

Sonar-stimulating Enrichment for Bottlenose Dolphins (*Tursiops truncatus*)

By: Sabine den Ouden

Supervisor: Mats Amundin

Master Thesis Project 2021-2022, Applied Ethology and Animal Biology

Background

The use of sonar is a crucial behaviour for dolphins, however this is not stimulated in pool environments in zoos. By introducing two enrichments designed to stimulate sonar activity in the dolphins, I expect to record more sonar activity and to see more sonar related behaviour, as well as some exploratory and hunting-like behaviours.

Materials and Methods

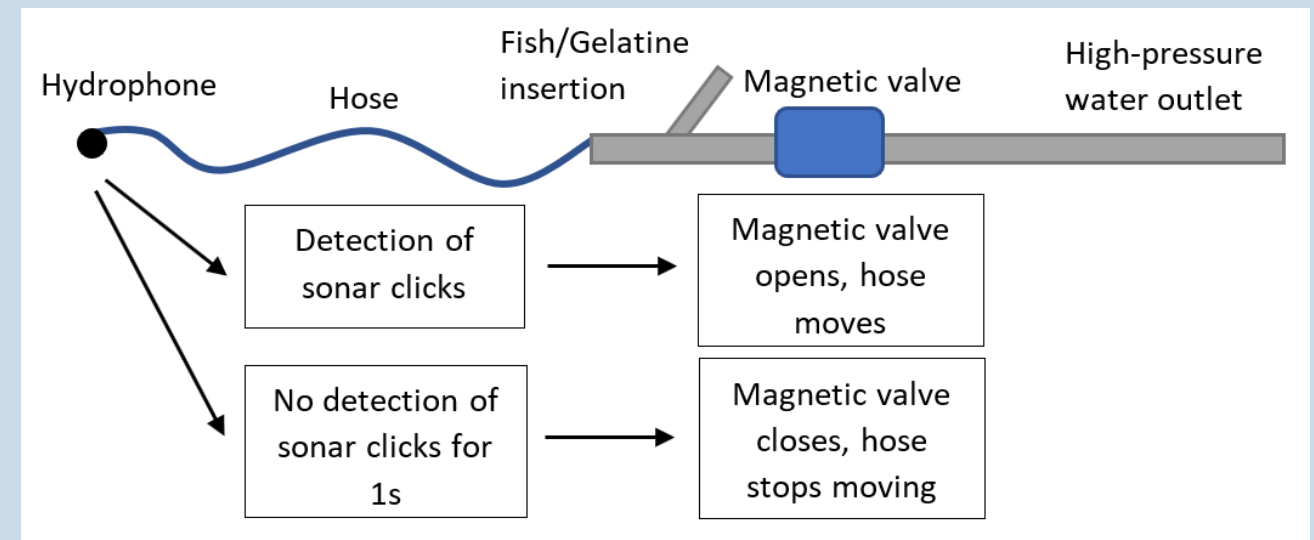
Meandering Hose

Inactive state of the hose:

