

PARTITIONING OF THE NORTHERN TUNISIAN COASTS INTO HOTSPOTS OF CETACEAN DISTRIBUTIONS

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Abstract

For two years 2008 and 2009, indications about cetacean sightings' aggregations were supplied by fishing boats. Based on weekly questionnaires to fishermen the most frequently encountered species were the bottlenose dolphins *Tursiops truncatus* representing 77.8% of all sightings and the common dolphin *Delphinus delphis* (22.2 %). Sightings positions were distributed over a grid of 5' longitude and 5' latitude to localize the "hotspots".

Keywords: *Cetacea, Distribution Coefficient, Mapping*

Introduction

Despite of the occurrence in Tunisian waters of all cetacean species known to be regular in the Mediterranean basin except Cuvier's beaked whales [1], [2], [3], [4], the information about their distribution is very scarce due to a lack of continuous studies [5]. This work was carried out by gathering data collected over two years 2008 and 2009 to reveal preliminary indications of cetacean distribution areas in northern Tunisian coasts.

Material and Methods

We estimated the aggregation of cetacean observations in some selective fisheries area from reports received from fisheries boats (2008 and 2009). This area encompasses the coastal and offshore waters of the northern Tunisian coast extending from the coastline to 38° N and from 009° E to 010° 30' E. Data were collected by means of questionnaires including specific questions about fishing area and cetacean sightings. 20 fishing boats were considered in this study according to two main variables: educational profile of fishermen and experience level in identifying cetacean species. Sighting is defined in this study as a visual detection of a group of cetaceans recorded at least by two different fishing boats. Sightings were distributed on the grid of the studied area with a cell size of 5' x 5', reaching 190 cells. Hotspots are cells where the species occurred more than three times during the same season.

Results and Discussion

For instance, 54 cetacean sightings were admitted and more than 20 were excluded due to uncertainty. All observers reported sightings of small cetaceans principally bottlenose dolphins reaching the 77.8% and occasionally the common dolphins (22.2%). From the total of cells where fishing boats set sail, we identified 17 hotspots. Common dolphin sightings occupied only 4 hotspots confined to deep water in the northeastern part of the study zone, however bottlenose dolphin occupied 13 hotspots in coastal and offshore areas (Figure 1). Coastal cells were classified as a school ground for juvenile bottlenose dolphin to learn hunting techniques during autumn season [4].

This study highlights the ecological importance of particular zones off the northern Tunisian coasts that should be monitored.

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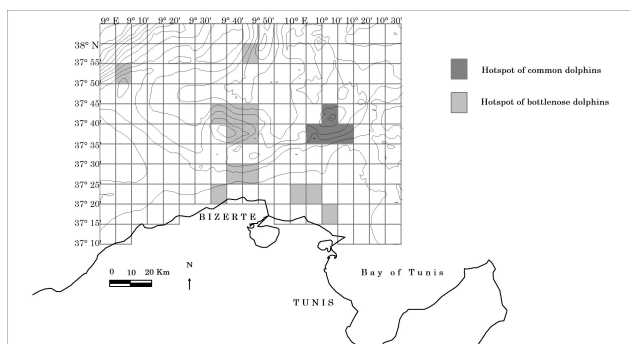


Fig. 1. Distribution of hotspots for common dolphins (in dark grey) and bottlenose dolphins (in light grey) in the northern Tunisian coasts estimated from fisheries boats during 2008 and 2009, with isobaths each 100 m

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