

Impact of gillnets and seine fisheries on bottlenose dolphin's distribution in the Ría of Arousa, NW Spain



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Introduction

A common bottlenose dolphin (*Tursiops truncatus*) population is resident in the Ría of Arousa, Galicia, Spain. This area is characterized by high fisheries activity (Díaz López & Methion, 2017). The aim of this study is to determine if fisheries activities could affect on the distribution of common bottlenose dolphins in this Ría.

Methods

Boat based observations onboard the BDRI research vessel were carried out from July to October 2016. A GIS analysis was performed in order to illustrate the distribution of bottlenose dolphins, gillnets and seines in the study area. A spearman correlation was used to determine if a correlation exists between the distribution of bottlenose dolphins and gillnets and the distribution of bottlenose dolphins and seines.

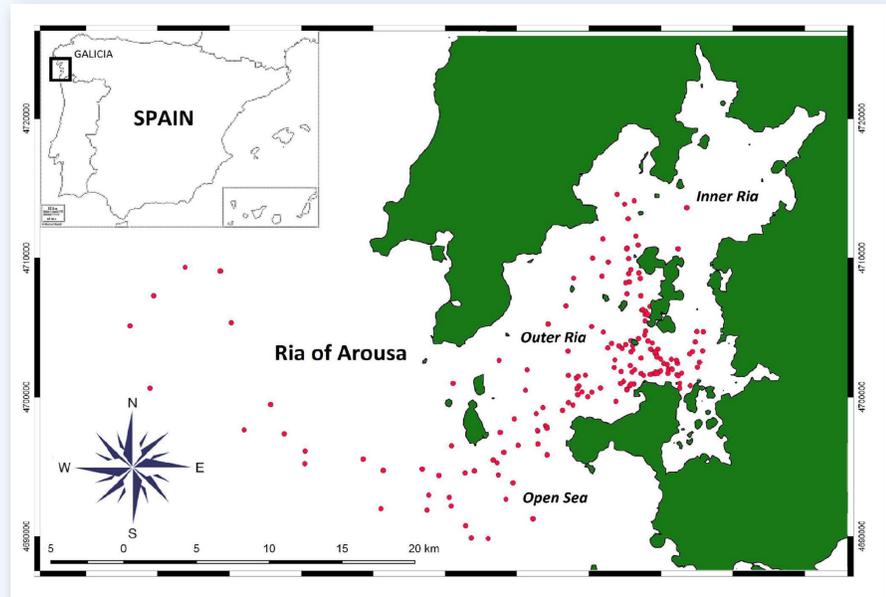


Figure 1: Study area, Ría of Arousa (red dots correspond to all the surveys).



Figure 2: Bottlenose dolphins (*Tursiops truncatus*).



Figure 3: BDRI's research vessel.

Results

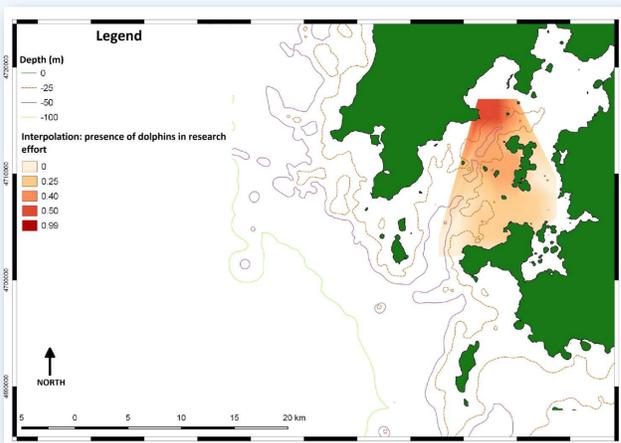


Figure 4: Map of the study area showing the interpolation of the presence of dolphins in research effort. Bottlenose dolphins are mainly observed at the Inner Ria, between the coast and depths of 25 and 50 meters.

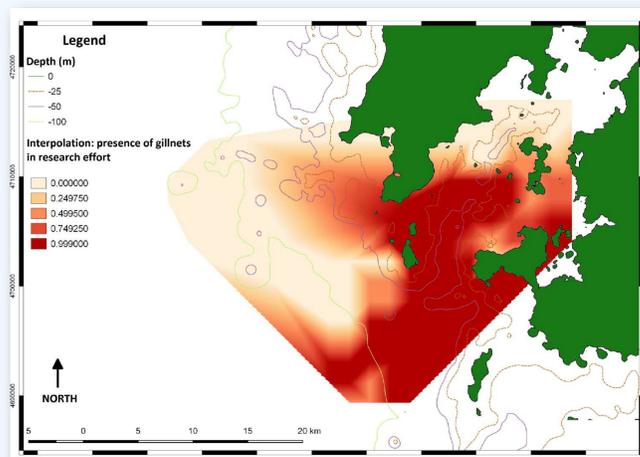


Figure 5: Map of the study area showing the presence of gillnets on research effort. Gillnets, are present mainly in the Outer Ria and the Open Sea, in deeper water.

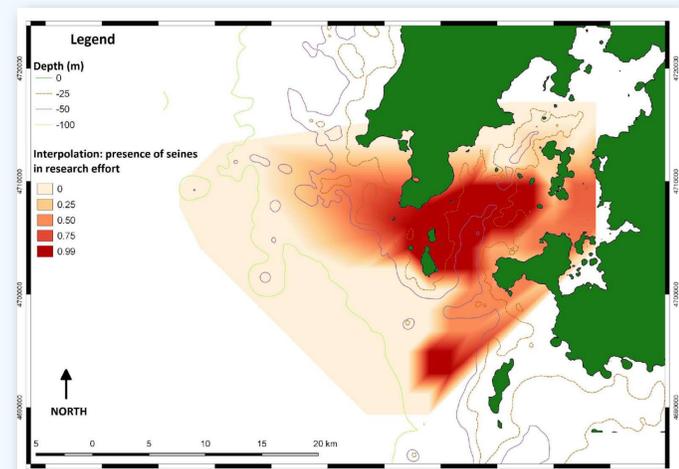


Figure 6: Map of the study showing the presence of seines on research effort. Seines, are seen at the Outer Ria.

There was a **correlation** between the presence of **dolphins and seines** (Spearman $r_s = -0.71$, $P < 0.01$) and **no correlation** between presence of **dolphins and gillnets** (Spearman $r_s = -0.47$, $P > 0.05$).

Conclusion

- Fishing activities and abundance of prey, influence bottlenose dolphins' distribution. High fishing activities seem to attract bottlenose dolphins, especially the presence of gillnets, thus impacting their distribution.
- This study provides new information on the bottlenose dolphin distribution in a high anthropized coastal ecosystem.

Reference

- DÍAZ LÓPEZ, B. & METHION, S. 2017. The impact of shellfish on common bottlenose dolphin's use of habitat. *Marine biology* 164:83.

Acknowledgements

- We would like to thanks all the BDRI interns and volunteers who assisted with data collection.