

Online seminar “Biological diversity in a global community - small cetaceans and marine protection in Brazil and Sweden”

Population monitoring and implementation of bycatch mitigation strategies for the endangered franciscana dolphins

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The concern

- The franciscana (*Pontoporia blainvillei*) is the most endangered small cetacean in the Western South Atlantic Ocean due to the high accidental mortality rates in fishing nets.



“vulnerable” (IUCN, 2017)
“critically endangered” (MMA, 2014)

Overview

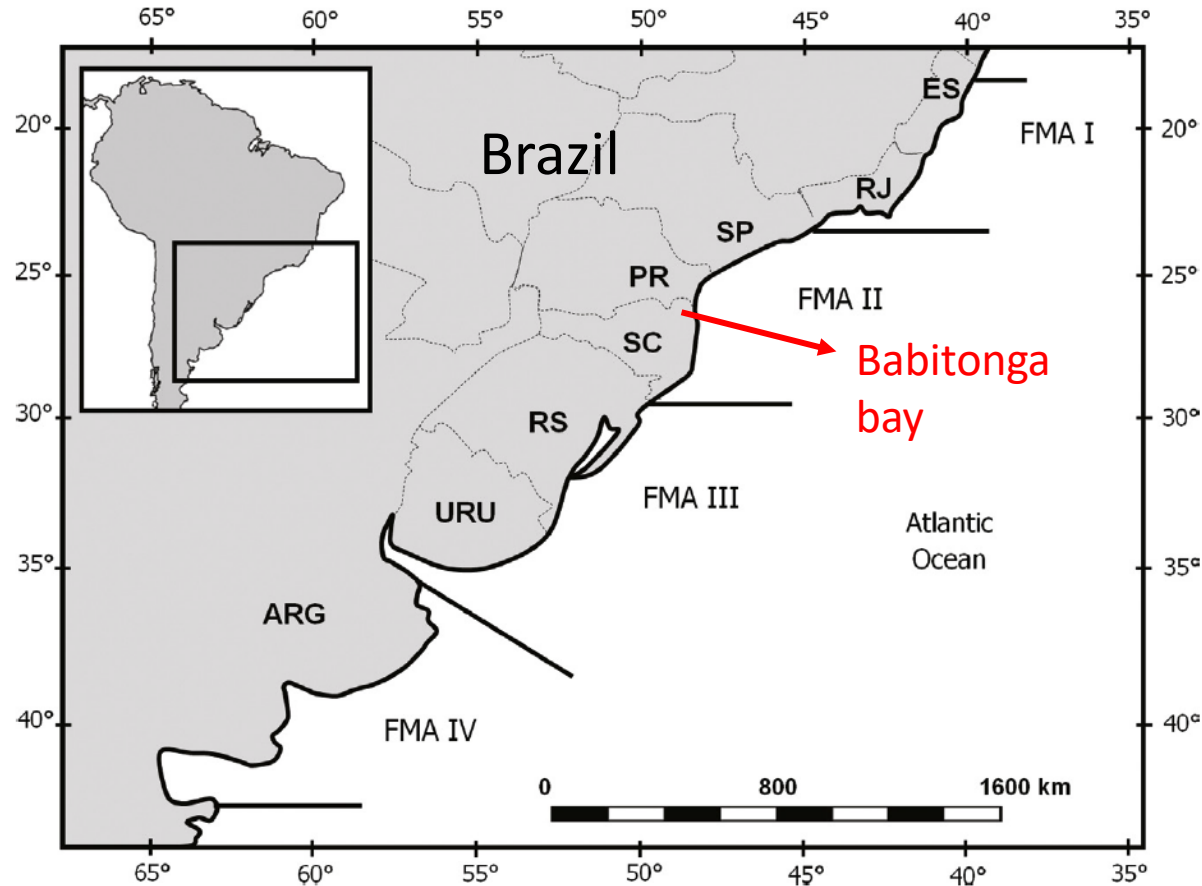


Fig. 6.2 The original four FMA scheme proposed by [Secchi et al. \(2003\)](#) based in preliminary genetic data and other lines of evidence (morphology, life history traits, parasites and contaminant load). FMA, franciscana management areas.

Abundance estimates* → 20,000

FMA I → 2,000

FMA II → 7,000

Babitonga bay → 50

FMA III (BR) → 10,000

Annual strandings* → 1,000 (5%)

FMA I → 100

FMA II → 550

FMA III (central-south RS) → 430

*Estimated to be only 10% of real mortality

*approximate values from: Simões-Lopes & Cremer, 2022. The Franciscana Book: On the Edge of Survival. Elsevier, 1ed.

