

Biodiversity Record: Fish fauna of a mangrove tide pool at Sungei Buloh

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Subjects: Mangrove pipefish, *Ichthyocampus carce* (Teleostei: Syngnathiformes: Syngnathidae);
Acentrogobius sp. (Teleostei: Gobiiformes: Gobiidae);
Stripe-face brackish goby, *Eugnathogobius variegatus* (Teleostei: Gobiiformes: Gobiidae);
Roux's pandaka, *Pandaka rouxi* (Teleostei: Gobiiformes: Gobiidae);
Glass goby, *Gobiopterus* sp. (Teleostei: Gobiiformes: Gobiidae);
Banded mullet goby, *Hemigobius hoevenii* (Teleostei: Gobiiformes: Gobiidae);
Yellowspot fat-nosed goby, *Pseudogobius fulvicaudus* (Teleostei: Gobiiformes: Gobiidae);
Spotted fat-nosed goby, *Pseudogobius poecilosoma* (Teleostei: Gobiiformes: Gobiidae);
Single-bar fat-nosed goby, *Pseudogobius verticalis* (Teleostei: Gobiiformes: Gobiidae);
Mangrove bumblebee goby, *Brachygobius kabiliensis* (Teleostei: Gobiiformes: Gobiidae);
Giant mudskipper, *Periophthalmodon schlosseri* (Teleostei: Gobiiformes: Gobiidae);
Boddart's blue-spotted mudskipper, *Boleophthalmus boddarti* (Teleostei: Gobiiformes: Gobiidae).

Subjects identified by: Jiayuan Lin, Ong JunXiang Lumin and Tay Jing Xuan.

Location, date and time: Singapore Island, Sungei Buloh Wetland Reserve; 6 March 2024; 1301–1316 hrs.

Habitat: Mangrove forest. In an isolated tide pool (about 45 cm diameter) of brackish water and mud-sand substrate, in an exposed intertidal flat during low tide. This location is different from that featured in an earlier record (Ong, 2024).

Observers: Ong JunXiang Lumin and Tay Jing Xuan.

Observation: In the pool, four individuals of *Ichthyocampus carce* (Figs. 1–4) were observed alongside at least nine species of gobies. There were more than 20 individuals each of *Brachygobius kabiliensis* (Figs. 1, 4, 5 & 8) and *Pseudogobius poecilosoma* (Fig. 7). Around 11 individuals of *Pseudogobius verticalis* (Figs. 1, 6, 7, 8) and two *Pseudogobius fulvicaudus* (Fig. 6) were counted. There was one apparent *Acentrogobius* that we were unable to identify to species (Fig. 10), seven *Eugnathogobius variegatus* (Fig. 9) and three *Hemigobius hoevenii* (Fig. 4). More than 10 each of *Pandaka rouxi* (Figs. 1 & 5) and *Gobiopterus* sp. (Fig. 5) were observed near the water surface. Around six *Boleophthalmus boddarti* (Fig. 12), including a juvenile (Fig. 11), and one *Periophthalmodon schlosseri* (Fig. 13) were observed within 3 m of the pool.

Remarks: This observation is an addition to a previous report (Ong, 2024) on fish communities that could be observed in mangrove tide pools. The presence of large mudskippers such as *Periophthalmodon schlosseri* and *Boleophthalmus boddarti* suggests that the pools could have been formed by their burrowing and excavating activities. These pools tend to confine small non-amphibious fish to the mudflats when the tide recedes.

Notable among the fishes are the mangrove pipefish *Ichthyocampus carce*, a diminutive species which seems to be rarely noted. The side view of a 10.3 cm individual from Sungei Buloh is illustrated in Lim & Low (1998). Although they are relatively common, three species of congeneric fatnose gobies previously confused under the name *Pseudogobius javanicus* (see Larson & Lim, 2005) – *Pseudogobius fulvicaudus*, *Pseudogobius verticalis* and *Pseudogobius poecilosoma*, can be identified by the colour and markings on their first dorsal fins. *Pseudogobius poecilosoma* is an older (and thus valid) name for *Pseudogobius javanicus*. *Pseudogobius verticalis* was recently identified and described based on the holotype from Sungei Buloh (Larson & Hammer, 2021). Also noteworthy is the apparently rare illustration of a 3 cm reddish mudskipper (Fig. 11) which the authors believe to be a juvenile *Boleophthalmus boddarti*.



