

# Report on specimens of Trachinidae and Uranoscopidae (Teleostei: Perciformes: Trachinoidei) deposited in the Department of Zoology, The University Museum, The University of Tokyo

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## Abstract

The Trachinidae and Uranoscopidae (Teleostei: Perciformes: Trachinoidei) collection held in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT) comprised 81 specimens, representing four genera and eight species, most of which were collected in the late 20th century, and included three paratypes of *Uranoscopus flavipinnis* Kishimoto, 1987.

## Introduction

The weeverfish family Trachinidae Rafinesque, 1815 (Teleostei: Perciformes: Trachinoidei) is currently represented by two valid genera and nine valid species, occurring primarily in the East Atlantic, including the Mediterranean and Black seas (except *Trachinus cornutus* Guichenot, 1848 in the southeastern Pacific), and inhabiting sandy or muddy bottoms from shallow beaches to continental shelves in various depths shallower than 200 m (Pequeño 1989; Roux 1990; Smith 2016a; Fricke et al. 2022). The stargazer family Uranoscopidae Jordan & Evermann, 1898 (Trachinoidei) is currently represented by seven valid genera and about 60 valid species, inhabiting sandy or muddy bottoms on continental shelves and upper slopes in depths less than 400 m in the Atlantic, Indian, and Pacific oceans (Kishimoto 2001; Yamada and Yagishita 2013; Smith 2016b; Fricke et al. 2022). The families are similar in sharing eyes on the dorsal surface of the head, a large vertically oblique mouth, and bottom-dwelling behavior (Kishimoto 2001; Smith 2016a, b), and are considered to be phylogenetically close (Pietsch 1989; Imamura and Odani 2013). However, Trachinidae differs from Uranoscopidae in having a small, rounded head (vs. large, dorsally flattened in the latter), a strong venomous spine on the outer surface of the opercle (vs. present on uppermost part of cleithrum or absent), and the dorsal fin origin level with or anterior to the pectoral fin origin (vs. behind pectoral fin origin) (Kishimoto 2001; Smith 2016a, b).

During management of the fish collection in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT), 81 specimens were identified by the first author

as belonging to the families Trachinidae or Uranoscopidae. They are listed below with distributional notes.

### Materials and Methods

Identifications of the trachinoid specimens in ZUMT were confirmed by reference to Kishimoto (2001), Smith (2016a), Vilasri et al. (2019), and Prokofiev (2021). Japanese names for the family Trachinidae, the genus *Trachinus* Linnaeus, 1758, and *Trachinus draco* Linnaeus, 1758 followed Abe (1977), who provided a comprehensive list of Japanese names for European fishes. The validity of *Uranoscopus tosae* (Jordan and Hubbs, 1925) and its Japanese name followed Yamada and Yagishita (2013). Institutional codes follow Sabaj (2020). Standard lengths (SL) were measured for all specimens, which are arranged herein in alphabetical order by species. Collector's name and affiliation are given where known (from ZUMT specimen ledger or tag), with Japanese language equivalents in parentheses. The collection year and collector for some specimens was estimated by following Koeda et al. (2022). The following list includes ZUMT number, SL, number of specimens in parentheses when two or more, type status (if applicable), collection locality, collection depth, collection date, collecting method, and collector or donator and affiliation. Remarks are given where applicable. Catalog numbers after ZUMT 62000 were newly given during this study.

### Collection of Trachinidae and Uranoscopidae in ZUMT

Only a single specimen of the family Trachinidae was found in the ZUMT collection, probably having been obtained for inclusion in teaching material (an example of the suborder Trachinoidei) for fisheries science and/or ichthyology courses at The University of Tokyo.

