Supplementary Material

Kernel utilization distribution estimation

Kernel estimations were proceeded by the calculation of the 50% and 95% kernel utilization distribution (KUD) contours as representative of core foraging and home range regions, respectively. A smoothing parameter (*h*) was calculated following the methodology described in (Beal et al. 2021). Once this parameter is dependent of individuals' ARS zones radii, separate *h* values were calculated according to each study species on each year, in a total of six parameters estimated (Bulwer's petrel: 2017 = 20 km, 2018 = 25 km, 2019 = 25 km; Cape Verde shearwater: 2017 = 15.3 km, 2018 = 14.1 km, 2019 = 13.7 km). Smoothing parameters were used for respective kernel density estimations, computed using the 'kernelUD' function from the *adehabitatHR* R package (Calenge 2006). Core foraging and home range regions were calculated using the 'kernel.area' function under the *adehabitatHR* R package (Calenge 2006). Kernel overlap was calculated using adult foraging regions within and among years, separately for each species, using the Bhattacharyya's affinity (BA) under the 'kerneloverlap' function from the *adehabitatHR* R package (Calenge 2006).

Sample preparation and stable isotope analysis

Whole blood and plasma were dried for 48 h at 40 ºC and homogenised. Plasma samples were rinsed multiple times in a 2 chloroform : 1 methanol solution to remove lipids which increase substantially carbon values (Cherel et al. 2005). About 0.25-0.35 mg of each sample were encapsulated into tin foil cups and weighted. Isotopic ratios were determined through continuous-flow isotope ratio mass spectrometry (CF-IRMS) and expressed in parts per mil (‰) using the usual δ notation: $\delta X = [(R_{sample}/R_{standard}) - 1] \times 1000$, where the X is ^{13}C or ^{15}N and R_{sample} is the ratio ^{13}C:^{12}C or ^{15}N:^{14}N for carbon and nitrogen respectively. The $R_{standard}$ values are given by Vienna PeeDee Belemnite for carbon and atmospheric N_2 for nitrogen (Bond & Jones 2009). Replicate measurements precision was < 0.2 ‰ for both $\delta^{13}C$ and $\delta^{15}N$. Yet, some carbon : nitrogen (C:N) mass ratios indicated an incomplete lipid removal (C:N > 4.0). Thus, these biases were reduced by applying a mathematical normalization to plasma $\delta^{13}C$ values following the equation: $\delta^{13}C_{normalized} = \delta^{13}C - 3.32 + (0.99 \times C:N)$ (Post et al. 2007, Cherel et al. 2014).

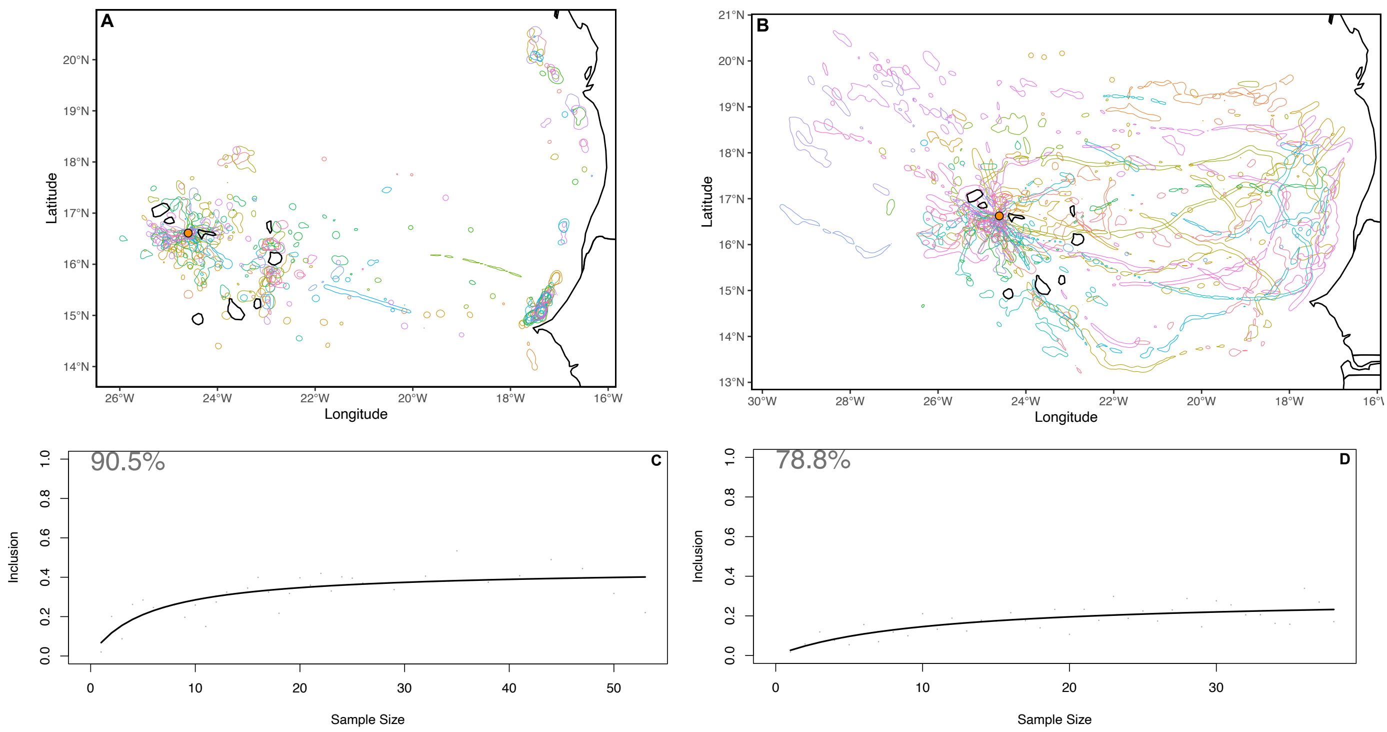

Figure S1. Outputs from *track2kba* package using the tracking data collected from Cape Verde shearwaters (left panels) and Bulwer's petrels (right panels) across the three years (2017-2019) of study. Panels (A,B) represent the core areas, i.e. 50% KUD, estimated for each individual that were computed using the function 'estSpaceUse'. Panels (C,D) represent the outputs coming from the 'repAssess' function that assessed the degree to which the tracking data (Cape Verde shearwaters, n = 62; Bulwer's petrels, n = 59) represents the distribution of the source population.

