

Biodiversity Record: Sea catfishes of the genus *Netuma* in Singapore

Aidan Raphael Keh & Jiayuan Lin*

Email: aidankeh47@gmail.com, jylin2002@gmail.com (*corresponding author)

Recommended citation. Keh AR & Lin J (2023) Biodiversity Record: Sea catfishes of the genus *Netuma* in Singapore. Nature in Singapore, 16: e2023090. DOI: 10.26107/NIS-2023-0090

Subjects: Bronze salmon catfish, *Netuma bilineata* (Teleostei: Siluriformes: Ariidae);
Giant salmon catfish, *Netuma thalassina* (Teleostei: Siluriformes: Ariidae).

Subjects identified by: Aidan Raphael Keh and Jiayuan Lin.

Location, date and time: Three observations at separate locations in the Singapore Strait —

- 1) Off Pulau Semakau; 3 December 2022, 2230 hrs.
- 2) Off Jurong Island; 29 July 2023, 0545 hrs.
- 3) Bedok Jetty off East Coast Park; 13 March 2023, 0013 hrs.

Habitat: Marine. The seabed beneath Bedok Jetty was around 5 m deep and silty with sparse coral rubble. The other locations off Semakau and Jurong Island were between 20–30 m depth and have a muddy seabed near submerged reefs.

Observers: Aidan Raphael Keh and Jiayuan Lin.

Observations: Three different fish of two species were landed via hook and line, on separate occasions, with freshly caught squid (*Urotheuthis* sp.) as bait.

While fishing on a boat off Pulau Semakau, a *Netuma thalassina* of around 35 cm total length (Figs. 1, 4) was obtained by Jiayuan Lin on 3 December 2022 at around 2230 hrs.



Fig. 1. Lateral view of live *Netuma thalassina* immediately after capture off Pulau Semakau on 3 December 2022 (Photograph by: Jiayuan Lin).

On 29 July 2023 at around 0545 hrs, another *Netuma thalassina* of about 46 cm total length (Figs. 2 & 5) was caught by Jiayuan Lin while fishing on another boat off Jurong Island.



Fig. 2. Lateral (top) and dorsal (bottom) views of live *Netuma thalassina* immediately after capture off Jurong Island on 29 July 2023 (Photographs by: Jiayuan Lin).

A *Netuma bilineata* of around 48 cm total length was caught by Aidan Raphael Keh at Bedok Jetty on 13 March 2023 at around 0013 hrs.



Fig. 3. Lateral view of the *Netuma bilineata* freshly landed at Bedok Jetty on 13 March 2023 (Photograph by: Aidan Raphael Keh).

Remarks: Catfishes of the genus *Netuma* may be distinguished from other members of the Ariidae in Singapore by the palatal teeth being grouped into 3 patches on each side of the palate, usually coalescing to form a large triangle (Figs. 4–6), and slender and tapering caudal fin lobes (Kailola, 1986, 1999). *Netuma thalassina* has a pointed, elongated snout and inner vomerine tooth patches always separate at the midline of the palate (Figs. 4, 5). *Netuma bilineata* has a blunt, short snout and inner vomerine tooth patches that are fused along the midline of the palate (Fig. 6) (see Kailola, 1986, 1999; Al-Hassan et al., 1988 as *Arius bilineatus* and *Arius thalassinus*; Rahangdale et al., 2019).

Ng (2012) presumed that all previous records of *Netuma thalassina* in Singapore were misidentified *Netuma bilineata*, after having examined specimens recorded as *Netuma thalassina* in the Zoological Reference Collection (ZRC) of the LKCNHM, and re-identifying all of them as *Netuma bilineata*. Both species were recorded from the western Johor

Strait (on the Malaysian side) by Kimura (2015). The two specimens of *Netuma thalassina* featured here confirm the presence of the species in Singapore waters.

Kailola (1986) and Al-Hassan et al. (1988) have observed that *Netuma thalassina* usually inhabits deeper waters while *Netuma bilineata* is more abundant in shallower, inshore waters. The recent records appear to agree with these findings for the two *Netuma thalassina* were caught from boats from around 20 to 30 m depth, while *Netuma bilineata* was obtained nearer the shore at around 5 m depth. However, the presence of both species in the western Johor Strait (Kimura, 2015) also suggests that they can be sympatric.



Ventral views of head with mouth open showing shape of snout and vomerine and palatal tooth patches on the roof of the mouth. Fig. 4. *Netuma thalassina* from off Pulau Semakau (Photograph by: Jiayuan Lin). Fig. 5. *Netuma thalassina* from off Jurong Island (Photograph by: Jiayuan Lin). Fig. 6. *Netuma bilineata* from Bedok Jetty (Photograph by: Aidan Raphael Keh).

Literature cited:

- Al-Hassan JM, Clayton DA, Thomson M & Criddle RS (1988) Taxonomy and distribution of Ariid catfishes from the Arabian Gulf. *Journal of Natural History*, 22: 473–487.
- Ng HH (2012) The Ariid catfishes of Singapore. *Nature in Singapore*, 5: 211–222.
- Kailola PJ (1986) Ariidae systematics: Comparison of the giant sea catfishes *Arius thalassinus* and *A. bilineatus* of the Indo-Pacific. In: Uyeno T, Arai R, Taniuchi T & Matsuura K (eds.) *Indo-Pacific Fish Biology: Proceedings of the Second International Conference on Indo-Pacific Fishes*. Ichthyological Society of Japan, Tokyo, pp. 540–549.
- Kailola PJ (1999) Ariidae (=Tachysuridae): Sea catfishes (fork-tailed catfishes). In: Carpenter KE & Niem VH (eds.) *FAO Species Identification Guide for Fishery Purposes. The Living Marine Resources of the Western Central Pacific. Volume 3. Batoid Fishes, Chimaeras and Bony Fishes Part 1 (Elopidae to Linophrynidae)*. FAO, Rome, pp. 1827–1879.
- Kimura S (2015) Ariidae. Sea catfishes. In: Kimura S, Arshad A, Imamura H & Ghaffar MA (eds.) *Fishes of the Northwestern Johor Strait, Peninsular Malaysia*. Universiti Putra Malaysia Press and Mie University, Japan, pp. 22–24.
- Rahangdale S, Rajan K, Vinaykumar V, Divu D, Tarachand K, Abdul Azeed P & Kapil S (2019) Taxonomic note on the Indian species of genus *Netuma*. *Marine Fisheries Information Service, Technical and Extension Series*, 240: 26–27.