Three genera and seven species of the family Uranoscopidae were represented by 80 specimens held in ZUMT, including three paratypes of *Uranoscopus flavipinnis* Kishimoto, 1987. Specimens were collected from 1909 to 1988, mainly in the later years, many representing Kanagawa to Wakayama Prefectures on the Pacific coast of Japan and the East China Sea. In addition, specimens from the East China Sea were collected by *F/V Ten-yo-maru* (天洋丸), owned by Y. Tominaga (富永義昭). Most specimens were identified as *Uranoscopus japonicus* Houttuyn, 1782, *Uranoscopus oligolepis* Bleeker, 1879, or *Xenocephalus elongatus* (Temminck & Schlegel, 1843), the three species most commonly caught by bottom trawl on the continental shelf in temperate Japanese waters (Kishimoto 1984, 2001; Yamada et al. 2007; Yamada and Yagishita 2013).

#### Trachinidae ハチミシマ科

*Trachinus* Linnaeus, 1758 ハチミシマ属

*Trachinus draco* Linnaeus, 1758 ハチミシマ

**ZUMT 5712:** 125.9 mm SL, Black Sea, Sevastopol, Crimea Peninsula.

**Uranoscopidae** ミシマオコゼ科

***Ichthyscopus*** Swainson, 1839 サツオミシマ属

***Ichthyscopus pollicaris*** Vilasri, Ho, Kawai & Gomom, 2019 サツオミシマ

**ZUMT 39389:** 179.8 mm SL, southern Japan (details unknown).

**ZUMT 50567:** 270.0 mm SL, East China Sea, 13 Sept. 1959, Y. Tominaga (富永義昭).

**ZUMT 50600:** 236.2 mm SL, East China Sea, 1950, Y. Tominaga.

***Uranoscopus*** Linnaeus, 1758 ミシマオコゼ属

***Uranoscopus bicinctus*** Temminck & Schlegel, 1843 メガネウオ

**ZUMT 2298:** 245.5 mm SL, Nagasaki Pref., Japan, 3 July 1909, local name "Mishima-joroshu (ミシマジヨロシユ)".

**ZUMT 41838:** 192.7 mm SL, no data.

Remarks: Tanaka (1913b) described and figured this species based on a single specimen landed at the Tokyo Market, Japan (ZUMT 3633, 273 mm SL). However, that particular specimen was not found during this study.

***Uranoscopus japonicus*** Houttuyn, 1782 ミシマオコゼ

**ZUMT 13293:** 176.5 mm SL, off Fukaura, Aomori Pref., Japan, 17 Nov. 1923, S. Tanabe (田辺貞夫), local name "Beko (ベコ)".

**ZUMT 19033:** 128.9 mm SL, Keelung, Taiwan, May 1928, H. Sato (Taipei Keelung Junior High School) [佐藤春吉 (台湾基隆中学校)].

**ZUMT 19639:** 199.6 mm SL, Genkai-nada Sea, Fukuoka Pref., Japan, before 1930, T. Matsumoto (Fukuoka Prefectural Moji Junior High School) [松本唯雄 (福岡県門司中学校)].

**ZUMT 20510:** 192.9 mm SL, off Naoetsu, Joetsu, Niigata Pref., Japan, 19 May 1909.

**ZUMT 20823:** 171.4 mm SL, Sagami Bay, Misaki, Kanagawa Pref., Japan.

**ZUMT 21172:** 148.8 mm SL, Shibushi Bay, Fukushima, Kushima, Miyazaki Pref., Japan, Miyazaki Prefectural Fukushima Village Fish Corp. (宮崎県福島村漁業組合).

**ZUMT 23390:** 145.0 mm SL, Kumano-nada Sea, Owase, Mie Pref., Japan, K. Nakahara (Mie Prefectural Owase Girls High School) [中原鋼作 (三重県尾鷲町尾鷲高等女学校校長)], local name "Mishimafugu (ミシマフグ)".

**ZUMT 23455:** 149.2 mm SL, off Niigata Pref., Japan, K. Igarashi (Niigata Girls High School) [五十嵐こづる (三重県尾鷲町尾鷲高等女学校校長)], local name "Ganko (ガンコ)".