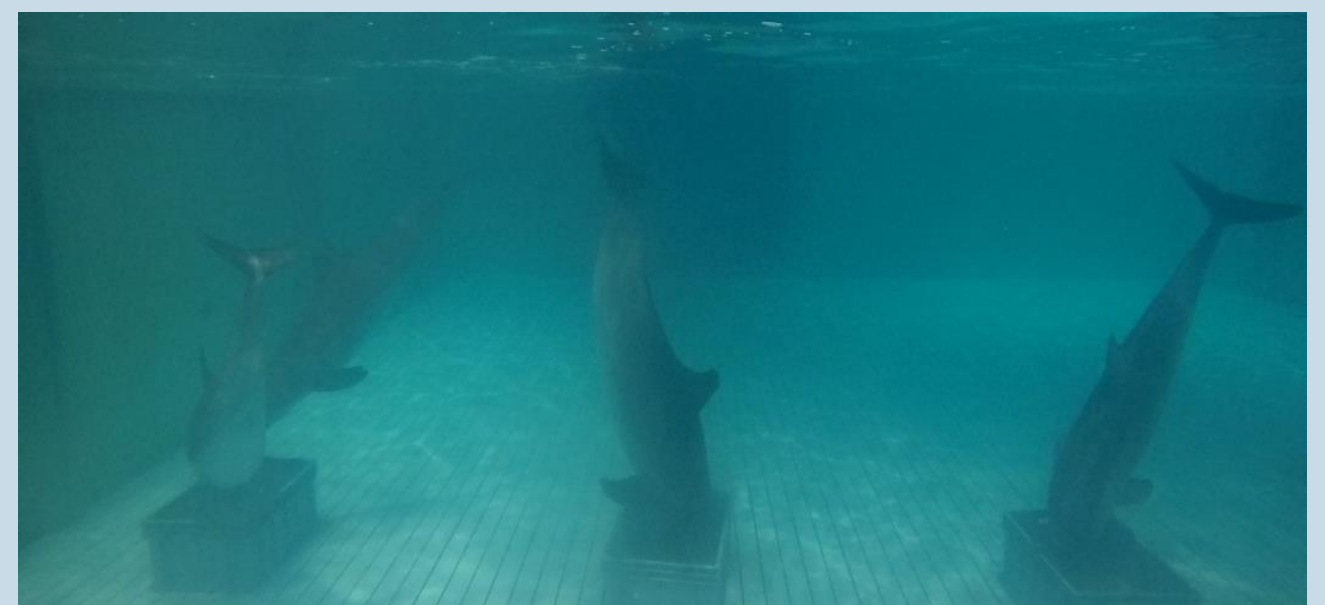
1. Off: Water outlet was manually switched off, hose did not move

Active states of the hose:

1. On: Hose functions as in the Figure to the right
2. Gelatine: On + Ejections of Gelatine strips
3. Fish: On + Ejections of Fish
4. Fish/Gelatine: On + Ejections of Fish and Gelatine strips



The functioning of the meandering hose when turned on.



