

Final Report: Little shearwater research – Edin Whitehead

In November 2020, a two-week trip was undertaken to Lady Alice to perform GPS tracking of little shearwaters. Of the fifty-five burrows located in August, thirty-three had chicks present (60%). Of 14 with GPS devices deployed, 4 birds returned within the time we were on the island. One bird returned without the GPS, and tracks were obtained from three individuals (see Figure 1). The other 10 birds did not return before the end of our time on the island, however trail cameras on 3 burrows indicated that the birds returned without their GPS devices after our departure, and chicks fledged successfully from all these burrows. Physiological/Stable isotope samples were obtained from 9 adult birds (blood and feather samples), and feathers from 12 chicks.

Little shearwaters tend to arrive at their burrows in the early hours of the night (9-11pm) and then remain in the burrow with the chick until an hour before dawn. All tracks were of single-day foraging trips. Little shearwaters displayed the previously described provisioning pattern whereby one partner undertakes daily foraging trips while the other departs for at least 5 days on a long foraging trip. None of these long trips were captured in the tracking data, and will be the focus of future investigation.

Results from the tracking indicate a more inshore foraging behaviour than anticipated for little shearwaters. While undertaking daily foraging trips, all tracked birds remained within 70km of the coast. One bird repeatedly visited an area just south of Cape Brett and foraged approximately 6km offshore, while the other two foraged slightly more offshore north and northeast of the Poor Knights Islands. This behaviour correlated well with feather stable isotope samples from chicks, with lower carbon ($\delta^{13}C$) values indicating nearshore foraging compared to feathers grown by adults on migrations (which is pelagic into the central/eastern pacific). This data is in preparation for publication, awaiting the input of stable isotope data from blood samples. GPS tracking data has been cleaned and is undergoing behavioural state analysis to profile the daily activities from the three useable tracks.

