Acta Ichthyologica et Piscatoria 54, 2024, 37–41 | DOI 10.3897/aiep.54.113513

PENSOFT

ACTA ICHTHYOLOGICA ET PISCATORIA

First Southern Hemisphere record of the longnosed stargazer, *Ichthyscopus lebeck* (Actinopterygii: Perciformes: Uranoscopidae)

Gino V. LIMMON[1,2,3], Kunto WIBOWO[4], Teguh PERISTIWADY[5], Ruby V. KUSUMAH[6], Muhammad AFRISAL[4,7]

1 *Fisheries and Marine Science Faculty, Pattimura University, Ambon, Indonesia*
2 *Maritime and Marine Science Center of Excellence, Pattimura University, Ambon, Indonesia*
3 *Center for Collaborative Research on Aquatic Ecosystem in Eastern Indonesia, Ambon, Indonesia*
4 *Museum Zoologicum Bogoriense, Research Center for Biosystematics and Evolution, National Research and Innovation Agency, Cibinong, Indonesia*
5 *Research Center for Oceanography, National Research and Innovation Agency, Jakarta Utara, Indonesia*
6 *Research Center for Fishery, National Research and Innovation Agency, Cibinong, Indonesia*
7 *Capture Fisheries Department, Indonesia Defense University, Belu, Indonesia*

https://zoobank.org/83CFFDC6-4EE8-4EFE-9A83-FB9A2D5E982B

Corresponding authors: Gino V. Limmon (gino.limmon@gmail.com); Kunto Wibowo (kunt003@brin.go.id)

Academic editor: Ronald Fricke ♦ **Received** 30 September 2023 ♦ **Accepted** 7 January 2024 ♦ **Published** 5 February 2024

Citation: Limmon GV, Wibowo K, Peristiwady T, Kusumah RV, Afrisal M (2024) First Southern Hemisphere record of the longnosed stargazer, *Ichthyscopus lebeck* (Actinopterygii: Perciformes: Uranoscopidae). Acta Ichthyologica et Piscatoria 54: 37–41. https://doi.org/10.3897/aiep.54.113513

Abstract

Two specimens (290.2 and 309.5 mm in standard length) of the longnosed stargazer, *Ichthyscopus lebeck* (Bloch et Schneider, 1801), were recently collected from Jakarta Bay, Jakarta, Indonesia. Described more than two centuries ago, *I. lebeck* has hitherto been documented exclusively from the Northern Hemisphere, encompassing the Arabian Sea, southern coastal India, the Bay of Bengal, the Andaman Sea, and Singapore. The present paper documents the first record of the species in the Southern Hemisphere. Detailed descriptions of these specimens are provided, contributing valuable insights into the characteristics of *I. lebeck* in the newly reported locality.

Keywords

distribution, Indonesia, morphology, Southern Hemisphere

Introduction

The genus *Ichthyscopus* Swainson, 1839, family Uranoscopidae, includes eight valid species, i.e. *Ichthyscopus barbatus* Mees, 1960; *Ichthyscopus fasciatus* Haysom, 1957; *Ichthyscopus insperatus* Mees, 1960; *Ichthyscopus lebeck* (Bloch et Schneider, 1801); *Ichthyscopus nigripinnis* Gomon et Johnson, 1999; *Ichthyscopus pollicaris* Vilasri, Ho, Kawai et Gomon, 2019; *Ichthyscopus sannio* Whitley, 1936; and *Ichthyscopus spinosus* Mees, 1960 (see Vilasri et al. 2019). The genus is distinguishable from other genera by the following external morphological characters: lateral lines on each side of body joined dorsally midway along caudal peduncle; cleithral spine embedded in dermal fringed flaps; upper and lower lips with developed compressed cutaneous cirri; and pectoral fin blade-shaped, upper rays longer than middle ray (Kishimoto 2001; Vilasri 2013). *Ichthyscopus lebeck* and the recently described new species *I. pollicaris* have both been reported as having a restricted distribution in the Northern Hemisphere, ranging from the Arabian Sea, southern coastal India, the Andaman Sea, Singapore, and

east Asian waters, whereas the other six species are allopatrically distributed in waters off Australia and New Guinea (Vilasri et al. 2019).

