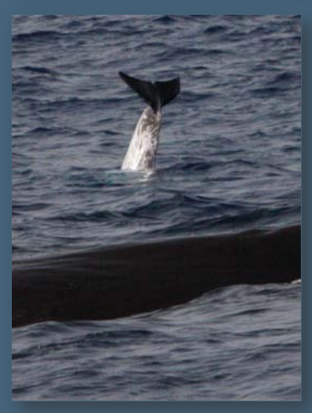
SECAC
Sociedad para el Estudio de los Cetáceos en el Archipiélago Canario

Mónica Pérez-Gil, Vidal Martín, Marisa Tejedor, Antonella Servidio, Silvana Neves, Enrique Pérez-Gil, Leire Ruiz & Bernd Brederlau
(monica@cetaceos.org)
Society for the Study of Cetaceans in the Canary Archipelago (SECAC)

B20

AGONISTIC BEHAVIOUR OF RISSO´S DOLPHINS TOWARDS SPERM WHALES IN THE SW OF FUERTEVENTURA, CANARY ISLANDS, WITH A DISCUSSION ON TROPHIC COMPETENCE IN CETACEANS



INTRODUCTION

Information on the occurrence and function of the interspecific interactions in deep-diving odontocetes is rare. Sperm whales (*Physeter macrocephalus*) are top marine predators of oceans and generalist mesopelagic feeder between 400 and 1200 m of depth. It success is due to a combine of long-range echolocation, ability localizing deep prey patches, efficient locomotion and a large aerobic capacity during diving (Watwood *et al*., 2006).

METHODS

As part of a multi-species study of cetaceans from October 2007 to October 2010 off the oriental coast of Lanzarote and Fuerteventura, we conducted 137 days of visual-acoustic survey in zig-zag random transects on a 17 m motor yacht towing a 200 m array hydrophone, from the coastline to 37 km offshore in an area encompassing 9848,43 Km^2. We realized 7572,06 km and 624,62 hrs “on effort” (Figure **1**).

RESULTS

Eight (40%) of the 20 cetacean species detected, adding 224 (35.7%) sightings in the area, were teuthofagous and deep-diving whales of the families Ziphiidae (Cuvier´s, Blainville´s and Gervais´beaked whale), Physeteridae, Kogiidae (pygmy and dwarf spem whale) and Delphinidae (short-finned pilot whale and Risso´s dolphin) (Figure **2**), most of which are rare species which limited information exist on ecology and distribution.

On 24 September 2009 at 17:00 h, we realized a sighting of a sperm whale and at least 7 Risso’s dolphins (*Grampus griseus*), 16,10 km off SW Fuerteventura island (28º44'11"N; 13º39'16"W) at 1.406 m depth. The whale belonged to a foraging group of a minimum of four whales distributed in an area of 2x2 km. Risso’s dolphins showed an aggressive behaviour towards the sperm whale, circling the whale and approaching close. The hydrophone registered regular clicks of other sperm whales feeding in the area and clicks (Figure **3**) and burst pulses (Figure **4**) attributed to Rissos´s dolphins. The whale stayed in the surfaced at the same location for at least 10 minutes, continually turning on its axis. Before the dive, the whale adopted a vertical position emerging part of the head while opening the mouth. At least three defecations were recorded.

