

Area Size

6,000 km²

Qualifying Species and Criteria

Common bottlenose dolphin -
Tursiops truncatus
Criterion A; B (i); C (i, ii)

Summary

The coastal waters of Kélibia, around the Cap Bon Peninsula in Northeast Tunisia, supports a resident population of Vulnerable Mediterranean common bottlenose dolphins (*Tursiops truncatus*). The dolphins consistently occupy the area and appear to have long-term site fidelity. These dolphins interact frequently with the fishing gear and depredation has been documented, causing damage to gear. The intensive fishing in the area, especially by trawlers and purse seiners, may be depleting important nutritional sources for these common bottlenose dolphins.

Kélibia Important Marine Mammal Area - IMMA

Description

Kélibia area is located in north-eastern Tunisia, extends over 300 kilometres of coastline and is the transition zone between the western and eastern basins of the Mediterranean. As the entire top Sicilian-Tunisian basin, its submerged area is a natural extension of the rocky terrestrial relief with bays and capes (Good, Fartas Ras, Ras El Maleh) (Ben Azzouz and Othmen, 1975). The marine area of Kélibia retains the rugged north coast of Tunisia, is characterized by a steep slope, a narrow continental shelf, and a slope with deep channels (Ben Azzouz and Othmen, 1975). The continental shelf of Cap Bon is wider with a lower limit of no more than 100 m depth. It then reaches a width of 20 nautical miles, due to its low slope (Azouz, 1973).

Due to its geographical position, the morphology of the seabed and wind conditions, this area is known to have a complex currents movement. This region has been marked by the presence of the Atlantic currents that reach a winter expansion threshold (Gaâmour, 1999). It is recognized by its trophic richness and fisheries potential. This region contributes 10% of national fisheries production (DGPA, 2014).

The area encompasses an estimated area of 6,000 km² in northeast Tunisian peninsula (11.037°E, 37.083°N). Starting from Cap Bon in the north and going south the Tunisian coast to the golf of Hamamat (11.437°E, 36.475°N). The area's western boundaries are limited by the 200 m bathymetric lines since bottlenose dolphin is a coastal species in that area. This area present hydrological and topographical features that seem important to create a favourable habitat for common bottlenose dolphins where they are predominantly resident.

Criterion A - Species or Population Vulnerability

The national Institute of Sciences and Technology of the Sea (INSTM) conducted many surveys along the Tunisian coastline. The results of this effort showed that many cetaceans and especially bottlenose dolphin was seen frequently along this coastline. The majority of sightings was condensed in Tunisian north-eastern coasts. This area seem to be a magnet area of bottlenose dolphin where some features are gathered, the high biomass of potential prey and of the easy pickings from fishing gear, to create a favourable habitat for this species. Surveys showed also that bottlenose dolphin are facing a strong fishing activity in the Tunisian north-eastern. These intense fishing activities could degrade *Tursiops* habitats and exposed it to collision problems, by-catch and even mortality (Aissi et al., 2014; Benmessaoud et al., 2011; Benmessaoud, 2015).

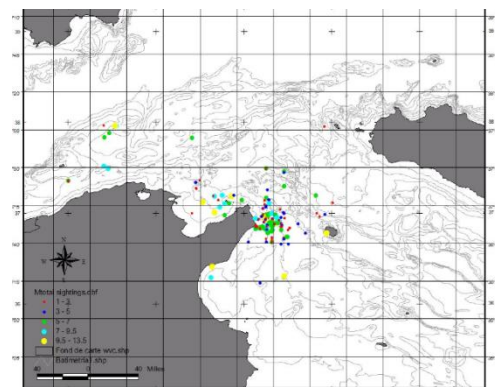
This area seems to be a primary area of common bottlenose dolphin where favourable habitat features are concentrated, and the high biomass of potential prey is found. Furthermore, bottlenose depredation from fishing gear also occurs in this region. Surveys showed also that bottlenose dolphin are facing a strong fishing activity in the Tunisian north-eastern. These intense fishing activities could degrade habitats and exposed it to collision problems, by-catch and even mortality.

