Cetacean distribution off the central Catalan coast, NW Mediterranean Sea

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INTRODUCTION

Four different species of cetaceans can be frequently seen over the continental shelf and slope off the Catalan coast: the fin whale (*Balaenoptera physalus*), the Risso's dolphin (*Grampus griseus*), the bottlenose dolphin (*Tursiops truncatus*) and the striped dolphin (*Stenella coeruleoalba*). Although several studies confirm the presence of these species in the NW Mediterranean Sea[1, 2, 3], there is a lack of information about their distribution off the central Catalan coast.

MATERIALS AND METHODS

The study area comprised the waters of the Garraf coast (western Mediterranean Sea), from Vilanova i la Geltrú to Garraf (Fig.1). It reaches 15 nautical miles from the coast.

Figure 1: Study area between 2013-2017.

Data were collected during 72 dedicated boat surveys carried out from 2013 to 2017, covering a total distance of approximately 1925 nautical miles. In every survey, environmental data were collected. The coordinates of every sighting were recorded using a hand held GPS and photographs of the individuals were taken for further photo-identification studies. GIS software was also used to assess the distribution of the different species in the study area.

OBJECTIVES

This study aims to provide baseline information on the distribution of the fin whale, the Risso's, the striped and the bottelnose dolphins off the Catalan coast, which could be used in the future to promote conservation measures of these species and their habitats.

RESULTS

A total of 125 sightings (Fig.2) were recorded, being the striped dolphin the species seen more times (63), followed by the bottlenose dolphin (34), the fin whale (25), and the Risso's dolphin (5). Although 125 sightings were recorded, only 102 were used for depth studies (already, at this point, the sightings of short-beaked common dolphins, sperm whales and unidentified species were excluded from the analysis since there was not available data) and only 104 were used to estimate the group size (Table 1).

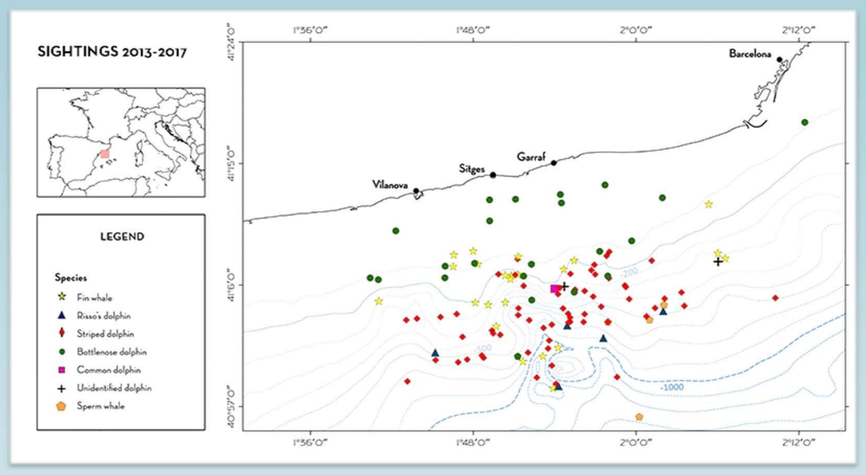

Figure 2: Sightings between 2013-2017. The most viewed species was the striped dolphin (*Stenella coeruleoalba)* followed by the bottlenose dolphin *(Tursiops truncatus).*

Mean depth in which the different species were found to vary between them. Risso's dolphins (770 ± 101 metres) and striped dolphins (563 ±34 metres) were commonly seen in pelagic waters, whereas fin whales (400 ±70 metres) and especially bottlenose dolphins (152 ±40 metres) were mostly seen in shallower waters (Table 1). Data on short-beaked common dolphins and sperm whales were not included in the analysis due to the low number of sightings.

	DEPTH (m)			
SPECIES	Sightings	Mean±SE	Interval	Group size±SE
Balaenoptera physalus (BP)	24	400±70	65-1233	1,4±0,14
Grampus griseus (GG)	5	770,8±101	496-1085	4,5±2,5
Stenella coeruleoalba (SC)	61	563±34	126-1177	10,3±1,3
Tursiops truncatus (TT)	22	152±40	20-691	5,8±0,98

Table 1: Mean depth of the four species included in the analysis and sighted between 2013 and 2017. SE, standard error.

A One-Way Anova was used to compare the depth in which the most sighted species were found. The analysis only showed significant differences between the bottlenose dolphins and all the other species (Fig.3).

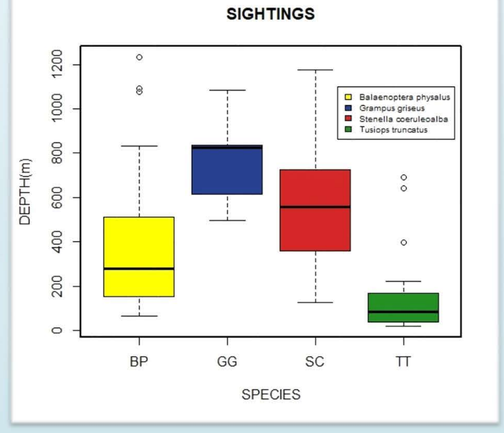

Figure 3: Relationship between species distribution and depth (ANOVA).

CONCLUSIONS

As it happens in other areas of the Mediterranean[1,2,3,4,5], the different species are distributed at different depths. In this sense, the striped dolphin was the species found in deeper waters, followed by the Risso's dolphin. Both are pelagic species. On the other side, the bottlenose dolphin was commonly seen in shallower waters. Finally, the fin whales were found in intermediate waters, what contrasts with other areas of the Mediterranean, where they have been seen in deeper waters[5]. Overall, it can be concluded that the species were distributed at different depths, being bottlenose dolphins found in significantly shallower waters, whereas the difference between the other species was not significant. These results provide basic but valuable information for upcoming studies.

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