Two specimens of *Ichthyscopus lebeck*, caught as bycatch by fishermen from Jakarta Bay, Jakarta, Indonesia, were obtained at the Tanjung Pasir Fish Landing Port, Banten. They are described herein, being the first records of *I. lebeck* from waters off Indonesia and in the Southern Hemisphere.

Methods

Counts and measurements followed Gomon and Johnson (1999) and Vilasri et al. (2019). Standard and head lengths are abbreviated as SL and HL, respectively. The vertebral number was counted from a radiograph of MZB.26859, 309.5 mm SL, and the morphological description based on both specimens collected from Jakarta Bay. Curatorial procedures for the specimens, deposited at the Museum Zoologicum Bogoriense, Indonesia (MZB), followed Motomura and Ishikawa (2013).

Results

Family Uranoscopidae Bonaparte, 1831
Ichthyscopus Swainson, 1839

Ichthyscopus lebeck (Bloch et Schneider, 1801)

English common name: longnosed stargazer

Fig. 1; Table 1

Material examined. MZB.26859, 309.5 mm SL, MZB.26860 mm SL, 290.2 mm SL, Jakarta Bay, 5°57′S, 106°42′E, Jakarta, Indonesia (purchased at the Tanjung Pasir Fish Landing Port, Banten, Indonesia, 3 Nov. 2022, by K. Wibowo; see Fig. 2 for the collection site).

Description. Meristic and morphometrics shown in Table 1. Body elongated, progressively compressed posteriorly, moderately deep, its depth 2.7–3.2 in SL. Head large, slightly convex dorsally, mostly encased in irregular low vermiculated bone. Interorbital fossa rounded posteriorly, extending well beyond posterior margin of orbits, its mid-longitudinal length shorter than interorbital width. Orbit oval, its diameter noticeably greater than that of eyes. Nostrils with short, stiff, densely branched fimbriate edges; anterior nostril circular, distinctly shorter than eye diameter; posterior nostril circular, elongated, its length about equal to longitudinal orbit diameter; its posterior margin about level with posterior margin of eye. Mouth large, opening prominently upward; both lips with single row of long compressed fimbriae. Upper jaw with dense band of minute villiform teeth. Lower jaw with sharp uniserial spaced canines. Chin smooth, lateral surface without barbels. Opercular margin distinctly fimbriate dorsolaterally, weakly crenulated ventrally. Cleithral spine short, with sharp tip, covered by fleshy skin flap; tip of spine at about middle of skin flap. Cleithral flap fimbriated ventrally, posterior tip of flap reaching level with middle of pectoral fin. Narrow, low fleshy groove from inside opercular opening to about one-fourth to one-third length of uppermost pectoral fin ray; tiny fimbriae present on ventral margin of groove; posterior end of groove with small flap. Preopercle, opercle, and subopercle without spines. Dorsal fin with 2 approximately equal length spines, and 17–18 rays, becoming progressively longer posteriorly; origin of dorsal fin about level with origin of anal fin; posterior end of dorsal fin base slightly anterior to posterior end of anal fin base. Anal fin with 18 soft rays, first ray short, length of fourth to fifteenth ray about equal; membrane between rays (except three posteriormost rays) relatively deeply concave. Pectoral fin with 18 rays, blade-like and rounded posteriorly, fifth ray longest. Pelvic fin large, with small skin-covered spine and 5 branched rays; posterior tip of depressed fin distinctly beyond posterior margin of opercle. Caudal fin somewhat rounded, tips of branched rays extending slightly beyond surrounding membrane. Ventral surface of abdomen with three developed skin flaps; medial flap longest, extending from anteriormost of isthmus to anterior margin of anus; lateral flaps located on each side of medial flap, on posterior two-thirds of abdomen and extending to middle of second or third anal-fin ray. Third or fourth to eighteenth rays associated with short oblique skin flaps on each side; flaps lowering progressively posteriorly. Small rectangular posteroventrally oblique cycloid scale rows on body (some rows anteroventrally oblique on midlateral body surface in smaller specimen). Anterodorsal and ventral surfaces of body and lateral surface behind pectoral fin base naked. Vertebrae 9 + 16 (Fig. 1D).

