



Miguel P. MARTINS  
miguelpintomartis@gmail.com

# Habitat preference of Risso's dolphins (*Grampus griseus*) in the south coast of Portugal

Miguel P. Martins<sup>(1,2)</sup>, Joana Castro<sup>(2,3)</sup>, André Cid<sup>(2)</sup>, Guilherme Estrela<sup>(2)</sup>, Alicia Quirin<sup>(2)</sup>, Fábio L. Matos<sup>(2)</sup>



(1) Faculdade de Ciências da Universidade de Lisboa, Lisboa, Portugal  
(2) AIMM – Marine Environment Research Association, Lisboa, Portugal  
(3) MARE – Marine and Environmental Sciences Centre / ARNET - Aquatic Research Network, Laboratório Marítimo da Guia, Faculdade de Ciências, Universidade de Lisboa, Portugal, Cascais, Portugal



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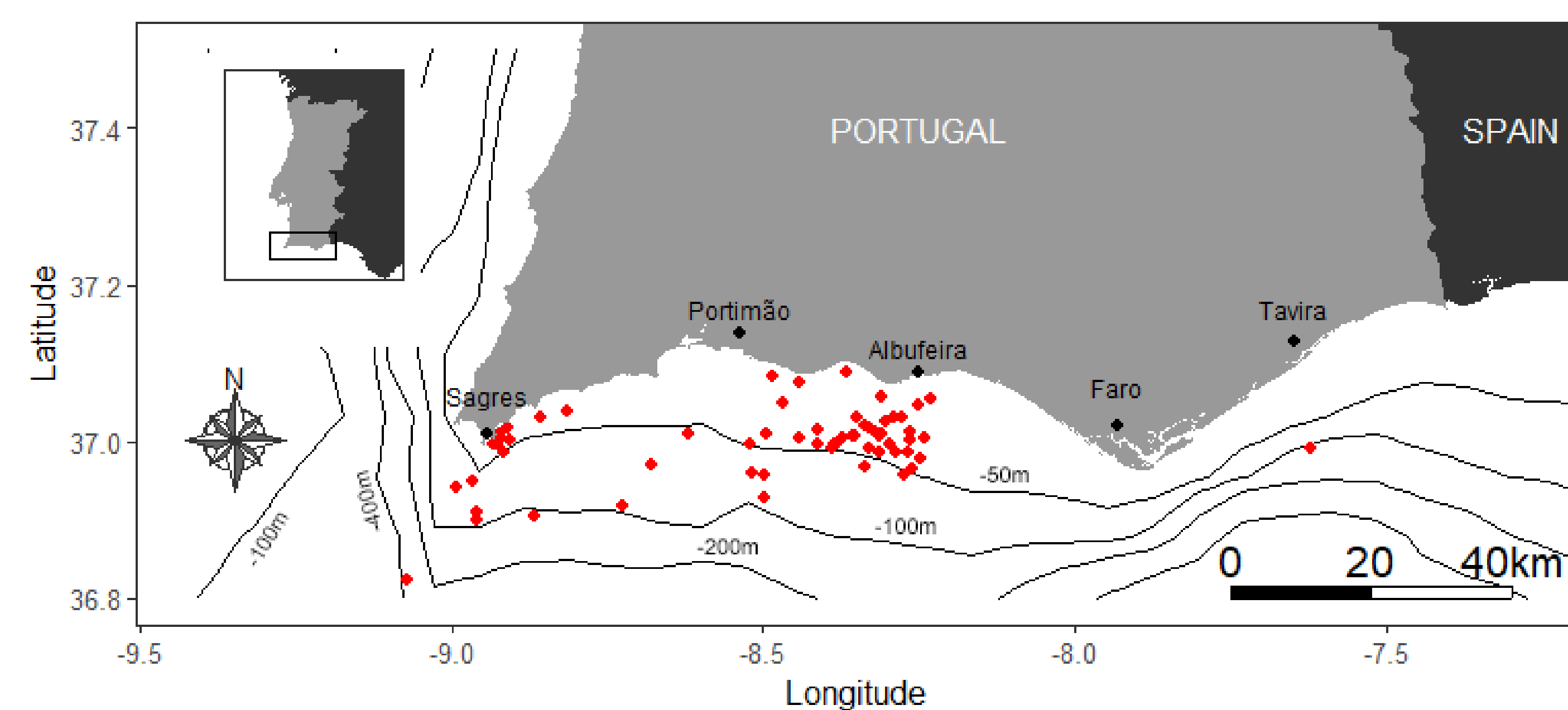