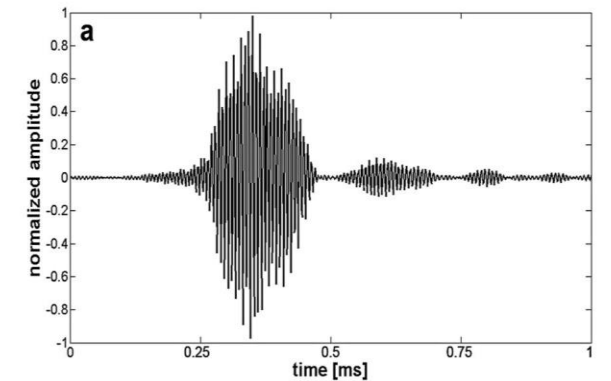
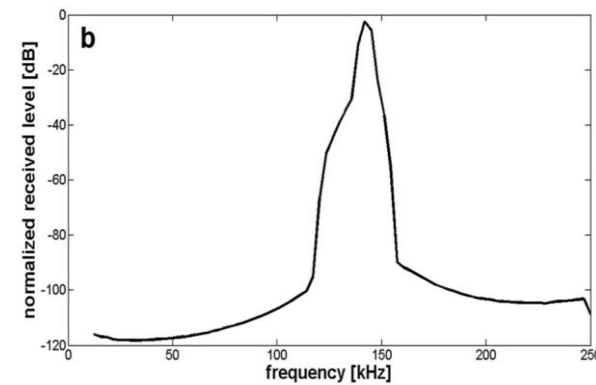
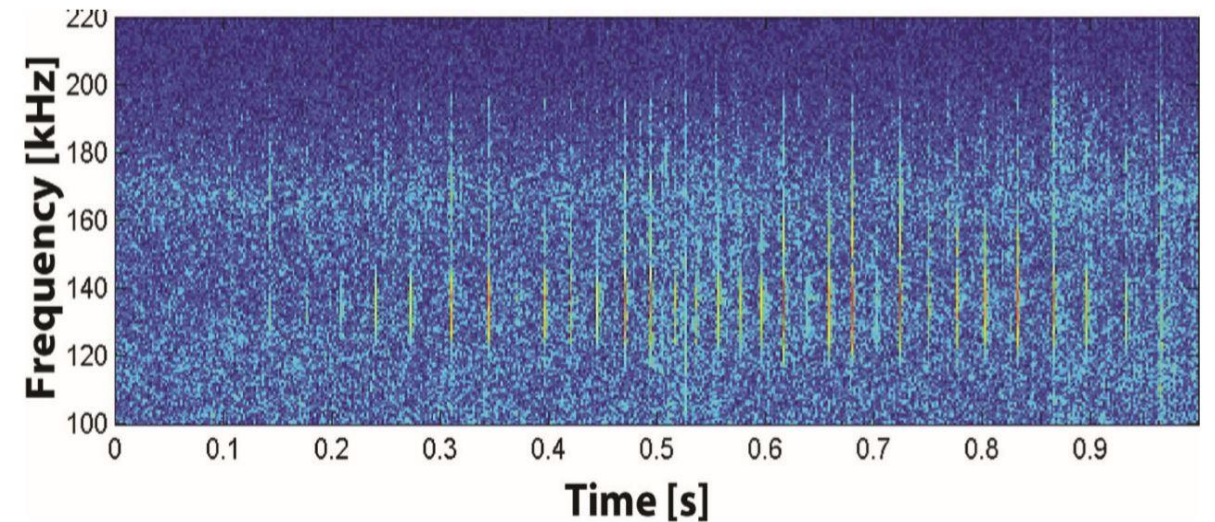
Population monitoring is challenging

- One of the most difficult dolphin species to observe in the wild.
- Rarely exhibit aerial behaviour, their surfacing is very inconspicuous, they only congregate in small groups and their light-grey coloration is cryptic in muddy waters where they are often found.



