

Interaction between seabirds and otter bottom trawl: preliminary insights from the Bay of Biscay



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Background

Fishing discards have a significant impact on marine ecosystems due to the high amount of species that are thrown overboard, especially by trawl fisheries. Marine predators such as seabirds are a specially sensitive community affected by discards and several studies have shown the importance of this resource for these species. Therefore, assessing the influence of discarding rates on seabirds and their composition will provide insights on the impact of different fishing policies, such as the Landing Obligation.

Objective

To characterise the spatial and temporal variability of the seabird community associated with otter bottom trawlers

Results

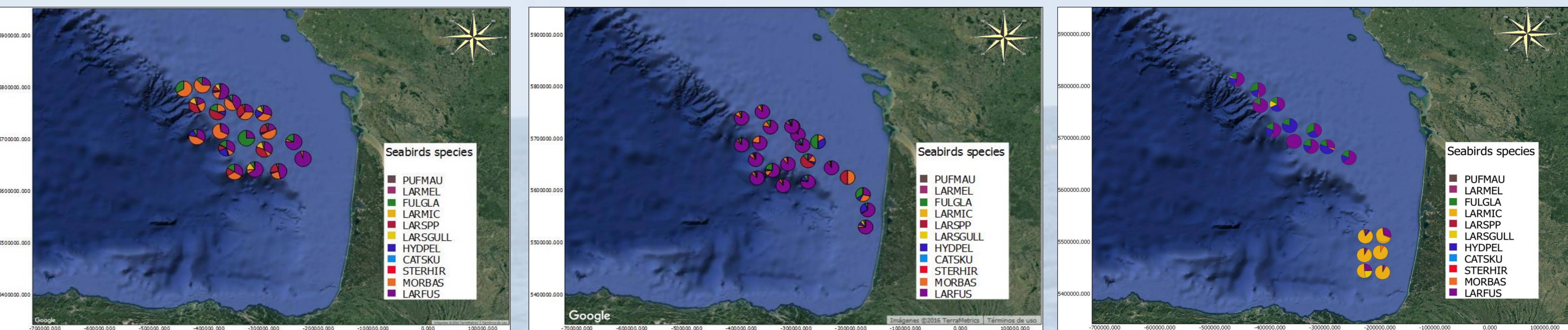


Fig.2. Seabird counts during the three spring fishing trips. PUFMAU: Balearic shearwater. FULGLA: Northern fulmar. LARMIC: Yellow-legged gull. LARSPP: Gull sp. LARSGULL: Big gull sp. HYDPEL: European storm-petrel. MORBAS: Northern gannet. LARFUS: Lesser black-backed gull.

Seabird characterization

We performed three fishing trips during spring 2016. Regarding seabird characterization (Fig. 2), the lesser black-back gull (LARFUS) was the most abundant species in all fishing trips, whereas the northern gannet (MORBAS) was the most abundant species in the first trip. In contrast, the yellow legged gull (LARMIC) was more abundant in coastal fishing operations. The northern fulmar (FULGLA) was present in the northern sector of the fishing ground.

