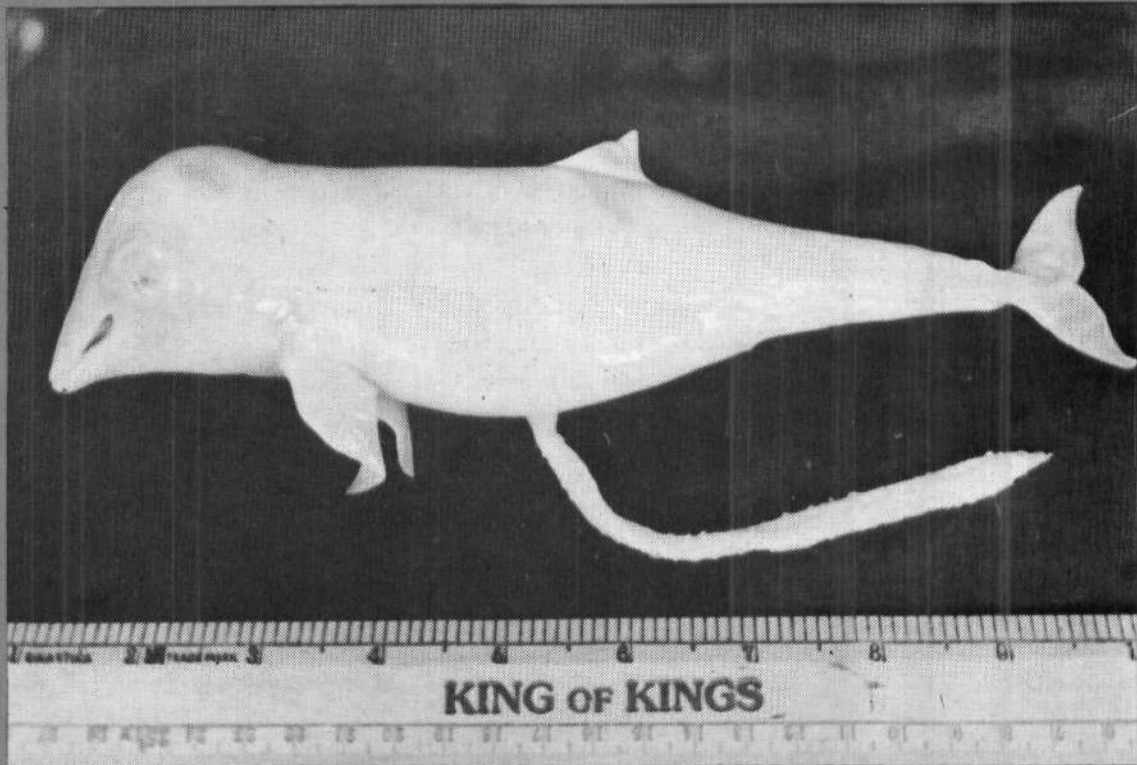




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FREQUENT STRANDINGS OF DOLPHINS AND WHALES ALONG THE GULF OF MANNAR COAST*

Introduction

Instances of dolphins caught accidentally by gill nets and their occasional strandings along the Indian coasts have been mentioned earlier by many workers. In some instances, prurified carcasses of such animals were reported to be washed ashore. However, the strandings or washing ashore the carcasses of dolphins and whales in an intermittent pattern within a short period of about five months is a peculiar phenomenon and a matter of great concern about the safety

of such endangered species in prevailing ecosystem of Gulf of Mannar. In this report our observations on the occurrence of carcasses of dolphins and whales along the Gulf of Mannar during September 1994 to January 1995 have been mentioned (Table 1). The possible factors leading to such strandings together with morphometric characters are also described.