“Hard to see, easy to hear”

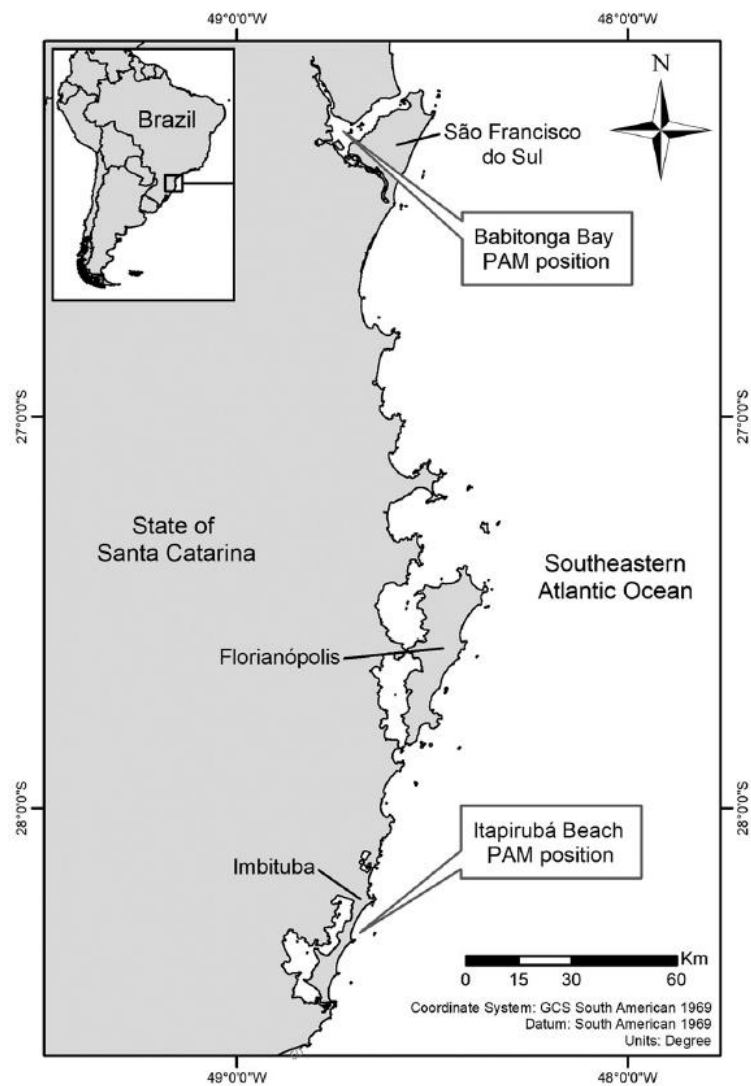
- Acoustically, however, franciscanas can be easily recognized as they emit **narrow band high frequency (NBHF) pulsed sounds**
- the only species with this characteristic throughout most of their distribution in Brazil.



Cooperation Brazil-Sweden

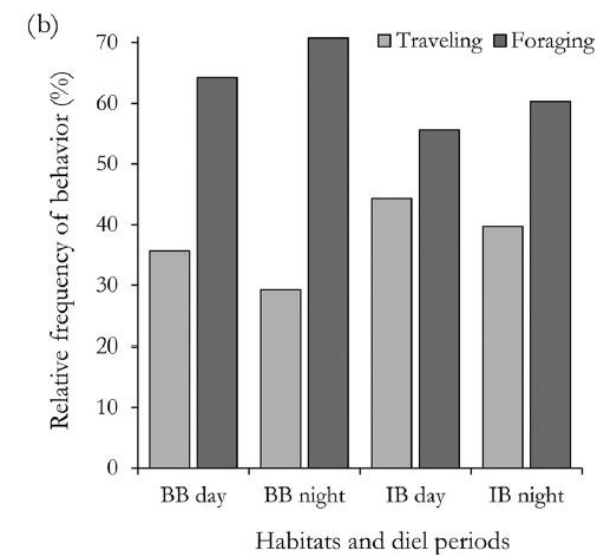
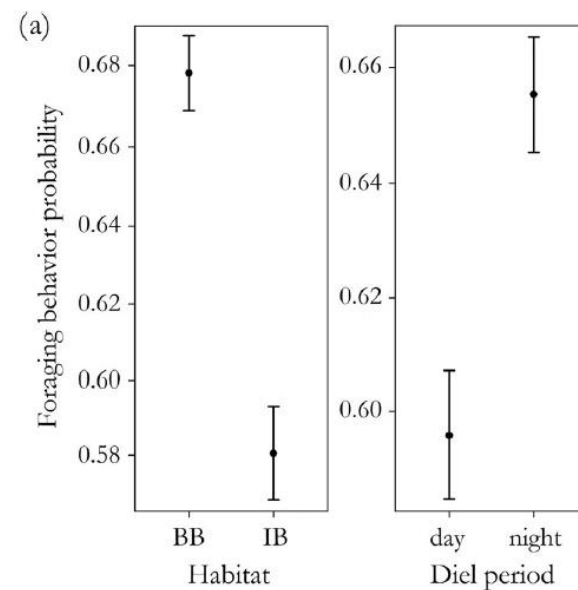
- Loan of 20 click data-loggers (C-PODs - Chelonia Limited ©), from the Swedish Agency for Marine and Water Management (SwAM).
- Partnership started thanks to Dr. Mats Amundin of Kolmarden Wildlife Park (Kolmarden)
- PhD in ecology, Federal University of Santa Catarina - UFSC, supervised by Dr Marta Cremer and Dr. Amundin
- The study also has the support of the Yaqu Pacha Foundation and Petrobras.





