

Biodiversity Record: New Singapore record of the cusk-eel, *Alionematichthys riukuensis*

Jiayuan Lin* & Tan Heok Hui

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

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Subjects: Bigeye cusk-eel, *Alionematichthys riukuensis* (Teleostei: Ophidiiformes: Dinematichthyidae).

Subjects identified by: Jiayuan Lin.

Location, date and time: Singapore Strait, Marina South pier; 9 August 2022, 8 September 2022 and 19 April 2024; around 0042, 2018 and 1922 hrs.

Habitat: Marine. Shallow coastal sea. Along the side of a long concrete jetty structure jutting from the shore.

Observer: Jiayuan Lin.

Observations: The three specimens herein featured were taken by hook-and-line baited with prawn (*Penaeus* sp.) meat. All have been preserved and deposited in the Zoological Reference Collection (ZRC), of the Lee Kong Chian Natural History Museum, at the National University of Singapore.

The first specimen (ZRC 63092) of 97.2 mm standard length (Figs. 1, 2 & 5), was taken on 9 August 2022 at 0042 hrs, from a hole between rocks. The water in the hole was about 50 cm deep. The orange-coloured fins (Fig. 1) of the live fish faded to white upon death (Fig. 2).

The second and largest example (ZRC 63089) of 104.8 mm standard length (Figs. 3 & 6), was obtained on 8 September 2022 at 2018 hrs, on rising tide, from inside a rock crevice next to the seawall. The water in the crevice was around 60 cm deep.

The third example (ZRC 66336), 97.3 mm standard length, was taken on 19 April 2024 at 1922 hrs, from the same crevice as the second example. While alive, it was temporarily held in a glass tank for photography (Fig. 4).



Fig. 1. Lateral view of *Alionematichthys riukuensis* freshly landed, in life, in the hand, on 9 August 2022. Note the orange-coloured fins (Photograph by: Jiayuan Lin).

Remarks: Following the taxonomic review of the Dinematichthyini by Schwarzhans & Møller (2007), the featured specimens appear to bear the closest resemblance to *Alionematichthys riukuensis*. This represents the first record of *Alionematichthys riukuensis* in Singapore. The species has a wide distribution in the Indo-west Pacific. It has been recorded from the Ryukyu Islands of Japan (the type locality), Taiwan, Hainan, Vietnam, the Philippines, the west coast

of Thailand, the Mentawi Islands of Sumatra, New Guinea, northern Australia, New Caledonia, the Solomon Islands and Vanuatu. Its presence in Singapore, therefore, can be expected.

According to Schwarzhans & Møller (2007), *Alionemichthys riukuensis* can be distinguished from *Ungusurculus riauensis* and *Dinematchthys ilucoeteoides*, two con-familials known in Singapore waters (see Lim & Low, 2008; Ng, 2014) by the following morphological characters: many scales on cheeks (8–13 vertical rows on upper part, 4–5 vertical rows on lower), large scale patch (6–17 scales) above opercular spine and presence of upper preopercular pore (see Figs. 5 & 6). In comparison, *Ungusurculus riauensis* has a scale patch on cheeks (5 vertical scale rows on upper part, 3 vertical rows on lower), no scales above opercular spine and no upper preopercular pore. *Dinematchthys ilucoeteoides* has its head continuously covered with scales and no upper preopercular pore. *Alionematchthys riukuensis* is the largest of the three species, attaining a maximum known size of 15 cm standard length. The maximum known size of *Ungusurculus riauensis* is 5.6 cm, and that of *Dinematchthys ilucoeteoides* is 11.2 cm.



Fig. 2. Lateral view (right side reversed) of 97.2 mm SL example (ZRC 63092). Fig. 3. Lateral view of 104.8 mm SL example (ZRC 63089) (Photographs by: Tan Heok Hui).



Fig. 4. Lateral view of *Alionematchthys riukuensis* of 97.3 mm standard length, freshly landed on 19 April 2024, alive in a glass tank (Photograph by: Jiayuan Lin).



Fig. 5. Lateral view (right side reversed) of the head of ZRC 63092. Fig. 6. Lateral view of the head of ZRC 63089. Arrows indicate the upper preopercular pore (Photographs by: Tan Heok Hui).

Literature cited:

- Lim KKP & Low JKY (1998) A Guide to Common Marine Fishes of Singapore. Singapore Science Centre, 163 pp.
- Ng MFC (2014) Riau viviparous brotula at Pulau Sekudu. Singapore Biodiversity Records, 2014: 172.
- Schwarzahns W & Møller PR (2007) Review of the Dinematchthyini (Teleostei: Bythitidae) of the Indo-west Pacific. Part III. *Beaglichthys*, *Brosmolus*, *Monothrix* and eight new genera with description of 20 new species. The Beagle, Records of the Museums and Art Galleries of the Northern Territory, 23: 29–110.