



Does exceeding the legally permissible number of vessels impact feeding and socialising in bottlenose and common dolphins off southern Portugal?

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Introduction

The presence of maritime touristic vessels is known to affect the behaviour of cetaceans⁽¹⁾. Therefore, several countries have legislations regulating the number of boats in proximity of cetaceans. We examined if exceeding the legally permissible number of boats (≤ 3) affects feeding and socialising in **bottlenose** (*Tursiops truncatus*) and **common dolphins** (*Delphinus delphis*) off **southern Portugal**, an area with high dolphin-watching pressure (Fig. 1).

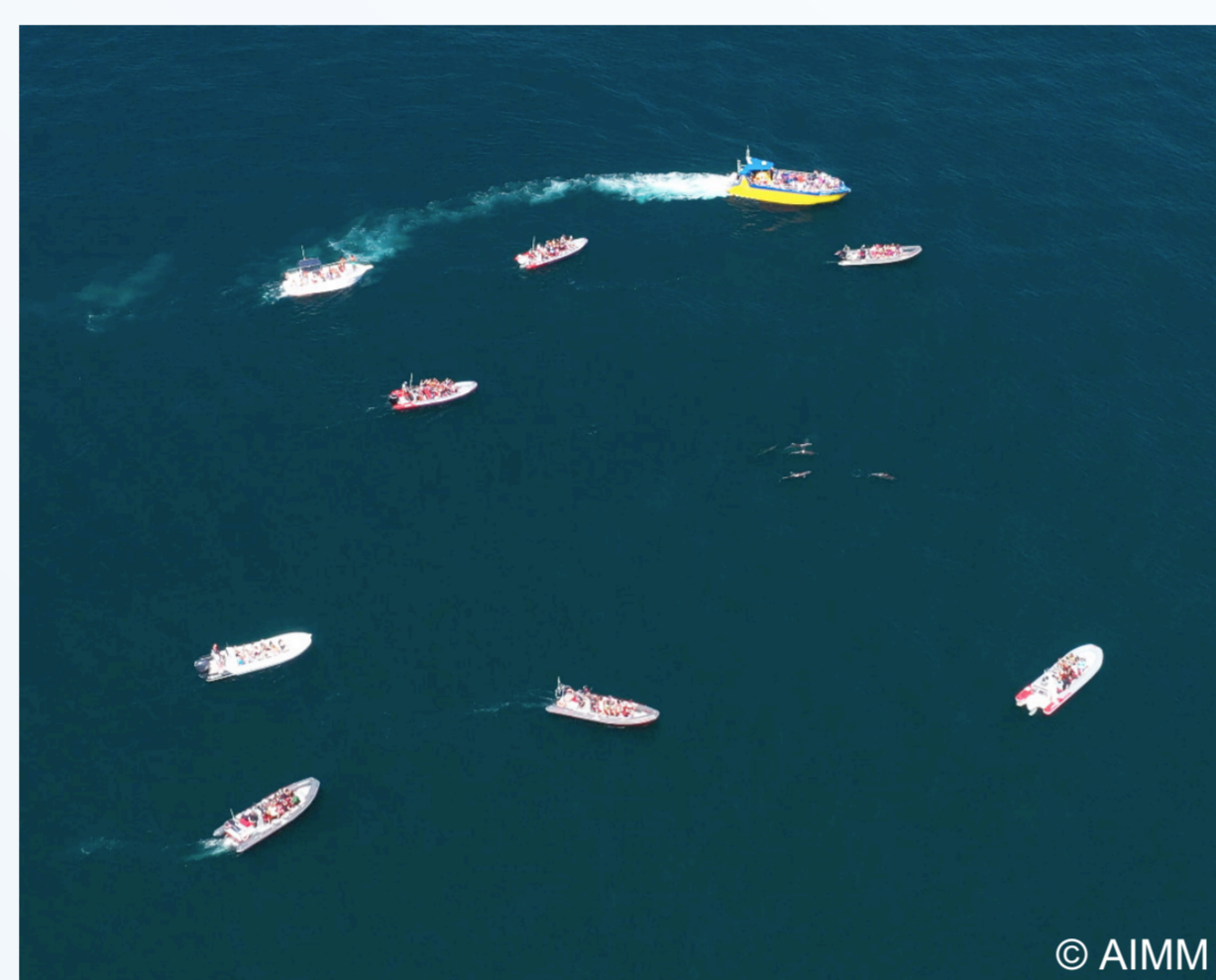


Fig. 1 – Legal number of boats exceeded: 9 boats surrounding a group of bottlenose dolphins in southern Portugal.