Morphometric measurements of dolphins

Three dolphins and whales each were stranded during the

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TABLE 1. Observations on stranding particulars of dolphins and whales

Species	Place	Date of stranding
Dolphins		
1. <i>Sousa chinensis</i>	Near CMFRI jetty, Mandapam Camp	15.9.1994
2. <i>Sousa chinensis</i>	Seeniappa Dharga (putrified)	15.9.1995
3. <i>Turstopus aduncus</i>	Near CMFRI jetty	09.1.1995
Whales		
1. Unidentified whale	Valinokkam Bay	11.9.1994
2. Unidentified whale	Vedalai (putrified)	13.10.1994
3. <i>Balaenoptera musculus</i>	Dhanushkodi	25.11.1994

period of observation. The details of different meristic counts and other body measurements of the dolphins (except the one stranded at Seeniappa Dharga) and whales stranded at Dhanushkodi are given in Table 2. The dolphins were identified as *Sousa chinensis* and *Turstopus aduncus* (Fig. 1). The total body length of the former species was found to be 255 cm and that of the latter 221 cm. The teeth count of dolphin landed at Seeniappa Dharga could be made and was found to be 70 on the upper jaw and 68 on the lower jaw.

The dolphins landed near the CMFRI jetty were examined carefully for any external injury to the body. Both the specimens had injury on the snout region and the blood was oozing out (Fig. 2). Besides this, there was no wounds anywhere on the body. Later internal body parts were dissected out for post-mortem examination. All the organ systems were found intact. The stomach was totally empty. The gonads were not developed. The kidneys had a total of 820 reniculi in them (Fig. 3). After examining all internal organs, one of the dolphins was buried near to CMFRI jetty to make further studies on osteological aspects.

TABLE 2. Morphometric and meristic characteristics (in cm) of carcasses of dolphins and whales found along the coast of Gulf of Mannar

Name of the species	<i>Sousa chinensis</i>	<i>T. aduncus</i>	<i>B. musculus</i>
Date of observation	15.9.1994	9.1.1995	25.11.1994
Total length (snout to notch of caudal flukes)	255	221	1.330
Tip of snout to blowhole	43	37	-
Tip of snout to centre of eye	40	35	280
Tip of snout to anterior insertion of flipper	62	53	410
Tip of snout to centre of anus	160	143	990
Notch of fluke to posterior end of dorsal fin	110	97	885
Notch of fluke to centre of anus	54	66	395
Length of fluke on outer curvature	65	78	Putrified
Length of fluke on inner curvature	44	61	Putrified
Distance between extremities of fluke	-	61	-
Width at insertion of fluke	5	14	-
Length of dorsal fin base	36	34	-
Vertical height of dorsal fin	16	25	-
Length of flipper from anterior insertion to tip	35	40.5	165
Length of flipper along curve of lower border	26	28	150
Greatest width of flipper	14.5	13.5	60
Depth of body at anal region	104	27	350
Depth of body at origin of flipper	120	29	380
Depth of body at origin of dorsal	148	42	-
Depth of body in the region of eye	90	24	300
Tip of lower jaw to centre of anus	162	142	960
Length of upper jaw	33	30	235
Length of lower jaw	36	31	270
Diameter of the eye	30	10	25
Total number of teeth on one side of upper jaw	35	24	-
Total number of teeth on one side of lower jaw	34	24	-
Sex	♀	♂	♂
Weight	200 kg	125 kg	7 t



Fig. 1. *Tursiops aduncus* stranded near CMFRI jetty.



Fig. 2. Close view of *T. aduncus*. Arrow indicates injury.



Fig. 3. Reniculi of *T. aduncus*.

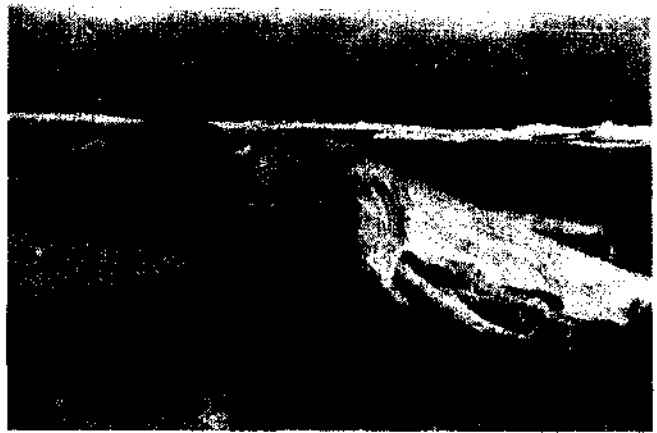


Fig. 4. *Balaenoptera musculus* stranded off Dhanushkodi.

