ELECTRONIC SUPPLEMENTARY MATERIAL

Title: Niche partitioning and individual specialisation in resources and space use of sympatric fur seals at their range margin

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Supplimentary figures:

Figure S1. Isotopic biplots for each of the four niche parameters for each individual male Australian fur seals (*A. pusillus doriferus*, red) and New Zealand fur seals (*A. forsteri*, yellow) calculated with three different datasets (one per row). Dataset 1: a) and b) average values per individual. Dataset 2: c) and d) first 10 whisker segments or first 10 weeks of movement data, which is used in the analysis and presented in Figure 1. Dataset 3: e) and f) all whisker segements and all weeks of movement data. Standard Ellipse Area (40%) showing first 50 draws for clarity.

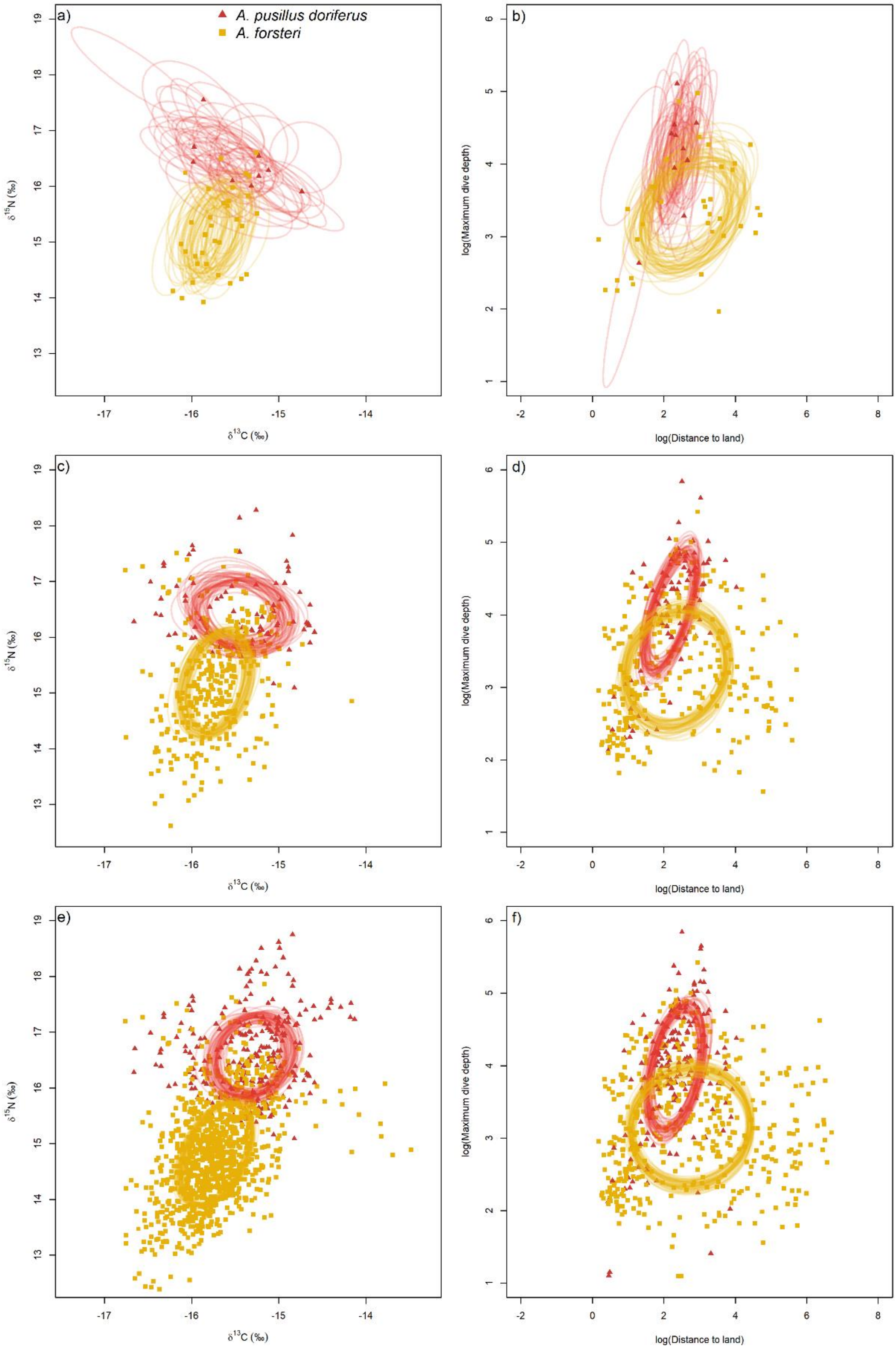

Figure S2. Different circadian patterns in dive frequency and but not dive depth between male Australian fur seals (*A. pusillus doriferus*, red) and New Zealand fur seals (*A. forsteri*, yellow). a) and c) dive frequency per hour of day (Australian Eastern Standard Time; AEST). b) and d) average dive depth per hour of day (mean per individual). e) and f) modelled values of dive frequency and dive depth, respectively, per diel period (mean individual, per week). Modelled significant differences relatively to reference factor level (diel period 'day') are represented by *** (P<0.001) or ns (not significant).