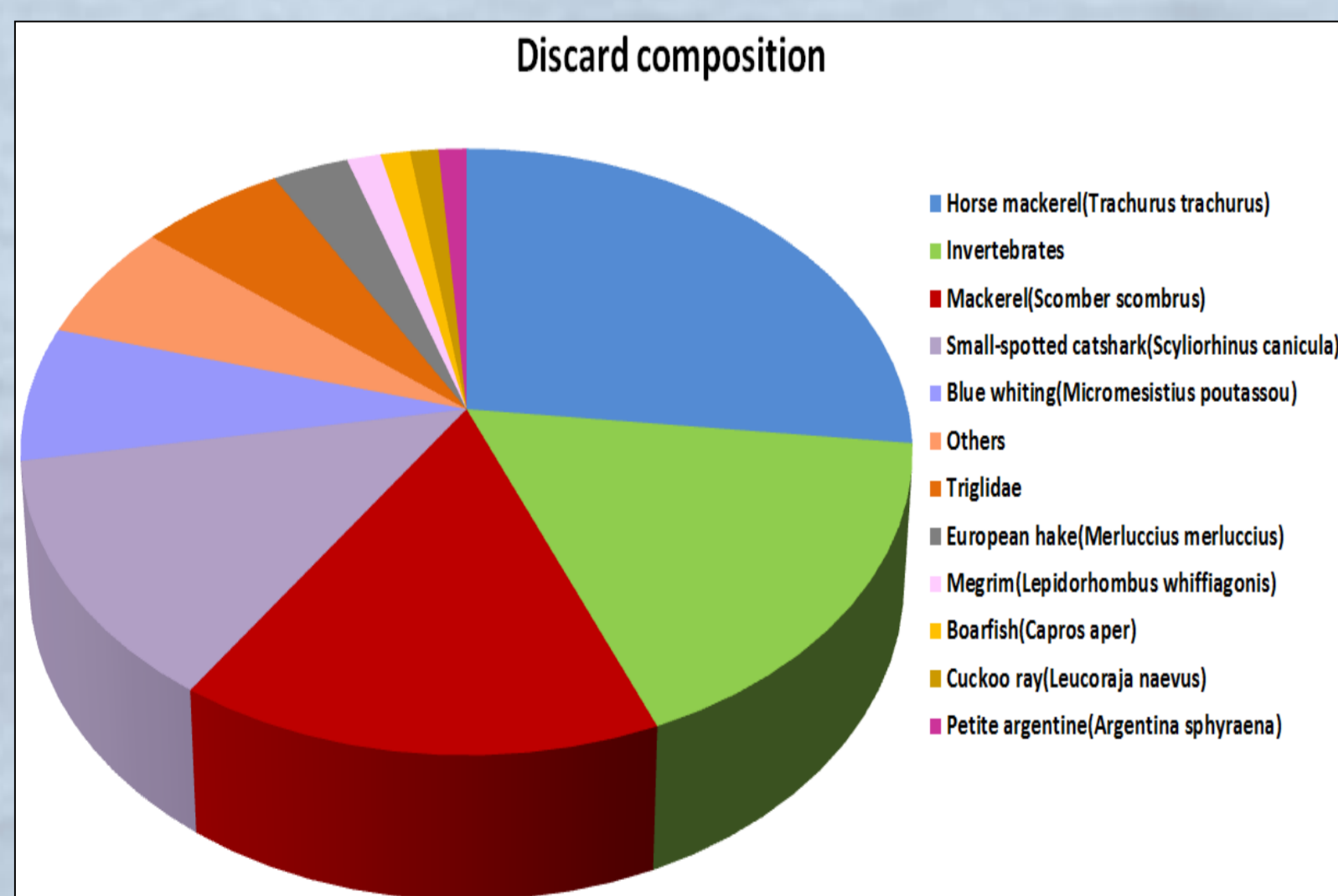


Fig. 3. Discard composition represented by the % of biomass.