**ZUMT 23864:** 136.5 mm SL; **ZUMT 23887:** 166.6 mm SL, probably Kagoshima Bay, Naya, Kagoshima, Kagoshima Pref., Japan, probably 1930, local name "Gata-anko (ガタアンコ)".

- ZUMT 24253:** 110.1 mm SL, Tosa Bay, Mimase, Kochi, Kochi Pref., Japan, 15 Jan. 1932, T. Kamohara (蒲原稔治).
- ZUMT 24345:** 127.0 mm SL, Miyazu, Kyoto, Japan, Nov. 1931, Kyoto Fishery School (京都府水産講習所).
- ZUMT 31260:** 122.9 mm SL, Matsue, Shimane Pref., Japan, R. Yanai (Shimane Prefectural Matsue High School) [柳井隆一 (島根県松江高校)].
- ZUMT 33704:** 130.8 mm SL, Enshu-nada Sea, off Maisaka, Hamamatsu, Shizuoka Pref., Japan, 1930, S. Ooe (Shizuoka Prefectural Hamamatsu Girls' Senior High School) [大恵尚一 (静岡県浜松高等女学校)].
- ZUMT 44065:** 122.9 mm SL, Wakayama Pref., Japan.
- ZUMT 46217:** 162.6 mm SL, Toyama Bay, Uozu or Namerikawa, Toyama Pref., Japan.
- ZUMT 47958:** 142.2 mm SL, East China Sea, Fukue-jima I., Goto Is., Mitsuiraku, Fukue, Goto, Nagasaki Pref., Japan, 22 May 1953, I. Tomiyama (富山一郎).
- ZUMT 49966:** 152.3 mm SL, East China Sea, Fukue-jima I., Goto Is., Nagasaki Pref., Japan, 10 June 1953, I. Tomiyama, who had requested specimens from the Fukue-cho Fish. Corp. [福江町漁業共同組合 (五島列島福江島福江町)].
- ZUMT 51013:** 119.7 mm SL, East China Sea, landed at Fukuoka Fish Market, Japan, 16 Mar. 1960, bottom trawl.
- ZUMT 56942:** 181.7 mm SL; **ZUMT 56943:** 188.5 mm SL, East China Sea, southeast of Tsushima Is., Nagasaki Pref., Japan (34° 20'42"N, 129° 56'37"E), 119–122 m depth, 10 July 1987, Y. Tominaga and M. Aizawa (*F/V No. 36 Ten-yo-maru*) [富永義昭・藍澤正宏 (第 36 天洋丸)].
- ZUMT 57682:** 93.9 mm SL, East China Sea, 5 May 1988.  
Remarks: The left and right sides of the ventral preopercular edge of this specimen had three and four spines, respectively. Although *U. japonicus* usually has three spines on the ventral margin of the preopercle, numbers may range from three to six (Kishimoto 1987).
- ZUMT 62537:** 156.6 mm SL, Sagami Bay, Zaimokuza, Kamakura, Kanagawa Pref., Japan, 11 Apr. 1932, T. Abe (阿部宗明).
- ZUMT 62538:** 152.3 mm SL, no data.
- ZUMT ABE 10194:** 194.6 mm SL, locality and date unknown, probably collected by T. Abe.
- ZUMT ABE '62-300:** 163.9 mm SL, Sagami Bay, off Manazuru, Kanagawa Pref., Japan, collected between 11 Mar. 1962 to 21 Apr. 1962, T. Abe.

Remarks: Tanaka (1913a) described and figured this species based on a single specimen landed at Wakayama Market, Kii Province (currently Wakayama Prefecture), Japan (ZUMT 3472, 163 mm SL). However, that specimen was not found during this study.

