The use of land-based surveys to monitor small cetaceans in the south coast of Portugal

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Introduction

The south of Portugal is an important area for several cetacean species. In the past years cetacean investigation in the Algarve has been conducted by boat-based surveys, including platforms of opportunity (Castro et al., 2020). Here we present a pilot study using land-based surveys to monitor the presence and behaviour of cetaceans in this region (Fig. 1). This method is used globally and allows the collection of various data such as the presence, movement and behaviour of animals without the impact associated with the observer's presence (Giacoma et al., 2013).

Figure 1. Land-based station.

Methodology

Land-based surveys were conducted from a fixed point in Albufeira, at approximately 28.5m of altitude (Fig. 1 & 2). Surveys were conducted from April to November of 2022, with sea state conditions of Beaufort 0–3 and visibility of ≥1 km. During the surveys, ≥2 observers were scanning the water with binoculars and one person collected data.

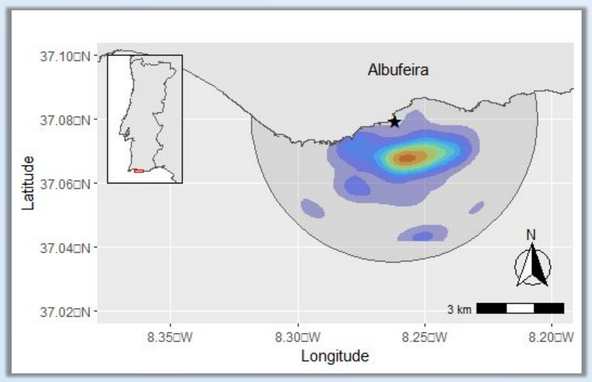

Figure 2. Map of the land-based station of Ponta de Baleeira, Albufeira (star) and observation area (shaded grey). The density of sightings is represented by a gradient of colours (warmer colours - higher density).

		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Total
Number of surveys		3	9	3	8	19	16	15	9	82
Hours of surveys		6:37	27:57	8:33	13:45	37:43	40:22	43:54	22:43	201:34
Number of sightings		1	4	0	1	3	4	4	1	18
Number of sightings	Bottlenose dolphins	1	3		1	2	3	4	1	15
	Common dolphins						1			1
	Unidentified species		1			1				2
Total hours of sightings		0:54	2:19		0:38	2:19	2:35	5:00	2:44	16:29
Encounter rate bottlenose dolphins		0.15	0.11		0.07	0.05	0.07	0.09	0.04	0.07

Table 1. Summary of the survey effort from April to November 2022.

Results

Sampling effort amounted to a total of 201 hours within 82 days. This resulted in 18 sightings of cetaceans (16 hours), with bottlenose dolphins (*Tursiops truncatus*) corresponding to 83.3% of the observations, unidentified odontocetes to 11.1% and common dolphins (*Delphinus delphis*) to 5.6% (Table 1).

Bottlenose dolphins presented:

- **Highest encounter rate (0.07);**
- **Month with most sightings: October;**
- **Mean group size: 10.1 ± 7.6 (2 – 22, n = 15);**
- **Predominant behaviour: travelling (40.7% - Fig. 3);**
- **Average distance from shore: 3.2 km;**
- **75.6% of sightings had ≥1 touristic boat present (Fig. 4).**

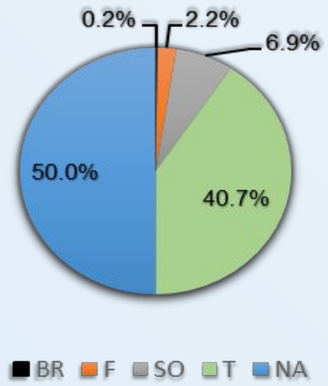

Figure 3. Percentage of observed behaviours (BR: Bowriding, F: Feeding, SO: Socialising, T: Travelling, NA: Not applicable)

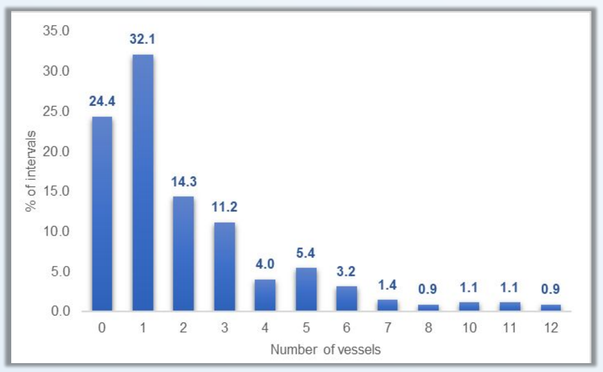

Figure 4. Percentage of time according to the number of boats present. Observations classified with NA were excluded (22.4%).

Discussion and Conclusion

This study highlights that the bottlenose dolphin is the species most often observed close to the coast, and that this method could be used to study this species in southern Portugal. As the Algarve faces high touristic pressure, a long-term monitoring programme is required to understand the impacts of touristic activities on the behaviour and ecology of occurring cetaceans, and to establish proper conservation measures.

References

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