

Monitoring cetacean outside the borders of the Pelagos Sanctuary: seasonal variability in cetacean presence along a cross-border fixed transect in the Western Mediterranean Marine Region and implication for conservation purposes

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The international Pelagos Sanctuary was established aiming to protect suitable habitats for most cetacean species regularly found in the Mediterranean basin. The effectiveness of this MPA to conserve highly-mobile animals is under discussion as well as a proposal of enlargement of the protection over the borders of the Sanctuary.

An year-round monitoring program (October 2012-September 2013) was conducted along a transborder fixed-line transect from Civitavecchia (Italy) to Barcelona (Spain) in the Western Mediterranean marine region, encompassing the seas outside the south eastern and western borders of the Pelagos Sanctuary. Seasonal distribution, encounter rate ($ER = \text{sighting} \cdot 10\text{Km}^{-1} \pm \text{SE}$), group size and species richness of all cetacean species were analysed for the three segments in Central-Tyrrhenian sea (Ts), Bonifacio-Strait (BS) and Sardinian-Balearic seas (SBs).

A total of 496 sightings were recorded over 21.375 Km travelled on effort. All the 8 species considered regular in Mediterranean were sighted with highest percentage of fin whale and striped dolphin (respectively 37% and 33%). No significant differences were recorded in total ERs between seasons, being the highest values recorded in spring ($ER = 0.26 \pm 0.02$). Seasonal differences were recorded in species richness and distribution. Main highlights are: fin whale concentrated highly in BS in winter while concentrated mostly in SBs in the other seasons and in Ts in summer; striped dolphin sightings distributed along the Ts and SBs segments in Spring/Summer and mainly in SBs in Autumn/Winter; squid-eater species generally distributed in high-sea areas deeper than -2000m in SBs while high ER was recorded in Ts in summer; bottlenose dolphin was mainly sighted in BS but was also sighted in large groups (>8 individuals) in high-sea areas in Spring/Summer in SBs.

Outcomes highlight the importance of the investigated areas for cetacean and stress the need for large-scale, long-term systematic monitoring to deliver information for an adaptive conservation effort on these highly-mobile species.