

FILLING GAPS IN MEDITERRANEAN CETACEAN KNOWLEDGE, NEW INFORMATION FROM POORLY KNOWN ZONES OF THE NW BASIN

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INTRO – Knowledge about mediterranean cetaceans mostly belongs from limited well-studied zones. Increasing effort is being deployed to predict ecological “scenarii” for the entire basin. Empirical validation of such predictions is still pending, along with increasing knowledge of poorly studied sea areas. In 2010 a new research project was set up in a slightly studied zone, the Balearic Sea, with the aim to provide new information. We present results concerning presence, sighting rates and seasonality of the cetacean community of this area.

PLATFORMS Catamaran CATANA 471 for maritime transect and CESSNA 172R for aerial surveys

PROTOCOLS Standard line-transect protocol is applied during visual surveys, collected data are stored in a relational database built in Ms Access. Acoustic protocol is still at an implementing phase.

ANALYSIS Only visual data were analyzed. GIS software and several packages in the R environment (stats, maptools, spatstat, rgdal, rangeMapper) were used. MCPs (minimum convex polygons) for each species were calculated and used to compute species-richness map. Sighting rate and seasonal patterns only concern maritime campaigns.

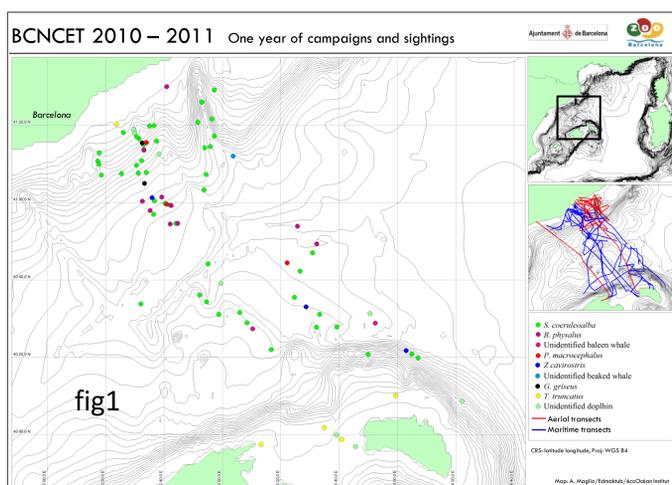
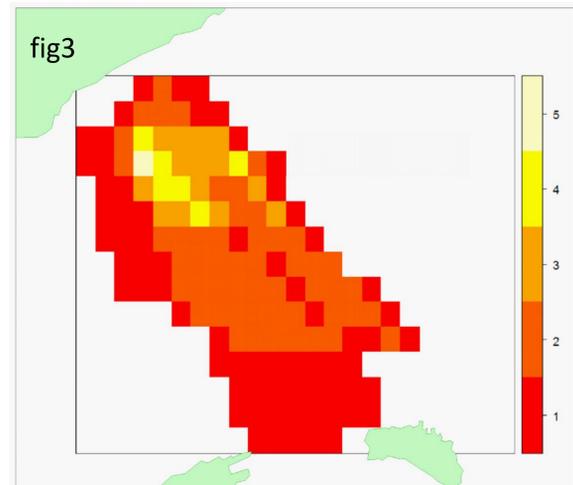
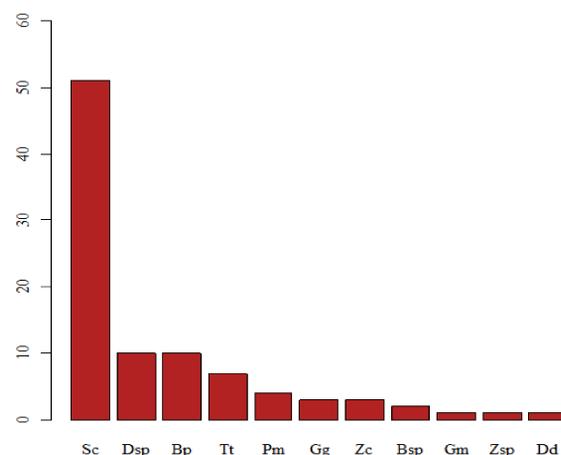


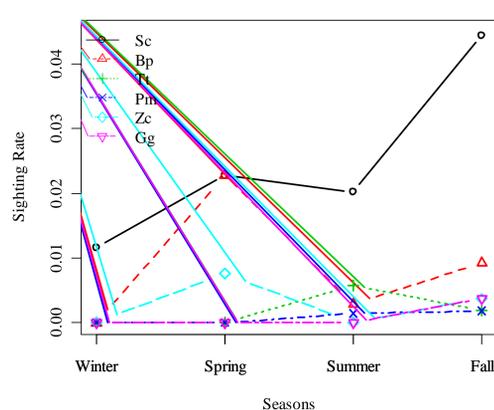
fig2 Sightings by species



RESULTS – 2800 km were surveyed with visual effort, whose 1500 belong to maritime campaigns. Distribution of sightings is shown in **fig1**. We detected eight species corresponding 55% to striped dolphins, 11% to fin whales, 8% to bottlenose dolphins, 4% to sperm whales, 3% both to Risso’s dolphins and Cuvier’s beaked whales, 1% both to short-beaked common dolphins and long-finned pilot whales, and 14% to non-identified cetaceans (N=95, **fig 2**). We precise that common dolphins and pilot whales were detected slightly out of the prospecting area. The species richness map highlights that higher diversity zones lie in the northern part of the Balearic Sea (**fig3**). Sighting rates are shown in **fig 4** and detailed in **table 1**. ANOVA and Tukey post-hoc test were performed to test the significance of differences in sighting rates: striped dolphins are significantly higher than all other species excepted fin whales. Conversely we found no significant difference among sighting rates of fin whale, bottlenose dolphin, Risso’s dolphin, Cuvier’s beaked whale and sperm whales ($F_{5,18} = 6.1654$, all $p < 0.05$, **fig5**).



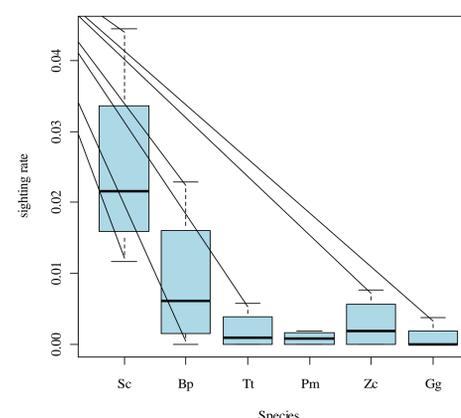
fig4 Sighting Rate by season



tab1

Sighting Rate				
esp	SRwint	SRspr	SRsumm	SRfall
Sc	0,011656	0,022822	0,020241	0,044476
Bp	0,000000	0,022822	0,002892	0,009266
Tt	0,000000	0,000000	0,005783	0,001853
Pm	0,000000	0,000000	0,001446	0,001853
Zc	0,000000	0,007607	0,000000	0,003706
Gg	0,000000	0,000000	0,000000	0,003706
TOT nm	85,79	131,45	691,66	539,62

fig5 Average sighting rate by species



DISCUSSION AND CONCLUSIONS – These results describe basic, but formerly unknown, parameters about cetacean populations in the area comprised between the Balearic Islands and the Barcelona province (NE Iberian Peninsula). These data point out the importance of this area for species usually considered as common or rare at the Mediterranean Sea scale. Further effort is clearly needed and currently being planned in order to get deeper insight and to contribute to the increasing collaborative effort in research and conservation actions at the Mediterranean level.

