

The following supplement accompanies the article

Sexual segregation in habitat use is smaller than expected in a highly dimorphic marine predator, the southern sea lion

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Detailed description of Zoletil doses for southern sea lions

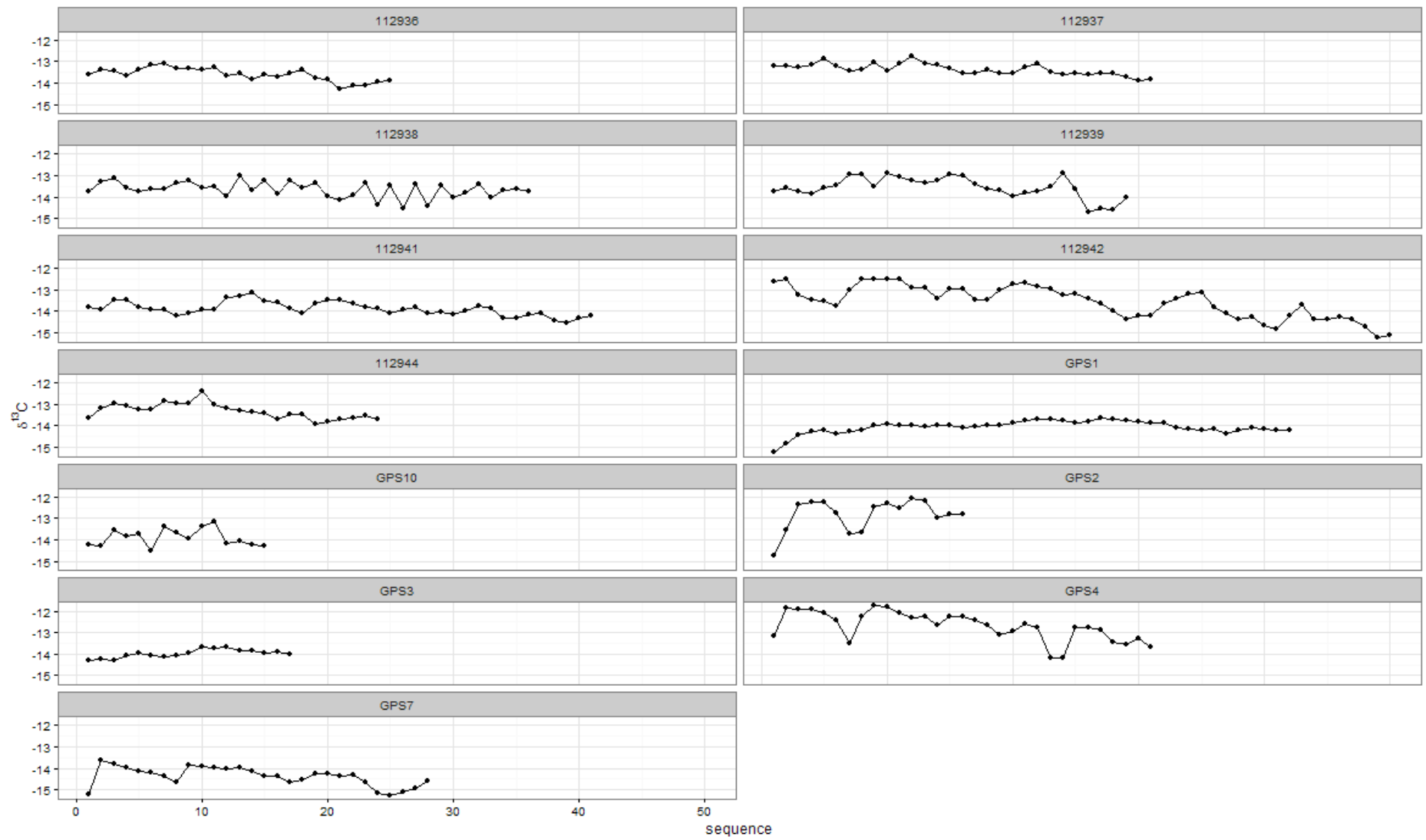
The dose of Zoletil delivered to adult female southern sea lions (*Otaria flavescens*) (~ 3.0 mg·kg⁻¹) was intended to induce anaesthesia. In some cases, adult female southern sea lions were masked and (subsequent to darting) anaesthesia induced using isoflurane delivered via a portable gas anaesthetic machine (VOC Rota Flush, Medical Developments International, Australia). In all adult female captures, anaesthesia was maintained using isoflurane. In contrast, the dose of Zoletil delivered to adult male southern sea lions (~ 1.5 mg·kg⁻¹) was intended to immobilize males (males remained awake during the deployment of biologging tags). It was necessary to use a comparatively heavier dose for female southern sea lions, because Zoletil was unpredictable and largely ineffective at lighter doses (Baylis et al. 2015). In contrast, adult males responded predictably to Zoletil. Hence, we could predictably induce sufficient immobilization to enable safe capture and restraint, without anaesthesia. Given adult males were large (estimated mass 320 kg), and still displayed a degree of territorial aggression in February, a lighter dose was considered to be favourable because it reduced the risk of potential complications associated with anaesthesia and promoted a rapid recovery.