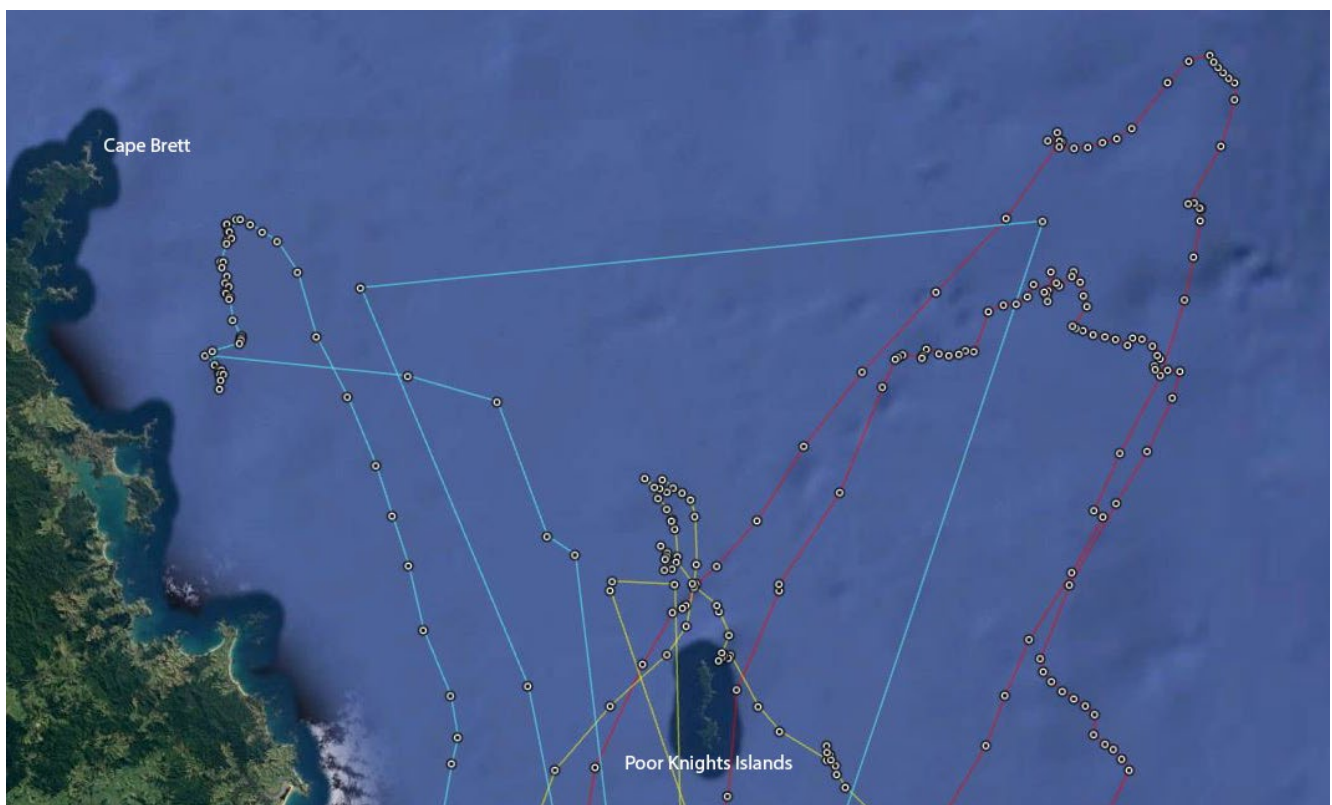


Figure 1: Detail from raw GPS tracking data highlighting areas used for foraging (dense points). Tracks are coloured by individual birds. Only complete tracks are being used for behavioural analysis. For full map see Figure 2.

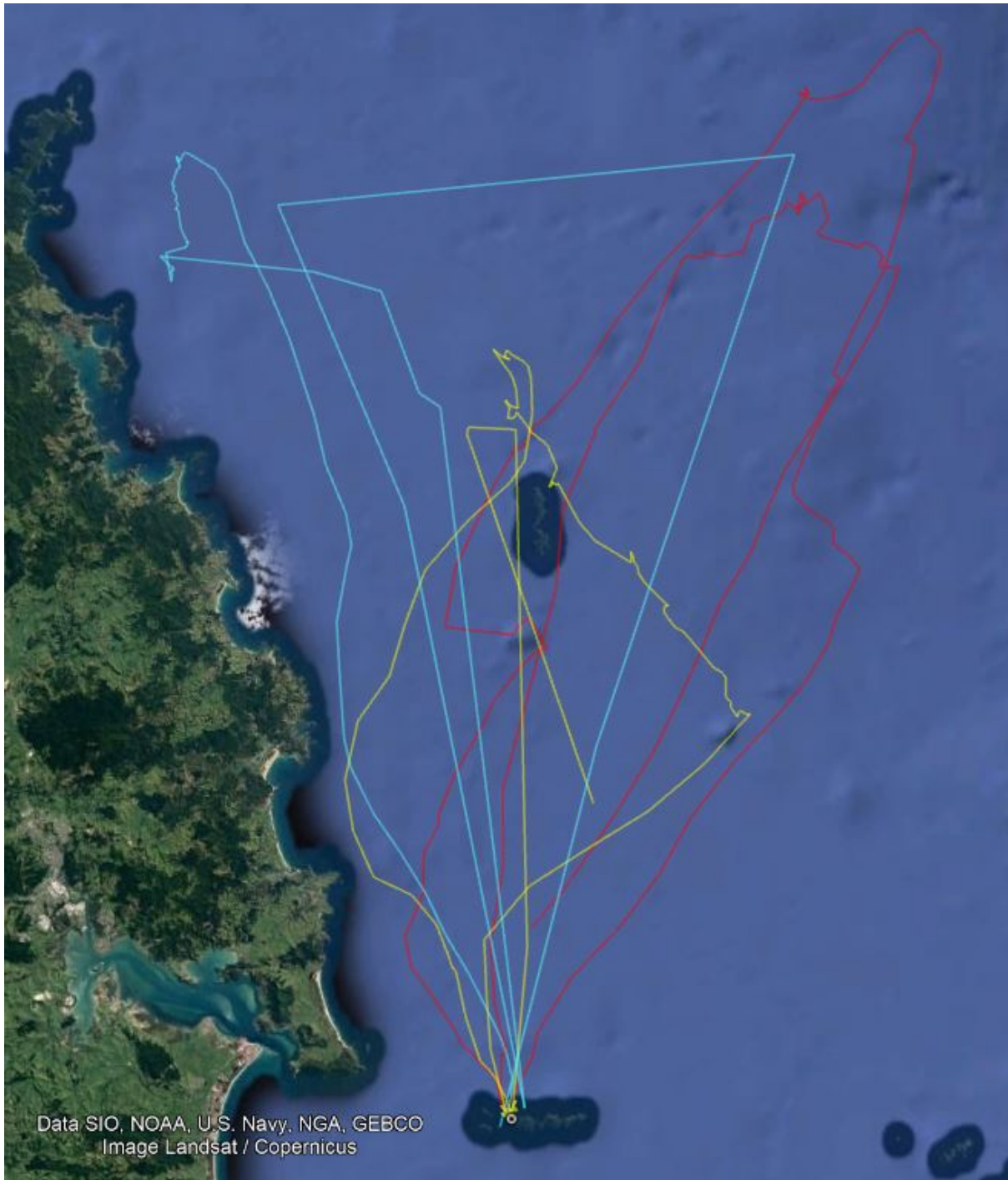


Figure 2: Full map of tracks, coloured by individual bird. Straight lines occur where battery failure prevented 10 minute intervals between GPS location fixes.