Echolocation variability of franciscana dolphins (*Pontoporia blainvillei*) between estuarine and open-sea habitats, with insights into foraging patterns

Renan L. Paitach,^{1,a,b)} Mats Amundin,² Gabriel Teixeira,^{1,a)} and Marta J. Cremer^{1,a)}

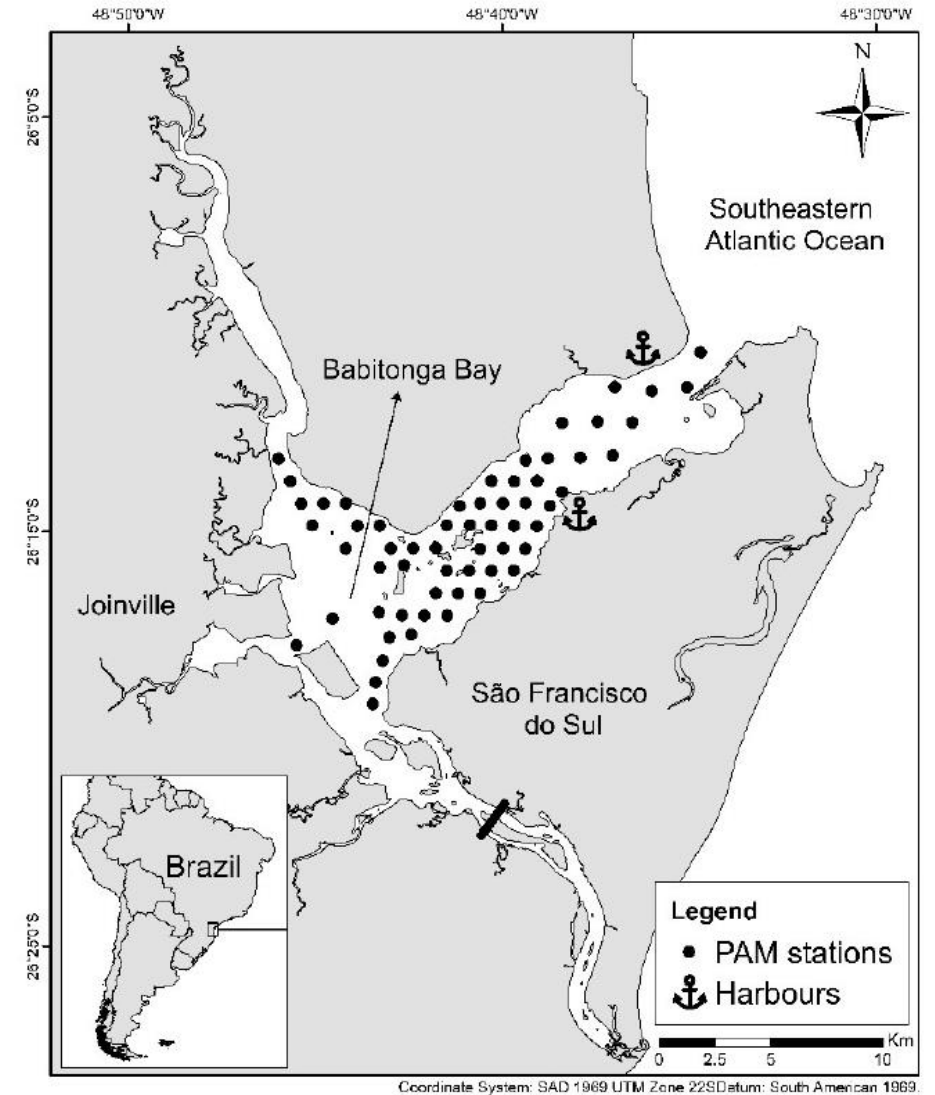


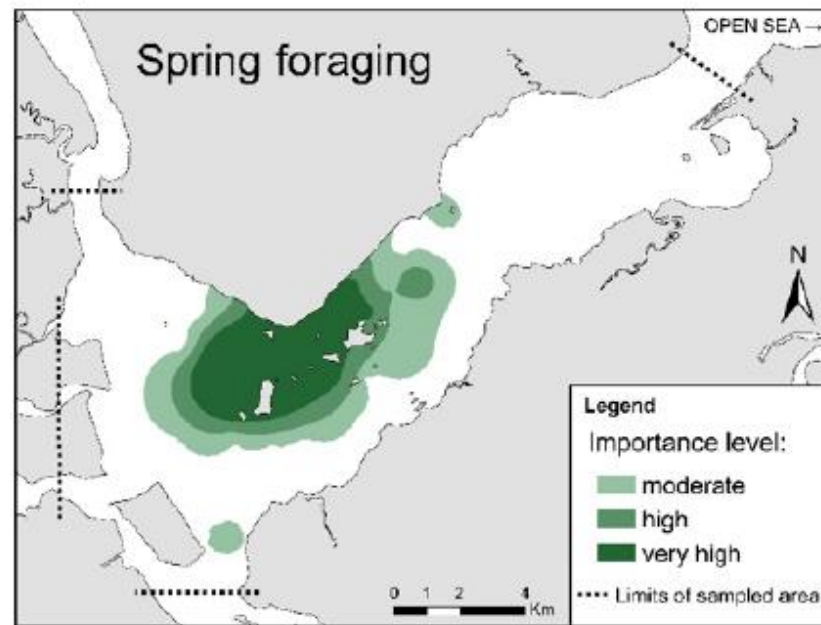
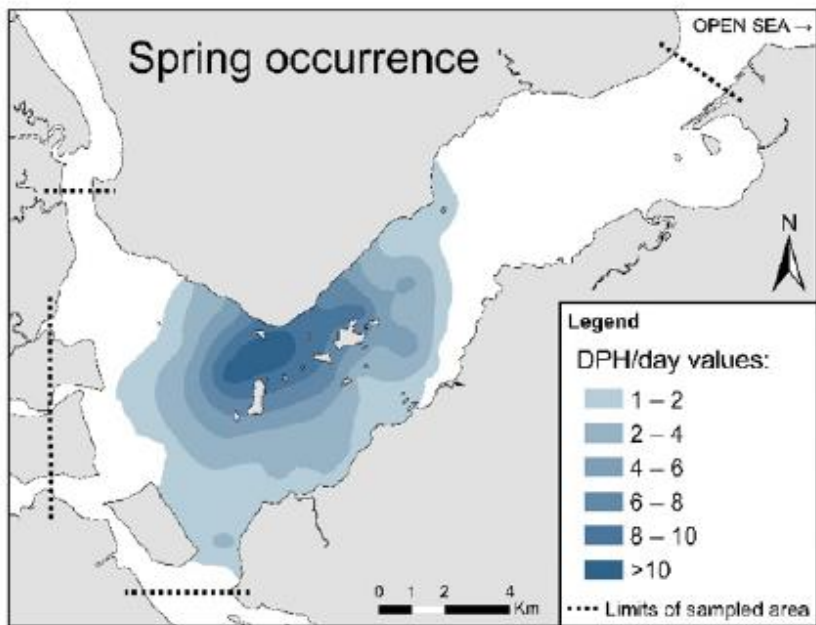
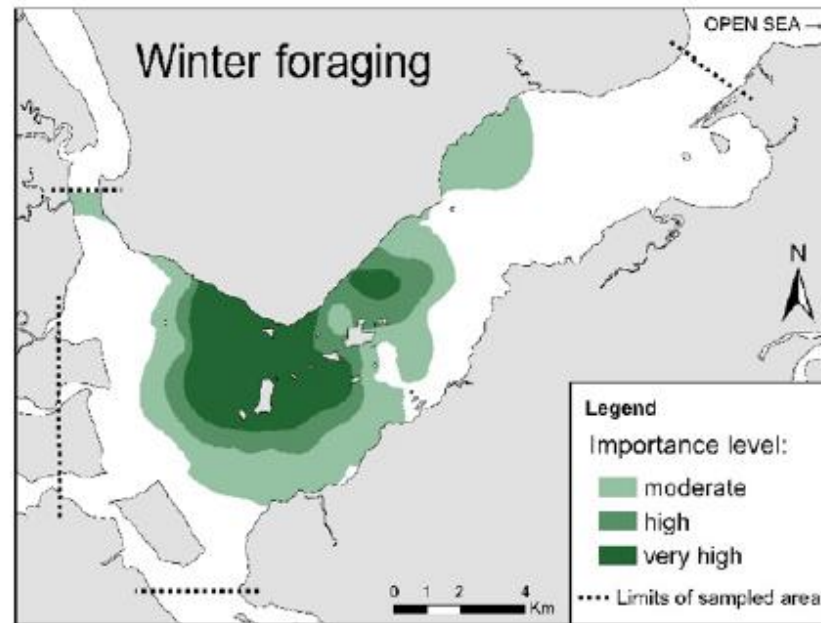
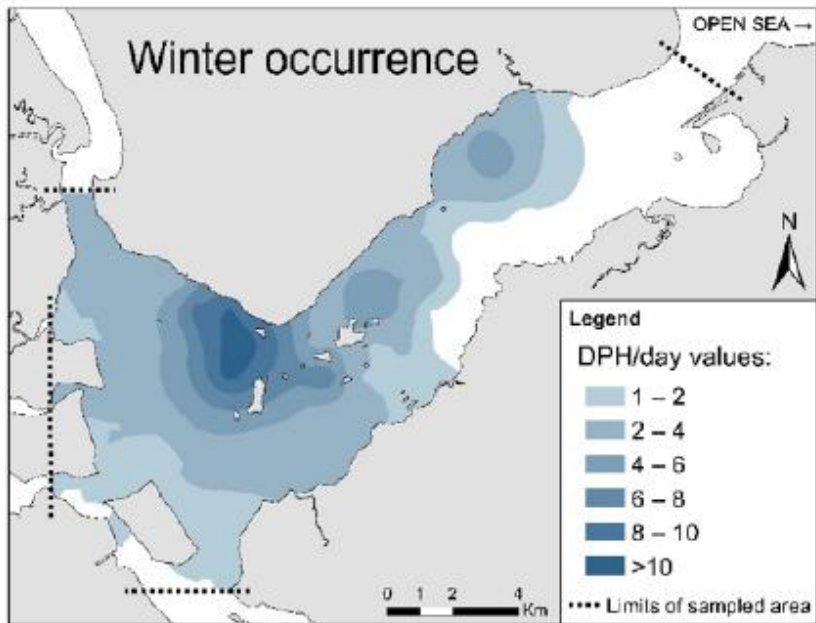
Under review at MEPS

