

Fishes observed at Lower Peirce Reservoir

Tan Heok Hui

heokhui@nus.edu.sg

Subjects: Motoro stingray, *Potamotrygon motoro* (Chondrichthyes: Potamotrygonidae) (Fig. 1-3);
Mosquito fish, *Gambusia affinis* (Teleostei: Poeciliidae) (Fig. 4);
Heckel's eartheater, *Acarichthys heckelii* (Teleostei: Cichlidae) (Figs. 5-6);
Surinam eartheater, *Geophagus altifrons* (Teleostei: Cichlidae) (Fig. 7);
Barcheek goby, *Rhinogobius similis* (Teleostei: Gobiidae) (Fig. 8).

Subjects identified by: Tan Heok Hui.

Location, date and time: Singapore Island, Central Catchment Nature Reserve, Lower Peirce Reservoir, along boardwalk; 19 April 2019, between 0930 and 1030 hrs.

Habitat: Freshwater. Artificial lake with earthen banks, and largely surrounded by secondary forest.

Observers: Tan Heok Hui & Koh Li Ling.

Observation: Five species of fish were observed in slightly turbid water from the boardwalk along the shores of Lower Peirce Reservoir. Up to five individuals of *Potamotrygon motoro* were seen in shallow water on sandy-mud bottom. They were juveniles and sub-adults, between 15 and 30 cm in disc width (Fig. 1-3). The stingrays were foraging on the substrate or amongst submerged leaf litter. In the shallows, adult examples of the cichlids *Acarichthys heckelii* (Fig. 5 & 6) and *Geophagus altifrons* (Fig. 7) were seen, as well as many juveniles of the former. Seven *Gambusia affinis* (Fig. 4) were also observed near the surface along the water's edge. At least one *Rhinogobius similis* (Fig. 8) was photographed on the substrate.

Remarks: All five species featured are non-natives that have previously been documented from various reservoirs in Singapore (Ng & Tan, 2010). The motoro stingray is of particular interest. This venomous native of South America was first documented in Singapore at Upper Seletar Reservoir by Ng et al. in 2009. It has since been observed in Lower Seletar Reservoir and Lower Peirce Reservoir (Ng et al., 2009; Lai, 2015; Ho et al., 2016). Recently, sightings of multiple individuals at Lower Peirce and Upper Seletar Reservoirs prompted the Public Utilities Board to close off designated fishing grounds at those two reservoirs for public safety, and led to the removal of at least 75 stingrays from those water bodies since 2015 (Choo, 2018).

Note that the scientific name of the barcheek goby has been changed to *Rhinogobius similis*, with *Rhinogobius giurinus* (as it was previously known) now regarded as its junior synonym (Suzuki et al., 2016).

References:

- Choo Y. T., 2018. PUB investigating non-native stingrays found at Lower Peirce Reservoir; fishing grounds closed. *The Straits Times, on-line edition*. 23 December 2018. <https://www.straitstimes.com>.
- Ho, J. K. L., S. J. Ramchunder, A. Memory, M. Theng, T. Li, E. Clews, Y. Cai, H. H. Tan & D. C. J. Yeo, 2016. *A Guide to the Freshwater Fauna of Nee Soon Swamp Forest*. Tropical Marine Science Institute, National University of Singapore. 139 pp.
- Lai, J. C. Y., 2015. Slender peacock bass and motoro stingray from Lower Peirce Reservoir. *Singapore Biodiversity Records*. 2015: 75.
- Ng H. H. & H. H. Tan, 2010. An annotated checklist of the non-native freshwater fish species in the reservoirs of Singapore. *COSMOS*. 6 (1): 95-116.
- Ng H. H., H. H. Tan, D. C. J. Yeo & P. K. L. Ng, 2009. Stingers in a strange land: South American freshwater stingrays (Potamotrygonidae) in Singapore. *Biological Invasions*. 12 (8): 2385.
- Suzuki, T., K. Shibukawa, H. Senou & I-S. Chen, 2016. Redescription of *Rhinogobius similis* Gill 1859 (Gobiidae: Gobiinae), the type species of the genus *Rhinogobius* Gill 1859, with designation of the neotype. *Ichthyological Research*. 63: 227-238.



Fig. 1. Dorsal view of a *Potamotrygon motoro* juvenile of around 15-20 cm disc diameter foraging among submerged leaf litter next to boardwalk.