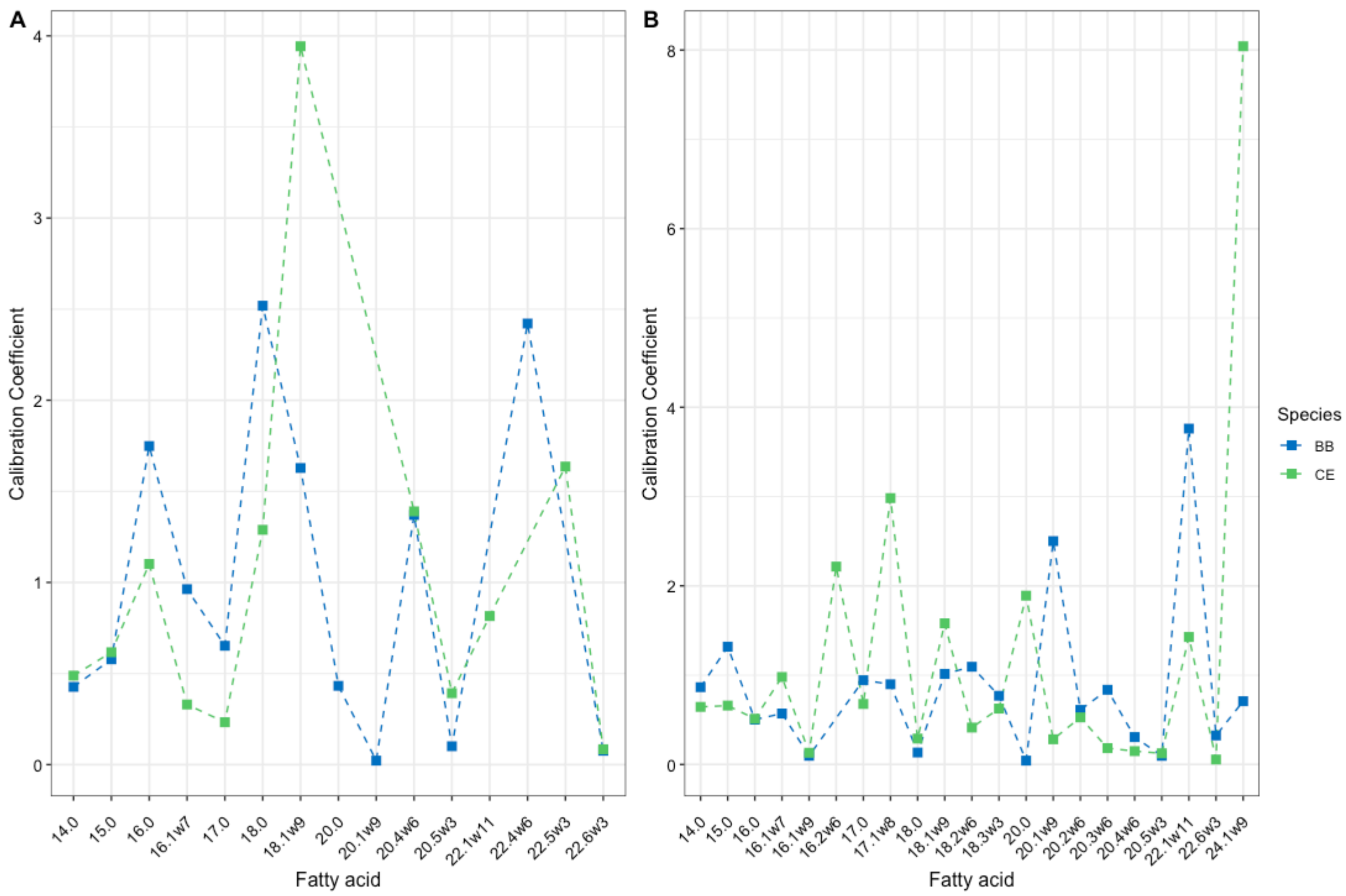

Figure S2. Calibration coefficients calculated using the method developed by (Bromaghin et al. 2017) in separate for (A) adults (using blood) and (B) chicks (using fat tissue) of each study species. BB (blue): Bulwer's petrel; CE (green): Cape Verde shearwaters. FAs 12:0, 13:0 were not designated as dietary fatty acids in this study.

