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REPORT OF A STRIPED DOLPHIN, *Stenella coeruleoalba* (Meyen, 1833) DEATH CAUSED BY GHOST FISHING IN SOUTH WEST COAST OF INDIA

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AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration between both authors. Author PJS conducts research in Marine biology, Biodiversity and Microbiology. For this work, co-ordination with Forest Department, Veterinary and Coastal police for the necropsy of the dolphin, sampling, morphological taxonomy, literature review and the paper preparation was carried out by the corresponding author. In this paper sampling and photography of the sample was prepared by author SM. Both authors read and approved the final manuscript.

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ABSTRACT

A male striped dolphin, was found entangled in discarded fishing net, off Tangassery, Coast, Kollam, Kerala, India (8°52′55″N76°34′26″E) by the Coastal Police Patrol to be identified later, as *Stenella coeruleoalba*. The trapped animal was in a state of fatigue ensued by the struggle to free itself from the ensnaring monofilament driftnet. Necropsy revealed that the stomach was devoid of solid food indicating prolonged starvation caused by the ensnared net. The incident highlights the devastating impact of abandoned fishing gear on our marine wildlife.

Keywords: Marine mammal; fishing gear; ghost net; marine plastic; stranding.

1. INTRODUCTION

'Ghost fishing' is the term given to the continued fishing caused by fishing gear that has been abandoned, lost or discarded [1]. Ghost gear is the deadliest form of marine plastic debris as described by Wilcox et al. [2] and can continue to catch target and non-target species unselectively for years, potentially decimating important food resources as well as endangered species, such as marine mammals, seabirds, and turtles [3]. Many animals that get caught or entangled within abandoned fishing lines, nets, traps and other gear die a slow and painful death through suffocation or exhaustion [4]. Ghost gear also damages valuable marine habitats [5,6,7,8].

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Since it's intentionally designed to ensnare and capture fish, it's hardly surprising that fishing gear continues to catch fish and other marine life even after it's been lost or discarded [9,10,11,12] and when it's made of plastic that can take decades to break down, the effects can continue for many years.

Marine mammals usually strand due to injury or illness. Stranding of marine mammals occurs frequently in India, yet precise identification is not done in many cases due to lack of local taxonomic expertise and poor condition of specimens [13]. In many cases, the causes of death in stranded marine mammals are not properly investigated, and detailed necropsy studies and post mortem examination would help in evaluating the impact of anthropogenic interactions [14]. Striped dolphins live in deep offshore waters, and are occasionally found on coasts, feeding on pelagic fishes, shrimp and squids (Marine Mammal Research and Conservation Network of India (Accessed 2021).

2. MATERIALS AND METHODS

A male stranded marine striped dolphin, *Stenella coeruleoalba* with the help of *Marine mammals of India – A field guide* by Dipani Sutaria [15]. Tissue samples were collected from the striped dolphin to confirm the identification by the sequencing of two mitochondrial genes, cox 1 and cytb. The samples in absolute ethanol were processed by the extraction of Genomic DNA using NucleoSpin® Tissue Kit (Macherey-Nagel) following manufacturer's instructions (Figs. 1 and 2).

Fig. 1. Striped dolphin, *Stenella coeruleoalba* at Harbour wharf of Kollam, Kerala on 26.01.2021

Fig. 2. Striped dolphin, *Stenella coeruleoalba* at the deck of the boat at Kollam, Kerala on 26.01.2021