Methodology

Between 2012 and 2023 dedicated and opportunistic boat-based marine mammal surveys were conducted. The species, their initial and general behaviour, and maximum number of boats present were recorded. We determined if there was a change in **feeding (F) and/or socialising (SO)** (Fig. 2) by comparing initial and general behaviour. Using **Fisher's Exact Test**, we analysed if F and SO of either species ceased more often when the **number of boats exceeded the legal maximum of three**.

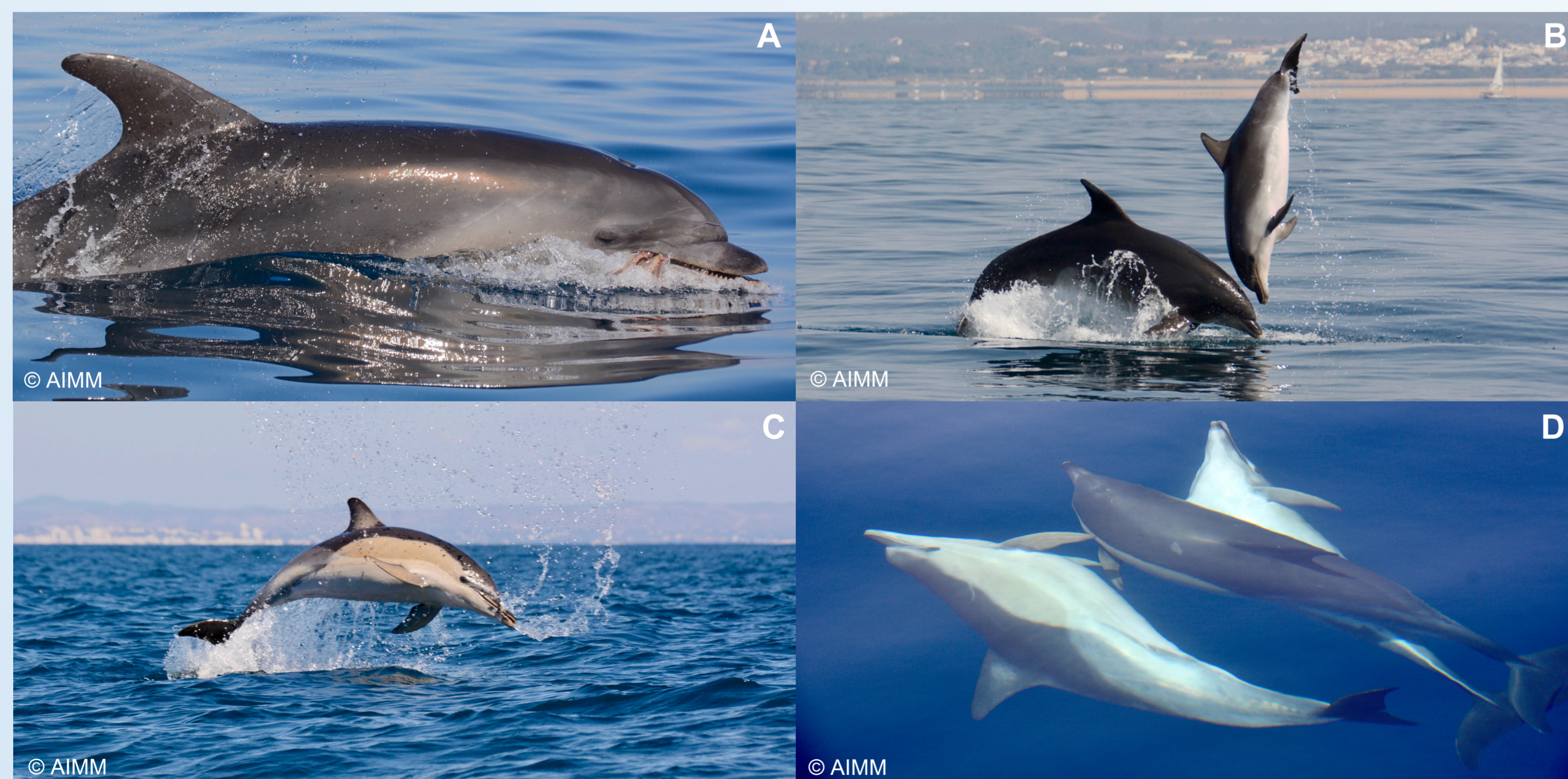


Fig. 2 – Feeding + socialising in bottlenose (A + B) and common dolphins (C + D).

References

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Results

A total of 967 sightings were analysed, 373 for bottlenose and 594 for common dolphins. In **29.6% of sightings the legal number of boats was exceeded**, 45.3% for bottlenose and 19.7% for common dolphins (Fig. 3A). Neither F nor SO in either species significantly changed when more than the permissible number of boats were present. Generally, both species **more often ceased F, rather than SO** (Fig. 3B). Bottlenose dolphins stopped SO more frequently (17.0%) and F less frequently (19.6%) compared to common dolphins (11.6%, 28.9% respectively) (Fig. 3B).