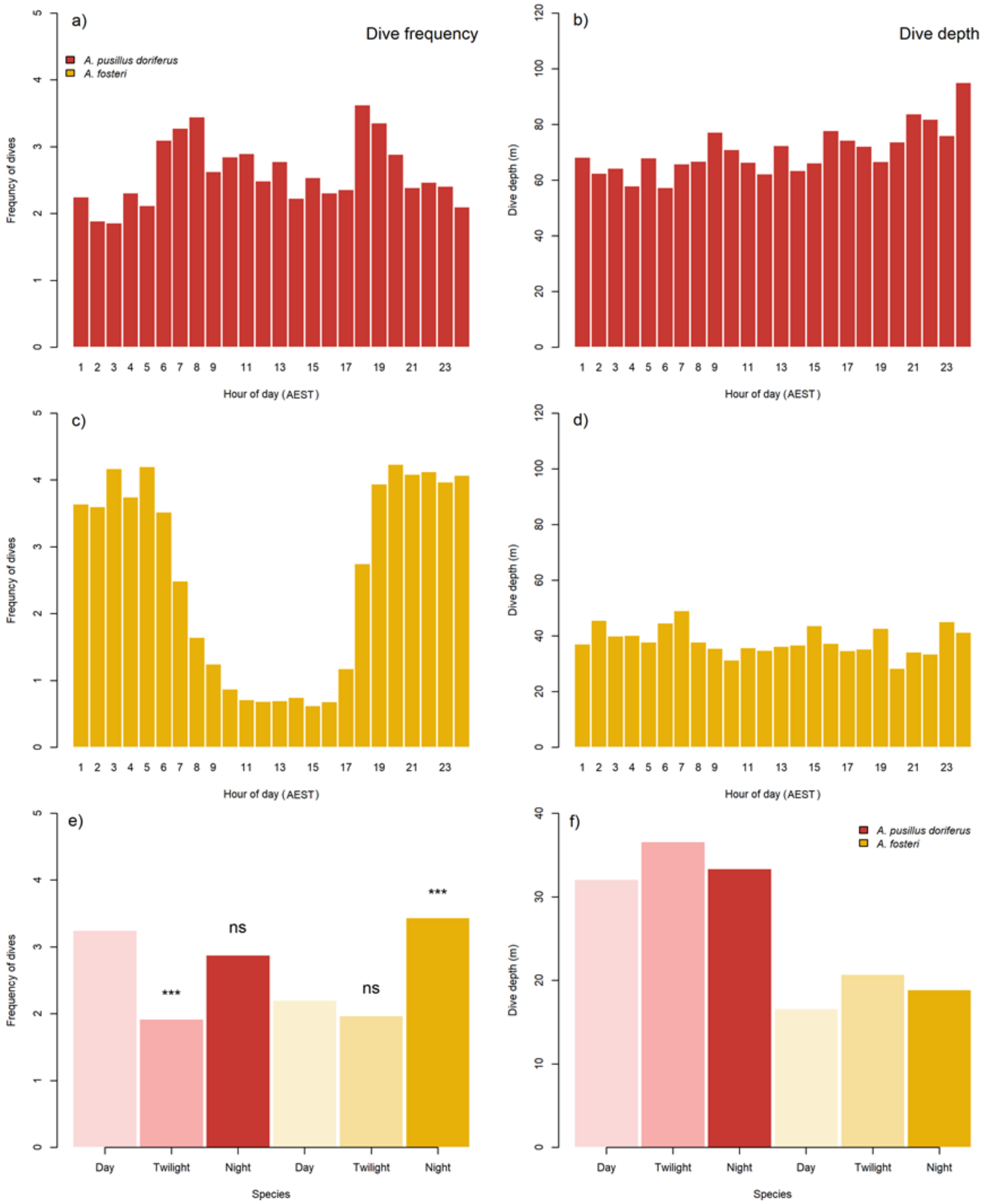

Figure S3. Model results for diel pattern in dive frequency and dive depth (using means per week for each individual) of male Australian fur seals (*A. pusillus doriferus*) and New Zealand fur seals (*A. forsteri*), including models tested (top) and modelled fixed effects (bottom). Dive depth was log transformed to normalise residuals (log values presented). Levels of fixed effects were tested against the reference level 'Day'. Diel was not significant for dive depth, so the fixed effect levels were not tested.