## Introduction

The Risso's dolphin (*Grampus griseus*), (**Fig. 1, 4 & 5**), is a widespread species of dolphin, with a preference for temperate waters along the continental shelf and slope<sup>2</sup>. However, in mainland Portugal, the Risso's dolphin is considered rare and the species' environmental preference is largely unknown. **In the present study we explore how oceanic variables may shape the occurrence of the Risso's dolphin along the coast of the Algarve.**

## Methodology

Ecological niche models were developed in R, using Generalized Additive Models (GAMs, mgcv package). Presence-absence data of *G. griseus* were collected through dedicated and opportunistic surveys, from April to November (2010 – 2020). Environmental predictors were extracted from EMODnet Digital Bathymetry dataset and Copernicus Marine Environment Monitoring Service (CMEMS). The best model was selected using backward selection according to the AIC metric.



**Fig. 2** – Sightings of *G. griseus* (n = 63) in southern Portugal.

## Discussion and Conclusion

Our results agree with previous studies regarding the water temperature preference of Risso's dolphin<sup>2</sup>. In turn, the high frequency of sightings with calves may contribute to explaining this species' higher occurrence probability closer to the coast, where mother-calf pairs may find higher protection from predators<sup>1</sup>. **Hence, southern Portugal seems to offer suitable environment conditions for this species occurrence and reproduction.**

More info here!