Table S1: We deployed 20 biologging tags on southern sea lions (*Otaria flavescens*) in February 2014. Ten Platform Terminal Transmitter (PTT) tags of ARGOS location quality were deployed on adult male southern sea lions. Ten Global Positioning System (GPS) tags were deployed on adult female southern sea lions. Two tags (one PTT tag and one GPS tag) failed, leaving location data for nine adult male southern sea lions and nine adult female southern sea lions. All tags were deployed at Big Shag Island.

| ID | Sex | Travel distance (km) | Max distance (km) | Duration (h) | Trip | Foraging trip start time | Foraging trip end time | Inter-trip duration (d) | Start Big Shag | End Big Shag |
|--------|-----|----------------------|-------------------|--------------|------|--------------------------|------------------------|-------------------------|----------------|--------------|
| 112937 | M | 205 | 95 | 59 | 1 | 23/02/2014 | 26/02/2014 | | TRUE | TRUE |
| 112937 | M | 182 | 81 | 47 | 2 | 2/03/2014 | 4/03/2014 | 4.2 | TRUE | TRUE |
| 112937 | M | 131 | 63 | 46 | 3 | 6/03/2014 | 8/03/2014 | 2.1 | TRUE | TRUE |
| 112937 | M | 256 | 103 | 68 | 4 | 11/03/2014 | 13/03/2014 | 2.7 | TRUE | TRUE |
| 112938 | M | 238 | 90 | 74 | 1 | 28/02/2014 | 3/03/2014 | | TRUE | FALSE |
| 112938 | M | 239 | 60 | 77 | 2 | 5/03/2014 | 8/03/2014 | 1.7 | FALSE | FALSE |
| 112938 | M | 211 | 64 | 52 | 3 | 11/03/2014 | 13/03/2014 | 2.8 | FALSE | FALSE |
| 112939 | M | 231 | 75 | 73 | 1 | 21/02/2014 | 24/02/2014 | | TRUE | TRUE |
| 112939 | M | 24 | 14 | 5 | 2 | 28/02/2014 | 28/02/2014 | 3.9 | TRUE | FALSE |
| 112939 | M | 237 | 74 | 67 | 3 | 2/03/2014 | 5/03/2014 | 1.6 | FALSE | FALSE |
| 112939 | M | 150 | 53 | 44 | 4 | 7/03/2014 | 9/03/2014 | 2.3 | FALSE | FALSE |
| 112939 | M | 280 | 83 | 88 | 5 | 10/03/2014 | 14/03/2014 | 1.1 | FALSE | FALSE |
| 112939 | M | 272 | 57 | 112 | 6 | 16/03/2014 | 21/03/2014 | 2.5 | FALSE | FALSE |
| 112940 | M | 433 | 131 | 105 | 1 | 4/03/2014 | 8/03/2014 | | TRUE | FALSE |
| 112940 | M | 324 | 105 | 97 | 2 | 11/03/2014 | 15/03/2014 | 2.5 | FALSE | FALSE |
| 112940 | M | 341 | 93 | 112 | 3 | 18/03/2014 | 23/03/2014 | 3.1 | FALSE | FALSE |
| 112941 | M | 267 | 93 | 91 | 1 | 24/02/2014 | 28/02/2014 | | TRUE | FALSE |
| 112941 | M | 119 | 49 | 45 | 2 | 1/03/2014 | 3/03/2014 | 1.2 | FALSE | FALSE |
| 112941 | M | 205 | 52 | 67 | 3 | 4/03/2014 | 7/03/2014 | 1.2 | FALSE | TRUE |
| 112941 | M | 239 | 90 | 69 | 4 | 11/03/2014 | 14/03/2014 | 4.1 | TRUE | TRUE |
| 112942 | M | 47 | 18 | 39 | 1 | 26/02/2014 | 28/02/2014 | | TRUE | TRUE |
| 112942 | M | 150 | 36 | 66 | 2 | 2/03/2014 | 5/03/2014 | 2.3 | TRUE | TRUE |
| 112942 | M | 191 | 57 | 63 | 3 | 8/03/2014 | 11/03/2014 | 3.3 | TRUE | TRUE |