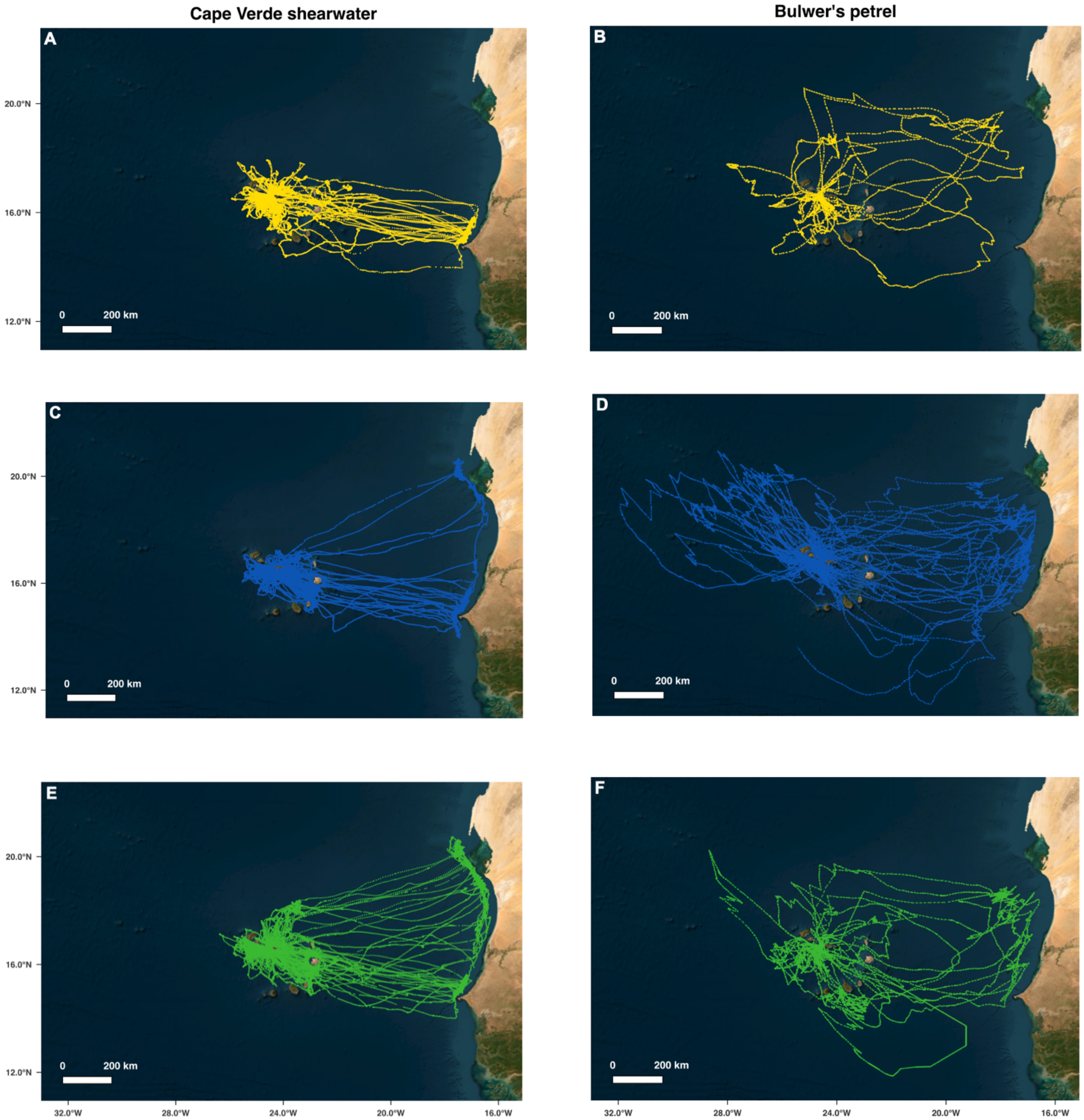

Figure S3. Foraging trips made by Cape Verde shearwaters (Panels A,C,E) and Bulwer's petrels (Panels B,D,F) breeding at Raso islet, Cabo Verde, during the chick-rearing periods of 2017 (A–B; yellow), 2018 (C–D; blue), and 2019 (E–F; green). Bathymetric relief in the background.

Table S1. Mean fatty acid profiles ± standard deviation (SD, % of the total fatty acid content) of prey species collected within Cabo Verde archipelago in 2017. C:D = number of carbon atoms:double bonds; n = number of individuals used for means and deviation calculations; ARA: arachidonic acid; EPA: eicosapentaenoic acid; DHA: docosahexaenoic acid

