Beaching of pneumatophores of Blue button jellyfish

Jellyfish are zooplanktonic organisms commonly found in coastal and offshore water of all oceans in the world. The true jellyfish are the planktonic stages of three cnidarian classes: the Hydrozoa, the Scyphozoa, and the Cubozoa. The occurrence of jellyfish blooms, beach stranding as well as interference with fisheries is reported from various parts of the world. Spatiotemporal dynamics of jellyfish are highly variable, and irregular blooms or stranding of jellyfish make it difficult to predict. Mass beaching of pneumatophore of blue button jelly was observed in the beaches of Dakshina Kannada during the second week of September 2020. The occasional beaching of blue button in stray numbers was observed earlier, but mass beaching is rare, especially of pneumatophores alone. Previous studies had mentioned sea surface temperature (SST), shoreward wind, currents and tides as main drivers in coastal waters, allowing the huge accumulations and beach stranding of medusae. Hence the hydrographical parameters like wave direction, wave height, wind direction, wind speed and SST of the coastal and offshore water of Dakshina Kannada was collected from INCOIS for 6 days (9-14 September, 2020; Table 1) to understand the influence of these parameters on the mass beaching of blue button pneumatophores. The 15x15 cm quadrants were used to collect pneumatophore samples from beaches from 5 sampling points in the beach. Since pneumatophores were mainly seen in the wrack lines, quadrants were placed in 3 sites in each sampling points ie; one on the wrack line and one above and below the wrack line at almost equal distance.Mass beaching of disc-like chitinous floats (pneumatophore) were observed in the wrack line of Panambur, Surathkal, and Sasihithlu beaches on 13th and 14th September, 2020. *Porpita porpita* (Linnaeus, 1758) commonly known as the blue button

Blue jelly, *Porpita porpita*

Pneumatophores of blue jelly observed in beaches of Surathkal

or blue button jelly belongs to the family Porpitidae (Phylum: Cnidaria, Class: Hydrozoa) and in live condition is made of pneumatophores and hydroid colony. The golden-brown round and flat chitinous pneumatophore are 2-3cm wide while the hydroid colony is usually bright turquoise blue and looks similar to the tentacles of a jelly fish. The branchlets of the colony end in knots of nematocysts. The size of pneumatophores stranded in the beaches of Dakshina Kannada ranged from 10.2 to 30.8mm weighing 0.009 to 0.27mg. The size of the pneumatophores suggest that the dead and decomposed organisms includes both juveniles and adults. Blue buttons are frequently observed in the off-shore waters of Karnataka and Goa during pre-monsoon seasons. The decrease in salinity and temperature of the coastal water due to the prevalent south west monsoon might have resulted in the death of blue button jelly. The hydroid colony of these dead specimens might have disintegrated leaving behind the pneumatophores which drifted with the current and wind. During the second week of September 2020, a cyclonic circulation was lying over east-central Arabian Sea, off coastal Karnataka and throughout the event, the direction of the current and wind was towards the shore which might have resulted in the mass beach stranding of pneumatophores in the beaches of Dakshina Kannada.

Table 1. Hydrographical parameters of Dakshina Kannada Coast (0-50m from coast) during second week of September 2020.

Date	Landing centre	Wave Direction	Wave Height (m)	Wind Direction	Wind Speed (m/s)	SST (oC)
14.09.2020	Mangalore	NE	6-7	SE-E	14-40	28
	Mulki	NE	6-7	SE-E	14-40	28
	New Mangalore	NE	6-7	SE-E	14-40	28
	Suratakal Pt	NE	6-7	SE-E	14-40	28
13.09.2020	Mangalore	NE	6-7	E	18-36	28
	Mulki	NE	6-7	E	18-36	28
	New Mangalore	NE	6-7	E	18-36	28
	Suratakal Pt	NE	6-7	E	18-36	28
12.09.2020	Mangalore	NE	6-7	E	18-29	28
	Mulki	NE	6-7	E	18-29	28
	New Mangalore	NE	6-7	E	18-29	28
	Suratakal Pt	NE	6-7	E	18-29	28
11.09.2020	Mangalore	NE	7-8	E-NE	22-36	28
	Mulki	NE	7-8	E-NE	22-36	28
	New Mangalore	NE	7-8	E-NE	22-36	28
	Suratakal Pt	NE	7-8	E-NE	22-36	28
10.09.2020	Mangalore	NE	6-7	NE-NW	4-29	28
	Mulki	NE	6-7	NE-NW	4-29	28
	New Mangalore	NE	6-7	NE-NW	4-29	28
	Suratakal Pt	NE	6-7	NE-NW	4-29	28
09.09.2020	Mangalore	NE	6-7	NE-NW	4-29	28
	Mulki	NE	6-7	NE-NW	4-29	28
	New Mangalore	NE	6-7	NE-NW	4-29	28
	Suratakal Pt	NE	6-7	NE-NW	4-29	28

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