Color when fresh. (Fig. 1A–C). Head pinkish to white laterally, brown dorsally. Nape uniformly brown without distinct white blotches. Upper portion of body dark brown, with ca. 2 or 3 rows of white blotches, from slightly less to larger than eye diameter, running from above cleithral flap to caudal peduncle. Lower and ventral portions of body white. Dorsal fin dark, with a series of white blotches near base and outer edge. Pectoral fin dark yellowish, pinkish or whitish distally, with a large white transverse blotch anteriorly. Pelvic and anal fins yellowish to pinkish-white. Upper portion of caudal fin dark with ca. two pale white blotches; lower portion yellowish to pinkish.

Discussion

The data on Indonesian specimens agreed closely with the diagnosis of *Ichthyscopus lebeck* given by Vilasri et al. (2019), e.g. number of caudal vertebrae 16; number of upper lip fimbriae 29 or 30; posterior nostril longitudinally elongated, its posterior margin well beyond center of orbit; ventral surface of abdomen with three developed skin flaps, i.e. medial flap, extending from anteriormost of isthmus to anterior margin of anus, and lateral flaps on each side of medial flap, on posterior

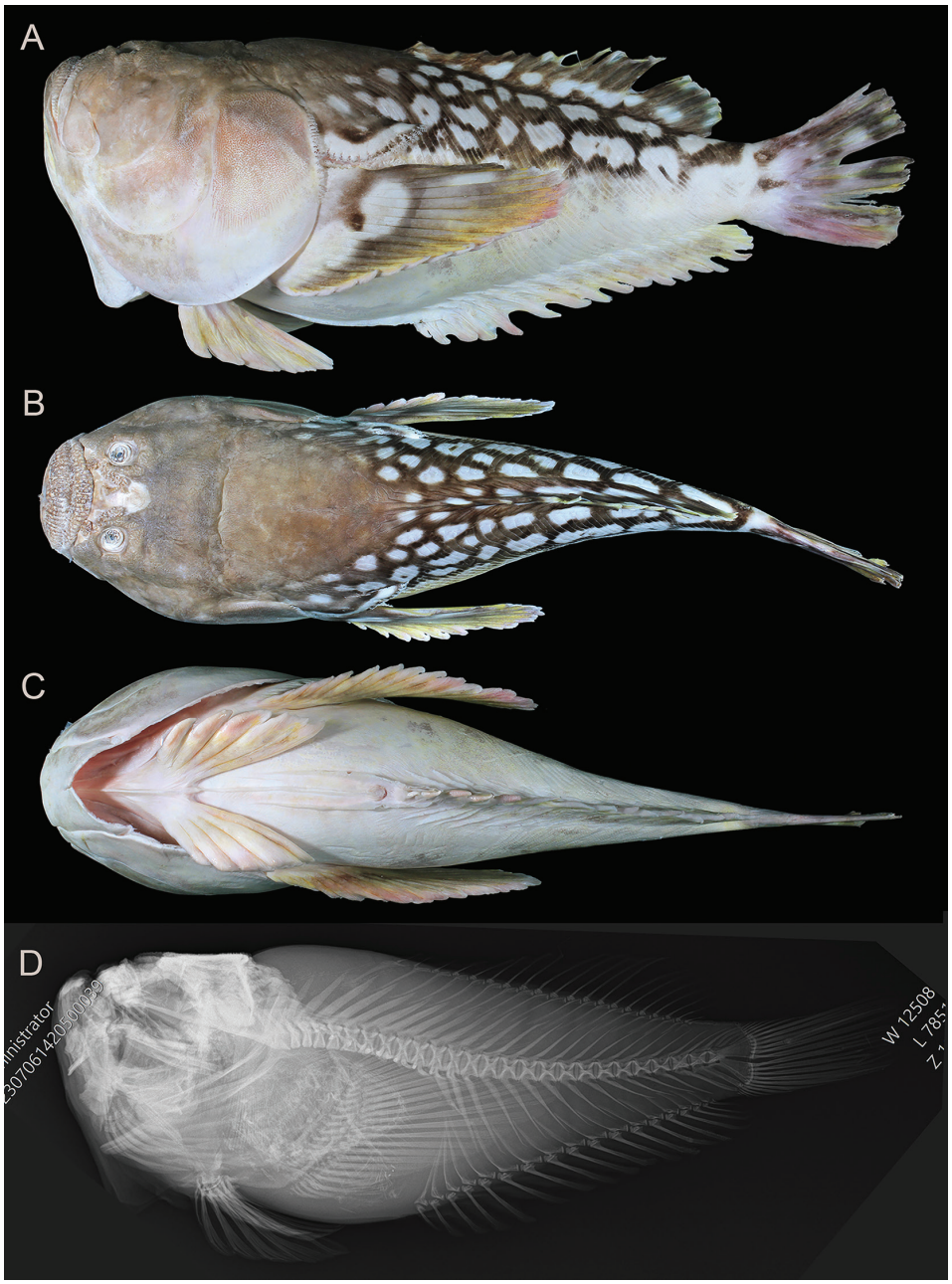

Figure 1. Fresh specimen of *Ichthyscopus lebeck* from Indonesia; MZB.26859, 309.5 mm SL. (**A**) lateral view; (**B**) dorsal view; (**C**) ventral view; (**D**) radiograph.

