



# NOT SO EXCITED TO SEE US? SIGNIFICANT BOAT-SHYNESS OBSERVED IN BISCAYAN STRIPED DOLPHINS (*STENELLA COERULEOALBA*)



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## INTRODUCTION

Wild cetaceans display various reactions to humans and boats, potentially depending on the type and behaviour of involved boats but also on their species, their local habits, their ongoing activity, their physiological status, etc. Their reactions may then mitigate or aggravate any boat-induced disturbance. They can also scientifically be an interesting clue about the cetacean population well-being in its local environment. Striped dolphins (*Stenella coeruleoalba*) are small pelagic delphinids; they are globally widespread and commonly encountered in western European waters. Their behaviour towards humans varies across different areas (Jefferson, Webber & Pitman, 2015) but its assessment seems missing for the Bay of Biscay.

## METHODS

We studied Striped dolphins in the Southern Bay of Biscay using *Anacaona*, a 12 meters motorized sailboat; field protocol was aimed at behavioural data collection, with an emphasis on non-invasiveness to minimize any potential disturbance (3 to 5 trained observers aboard, respectful evolutions, no voluntary approach closer than 100 meters – cetaceans are then free to come closer to our boat if they want). Among other variables, dedicated parameters were collected using *PADOC* behavioural app in order to evaluate the reaction of dolphins to our research sailboat, the two main ones being the global school reaction to our boat – general avoidance (including avoidance and fleeing), indifference, general approach (including approach and prolonged boat-following) – and the occurrence of bowriding.

