



First Record of a Shark Predation Case On Bottlenose Dolphin (Tursiops truncatus) in The South Mediterranean Region

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Introduction

- Stranding is defined as having a cetaceans run to aground. The term also describes other marine organisms left in a helpless position, ill, weak, or lost³.
- Each stranding is an opportunity to obtain more useful information about marine animals, that information may not be available through free animals.
- Sharks and marine mammals including dolphins are top predators in most marine ecosystems. At the same time, overlap in niche and trophic levels suggest that dolphins and sharks engage in competitive interactions over food⁵. In addition, dolphins are preyed upon by certain shark species and this predation pressure may influence dolphins' behavior and distribution^{5,7}.
- There are several reports of dolphins that had injuries from shark attacks⁶. For example, in Shark Bay, Western Australia. Shark bite scars were found on number of bottlenose dolphins (Tursiops truncatus) between 1998 and 1999, and most of these scars were inflicted by tiger sharks (Galeocerdo cuvier)⁴.
- Shark attacks seem to be rarely recorded in the Mediterranean¹, but there have been some cases of dolphins with scars consistent with shark bites in the northern Mediterranean. For example, On May 5, 2006 near Lampedusa, Italy. A live adult bottlenose dolphin (Tursiops truncatus), bearing two fresh bites of great white shark (Carcharodon carcharias) on its dorsal region².
- A stranded dolphin was found near Sirte, Libya with what seemed like three large bites. One in the dorsal region and two in the ventral region. The similarity and shape of the bites suggest that they are from a shark attack, but it was difficult to determine whether the death was the result of predatory activity or if the bites were postmortem.



Figure 3: A close-up of the three bites and their measurements

Discussion

- The area west of Sirte, including the Khamseen area, is an important for the presence of dolphins, especially the bottlenose. The species is frequently observed in groups or individually by the local fishermen and researchers along with the presence of addition to 4 cases of stranding of bottlenose dolphin during the past three years in that area.
- The importance of the region is also due to the presence of a number of cartilaginous species, including some species of sharks that are frequently caught by the local fishermen in this area, and therefore, the presence of two top predators (both are included in the Annex II of the Barcelona convention, listed in the CITES appendices and in the Red List of the IUCN, gives the importance of the region and makes it a hotspot in the southern of the Mediterranean.
- In this case, not determining the time of the bites, whether it was before or after the death of the bottlenose dolphin, is due to the lack of expertise that can run necropsies and gave more anecdotal results.



Figure 1: Khamseen Beach, the area where the dolphin was found stranded



Figure 2: Measuring length of a dolphin

Case description

- Location: Khamseen Beach, Gulf of Sirte, Libya
- Coordinates: 31° 16' 27.5" N, 16° 01' 48.7" E

Khamseen Beach is located in the center of the Libyan coast, 50 km west of the city of Sirte, it is a sandy beach interspersed with some rocky peaks. The site is distinguished by its distance from any urban area and the difficulty of accessing it makes it a semi-protected beach. This is what made it one of the beaches with a high nesting density for loggerhead sea turtles (Caretta caretta), and it is also characterized by the presence of a wet land near it, which is an important station for migratory bird species.

A dead adult bottlenose dolphin (Tursiops truncatus) was found on the beach in March 2019, apparently recently dead. The standard length was measured at 2.7 m, with three large, semicircle-shaped injuries. One in the dorsal region, from, starting from the end of the head up to before the dorsal fin, 76 cm in circumference. The other two injuries were in the ventral region, the first from the end of the pectoral fins to the middle region, 64 cm, and the other from the midpoint to the genital region, with a length of 51 cm. We could not determine whether the bites were Before or after death of the prey.