Fatty acid (C:D)	2017										
	Carangidae			Exocoetidae	Clupeidae	Belonidae	Holocentridae	Pomacentridae	Centriscidae	Ommastrephidae
	Decapterus punctatus n = 6	*Decapterus macarellus* n = 6	*Selar crumenophthalmus* n = 3	*Cheilopogon cyanopterus* n = 6	*Sardinella maderensis* n = 3	*Tylosurus acus* n = 1	*Myripristis jacobus* n = 3	*Chromis* sp. n = 3	*Macroramphosus scolopax* n =1	*Hyaloteuthis pelagica* n = 3
C12:0	0.02 ± 0.01	0.01 ± 0.01	0 ± 0.12	0 ± 0	0.03 ± 0.02	0.02	0.06 ± 0.03	0.01 ± 0.01	0.12	0.01 ± 0.01
C13:0	0.01 ± 0.01	0.00 ± 0.01	0 ± 0.05	0 ± 0	0 ± 0	0.01	0.02 ± 0.01	0.01 ± 0.01	0.05	0 ± 0
C14:0	0.57 ± 0.18	0.99 ± 0.29	0.87 ± 2.78	0.66 ± 0.48	0.22 ± 0.06	0.65	1.28 ± 0.29	0.54 ± 0.44	2.78	1.26 ± 0.16
C15:0	0.32 ± 0.03	0.40 ± 0.06	0.49 ± 0.48	0.62 ± 0.15	0.36 ± 0.07	0.43	0.50 ± 0.04	0.23 ± 0.07	0.48	0.70 ± 0.08
C16:0	15.35 ± 1.06	16.14 ± 3.11	22.13 ± 19.07	19.86 ± 2.05	12.02 ± 1.08	14.24	17.12 ± 1.62	14.45 ± 0.38	19.07	22.03 ± 2.69
C17:0	0.77 ± 0.08	1.26 ± 0.24	1.00 ± 0.65	1.25 ± 0.27	0.92 ± 0.06	0.76	1.48 ± 0.05	0.73 ± 0.05	0.65	1.13 ± 0.09
C18:0	10.61 ± 1.38	10.10 ± 3.54	9.97 ± 12.12	8.94 ± 1.39	8.70 ± 0.57	11.68	17.94 ± 1.05	10.79 ± 1.21	12.12	4.05 ± 0.39
C20:0	0.21 ± 0.04	0.33 ± 0.06	0.18 ± 0	0.17 ± 0.14	0.12 ± 0.03	0.24	0.44 ± 0.04	0.14 ± 0.03	0	0.89 ± 1.54
∑SFA	**27.87 ± 1.40**	**29.23 ± 4.53**	**34.65 ± 35.25**	**31.50 ± 3.40**	**22.36 ± 1.64**	**28.02**	**38.83 ± 2.22**	**26.90 ± 2.07**	**35.25**	**30.06 ± 3.95**
C16:1ω7	0.46 ± 0.51	0.63 ± 0.81	0.73 ± 2.86	0.64 ± 1.01	0.72 ± 0.06	0.94	0 ± 0	0 ± 0	2.86	0.26 ± 0.45
C18:1ω9	3.74 ± 1.23	3.37 ± 2.23	7.89 ± 6.37	4.27 ± 2.79	5.27 ± 0.53	5.20	2.03 ± 0.09	1.55 ± 0.22	6.37	2.67 ± 0.14
C20:1ω9	0.38 ± 0.19	0.21 ± 0.10	0.61 ± 3.70	0.32 ± 0.18	0.55 ± 0.13	0.41	0.45 ± 0.05	0.40 ± 0.13	3.70	2.34 ± 2.04
C22:1ω11	0 ± 0	0.03 ± 0.08	0 ± 0.57	0 ± 0	0 ± 0	0	0 ± 0	0 ± 0	0.57	0 ± 0
C24:1ω9	0.21 ± 0.24	0.42 ± 0.26	0 ± 0	0.04 ± 0.09	0 ± 0	0	0.36 ± 0.32	0.69 ± 0.13	0	0 ± 0
∑MUFA	**4.78 ± 1.99**	**4.66 ± 2.14**	**9.24 ± 13.49**	**5.27 ± 2.57**	**6.54 ± 0.66**	**6.55**	**2.84 ± 0.21**	**2.64 ± 0.47**	**13.49**	**5.27 ± 2.26**
C18:2ω6	0.68 ± 0.32	0.70 ± 0.39	0.94 ± 0.47	2.46 ± 3.11	0 ± 0	0.87	0.65 ± 0.08	0.63 ± 0.02	0.47	0.36 ± 0.33
C18:3ω3	0.21 ± 0.24	0.15 ± 0.23	0.24 ± 0	0 ± 0	0 ± 0	0.22	0 ± 0	0 ± 0	0	0 ± 0
C20:2ω6	0.38 ± 0.06	0.25 ± 0.13	0.51 ± 0	0.92 ± 1.49	0.80 ± 0.16	0.35	0.47 ± 0.05	0.26 ± 0.02	0	0.85 ± 0.13
C20:3ω6	0.17 ± 0.09	0.08 ± 0.09	0 ± 1.76	0 ± 0	0 ± 0	0.20	0.12 ± 0.10	0.14 ± 0.12	0	0 ± 0
C20:4ω6 (ARA)	3.74 ± 0.84	2.66 ± 0.59	2.71 ± 9.03	2.70 ± 2.11	4.96 ± 0.34	4.51	5.13 ± 0.11	3.51 ± 0.28	1.76	1.46 ± 0.16
C20:5ω3 (EPA)	7.74 ± 1.48	5.30 ± 4.12	7.04 ± 39.99	3.98 ± 0.37	3.52 ± 0.42	4.98	5.94 ± 0.27	5.91 ± 0.30	9.03	10.91 ± 0.62
C22:6ω3 (DHA)	54.41 ± 1.70	56.81 ± 3.60	44.56 ± **51.26**	52.96 ± 2.18	61.82 ± 2.25	54.29	45.96 ± 2.05	60.01 ± 2.13	39.99	50.94 ± 1.78
∑PUFA	**67.34 ± 1.98**	**65.95 ± 5.75**	**55.99 ± 1.31**	**63.02 ± 3.46**	**71.10 ± 2.06**	**65.42**	**58.27 ± 2.13**	**70.46 ± 2.52**	**51.26**	**64.52 ± 2.71**

Table S2. Mean fatty acid profiles ± standard deviation (SD, % of the total fatty acid content) of prey species collected within Cabo Verde archipelago in 2018 and 2019. C:D = number of carbon atoms:double bonds; n = number of individuals used for means and deviation calculations; ARA: arachidonic acid; EPA: eicosapentaenoic acid; DHA: docosahexaenoic acid

