Exploring plastic ingestion by Toanui on Ohinau

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Plastic production is increasing every year and many pieces of plastic end up polluting our environment. In the ocean alone, there is approximately 5.25 trillion pieces of macro and micro plastic pieces. Plastic is a horrendous issue affecting many marine ecosystems and their inhabitants. Some seabirds e.g. storm petrels and albatrosses ingest plastic resulting in hormonal imbalances, blockages and punctures. Others e.g. gannets and cormorants can become entangled in plastic which can lead to amputations and strangulations. Studies of plastic interactions with seabirds have occurred globally. However, few investigate the plastic problem in New Zealand seabirds. Considering New Zealand is a seabird hotspot having over ¼ of the world's seabird species, we urgently require more research regarding plastic in our seabirds.

Seabirds' unique ocean lifestyles mean they have enhanced sensory features. Some seabirds have acute senses of vision and olfaction such as the Procellariiformes (petrels and shearwaters), which they use to find their prey. Studies reveal that Procellariiformes can follow the chemical odors of their prey across the ocean to locate a foraging source, and some research suggests that plastics in the ocean emit similar chemical odors. Here, we explore whether the colour of plastic looks similar the colour of seabird prey, especially from the seabird's own visual perspective.

The Toanui/flesh-footed shearwater, *Ardenna carniepes,* is a native seabird which breeds across New Zealand's north island including the Bay of Plenty, the Cook Strait and the Hauraki Gulf. Recent research in Australia have displayed that many of the Toanui on Lord Howe Island are ingesting large numbers of plastic. This incident of plastic in Toanui is not restricted to Lord Howe Island. Recent work by Wildlife Management International Limited (WMIL) have found a many of the Toanui chicks regurgitating large pieces of plastic on Ohinau Island. Many of the plastic regurgitated by the Toanui range in different colours but maybe the Toanui is selecting for a certain colour which could resemble their prey items.

The aims of this research is to:

1. Identify the incidence of ingestion and main plastic types and colour preferences for Toanui
2. Explore if the plastic colour resembles the colour of the Toanui's prey items.

This type of research incorporating seabird sensory ecology, by researching plastic from the seabird's own visual perspective is a new and growing field. This new study will help contribute to their conservation by studying the plastic colour from the seabird's own visual perspective.

Image 1: Measuring the spectral reflectance plastic colours ingested by seabirds using a spectrophotometer. This will be modelled into a seabird's vision