

Title: Identifying priority conservation sites for the endangered Indian Ocean humpback dolphin in Northern coast, Kenya – 2020 - 2021

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Introduction

Evidence suggests that the Indian Ocean (IO) humpback dolphin is the most threatened small cetacean in the Western Indian Ocean because of their vulnerability to gillnet entanglement, high level of exposure to additional human threats and small isolated populations (Amir et al. 2002; Kiszka 2009). In addition to these threats, current ongoing port developments at the north Kenya coast pose new threats to IO humpback dolphins. Development of large infrastructure results in habitat alteration, dredging, transport/deposit of spoil sediment, underwater blasting, and increases in vessel traffic. This project is the start of planned long-term surveys and data collection which will provide a unique opportunity to evaluate how IO humpback dolphins are impacted by anthropogenic threats in this coastal region. Surveys information gathering and data is essential towards developing conservation management strategies for this endangered species in Kenya.

In Kenya, the limited information we have on IO humpback dolphin distribution and abundance comes from the south coast, in the Kisite Mpunguti Marine Protected Area and the central coast in the Watamu Marine Protected Area. Due to the current lack of regional information and data, and the imperative nature of the problem, this assessment project aims to discover the distribution and preferred habitats of the IO humpback dolphin populations along the north coast of Kenya, and to make comparative population studies between north and central coast with a focus on anthropogenic pressures and specifically bycatch, targeted catch and port development. An understanding of IO humpback dolphin populations and possible connectivity and current threats is vital to define appropriate mitigation and management measures for conservation.

While this project focused on the IO humpback dolphin, the presence of other dolphin species and human marine activities were also reported and discussed.

Designated surveys

1. Malindi National Marine Protected Area – (MNMPA)

The Malindi MPA covers 271km². Previous research from 2017 to 2020 recorded the presence of IO humpback dolphins in the north part of the MPA, confirming anecdotal reports from fishermen. Five sightings of IO humpback dolphin were recorded during visual surveys by the Kenya Marine Mammal Research and Conservation /Kenya Wildlife Service research team during a 3-month study period from November to January 2020-2021. This is a significant result, as the animals were recorded in groups of between 5 and 13 individuals, feeding and with calves present. Two individuals were recorded as “recaptures” (a photo ID match) from Kisite-Mpunguti Marine Protected Area (KMMPA) sighted in 2006 and 160km south of Malindi MPA. This is evidence of long distance travel which is

important information for understanding preferred habitats and distribution of humpback dolphin populations along the Kenya coast.

The frequent sightings of a large feeding group of 12 with calves is a possible indication of a semi-resident or resident population in the Malindi MPA, requiring further studies and comparisons with other MPAs.

Humpback dolphins are threatened by fishing activities resulting in injury and death caused by fishing gears. In two surveys 4 animals showed signs of net damage and injury. It is expected that these interactions occurred outside the MPA survey area. Dolphin watching is not yet established here, and all fishing activities are prohibited in the Marine Park. It was noted that a significant number of gill nets were recorded immediately north of the MPA. Community scouts and Park rangers are now engaged through sensitization workshops and in-field training, to collect continuous in-boat sightings during their patrols.

2. Marereni – Ungwana Bay

Marereni is located north of Malindi MPA (2.873751 S 40.183347 E), in the Ungwana Bay, an unprotected area, characterised by mangrove forests and channels, and host to fish and sea turtle species.

Before 2020, little was known about the marine mammal populations in this area, apart from occasional reports received from the Kenya Marine Mammal Network citizen science platform local fishers, describing Indo-Pacific bottlenose and IO humpback dolphins being sighted in the area. Bycatch and consumption of bottlenose dolphin has also been reported from some nearby islands around the Bay.

In November 2020, we conducted our first visual in-boat survey in the area for a seven-day period, in conjunction with Kenya Wildlife Service and the Marereni Biodiversity Conservancy, a key local conservation group. A pod of 6 IO humpback dolphins including a calf were sighted on one occasion. Previous research in the Watamu MPA noted that a usual pod size is between 2 and 8 individuals, however, research in Malindi in early 2020 recorded unusual pod sizes of more than 12 individuals and occasionally pods of up to 30. This indicates that the Malindi MPA south of Marereni is an important hotspot for this species.

