

Interspecific interactions between short-beaked common, Atlantic spotted and striped dolphins in the Pico Island, Azores

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STATE OF THE ART

Intra-specific and interspecific interactions are omnipresent and can be negative or positive. In the marine mammal realm, these are known for more than 30 species. It is thought to be a result of their social nature, although the drivers for these interactions remain unclear. The Azorean archipelago, known for its cetacean species richness, harbors 28 different species. This species richness is probably associated to the archipelago dynamic oceanography and the bathymetry. This study will provide an initial insight into the interactions among Dd, Sc and Sf (Figure 1).



Figure 1 - Common dolphin (*Delphinus delphis*), Striped dolphin (*Stenella coeruleoalba*) and Spotted dolphin (*Stenella frontalis*), from left to right.

AIM: Understand: (1) if the habitat is the key factor promoting these interspecific associations?; (2) which is the main driver for these associations?; (3) if these associations are species dependent?

RESULTS

The total number of observed interspecific interactions was 82. *D. delphis* was most observed in interaction.

Table 1 - Number of single species observations and observations with interactions between at least two species.

Species	<i>D. delphis</i>	<i>S. coeruleoalba</i>	<i>S. frontalis</i>
<i>D. delphis</i>	1147	74	4
<i>S. coeruleoalba</i>	74	237	2
<i>S. frontalis</i>	4	2	463
<i>D. delphis</i> - <i>S. coeruleoalba</i> - <i>S. frontalis</i>	2		
Total in interactions	80	78	8

DISCUSSION

The 3 species were seen in association in the study area. Although:

MATERIAL & METHODS

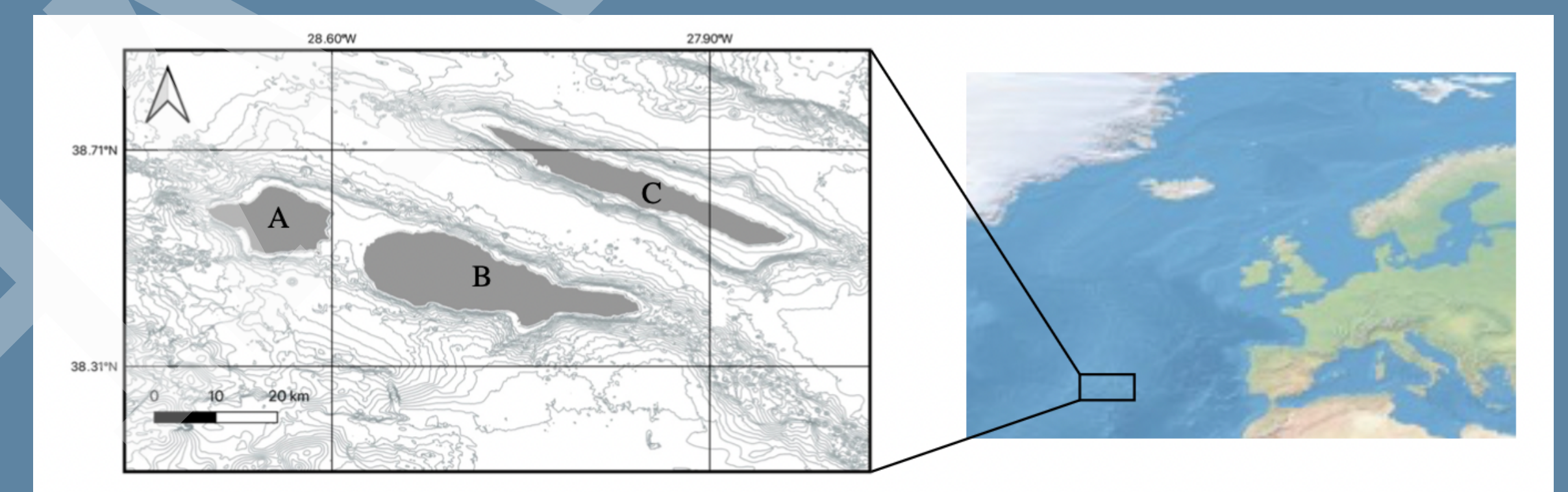


Figure 2 - Location of the Azores archipelago (right side) in the North-East Atlantic and the study area, (A) Faial, (B) Pico and (C) São Jorge Islands (called the Azores Triangle), located in the Azores archipelago. Bathymetric lines each 100m.

D. delphis and *S. coeruleoalba* showed a positive association with interaction. Only *S. coeruleoalba* showed a positive association with behavior. The bathymetric distribution was statistically significant for *D. delphis*. The distance to the coast was not found statistically significant for any of the three species. For the presence of calves in the group, *D. delphis* showed a positive association.

Table 2 - Results of the statistical tests for the interaction driver for each species.

	Interaction	Behavior						Bathymetry	Distance to coast	Presence of calves
		BR	FO	LB	LP	RM	SO			
<i>D. delphis</i>	✓							✓		✓
<i>S. coeruleoalba</i>	✓		✓	✓	✓					
<i>S. frontalis</i>										

- *Delphinus delphis* - driven by social reasons
- *Stenella coeruleoalba* - driven by foraging reasons
- *Stenella frontalis* - no tendency to associate

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References: Acevedo-Gutiérrez, A. (2009). Group behavior. In: Perrin et al., Encyclopedia of marine mammals: 2 ed. United States: Elsevier. Bacon et al., (2017). Mixed species associations of marine mammals in the Southern California Bight, with emphasis. Cañadas et al., (2002). Cetacean distribution related with depth and slope in the Mediterranean waters off southern Spain. Deep Sea Research Part I: Oceanographic Research Papers, 49(11), 2053-2073. Koper & Plön (2016). Interspecific interactions between cetacean species in Algoa Bay, South Africa. Aquatic Mammals, 42(4). Norris, K. S., & Dohl, T. P. (1979). The structure and functions of cetacean schools. In: Cetacean Behaviour: Mechanisms and Functions (Ed. By L.M. Herman), 211-261. Quérouil et al., (2008). Why do dolphins form mixed-species associations in the Azores?. Ethology, 114(12), 1183-1194. Zahn et al., (2020). Distribution and behaviour of cetaceans in the waters south of Pico (Azores, Portugal).