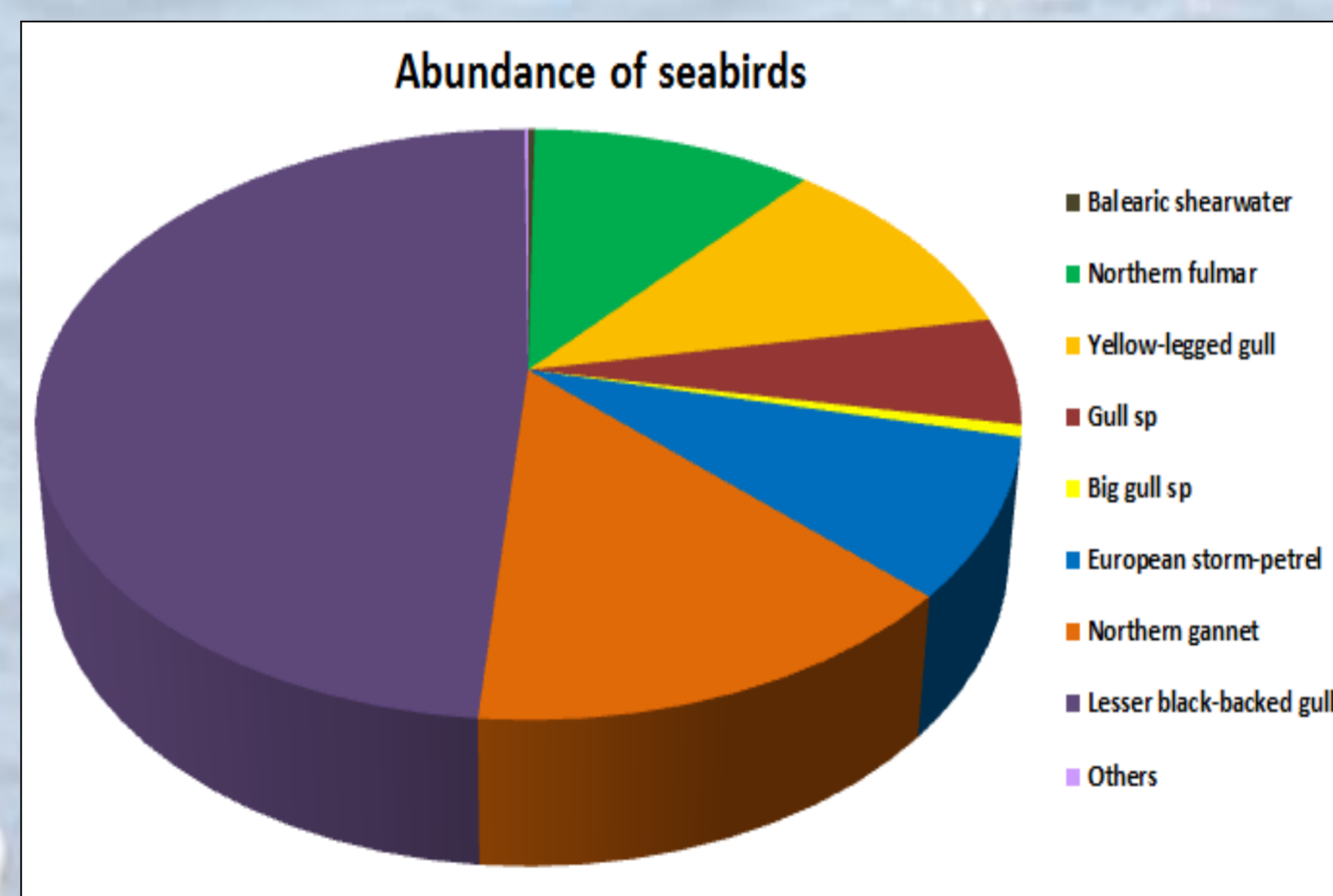


Fig. 4. Seabird community composition during overall spring fishing operations.