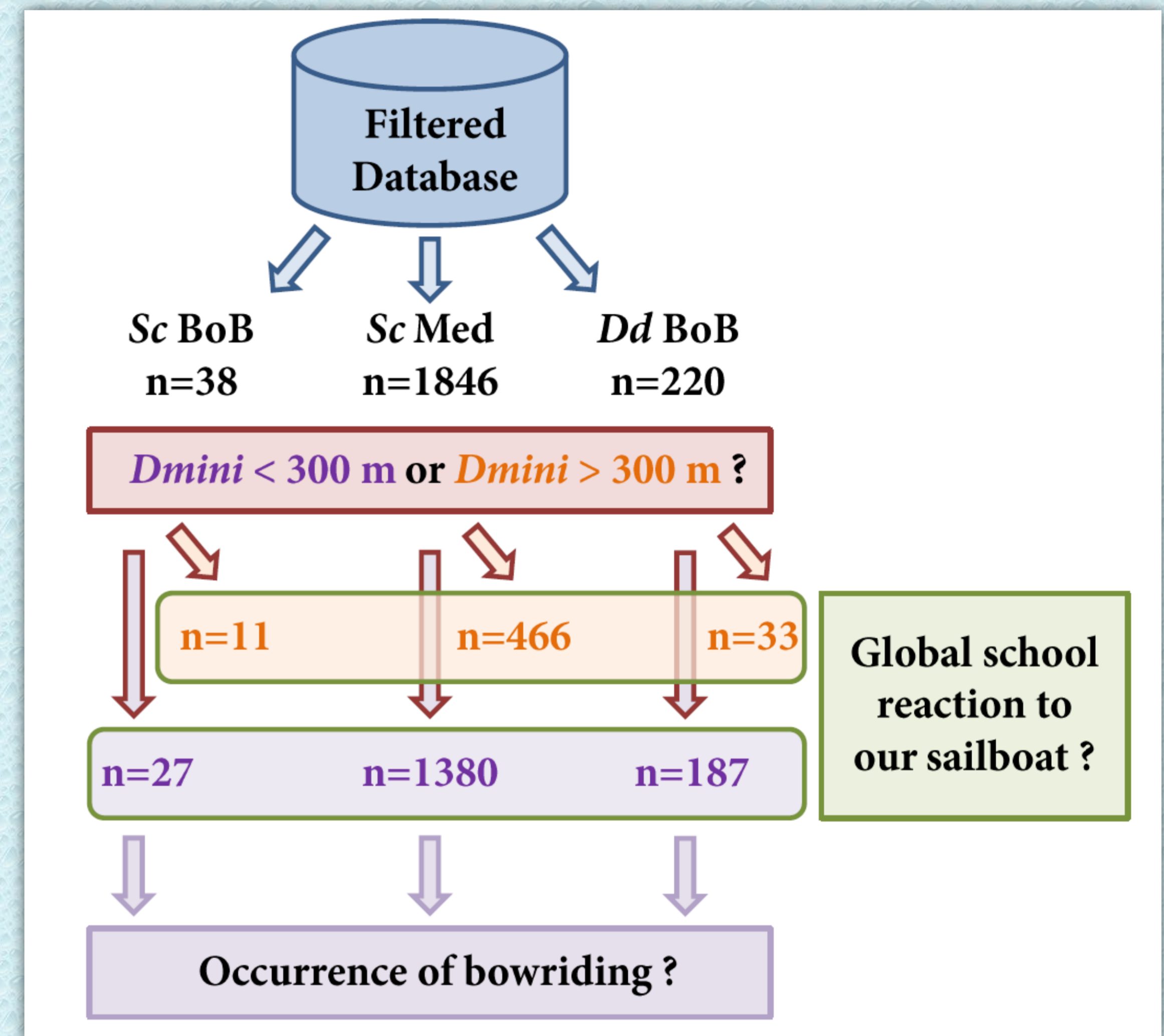


Discrete spyhopping in a calm travelling school of Biscayan Striped dolphins, seen 150 m from Anacaona, 2024

## ELIGIBLE DATASET

In order to compare the behaviour of these Biscayan Striped dolphins ("Sc BoB", n=38 suitable sightings from 2020 to 2025), GREC database was adequately filtered and two control groups (similar study protocol and exact same sailboat) were used:

- Mediterranean Striped dolphins ("Sc Med", n=1846 from 1995 to 2020)
- Biscayan Common dolphins (*Delphinus delphis*, hereafter "Dd BoB", n=220 from 2020 to 2025).

