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Bottlenose dolphin response to whale-watching vessels in the Strait of Gibraltar

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INTRODUCTION

Four resident species of cetaceans coexist in the Strait of Gibraltar, among which the bottlenose dolphin (*Tursiops truncatus*) is the second most frequently sighted and thus represents the second main target for whale-watching operators. The amount of whale-watching operators, as well as the amount of whale-watching tours per boat has increased during the study period. Our objective is to examine the dolphins' reaction towards the whale-watching vessels in order to assess a possible impact and to follow its evolution during the past years.

METHODOLOGY

Our research took place in the Strait of Gibraltar, from two platforms of opportunity ("Jackelin (1)" and "Dolphin Safari (2)") and was conducted during the past five years (2003-2007), from April to November. We selectively collected data, e.g. Beaufort sea state, wind strength and direction, group composition and behaviour, etc. We recorded the response of the targeted species towards the whale-watching boats from which we collected our data. The response was categorised in 3 different types: approach, indifference and avoidance. These were statistically confronted (cross-tabulation) against all the collected variables.



Figure 1: The Jackelin, the platform of opportunity from which our sightings took place in 2003, 2004 and 2005.

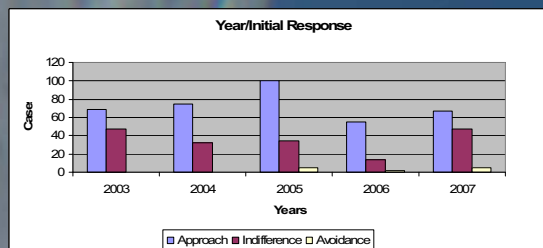


Figure 2: The Dolphin Safari, the platform of opportunity from which our sightings took place in 2006 and 2007.

RESULTS

Year/ Initial response	2003	2004	2005	2006	2007	Total Number
Approach	69	75	100	55	67	366
Indifference	47	32	34	14	47	174
Avoidance	0	0	5	2	5	12
Total Number	116	107	139	71	119	552

Chi² = 24.17386 d.f. = 8 (p=0.002142875)



Graphic 1: Cases of initial response each year

The approach behaviour was the most frequently observed behaviour during the study period. The avoidance response is concentrated in the last years. It has not turned out to be significant for other variables. The amount of whale-watching operators, as well as the amount of whale-watching tours per boat has increased during the study period. In 2003 as well as 2007 the number of cases of approach and indifference is close, but the rest of the years we can observe a big number of cases of approach behaviour respect to the boat, probably because of the proximity of the whale-watching vessels to the animals, influencing considerably in the behaviour of bottlenose dolphins.

CONCLUSIONS

We thus conclude that the response behaviour of bottlenose dolphin in the Strait of Gibraltar is linked to the amount of whale-watching vessels actively operating and their mutual collaboration. The high level of approach behaviour may be linked with the low to inexisting control of the activity and the close proximity of the whale-watching vessels towards the animals. We recommend that the whale watching operators working in the waters of the Strait of Gibraltar continue and improve their collaboration in the future. It is also very important that the ACCOBAMS code of conduct be respected and enforced in the study area.

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