Figure 2. Collection site (star) of the specimens of *Ichthyscopus lebeck* from Indonesia; examined in this study.

Table 1. Counts and measurements (expressed as percentages of standard and head lengths) of *Ichthyscopus lebeck* from Indonesia.

Parameter	This study		Vilasri et al. 2019
	Southern Hemisphere		Northern Hemisphere
	MZB.26859	MZB.26860	*n* = 11
Standard length (SL) [mm]	309.5	290.2	191–368
Counts			
Dorsal fin rays	II, 18	II, 17	II, 17.5–19
Anal fin rays	18	18	17–19
Pectoral fin rays	18	18	18–19
Pelvic fin rays	I, 5	I, 5	—
Vertebrae (abdominal + caudal)	9 + 16	—	9 + (16–17)
Upper lip fimbriae (both sides)	30	29	25–34
Lower lip fimbriae (both sides)	48	46	43–53
Opercular fimbriae	20	16	15–22
Cleithral flap fimbriae	19	19	17–22
Scale rows	60	55	50–61
Measurements [%SL]			
Body depth	37.0	31.3	29.8–36.6
Head length (HL)	40.9	42.2	39.7–43.3
Head width	32.6	33.3	29.3–34.3
Pectoral fin length	31.0	29.3	26.4–33.3
Pelvic fin length	24.4	26.2	21.6–28.1
Measurements [%HL]			
Orbital diameter longitudinal	11.7	10.7	10.1–13.6
Orbital diameter transverse	10.1	9.4	9.1–10.6
Eye diameter	6.8	7.5	6.4–9.1
Interorbital distance	21.1	21.6	20.2–24.5
Interorbital fossa width	16.9	17.5	14.9–19.5
Cleithral spine length	24.1	22.8	16.0–27.4

