

# Functional differences between whistle types in wild populations of bottlenose dolphins



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## INTRODUCTION

Signature vocalizations are used by various species when contact between individuals is biologically important such as between mother and offspring, mates, social pairs or aggressors<sup>1</sup>, or when there are physical barriers or confusion due to numerous conspecifics<sup>2</sup>.

Bottlenose dolphins are a highly social species with a complex acoustic communication system and produce two types of whistles that are often used in emotional contexts.

## OBJECTIVES

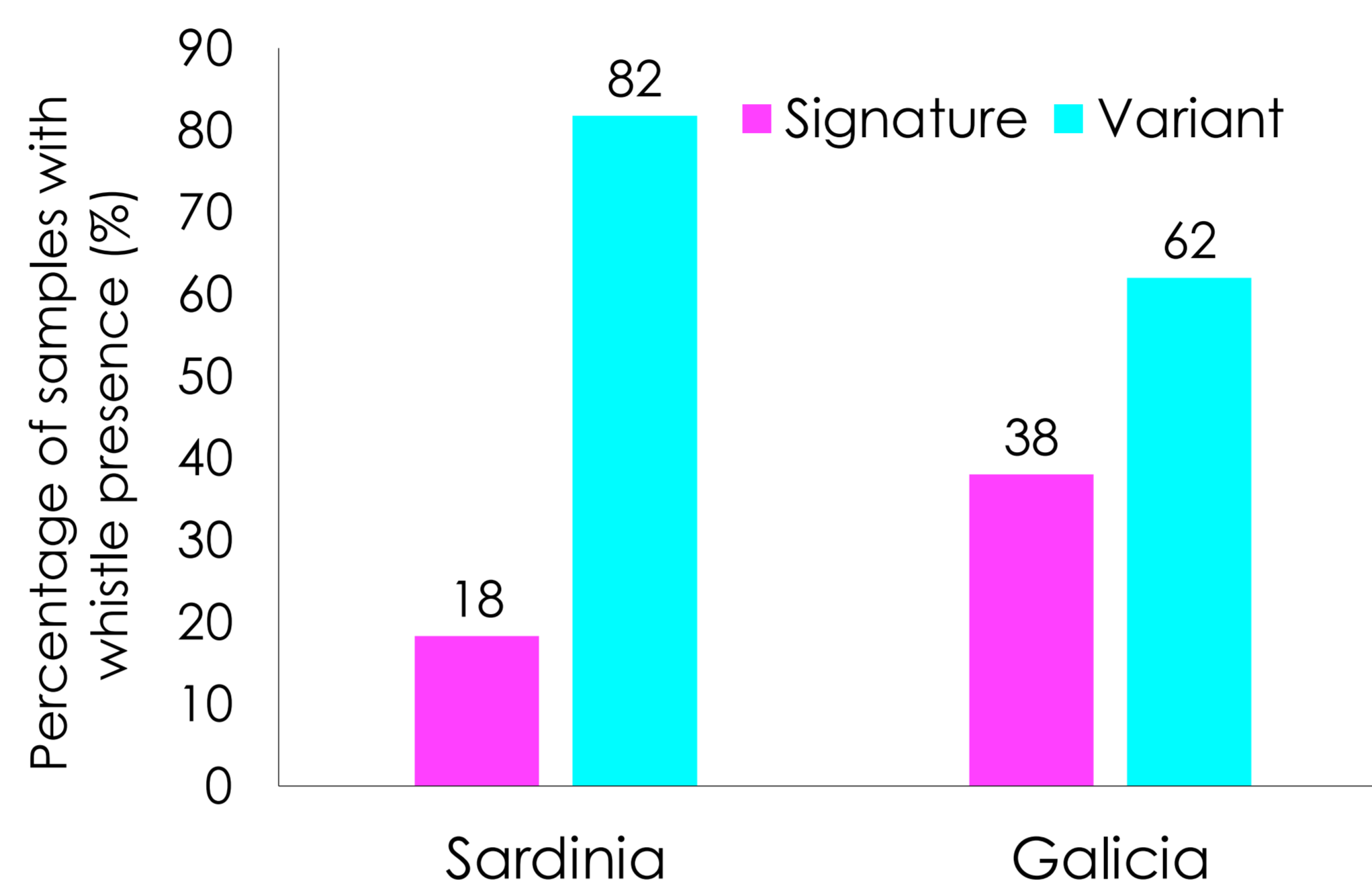
Determine whether there is a difference in the drivers of **Signature** and **Variant** whistle types in wild bottlenose dolphin populations.

