

ECHOLOCATION BEHAVIOUR OF A HUNTING AMAZON RIVER DOLPHIN (*INIA GEOFFRENSIS*) IN CAPTIVITY

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The behaviour of a captive Amazon river dolphin (*Inia geoffrensis*) chasing and capturing live trout was investigated. Synchronised video and echolocation recordings, taken in a darkened pool, enabled the correlation of the pursuit with the echolocation behaviour.

Two successive stages could be distinguished in the echolocation behaviour: the 'Far Stage' and the 'Near Stage', the latter beginning when the dolphin gets closer than about 1 m to the fish. In the 'Far Stage', the echolocation clicks are characterised by high amplitudes and spectra with high peak frequencies. The click interval is rather variable with a mean at 26 ms. The peak frequency of 'straight on' signals (recorded directly ahead of the dolphin's rostrum) is about 103 (+/- 1) kHz and the -3 dB bandwidth is about 24 (+/- 10) kHz. The instantaneous frequency (inverse of a cycle period) of the first two cycles of a click waveform is about 93 (+/- 3) kHz. In the 'Near Stage' the dolphin decreases the signal amplitude while approaching its prey. Within this stage the click interval diminishes to a minimum of about 10 ms until the dolphin reaches the fish. With decreasing amplitude the 'straight on' signal structure changes in a transition phase from clicks with high frequency and low bandwidth to clicks with low frequency and low bandwidth. The change in the peak frequency is due to a gradual reduction of the high frequency part of the signal spectrum. During the transition the instantaneous frequency of the first two cycles of the waveform decreases with signal amplitude. After the transition the peak frequency of 'straight on' signals is about 50 (+/- 2) kHz and the -3 dB bandwidth is about 24 (+/- 21) kHz. The instantaneous frequency of the first two cycles is about 65 (+/- 6) kHz.

The reduction of the click interval and thus the increase of information flow could result in a better control of the final approach to the prey. The decrease of signal amplitude is interpreted as an intensity compensation to compensate the increase of echo sound pressure level during an approach.