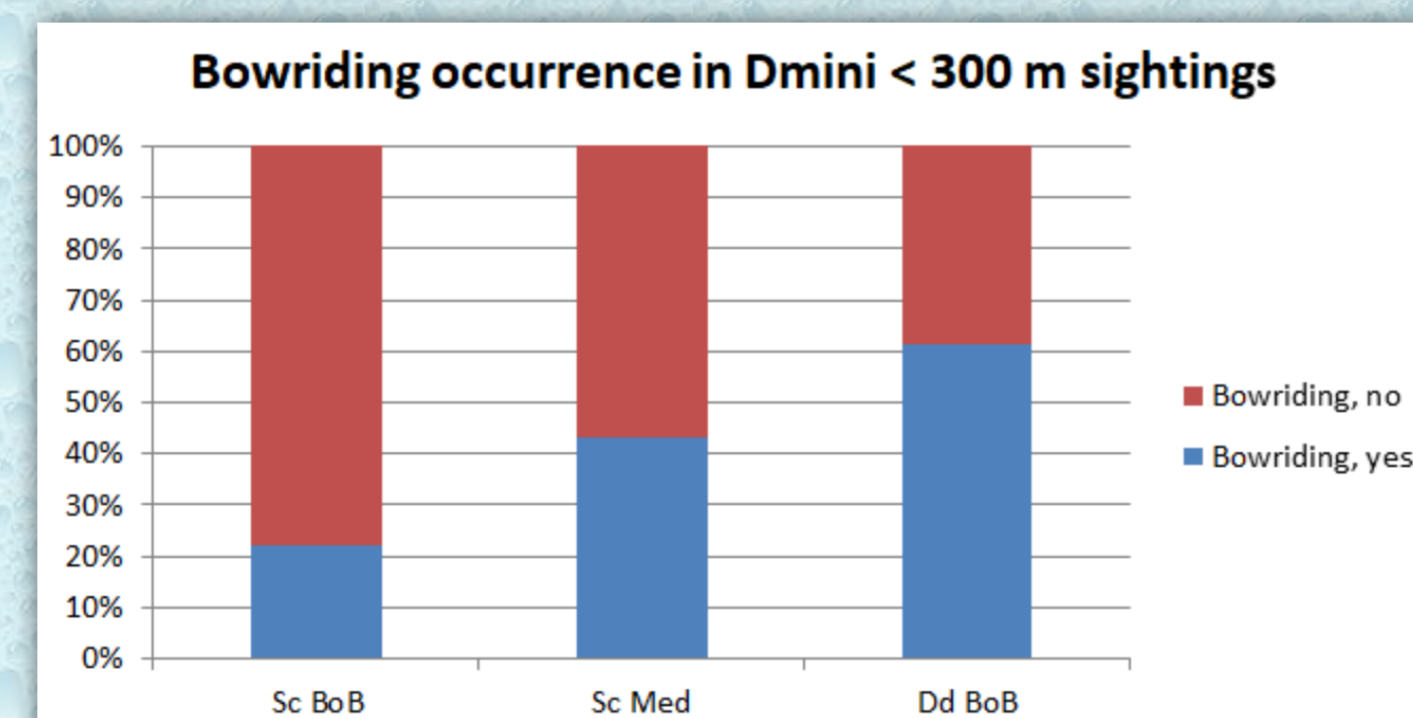
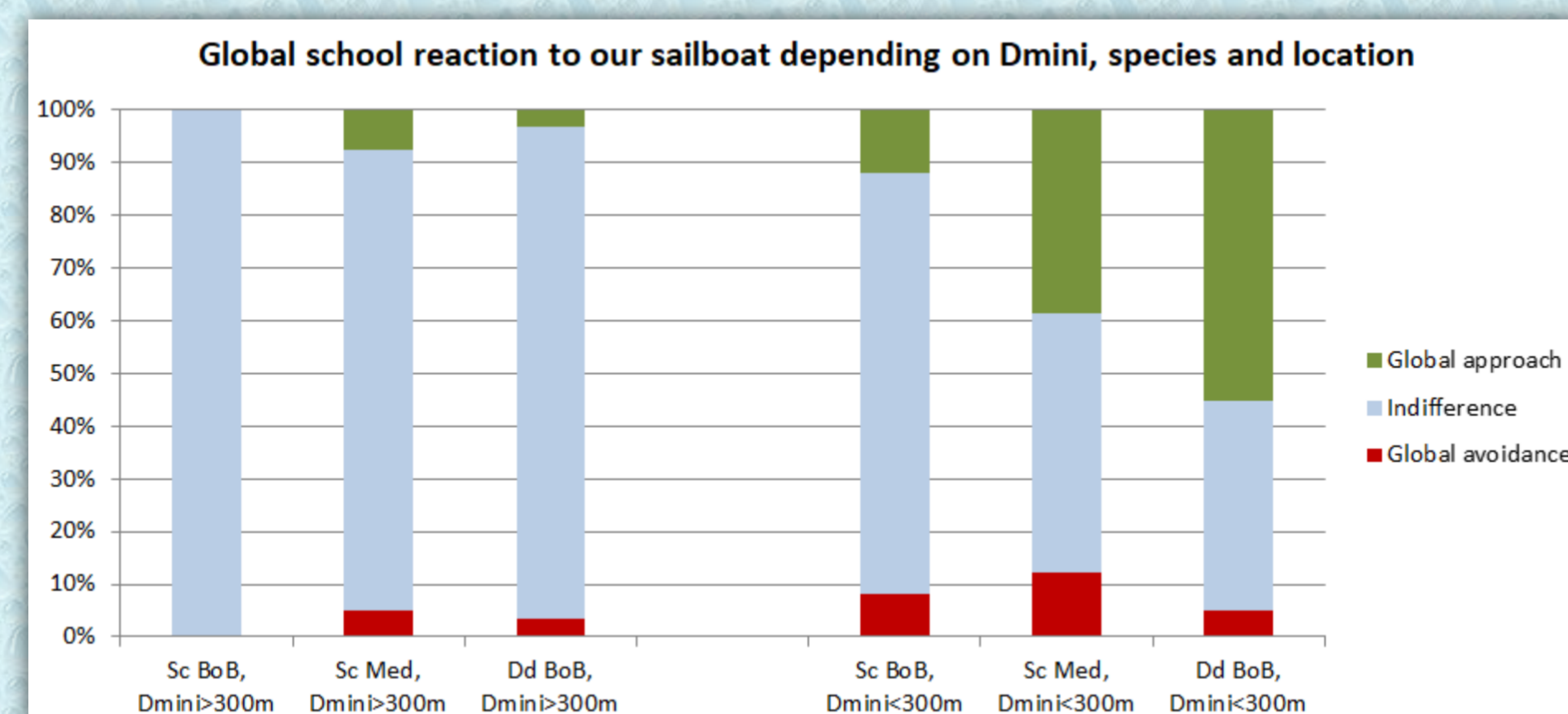


## RESULTS

When considering sightings with minimal distance *Dmini* > 300 m, indifference was widespread: 100% (11/11) for *Sc BoB*, 82% (384/466) for *Sc Med*, 85% (28/33) for *Dd BoB*, no significant difference between *Sc BoB* and controls.

