



Martín-Bernal

Analysis of the disruptive behaviour of Iberian orcas (*Orcinus orca*)



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INTRODUCTION

Iberian orcas (*Orcinus orca*) are identified as a different subpopulation from the NE Atlantic ones [1], they were categorised as Critically Endangered in the IUCN Red List of threatened species in 2019.

For centuries, this subpopulation has been seasonally inhabiting the Strait of Gibraltar preying on migrating Atlantic bluefin tuna (*Thunnus thynnus*), and are normally observed actively pursuing them to exhaustion in the Strait [2] or even interacting with tuna longline fishing boats, depredating on caught tuna [3].

However, since 2020 a disruptive new interaction has been observed along the entire Iberian Atlantic coast, with animals touching, pushing and turning boats by applying pressure with their bodies and heads, for no apparent reason [4].

RESULTS

In total, 639 encounters consisting in 183 sightings and 456 interactions of different types (Figure 1) were recorded between July 2020 and December 2022 from the Strait of Gibraltar up to the Gulf of Biscay (Figure 2).

The animals have been reportedly interacting with all types of boats from 5 to 38 m in length, focusing mainly on sailing boats from 10 to 17 m. Damages have been occasionally recorded on the stern of the boat (mostly on the rudder and other structures).

An increasing trend in the total number of interactions was observed from 2020 to 2022, accompanied by an increase in the proportion of minor damages. In general, serious damages occurred in less than 30% of the interactions (Figure 3).

Most interactions were reported in Andalusia, SW coast of Portugal and W coast of Galicia (Figures 1 and 2). In 2021 there was a shift in the proportion of interactions, from Galicia to Andalusia.

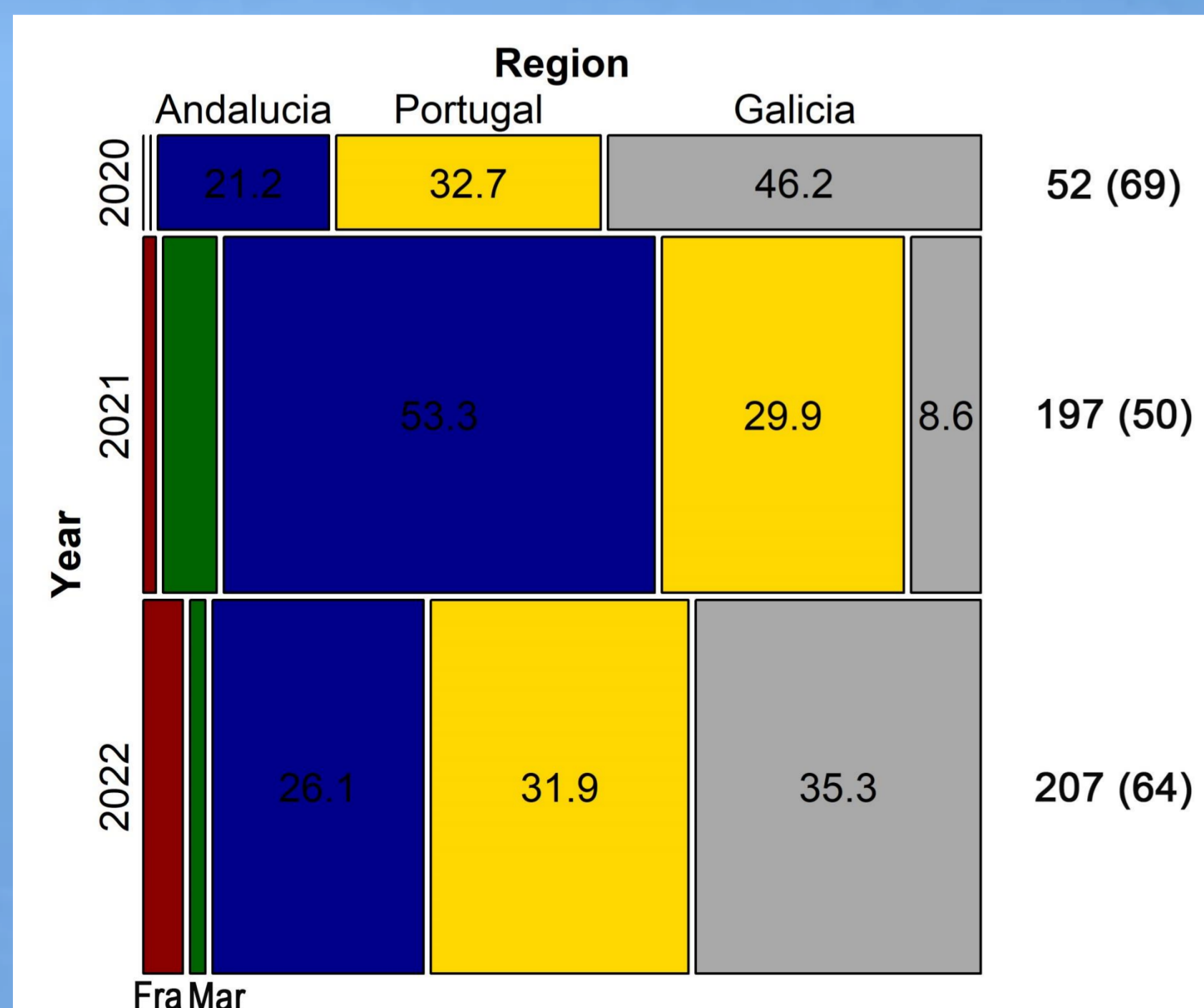


Figure 1. Geography of orca encounters from 2020–2022. Box heights are proportional to interactions (values on the right axis) and widths to interaction %. Sightings are reported in brackets.