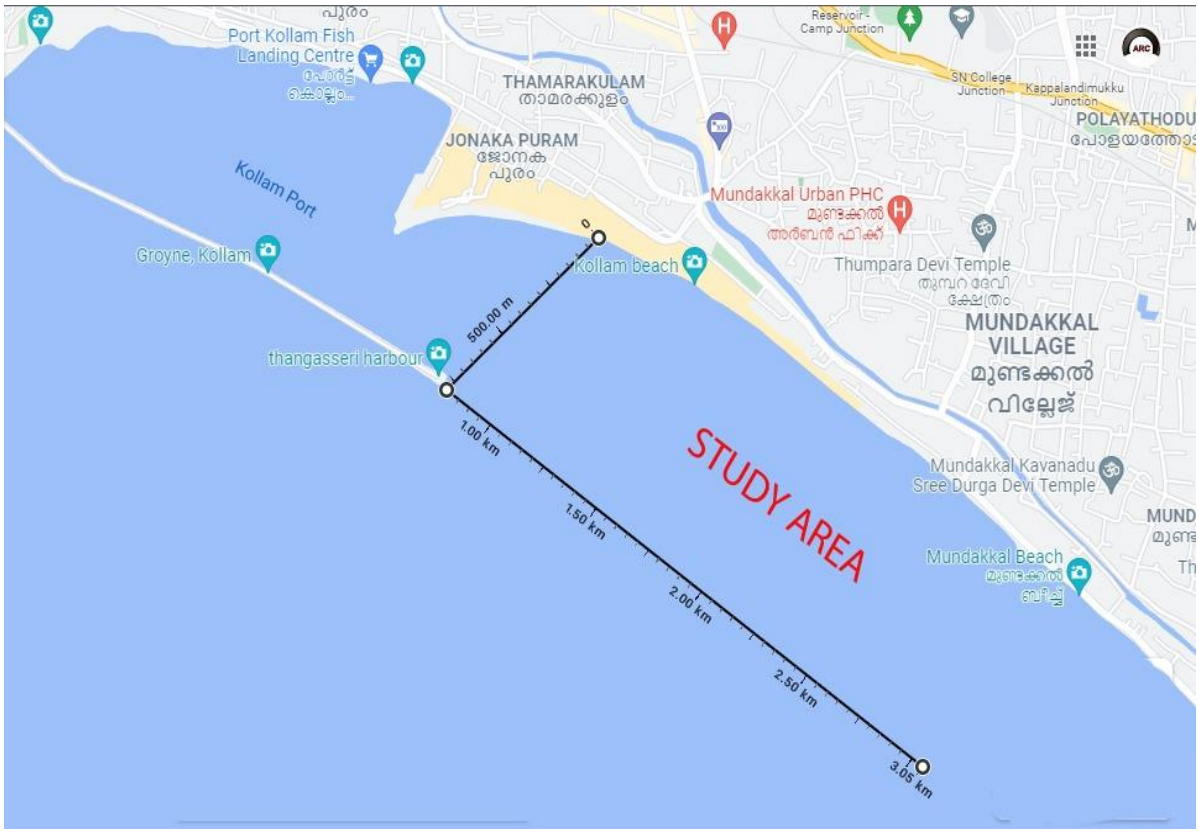

Fig. 3. Map of study area

3. RESULTS AND DISCUSSION

The Genbank accession number of cox1sequence data generated in the study is given in Table 1.

Table 1. GenBank accession number of the cox1 sequences *Stenella coeruleoalba* sample collected from Kerala

Dolphin Code number	GenBank Accession Number
SR2152-DS1	MZ 292149

A Striped dolphin was found entangled in discarded fishing net by the Coastal Police Patrol, off Tangassery, Coast, Kollam, Kerala, India, (8°52′55″N 76°34′26″E (Fig. 3). The trapped animal was in a state of fatigue ensued by the struggle to free itself from the ensnaring monofilament driftnet. Upon dislodging from the ghost net, the marine mammal was found to be emaciated and in poor health, with bruised skin. The 2.48m adult male weighing just 78Kg which is almost half the weight of a healthy adult, succumbed to death soon after. Necropsy revealed that the stomach was devoid of solid food indicating prolonged starvation caused by the net that entangled its mouth.

4. CONCLUSION

It can be inferred from the above observations that the cetacean underwent a horrific death caused by the entangled driftnet and resultant starvation. The incident highlights the devastating impact ghost gear and marine plastic debris has on our marine wildlife. While global estimation of such deaths are 100000 or more annually, national or local data of such incidents are scanty. Basal data formation at national and regional level, with reasons for stranding and/or death of the animals is essential to understand the gravity of the situation. Timely awareness and measures to stop ghost fishing is indispensable in protecting our marine biodiversity and a sustainable fishery.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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