Amakubo, Tsukuba, Ibaraki 305-0005, Japan; e-mail: s-gento@kahaku.go.jp)

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First Japanese record of the snaggletooth *Astronesthes formosana* (Protacanthopterygii: Stomiidae)

Yudai Koizumi*, Hiromitsu Endo and Hisashi Imamura

Abstract The stomiid snaggletooth genus *Astronesthes* Richardson, 1844 comprises nine species groups (including 40 valid species), plus a further eight species independent of the groups. Among them, the *Astronesthes cyanea* species group (seven species) is distinguished from all other species by having the following characters: e.g., 42–50 total vertebrae, 16–21 dorsal-fin rays, a relatively long chin barbel (but rudimentary in three species), 3 or 4 photophores (part of the ventral row below the pectoral fin) forming an arch, and prominent luminous tissue on the operculum in large specimens. Two specimens (84.6 and 111.1 mm in standard length) belonging to this species group, collected off the Yaeyama and Ogasawara Islands, Japan, were identified as *Astronesthes formosana* Liao, Chen and Shao, 2006.

Although the original description of *A. formosana*, which noted its close resemblance to *Astronesthes indopacifica* Parin and Borodulina, 1997, considered the former to differ from the latter in having prominent luminous patch on the lower jaw (vs. absent), a slightly swollen or rounded tip on the chin barbel (vs. slender and simple), prominent luminous tissue on the lower part of the operculum, extending to the lower end of the maxilla [vs. restricted to the middle part of the operculum (in >50 mm standard length specimens)], numerous scalelike spots or prominent patches dorsally on the head and body (vs. sparse), and the upper nostril with more a pair prominent or smearlike luminous patches (vs. a single pair prominent luminous patches), no significant differences were found between the two species in prominent luminous tissue on the operculum, and scalelike spots or prominent patches dorsally on the head (including upper nostril) and body. In addition, the barbel tip shape was found to be of inconclusive value for separating the two species, leaving the presence or absence of prominent luminous patch on the lower jaw as the only valid distinguishing characteristic. Because the features of the two Japanese specimens agreed closely with those in the original description of *A. formosana*, they were identified as that species, being the first record of the latter from Japanese waters. The new standard Japanese name “Taiwan-tokagegisu” is proposed for the species.

(*Corresponding author: Laboratory of Marine Biology and Biodiversity (Systematic Ichthyology), Graduate school of Fisheries Science, Hokkaido University, 3-1-1 Minatocho, Hakodate, Hokkaido 041-8611, Japan; e-mail: koican16@gmail.com)

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First record of *Lutjanus biguttatus* (Perciformes: Lutjanidae) from Japan

Mao Sato*, Yuta Inoue, Kazuki Mizowaki, Hirozumi Kobayashi, Rei Matsuo, Taichiro Toyama and Yusuke Hibino

Abstract Twelve specimens (71.5–89.9 mm standard length) of the genus *Lutjanus* (Lutjanidae), collected from Ishigaki-jima Island, Ryukyu Archipelago, southern Japan, were identified as *Lutjanus biguttatus* (Valenciennes in Cuvier and Valenciennes, 1830), being characterized by the following combination of characters: dorsal fin XI, 12; anal fin III, 8; pectoral rays 15–16; body depth 3.5–3.8 in standard length; preorbital depth 10.8–16.3 in head length; tongue smooth, without patch of fine granular teeth; a dark longitudinal band from snout to caudal fin base; and two white spots above the lateral line. Dentition of the premaxilla and dentary, including several canine-like (one being long and curved) and many small conical teeth, is illustrated. The collected specimens were determined to be juveniles, due to their coloration matching that of juveniles previously described, in addition to their small body size. Although the coloration of *L. biguttatus* is similar to that of *L. vitta* during the juvenile stage, the latter species is distinguished by greater body and preorbital depths. The specimens of the former had been caught in a significantly localized area (in ca. 4 m depth) over several days, indicating the likelihood of their having been schooling, as observed in previous studies of the species. *Lutjanus biguttatus* is distributed in the Indo-western

Pacific, from the Maldives to the Solomon Islands, but had not previously been recorded from Japanese waters. The new standard Japanese name “Futahoshi-fuedai”, given in reference to the two white spots above the lateral line in the collected specimens, is proposed.

