

Biodiversity Record: Pelagic gastropods found off Saint John's Island

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Subjects: *Creseis acicula* (Mollusca: Gastropoda: Heterobranchia: Euthyneura: Tectipleura: Pteropoda); *Diacavolinia* sp. (Mollusca: Gastropoda: Heterobranchia: Euthyneura: Tectipleura: Pteropoda); *Atlanta* sp. (Mollusca: Gastropoda: Caenogastropoda: Littorinimorpha: Pterotracheoidea).

Subjects identified by: Le Qin Choo.

Locations and dates: Singapore Strait around the Saint John's Island complex, at Seringat-Kias Pier, Eagle's Bay and off Saint John's Island pier; 26–28 December 2023.

Habitat: Marine. Coastal sea, at the surface of the water column.

Observers: Le Qin Choo, Bing Jun Woo, Tashfia Raqib, Nicholas Wei Liang Yap, Vivian Jia Wen Cavan and Kia Yi Ng.



Fig. 1. *Creseis acicula* (Accession no. ZRC.MOL.30428) length: about 0.3-1 cm (Photograph by: Le Qin Choo).

Observations: Pelagic gastropods were observed during both day and night sampling. The pelagic gastropod species, *Creseis acicula* (Fig 1), *Diacavolinia* sp. (Fig 2), *Atlanta* sp. (Fig 3) were observed in bulk plankton samples from surface tows with a 500 µm mesh size net in waters off Eagle's Bay and St. John's Island pier, as well as from hand-netting off Seringat-Kias Pier in December 2023. Of the three taxa found, *Creseis acicula* was by far the most common. Pelagic gastropods appeared to be more common in samples collected during the night compared to the day. Similar collections in May 2023 did not yield any pelagic gastropods. Selected specimens that were collected on the night of 28 December 2023 at the SJI pier were photographed live. These specimens are deposited at the Zoological Reference Collection (ZRC) of the Lee Kong Chian Natural History Museum, National University of Singapore, with the catalogue numbers: ZRC.MOL.30427–30429.

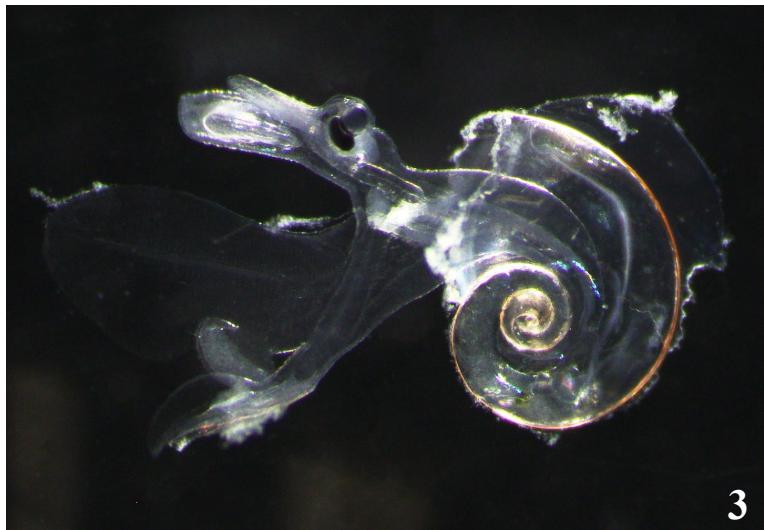
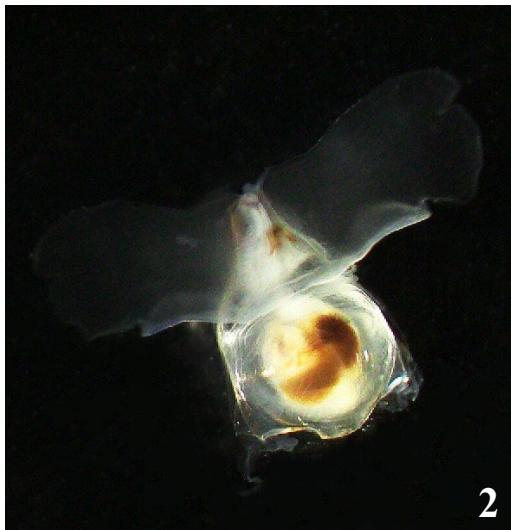


Fig. 2. *Diacavolinia* sp. (Accession no. ZRC.MOL.30427) length: about 0.5 cm. Fig. 3. *Atlanta* sp. (Accession no. ZRC.MOL.30429) length: about 0.3 cm (Photographs by: Le Qin Choo).

Remarks: Pelagic gastropods in the plankton include both larval forms of benthic species alongside holoplanktonic adults such as those from the order Pteropoda (these include the genera *Creseis* and *Diacavolinia*) and superfamily Pterotracheoidea (for example, members of the genus *Atlanta*). These animals are believed to be important to oceanic biochemistry, cycling and sequestering carbon and carbonates in their excretions and shells. They are common in oceanic waters globally.

Within the coastal waters of the Indo-Pacific region, reports of pelagic gastropods are usually of occasional, huge swarms of Pteropoda. Our observation of the presence of pelagic gastropods of both Pteropoda and Pterotracheoidea in the Singapore Strait corresponds with previous studies by Wickstead (1958, 1961) and Woo B. J. & Jafaar Z. (pers. comm., 2023). These studies found seasonal occurrences of pelagic gastropods in the Singapore Strait that coincide with the Northeast Monsoon period that takes place from December to March. This suggests that the occurrence of these animals in Singapore's waters may be due to an influx of water from the South China Sea into the Singapore Strait as a result of the Northeast Monsoon currents.

Pelagic gastropods appear to be a regular presence in Singapore and their occurrence may indicate monsoonal changes in local prevailing sea currents. Little is known about the biology and ecology of pteropods in Singaporean waters; further work is underway to determine their identities to facilitate more research of these planktonic animals.

Literature cited:

Wickstead JH (1958) A survey of the larger zooplankton of Singapore Straits. *Ices Journal of Marine Science*, 23(3): 340–353.
 Wickstead JH (1961) A quantitative and qualitative study of some Indo-West-Pacific plankton. *Colonial Office Fishery Publications*, 16: 1–200, 5 pls., 1 map.