two-thirds of abdomen and extending to middle of second or third anal-fin ray; dorsolateral surface of body dark brown with distinct white blotches, without dark saddles; no distinct notch separating anterior and posterior portions of dorsal fin; cirri present on anteroventral opercular margin; large white transverse blotch on pectoral fin base; uppermost pectoral ray with uniformly dusky hue, without obvious spots. Although Vilasri et al. (2019) noted that the posterior ends of the lateral skin flaps on eleven examined individuals of *I. lebeck* had been consistently attached to the middle of the second anal fin ray, those of the presently reported specimens were attached to the middle of the third anal fin ray (in the larger specimen) and asymmetrically to the middle of the second and third anal fin rays in the left and right sides of the body, respectively (in the smaller specimen). Additionally, a yellowish coloration had been evident on the head, body, and all fins in Vilasri et al. (2019: fig. 6), while the specimens examined here (Fig. 1A) had only a very faint yellowish hue, limited primarily to the fins. All other morphological characters, including morphometrics and meristics, of the presently reported specimens agreed closely with those of *I. lebeck* given by Vilasri et al. (2019), except body depth of MZB.26859 37.0% of SL (vs. 29.8–36.6, in the latter). The minor differences are herein regarded as intraspecific variations of *I. lebeck*.

Ichthyscopus lebeck shares similarities with the east Asian species *I. pollicaris* and Australian species *I. sannio* in having three skin flaps developed on the ventral surface of abdomen, the upper half of the body dark brown with white blotches, and lacking transverse bands. However, *I. lebeck* is distinct from both in several aspects, including some morphological features, meristics, and coloration, as detailed by Gomon and Johnson (1999) and Vilasri et al. (2019).

Since its original description in Bloch and Schneider (1801), *Ichthyscopus lebeck* has only been reported from the Northern Hemisphere [e.g., Arabian Sea, southern coast of India (Kishimoto 2001; Vilasri et al. 2019), western Bay of Bengal, India (Velamala and Naranji 2018; Chakraborty et al. 2020), northern Bay of Bengal, Bangladesh (Habib and Islam 2020), and Andaman Sea and Singapore. The southernmost record at latitude 1°N, was based on a single specimen (Kishimoto 2001; Vilasri 2019; Vilasri et al. 2019)]. In addition, from 2005 to 2019, multiple additional reports of the species in Singapore waters were documented (Tan and Lim 2013; Tan and Chan 2019), one specimen having been collected from Changi Beach and deposited in the Zoological Reference Collection of the Lee Kong Chian Natural History Museum, National University of Singapore (Tan and Chan 2019). Accordingly, the presently reported specimens collected from Jakarta Bay (at a latitude of 5°–6°S), represent the southernmost records of the species and first confirmed occurrence of the species in the Southern Hemisphere.

Ichthyscopus lebeck is known to inhabit sandy or muddy habitats in the intertidal zones of seagrass ecosystems in Singapore (Tan and Lim 2013; Tan and Chan 2019), estuarine areas near mangrove ecosystems in India (Chakraborty et al. 2020), and depths of 15–20 meters

(this study). The species has the habit of waiting for its prey by burying into the substrate, leaving only its eyes and mouth visible. Fishermen in Jakarta Bay have also noted that the species is often caught using drift gillnets operated at night, indicating its tendency for increased activity during nighttime.

Because there are no significant natural geographical barriers that separate waters off Singapore (southern South China Sea) and Jakarta Bay (Java Sea), as well as coastal areas of the Arabian Sea, Indian Ocean, Andaman Sea, and Singapore, it is likely that *I. lebeck* is distributed along these coastlines where suitable habitats occur. The paucity of reports of the species' presence in some areas may be due either to its secretive behavior, resulting in less common sightings, or to the population not being particularly abundant.

Acknowledgments

We are especially grateful to S. Sauri (MZB, Indonesia) for his efforts in cataloging the specimens and to Dr G. S. Hardy (Ngunguru, New Zealand) for assisting with the English text and valuable input in reviewing the manuscript. This study was supported by "Program Pendanaan Riset dan Inovasi untuk Indonesia Maju (RIIM) and Lembaga Pengelola Dana Pendidikan (LPDP), Kementerian Keuangan Republik Indonesia".

