

## Biodiversity Record: The croaker, *Johnius borneensis*, in Singapore

Aidan Raphael Keh\*, Brian Sng & Daiki Hiura

Email: [aidankeh47@gmail.com](mailto:aidankeh47@gmail.com) (\*corresponding author)

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**Subjects:** Sharpnose hammer croaker, *Johnius borneensis* (Teleostei: Acanthuriformes: Sciaenidae).

**Subjects identified by:** Aidan Raphael Keh.

**Location, date and time:** Singapore Island/Singapore Strait, Tuas; 28 June 2025 at 1030 hrs and 19 July 2025 at 1607 and 1800 hrs.

**Habitat:** Marine. Coastal sea with muddy bottom and sparse rocky rubble. Approximately 20 m deep.

**Observers:** Aidan Raphael Keh and Brian Sng.

**Observations:** On 28 June 2025 an example of around 14 cm total length (Fig. 1) was caught on hook and line at Tuas, with whiteleg shrimp (*Litopenaeus vannamei*) as bait. On 19 July 2025, two specimens of around 15 cm total length (Figs. 2 & 3) were caught on hooks baited with anchovies (*Stolephorus* spp.). All three specimens were donated to the Lee Kong Chian Natural History Museum at the National University of Singapore, for preservation as reference material.

**Remarks:** This record confirms the occurrence of *Johnius borneensis* in Singapore waters. The species had been recorded from the country as its synonym *Johnius vogleri* by Fowler (1931) based on two specimens obtained from a local fish market.

The taxonomically complicated genus *Johnius* can be identified by having a hammer-shaped swimbladder, with 12–20 pairs of arborescent appendages along the sides. The first and anteriormost pair of arborescent appendages piercing the transverse septum and sending palmate branches to the lateral sides of the pectoral arch at the junction of the supracleithrum and cleithrum, where it is visible on the upper rear edge of the gill cavity (Sasaki, 2022; Fig 4). This genus contains two subgenera, *Johnius* and *Johnieops*. *Johnius borneensis* falls under the subgenus *Johnieops*. According to Sasaki (2001), members of the subgenus *Johnieops* can be distinguished by having the inner row of lower jaw teeth enlarged and conical (Fig. 5), compared with teeth that are uniform in size or molariform in the subgenus *Johnius*.

*Johnius borneensis* is characterized by having its snout pointed, but not swollen or projecting; mouth large, oblique; teeth well differentiated into large and small in both jaws, but none canine-like; gill rakers slender, about half the length of the gill filaments at angle of arch (Fig 6), 9 to 15 rakers on the lower limb of the first gill arch; second anal spine moderately long, 18 to 42% of head length; and scales moderately large, 5–6 scale rows above lateral origin of dorsal fin, 10 to 12 scale rows below lateral line to origin of anal fin (Hanafi et al., 2024).

### Literature cited:

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Fig 1. Lateral view of *Johnius borneensis* from Tuas on 28 June 2025. Bulging eyes due to barotrauma. (Photograph by: Brian Sng)



Fig 2. Lateral view of *Johnius borneensis* caught at Tuas on 19 July 2025 at 1607 hrs. (Photograph by: Aidan Raphael Keh)



Fig 3. Lateral view of *Johnius borneensis* caught at Tuas on 19 July 2025 at around 1800 hrs. (Photograph by: Daiki Hiura)



Fig 4. Swimbladder of a *Johnius borneensis* of around 20 cm total length from Batu Pahat, Johor, Malaysia. Fig 5. Jaw of *Johnius borneensis* of around 15 cm total length from Tuas. Fig 6. First right gill arch of *Johnius borneensis* of around 15 cm total length from Tuas. (Photographs by: Aidan Raphael Keh)