		A. pusillus doriferus			*A. forsteri*		
Models tested							
Response	Fixed effects	logLik	AIC	P	logLik	AIC	P
Dive frequency	Diel	-1456.7	2931.4		-4897.6	9813.2	
	Null	-1471.8	2957.5	< 0.001	-4927.8	9869.6	< 0.001
Dive depth	Diel	-10065	20151		-29528	59076	
	Null	-10066	20149	0.399	-29530	59076	0.111
Modelled fixed effects							
Response	Diel period	Estimate (SE)	z	P	Estimate (SE)	z	P
Dive frequency	Day	3.2 (0.2)	21.4		2.2 (0.2)	11.9	
	Twilight	-1.3 (0.1)	-12.1	<0.001	-0.2 (0.1)	-1.7	0.082
	Night	-0.4 (0.3)	-1.3	0.202	1.2 (0.2)	7.4	<0.001
Dive depth	Day	3.5 (0.3)	na		2.9 (0.2)	na	
	Twilight	0.1 (0.2)	na		0.2 (0.1)	na	
	Night	0.04 (0.2)	na		0.1 (0.1)	na	

Figure S4. Linear model results comparing individual specialisation indices of male Australian fur seals (AuFS) and New Zealand fur seals (NZFS) in isotopic space ($\delta^{13}C$ and $\delta^{15}N$) and movement space (Dive depth and Distance to land), and compared to their body size (Length).

Response	Predictor	Species	*T* value	*P* value
$\delta^{15}N$	Length	AuFS	-2.694	0.054
$\delta^{15}N$	Length	NZFS	-0.669	0.508
$\delta^{13}C$	Length	AuFS	-1.074	0.343
$\delta^{13}C$	Length	NZFS	0.968	0.341
Dive depth	Length	AuFS	-1.948	0.123
Dive depth	Length	NZFS	1.747	0.091
Dist. to land	Length	AuFS	0.906	0.416
Dist. to land	Length	NZFS	-1.962	0.059
$\delta^{13}C$	$\delta^{15}N$	AuFS	1.217	0.291
$\delta^{13}C$	$\delta^{15}N$	NZFS	1.745	0.091
Dive depth	$\delta^{15}N$	AuFS	1.366	0.244
Dive depth	$\delta^{15}N$	NZFS	-0.723	0.475
Distance to land	$\delta^{15}N$	AuFS	0.027	0.980
Distance to land	$\delta^{15}N$	NZFS	0.539	0.594
Dive depth	$\delta^{13}C$	AuFS	0.337	0.753
Dive depth	$\delta^{13}C$	NZFS	-1.321	0.196
Distance to land	$\delta^{13}C$	AuFS	0.681	0.533
Distance to land	$\delta^{13}C$	NZFS	-1.408	0.169
Distance to land	Dive depth	AuFS	-1.271	0.273
Distance to land	Dive depth	NZFS	0.045	0.964

Figure S5. Summary of male fur seals (Australian, aufs; New Zealand, nzfs) sampled (i.e. whisker) and/or tracked (with a Wildlife computer Mk10, Jervis Bay, 'jb'; or SMRU, Montague Island, 'mi') between 2011 and 2014. Whiskers were cut into 3 mm segments: some whole whiskers others only the ten segments closest to the root of the whisker (most recent). Whiskers were sampled when a tracking device was attached, unless it was a dead seal (had died within days of collecting the whisker).

