

Birds New Zealand Research Fund 2016

Project title: Understanding how translocation efforts may impact the stress physiology and condition of semi-precocial seabird nestlings.

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Photo: Mottled petrel chicks on the move during translocation. Rachael Sagar.



Petrels are threatened with rapidly declining populations, predominately the result of human-driven factors. Translocations are increasingly recognised as a powerful conservation tool; by returning petrels to their former range whilst restoring lost land-sea ecological linkages and 'spreading the risk' for threatened species. The philopatric nature of petrels dictates that for a translocation effort to be

successful, it should occur before chicks have imprinted on their natal colony—typically just prior to fledging. Considerable research has been undertaken to improve the success of translocations, including modifying the artificial diet, the form of artificial housing, etc. However, very little is known about how the stress of translocation impacts on the birds during (pre-translocation monitoring, transport) and after (feeding regimes, handling, novel environment) the event, and whether this affects their ability to survive and establish viable new colonies.

Petrels are able to perceive and respond to stressors at a high level from hatching. Accordingly, chronic stress (presumed to be induced by translocation) in petrel chicks may result in energy divergence away from growth and condition, with potential negative flow-on effects through-out the bird's life, including poor condition and reduced reproductive success. Using mottled petrel as a model species, the main aim of this research is to study the cumulative impact of translocation and associated activities on chick physiology in order to determine the most stressful part of translocation and enable mitigation of these stresses in the future. Furthermore, we aim to examine how stress caused by translocation affects the dynamics exhibited by newly establishing petrel populations. This information will be particularly valuable to the management of avian species undergoing translocations, especially those that exhibit similar life history characteristics to petrels.