

The Whistle caller concept

Signature whistles as call-over signals in Bottlenose dolphins (*Tursiops truncatus*) under human care

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Background

Dolphins use individually distinctive frequency modulated whistles, called signature whistles, in order to broadcast their identity.

Aim

The aim of this study was to prove what we call **the Whistle caller concept**, which is based on the fact that dolphins sometimes copy each others' signature whistles in order to address specific individuals and convene. Thus, theoretically, it should be easier for dolphins under human care to learn to be called over by playbacks of their own signature whistles compared to other biologically irrelevant "trivial" sounds.

Method

We trained three dolphins to be called over by playbacks of their own signature whistles and three dolphins to do the same by playbacks of biologically irrelevant "trivial" sounds (Fig. 1) We also tested how well they could discriminate between their assigned sounds and other signature whistles or "trivial" sounds.

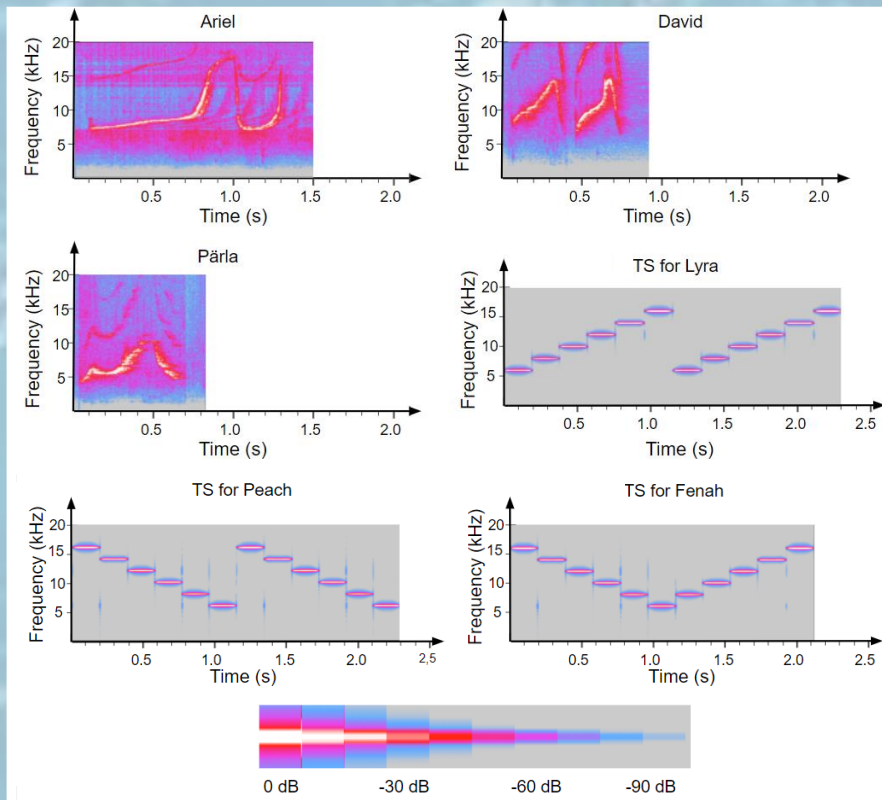


Figure 1. Signature whistles and computer generated "trivial" sounds (TS) used during the call-over training with the six bottlenose dolphins taking part in this study. Y-axis shows the sound frequency in kHz, and X-axis shows the duration of the sound in seconds. Colours represent the sound pressure level in dB.

Results

All dolphins trained to be called over by playbacks of their own signature whistle successfully learned their new call-over signal, whereas only two out of three dolphins trained with "trivial" sounds did. In the discrimination task, both inter- and intragroup significant differences were found (Fig. 2).

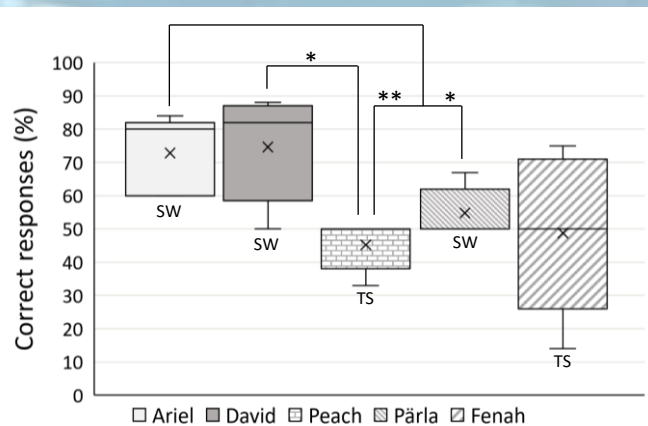


Figure 2. Proportion correct responses for each dolphin taking part in the five discrimination sessions. SW=call-over by their signature whistle, TS = call-over by a biologically irrelevant "trivial" sound. Whiskers show the highest and lowest percentage correct responses. "X" shows the mean values. * $P < 0.05$, ** $P < 0.001$.



Conclusion

Both signature whistles and "trivial" sounds can be successfully used as call-over signals for dolphins in human care; however, signature whistles seem to be easier for them to discriminate between.

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