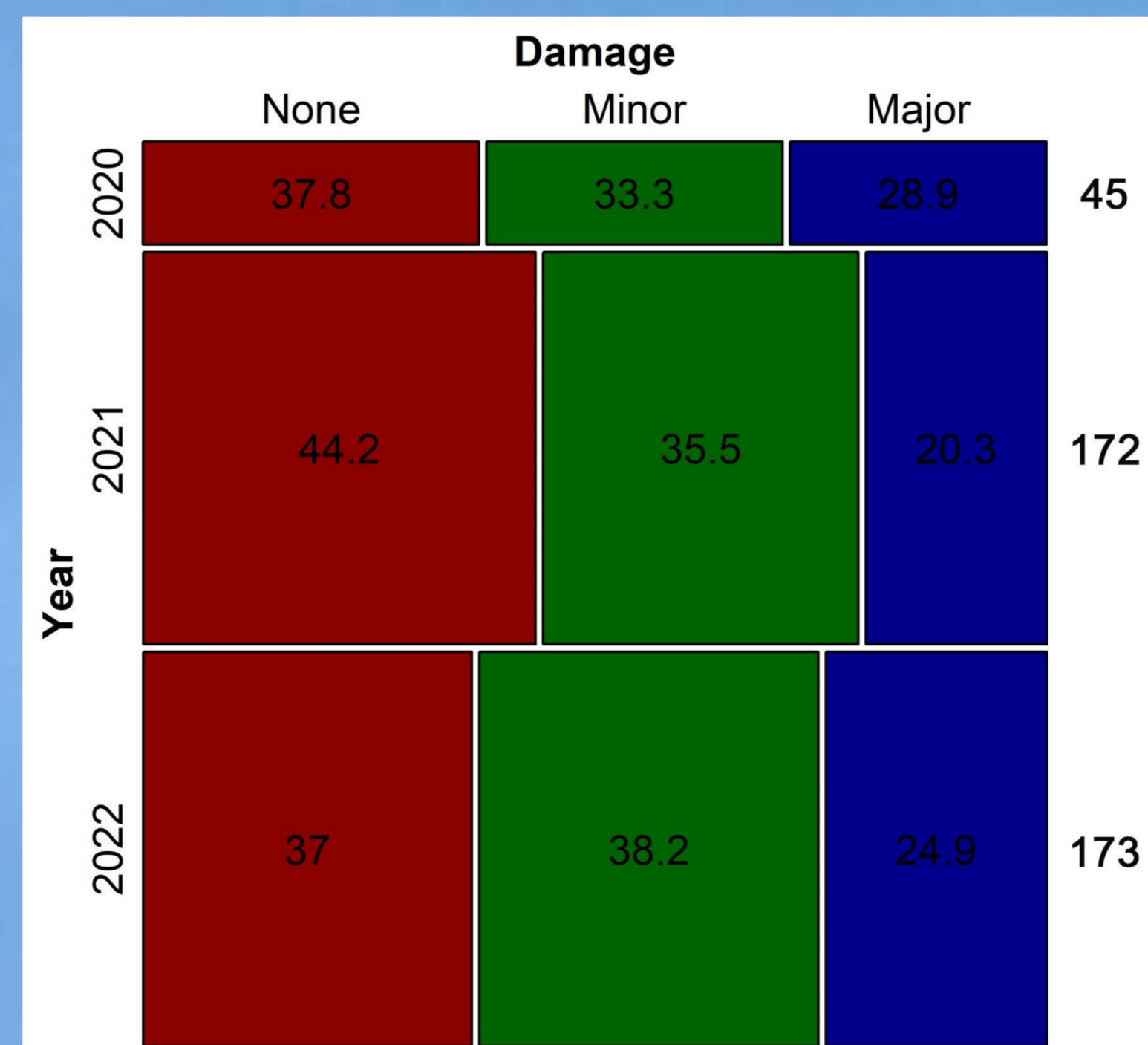


Figure 3. Analysis of damage on boats by orca interactions from 2020–2022. Box heights are proportional to interactions with data (values on the right axis) and widths to interaction %.



OBJECTIVES

The aim of this study is to record and characterize the encounters with orcas from July 2020 to December 2022 in the Iberian Peninsula, from the Strait of Gibraltar up to Biscay bay.