Dolphins interacting with the Shell Sand Boxes

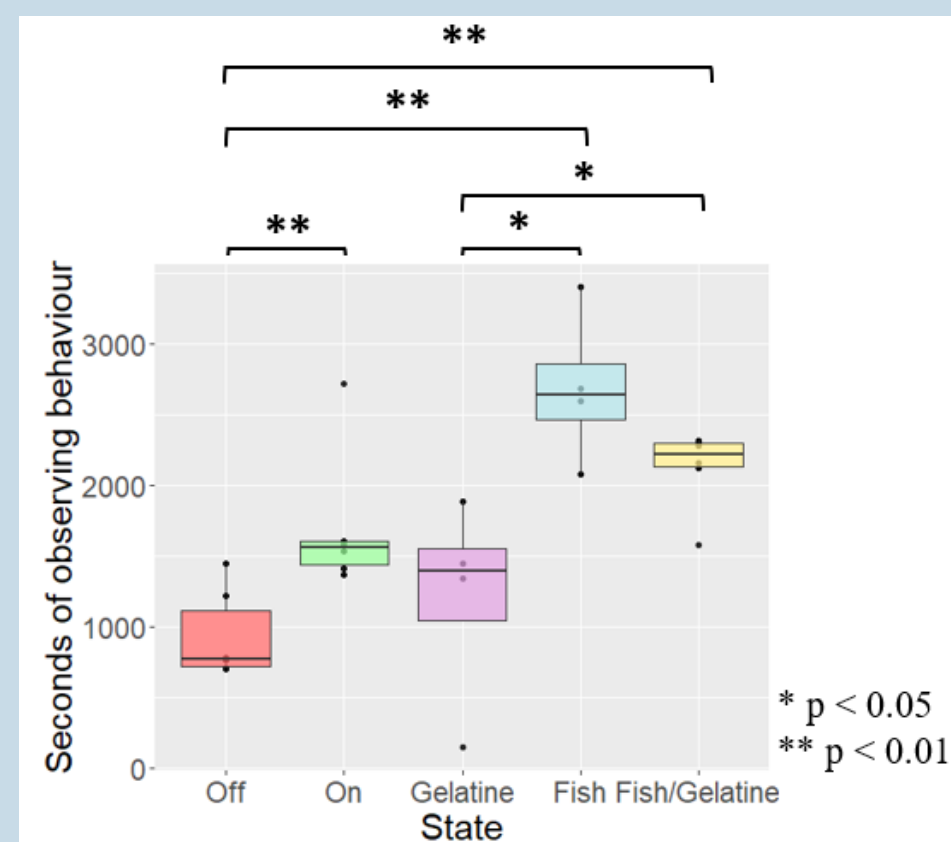
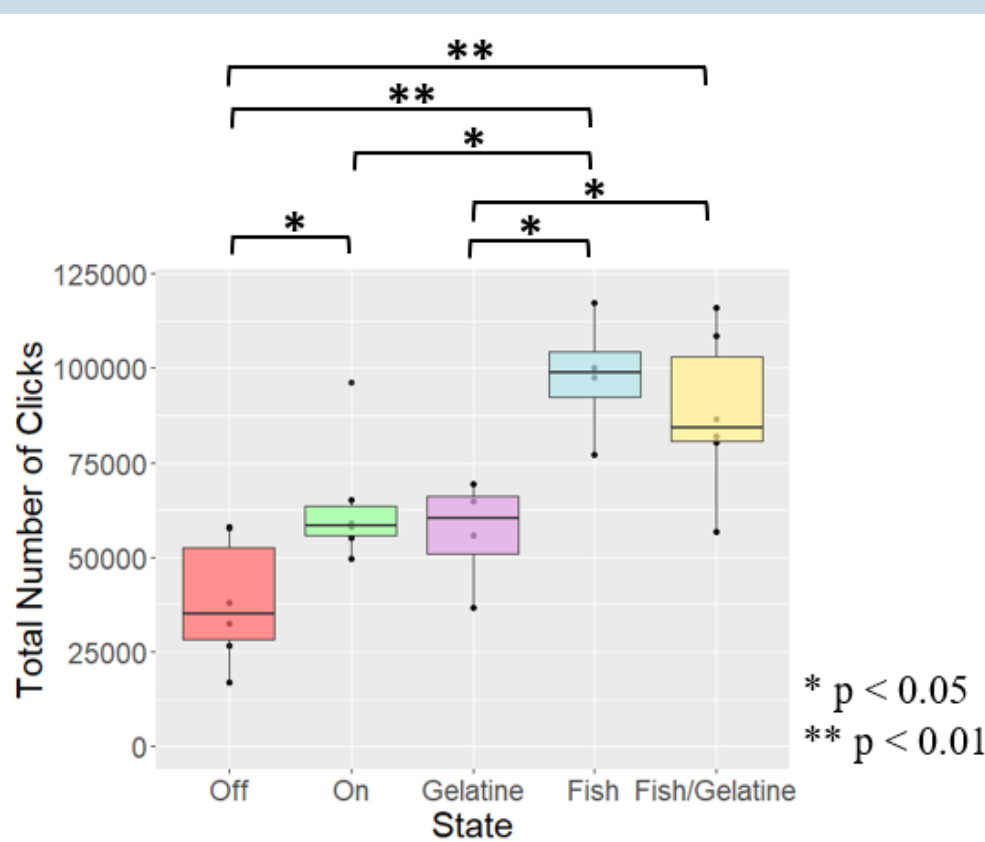
Shell Sand Boxes

Three plastic boxes filled with shell sand. One box had two sonar targets and fish buried in the sand.

Results

Meandering Hose

Number of sonar clicks for every session for the different states (left) and seconds spent observing the hose (right).



Shell Sand Boxes

Seconds spent observing inside the box. Blue cells indicate the box with the sonar targets in it.

Session number	Position		
	Left	Middle	Right
1	363	388	288
2	380	441	432
3	281	573	592
4	93	720	730
5	541	484	539
6	199	506	753
7	224	519	683
8	332	383	332

Conclusion

Increased sonar activity and exploratory behaviour with both enrichments show the potential of an increase in welfare by presenting these enrichments regularly to the dolphins.