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Article in *Journal of the Marine Biological Association of India* · November 2014

DOI: 10.6024/jmbai.2014.56.2.01802-15

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Plastic debris in the stomach of a Longman's Beaked Whale, *Indopacetus pacificus* (Longman, 1926) stranded off Sutrapada, Veraval, Saurashtra coast, India

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Received: 04 Jun 2014, Accepted: 24 Jul 2014, Published: 15 Nov 2014

Short Communication

Abstract

Longman's beaked whale or the Indo-Pacific beaked whale (*Indopacetus pacificus*) is a rarely occurring whale with very poor information on sighting or stranding, though more common in western Indian Ocean region. Threat to marine fauna from the ingestion of plastic carry bags and other non-biodegradable debris scattered on the ocean surface and at the seafloor is increasing at alarming proportions. This communication describes the stranded adult female Longman's beaked whale near off Sutrapada, Veraval, Gujarat coast that has presumably been choked to death due to the ingestion of four thick plastic bags, which was revealed from the autopsy conducted by the Gujarat Forest Department and the Wildlife Treatment Centre, Sasan Gir, Gujarat.

Keywords: Longman's beaked whale, marine litter, plastics ingestion, mortality, floating debris.

Introduction

Of the two types of whales, toothed whales (*Odontoceti*) and baleen whales (*Mysticeti*), the toothed whales have teeth and a single blowhole and are predators hunting

shrimps, fish and squids unlike the suction feeding baleen whales. Generally they are deep water and transoceanic species. These beaked whales appear to be more common in the western Pacific but rare in the eastern Pacific (Pitman, 2009). They are more common in western Indian Ocean, especially around the Maldives archipelago (Anderson *et al.*, 2006). Occurrence of Longman's beaked whale in Indian waters remained uncertain until its sighting in southern Bay of Bengal in 2009 (Afsal *et al.*, 2009) when a pod of five individuals measuring 5-6 m in length was sighted on board FORV *Sagar Sampada*. Compared to other beaked whales, this species is relatively large and are protected under the marine mammals protection Act (MMPA, 1972) and are included in the Annexure II of CITES. Longman's beaked whales appear to prefer deeper continental shelves. Most sightings were in the waters more than 2000m deep (Pitman, 2009). In the western Indian Ocean, 75% of the sightings were from steep bottom (Vivekanandan and Jeyabaskaran, 2012).

Beach debris and marine litter are increasing in alarming proportions and this menace is the biggest challenge of this century to marine ecosystem because the impacts of pollution due to these non-biodegradable materials are potentially hazardous enough to impair the sustainable production of marine living resources. These litter widely scattered in

beaches, floating in seawater and those settled in seafloor altogether pose threat to marine biota either through ingestion (mortality, or impaired feeding and digestion), entanglement (impairs locomotion, food capture and escape from predators) or habitat degradation (spoilage of feeding and breeding grounds). Plastic carry bags and other floating debris and non-biodegradable materials reach the seafront from barmouth during the hightide. Some of these debris settle at the beach due to wave action and the rest keep floating and drift across the ocean. The floating debris over a period of time becomes tiny particles known as micropalstics due to wave action and exposure to hot sun which harm even the planktons and benthic worms. Plastic bags and floating debris act as substratum for primary film settlement and flotsam for laying eggs by fishes and squids. Plastic and other synthetic materials are the most common marine debris known to cause serious problems to marine birds and animals (UNEP, 2009). In the present communication, we report the occurrence of plastic bags in the stomach of stranded-adult female Longman's beaked whale from Sutrapada beach, off Veraval, Saurashtra coast and discuss the possible threat to marine life due to the marine litter.

Material and methods

On the morning of 4th March 2014, one carcass of a marine mammal was spotted on the shore off Sutrapada near Veraval (Fig. 1) by the local fishermen without any external injury or damage to it. The carcass was about 4.38 meters in length and weighed one tonne. The necropsy conducted on the carcass (Fig. 2) by the officials from Forest Department and Wildlife Treatment Centre, Sasan Gir, Gujarat and reported it as a common sea dolphin. Later this carcass was identified as Longman's beaked whale (*Indopacetus pacificus*, Longman,



Fig. 1. Longman's beaked whale landed at Sutrapada.



Fig. 2. Post-mortem being carried out on the Longman's beaked whale.

1926). The species identification was confirmed with the aid of the field guide -Marine Mammals of the World (Jefferson *et al.*, 2007) and other published materials.

Results and discussion

According to the necropsy report of the Wildlife Treatment Centre, the mortality had occurred one or two days before the date of post-mortem and the body was found emphysematous and putrefied without any lesion, injuries and abnormalities except four thick plastic sheets of shopping bags which had blocked the passage of food to the intestine. Hence it was believed that the death could be due to choking by plastic bags ingested while feeding. Four thick plastic bags (190 g) ingested accidentally or deliberately while feeding might have caused impairment to the process of digestion and thus mortality might have occurred. Turtles and marine mammals may ingest floating plastic sheet/ bag accidentally or they prefer to consume them because of the primary settlement of bacteria, marine algae, eggs and larvae of marine organisms in it.

Among all the maritime states of India, Gujarat ranks first in beach litter production per unit area per day (H.M. Bhint, unpublished data). The quantity of plastics and other non-biodegradable materials that could be collected from sea (surface + column+ bottom) is increasing and spreads horizontally beyond the continental shelves. According to a recent study by International Coastal Cleanup (ICC., 2007), plastic bags rank first among the top ten coastal debris occupying 28.4 % within the South Asian Seas. These floating debris and their minute particles (microplastics) pose serious threats to marine birds, turtles, fishes and marine mammals by affecting their vision, ability to swim and food intake.

Though there have been previous incidents regarding the washed ashore dolphins, whales and dugongs from Indian coasts, choking by plastics is reported for the first time from India. Presence of three pieces of plastic debris (carry bags) in the fore stomach of a female Risso's dolphin (*Grampus griseus*) was reported from mangrove area, Purok Scorpio, Lasnag, Davao City on 26 February 2013 (BFAR., 2013). (Allsopp *et al.*, 2006) have reported the entanglement or ingestion of marine debris by nearly 267 species of marine animals including 31 species of marine mammals. Walker and Coe (1990) made detailed studies on ingestion of foreign bodies by toothed whales and they found that 62.5% of the ingested materials include plastic bags and plastic sheeting.

The significance of rising threat from the ingested plastics and other debris to marine mammals is to be studied extensively. Strict and immediate implementation of the Honolulu Strategy 2011, aiming for a result oriented framework of action with overreaching goal to reduce the impacts of marine debris over the next 10 years only can check similar incidences. It is estimated that 33 billion tonnes of plastics will be added to our planet by the year 2050 (Browne *et al.*, 2013). If ocean dumping is unchecked, similar risks to marine life especially to marine birds, turtles and mammals might increase worldwide as well as at higher frequency.

Acknowledgements

The authors thank the Veterinary Officers Dr. D. P. Solanki of Wildlife Treatment Centre, Sasan Gir and to Dr. Barad of V.D. Sutrapada for making available the PM report to us. We also thank the Head FEM Division and the Director CMFRI for the encouragements received.

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