

## Biodiversity Record: Fishes observed under the bridge over Sungei Buloh

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**Subjects:** Striped eeltail catfish, *Plotosus lineatus* (Teleostei: Siluriformes: Plotosidae) (Figs. 1, 2); Spot-tailed needlefish, *Strongylura strongylura* (Teleostei: Beloniformes: Belonidae) (Fig. 3); Stripe-nosed halfbeak, *Zenarchopterus buffonis* (Teleostei: Beloniformes: Zenarchopteridae) (Figs. 1, 4); Silverside, unidentified genus (Teleostei: Atheriniformes: Atherinidae) (Fig. 5); Grey mullet, *Planiliza subviridis* (Teleostei: Mugiliformes: Mugilidae) (Fig. 6); Flathead grey mullet, *Mugil cephalus* (Teleostei: Mugiliformes: Mugilidae) (Fig. 7); Mozambique tilapia, *Oreochromis mossambicus* (Teleostei: Cichliformes: Cichlidae) (Fig. 8); Mayan cichlid, *Mayaheros urophthalmus* (Teleostei: Cichliformes: Cichlidae) (not illustrated); Green chromide, *Etroplus suratensis* (Teleostei: Cichliformes: Cichlidae) (Fig. 9); Spotted scat, *Scatophagus argus* (Teleostei: Acanthuriformes: Scatophagidae) (Fig. 9); Banded archerfish, *Toxotes jaculatrix* (Teleostei: Carangiformes: Toxotidae) (Fig. 10); Kops' glassfish, *Ambassis kopsii* (Teleostei: Perciformes: Ambassidae) (Fig. 11); Silver moony, *Monodactylus argenteus* (Teleostei: Perciformes: Monodactylidae) (Fig. 12).

**Subjects identified by:** Tan Heok Hui and Kelvin K. P. Lim.

**Location, date and time:** Singapore Island, Sungei Buloh estuary in Sungei Buloh Wetland Reserve; 12 October 2021; between 0900 and 1100 hrs.

**Habitat:** Estuarine channel lined with mangroves and muddy substrate. In brackish water of less than 1 m depth between receding and incoming tides.

**Observers:** Tan Heok Hui, Kelvin K. P. Lim and Iffah Iesa.

**Observations:** Large concentrations of fishes were observed congregating under the bridge. The catfish *Plotosus lineatus* was found in the thousands, congregating in at least three massive schools (Fig. 1) that constantly merged and broke up. Individual fish, most of them around 20–30 cm in total length, appeared to be in bodily contact with each other, and moved slowly in an oblique position with the head tilted upwards and the tail end over the substrate (Fig. 2). Spread across the surface of the water but not forming discrete groups were hundreds of the halfbeak *Zenarchopterus buffonis* (Figs. 1, 4). These were recognised by the white spot at the tip of their lower jaw, and the larger ones were around 15 cm (including the long lower jaw). Interspersed among the halfbeaks were at least 50 individual *Strongylura strongylura* (Fig. 3). The larger individuals were about 30 cm in total length. A dense shoal of silversides, not identified to genus (Fig. 4) and comprising thousands of individuals, the larger ones around 8 cm, moved close to the shoreline. Grey mullets of around 15–20 cm total length that swam past in groups of around 10 individuals were identified as *Planiliza subviridis* (Fig. 6). A mass of more than a hundred members of the considerably larger *Mugil cephalus*, each around 40 cm, was seen milling about near the river bank, around a sluice gate (Fig. 7). Around 30 tilapia, the larger ones around 20 cm, were also seen near the river bank (Fig. 8). The grey ones were believed to be the wild form of *Oreochromis mossambicus*. The white or pink individuals are aquacultured hybrids of species of *Oreochromis*. Not illustrated, but also seen darting about near the substrate were a dozen *Mayaheros urophthalmus*, each around 15 cm. Groups of around a couple of hundred *Etroplus suratensis* of various sizes (around 5–20 cm total length) hung about around the bridge pillars, often picking at fouling organisms on the surface of the concrete structures (Fig. 9). Swimming in their midst but not noticed until the photographs were reviewed were at least 10 young *Scatophagus argus* of around 5 cm (Fig. 9), and at least two solitary young *Monodactylus argenteus* of similar size (Fig. 12). Hundreds of glassfish *Ambassis kopsii*, the larger ones around 6 cm, could be seen near the bottom as well as near the surface (Fig. 11). At least a hundred individual archerfish *Toxotes jaculatrix* (Fig. 10) were observed hovering or swimming about near the surface. The larger ones were at least 20 cm in total length.