Fatty acid (C:D)	2018							2019			
	Carangidae		Clupeidae	Exocoetidae	Belonidae	Holocentridae	Serranidae	Myctophidae	Blenniidae	Sinodontidae	Ommastrephidae
	Decapterus macarellus	*Selar crumenophthalmus*	*Sardinella maderensis*	*Cheilopogon cyanopterus*	*Tylosurus acus*	*Myripristis jacobus*	*Cephalopholis taeniops*	*Myctophum affine*	*Ophioblennius* sp.	*Synodus saurus*	*Hyaloteuthis pelagica*
	n = 3	n = 4	n = 8	n = 3	n = 2	n = 4	n = 4	n = 6	n = 3	n = 3	n = 5
C14:0	4.15 ± 0.40	1.36 ± 0.17	4.48 ± 0.71	5.22 ± 0.71	3.41 ± 0.45	3.53 ± 1.60	3.59 ± 0.74	7.15 ± 0.90	4.16 ± 0.68	5.52 ± 0.63	4.81 ± 0.81
C15:0	0.60 ± 0.02	0.48 ± 0.09	0.61 ± 0.08	1.18 ± 0.07	0.99 ± 0.03	0.79 ± 0.12	0.59 ± 0.13	1.25 ± 0.15	1.27 ± 0.29	1.48 ± 0.10	1.24 ± 0.24
C16:0	25.43 ± 3.25	26.88 ± 4.12	29.16 ± 1.11	33.75 ± 2.56	33.70 ± 5.35	33.99 ± 3.76	29.99 ± 3.67	35.24 ± 3.81	32.53 ± 5.96	28.71 ± 1.64	47.52 ± 8.06
C17:0	0.96 ± 0.05	0.99 ± 0.13	1.02 ± 0.11	1.39 ± 0.20	1.15 ± 0.06	0.85 ± 0.57	0.67 ± 0.12	1.00 ± 0.21	1.16 ± 0.15	1.26 ± 0.15	1.47 ± 0.14
C18:0	10.71 ± 0.18	14.70 ± 0.69	7.21 ± 0.98	11.31 ± 0.83	15.96 ± 4.80	14.38 ± 1.70	8.54 ± 1.39	7.56 ± 1.96	5.99 ± 0.66	5.51 ± 0.24	9.61 ± 1.21
C20:0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0.38 ± 0.33	2.29 ± 0.37	2.28 ± 0.56	0 ± 0
C22:0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	5.20 ± 4.41	4.35 ± 0.79	0.33 ± 0.57	0 ± 0
∑SFA	**41.84 ± 3.23**	**44.41 ± 4.16**	**42.48 ± 1.93**	**52.85 ± 2.28**	**55.20 ± 9.61**	**53.53 ± 5.44**	**43.38 ± 5.69**	**57.91 ± 4.78**	**52.33 ± 6.26**	**45.09 ± 1.16**	**64.65 ± 9.44**
C16:1ω7	4.77 ± 0.91	2.98 ± 0.67	5.16 ± 1.12	4.19 ± 0.97	3.71 ± 1.09	2.60 ± 0.81	9.11 ± 2.31	10.31 ± 1.17	5.67 ± 1.26	4.21 ± 1.06	2.26 ± 0.25
C16:1ω9	0 ± 0	0.63 ± 0.21	0.60 ± 0.08	0 ± 0	0.98 ± 0.12	1.42 ± 1.08	0 ± 0	0.53 ± 0.59	0 ± 0	1.60 ± 0.17	0.75 ± 1.17
C17:1ω8	0 ± 0	0.87 ± 0.15	0.46 ± 0.32	0 ± 0	0 ± 0	0 ± 0	0 ± 0	1.12 ± 0.19	1.16 ± 0.23	0.49 ± 0.43	0 ± 0
C18:1ω9	13.20 ± 2.30	14.05 ± 2.09	10.05 ± 1.02	8.17 ± 1.30	11.72 ± 0.47	14.04 ± 2.62	16.70 ± 2.49	20.94 ± 1.80	10.33 ± 1.77	6.56 ± 0.44	9.09 ± 4.32
C20:1ω9	0 ± 0	0.56 ± 0.13	0.19 ± 0.10	0 ± 0	0.12 ± 0.17	0 ± 0	0.43 ± 0.34	0.18 ± 0.15	1.74 ± 1.10	0.13 ± 0.22	5.41 ± 1.26
C24:1ω9	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	2.64 ± 3.55	0 ± 0	0 ± 0
∑MUFA	**17.97 ± 3.20**	**19.09 ± 2.66**	**16.47 ± 1.33**	**12.36 ± 1.97**	**16.52 ± 1.85**	**18.05 ± 3.71**	**26.24 ± 4.93**	**33.07 ± 1.75**	**21.54 ± 1.60**	**12.98 ± 2.10**	**17.52 ± 5.27**
C16:2ω6	0 ± 0	0 ± 0	0.23 ± 0.10	0 ± 0	0.10 ± 0.14	0 ± 0	0 ± 0	0.47 ± 0.53	2.73 ± 1.13	0 ± 0	0 ± 0
C18:2ω6	1.04 ± 0.15	0.92 ± 0.07	1.05 ± 0.30	0 ± 0	0.82 ± 0.38	0.78 ± 0.58	0.85 ± 0.28	1.03 ± 0.91	4.39 ± 1.82	0 ± 0	0.07 ± 0.15
C18:3ω3	0.11 ± 0.19	0.21 ± 0.15	0.31 ± 0.06	0 ± 0	0.23 ± 0.32	0 ± 0	0.29 ± 0.38	0.65 ± 0.32	0.97 ± 0.12	1.13 ± 0.12	0 ± 0
C20:2ω6	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0.51 ± 0.29	0 ± 0	0.10 ± 0.17	0 ± 0
C20:3ω6	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0.74 ± 0.74	0.48 ± 0.47	0 ± 0	0 ± 0
C20:4ω6 (ARA)	2.27 ± 0.24	2.91 ± 0.35	2.69 ± 0.45	5.09 ± 0.28	2.05 ± 0.62	4.87 ± 0.80	3.31 ± 0.30	0.53 ± 0.48	1.05 ± 0.35	1.18 ± 0.29	3.93 ± 0.83
C20:5ω3 (EPA)	6.04 ± 0.17	4.28 ± 0.49	8.20 ± 1.70	4.27 ± 0.64	4.59 ± 1.89	2.95 ± 0.63	4.13 ± 1.15	1.95 ± 1.64	3.92 ± 1.38	9.70 ± 0.24	2.71 ± 2.54
C22:4ω6	0 ± 0	0 ± 0	0.03 ± 0.10	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	1.65 ± 1.20
C22:5ω3	1.47 ± 0.14	1.20 ± 0.17	0.78 ± 0.08	0 ± 0	1.88 ± 0.54	0.79 ± 0.92	1.60 ± 1.16	0 ± 0	1.27 ± 1.18	0 ± 0	0.81 ± 1.81
C22:6ω3 (DHA)	29.25 ± 2.78	26.99 ± 4.58	27.76 ± 3.65	25.43 ± 1.39	18.64 ± 3.88	19.03 ± 7.14	20.19 ± 3.34	3.14 ± 3.45	11.32 ± 4.56	29.73 ± 3.19	8.67 ± 4.19
∑PUFA	**40.18 ± 2.44**	**36.50 ± 5.63**	**41.05 ± 2.18**	**34.79 ± 1.77**	**28.29 ± 7.76**	**28.42 ± 9.01**	**30.38 ± 3.58**	**9.02 ± 5.27**	**26.13 ± 5.07**	**41.83 ± 2.65**	**17.84 ± 6.81**

