

Buller's shearwaters- population estimates and conservation threats

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Knowing approximately how many individuals make up a population or even a whole species is important in understanding what conservation risk the species might be at. When we consider population numbers, it is also important to think about the trend of the population. Are numbers going up (population increasing) or down (population decreasing)? Population estimates can be challenging to make, because most animals don't make it easy to be counted. Researchers typically employ techniques that will help them make the most educated guess possible about how big a population is. Our research on Buller's shearwaters aims to create the first quantifiable population estimate for the species using techniques that can be repeated at regular intervals in the future to get an idea if the species is increasing in number or decreasing.

Buller's shearwaters are an endemic seabird to New Zealand (they have also been called the New Zealand shearwater). They are unique because they breed only on the Poor Knights Islands. For the past two years, we have been visiting the islands of the Poor Knights and collecting data on how many Buller's shearwaters are present, what their reproductive stage is like, and getting a picture on this species that we so far know very little about.

Thanks to funds from the Birds NZ Research Grant, we have been able to survey Buller's shearwaters on both Tawhiti Rahi Island and Aorangi Island (the main Poor Knights Islands) for the last two breeding seasons. While anecdotal evidence indicated that Buller's shearwaters are numerous (with some estimates being in the millions of individuals), our results show a much lower population number for Buller's shearwater (~200,000 breeding pairs). We set up a reproducible technique for randomly surveying the islands for the numbers of breeding Buller's shearwaters and their association with different environmental factors, such as: plant associations, altitude, aspect of the breeding site, and canopy cover. Some environmental variables significantly influence our ability to predict that Buller's shearwaters would breed in those areas. For example, the tree canopy cover and height was a significant variable in predicting if Buller's shearwaters would breed in parts of the islands.

Our research also looked at the breeding success of a subset of Buller's shearwaters. We are collecting information on the chick incubation period, how long it is, and how many days parents stay away from their nests when they forage. We are also able to identify the success that parents have in raising chicks and how many nests result in chicks fledging. The focus on Buller's shearwater reproduction is another important aspect of their future conservation. For example, knowing how long adults are away from their nests foraging at sea indicates how readily available their prey source is when they are on the open ocean. Because of this, Buller's shearwaters are exceptional indicators of the health of our ocean. We can use them as a proxy to better understand trends in the marine food web.

While we have many more questions to answer about Buller's shearwater and the health of our ocean, understanding this baseline information is a critical first step in marine conservation efforts.