*Uranoscopus kishimotoi* Fricke, 2018

(Fig. 1)

**ZUMT 52228:** 120.1 mm SL, probably East China Sea.

Remarks: This specimen was probably collected from the East China Sea by *F/V Ten-yo-maru*, since most of the specimens collected from that area by *F/V Ten-yo-maru* had similar registration numbers. However, locality, collector, and date information had not been recorded in the ledger. The species has also been recorded from Japan (details lacking) (Prokofiev 2021) and Taiwan (fully detailed, based on specimens) (Vilasri 2019). *Uranoscopus kishimotoi* is similar to *U. japonicus*, the two species sharing many diagnostic characters, including most meristics, ossified head features, and aspects of the anterior nostril (Fricke 2018; Prokofiev 2021). However, *U. kishimotoi* is distinguished from *U. japonicus* in having a tubular posterior nostril (vs. slit-like in the latter), prelingual filament short or absent in all ages (vs. a wide lamellar protrusion with a fringe along the edges when juvenile), white dorsal coloring predominating over dark, giving the effect of a thin dark vermiculate pattern on a white background (vs. rounded white spots or an irregular white-spotted marbled pattern, the dark areas being wide enough for the pattern to be perceived as light against a dark background), and 25 vertebrae in total (vs. 26 or 27) (Fig. 1; Fricke 2018; Prokofiev 2021).

*Uranoscopus oligolepis* Bleeker, 1878 キビレミシマ

**ZUMT 31774:** 142.0 mm SL, Tokyo Market, Japan, 6 May 1936, S. Inuo (犬尾三郎).

**ZUMT 41499:** 73.5 mm SL; **ZUMT 41529:** 114.7 mm SL, Toyama Bay, Uozu, Toyama Pref., Japan, June 1932, I. Tomiyama.

**ZUMT 44426:** 174.0 mm SL, Miyazu, Kyoto, Japan, 8 July 1903, Iizuka (飯塚; first name unknown).

**ZUMT 45492:** 70.8 mm SL; **ZUMT 46184:** 77.5 mm SL, Toyama Bay, Uozu or Namerikawa, Toyama Pref., Japan, I. Tomiyama.

**ZUMT 46451:** 147.6 mm SL, no data.

**ZUMT 49897:** 134.2 mm SL, East China Sea, Fukue-jima I., Goto Is., Nagasaki Pref., Japan, 10 June 1953, I. Tomiyama.

**ZUMT 50604:** 108.4 mm SL, Fukuoka Fish Market, Fukuoka Pref., Japan, Y. Tominaga.

**ZUMT 51736:** 67.2 mm SL; **ZUMT 51830:** 175.9 mm SL, East China Sea, 17 Aug. 1959, *F/V No. 51 Ten-yo-maru* (第 51 天洋丸).

**ZUMT 54473:** 124.7 mm SL; **ZUMT 54474:** 142.3 mm SL, Norin-kaiku 345 (農林 345 区), East China Sea (32° 35'N, 122° 40'E), 23 m depth, 11 Oct. 1984, *F/V No. 8 Ten-yo-maru* (第 8 天洋丸).

**ZUMT 55110:** 154.5 mm SL, female; **ZUMT 55111:** 116.9 mm SL, female; **ZUMT 55112:** 82.7 mm SL, male, paratypes of *Uranoscopus flavipinnis*, Suruga Bay, off Miho Peninsula, Shizuoka, Shizuoka Pref., Japan, 7–35 m depth, 8 Apr. 1979 to 4 July 1980.

Remarks: These specimens were designated by Kishimoto (1987) as three of the 38 paratypes of *U. flavipinnis*. The holotype of *U. flavipinnis* is registered as HUMZ 107319 and is still deposited at the Hokkaido University Museum, Hakodate, Hokkaido, Japan; the remaining paratypes of *U. flavipinnis* are registered in BMNH, HUMZ, MNHN, MSM, NSMT, RMNH, USNM, and YCM (Kishimoto 1987; Fricke et al. 2022). *Uranoscopus chinensis* Guichenot, 1882 and *U. flavipinnis* are currently treated as junior synonyms of *U. oligolepis* (Prokofiev 2021; Fricke et al. 2022).