Table S3. Mean fatty acid profiles (% of the total fatty acid content) of potential prey species used to supplement the diet estimation modelling computed with adult/chick samples collected in 2017. Values are expressed in mean ± SD, unless otherwise stated. C:D = number of carbon atoms:double bonds; n = number of individuals used for means and deviation calculations; ARA: arachidonic acid; EPA: eicosapentaenoic acid; DHA: docosahexaenoic acid

Fatty acid (C:D)	Young et al. 2010				Saito and Murata 1998	Pethybridge et al. 2010
	Myctophidae					Ocotpoteuthidae
	Ceratoscopelus warmingii n = 14	*Diaphus brachycephalus* n = 3	*Diaphus perspicillatus* n = 9	*Hygophum hygomii* n = 2	*Notoscopelus resplendens* n = 3[1]	*Octopoteuthis megaptera* n = 3
C14:0	2.20 ± 0.60	1.60 ± 0.60	1.90 ± 0.50	2.60 ± 0	1.40 ± 0.10	0.50 ± 0.50
C15:0	1.00 ± 0.20	0.70 ± 0.10	0.80 ± 0.10	0.80 ± 0	0.20 ± 0	0.20 ± 0.10
C16:0	22.80 ± 2.10	22.50 ± 0.20	25.30 ± 2.20	23.10 ± 1.60	19.30 ± 1.70	15.30 ± 1.30
C17:0	1.30 ± 0.10	1.20 ± 0	1.50 ± 0.10	1.00 ± 0.10	0.40 ± 0	0 ± 0
C18:0	5.70 ± 0.70	6.20 ± 0.70	7.40 ± 1.00	6.20 ± 0.50	6.20 ± 0.80	5.20 ± 0.30
C20:0	0.40 ± 0	0.30 ± 0	0.40 ± 0	0.30 ± 0	0.30 ± 0.10	0 ± 0
C14:1ω5	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0.10 ± 0	0 ± 0
C16:1ω7	3.20 ± 0.70	2.80 ± 0.80	2.40 ± 0.50	3.00 ± 0	4.00 ± 0.20	1.30 ± 0.70
C16:1ω9	0.20 ± 0	0.20 ± 0	0.20 ± 0	0.20 ± 0	0 ± 0	0.30 ± 0.20
C17:1ω8	1.00 ± 0.10	0.70 ± 0.10	0.70 ± 0.10	0.80 ± 0	0.20 ± 0	0.50 ± 0.40
C18:1ω9	14.20 ± 1.90	15.90 ± 2.20	15.60 ± 1.50	17.80 ± 2.40	32.90 ± 3.10	9.10 ± 2.90
C20:1ω9	1.20 ± 0.30	1.20 ± 0.30	1.00 ± 0.30	1.10 ± 0.10	4.70 ± 0.80	13.50 ± 1.80
C22:1ω11	0 ± 0	0.10 ± 0.10	0.10 ± 0.20	0.10 ± 0	1.40 ± 1.30	7.20 ± 0.40
C24:1ω9	1.40 ± 0.20	2.10 ± 0.50	3.00 ± 0.80	2.10 ± 0.30	0.50 ± 0.10	0.10 ± 0.20
C16:2ω6	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0.50 ± 0.20	0 ± 0
C18:2ω6	1.50 ± 0.10	1.00 ± 0.10	1.40 ± 0.10	1.20 ± 0.10	0.80 ± 0.10	0.50 ± 0.20
C18:3ω3	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0.50 ± 0.10	0 ± 0
C20:2ω6	0.40 ± 0	0.40 ± 0	0.40 ± 0	0.30 ± 0	0 ± 0	0.50 ± 0.40
C20:4ω6 (ARA)	2.90 ± 0.50	2.10 ± 0.20	1.60 ± 0.50	1.30 ± 0.30	0.90 ± 0.20	1.50 ± 0.10
C20:5ω3 (EPA)	4.90 ± 0.60	4.70 ± 0.70	4.90 ± 1.30	5.20 ± 0.10	5.90 ± 0.20	10.40 ± 1.70
C22:4ω6	0.60 ± 0.10	0.40 ± 0	0.30 ± 0.20	0.30 ± 0.10	0 ± 0	0.10 ± 0.10
C22:5ω3	1.20 ± 0.20	0.80 ± 0	0.80 ± 0.10	1.00 ± 0.10	1.30 ± 0.20	1.80 ± 0.40
C22:6ω3 (DHA)	20.40 ± 3.50	24.70 ± 4.20	18.90 ± 3.70	21.90 ± 3.40	6.20 ± 0.40	23.30 ± 2.60

[1] Mean ± SE

Table S4. Diet characterization of Cape Verde shearwater adults (whole blood or plasma) and chicks (fat) from QFASA diet estimations, along three years of sampling (2017–2019). Diet metrics include the frequency of occurrence (O_i: % number of diets in which prey *i* occurred, divided by the total number of estimated diets), the percentage of prey *i* on the diet of predators (P_i), expressed by the mean ± SD, and the maximum percentage that prey *i* detected in all estimated predator diets (Pi_{Max}). Prey were identified to lowest possible taxonomic level and used individually for diet estimates, according to their potential to occur in Cape Verde shearwater diet and sampling year. The creation of new prey libraries (through DCP analysis) was performed for each year (2017–2019) and each age (adult or chick). Bold values indicate diet metrics pooled by group. 'EXC' species were excluded from the prey library after drop core prey (DCP) analysis due to its null contribution on predators' diet