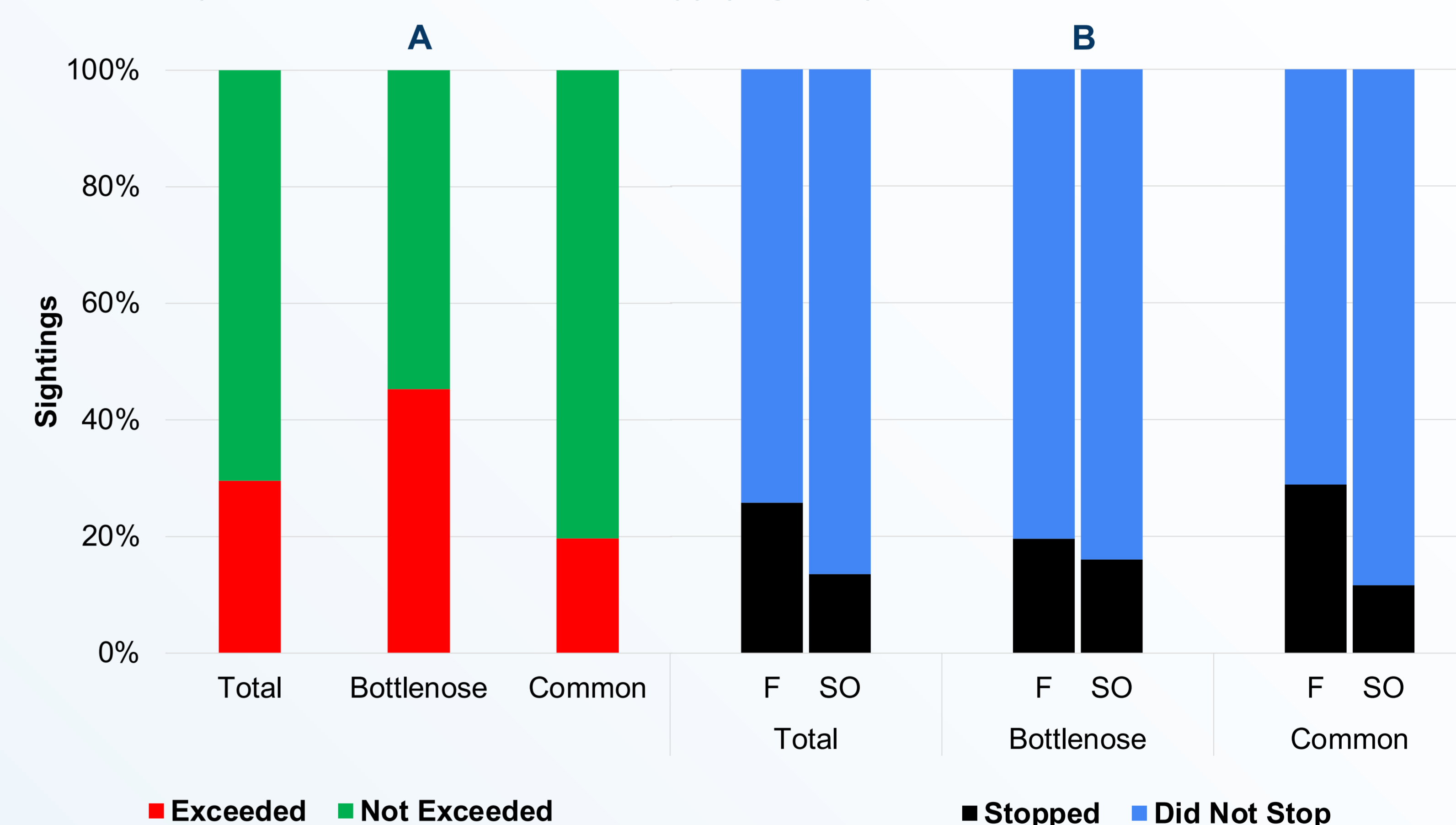


Fig. 3 – Relative frequency of sightings (in total, for bottlenose, and common dolphins) when (A) the maximum legal number of boats was exceeded/not exceeded; (B) feeding (F) and socialising (SO) stopped/did not stop.

Discussion and Conclusion

These analyses highlight the **lack of enforcing current measures** and indicate potential **differences in vessel exposure of both species**. **Coastal bottlenose dolphins** may experience higher levels of boat pressure than the more **pelagic common dolphins**^(2,3). Yet, common dolphins can be **equally as susceptible** to vessel disruptions^(2,4). Further studies should examine if surpassing the legal number of boats affect **other behavioural aspects** in both species off southern Portugal.

Acknowledgements

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