Fig. 1. Dorso-lateral overview of one part of the pool with one *Ichthyocampus carce* on the right (indicated by arrow), among gobies *Brachygobius kabiliensis* (with black, white and yellow bands) and *Pseudogobius verticalis* (with vertical black band from first dorsal fin to side of abdomen). Two examples of *Pandaka rouxi* (dark with fine yellow bars) are also present at the middle part of the picture (Photograph by: Tay Jing Xuan).



Fig. 2. Dorsal view of second *Ichthyocampus carce* of about 8 cm total length. Fig. 3. Dorso-lateral view of third *Ichthyocampus carce*. Fig. 4. Dorso-lateral view of fourth *Ichthyocampus carce*, with a *Pseudogobius* sp. and *Brachygobius kabiliensis* below it and a *Hemigobius hoevenii* of about 3 cm total length above (Photographs by: Ong JunXiang Lumin).

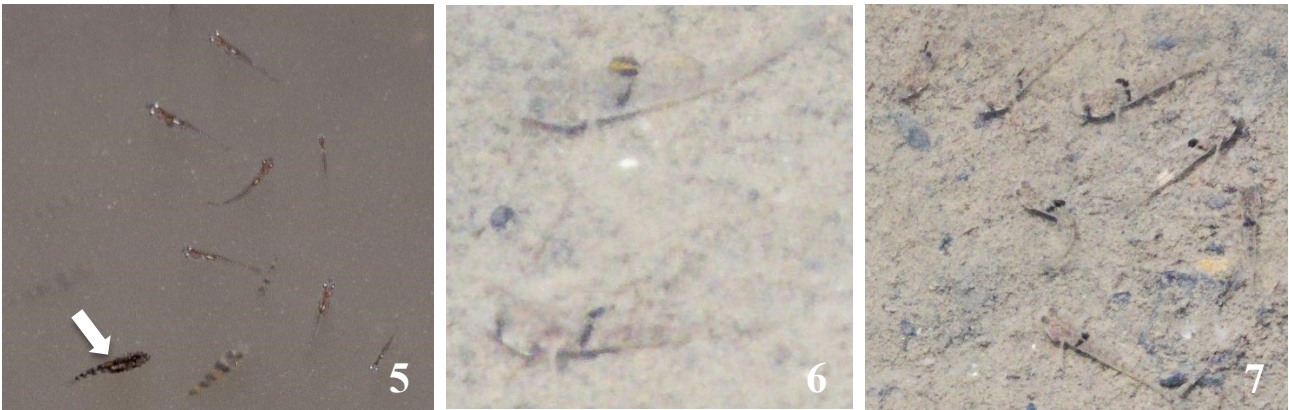


Fig. 5. Dorsal views of *Gobiopterus* sp., *Brachygobius kabiliensis* (banded individuals) and one *Pandaka rouxi* (indicated by arrow). (Photograph by: Ong JunXiang Lumin) Fig. 6. Dorsolateral views of *Pseudogobius fulvicaudus* (top) and *Pseudogobius verticalis* (bottom). Fig. 7. Dorso-lateral views of *Pseudogobius poecilosoma* (with black blotch on first dorsal fin) and *Pseudogobius verticalis* (with black stripe on first dorsal fin) (Photographs by: Ong JunXiang Lumin).



Fig. 8. Dorso-lateral views of *Pseudogobius verticalis*, with three *Brachygobius kabiliensis* on the top. Fig. 9. Dorsal view of an *Eugnathogobius variegatus* of about 4 cm total length. Fig. 10. Dorso-lateral view of an *Acentrogobius* sp (Photographs by: Ong JunXiang Lumin).



Fig. 11. Dorsal view of a juvenile *Boleophthalmus boddarti* of about 3 cm total length. (Photograph by: Ong JunXiang Lumin) Fig. 12. Dorsolateral view of an adult *Boleophthalmus boddarti* of about 15 cm total length. (Photograph by: Tay Jing Xuan) Fig. 13. Dorso-anterior view of a *Periophthalmodon schlosseri* of about 23 cm total length (Photograph by: Tay Jing Xuan).

Literature cited:

- Larson HK & Hammer MP (2021) A revision of the gobiid fish genus *Pseudogobius* (Teleostei, Gobiidae, Tridentigerinae), with description of seven new species from Australia and South-east Asia. *Zootaxa*, 4961: 1–85.
- Larson HK & Lim KKP (2005) A Guide to Gobies of Singapore. Singapore Science Centre, 164 pp.
- Lim KKP & Low JKY (1998) A Guide to Common Marine Fishes of Singapore. Singapore Science Centre, 163 pp.
- Ong JXL (2024) Biodiversity Record: Gobies in mangrove tide pools at Sungei Buloh Wetland Reserve. *Nature in Singapore*, 17: e2024035.