‘Honeymoon’ flights of the short-tailed shearwater.

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Abstract

Prior to egg-laying short-tailed shearwaters, *Puffinus tenuirostris* (STSW) embark on long foraging trips over sub-Antarctic waters to improve body condition that has deteriorated during trans-hemispheric migration. Using light-level geolocators, we tracked 14 adults from their arrival at the southern Tasmanian colony in October ultimately capturing the first pre-investment ‘honeymoon’ flight. Remarkably, birds travelled as far as 10,000km throughout the Southern Ocean, and unexpectedly the Indian Ocean.

Background

- Very little is known about the non-breeding flights of shearwaters.
- Previous information on STSW foraging areas has come from at-sea observations (Woehler, 2006) and limited GLS tracking data.
- Wedge Island STSW population is declining at 16% per annum (Vertigan, 2010).
- Mechanisms of the decline are unknown, although links have been made with sea surface height (SSH) (Vertigan, 2010).

Methods

- 17 MK-19 GLS tags were deployed in Oct 2010 on pre-breeding adult STSW from the Wedge Island colony (southern Tasmania).
- Tag and attachment weighed ~3.5g.
- 15 tags were retrieved Dec 2010 - Feb 2011.
- Specially designed burrow lights were used to indicate the return of an adult bird.
- GLS tracking data was filtered and dawn and dusk locations extracted.
- Trip characteristics of the first long foraging flight after deployment were analysed.
- SSH encountered by adults was analysed in conjunction with tracking data.
- Data was visualised using Eonfusion (Myriax, Tasmania).

Fig 1. Burrow lights used to detect burrow occupancy.

Fig 2. Mk-19 GLS tag and attachment on an adult shearwater.

Trip characteristics

Table 1. Pre-breeding foraging flight characteristics of 14 adult STSW.

Band	Current breeding status	Maximum distance (km)	Total distance (km)	Trip Duration (days)
162-76556	non-breeding	2950.12	6789.62	29.64
162-76547	non-breeding	1705.50	4745.85	25.63
162-76553	non-breeding	1109.31	2790.65	12.36
162-76530	non-breeding	1202.07	2688.71	6.74
162-76551	non-breeding	2723.13	8064.46	28.86
162-76555	**non-breeding**	**4346.71**	**10356.35**	**30.11**
162-76557	non-breeding	1342.79	3003.29	10.17
162-76552	non-breeding	1516.45	3549.26	19.02
162-76545	failed egg	2629.03	5581.16	20.11
162-76528	failed egg	989.35	2164.55	7.00
162-76549	failed egg	2703.72	6676.04	23.86
162-76524	failed egg	2736.91	6332.18	18.16
162-76535	failed chick	2998.73	6298.69	18.80
162-76525	chick	3421.75	10131.08	30.04

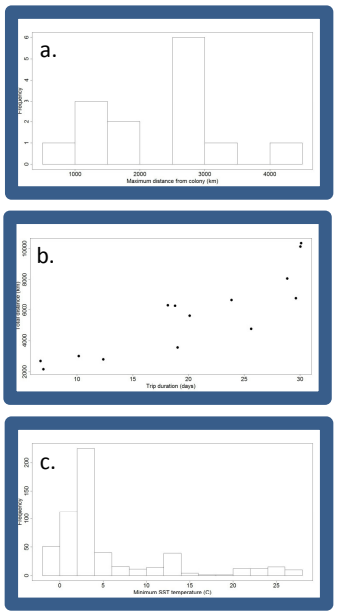


Fig 3. a) Maximum distance travelled from the Wedge Island colony. b) Foraging trip duration vs. Total trip distance. c) Southern foraging areas are indicated by a positively skewed distribution of minimum sea surface temperature.

Foraging flights

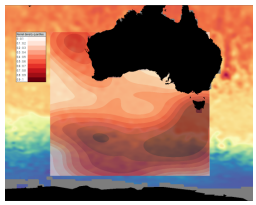
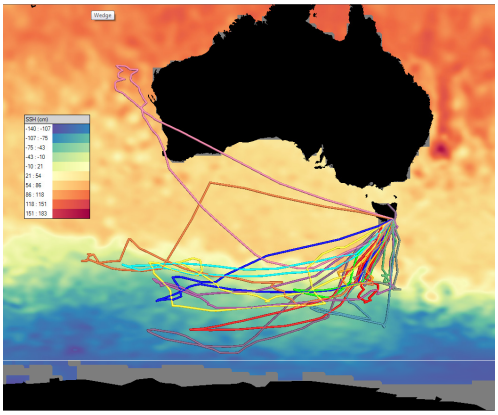


Fig 4. High use open ocean areas for adult STSW during their pre-breeding ‘honeymoon’ flights (dev. from SSH).

Fig 5. Individual STSW pre-breeding migrations from the Wedge Island colony.



Summary

- STSW make large scale pre-breeding migrations of up to 10,000km through highly variable oceanic regions.
- Obvious preferential polar frontal foraging areas.
- Individual variability in marine predator foraging is evident.

Acknowledgements

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