Tuning into dolphin chatter could boost conservation efforts

April 21 2020

Credit: Edith Cowan University

Tuning in to the signature 'whistles' of dolphins could prove a game-changer in being able to accurately track the movements of this much-loved protected species.

Researchers from Edith Cowan University (ECU) and Curtin University have moved an important step closer to using sound rather than sight to track individual dolphin activity.

Their study, which has potential implications for dolphin communities around the world, investigated whether there was a way to attribute unique whistles to individual bottlenose dolphins living in Western Australia's Swan River.

It is the first time researchers have attempted acoustic tracking dolphins in the Swan River, which is a complicated marine ecosystem due to its high volume of activity and noise.

ECU researcher Associate Professor Chandra Salgado Kent said the project could have significant implications for dolphin conservation.

"Our ultimate aim is to track the movements of individual dolphins through underwater acoustic recorders," Professor Salgado Kent said.

"Until now researchers around the world have relied on laborious and expensive visual surveys on boats to track individual dolphins.

"These surveys can only be conducted during the day and rely on photographing the unique nicks and notches in dorsal fins when they come to the surface.

"We aimed to design a new approach to monitor individual dolphin activity through matching unique sounds, known as signature whistles, to individual dolphins."

A challenging process

From April to September 2013 the researchers systemically monitored

an area within the eastern part of the Fremantle Inner Harbour where the Swan River narrows.

Acoustic recordings were made throughout all observation times with handheld hydrophones deployed over the side of the small craft jetty lowered to 1.5m depth.

More than 500 whistles were matched to dolphin photos over the period of the study.

Curtin University Professor Christine Erbe said the process presented some unique challenges.

"Dolphins are social creatures and very frequently seen in groups, which makes the process of matching the whistles to particular individuals very challenging," she said.

"Based on the presence and absence of dolphins when whistles were recorded, most whistle types were narrowed down to a range of possible dolphins that could have produced it.

"Our next goal will be to narrow this down to individuals."

More information: Christine Erbe et al. Matching Signature Whistles with Photo-Identification of Indo-Pacific Bottlenose Dolphins (Tursiops aduncus) in the Fremantle Inner Harbour, Western Australia, *Acoustics Australia* (2020). DOI: 10.1007/s40857-020-00178-2

Provided by Edith Cowan University