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Gelatinous zooplankton found around Saint John's Island

Subjects: Comb jellies (Ctenophora), Fig. 1;
Hydromedusae (Cnidaria: Hydrozoa) -
Aequorea pensilis (Leptomedusae: Aequoreidae) [Fig. 2],
unidentified taxa (possibly Limnomedusae) [Fig. 3],
unidentified taxa (Siphonophorae) [Fig. 4];
Pelagic tunicates (Chordata: Tunicata: Thaliacea), Figs. 5 & 6.

Subjects identified by: Nicholas Yap & Serina Lee.

Location, date and time: Singapore Strait, around the jetty of Saint John's Island; 19 November 2014; 0830 hrs.

Habitat: Marine. Pelagic.

Observers: Rene Ong & Serina Lee.

Observation: Blooms of comb jellies (Fig. 1), hydromedusae (Figs. 2-4) and salps or pelagic tunicates (Figs. 5 & 6), were observed around the jetty. Specimens were scooped up with pails and bought back to the laboratory for observation and photography. Only the hydrozoan, *Aequorea pensilis* (Fig. 2), could be identified to species.

Remarks: We report on the blooms of comb jellies, hydromedusae and pelagic tunicates from the Singapore Strait. The periodic appearances of these animals in Singapore waters are known (see Yap & Ong, 2012), but not well-studied.

The specimens collected were preserved and kept in the marine laboratory of the Tropical Marine Science Institute (TMSI) on Saint John's Island. They will subsequently be deposited in the Lee Kong Chian Natural History Museum at the National University of Singapore.

Yap & Ong (2012) documented the presence of *Aequorea pensilis* from the Singapore Strait. They assumed that *Aequorea pensilis* 'occur(s) from March to July…during the warmer months', as specimens obtained for their study were collected in those months. Herein is the first record of it occurring in November, coinciding with the warmer waters (CLIMAS, 2014).

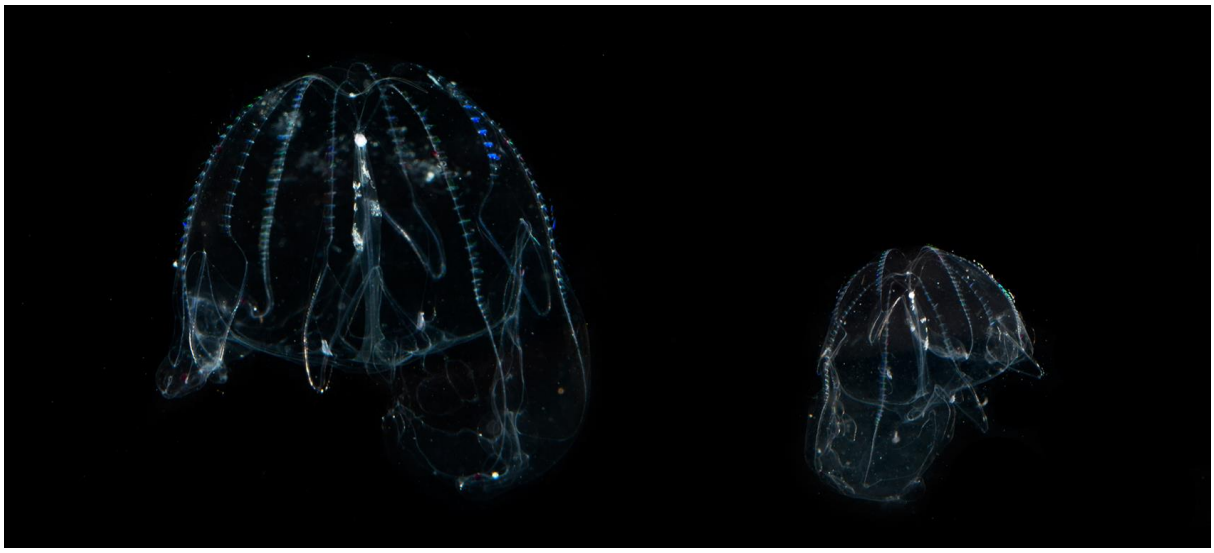
Fig 1. Examples of comb jellies (Ctenophora), approximately 1 to 2 cm in diameter. Photograph by Rene Ong

Other species of *Aequorea*, such as *Aequorea conica* and *Aequorea parva* are also recorded in the Singapore Strait (Stiasny, 1928; Yap & Ong, 2012), but have not been sighted in recent years. *Aequorea pensilis* is distinguished from the other two congeners in having 160 or more radial canals, while the other two species have only 16 radial canals (Yap & Ong, 2012).