References

Bloch ME, Schneider JG (1801) M. E. Blochii, Systema Ichthyologiae Iconibus cx Ilustratum. Post obitum auctoris opus inchoatum absolvit, correxit, interpolavit Jo. Gottlob Schneider, Saxo. Sumtibus Auctoris Impressum et Bibliopolio Sanderiano Commissum, Berolini, i–ix + 584 pp. https://doi.org/10.5962/bhl.title.5750

Chakraborty P, Yardi K, Mukherjee P, Das S (2020) First record of two species of fishes from West Bengal, India and additional new ichthyofaunal records for the Indian Sundarbans. International Journal of Fisheries and Aquatic Studies 8(2): 6–10.

Gomon MF, Johnson JW (1999) A new fringed stargazer (Uranoscopidae: *Ichthyscopus*) with descriptions of the other Australian species of the genus. Memoirs of the Queensland Museum 43(2): 597–619.

Habib KA, Islam MJ (2020) An updated checklist of marine fishes of Bangladesh. Bangladesh. Journal of Fisheries 32(2): 357–367. https://doi.org/10.52168/bjf.2020.32.40

Haysom NM (1957) Notes on some Queensland fishes. Ichthyological Notes Queensland 1(3): 139–144.

Kishimoto H (2001) Uranoscopidae. Pp. 3519–3531. In: Carpenter KE, Niem VH (Eds.) FAO species identification guide for fisheries purposes. The living marine resources of the western Central Pacific. Vol. 6. Bony fishes, part 4. (Labridae to Latimeriidae). FAO, Rome.

Mees GF (1960) The Uranoscopidae of Western Australia (Pisces, Perciformes). Journal of the Royal Society of Western Australia 43(2): 46–58.

Motomura H, Ishikawa S (Eds.) (2013) Fish collection building and procedures manual. English edition. Kagoshima University Museum, Kagoshima and the Research Institute for Humanity and Nature, Kyoto, Japan, 70 pp.

Swainson W (1839) On the natural history and classification of fishes, amphibians, and reptiles, or monocardian animals. Spottiswoode, London, i–vi + 452 pp. https://doi.org/10.5962/bhl.title.62140

Tan HK, Chan SY (2019) A longnose stargazer at Changi Beach. Singapore Biodiversity Records 2019: 8–9.

Tan R, Lim KKP (2013) Long-nosed stargazers at Changi. Singapore Biodiversity Records 2013: 90–91.

Velamala GR, Naranji MK (2018) On the occurrence of the rare long-nosed Stargazer *Ichthyscopus lebeck* (Bloch et Schneider, 1801) (Uranoscopidae) in the coastal waters off Visakhapatnam, India. Journal of Threatened Taxa 10(5): 11697–11700. https://doi.org/10.11609/jott.3520.10.5.11697-11700

Vilasri V (2013) Comparative anatomy and phylogenetic systematics of the family Uranoscopidae (Actinopterygii: Perciformes). Memoirs of the Faculty of Fisheries Sciences. Hokkaido University 55: 1–106. https://doi.org/10.11646/zootaxa.3366.1.1

Vilasri V (2019) Uranoscopidae. Pp. 534–537. In: Psomadakis PN, Thein H, Russell BC, Tun MT (Eds.) FAO species identification guide for fisheries purposes. Field identification guide to the living marine resources of Myanmar. FAO Species Identification Guide for Fishery Purposes. FAO and MOALI, Rome.

Vilasri V, Ho HC, Kawai T, Gomon MF (2019) A new stargazer, *Ichthyscopus pollicaris* (Perciformes: Uranoscopidae), from East Asia. Zootaxa 4702(1): 49–59. https://doi.org/10.11646/zootaxa.4702.1.10

Whitley GP (1936) More ichthyological miscellanea. Memoirs of the Queensland Museum 11(1): 23–51.