Critically endangered franciscana dolphins in an estuarine area: fine-scale habitat use and distribution from acoustic monitoring in Babitonga Bay, southern Brazil



Renan L. Paitach^{1,2,*}, Guilherme A. Bortolotto³; Mats Amundin⁴ & Marta J. Cremer^{1,2}

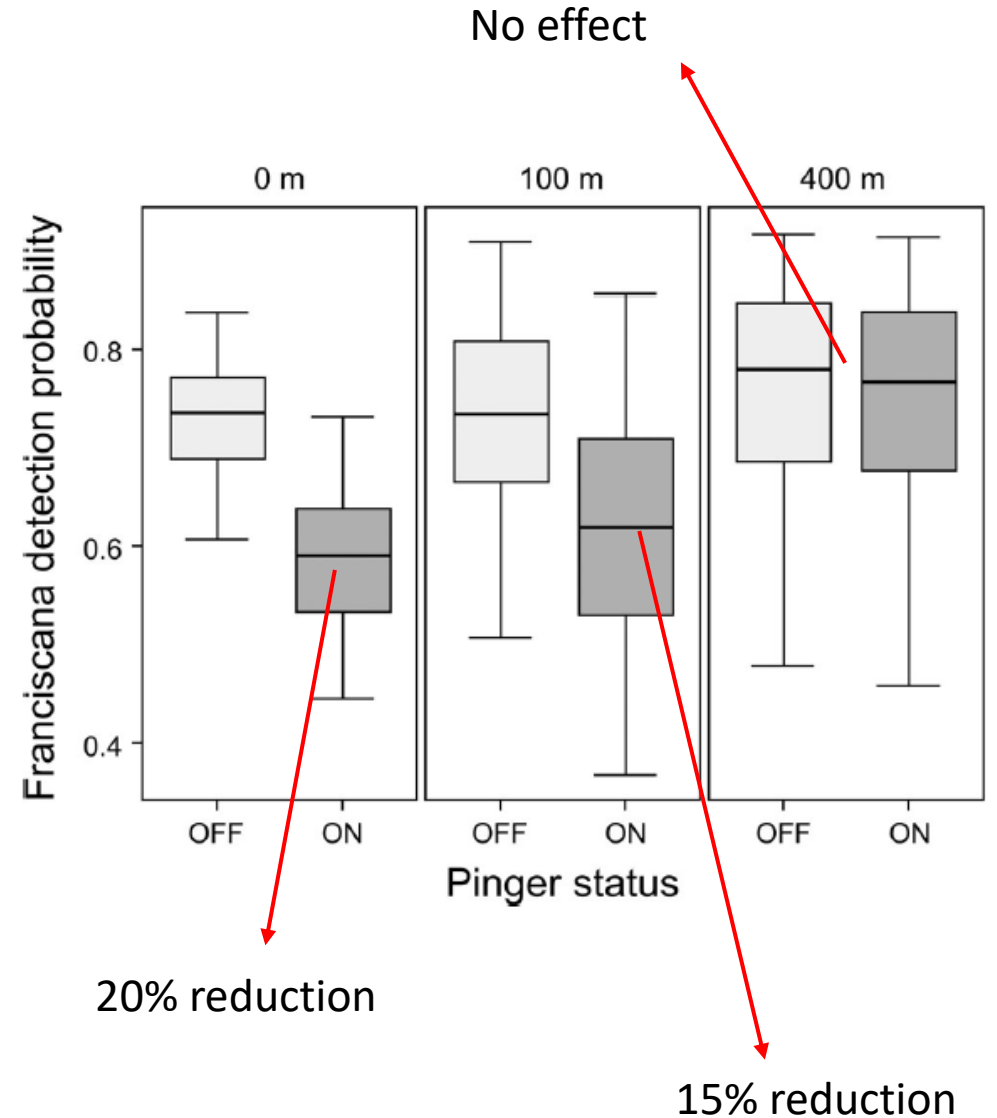
- 60 SAM stations were monitored alternately between June and December 2018