Criterion B: Distribution and Abundance

Criterion Bi – Small and Resident Populations

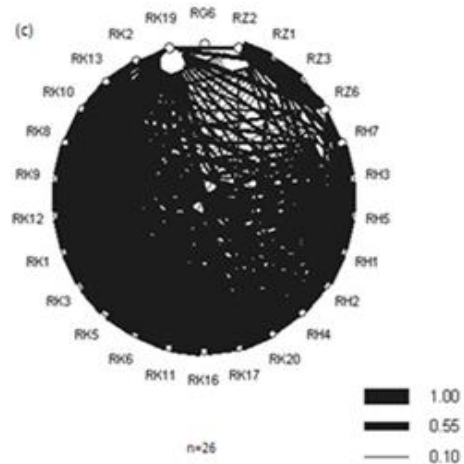
The study area appears to be an important habitat for *Tursiops* as suggested by the concentration of sightings through the year and a long-term site fidelity is shown. Application of photo-ID technique allowed to recognize and to create a catalogue; 44 individuals were catalogued. Based on the Occurrence Monthly Rate of these recognized dolphins, we identified the residency model of

each identified individual. 37.21% of marked *Tursiops* (n = 16) are residents, 32.56% (n = 14) specimens that often frequent the study area and the rest (n = 13) are sporadic. 64% (n = 319) of the observed groups had more than two individuals. Group size varies from 1 to 20 individuals with an average of 5.179 (\pm 2.89 individuals, median = 5.00). Social pattern analysis revealed that the associations are not random type and there are preferred/ avoided companions (Benmessaoud, 2014; Benmessaoud et al., 2014; Benmessaoud et al., 2013; Benmessaoud et al., 2011; Benmessaoud, 2009).



Benmessaoud (2014)

Common bottlenose dolphin sightings and group sizes in the region of the Kélibia IMMA -related to criterion Bi (Benmessaoud, 2014).



Relatedness of identified common bottlenose dolphin sightings and group sizes in the region of the Kélibia IMMA - related to criterion Ci (Benmessaoud, 2014).

Criterion C: Key Life Cycle Activities

Sub-criterion Ci: Reproductive Areas

Identifying the sex of the 43-identified individuals allowed recognizing 3 males and 12 females with their calves/juveniles. Group size containing immature was significantly higher than those groups in which the immature were absent. The study of group size indicate that the group size varies considerably over the years and bathymetric strata. Possible explanations for this variation include predation, prey availability, reproduction and sociality of this species (Benmessaoud et al., 2016, 2014). The size of groups with young individuals proved to be larger than groups without young individuals. The advantages of alloparental care and the implications for the survival of the young are still being discussed.

Criterion C: Key Life Cycle Activities

Sub-criterion Cii: Feeding Areas

Monitoring of behavioural assessment of this species has shown that 50.47% of its behavioural budget is allocated to conduct social activities and 43.26% in feeding and interacting with fishing gears (Benmessaoud, 2008; Benmessaoud et al., 2008; Benmessaoud, 2011; Benmessaoud et al., 2011; Benmessaoud, 2014).

Supporting Information

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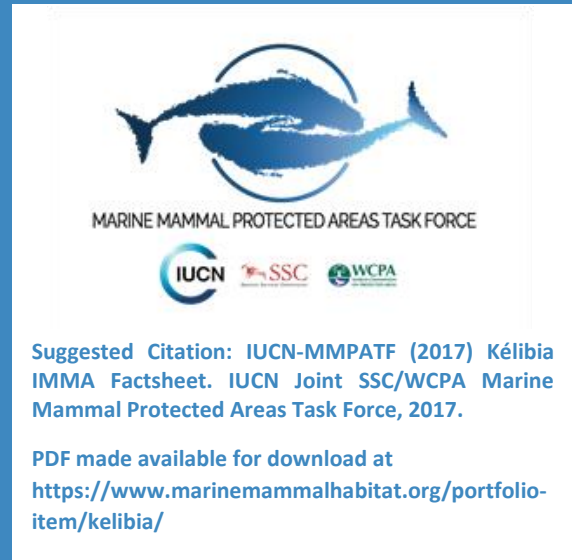
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Annex I

List of Primary and Secondary Species

Primary Species – Meet the IMMA Selection Criteria

Scientific Name	Common Name of Species	Population / Subpopulation Name	IUCN Red List Status
<i>Tursiops truncatus</i>	Common bottlenose dolphin	Mediterranean Subpopulation	Vulnerable

Secondary Species – Do not individually meet the IMMA Selection Criteria but are present within the area

Scientific Name	Common Name of Species	Population / Subpopulation Name	IUCN Red List Status
NA	NA	NA	NA