

Intense spawning aggregation of ragged sea hare, *Bursatella leachii* Blainville, 1817 in Netravathi estuary

Divya Viswambharan*, Prathibha Rohit, Geetha Sasikumar and S. Srinath

¹Mangalore Regional Centre of ICAR-Central Marine Fisheries Research Institute, Mangaluru-575 001, Karnataka

*e-mail: divyaarinu@gmail.com

Large aggregations of a single species of sea hares were observed during a regular clam survey on 3rd February 2022, in the estuarine stretches of river Netravathi in Mangalore. The 15 x 15 cm quadrants were used to count the egg mass found in the intertidal area of the estuary. Samples of sea hare entangled in gillnets were collected and brought to lab for further analysis with with number of organisms entangled in each panel was documented. Measurements were taken to the nearest 0.1 mm using digital vernier calliper and total body weight was noted to the nearest 0.1 g with an electronic weighing balance. A semi-structured interview was also conducted with the fishers of the region during field visit to record the extend of menace created by the organism.

From a careful examination of 13 collected specimens, the organism was identified as ragged sea hare, *Bursatella leachii* Blainville, 1817 (Fig. 1). The organism was observed to be yellowish tan, with black varied shaped blotches in the body. Blue coloured blotch embedded between black

spot was found scattered randomly throughout the body. The head bears four tentacles: two tentacles originating on the dorsal part of the head called rhinophores and two tentacles, near the mouth. No internal shell was observed in the adult organism, and purple ink was ejected when disturbed. The body was covered with numerous long, branching fleshy papillae (Fig. 1). The size of the organisms ranged from 72-110mm with average size of 86 ± 3.82 mm and weight ranging from 20-54g with an average weight of 30.22 ± 2.75 g. All the individuals collected were mature adults. The egg mass of the organism was observed to be long thin string type with yellow, green or dirty white colour. The average number of egg mass was 9 ± 3 no/sqm in the intertidal zone of the Netravathi Estuary. Careful examination of the egg mass under microscope revealed the presence of live embryos (Fig.2).

Ragged sea hare occurs regularly in the Netravathi and Gurupura estuaries of Dakshina Kannada during post-monsoon phase every year. But this year, the sea hare

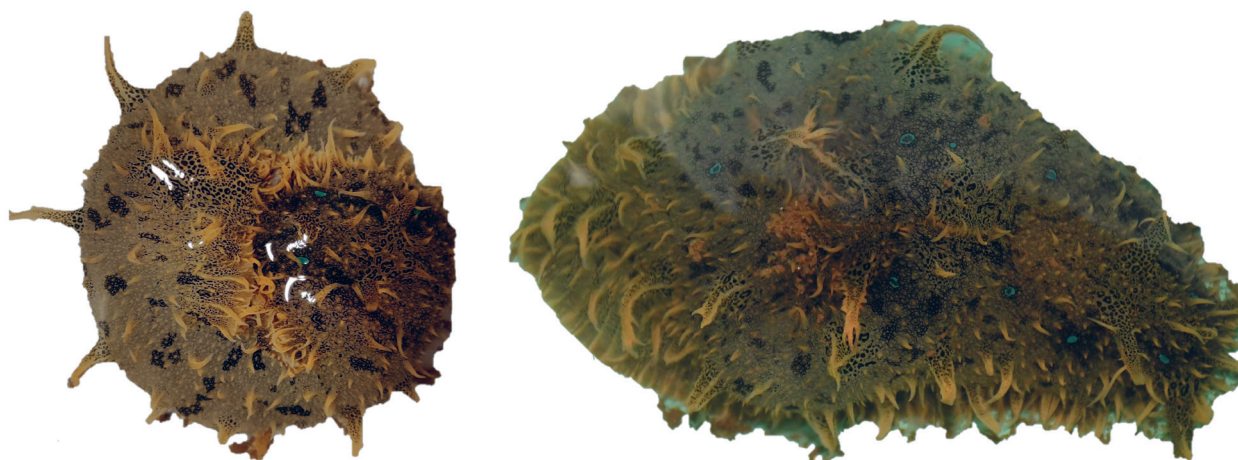


Fig. 1. Ragged sea hare, *Bursatella leachii* Blainville, 1817

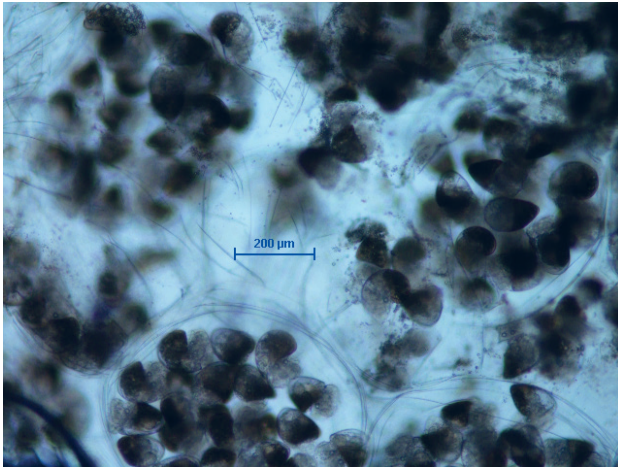


Fig. 2. Microscopic view of live embryos of ragged sea hare

aggregation was very dense in the estuarine sandy and partially muddy bed from December 2021. It was found absent in the rocky regions of the estuary. It was also recorded in Gurupura Estuary but intense aggregations and associated hassles were not as high as in Netravathi. Ragged sea hare is observed to form breeding aggregations after the rainy season . They continue to be in the euryhaline zone of estuary for breeding activities until

the south-west monsoon in June.

Nearly 22-35 gillnet fishers target estuarine fishes and crabs in this particular stretch of the Netravathi Estuary who face problems due to population boom of ragged sea hare. All the fishers reported reduction in catch and income earned due to sea hare aggregations. A panel of gillnet of 1.8m X 2.4m dimension was entangling nearly 4-5 sea hares, which hampers the gilling efficiency of the net. About 75% of fishers reported 20-40% loss in income due to the proliferation and aggregation of sea hare in this region while 25% reported income loss up to 20%. All the fishers complained on the additional time spent for removing the sea hare from the nets after fishing, which in turn affects the quality of their catch. In very few cases (6%), damage to the fishing nets were also reported and a few fishers (25%) change their fishing area due to the sea hare aggregation. Ragged sea hare is not commercially exploited in India even though ink gland of the organism reportedly has pharmacological use due to bio-active compounds. Sea hares are effective to check algal growth in reef aquaria and hence utilized in the marine aquarium industry as algae cleaner