MATERIAL & METHODS

Information was compiled through direct communications from seafarers, interviews, and data from private and institutional entities. Encounters are classified into interactions and sightings, depending on whether orcas react to the presence of the boat or not. Interactions are further classified as: a) non-contact; b) with contact; and c) with contact resulting on damage to the boats, either minor (boats can navigate by their own means afterwards) and serious (boats cannot navigate their media).

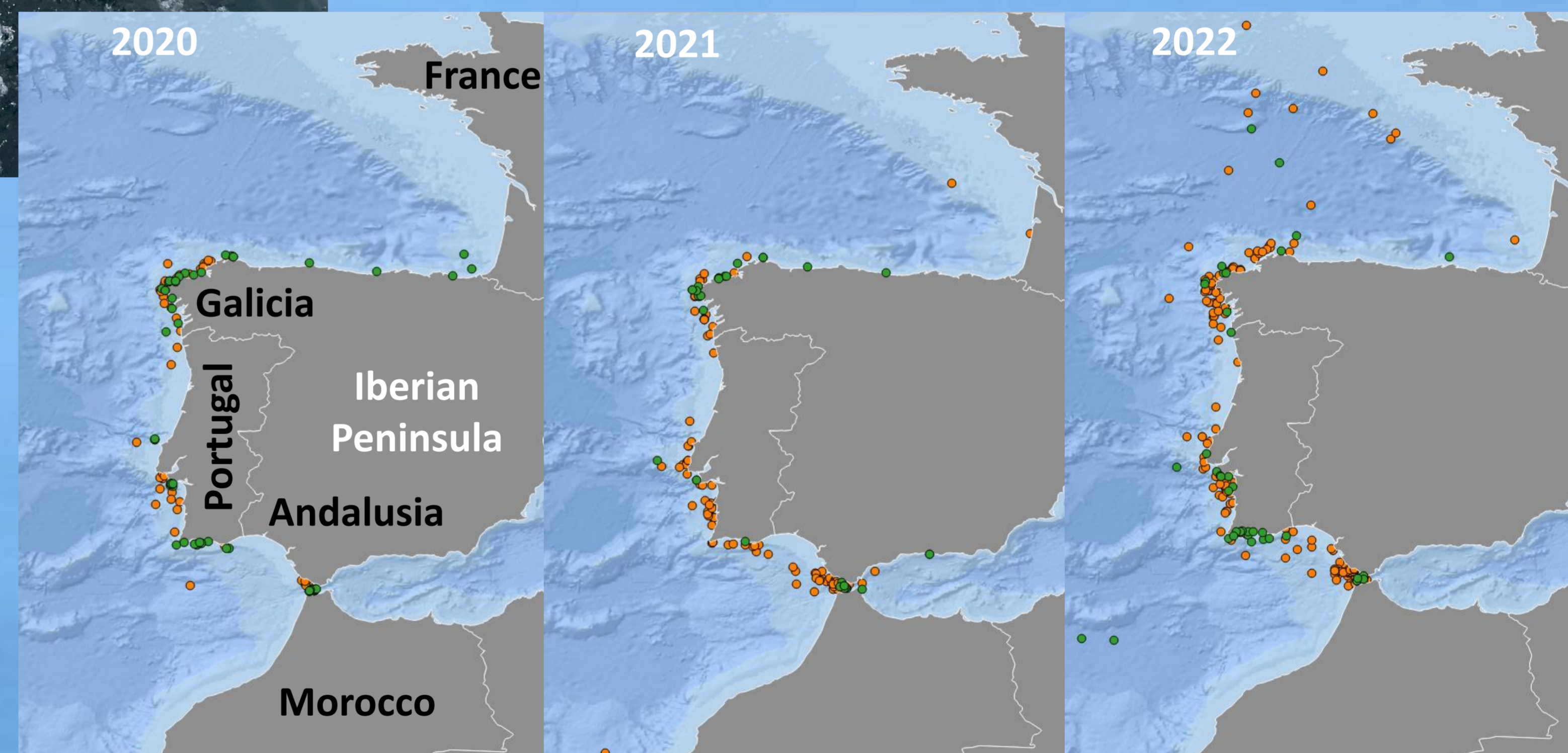


Figure 2. Map of orca sightings (green) and interactions (orange) along the Iberian coast from July 2020 to December 2022.

DISCUSSION - CONCLUSIONS

Existing data are not sufficient to attribute the increase in reported interactions to a change in orca behaviour, increased marine traffic, or better flow of information and participation of stakeholders. The **low rate of serious damages** during interactions is encouraging, but **more comprehensive ethological studies are needed** to understand the motivation behind this new behaviour.

The collaboration between all stakeholders has led to the design and implementation of **actions and protocols** to avoid as much as possible damages to boats and people, maintain the conservation actions for this endangered subpopulation and their favourable projection at social level.

During this time, the **website “www.orcaiberica.org”** and the **app “GT Orcas”** were developed to serve as a reference point for sailors, scientists and the general public.

[1] Esteban et al. (2016). Adv. Mar. Biol.
[2] Guinet et al. (2007) . MEPS
[3] Esteban et al. (2016). Biol. Conserv.
[4] Esteban et al. (2022) . Mar. Mamm. Sci.

