

Drone success in expedition measuring Southern right whales

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15.0m mother and calf right whale photographed from the drone. Credit: S. Dawson, taken under permit from Department of Conservation

The University of Otago's RV Polaris II returned to Otago last week having completed an extraordinarily successful expedition to the subantarctic Auckland Islands. "Our focus was on documenting the status of the right whales which breed in Port Ross," says expedition leader Professor Steve Dawson.

In addition to photographic surveys of the [whales](#) from small boats, the expedition used a drone – a small four-rotor helicopter equipped with a high-resolution camera – to document the condition of individual whales.

"We fitted our drone with a tiny laser range finder to measure altitude with a high degree of precision. Because of this we can measure the size and shape of [right whales](#) photographed from above. This helps us understand the population at the Auckland Islands, and is crucial for figuring out why some right whale populations (such as ours) are recovering strongly, while others, such as the North Atlantic right whale, are not," says Professor Dawson.

The pictures were taken while the drone hovered 25-35m above the whales and the whales did not seem to react," says Professor Dawson. "I don't

think they knew the drone was there which means this technology provides a powerful non-invasive tool to assess the condition of individual whales.

Despite the Auckland Islands being famously windy, the expedition was blessed with light winds and calm seas. "In three weeks on site, we were able to fly our [drone](#) a total of 136 flights on 12 days – far more than we expected. We gained measurement quality images of over 100 different individuals – about a third of the whales present. That's a great sample, but we're most excited about getting measurement images of over 50 mothers and calves because these are the ones driving the population's recovery," he says.

The expedition was funded by the New Zealand Antarctic Research Institute (NZARI), which is committed to supporting cutting-edge research that contributes to better understanding of Antarctica and the Southern Ocean. NZARI Director Professor Gary Wilson comments, "This [expedition](#) is a great example of the kind of research NZARI supports – using new technology to learn more about how our southern ecosystems function and how we might use that to understand future changes."

Provided by University of Otago

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