| ID | Sex | Travel distance (km) | Max distance (km) | Duration (h) | Trip | Foraging trip start time | Foraging trip end time | Inter-trip duration (d) | Start Big Shag | End Big Shag |
|--------|-----|----------------------|-------------------|--------------|------|--------------------------|------------------------|-------------------------|----------------|--------------|
| 112942 | M | 53 | 23 | 17 | 4 | 11/03/2014 | 12/03/2014 | 0.3 | TRUE | TRUE |
| 112942 | M | 45 | 22 | 15 | 5 | 15/03/2014 | 16/03/2014 | 3.3 | TRUE | TRUE |
| 112942 | M | 49 | 19 | 36 | 6 | 19/03/2014 | 20/03/2014 | 3.5 | TRUE | TRUE |
| 112942 | M | 34 | 19 | 10 | 7 | 22/03/2014 | 23/03/2014 | 1.6 | TRUE | TRUE |
| 112942 | M | 97 | 38 | 35 | 8 | 23/03/2014 | 24/03/2014 | 0.4 | TRUE | TRUE |
| 112942 | M | 109 | 39 | 37 | 9 | 26/03/2014 | 28/03/2014 | 1.5 | TRUE | TRUE |
| 112942 | M | 95 | 28 | 37 | 10 | 29/03/2014 | 31/03/2014 | 1.4 | TRUE | TRUE |
| 112943 | M | 243 | 97 | 72 | 1 | 23/02/2014 | 26/02/2014 | | TRUE | FALSE |
| 112943 | M | 242 | 74 | 65 | 2 | 28/02/2014 | 3/03/2014 | 2.2 | FALSE | FALSE |
| 112943 | M | 275 | 75 | 76 | 3 | 5/03/2014 | 8/03/2014 | 2.2 | FALSE | FALSE |
| 112943 | M | 256 | 69 | 70 | 4 | 10/03/2014 | 13/03/2014 | 2.0 | FALSE | FALSE |
| 112944 | M | 206 | 69 | 65 | 1 | 21/02/2014 | 23/02/2014 | | TRUE | FALSE |
| 112944 | M | 371 | 90 | 107 | 2 | 26/02/2014 | 2/03/2014 | 2.2 | FALSE | TRUE |
| 112945 | M | 279 | 87 | 71 | 1 | 23/02/2014 | 26/02/2014 | | TRUE | FALSE |
| 112945 | M | 270 | 62 | 62 | 2 | 28/02/2014 | 4/03/2014 | 2.1 | FALSE | TRUE |
| 112945 | M | 304 | 88 | 83 | 3 | 7/03/2014 | 11/03/2014 | 3.2 | TRUE | FALSE |
| gps1 | F | 224 | 102 | 64 | 1 | 14/02/2014 | 17/02/2014 | | TRUE | TRUE |
| gps1 | F | 228 | 106 | 74 | 2 | 20/02/2014 | 23/02/2014 | 3.2 | TRUE | TRUE |
| gps2 | F | 44 | 15 | 32 | 3 | 17/02/2014 | 18/02/2014 | | TRUE | TRUE |
| gps2 | F | 106 | 22 | 81 | 4 | 19/02/2014 | 22/02/2014 | 1.6 | TRUE | TRUE |
| gps3 | F | 209 | 85 | 58 | 5 | 16/02/2014 | 19/02/2014 | | TRUE | TRUE |
| gps3 | F | 286 | 128 | 75 | 6 | 21/02/2014 | 24/02/2014 | 2.1 | TRUE | TRUE |
| gps4 | F | 30 | 11 | 10 | 7 | 13/02/2014 | 14/02/2014 | | TRUE | TRUE |
| gps4 | F | 4 | 2 | 3 | 8 | 15/02/2014 | 16/02/2014 | 1.6 | TRUE | TRUE |
| gps4 | F | 29 | 14 | 20 | 9 | 16/02/2014 | 17/02/2014 | 0.7 | TRUE | TRUE |
| gps4 | F | 20 | 12 | 8 | 10 | 18/02/2014 | 18/02/2014 | 0.7 | TRUE | TRUE |
| gps4 | F | 24 | 14 | 11 | 11 | 19/02/2014 | 19/02/2014 | 0.3 | TRUE | TRUE |
| gps6 | F | 202 | 87 | 50 | 12 | 19/02/2014 | 21/02/2014 | | TRUE | TRUE |