	2017						2018						2019					
Prey species	Chicks (n = 12)			Adults (n = 10)			Chicks (n = 15)			Adults (n = 20)			Chicks (n = 30)			Adults (n = 28)		
	O_i	Pi	Pi_{Max}	O_i	Pi	Pi_{Max}	O_i	Pi	Pi_{Max}	O_i	Pi	Pi_{Max}	O_i	Pi	Pi_{Max}	O_i	Pi	Pi_{Max}
Commercial fishes	**100**	**23.9 ± 15.2**	**45.2**	**100**	**58.7 ± 40.6**	**100**	**100**	**2.3 ± 0.4**	**3.2**	**100**	**68.9 ± 40.1**	**100**	**100**	**20.9 ± 35.4**	**97.5**	**92.9**	**41.5 ± 37.7**	**79.3**
Cephalopholis taeniops	0	0	0	0	0	0	0	0	0	65	16.2 ± 23.8	71.2	6.7	1.1 ± 6.1	33.2	35.7	15.2 ± 19.4	99.6
Cheilopogon cyanopterus	41.7	2.8 ± 4.0	10.6	20	1.1 ± 3.5	10.9	0	0	0	30	1.5 ± 6.7	30.0	60	6.1 ± 16.1	82.4	71.4	0.01 ± 0	0.03
Chromis sp.	75	1.8 ± 2.5	8.9	70	44.8 ± 43.7	95.1	0	0	0	55	23.3 ± 27.6	76.6	6.7	0.5 ± 2.7	14.5	82.1	24.9 ± 29.3	99.9
Decapterus macarellus	25	0.3 ± 0.6	1.9	0	0	0	0	0	0	40	0.01 ± 0.01	0.02	90	31.1 ± 29.6	93.4	75	0.01 ± 0.01	0.05
Decapterus punctatus	16.7	1.1 ± 2.6	6.9	20	0.5 ± 1.5	4.9	0	0	0	0	0	0	0	0	0	0	0	0
Sardinella maderensis	50	5.4 ± 7.2	21.5	30	1.7 ± 3.5	11.1	0	0	0	40	0.01 ± 0.01	0.03	20	0.1 ± 0.3	1	75	0.02 ± 0.02	0.09
Selar crumenophthalmus	16.7	6.9 ± 16.2	43.8	10	0.6 ± 1.7	5.5	100	2.3 ± 0.4	3.2	65	28.1 ± 43.6	100	10	0.1 ± 0.4	1.9	50	1.4 ± 7.3	38.6
Tylosurus acus	16.7	5.5 ± 13.0	35.8	10	10.0 ± 31.6	100	0	0	0	50	0.01 ± 0.01	0.05	13.3	0.8 ± 4.0	22.1	60.7	0.01 ± 0	0.01
Fish larva	**0**	**0**	**0**	**0**	**0**	**0**	**66.7**	**0.6 ± 0.5**	**1.4**	**45**	**21.2 ± 33.2**	**100**	**100**	**18.0 ± 8.3**	**41.9**	**75**	**10.8 ± 12.7**	**47.2**
Ophioblennius sp.	0	0	0	0	0	0	0	0	0	30	10.1 ± 30.7	100	96.7	5.6 ± 7.6	41.9	25	0.01 ± 0.01	0.04
Synodus saurus	0	0	0	0	0	0	66.7	0.6 ± 0.5	1.4	30	11.1 ± 19.8	69.9	90	12.4 ± 8.9	23.4	67.9	10.8 ± 12.7	47.2
Non-commercial fishes	**100**	**68.5 ± 19.4**	**87.9**	**80**	**39.5 ± 40.0**	**88.5**	**0**	**0**	**0**	**45**	**0.02 ± 0.04**	**0.13**	**70**	**42.4 ± 29.9**	**90**	**85.7**	**43.9 ± 35.5**	**100**
Macroramphosus scolopax	100	68.5 ± 19.4	87.9	60	3.3 ± 6.8	16.9	0	0	0	0	0	0	0	0	0	0	0	0
Myripristis jacobus	0	0	0	80	36.1 ± 42.4	88.2	0	0	0	45	0.02 ± 0.04	0.13	70	42.4 ± 29.9	90	85.7	43.9 ± 35.5	100
Squids	**33.3**	**7.6 ± 14.5**	**40.3**	**20**	**1.8 ± 3.8**	**9.6**	**100**	**97.1 ± 0.6**	**97.9**	**35**	**9.9 ± 30.6**	**100**	**0**	**0**	**0**	**35.7**	**3.7 ± 18.9**	**100**
Hyaloteuthis pelagica	33.3	7.6 ± 14.5	40.3	20	1.8 ± 3.8	9.6	100	97.1 ± 0.6	97.9	35	9.9 ± 30.6	100	0	0	0	35.7	3.7 ± 18.9	100
Ocotpoteuthis megaptera	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC

Table S5. Diet characterization of Bulwer's petrel adults (whole blood or plasma) and chicks (fat) from QFASA diet estimations, along three years of sampling (2017–2019). Diet metrics include the frequency of occurrence (O_i: % number of diets in which prey *i* occurred, divided by the total number of estimated diets), the percentage of prey *i* on the diet of predators (Pi), expressed by the mean ± SD, and the maximum percentage that prey *i* detected in all estimated predator diets. Prey were identified to lowest possible taxonomic level and used individually for diet estimates, according to their potential to occur in Bulwer's petrel diet and sampling year. The creation of new prey libraries (through DCP analysis) was performed for each year (2017–2019) and each age (adult or chick). Bold values indicate diet metrics pooled by group. 'EXC' species were excluded from the prey library after drop core prey (DCP) analysis due to its null contribution on predators' diet

