

Bottlenose dolphins use specific whistles as names

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Bottlenose dolphins in Africa use signature whistles to identify each other, say scientists investigating the animals communication.

The vast majority of research into how bottlenose [dolphins](#) communicate has been conducted in captivity or on animals who are restrained during the study. These have shown that each animal learns its own individually distinctive whistle, known as a signature whistle.

These signature whistles are exchanged by groups of dolphins when they meet at sea and are used to address each other - similar to how humans use names. But it was unclear whether African bottlenose dolphins use a similar communication system, until now.

A new study, published in *Plos One* has found that both species of

[bottlenose dolphin](#) found in south Africa and Namibia; the Indo-Pacific bottlenose dolphin (*Tursiops aduncus*) and the common bottlenose dolphin (*Tursiops truncatus*), use a communication system based on signature whistles.

'The population we study in Walvis Bay, Namibia is a small, isolated population of common bottlenose dolphins. Currently, there are only around 100 animals in the population. Walvis Bay, has lots of man-made pressures, including coastal construction, shipping and marine tourism. We are therefore concerned for their long-term welfare and capacity to cope with these stressors,' explains project leader, Dr Tess Gridley of the University of Pretoria and the Namibian Dolphin Project and Sea Search.

The research provides an important stepping stone for future studies into how the sounds are used, and whether human activity is affecting communication in the small dolphin population. Gridley fears that noise from the construction may block the dolphin's signals making it harder for them to communicate with each other.

'In the same way that the desert elephants or desert lions are small, locally adapted populations in Namibia's terrestrial environment, the common bottlenose dolphins found along Namibia's the coastline should be considered quite an important population and are locally threatened by coastal construction and marine tourism,' she says.

Bottlenose dolphins are an iconic marine species and one of the best studied dolphin species worldwide. But, research in Africa, especially on the larger truncatus form, is much more sparse.

Most dolphin species rely on a wide variety of sounds in their day to day lives. They use sound to find food and navigate, as well as communicate with each other. Bottlenose dolphins can learn new sounds and can

quickly mimic novel sounds that they hear.

Although fairly common among many bird species and humans, this ability, termed vocal production learning, makes them quite special amongst mammals.

Using a hydrophone – a microphone used for underwater recording – Gridley and colleagues collected over 79 hours of recordings of signature whistles, alongside identification photos of the dolphins who made them.

On analysing the data they found good evidence for signature whistle use.

'We found that the number of different signature whistles recorded increased when group sizes were larger and when calves were present - something you might expect if signature whistles are used to address each other and help maintain contact between animals, particularly between mothers and calves,' explains Gridley.

Walvis Bay, Namibia was chosen as a key research site because human activity is threatening the unique bottlenose dolphin community. There is lots of construction planned in Walvis Bay over the coming years, including a new port.

The catalogue of whistles produced as part of this study will help researchers to build a better understanding of how [human activity](#) is affecting the dolphins. Next, Gridley is also hoping to look into whether these individually distinctive calls can be used to monitor how the dolphins use their habitats.

Gridley began to collect data on signature whistles in southern Africa in 2009 as part of her PhD, but soon realised a more comprehensive study of the Walvis Bay dolphin population was needed. Two years later she

travelled back to Walvis Bay and Lüderitz - bays in Namibia where bottlenose dolphins are often seen - to continue her research with a masters student, Hannah Kriesell, who led this study.

More information: Kriesell HJ, Elwen SH, Nastasi A, Gridley T (2014) Identification and Characteristics of Signature Whistles in Wild Bottlenose Dolphins (*Tursiops truncatus*) from Namibia. *PLoS ONE* 9(9): e106317. [DOI: 10.1371/journal.pone.0106317](https://doi.org/10.1371/journal.pone.0106317)

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