Another hydromedusa (Fig. 3), was collected with *Aequorea pensilis*. Possibly belonging to the order Limnomedusae, its identity will need to be established in future publications. We document it here for the purpose of allowing future workers to be aware of its occurrence. Unidentified specimens of comb jellies (Fig. 1) and Siphonophorae (Fig. 4) are also noted among the hydromedusae.

Tunicates are dividied into three classes – Ascidiacea, Thaliacea and Appendicularia. Ascidiacea consists of sessile tunicates while the latter two are pelagic. The two records (Figs. 5 & 6) presented herein belong to the class Thaliacea. In general, the zooids of thaliaceans are encased within a gelatinous tunic, and the oral and atrial openings are located at opposite ends of the tubular/oval/barrel-shaped body. Thaliacea consists of 3 families: Salpidae, Doliolidae and Pyrosomatidae. Members of the Salpidae and Doliolidae exhibit both colonial and solitary generations while pyrosomids are strictly colonial and arranged in cone-shaped colonies. Species are separated based on the numbers and arrangement of muscle bands found on the body (Kott, 2005). Further work is required to identify the collected specimens although preliminary observations indicated that they very likely belong to Salpidae, and Doliolidae.

Tey (1967) studied the seasonal abundance of Thaliacea in Singapore Straits from 1964 to 1966, and documented one species of doliolid – *Doliolum nationalis* and two species of salpid – *Thalia democratica* and *Iasis cylindrical* (Tey, 1967 as *Salpa cylindrical*). *Thalia democratica* was most commonly encountered in the Singapore Strait and the occurrences of thaliacean species were largely restricted to the later part of the year, coinciding with the northeast monsoon.

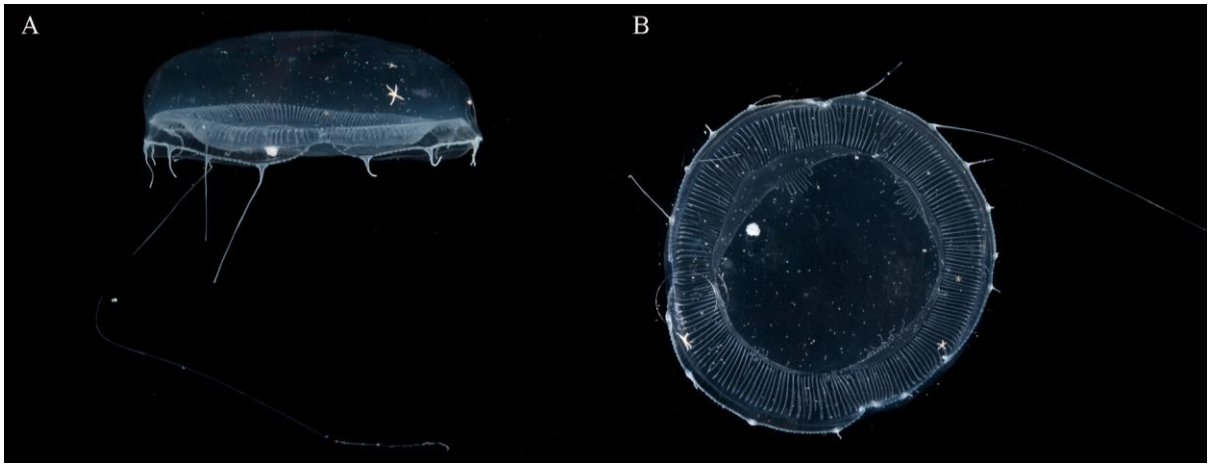

Fig 2. Side view (A) and top view (B) of *Aequorea pensilis*, about 8 cm in diameter. Photographs by Rene Ong