| ID | Sex | Travel distance (km) | Max distance (km) | Duration (h) | Trip | Foraging trip start time | Foraging trip end time | Inter-trip duration (d) | Start Big Shag | End Big Shag |
|-----------|------------|-----------------------------|--------------------------|---------------------|-------------|---------------------------------|-------------------------------|--------------------------------|-----------------------|---------------------|
| gps7 | F | 196 | 94 | 52 | 13 | 18/02/2014 | 20/02/2014 | | TRUE | TRUE |
| gps7 | F | 164 | 73 | 56 | 14 | 22/02/2014 | 25/02/2014 | 2.4 | TRUE | TRUE |
| gps8 | F | 381 | 115 | 101 | 15 | 20/02/2014 | 24/02/2014 | | TRUE | TRUE |
| gps9 | F | 303 | 111 | 104 | 16 | 21/02/2014 | 25/02/2014 | | TRUE | TRUE |
| gps10 | F | 262 | 100 | 70 | 17 | 21/02/2014 | 24/02/2014 | | TRUE | TRUE |



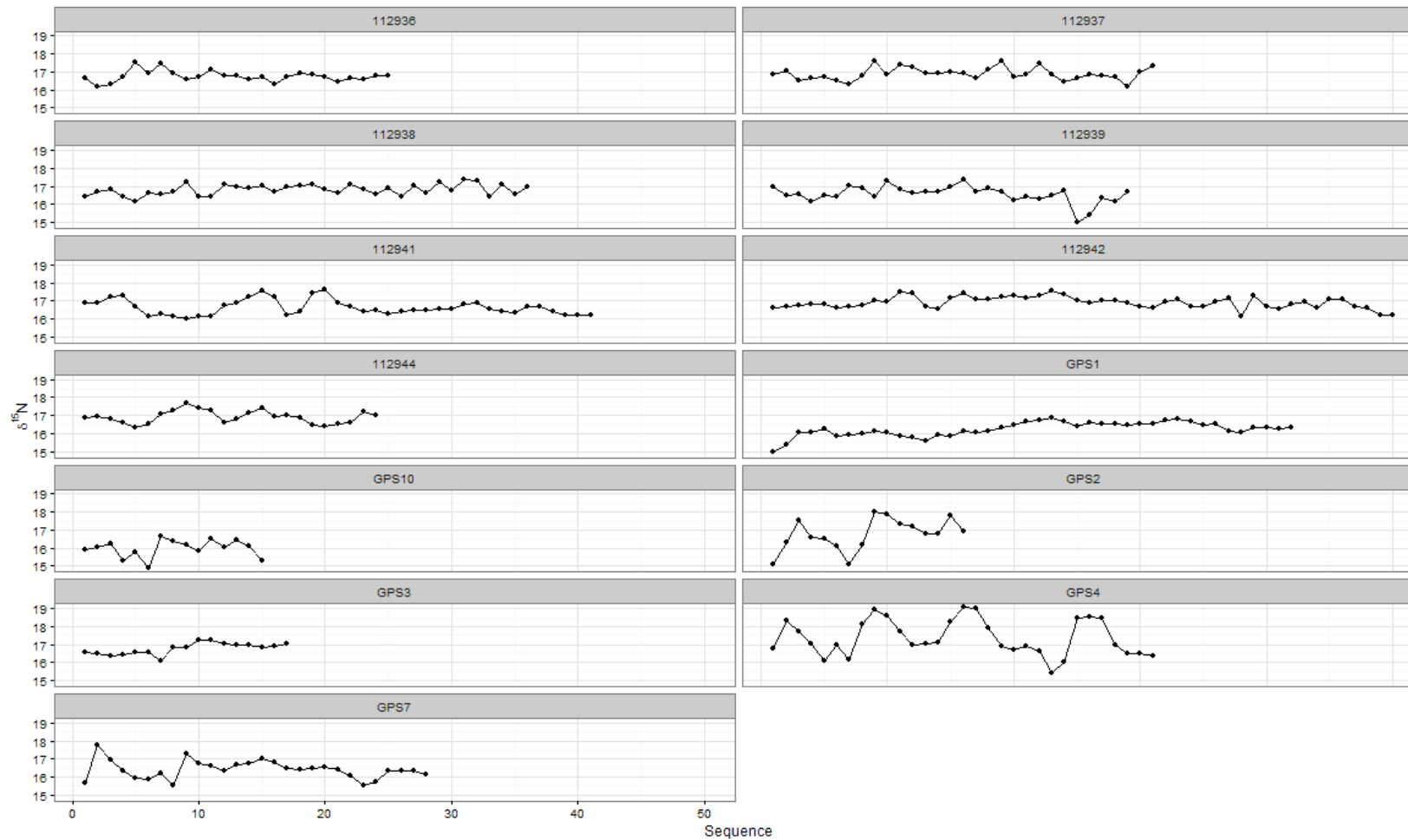


