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Biodiversity Record: An ex-situ spawning of the top shell, *Trochus maculatus*

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Subject: Maculated top shell, *Trochus maculatus* (Mollusca: Gastropoda: Trochidae).

Subject identified by: Koh Siang Tan.

Location, date and time: Saint John's Island National Marine Laboratory; 13 December 2021; 1505–1507 hrs.

Habitat: Marine. Within mariculture tank at the Outdoor Aquaria.

Observer: Zhi Yang Tan.

Observation: An isolated *Trochus maculatus* of 3.8 cm shell height and 2.6 cm shell basal diameter (Figs. 1 & 2) was observed perched near the water surface of a fibreglass tank containing filtered seawater (29 ± 1 °C, 31 ± 1 psu) in a flow-through setup used for the culture of scleractinian corals. Wisps of white cloudy sperm, released in a steady stream by this individual, gradually dissipated into the water column (Fig. 3). While the tank also contained other conspecifics, they did not show signs of spawning within the stated period. The process lasted approximately two minutes and can be viewed at https://www.youtube.com/watch?v=-aEleHVzaKc&ab_channel=TanZhiYang. The snail was obtained at the inter-tidal shore of Kusu Island.

Fig. 1. Basal view of the *Trochus maculatus* that spawned. Fig. 2. Lateral view of the same individual. (Photographs by Tan Zhi Yang)

Remarks: The top shell, *Trochus maculatus*, is common in both intertidal and subtidal habitats in the Singapore Straits (Tan & Yeo, 2010; Sapanich & Tan, 2016). In ex-situ coral nurseries, this species is frequently co-cultured with scleractinian corals as it is an effective biological control of fouling macroalgae (Ng et al., 2013; Toh et al., 2013). Most specimens used in cultures are collected from the wild. Information on its reproductive behaviour is limited in Southeast Asia, with few reports from Thailand and the Philippines (Chunhabundit & Thapanand, 1993; Maboloc & Mingoa-Licuanan, 2013).

The present observation, although conducted in captivity under controlled artificial conditions, represents the first official documentation of *Trochus maculatus* spawning in Singapore. It was recorded nine days after the new moon in December 2021. This corroborates with earlier reports from Thailand and the Philippines where spawning occurred in the daytime, during the new and early full moons (Chunhabundit & Thapanand, 1993; Maboloc & Mingoa-Licuanan, 2013). Information on the timing of spawning will contribute toward understanding the reproductive biology of *Trochus maculatus*, thereby enabling artificial propagation of the species to supply the aquarium trade and coral nurseries. This will help to reduce harvesting pressure on wild stocks, and enhances its co-culture with other economically and ecologically important species.

Fig. 3. Stream of cloudy sperm, seen as white streaks, released by the *Trochus maculatus*. (Photograph by: Tan Zhi Yang)

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