

**ABSTRACT BOOK** 

## 27<sup>th</sup> CONFERENCE OF THE EUROPEAN CETACEAN SOCIETY

INTERDISCIPLINARY APPROACHES IN THE STUDY OF MARINE MAMMALS

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## Broadband acoustic/video recordings and localisations of dusky dolphins (*Lagenorhynchus obscurus*) and short-beaked common dolphins (*Delphinus delphis*) in New Zealand

Michiel Schotten<sup>1</sup>, Bernd Würsig<sup>2</sup>, Dara Orbach<sup>2</sup>, Ken Sexton<sup>3</sup>, Sarah Piwetz<sup>2</sup>

(1) Ocean Ecosystems, University of Groningen, P.O. Box 11103, 9700 CC Groningen, The Netherlands / Dolphin Recording Tools, P.O. Box 27, 1483 ZG De Rijp, The Netherland
(2) Department of Marine Biology, Texas A&M University at Galveston, 200 SeaWolf Pkwy., Bldg. 3029, Galveston, TX 77551, USA
(3) The Sexton Corporation, 2130 Davcor St. SE, Salem, OR 97302, USA

## mike schotten@hotmail.com

The 4-channel UDDAS (Underwater Dolphin Data Acquisition System) is a 4-hydrophone diveroperated video-acoustic recorder, developed to record the echolocation and communication behaviours of wild dolphins, localise the recorded sounds in 3-D using differences in time of arrival from distances up to approx. 15-30 m, assign acoustic recordings up to 240 kHz to individual dolphins visible on video, and thus correlate acoustic signal parameters to different dolphin behaviours. A new upgraded system with faster processing and data storage capabilities is currently available. Using the 4-channel UDDAS, acoustic and video recordings were obtained from dusky dolphins (Lagenorhynchus obscurus) in New Zealand, both during the austral summer (Kaikoura) and winter (Admiralty Bay), as well as from short-beaked common dolphins (Delphinus delphis) in the austral winter. Echolocation clicks recorded from both species extended in frequency to the upper recording limit of 240 kHz. Additionally, a large portion of the recorded clicks had no energy in the human audio range (i.e., no energy <20 kHz), but these were made audible by slowing them down 10 times. The calculated 3-D positions of recorded clicks corresponded to the positions and movements of different dolphins recorded on video, and were animated into the video as flashing dots on the dolphins' foreheads. In Admiralty Bay, one occasion of coordinated feeding by dusky dolphins was recorded, where dolphins encircled and aggregated fish into a tightly packed stationary bait ball near the water surface. Although complicated due to the quick movements of dolphins and consequential off-axis recordings, analysis of sounds and videos recorded during such encounters may shed light on how dolphins acoustically coordinate such complex cooperative feeding behaviour.