Would live inaccessible fish be a good sonar enrichment for bottlenose dolphins (*Tursiops truncatus*) in human care?

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Background

In the wild echolocation is a very important mechanism as it allow dolphins to discriminate between different objects, navigate and catch prey. Dolphins in captivity however do not have good opportunities to use their echolocation as their pools are often quite barren, usually due to water quality and dolphin safety concerns.

Aim

To evaluate if live fish contained in soft plastic bags would be a good sonar enrichment for dolphins kept in human care.

Method

Three scenarios (control, float and fish; fig 1) were used to investigate whether dolphins would prefer live fish as sonar targets instead of air filled floats, which simulate the swim bladder of a fish. Empty bags were used as control. The scenarios were tested in a total of seven days each on 8 dolphins at Kolmården Wildlife Park. During the test the bags were fixed under a floating platform in the Laguna (fig 2) for 4 hours. A porpoise click logger (PCL), placed in the center of the setup, recorded all the clicks the dolphins directed towards the setup. A video camera was used to record all the behaviours the dolphins directed towards the setups.

Figure 1. The setup consisted of three soft plastic bags and a plastic tube containing the PCL in the middle. The blue and yellow object in the bags in the foreground are plastic, air-filled floats.

Figure 2 . A dolphin echolocating towards the control setup fixed under the floating platform.

Results

PCL data: In the PCL data some parameters such as; total no of clicks, total no of click trains, etc. significantly showed the fish setup to be the most interesting for the dolphins while other parameters such as; clicks/click train, ICI/click train, click length, significantly showed the float and the control setup to be more interesting.

Behavioural data: The behavioural data showed clearly that the dolphins investigated the fish setup significantly more than the float setup (fig 3). Further the duration spent echolocating/investigating the fish setup was significantly longer than in both in the control and the float scenarios.

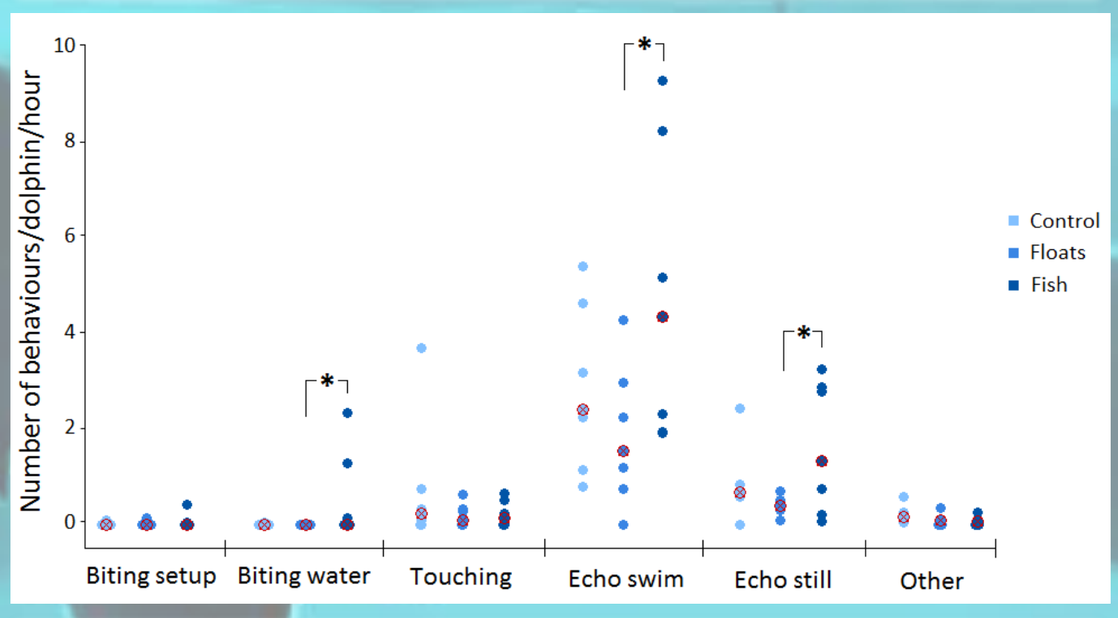

*Figure 3. The number of selected behaviours per dolphin and hour, based on the behavioural observations. Red circles mark the median value. *= p<0.05.*

Conclusion

There was some disparities between the results from the PCL data and the behaviour observations. However all in all the results indicate that live fish were noticeably more interesting for the dolphins. **Hence it is recommended to offering live fish as an echolocation enrichment for dolphins in human care.** However, for a permanent underwater live fish aquarium, the welfare aspect for the fish and dolphins must be taken into consideration.

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