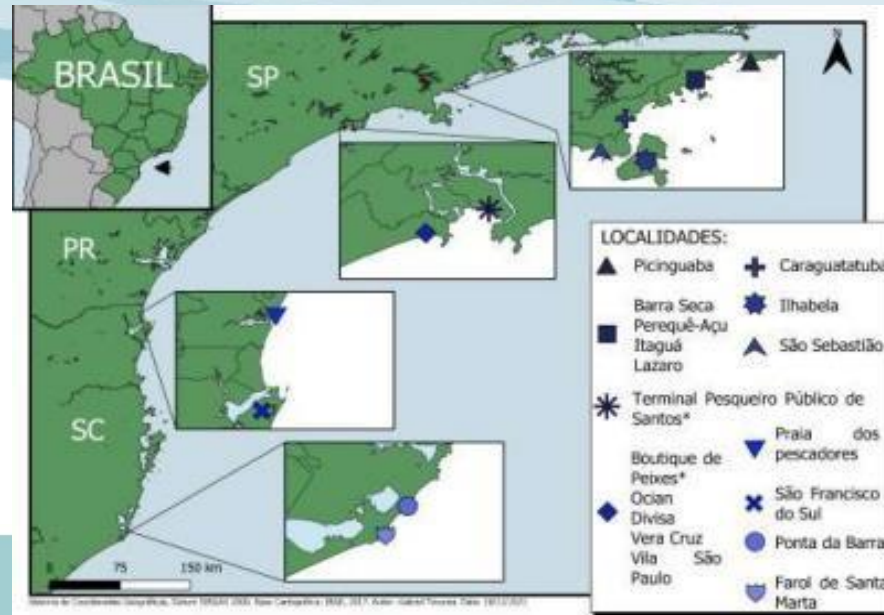
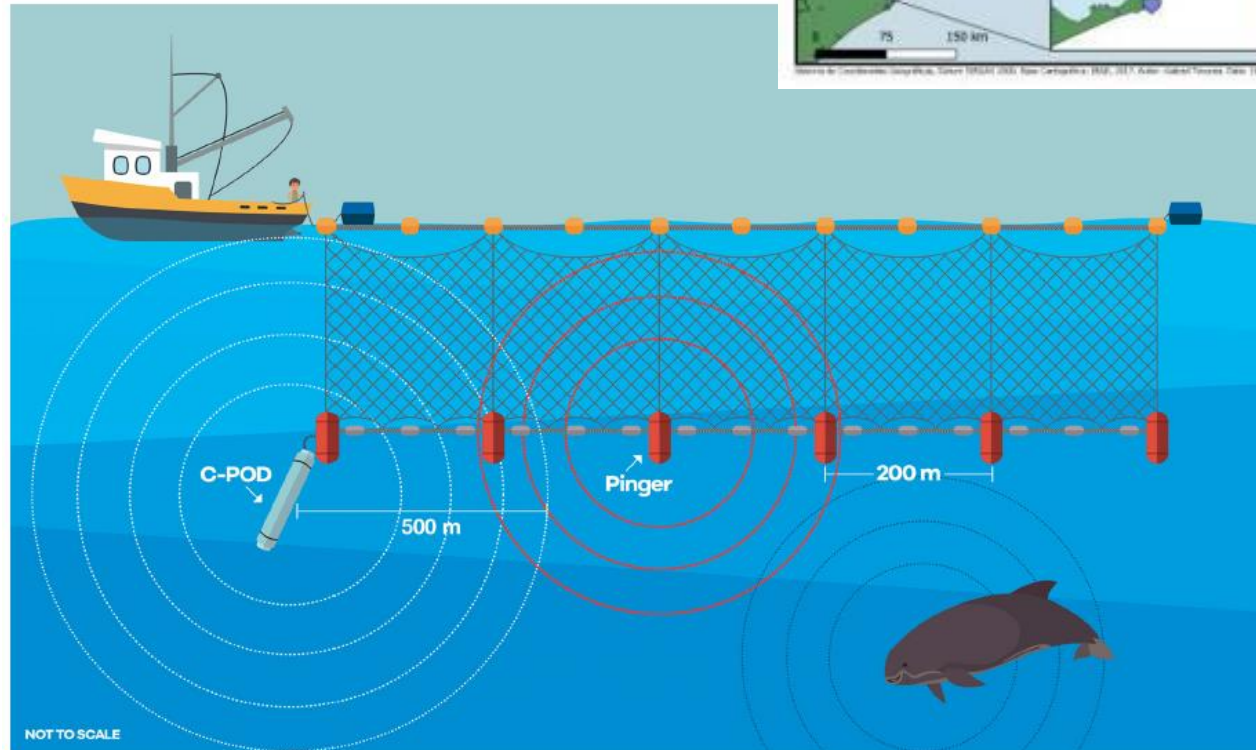
Assessing effectiveness and side effects of likely “seal safe” pinger sounds to ward off endangered franciscana dolphins (*Pontoporia blainvillei*)