## METHODS

- Areas: Mediterranean Sea & Atlantic Ocean
- Data collection: 2005 to 2020
- **1119** randomly selected **one-minute samples** (original 189-hour dataset)
- Generalized Linear Mixed Models (**GLMMs**)
- **Response Variables:** Presence/Absence Signature (SIG-ID<sup>3</sup>) and Variant whistles
- **Explanatory variables:** Location, Season, Moment of the day, Behaviour (Feed, Travel, Social, Rest), Group Size, No. Calves, Presence calves, Group ID

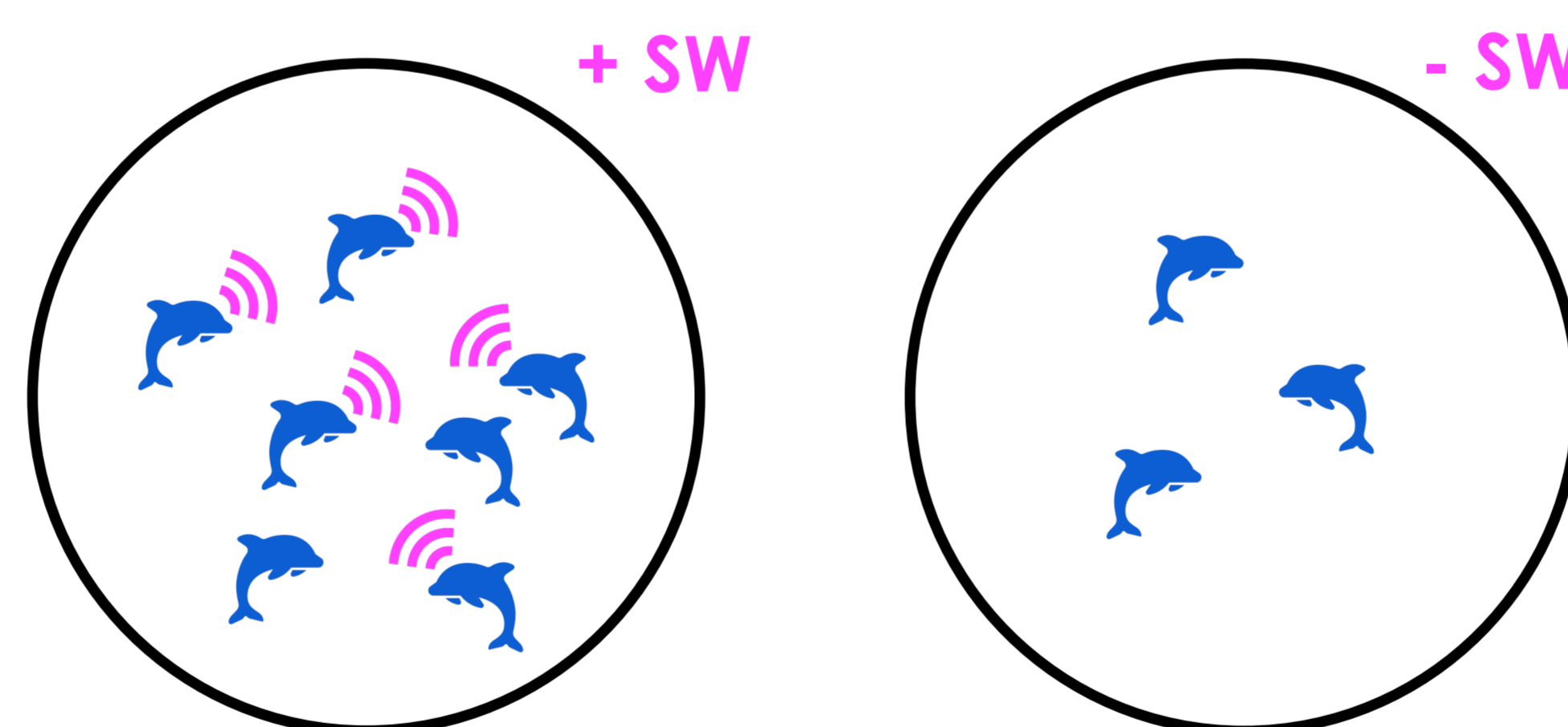


## RESULTS

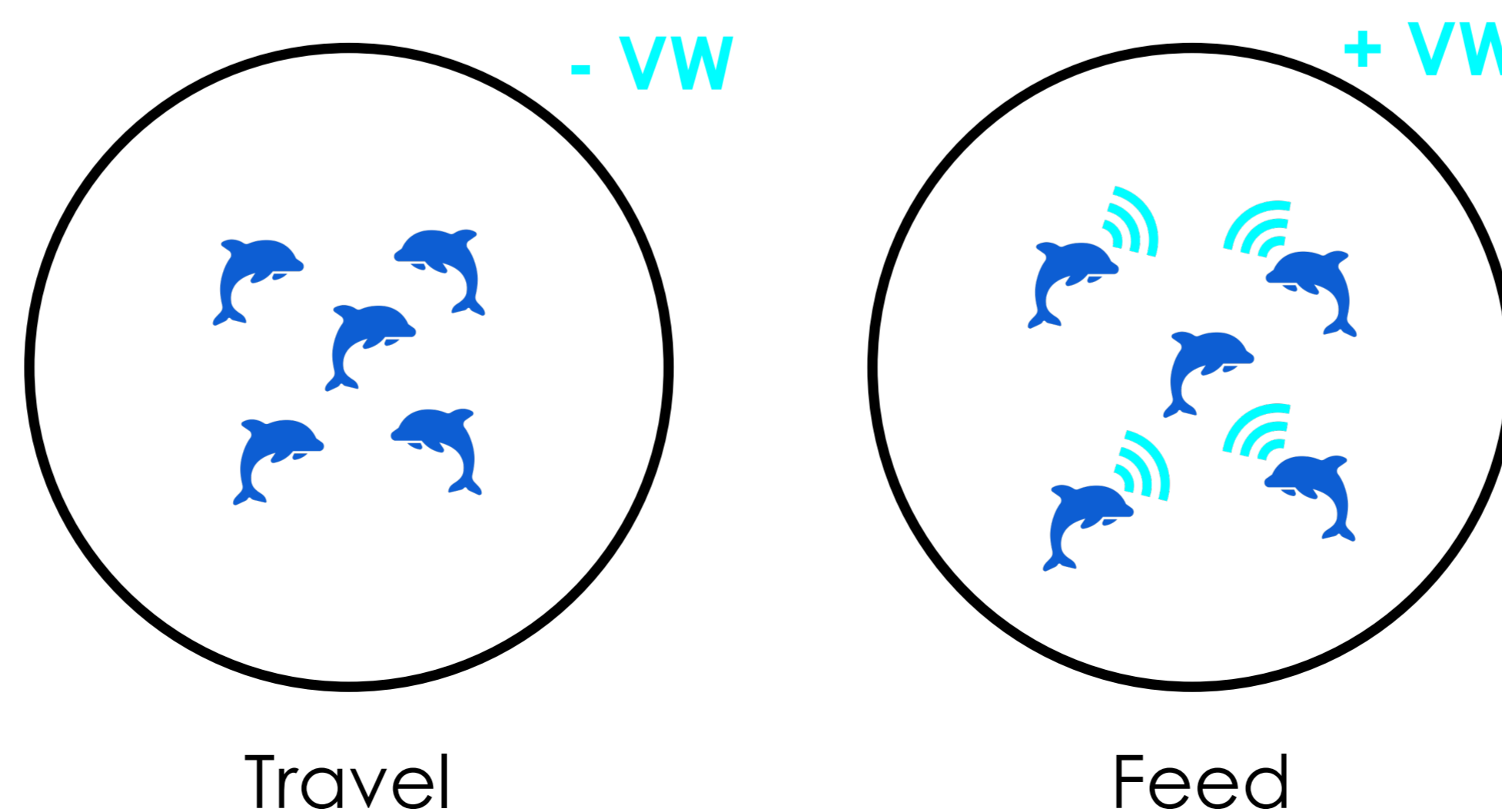


**Figure 1.** Percentage of 1-minute samples with each whistle type in each study area (for all samples with whistle presence).

Social context (**group size**) drives the production of **signature whistles** (SW)



Group **behaviour** drives the emission of **variant whistles** (VW) independently of the group size and composition.



## CONCLUSIONS

Different whistle types may have functional differences

In larger, stable group settings **Signature whistles** may be used to contact specific individuals

**Variant whistles** may convey information that is more context-dependent

Not yet previously described

May have to analyze whistle types separately in future studies

## LITERATURE CITED

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