Fig S1. The $\delta^{13}\text{C}$ (upper plot) and $\delta^{15}\text{N}$ (lower plot) values of sequential vibrissae segments from adult male and adult female southern sea lions (*Otaria flavescens*). The first sample is closest to the root of the vibrissae. See also Table S1.

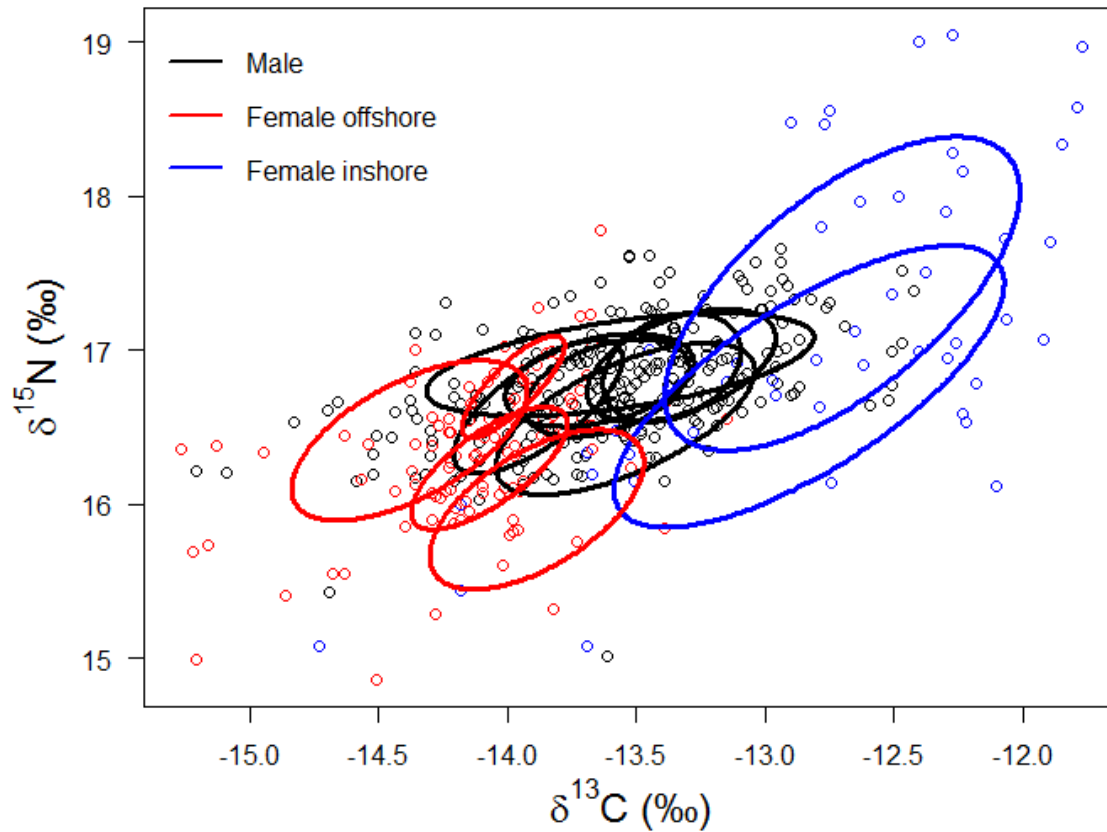


Fig S2: Stable isotope values from 13 southern sea lion (*Otaria flavescens*) vibrissae ($n = 7$ adult male and $n = 6$ adult female) captured in February 2014, revealed that (1) adult females had a larger range of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values related to inshore and offshore foraging locations (blue ellipse and red ellipses, respectively), (2) adult male ellipse (black) was intermediate to adult females, but overlapped with both inshore and offshore ellipses.

References

Baylis AMM, Page B, Staniland I, Arnould J, McKenzie J (2015) Taking the sting out of darting: Risks, restraint drugs and procedures for the chemical restraint of Southern Hemisphere otariids. *Mar Mammal Sci* 31:322–344