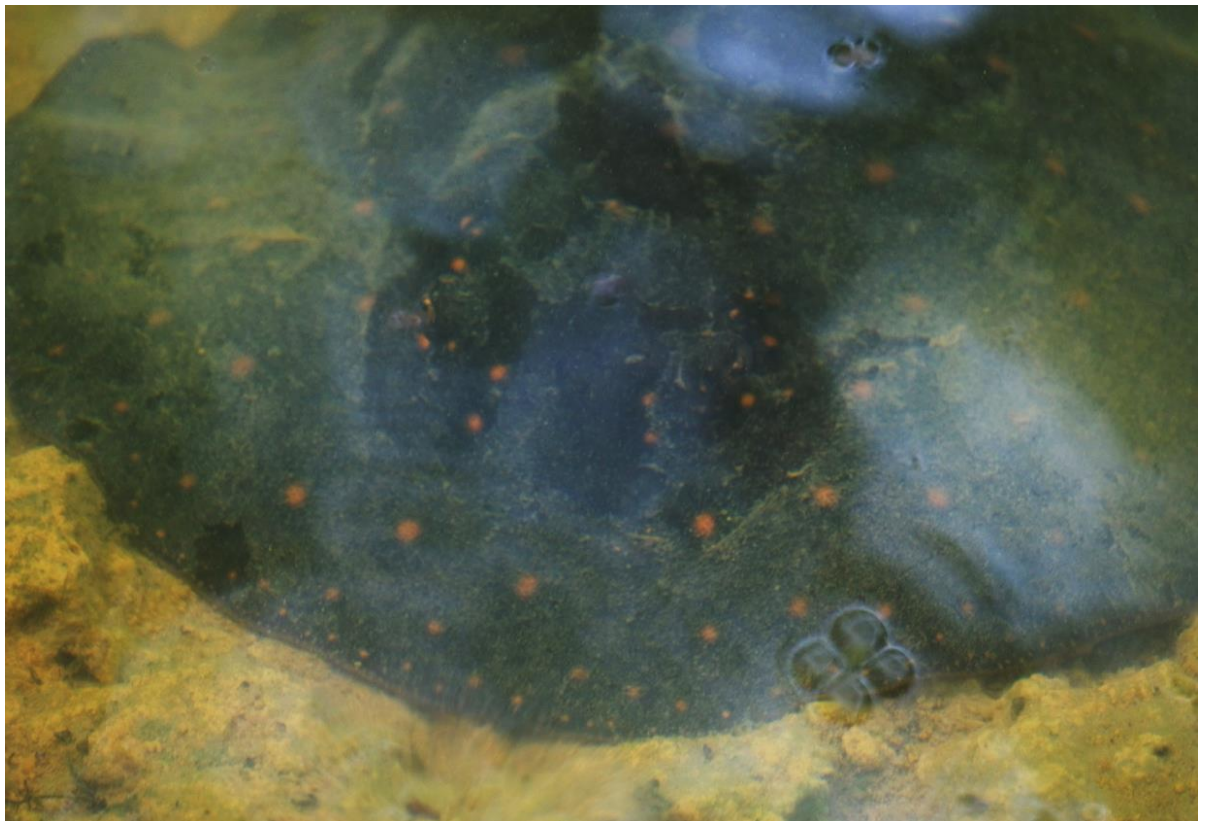


Fig. 2. A sub-adult motoro stingray of around 30 cm disc diameter on the bare substrate, with close-up dorsal view of its head region showing yellow ocelli.

Photographs by Tan Heok Hui



Fig. 3. *Potamotrygon motoro* sub-adult of around 30 cm disc diameter, showing spine on tail.



Fig. 4. Dorsal view of 5 examples of *Gambusia affinis*, all less than 3 cm length, above a floating leaf.

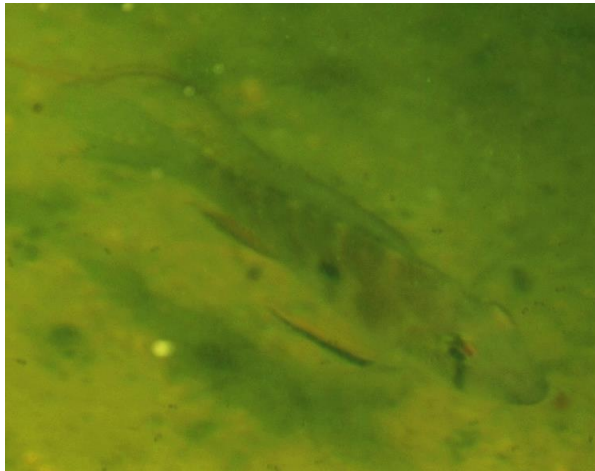


Fig. 5. Dorso-lateral view of an adult *Acarichthys heckelii* of about 15 cm total length.

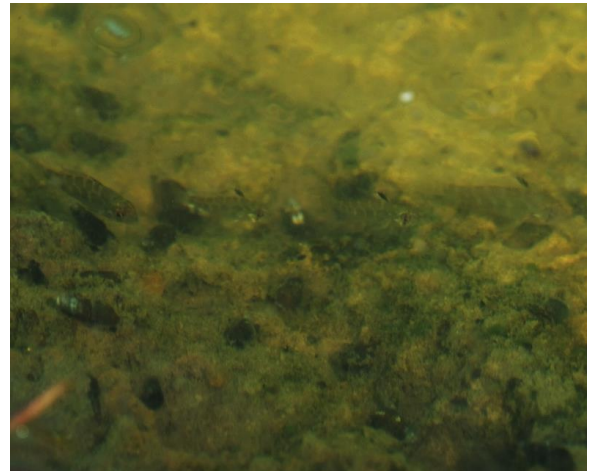


Fig. 6. Four juvenile *Acarichthys heckelii* of around 3-5 cm swimming above the substrate.



Fig. 7. Dorso-lateral view of an adult *Geophagus altifrons* of around 20-25 cm total length.

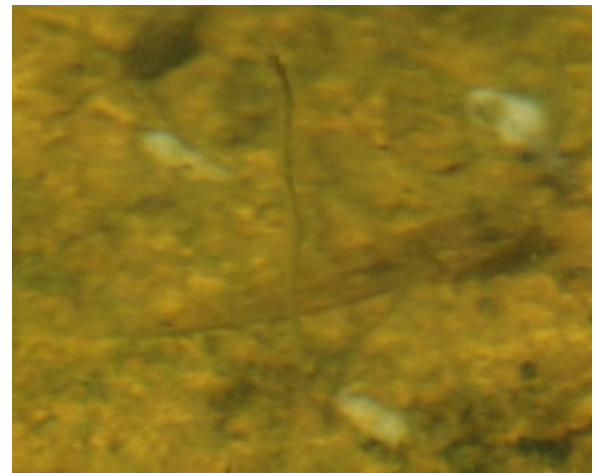


Fig. 8. Dorso-lateral view of a *Rhinogobius similis* of around 4-5 cm total length.

Photographs by Tan Heok Hui