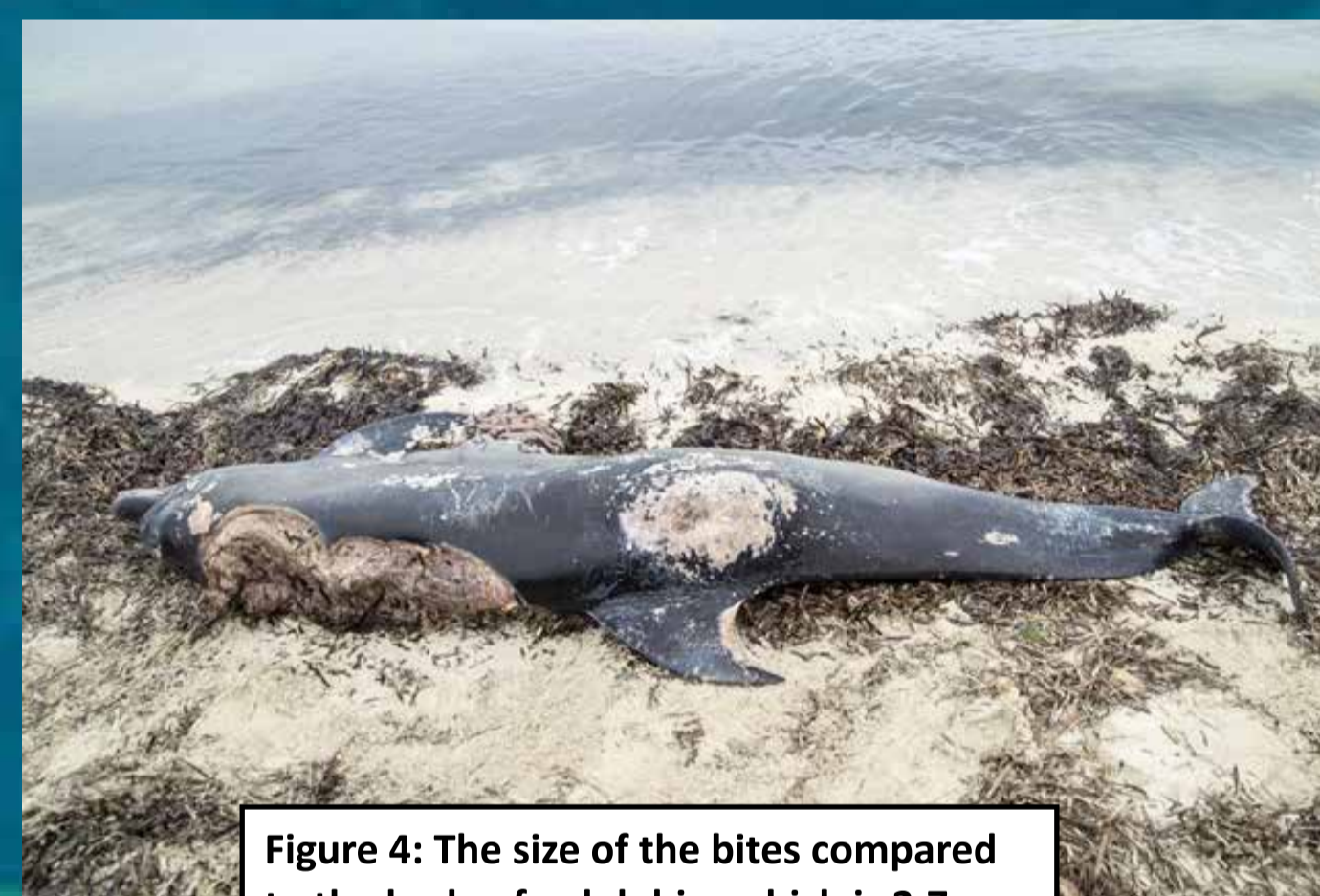
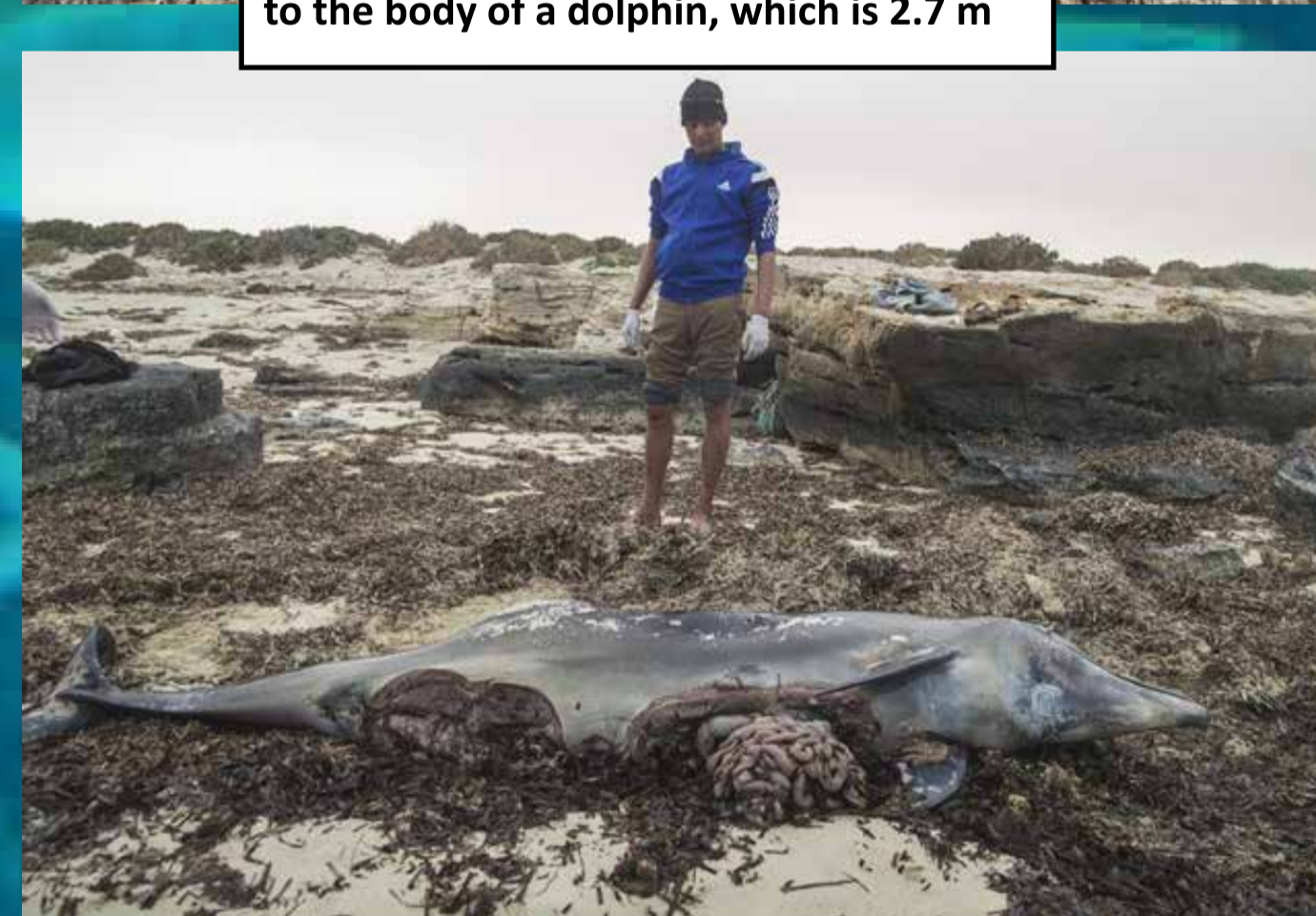


Figure 4: The size of the bites compared to the body of a dolphin, which is 2.7 m



Figure 5: Khamseen beach, west of Sirte, wherever a dolphin was found, stranded, and some sites in the Mediterranean where dolphins were found carrying shark bites



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