Fig. 1. School of *Plotosus lineatus* with a few *Zenarchopterus buffonis* at the surface. (Photograph by: Tan Heok Hui).



Fig. 2. *Plotosus lineatus*. (Photograph by: Tan Heok Hui).

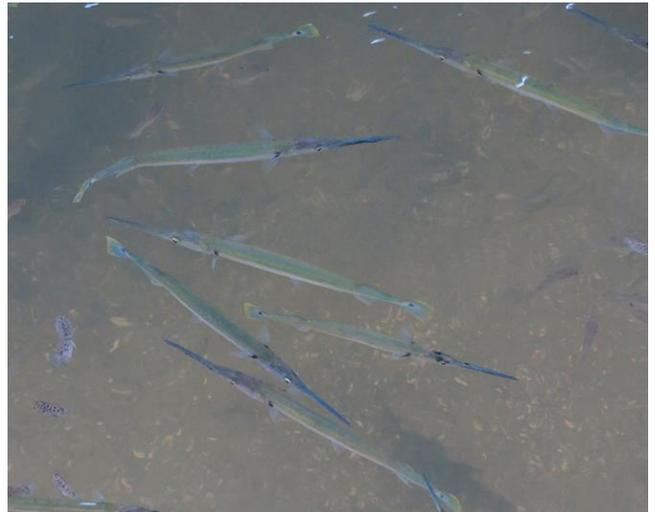


Fig. 3. *Strongylura strongylura*. (Photograph by: Kelvin Lim).



Fig. 4. *Zenarchopterus buffonis*. (Photograph by: Kelvin Lim).



Fig. 5. Atherinidae. (Photograph by: Tan Heok Hui).



Fig. 6. *Planiliza subviridis*. (Photograph by: Tan Heok Hui).



Fig. 7. *Mugil cephalus*. (Photograph by: Tan Heok Hui).



Fig. 8. Tilapias. Grey ones are likely *Oreochromis mossambicus*, while the pink ones are apparently hybrids with other species of *Oreochromis*. (Photograph by: Kelvin Lim).



Fig. 9. *Scatophagus argus* (spotted) and *Etroplus suratensis*. (Photograph by: Tan Heok Hui).



Fig. 10. *Toxotes jaculatrix*. (Photograph by: Tan Heok Hui).



Fig. 11. *Ambassis kopsii*. (Photograph by: Tan Heok Hui).



Fig. 12. *Monodactylus argenteus* (Photograph by: Tan Heok Hui).

**Remarks:** Except for *Monodactylus argenteus* and the mullets *Mugil cephalus* and *Planiliza subviridis*, all the other fish species featured in this observation have been recorded from the Sungei Buloh Wetland Reserve (see National Parks Board, 2003; Chua, 2010; Tan & Koh, 2017).

This observation highlights an apparently unusual behaviour exhibited by the striped eeltail catfish (*Plotosus lineatus*). Young *Plotosus lineatus* are well known for forming tightly packed feeding schools that often consist of hundreds of individuals. The species grows to a maximum total length of 32 cm and is widely distributed throughout the shallow seas of the tropical Indo-West Pacific, inhabiting nearshore habitats at sand and seagrass areas, coral reefs and also in estuaries (Lim & Low, 1998; Allen & Erdmann, 2012; Tan et al., 2019). The featured observation is considered unusual because the schools contained individuals that were adult (see also Tan et al., 2019) and acting in a lethargic manner, as if in a trance. The other fishes around them did not appear to exhibit behaviour that could be attributed to environmental stress, such as fluctuating salinity or decreased oxygen levels. It seems possible that the catfish were taking a rest from foraging during low tide.

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