**ZUMT 63359:** 160.0 mm SL, Kii Peninsula, Ukui, Nanki-katsuura, Higashimuro, Wakayama Pref., Japan.

*Uranoscopus tosae* (Jordan & Hubbs, 1925) ヤギミシマ

**ZUMT ABE '59-689:** 172.6 mm SL, locality and date unknown, T. Abe.

*Xenocephalus* Kaup, 1858 アオミシマ属

*Xenocephalus elongatus* (Temminck & Schlegel, 1843) アオミシマ

**ZUMT 11495:** 183.0 mm SL, off Onahama, Fukushima Pref., Japan, 36.6 m depth (20 fathoms), 16 Nov. 1922, S. Nakadaira (Fukushima Prefectural Onahama Fisheries Experimental Station) [中平貞次郎 (福島県小名浜水産試験場)], local name "Mishimafugu (ミシマフグ)".

**ZUMT 11503:** 155.6 mm SL, off Onahama, Fukushima Pref., Japan, S. Nakadaira.

**ZUMT 13294:** 139.7 mm SL, off Fukaura, Aomori Pref., Japan, 17 Nov. 1923, S. Tanabe, local name "Beko (ベコ)".

**ZUMT 13315:** 138.9 mm SL, off Cape Nyudo-zaki, Kitaura, Oga, Akita Pref., Japan, 24 Nov. 1923, S. Tanabe, local name "Beko (ベコ)".

**ZUMT 20104:** 201.6 mm SL; **ZUMT 20105:** 202.7 mm SL, Sagami Bay, Misaki, Kanagawa Pref., Japan.

**ZUMT 23456:** 147.8 mm SL; **ZUMT 24470:** 163.1 mm SL, off Niigata Pref., Japan, collected in 1931 or 1932, K. Igarashi.

**ZUMT 25173:** 164.5 mm SL, Toyooka, Hyogo Pref., Japan, T. Tsuchihashi (Hyogo Prefectural Toyooka Girls High School) [土橋忠重 (兵庫県豊岡高等女学校)].

**ZUMT 25364:** 130.1 mm SL, south of Shima, Mie Pref., Japan (landed at Toyohama Fish Market, Aichi Pref., Japan), about 300–360 m depth (200 尋), 31 Mar. 1933, S. Yoshikane (Aichi Girls Normal School) [吉兼宗一 (愛知県女子師範学校)].

**ZUMT 31483:** 183.4 mm SL, Matsue, Shimane Pref., Japan, probably 1935, R. Yanai.

**ZUMT 45322:** 203.6 mm SL, Sagami Bay, off Odawara, Kanagawa Pref., Japan, F. Sakamoto (坂本福治), local name "Aokoze (アオオコゼ)".

**ZUMT 46291:** 217.0 mm SL; **ZUMT 46292:** 220.4 mm SL, probably Toyama Bay, Uozu or Namerikawa, Toyama Pref., Japan.

**ZUMT 46561:** 137.5 mm SL; **ZUMT 62549:** 150.3 mm SL; **ZUMT 62568:** 341.1 mm SL, no data.

**ZUMT 50540:** 202.8 mm SL; **ZUMT 50541:** 198.9 mm SL, Nagasaki Fish Market, Nagasaki Pref., Japan, 26 Aug. 1959, Y. Tominaga.

**ZUMT 51031:** 208.1 mm SL, East China Sea, landed at Fukuoka Fish Market, 16 Mar. 1960, bottom trawl.

**ZUMT 51215:** 191.1 mm SL, Norin-kaiku 158 (農林 158 区), East China Sea, 5 Dec. 1959, F/V No. 35 *Ten-yo-maru* (第 35 天洋丸).