ID	Location	Species	Year	Body length (cm)	Date deployment/ sample	Data types	Deployment duration (d)	N# dives
JB-1-2011	jb	nzfs	2011	100	21-Jun-2011	Loc	201	NA
JB-2-2011	jb	nzfs	2011	80	23-Jun-2011	Loc	30	NA
JB-3-2011	jb	nzfs	2011	75	4-Jul-2011	Loc	91	NA
JB-4-2011	jb	nzfs	2011	90	7-Jul-2011	Loc	60	NA
JB-2-2012	jb	nzfs	2012	100	28-Jun-2012	SI, Loc, Div	166	4439
JB-3-2012	jb	nzfs	2012	90	28-Jun-2012	SI, Loc, Div	113	2541
JB-8-2013	jb	nzfs	2013	70	19-Jul-2013	SI, Loc, Div	166	3828
JB-11-2013	jb	nzfs	2013	90	10-Jul-2013	SI, Loc, Div	187	3314
JB-12-2013	jb	nzfs	2013	150	11-Jul-2013	SI, Loc, Div	154	1844
JB-15-2013	jb	nzfs	2013	100	30-Jul-2013	SI, Loc, Div	10	40
JB-16-2013	jb	nzfs	2013	100	9-Aug-2013	SI, Loc, Div	141	3810
JB-17-2013	jb	nzfs	2013	110	22-Aug-2013	SI, Loc, Div	168	1458
JB-10-2013	jb	nzfs	2013	90	9-Jul-2013	SI, Loc, Div	118	2328
JB-7-2013	jb	nzfs	2013	100	19-Jun-2013	SI, Loc, Div	207	6229
JB-14-2013	jb	nzfs	2013	100	26-Jul-2013	SI, Loc, Div	106	2017
JB-9-2013	jb	aufs	2013	250	20-Jun-2013	SI, Loc, Div	156	3662
JB-13-2013	jb	aufs	2013	200	25-Jul-2013	SI, Loc, Div	190	3836
MI-3-2012	mi	nzfs	2012	162	23-Jun-2012	SI, Loc, Div	259	674
MI-4-2012	mi	nzfs	2012	183	23-Jun-2012	SI, Loc, Div	233	887
MI-1-2012	mi	nzfs	2012	154	12-Jun-2012	SI, Loc, Div	178	665
MI-2-2012	mi	nzfs	2012	152	12-Jun-2012	Loc, Div	146	1071
MI-5-2012	mi	nzfs	2012	165	23-Jun-2012	Loc, Div	69	340
MI-7-2012	mi	nzfs	2012	185	23-Jun-2012	SI, Loc, Div	67	226
MI-60-	mi	nzfs	2012	NA	21-Jul-2012	SI	NA	NA
MI-16-	mi	nzfs	2013	167	28-May-2013	SI, Loc, Div	120	558
MI-4-2013	mi	nzfs	2013	165	25-May-2013	SI, Loc, Div	115	370
MI-3-2013	mi	nzfs	2013	163	25-May-2013	SI, Loc, Div	94	367
MI-1-2013	mi	nzfs	2013	162	25-May-2013	SI, Loc, Div	50	112
MI-5-2013	mi	nzfs	2013	160	25-May-2013	SI, Loc, Div	49	234
MI-9-2013	mi	nzfs	2013	155	26-May-2013	SI, Loc, Div	29	234
MI-7-2013	mi	nzfs	2013	167	26-May-2013	SI, Loc, Div	25	164
MI-12-	mi	nzfs	2013	170	27-May-2013	SI, Loc, Div	17	122
MI-8-2013	mi	nzfs	2013	NA	26-May-2013	SI	NA	NA
MI-2-2014	mi	nzfs	2014	164	2-Aug-2014	SI, Loc, Div	35	18
MI-1-2014	mi	nzfs	2014	174	2-Aug-2014	SI, Loc, Div	15	70
MI-5-2014	mi	nzfs	2014	138	3-Aug-2014	SI, Loc, Div	91	191
MI-4-2014	mi	nzfs	2014	176	3-Aug-2014	SI, Loc, Div	70	137
MI-3-2014	mi	nzfs	2014	155	3-Aug-2014	SI, Loc, Div	23	38
MI-8-2014	mi	nzfs	2014	157	4-Aug-2014	SI, Loc, Div	78	183
MI-7-2014	mi	nzfs	2014	155	4-Aug-2014	SI, Loc, Div	58	193
MI-6-2014	mi	nzfs	2014	172	4-Aug-2014	SI, Loc, Div	30	50
MI-9-2014	mi	nzfs	2014	150	5-Aug-2014	SI, Loc, Div	61	184
MI-10-	mi	nzfs	2014	162	5-Aug-2014	SI, Loc, Div	34	104
MI-6-2012	mi	aufs	2012	180	24-Jun-2012	SI, Loc, Div	141	876
MI-9-2012	mi	aufs	2012	177	25-Jun-2012	Loc, Div	109	480
MI-8-2012	mi	aufs	2012	190	24-Jun-2012	Loc, Div	62	253
MI-6-2013	mi	aufs	2013	173	25-May-2013	SI, Loc, Div	185	1223
MI-10-	mi	aufs	2013	180	26-May-2013	SI, Loc, Div	166	1114
MI-14-	mi	aufs	2013	200	28-May-2013	Loc, Div	152	338
MI-15-	mi	aufs	2013	180	28-May-2013	SI, Loc, Div	110	638
MI-13-	mi	aufs	2013	NA	27-May-2013	Loc, Div	47	352
MI-11-	mi	aufs	2013	NA	27-May-2013	SI	NA	NA
MI-2-2013	mi	aufs	2013	NA	25-May-2013	SI	NA	NA