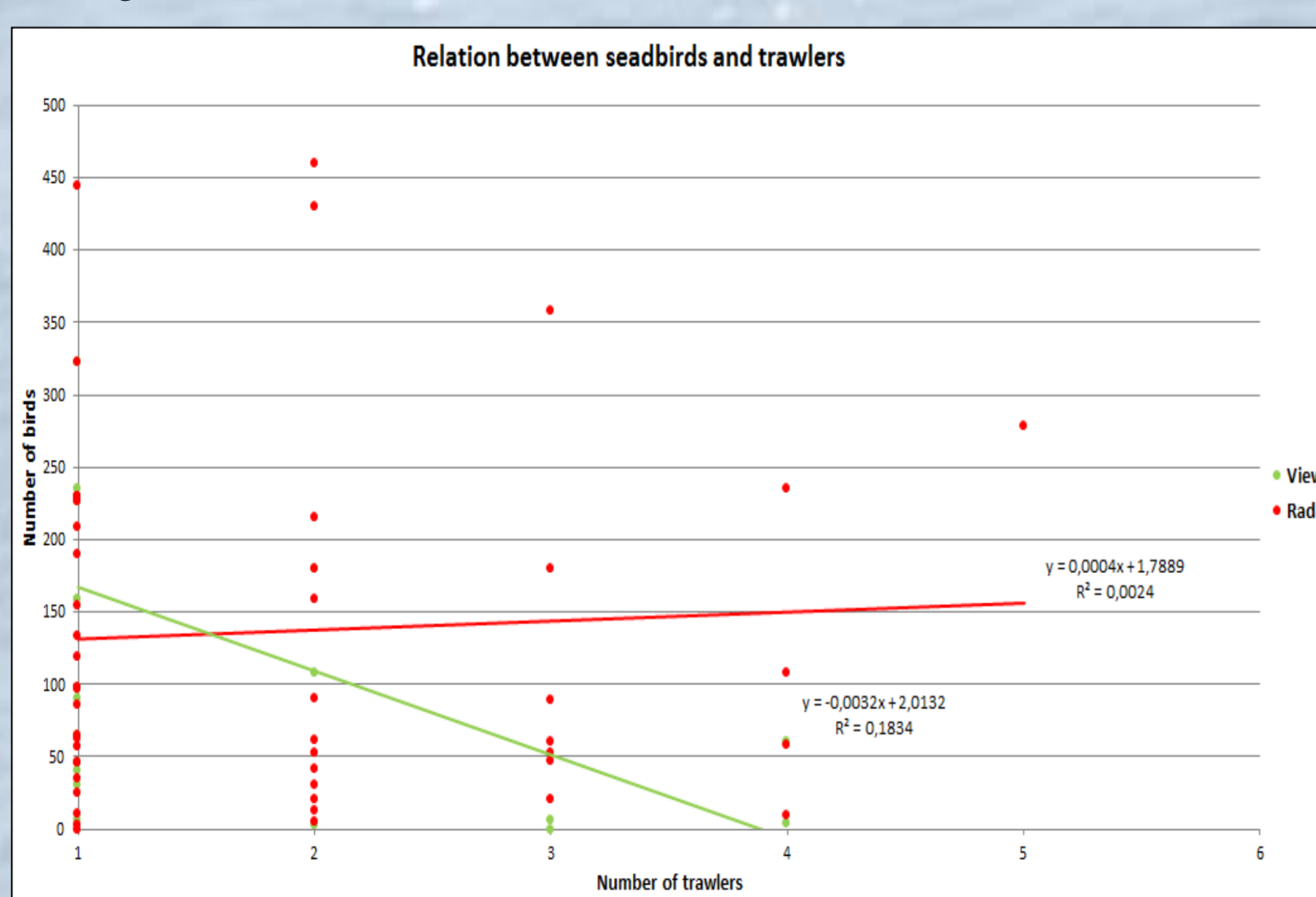


Fig. 5. Relationship between seabird counts and trawlers observed by eye and detected by radar.