Renan L. Paitach^{1,2}  | Mats Amundin³ | Sara Königson⁴  |
Marta J. Cremer^{1,2,5}



Next steps...

- Testing pingers in real situations



Credits: FishTek Marine

- Seven artisanal fishing communities

Credit: Clay et al 2019



Credits: Future Oceans

Next steps...

Towed Acoustic Monitoring

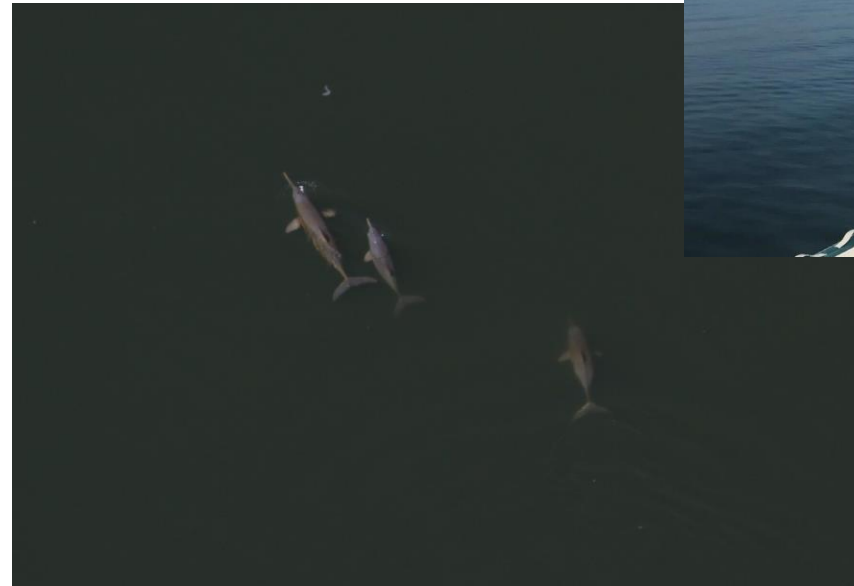
- Understanding the distribution and habitat use of franciscanas along the coast remains a challenge and is crucial for the development of management strategies
- Using towed acoustic monitoring may be a more viable alternative than current methods for conducting frequent, low-cost surveys.



Next steps...

Abundance estimates using PAM

- Distance Sampling method (Marques et al., 2009)
- Key information is required
 1. Detection probability of a franciscana as a function of its distance to the C-POD → acoustic + visual observation
 2. Individual click emission rate



Final considerations

- Passive acoustics has been shown to be very effective and promising for the ecological monitoring of franciscana, as have the use of pingers as a tool for bycatch mitigation.
- For elaboration of management strategies, a deeper knowledge of distribution and habitat use of franciscanas along the coast is necessary, and towed arrays can be an appropriate tool.
- Acoustic monitoring can also be an alternative for monitoring the density and abundance of franciscanas, but its application is still a challenge.



Thank you!



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PATROCÍNIO



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**Swedish Agency
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Water Management**

