LIVING AT THE LIMITS: Distribution of Small Cetaceans along Abu Dhabi Waters, Arabian Gulf, United Arab Emirates

Ibrahim Bugla[1], Bruno Díaz López[2], Séverine Methion[2], Himansu Das[1], Maitha Al Hameli[1], Amna Al Mansoori[1], Hind Al Ameri[1] and Ahmed Al Hashmi[1]

[1]Environment Agency – Abu Dhabi, P.O. Box 45553, Abu Dhabi, United Arab Emirates. [2]The Bottlenose Dolphin Research Institute (BDRI), Av Beiramar 192, O Grove 36980, Pontevedra, Spain.
Corresponding author email: ibugla@ead.gov.ae

INTRODUCTION

- The Emirate of Abu Dhabi is strategically located within the Arabian Gulf in a combination of geographical, oceanographic and ecological conditions which enable the presence of a rich cetacean fauna. Although the preservation of suitable habitats is necessary, the persistence of cetacean species in Abu-Dhabi waters cannot occur without a better understanding of their distribution, demography and use of habitat.

- Here we report the distribution patterns and group dynamic of cetacean species as integral components of the information needed to manage human impacts on marine mammals in Abu Dhabi waters.

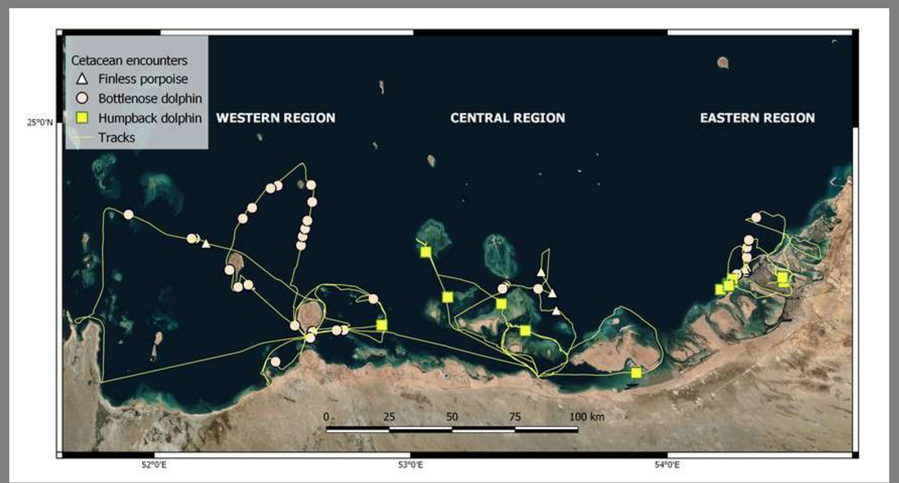

Figure1 Map of the study area showing the cetacean encounters (dolphins and porpoises) and the different tracks surveyed across the Abu Dhabi coastline.

METHODS

- Overall, 13 days were spent at sea in April 2017, totaling 107 hours and 1145 km of boat-based observations.
- Photo-Identification Analysis
- Temporal and spatial distribution
- Group dynamics

RESULTS

- 57 encounters with cetaceans (35 with Indo-pacific bottlenose dolphins, 14 with Indian Ocean humpback dolphins, and 8 with finless porpoises).
- 268 Indo-pacific bottlenose dolphins, 92 Indian Ocean humpback dolphins, and 37 finless porpoises were observed. (Fig.2).
- Indo-pacific bottlenose dolphin (Fig 3,5) was the most commonly seen cetacean species along Abu Dhabi waters (Kruskal-Wallis test, $p<0.05$).
- The occurrence of the observed species showed spatial fluctuations along the Abu-Dhabi waters (Figure 4). Indo-pacific bottlenose dolphins showed preferences for the Western region, however the occurrence of both Indian Ocean humpback dolphins and finless porpoises was homogeneous across the monitored regions.

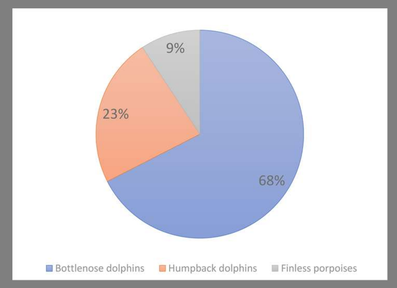

Figure 2 Distribution of the number of small cetaceans observed during the study.

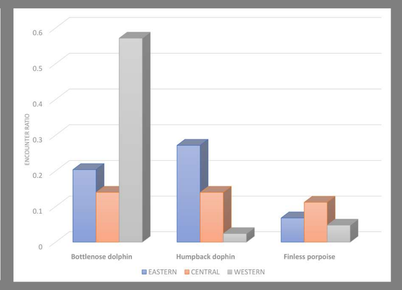

Figure 3 Encounter ratio for all three cetacean species across the three monitored regions.

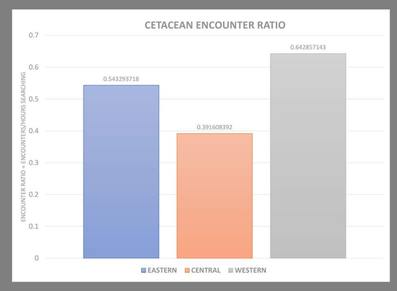

Figure 4 Overall cetacean encounter ratio (Sightings per hour searching) across the three monitored regions.

Figure 5 Indo-pacific bottlenose dolphins (*Tursiops aduncus*) observed during dolphin surveys in the southern Arabian Gulf.

Figure 6 Indian Ocean humpback dolphin (*Sousa plumbea*) seen during the surveys

Figure 7 Indo-pacific finless porpoise (*Neophocoena phocaenoides*) seen during the surveys

CONCLUSIONS

- Abu Dhabi waters are an important foraging habitat and a breeding/nursery zone for all these cetacean species.
- The observed decline in presence of humpback dolphins compared to previous EAD dolphin surveys (2014 - 2015) could be cause of concern.
- A number of interacting factors may have played a role in this decline, ranging from natural fluctuations to the potential impact of human activities

ACKNOWLDEDGEMENTS
We would like to thank H.E Dr. Shaikha Al Dhaheri and EAD management for supporting this work. The dolphin surveys were implemented by the Marine Assessment & Conservation Section, Environment Agency-Abu Dhabi.