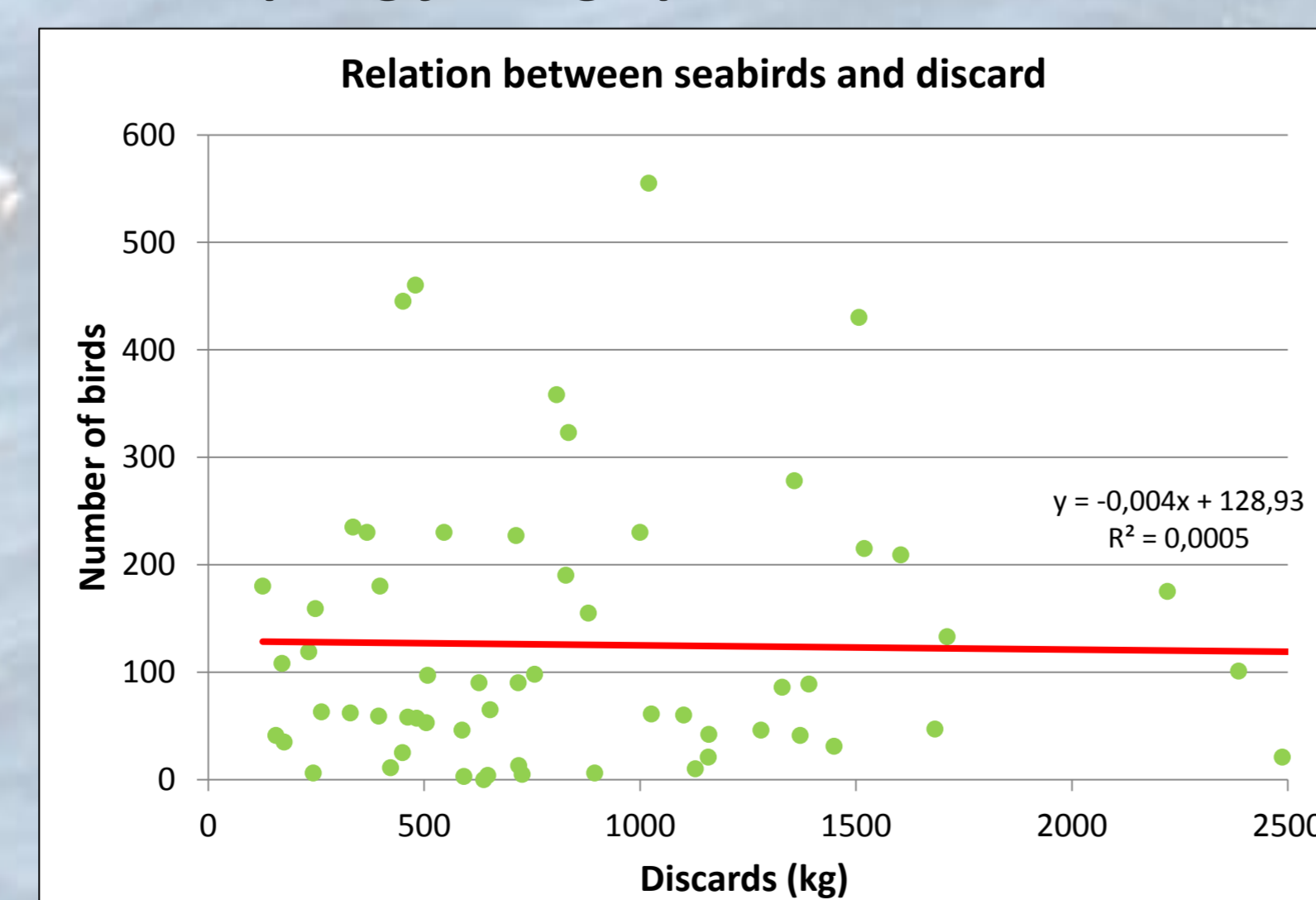


Fig. 6. Relationship between seabird counts and discarded biomass.

Methods

Seabird counts were conducted on board commercial otter bottom trawlers operating in the Bay of Biscay (ICES subdivision VIIIabd), during May-June 2016.

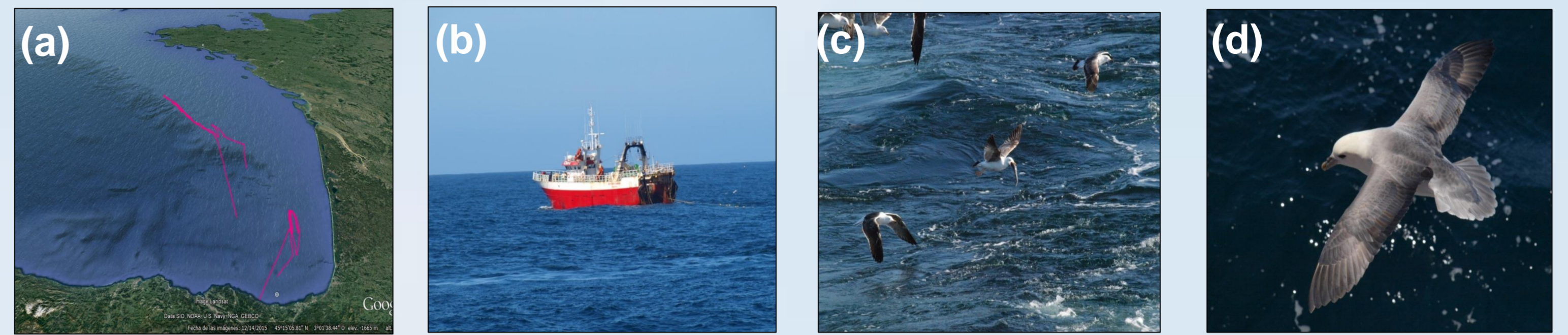


Fig. 1. (a) The study area with the violet lines representing the track of the third fishing trip. (b) An otter bottom trawler, as well as scavenging seabirds (c,d).

During each fishing operation, we performed (1) seabird counts (15 minutes counts during the hauling and discarding process) and (2) total catch characterisation, both landing and discard fraction (a random subsample was measured and weight from the discarded catch fraction). We also recorded environmental conditions (haul date, hour, location), total catch, gear characteristics and weather conditions.

Discard characterization

- Horse mackerel, mackerel and small-spotted catshark are the predominant species in the discards (Fig. 3) with >50 % of the total weight and therefore, the most available resource for seabirds.
- The lesser black-backed gull represents the 50 % of seabirds abundance (Fig.4), followed by the northern gannet (14%) and the northern fulmar (11%).
- No significant relationship was found between the number of the trawlers in the area and the number of observed seabirds (Fig.5).
- Apparently, no significant relationship between the number of seabirds and the number of discards (Fig.6) was detected in spring season, maybe due to the high amount of discards and the low abundance of seabirds during this period.

Conclusions

- ✓ This work will provide an essential tool to evaluate future management strategies related to the reduction of discards and the conservation of seabird's populations.
- ✓ More data are necessary to establish the relationship between seabird's abundance and their variation during the annual cycle; increasing the sampling effort during the next months will allow us achieving this purpose.
- ✓ Further studies are needed to establish the relationship between the discarded biomass, the presence of trawlers in the fishing ground and the abundance of seabirds, in order to advance our understanding on fisheries and seabird interactions.

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