

Shifting the focus on New Zealand storm petrels

We aim to catch New Zealand storm-petrels (*Fregetta maoriana*) (NZSP) (Nationally Vulnerable NZTCS, Critically Endangered IUCN Red List) in the Far North and East Northland in late February-early March 2021. That is, in areas further north from the Hauraki Gulf where we had caught them before and a considerable distance from their only known breeding location on Te Hauturu-o-Toi/Little Barrier Island. NZSP have been recorded in these northern waters since 2005.

The NZSP is a seabird that was considered extinct until its rediscovery in 2003 (Stephenson et al 2008, Robertson et al 2011). Our work continues a research programme that led first to the discovery of their breeding on Te Hauturu-o-Toi/Little Barrier Island in 2013 (Rayner et al 2015), a catching programme on the island and towards development of an artificial colony (Ismar et al 2015) and determining a population estimate for the species (Rayner et al 2020). While the NZSP Project Team is maintaining and a monitoring programme on Hauturu for this species, the next critical stage in advising the conservation status and management of the species is investigating the likelihood of other populations in the wider region of the east coast of northern New Zealand .

We will be collecting blood and feather samples from NZSP caught at sea along the shelf edge between North Cape and Bay of Islands. We will also head to Hauturu either immediately before or after the at-sea catching to collect samples from NZSP captured there. These new samples will contribute to a genomic study that has already extracted DNA from samples previously supplied by the NZSP Project team. Our goal is to investigate for the presence of genetic structure in the wider NZSP population of northern New Zealand indicating the presence of other breeding populations. By catching NZSP in the Far North and Northland coast we are keen to move the genetics-based work along with some urgency. Dr. Lara Shepherd (Museum of New Zealand Te Papa Tongarewa) and Dr. Jamie Wood (Manaaki Whenua - Landcare Research) will work with Dr. Bruce Robertson (University of Otago) who has previously extracted DNA from samples collected 2012- 2014. Ancient DNA from several subfossil storm petrel specimens, purportedly NNZP, will also be included in the genetics work (Holdaway et al 2001).

We will be using a new net gun for catching birds at sea, a much-refined version of the early net guns used to capture storm petrels both here in New Zealand and overseas. DOC will be publishing a best practice manual on the use of the net guns for seabirds, currently a draft has been submitted to DOC for review.

Finding another breeding island will have major implications on the species' threat classification – i.e. the threat level would be reduced if one or more populations are discovered. It would also allow us to assess its overall threat level, and, through collaboration with DOC and tangata whenua, develop a conservation management plan for the species.

If results of the genomic study indicate the possibility of additional NZSP populations, then this expedition will serve as preliminary to a more extensive capture and tracking project, using methodology similar to that undertaken to find NZSP breeding on Hauturu in 2013 (Rayner et al 2015).

There is added research value for the Far North and Northland coast NZSP expedition through the following collaborations:

- Far Out Ocean Research Collective – continue our study of cetacean-seabird associations off north-eastern New Zealand with Jochen Zaeschmar (FNORC, and skipper of the charter vessel). While the function and extent of these interactions remain largely unstudied and may vary between the different taxa, a multi-species foraging relationship seems likely (Gaskin 2017).

- Auckland Museum - plankton sampling day and night, and night-lighting to capture passing plankton and fishes. Samples collected will be compared to any regurgitations collected from NZSP.

Chris Gaskin (Northern NZ Seabird Trust) and Dr. Matt Rayner (Auckland Museum) for the NZ Storm Petrel Working Group



Image by Edin Whitehead