**ZUMT 51529:** 157.8 mm SL, Norin-kaiku 304, 305, and 314 (農林 304, 305, and 314 区), East China Sea, 30 Mar. 1960.

**ZUMT 51570:** 132.2 mm SL, Norin-kaiku 266 (農林 266 区), East China Sea, 28 Mar. 1960.

**ZUMT 54663:** 7 specimens, 63.9–71.3 mm SL, Suruga Bay, off Mt. Kuno, Shizuoka, Shizuoka Pref., Japan, 9 May 1983, bottom trawl.

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### References

- Abe, T. 1977. Appendix III, European fishes. Pp. 1141–1204. In: Seno, T. and Noda, K. (eds) Daigakusyorins neues wörterbuch Deutsch-Japanisch. Daigakusyorin, Tokyo. (In Japanese)
- Fricke, R. 2018. Two new species of stargazers of the genus *Uranoscopus* (Teleostei: Uranoscopidae) from the western Pacific Ocean. *Zootaxa*, 4476: 157–167.
- Fricke, R., Eschmeyer, W. N., Van der Laan, R. (eds) 2022. Catalog of fishes: genera, species, references. Electric version.  
<http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. Accessed 31 March 2022.
- Imamura, H. and Odani, K. 2013. An overview of the phylogenetic relationships of the suborder Trachinoidei (Acanthomorpha: Perciformes). *Ichthyological Research*, 60: 1–15.
- Kishimoto, H. 1984. Uranoscopidae. Pp. 292–293, pl. 263. In: Masuda, H., Amaoka, K., Araga, C., Uyeno, T. and Yoshino, T. (eds) The fishes of the Japanese Archipelago. Tokai University Press, Tokyo.
- Kishimoto, H. 1987. A new stargazer, *Uranoscopus flavipinnis*, from Japan and Taiwan with redescription and neotype designation of *U. japonicus*. *Japanese Journal of Ichthyology*, 34: 1–14.
- Kishimoto, H. 2001. Uranoscopidae, stargazers. Pp. 3519–3531. In: Carpenter, K. E. and Niem, V. H. (eds) FAO Species Identification Guide for Fishery Purposes. The Living Marine Resources of the Western Central Pacific. Volume 4: Bony Fishes Part 4 (Labridae to Latimeriidae), estuarine crocodiles, sea turtles, sea snakes and marine mammals. FAO, Rome.

- Koeda, K., Hata, H., Aizawa, M., Sakamoto, K. and Ueshima, R. 2022. History of the fish collection of the Department of Zoology, The University Museum, The University of Tokyo. The University Museum, The University of Tokyo Material Reports, 129: 1–24. (In Japanese)
- Pequeño, G. 1989. Peces de Chile. Lista sistemática revisada y comentada. *Revista de Biología Marina, Valparaiso*, 24: 1–132.
- Roux, C. 1990. Trachinidae. Pp. 893–895. In: Quéro, J.-C., Hureau, J.-C., Karrer, C., Post, A. and Saldanha, L. (eds.) Check-list of the fishes of the eastern tropical Atlantic. Volume 3. CLOFETA. UNESCO, Paris.
- Sabaj, M. H. 2020. Codes for natural history collections in ichthyology and herpetology. *Copeia*, 108: 593–669.
- Smith, W. L. 2016a. Trachinidae, weeverfishes. Pp. 2769–2779. In: Carpenter, K. E. and De Angelis, N. (eds) The living marine resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes). FAO, Rome.
- Smith, W. L. 2016b. Uranoscopidae, stargazers. Pp. 2786–2792. In: Carpenter, K. E. and De Angelis, N. (eds) The living marine resources of the Eastern Central Atlantic. Volume 3: Bony fishes part 1 (Elopiformes to Scorpaeniformes). FAO, Rome.
- Tanaka, S. 1913a. Figures and descriptions of the fishes of Japan, including Riukiu Islands, Bonin Islands, Formosa, Kurile Islands, Korea and southern Sakhalin, 11: 187–198, pls. 51–55.
- Tanaka, S. 1913b. Figures and descriptions of the fishes of Japan, including Riukiu Islands, Bonin Islands, Formosa, Kurile Islands, Korea and southern Sakhalin, 15: 247–262, pls. 71–75.
- Pietsch, T. W. 1989. Phylogenetic relationships of trachinoid fishes of the family Uranoscopidae. *Copeia*, 1989: 253–303.
- Prokofiev, A. M. 2021. To the taxonomy of the stargazers of the genus *Uranoscopus* of the Indo-Pacific waters with a description of three new species (Uranoscopidae). *Journal of Ichthyology*, 61: 655–679.
- Vilasri, V. 2019. Family Uranoscopidae. Pp. 1097–1105. In: Koeda, K., and Ho, H.-C. (eds) Fishes of southern Taiwan. National Museum of Marine Biology & Aquarium, Pingtung.
- Vilasri, V., Ho, H.-C., Kawai, T. and Gomon, M. F. 2019. A new stargazer, *Ichthyoscopus pollicaris* (Perciformes: Uranoscopidae), from East Asia. *Zootaxa*, 4702: 49–59.
- Yamada, U., Tokimura, M., Horikawa, H. and Nakabo, T. 2007. Fishes and Fisheries of the East China Sea and Yellow Sea. Tokai University Press, Hadano. (In Japanese)
- Yamada, U. and Yagishita, N. 2013. Uranoscopidae, stargazers. Pp. 1277–1279, 2096–2097. In: Nakabo, T. (ed) Fishes of Japan with pictorial keys to the species, third edition. Tokai University Press, Hadano. (In Japanese)