## References

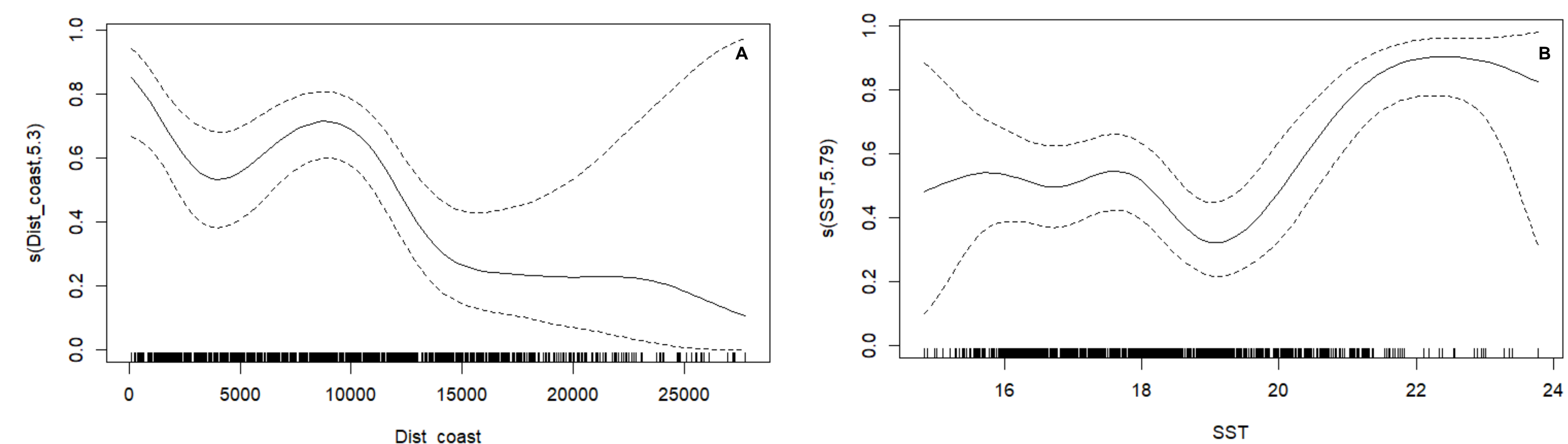
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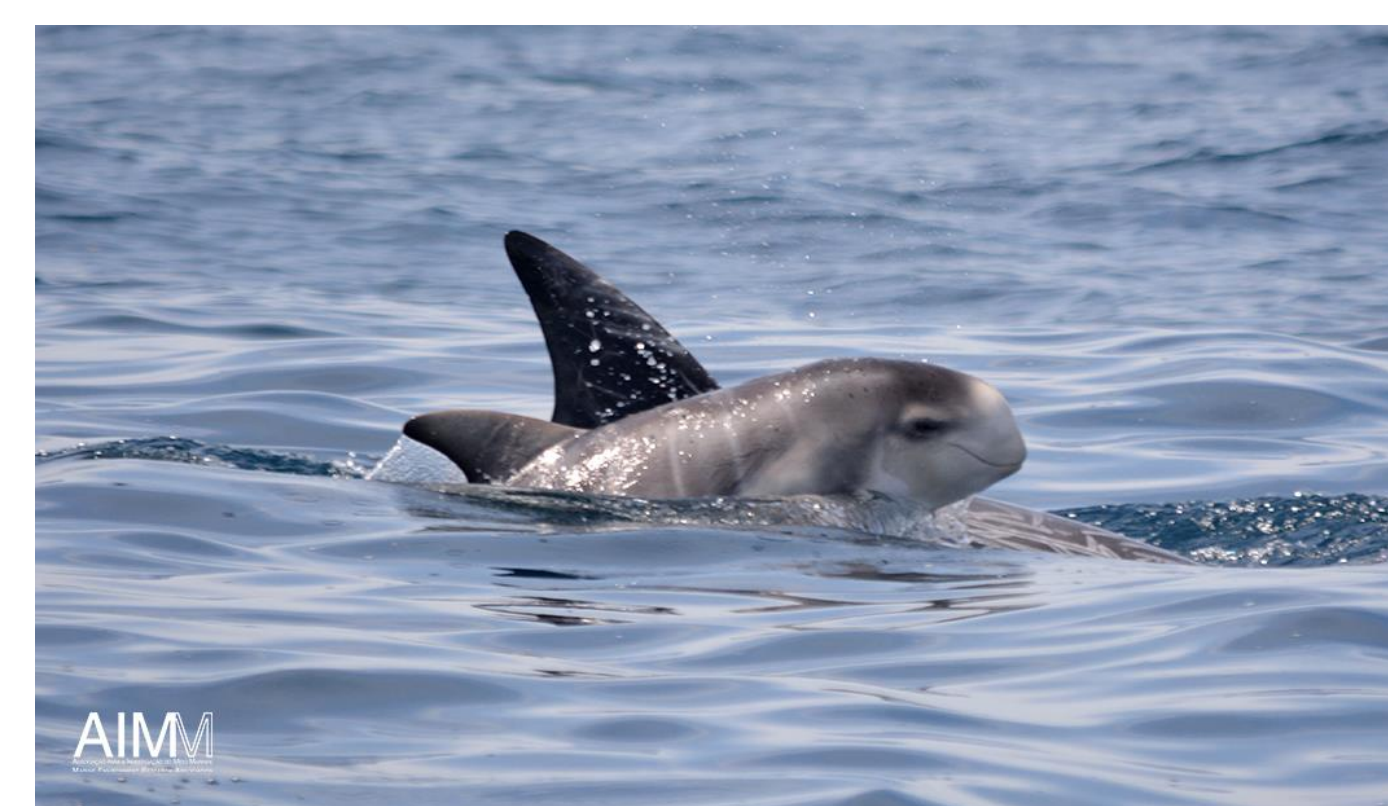
**Fig. 1** – Adult Risso's dolphin in southern Portugal  
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## Results

A total of 63 Risso's dolphin sightings were recorded, (**Fig. 2**), with a mean group size of  $10 \pm 9$  individuals. From these, 43 groups included immature individuals (i.e., juveniles and calves). Most sightings were recorded from July to October. The selected model included the variables Distance to the coast (m) and Sea Surface Temperature (SST, °C). The output suggested higher *G. griseus* presence likelihood in areas closer to the coast and at temperatures of 22°C to 24°C, (**Fig. 3**).



**Fig. 3** – Smoothed fits of covariates (Distance to the coast, **A**, and Sea Surface Temperature, **B**) modeling the presence probability of Risso's dolphins in southern Portugal.



**Fig. 4** – Risso's dolphin with a calf in southern Portugal © AIMM.



**Fig. 5** – Risso's dolphin adult with juvenile in southern Portugal © Miguel Pinto Martins.

## Acknowledgements

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