The IO humpback dolphin ID photos taken at this initial stage will be compared to try and ascertain if the Marereni dolphins are transient or resident. It is planned for that a photo ID catalogue will be developed for Marereni over time to enable us to make comparisons of individuals with other population sites (Watamu, Malindi, Shimoni). Surveys observed low fishing activity and limited to the occasional artisanal canoe fisher using hand line.

3. Lamu Archipelago and Kiunga National Marine Reserve (KNMR)

The Lamu Archipelago is in the far northern coast of Kenya (2.187971 S 41.099168 E). It is characterised by the 54 islands that form it, spanning from Lamu over 600km of shoreline north to the Kenya-Somali border. The coastline is composed of mangrove forests and seagrass meadows, which make it a favoured spot for a variety of marine animals, including sea turtles, numerous fish species, and marine mammals, namely the critically endangered dugong and dolphins.

Through partnership with the Kenya Wildlife Service in the most northern MPA - Kiunga National Reserve, we managed for the first time to collect baseline information of marine mammals in this area.

The most common species recorded was the Indo-Pacific bottlenose and the Indian Ocean humpback dolphin. The migratory humpback whale was also reported in Manda Bay and Pate Island. Blue whale strandings have been previously recorded in the Kiunga National Reserve

During the reporting period in November 2020, we conducted a 5-day ground truthing exercise in Lamu, to connect with 20 local fisher communities and tour operators. The purpose was to gather baseline information to better understand areas and frequency of dolphin sightings and any challenges for conducting future research.

As part of an initial verification exercise, we conducted 2 surveys as a familiarisation of the Lamu and Shela area, one inshore and a second offshore, approximately 20 nautical miles out. The main objective being to substantiate the presence of marine mammals in these specific locations.

During both surveys we obtained quality photos of Indo-Pacific bottlenose dolphin which will be used to create a new and first ID catalogue for Lamu, to be compared with the two other existing catalogues from Shimoni (south coast) and Watamu (central coast) MPAs.

Citizen Science Network

1. Marine mammal sightings

The Kenya Marine Mammal Network (KMMN) has proved to be a highly successful collaborative platform for information sharing, driven by Watamu Marine Association, using primarily social media and Whatsapp for reporting species and location, supported by photographs and videos.

A single sighting of a group of 6 IO humpback dolphins was reported by KMMN during the study period November – January , in the Lamu channel close to shore.

2. Marine Mammal Strandings

During the study period we had a single IO humpback dolphin reported as a dead stranding two weeks after the surveys and sensitisation sessions. This is an indicator of the success of the exercise with the community in terms of awareness and reporting. Decomposition was advanced and a full necropsy was not possible. The carcass was buried at a specific location to be exhumed in the future for skeletal value.

Through the KMMN, the citizen science reports of marine mammal strandings in 2020 included, melon-headed whale, striped dolphin, dugong (bycatch), and Indo-Pacific bottlenose dolphin, which again highlights the value of a remote reporting network.

Project Outcomes

1. 3 new marine mammal research sites established and with 2 being in the remote northern Kenya waters. Comparisons were made of IO humpback dolphin individual ID, which show that animals can travel between sites.
2. Initial verification and corroboration of anecdotal and citizen science data in a data deficient area. KMMN reports of IO humpback dolphins in Marereni and Ungwana Bay, prompted KMMREC to survey this area and the Lamu Archipelago, to obtain baseline data on preferred habitat and sites for these and other marine mammal species.

3. Increased engagement of community member's citizen scientists and contributions to the database. This also improved the quality and reach of data we were getting both of live sightings and strandings of marine mammals.
4. A new website launched for Kenya Marine Mammal Research, Education and Conservation Program (KMMREC) <http://kmmrec.or.ke/> The website will function as a marine mammal tool kit for educators, students, academics, scientists, and conservation managers.