



Saporiti

SPATIAL ANALYSIS OF THE BOTTLENOSE DOLPHIN BREEDING BEHAVIOUR ALONG THE EASTERN LIGURIAN COAST: PRELIMINARY RESULTS

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INTRODUCTION - This work draws on data collected by “Delfini Metropolitani” research programme from February 2005 to October 2007 to locate and describe possible breeding areas in the Eastern Ligurian Sea. This area is wholly located into Pelagos Sanctuary, one of the most important MPA of the Mediterranean Sea.

AIMS - We analysed the presence and distribution of calves from Punta Chiappa (Genova) to Punta Bianca (La Spezia) and we compared two possible breeding areas within the study area. We also analysed the relations between breeding areas and some environmental factors (distance from the coast, bathymetry, sea traffic).

MATERIALS AND METHODS - Data were collected by on-board surveys on random tracks. A Garmin GPS was used to record geographical data (effort, dolphin sightings, boat sightings). Pictures were taken to confirm the presence of calves in the dolphin groups. A GIS method was used to visualize time spent on effort, dolphin sightings and sea traffic density. The Minimum Convex Polygon³ method was used to display the sighting areas of groups with and without calves. Because of sighting distribution and photo-identification data analysis², we considered that in the study area live two different communities; therefore the entire study area was divided in two zones (Fig.2):

- zone B, from Punta Chiappa to Punta Mesco;
- zone C, from Punta Mesco to Punta Bianca.

We considered as calves (Fig. 1) those individuals always swimming in close association with an adult and with a length not exceeding 1/2 the length of the same adult.



Fig. 1

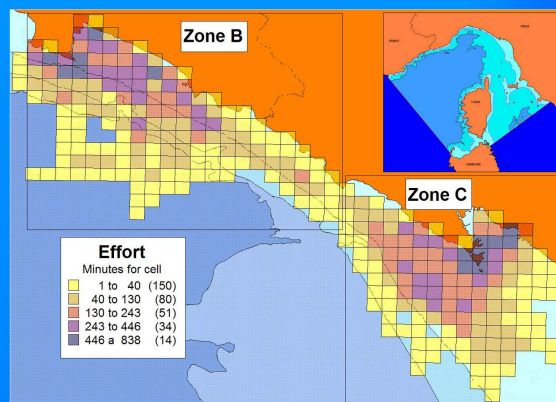


Fig. 2

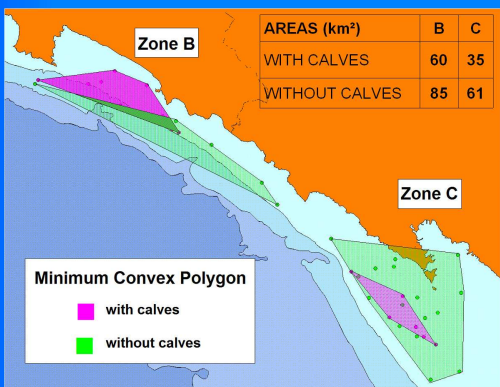


Fig.3

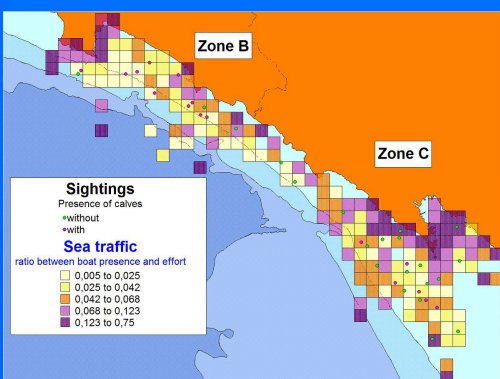


Fig.4

RESULTS - 132 surveys were carried out and 508 hours were spent on effort: 212 in zone B and 296 in zone C. The effort is visualized in Fig. 2, where every cell measures one nautical square mile. 59 groups of bottlenose dolphins were sighted, but only those with better photographic data were considered (37). Calves were observed 10 times out of 15 in B and 6 times out of 22 in C. Most of the calf sightings (81%) are located within the 30m and 100m bathymetric lines. In both B and C, calf areas (the pink ones) are significantly smaller than non-calf areas (the green ones) (see the table in Fig.3) and present a higher level of sighting aggregation in comparison with non-calf sightings (Test F, 0,01<p<0,05; Test-t, p <0,01).

DISCUSSION AND CONCLUSIONS - This work represents the first attempt to investigate on possible “nursery areas” for coastal dolphins in the Eastern Ligurian sea. B calf area presents a partial overlap with the non-calf area. In C the calf area is wholly comprised within the non-calf area (Fig.3). Calf distribution seems to be influenced by bathymetric features in both areas. In relation to sea traffic, it seems that groups with at least one calf tend to avoid crowded areas, but further analyses are needed to confirm this (Fig. 4). It is necessary to further carry on the data collection and analysis to better define which habitat variables may influence the choice of breeding areas, in order to apply these results for management and conservation purposes.

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