Considering only sightings with *Dmini* less than 300 m, *Sc BoB* were significantly more indifferent (74%, 20 cases) and less approaching (11%, n=3) than *Sc Med* (46% (n=641) and 36% (502 cases); *Chi-squared* p<0.01) and *Dd BoB* (37% (70 cases) and 52% (n=98), p<0.001).

Finally, among the *Dmini* < 300 m sightings, bowriding was significantly rarer for *Sc BoB* (22%, 6/27) than for *Sc Med* (43%, 593/1380, *Chi-squared* p=0.001) and *Dd BoB* (61%, 115/187, p<0.0001).



Bowriding Biscayan Common dolphins, 2025



Common dolphins riding Anacaona's bow, 2026

## DISCUSSION & CONCLUSION

While the reasons for this particularly indifferent behaviour are unknown, several hypothesis could be considered. Our sample size doesn't enable us to test all of them, but important factors could be dolphins' activity at the time of sighting, or presence of young animals.

Regarding activities, one could suppose that animals engaged in socializing could be more prone to approach or to bowride than foraging, travelling or resting dolphins. However, when comparing (on *Dmini* < 300 m sightings), no significant difference was found between *Sc BoB* and *Sc Med* activities (*Chi-squared* test p>0.1). Moreover, *Sc BoB* were tested significantly more socializing than *Dd BoB* (23% vs 6%, Fisher's exact test, p<0.01), which would go against this hypothesis. Similarly, no significant differences were found for the presence of juveniles and calves between *Dmini* < 300 m *Sc BoB* and *Sc Med* (*Chi-squared* tests, p=0.46 and p=0.37, respectively), nor with the same tests between *Sc BoB* and *Dd BoB* (p=0.56 and p=0.15), hence not particularly favouring this hypothesis. Other cofactors remain to be further explored.

Striped dolphins are described as being relatively easily spooked, and notably tend to flee from boats in the Eastern Tropical Pacific where it has been supposed that this behaviour is related to bad experiences with fishermen and massive bycatchs in purse-seine tuna fishing activities (Archer & Perrin, 1999). Since Biscayan Striped dolphins are sometimes found in close proximity with large schools of Bluefin tunas, this hypothesis could be of interest. However, from available documentation it seems that local tuna fishing is mainly performed using pole and line technique, while purse-seine fishing is mostly used on small epipelagic fishes in areas (e.g. continental shelf) where Striped dolphins are not frequent.

Generally speaking, the same kind of hypothesis could also be done relatively to harassment by recreational boaters but Biscayan Striped dolphins tend to mainly live offshore in an environment where leisure boating is very limited.

The fact that Biscayan Striped dolphins live in close proximity with another small delphinid species (Common dolphins), while they are the main pelagic delphinid species in the Mediterranean sea, raises a question about possible behavioural inhibitions linked to co-occurring delphinids (Common dolphins anecdotally tend to be dominant towards Striped dolphins when bowriding together); additional comparisons done in different places (e.g. in the Azores where three small delphinids (*Dd*, *Sc* and *Stenella frontalis*) co-occur and where Striped dolphins are also skittish (GREC unpub. data)) could be of interest.

From a human perspective, consequences of this shy behaviour could possibly arise when scientifically counting cetaceans and assessing their abundance with a boat-based technique, with Striped dolphins possibly being undercounted compared to other species; formal description of the species by Meyen (1833) was remarkably late compared to Common dolphin (Linné, 1758) and even posterior to some tropical *Stenella* species that don't live in European waters (*S. longirostris* 1828, *S. frontalis* 1829) (Gannier & Gannier, 2019). On a brighter side, their shy behaviour could be one of the numerous reasons why they are currently relatively less impacted by fishery bycatch.

More research is needed to better understand the variability of Striped dolphins (and other cetaceans) behaviours across areas, and to better assess its potential consequences and implications. In any cases, given the strong variability highlighted here and elsewhere, one should specify the geographical area to which a behavioural observation applies, otherwise leading to inconsistencies (e.g. Striped dolphins "do not commonly ride the bow" (Archer in Würsig, Thewissen & Kovacs, 2018) while "they often ride bow waves, except in the eastern tropical Pacific, where they tend to run from vessels" (Jefferson, Webber & Pitman, 2015)).

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## ACKNOWLEDGEMENTS

Part of the data was collected as part of the *Moana Gascogne* project under the *Super-Pouvoirs de l'Océan* framework that receives funding from *France Télévisions* and is carried out in partnership with *France Nature Environnement*.

We thank all the benevolent *Groupe de Recherche sur les Cétacés* members that took part in at-sea data collection.