Fig. 1

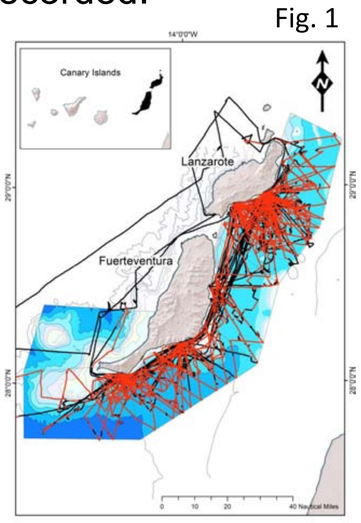


Fig. 2

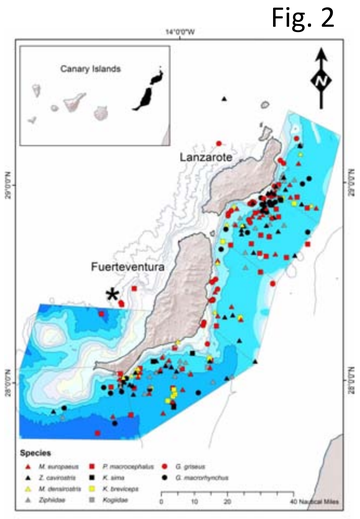


Fig. 3

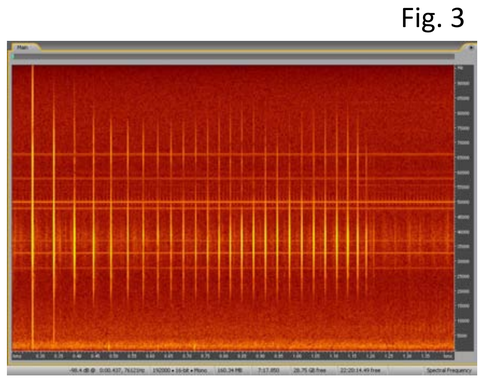


Fig. 4

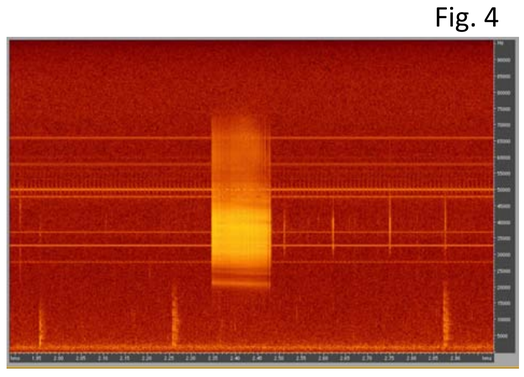


Figure 1 shows the dedicated effort in the period considered. Figure 2 shows the sightings of cetaceans in the area during that period. Figure 3 shows the registered regular clicks of Rissos’s dolphin and the Figure 4 shows the burst pulses attributed to Rissos´s dolphins.

DISCUSSION

Primary production in the study area is enhanced due to the several mesoscale physical features such the effect of eddies in the accumulation of zooplankton and fish larvae, the role of the deep scattering layers (located between 400 and 600m depth) in the structure of the pelagic ecosystem and upwelling filaments from the Northwest African shelf to the islands which transport waters rich in chlorophyll (Hern. ndez-León *et al*. 2007). This factor could be behind the apparent availability of a biomass of prey resources at depth, supporting an oceanic cetacean assemblage with species with different diving and feeding strategies (Baird *et al*., 2002, 2006; Zimmer *et al*., 2003; Johnson *et al*., 2004; Tyack *et al*., 2005, Watwood *et al*. 2006; Aguilar *et al*. 2008). Similarities in diet between two predators inhabiting the same habitat will affect the level of competition between these predators. Niche separation and geographic segregation have been proposed in beaked whales species with similar dietary preferences (MacLeod *et al*., 2003). This encounter is similar to other interaction observations between short-finned pilot whales (*Globicephala macrorhynchus*) and sperm whales off SW Tenerife and supports the hypothesis of trophic competence between these teuthofagous cetaceans in the area. Interspecific association between two cetaceans species is well documented in small delphinids and it have been revised in detail by Bearzi (2005). Coexistence of several deep-diving cetacean species in a relative small area could be promoting the occurrence of direct competition for food resources. Unfortunately, our understanding of this phenomenon is limited by the lack of information on feeding ecology, habitat and resources partitioning in these species.

ACKNOWLEDGMENTS

We thank the many people who have made this research possible. Cetacean observers include Alexis Rivera, Cristina Gilbert, Nuria Varo and Rosa Brito. Funding for this Project was provided by MARM, Tragsega, Canary Government, INDEMARES Project (LIFE07/E/NAT000732) under authorisation of the Canary Government.

REFERENCES

Aguilar de Soto N, Johnson M, Madsen PT, Díaz F, Domínguez I, Brito A & P Tyack. 2008. Cheetahs of the deep sea: deep foraging sprints in short-finned pilot whales off Tenerife (Canary Islands). J An Eco, 77: 936-947 · Baird RW, Webster DL, McSweeney DJ, Ligon AD, Schorr GS & J Barlow. 2006. Diving behaviour of Cuvier’s (*Ziphius cavirostris*) & Blainville’s (*Mesoplodon densirostris*) beaked whales in Hawaii. Can J Zool 84:1120–1128 · Baird RW, Webster DL, McSweeney DJ, Schorr GS & J Barlow. 2008. Diel variation in beaked whale diving behavior. Mar Mam Sci, 24:630–642 · Bearzi, M. 2002. Dolphyn sympatric ecology. Mar Res, 1: 165-175 · Hernández-León S, Rodríguez JM, Moyano M & J Arístegui. 2007. The coastal-ocean transition zone in the Canary Current system. Glo Int News, October 2007: 26-28 · MacLeod CD, Santos MB & GJ Pierce. 2003. Review of data on diets of beaked whales: evidence of niche separation and geographic segregation. J Mar Bio Ass UK, 83: 651–665 · Watwood SL, Miller PJO, Johnson M, Madsen PT & Tyack PL. 2006. Deep-diving foraging behaviour of sperm whales (*Physeter macrocephalus*). J Ani Eco, 75: 814-825.

Society for the Study of Cetaceans in the Canary Archipelago (SECAC) · Canary Islands Cetaceans Museum (MCC)
Edif. Antiguo Varadero, 1ª Planta, Local 8B 35571, Puerto Calero, Yaiza, Lanzarote, Canary Islands, Spain ☎+34 928 84 96 84 ✉secac@cetaceos.org