Prey species	2017						2018						2019		
	Chicks (n = 11)			Adults (n = 9)			Chicks (n = 14)			Adults (n = 25)			Adults (n = 12)		
	O_i	**Pi**	**Pi_{Max}**	**O_i**	**Pi**	**Pi_{Max}**	**O_i**	**Pi**	**Pi_{Max}**	**O_i**	**Pi**	**Pi_{Max}**	**O_i**	**Pi**	**Pi_{Max}**
Commercial fishes	**63.6**	**3.4 ± 6.4**	**17.8**	**77.8**	**18.3 ± 15.7**	**45.4**	**100**	**70.5 ± 27.8**	**97.1**	**4.0**	**2.1 ± 10.4**	**52.0**	**66.7**	**28.5 ± 30.8**	**100**
Decapterus macarellus	0	0	0	22.2	3.9 ± 8.4	24.2	78.6	39.1 ± 40.9	97.1	4.0	2.1 ± 10.4	52.0	50.0	0. ± 21.9	49.7
Decapterus punctatus	9.1	1.6 ± 5.4	17.8	EXC	EXC	EXC	0	0	0	EXC	EXC	EXC	EXC	EXC	EXC
Sardinella maderensis	9.1	0.2 ± 0.8	2.6	66.7	12.3 ± 16.6	45.4	28.6	13.8 ± 23.1	58.9	0	0	0	33.3	14.0 ± 21.4	50.3
Selar crumenophthalmus	0	0	0	22.2	2.1 ± 4.7	13.8	21.4	1.2 ± 3.8	13.9	0	0	0	0	0	0
Tylosurus acus	45.5	1.5 ± 4.2	14.2	EXC	EXC	EXC	64.3	16.5 ± 17.3	46.9	EXC	EXC	EXC	EXC	EXC	EXC
Fish larva	**0**	**0**	**0**	**0**	**0**	**0**	**50.0**	**16.5 ± 21.7**	**58.8**	**0**	**0**	**0**	**75.0**	**45.7 ± 28.8**	**74.6**
Ophioblennius sp.	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC	EXC
Synodus saurus	0	0	0	0	0	0	50.0	16.5 ± 21.7	58.8	0	0	0	75.0	45.7 ± 28.8	74.6
Mesopelagic fishes	**100**	**90.8 ± 15.2**	**100**	**88.9**	**27.4 ± 21.6**	**66.1**	**85.7**	**11.2 ± 7.6**	**24.3**	**96.0**	**81.1 ± 31.9**	**100**	**25.0**	**0.6 ± 1.6**	**5.4**
Ceratoscopelus warmingii	0	0	0	44.4	13.8 ± 21.5	54.6	21.4	1.4 ± 2.9	8.1	0	0	0	0	0	0
Diaphus brachycephalus	9.1	0.1 ± 0.3	1	22.2	2.5 ± 7.1	21.5	0	0	0	0	0	0	0	0	0
Diaphus perspicillatus	45.5	0.2 ± 0.4	1.3	EXC	EXC	EXC	0	0	0	EXC	EXC	EXC	EXC	EXC	EXC
Hygophum hygomii	EXC	EXC	EXC	33.3	3.9 ± 8.4	24	EXC	EXC	EXC	0	0	0	0	0	0
Myctophum affine	EXC	EXC	EXC	0	0	0	EXC	EXC	EXC	92.0	74.5 ± 31.9	96.6	8.3	0.4 ± 1.5	5.0
Notoscopelus resplendens	100	90.5 ± 15.4	100	55.6	7.2 ± 8.1	21.9	71.4	9.8 ± 8.6	24.3	96.0	6.6 ± 4.3	24.4	16.7	0.2 ± 0.5	1.6
Squids	**27.3**	**5.8 ± 10.4**	**27.9**	**77.8**	**54.3 ± 32.1**	**84.4**	**64.3**	**1.7 ± 1.7**	**4.7**	**28.0**	**16.8 ± 27.8**	**75.6**	**91.7**	**25.2 ± 36.6**	**98.4**
Hyaloteuthis pelagica	18.2	3.4 ± 7.6	19.1	66.7	6.4 ± 7.3	20.7	64.3	1.7 ± 1.7	4.7	28.0	16.6 ± 27.6	75.6	83.3	25.1 ± 36.6	98.3
Octopoteuthis megaptera	27.3	2.3 ± 4.6	13.2	77.8	47.9 ± 27.9	69.6	0	0	0	12.0	0.2 ± 1.2	5.9	66.7	0.1 ± 0.1	0.1

Table S6. Comparison of isotopic niche metrics between study species (Cape Verde shearwater, CE; Bulwer's petrel, BB) and years (2017–2019): (1) nitrogen range represents the distance between maximum and minimum δ^{15}N values; (2) Carbon range represents the distance between maximum and minimum δ^{13}C values; (3) SEA_C represents the standard ellipse area corrected for small sample size; (4) SEA_B represents the Bayesian estimation of standard ellipse and its area, here presented with 95% credible intervals (95% CI); (5) total area (TA), as the convex hull area encompassed by all values in a δ^{13}C – δ^{15}N biplot space. Sample size is represented by n

Group	n	Nitrogen range	Carbon range	SEA_C	SEA_B (95% CI)	TA
CE 2017 (whole blood)	12	1.35	1.13	0.52	0.52 (0.25-0.83)	0.93
CE 2018 (plasma)	18	2.97	3.35	2.37	2.37 (1.32-3.55)	6.11
CE 2019 (plasma)	29	3.36	3.90	1.74	1.77 (1.11-2.41)	5.54
BB 2017 (whole blood)	10	1.59	1.08	0.57	0.57 (0.24-0.94)	0.93
BB 2018 (plasma)	28	4.20	2.24	1.83	1.84 (1.19-2.56)	4.85
BB 2019 (plasma)	15	2.07	1.84	0.92	0.92 (0.46-1.40)	2.19

Table S7. Comparison of isotopic niche Bayesian estimation and its area (SEA_B, P =), Bayesian overlap of isotopic niche (SEA_B), and its percentage and respective 95% CI, within the study species (Cape Verde shearwater, CE; Bulwer's petrel, BB) and between years (2017–2019)

Comparisons	SEA_B (P=)	Overlap (SEA_B)	Overlap (%)
CE 2017 vs CE 2018	**< 0.001**	2.6	18.6 (6.1-30.1)
CE 2017 vs CE 2019	**0.001**	1.4	11.1 (0-22.7)
CE 2018 vs CE 2019	0.83	7.2	41.2 (24.7-57.7)
BB 2017 vs BB 2018	**0.002**	2.1	17.5 (5.2-30.3)
BB 2017 vs BB 2019	0.12	0.7	8.9 (0-25.6)
BB 2018 vs BB 2019	0.98	4.1	34.2 (15.7-53.1)

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