(*Corresponding author: Laboratory of Marine Biology, Faculty of Science and Technology, Kochi University, 2-5-1 Akebono-cho, Kochi 780-8520, Japan; e-mail: maosato.jour@gmail.com)

Notes

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Habitat use of the loach *Misgurnus anguillicaudatus* in a paddy field ditch in wintering

Jyun-ichi Kitamura*, Eun-Jin Kim, Jun Nakajima, Kosuke Takaku and Takahiro Morosawa

Abstract Habitat use of *Misgurnus anguillicaudatus* was surveyed at Tanushimaru, Kurume City, Fukuoka Prefecture, Kyushu Island, Japan, at winter season. The study site was composed as traditional agricultural ditches in parts of the paddy field with some parts of concrete artificial type of the canals. The spatial distribution of *M. anguillicaudatus* in the study area was examined in 36 square frames (1 m × 1 m) located spaced along agricultural pathway for approximately 20 m. Relationships between presence of *M. anguillicaudatus* and several environmental factors was analyzed using the generalized linear model (GLM). Result of the GLM analysis showed that probability of the presence of *M. anguillicaudatus* mainly explained by water depth and the probability increased with increasing water depth.

(*Corresponding author: Mie Prefectural Museum, 3060 Isshinden-kouzubeta, Tsu, Mie 514-0061, Japan; e-mail: kitamura@bio.sci.toho-u.ac.jp)

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Record of *Anguilla bicolor pacifica* from Iriomote Island, southern Japan

Hiroyuki Inoue*, Dai Suzuki, Tadashi Kitano and Hiroyoshi Kohno

Abstract Compared with the other anguillid eel species native to Japan (*Anguilla japonica* and *A. marmorata*), very little is currently known about the Japanese populations of *A. bicolor pacifica*. Three specimens of the latter (652.4–879.1 mm total length), collected in an irrigation channel on Iriomote Island, southern Japan, were examined, and the phylogenetic and morphological characters of the species discussed. The stomach contents of two specimens included a number of frog remains.

(*Corresponding author: Okinawa Regional Research Center, Tokai University, 870-277 Uehara, Taketomi, Yaeyama, Okinawa 907-1541, Japan; e-mail: calopteryx.cornelia@gmail.com)

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Distribution of *Anguilla marmorata* and habitat water temperatures in Oita Prefecture, Japan

Hiroki Takano* and Kazuo Hoshino

Abstract Distribution of the Indo–Pacific eel, *Anguilla marmorata*, and habitat water temperatures in Oita Prefecture were investigated using literature review, sample surveys, field sampling, and temperature logging. Thirteen records from nine localities were confirmed by literature and voucher specimens. Field sampling revealed the current distribution of the species at eight localities. Winter water temperatures at spring-fed stations where *A. marmorata* was present differed significantly from those at stations where *A. marmorata* was absent, the former being higher. Accordingly, over-wintering under the substrate in warmer water temperatures is likely to contribute significantly to the survival of *A. marmorata* at the northern limit of its range.

(*Corresponding author: Oita Seibutsu Dannwakai, 523–10 Hada, Oita, Oita 870–0942, Japan; e-mail: takano1602@gmail.com)

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Records and genetic characteristics of exotic bitterling, *Acheilognathus tabira* subsp., from northern Mie Prefecture, Japan

Gen Ito*, Jyun-ichi Kitamura, Ryota Noguchi, Nobuaki Nagata and Yasunori Koya

Abstract Exotic populations of *Acheilognathus tabira* found in northern Mie Prefecture, and subjected to nucleotide sequencing of the mitochondrial DNA cytochrome *b* region, were determined to represent the Hokuriku (*A. t. jordani*) and Kinki-Sanyo (*A. t. tabira*) lineages. The first record of *A. t. jordani* from outside its native distribution area (Japan Sea side of western Honshu), it is likely to be a viable population due to the presence at the sampling site of the freshwater mussel *Beringiana fukuharai* (Unionidae, Cristariini), with which the former likely has a spawning relationship.

(*Corresponding author: Faculty of Education, Gifu University, 1–1 Yanagido, Gifu 501–1193, Japan; e-mail: sakurahayabusa6647@gmail.com)

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A record of the yellowtail amberjack *Seriola aureovittata* Temminck and Schlegel, 1845 (Carangidae) from the North Pacific

Toshiaki Shitamitsu*, Takashi Yanagimoto and Makoto Okamoto

Abstract A single yellowtail specimen (514.0 mm standard length), collected in the open ocean of the central North Pacific (31°38.3'N, 163°24.5'W), was identified as *Seriola aureovittata* Temminck and Schlegel, 1845, following morphological observations and genetic analysis. Commonly believed to be distributed in coastal areas off East Asia, the species may occupy a wide range of habitat in the western and central North Pacific (supported also by previous fisheries records). *Seriola dorsalis* (Gill, 1863), a very similar

congener, is distributed in the eastern North Pacific, the two species being considered separated by the East Pacific Barrier.

*(*Corresponding author: Marine Fisheries Research and Development Center, Japan Fisheries Research and Education Agency, 6F Techno Wave 100, 1-1-25 Shin-urashima-cho, Kanagawaku, Yokohama, Kanagawa 221-5829, Japan; e-mail: shitamitsu@affrc.go.jp)*