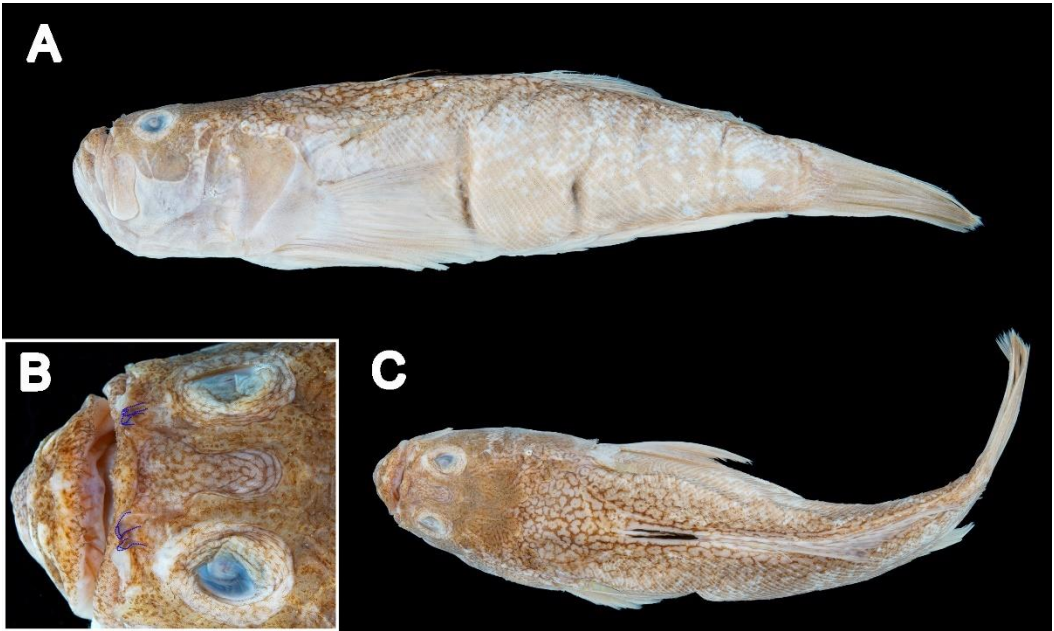


Fig. 1 Preserved specimen of *Uranoscopus kishimotoi* probably from the East China Sea (ZUMT 52228, 120.1 mm SL). A: lateral surface; B: close-up of dorsal surface of head (image reversed; nostrils outlined in dark blue); C: dorsal surface