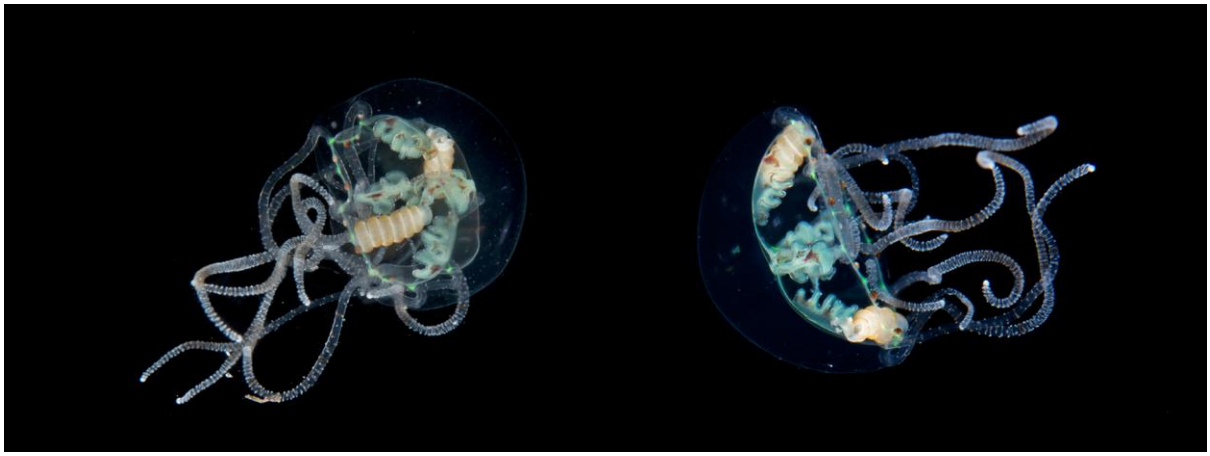
Fig 3. An unidentified hydromedusae of about 1 cm in diameter, likely a Limnomedusa, photographed at different angles. Photographs by Rene Ong

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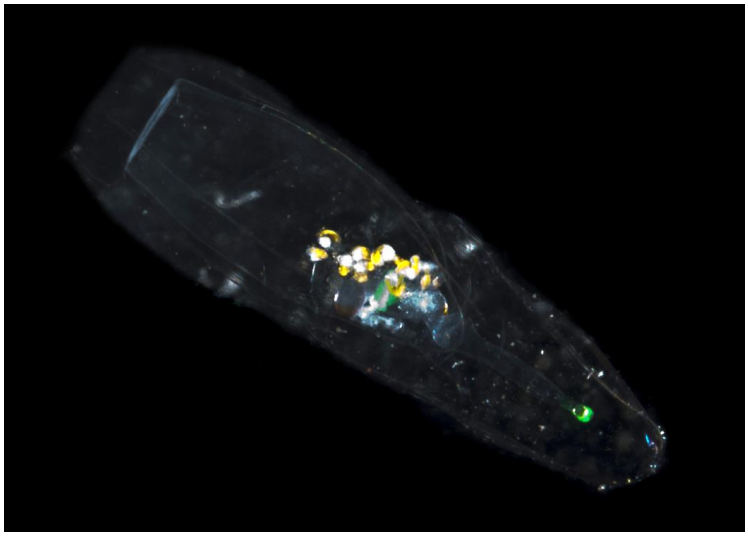

Fig. 4. An unidentified Siphonophorae, about 2 cm in length.

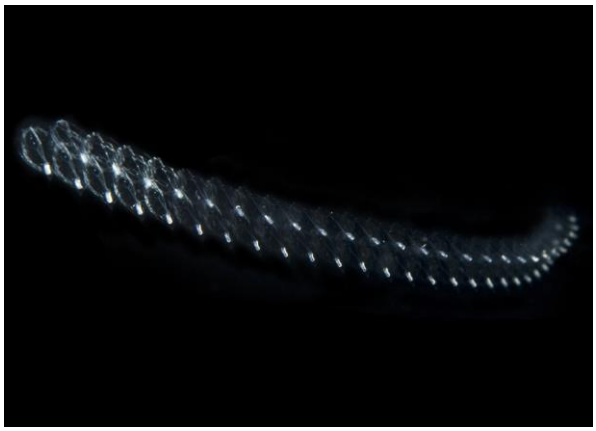

Fig 5. A colonial form of a species of Thaliacea. Length varies with size of colony. This colony was about 15 cm long.

Fig 6. Examples of solitary form of a thaliacean species. Aprroximately 1 – 2 cm.

Photographs by Rene Ong

Note: This is a contribution of the Singapore **Comprehensive Marine Biodiversity Survey** conducted by the National University of Singapore's Tropical Marine Science Institute and the National Parks Board.

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