Drones are making waves with a new way to whale watch

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Start

Changing the face of marine conservation research, specialised drone technology and processes are being used to observe and assess Southern Right Whales in a cost-effective, non-invasive manner that will help to protect this species and assess the impacts of a changing climate on sensitive marine ecosystem.

The Endangered Wildlife Trust (EWT) has partnered with the University of Pretoria's Mammal Research Institute (MRI) Whale Unit to enable critical research on the body conditions and behaviour patterns of Southern Right Whales (*Eubalaena australis*) using drone technology. The body condition and calving rates of these majestic animals are important factors when assessing the potential threat of global warming to the Southern Right Whale population. Their main food source is krill (a small shrimplike planktonic crustacean), and current research indicates that changes in ocean temperatures affect the abundance and location of these and other creatures, with far-reaching environmental consequences.

Dr Els Vemeulen, Research Manager of the MRI Whale Unit, said: "*Drone technology has revolutionized the way we conduct our research. Using drones, we can gather overhead images of right whales every year, allowing us to track the variation in their body condition over time in a very cost-effective manner, and collect additional photo-identification data, which allows us to assess the residency time of individual animals on the South African breeding ground. Also, an aerial view of these animals reveals more information on their behaviour than viewing them from a boat. It is truly a unique piece of technology that can be adjusted for various research projects, and we aim to apply it in much more of our research going forward."*

In this study, the Whale Unit uses photographs to assess the temporal change in the body condition of South Africa's Southern Right Whales. These images are a mixture of aerial photographs collected in South Africa in 1988 and 1989 using a helicopter and, more recently, photographs collected using a drone. Drone images from South Africa are also applied in a comparative study with images of Southern Right Whales captured in Australia and Argentina.

After data filtering, the selected images are used for photogrammetry purposes. Using a custom-written script, measurements of the total body length and width are made (in pixels) at 5% increments perpendicular to the body axis for each whale. Subsequently, using the altitude data from the drone, these measurements in pixels can be converted to true measurements in meters. Researchers can now calculate the Body Condition Index (BCI) using the established height-width ratio of a Southern Right Whale. A positive BCI means that an animal is in better condition than the average of the sample population and a negative BCI indicate that the animal is in poorer than average condition. Clear images of the head are also used to identify animals, enabling the long-term tracking of several individual whales.

Lourens Leeuwner of the EWT Drone project said: *"We are really excited to assist the Whale Unit with this important work by providing a licensed drone pilot, ensuring all work can be conducted in accordance with permit conditions. This research is a perfect example of why the EWT started the Drone project: to support conservation work across the country through affordable aerial solutions."*

The MRI Whale Unit will be presenting the findings of their research at the *2nd Drone users conference: Conservation & Agriculture,* co-hosted by the Western Cape Department of Agriculture, The EWT, and the United Nations Development Programme, which can be attended virtually or in person from Monday, 29 November 2021 to Wednesday, 1 December 2021 in Elsenburg, Stellenbosch, Western Cape. For more details, go to www.dronesatwork.co.za

You can support the MRI whale unit research by adopting a whale at www.adoptawhale.co.za

As a registered RPAS operator, the EWT is committed to the legal, safe, and responsible use of drones while promoting the use of this technology in the conservation sector. We have an RPAS management team, including a safety manager, quality manager, and flight operations manager.

End

About the Endangered Wildlife Trust

The Endangered Wildlife Trust (EWT) has worked tirelessly for nearly 50 years to save wildlife and habitats, with a vision to promote a healthy planet and an equitable world that values and sustains the diversity of all life. The EWT's team of field-based specialists is spread across southern and East Africa, where committed conservation action is needed the most. Working with our partners, including businesses and governments, the EWT is at the forefront of conducting applied research, supporting community conservation and livelihoods, training and building capacity, addressing human-wildlife conflict, monitoring threatened species, and establishing safe spaces for wildlife range expansion. A beacon of hope for Africa's wildlife, landscapes, and communities, the EWT is protecting forever, together. Find out more at www.ewt.org.za

EWT drone project Contact:

Lourens Leeuwner

Endangered Wildlife Trust

Email: lourensl@ewt.org.za

Cell: 072 775 5111

MRI Whale Unit Contact:

Dr Els Vermeulen

Mammal Research Institute Whale Unit

Department of Zoology and Entomology

University of Pretoria, South Africa

Email: els.vermeulen@up.ac.za

Cell: 060 9714301