Morphometric observations on whale

The whale washed ashore near Vedalai was found to be in a highly putrified condition. The caudal portion was completely damaged and some of the caudal vertebrae were found scattered in the adjoining area. The approximate total body length was 12 m and the head length around 3.3 m. The width at the origin of flipper was 2 m and the maximum depth of the body was 5.3 m. The morphometric measurements of the whale stranded at Dhanushkodi are given in Table 2. With the morphological observations and taxonomic keys, the whale found in Dhanushkodi was identified as Blue whale, *Balaenoptera musculus*. There were 80 throat grooves. The whale measured around 13.3 m in length. (Fig. 4 - 6).

Possible reasons for stranding

1. Dolphins and whales require deeper water areas for their movement, feeding and migration for breeding. Once they are entrapped in shallow water their direction finding system fails and they get stranded. It is possible that in Gulf of Mannar, the water being shallow, the mammals would have been trapped resulting in strandings.

2. It is possible that sometimes these mammals might have met with an accident with the fishing boats and got injured resulting in death.



Fig. 5. Close view of the male copulatory organ of *B. musculus*.

3. The Gulf of Mannar is notorious for fish poachers using dynamite. Dynamite explosion can cause death of the marine mammals also.

4. To a lesser extent diseases could also be one reason for

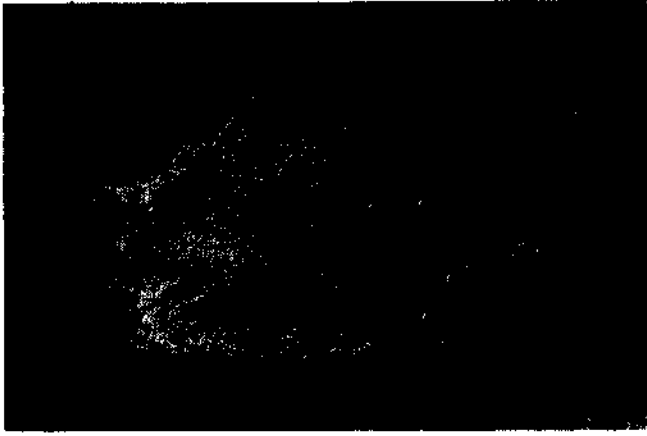


Fig. 6. Baleen grooves of *B. musculus*.

the stranding. Perusal of literature indicates that diseases affect the transmission of nerve impulses to the brain which in turn result in the failure of direction finding.

Although during the present observations no specific reason could be attributed towards the frequent strandings of marine mammals in the Gulf of Mannar region, it is inferred

that any one factor as given above or more would have contributed towards the strandings.

As the Indian Ocean is declared as a sanctuary for whales, the frequent stranding of whales and dolphins emphasise the need for intensive study on conservation measures. The scientific information on the extent of strandings of marine mammals all along the coast needs consolidation. The marine mammals may require well defined habitats at different times of year for their specific biological and physiological activities such as breeding and feeding. Only well-planned research studies can provide better understanding of the habitat requirement in each season of the year. Conservation and non-consumptive use of all species of marine mammals through the inter-Governmental and regional organisations are to be ensured. As the Gulf of Mannar is declared as the 'Marine Biosphere Reserve', an inter-disciplinary approach and concerted efforts by different agencies such as the Ministry of Environment and Forests, the Institute like CMFRI, Fisheries Department, Forest Department, the Coast Guard and the Navy are required towards conservation. The awareness among the public on the need of protection of marine mammals has to be improved by vigorous national campaign all along the coast.

The help rendered by the Technical staff viz. Shri. N. Ramamoorthy, Shri. K. Jayabalan and Shri. A. Gandhi in morphometric studies is greatly appreciated.