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HIGH LEVELS OF INTERSPECIFIC INTERACTIONS IN THE STRAIT OF GIBRALTAR

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INTRODUCTION

Several types of interspecific interactions involving cetaceans are described in the literature, which are usually classified in aggressive or cordial interactions. Up to 7 species of cetaceans are present in the Strait of Gibraltar, of which 4 are present throughout the year and 3 are present only during some periods of the year.

METHODOLOGY

Our research took place in the Strait of Gibraltar from an opportunistic platform, from May to October 2003 through 2007 (cf. Table 1). This project consisted in sightings from the "Jackelin" and "Dolphin Safari" whale-watching boats. We selectively collected data, e.g. Beaufort sea state, wind strength and direction, group composition and behaviour, etc.

YEARS	EFFORT					
	NUMBER OF SIGHTINGS	NUMBER OF INTERACTIONS	ECOUNTER RATE FOR TRIP (SIGHTING/TRIP)	SURVEY (Km)	SAMPLE TIME (hours)	BOAT TRIPS
2003	614	89	3,32	7270	429	185
2004	545	77	3,30	6063	363	165
2005	528	61	2,44	6989	461	216
2006	289	42	2,49	5283	287	116
2007	537	78	3,37	5545	334	159
TOTAL	2513	347		31150	1874	859

Table 1: Effort respect to the years and along the study's period.



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 AND DISCUSSION

A total of 2513 sightings were recorded, of which 347 included some type of interspecific interaction (cf. Table 2). The most frequently observed interactions involved long-finned pilot whales (*Globicephala melas*) and bottlenose dolphins (*Tursiops truncatus*) (56.48%), and between short-beaked common dolphins (*Delphinus delphis*) and striped dolphins (*Stenella coeruleoalba*) (34%). In rarer occasions, we observed interactions with up to 3 species, e.g. 2 sightings involving common dolphins, striped dolphins and pilot whales. Two other sightings involved pilot whales, bottlenose dolphins and sperm whales (*Physeter macrocephalus*), and one sighting involved killer whales, one fin whale (*Balaenoptera physalus*) and pilot whales (cf. Figure 7). Most observed interactions consisted of non-aggressive behaviours, like travelling, resting or milling. However, some aggressive interactions between pilot whales and bottlenose dolphins and/or pilot whales and killer whales were observed. We also observed clear interspecific mating attempts between pilot whales and bottlenose dolphins.

CONCLUSIONS

This high level of interspecific interactions may be explained by the relatively high density of cetacean species in the area, the reduced space, and the high amount of food available. Many interactions may represent fortuitous associations, but in some cases intentional associations seem more probable explanations, e.g. bottlenose dolphins/pilot whales, and even intentional dissociations, e.g. the pilot whales/killer whales chase. No clear signs of competition have been observed but it cannot be completely ruled out.

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SPECIES	INTERACTIONS	PERCENTAGE
PILOT WHALE-STRIPED DOLPHIN	6	1,73
PILOT WHALE-COMMON DOLPHIN	5	1,44
PILOT WHALE-STRIPED DOLPHIN-COMMON DOLPHIN	2	0,58
PILOT WHALE- BOTTLENOSE DOLPHIN	196	56,48
BOTTLENOSE DOLPHIN-FIN WHALE	2	0,58
STRIPED DOLPHIN- SPERM WHALE	2	0,58
STRIPED DOLPHIN-COMMON DOLPHIN	118	34,00
BOTTLENOSE DOLPHIN-SPERM WHALE	7	2,01
PILOT WHALE-SPERM WHALE	3	0,86
KILLER WHALE-PILOT WHALE	1	0,29
BOTTLENOSE DOLPHIN-COMMON DOLPHIN	1	0,29
STRIPED DOLPHIN-FIN WHALE	1	0,29
KILLER WHALE-FIN WHALE-PILOT WHALE	1	0,29
PILOT WHALE-SPERM WHALE-BOTTLENOSE DOLPHIN	2	0,58
TOTAL	347	

Table 2: Number of interspecific interactions along the study's period and the percentage.



Figure 3: Interaction between bottlenose dolphin and sperm whale



Figure 4: Interaction between pilot whale and sperm whale



Figure 5: Interaction between pilot whale and sperm whale



Figure 6: Interaction between pilot whale and common dolphin



Figure 7: Interaction between killer whale and striped dolphin



Figure 8: Pilot whales chasing killer whales (not appear in the picture) who was interacting with a fin whale