



DIFFERENT BEHAVIOUR OF BOTTLENOSE DOLPHIN (*Tursiops truncatus*) RELATED WITH TRAWLERS IN THE EASTERN LIGURIAN SEA

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INTRODUCTION - Due to its coastal habit, the bottlenose dolphin (*Tursiops truncatus*) experiences continuous interactions with human activities; it is defined as an opportunistic species and its interaction with fishing, and in particular with trawling activities is observed in many parts of the world. This behavioural aspect is the subject of this study, that is part of the long term research programme named “Delfini Metropolitani”, located in the Pelagos Sanctuary protected area.

AIM - The purpose of this study is to analyse the relationships between bottlenose dolphins and bottom trawling activity in the 3 zones in which is divided the study area (fig. 1), situated in the Eastern Ligurian Sea.

MATERIALS AND METHODS - Data were collected between April 2001 and September 2007 using an inflatable boat (BWA, 5.10 m) equipped with an outboard engine (HONDA MARINE, 40 HP). Research tracks were recorded with GPS (GARMIN 12 and GARMIN GPS map 76). A GIS technique was applied to plot the effort. Interviews with fishermen were performed to evaluate variations in catch composition in the 3 zones. A digital reflex photo-camera was used for individual photo-identification (NIKON, D70s).

RESULTS - 448 surveys were carried out for a total of more than 1100 hours spent at sea (fig. 2). 82 groups of bottlenose dolphins were sighted: 25 in zone A, 15 in B and 42 in C; and 102,9 hours were spent observing the animals (fig. 3).

220 trawlers were sighted: 17 in zone A, 53 in B, 148 in C and 2 outside the study area (fig.4). In zone C, 24 sightings of dolphins were in association with trawlers and 18 not in association. In zones A and B no association was observed (fig. 5).

7 dolphins have been sighted both in zone B as in C and 5 of these were in association with trawlers in zone C and not in zone B (tab. 1).

No big differences in trawling catch were recorded in zone B and C, with the only exception for hake, which seems to be more present in zone C.

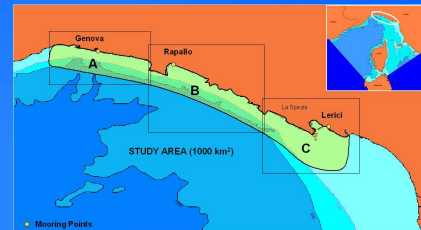


Fig. 1- Study area: Eastern Ligurian Sea

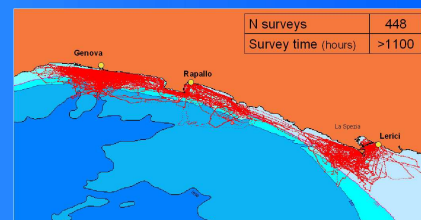
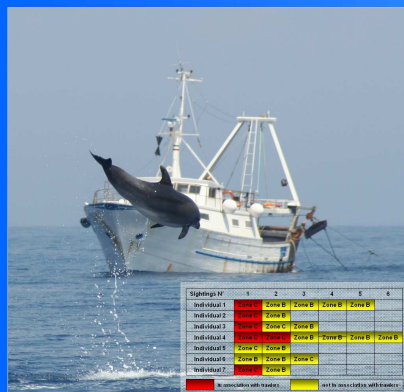


Fig. 2 - Research effort



Tab. 1

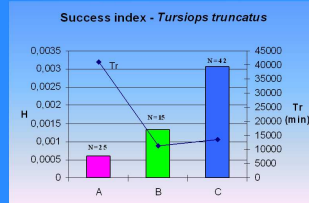


Fig. 3 – Success index for *Tursiops truncatus*

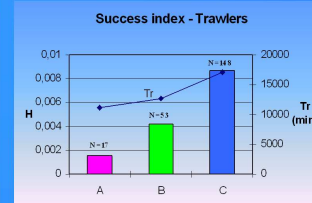


Fig. 4 – Success index for trawlers

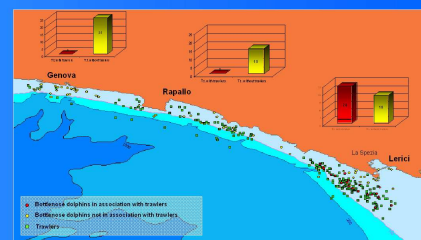


Fig. 5 - Sightings of Bottlenose dolphin in association with trawlers

DISCUSSION AND CONCLUSION - A strong association between dolphins and trawlers was observed only in zone C; in this case the animals were following the trawlers while fishing. In zone A there isn't a significant trawling activity (fig. 4), in B no associations were observed. It's interesting to notice that the dolphins which have been sighted both in zone B as in C have a different behaviour related with trawlers: in association in C but not in B. A possible explanation may be attributed to the different catch composition in the two zones. The main species caught with this type of fishing in the Ligurian Sea are: mullet (*Mullus barbatus*), hake (*Merluccius merluccius*), common pandora (*Pagellus erythrinus*) and horned octopus (*Eledone spp.*).⁽¹⁾ These species are equally present in both zones, B and C, except the hake (probably more present in C), that would therefore result the most interesting species for *T. truncatus*. However, according to several studies, during opportunistic feeding bottlenose dolphins preys preferably on horned octopus and Cephalopods in general, probably because it's easier to unthread them from the net.⁽²⁾⁽³⁾

Furthermore, the association of dolphins and trawlers was studied in relation with distance from the land. Due to different bathymetric features, in zone B trawling activity occurs closer to the coastline and fully overlaps with leisure navigation, while in C there is only a minimum overlap (fig. 6).

In any cases, it seems that behavioural ecology of the bottlenose dolphin in the area is strongly influenced by human activities.

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