Fig. S1. Mean environmental variables in the central Mediterranean sea during storm petrel tracking periods. Mean chlorophyll-a concentration (mg m^{-3}) for 2019 (22/07/2019-11/08/2019) and 2020 (11/07/2020-23/07/2020) are shown in panels a) and b) respectively. Mean surface temperature (°C) for 2019 (23/07/2019-11/08/2019) and 2020 (11/07/2020-22/07/2020) are shown in panels c) and d) respectively. Mean environmental variables were calculated using 'Raster' R package (Hijmans 2018). Colony location is indicated with a star and black lines show foraging trips. To aid visualization, chlorophyll-a concentration was plotted using 1-99% values via the QGIS "*cumulative count cut*" function, in order to remove outliers.

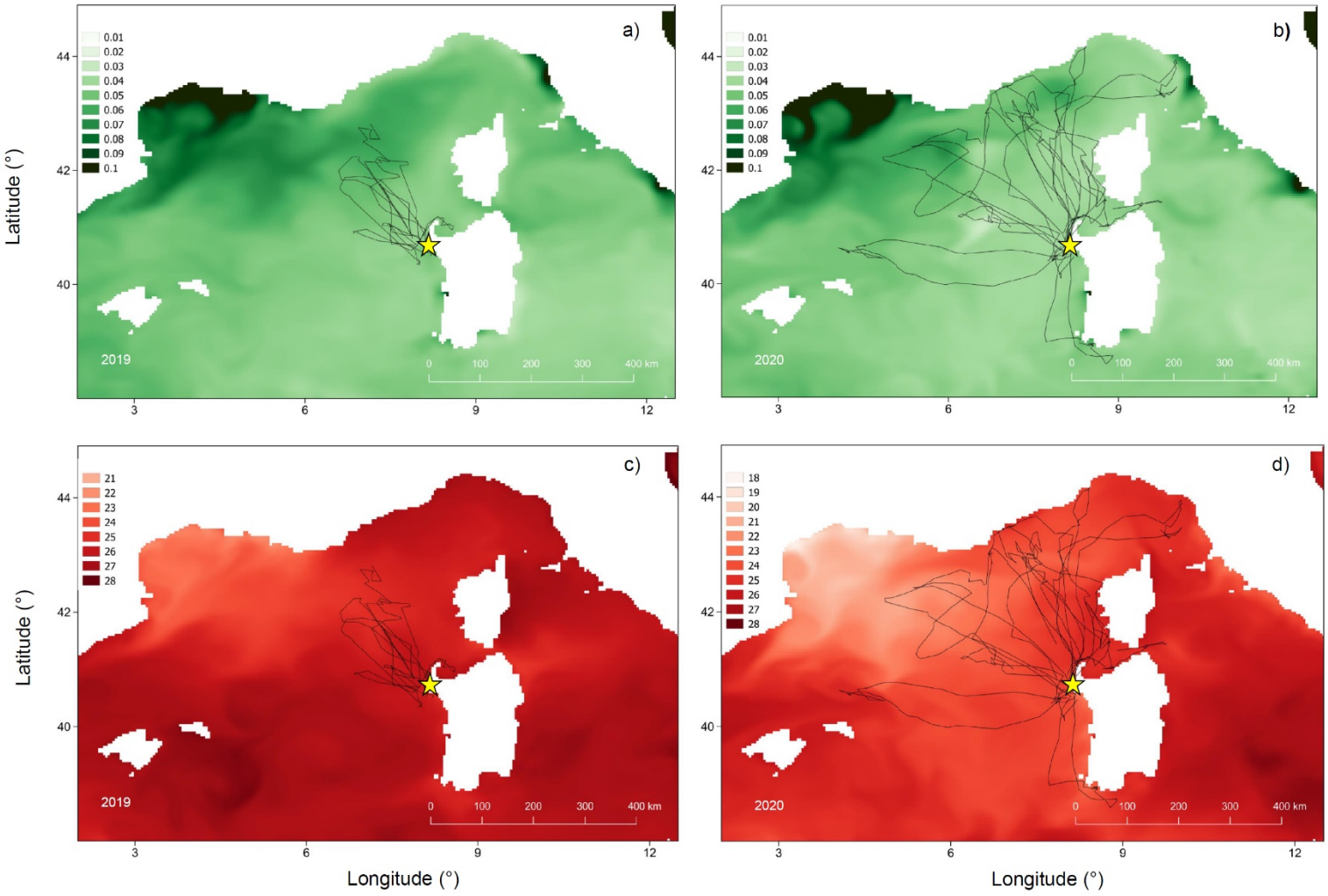

Fig. S2. Mean dynamic meso- and submesoscale oceanographic features in the central Mediterranean sea during storm petrel tracking periods. Mean current speed (m s^{-1}) for 2019 (23/07/2019-10/08/2019) and 2020 (11/07/2020-22/07/2020) are shown in panels a) and b) respectively. Mean eddy kinetic energy (EKE, m^2 s^{-2}) for 2019 (23/07/2019-10/08/2019) and 2020 (11/07/2020-22/07/2020) are shown in panels c) and d) respectively. Mean finite-size Lyapunov exponents (FSLE, day^{-1}) for 2019 (23/07/2019-10/08/2019) and 2020 (11/07/2020-23/07/2020) are shown in panels e) and f) respectively. Mean environmental variables were calculated using 'Raster' R package (Hijmans 2018). Colony location is indicated with a star and black lines show foraging trips. To aid visualization, EKE and FSLE were plotted using 1-99% values via the QGIS "*cumulative count cut*" function, in order to remove outliers.

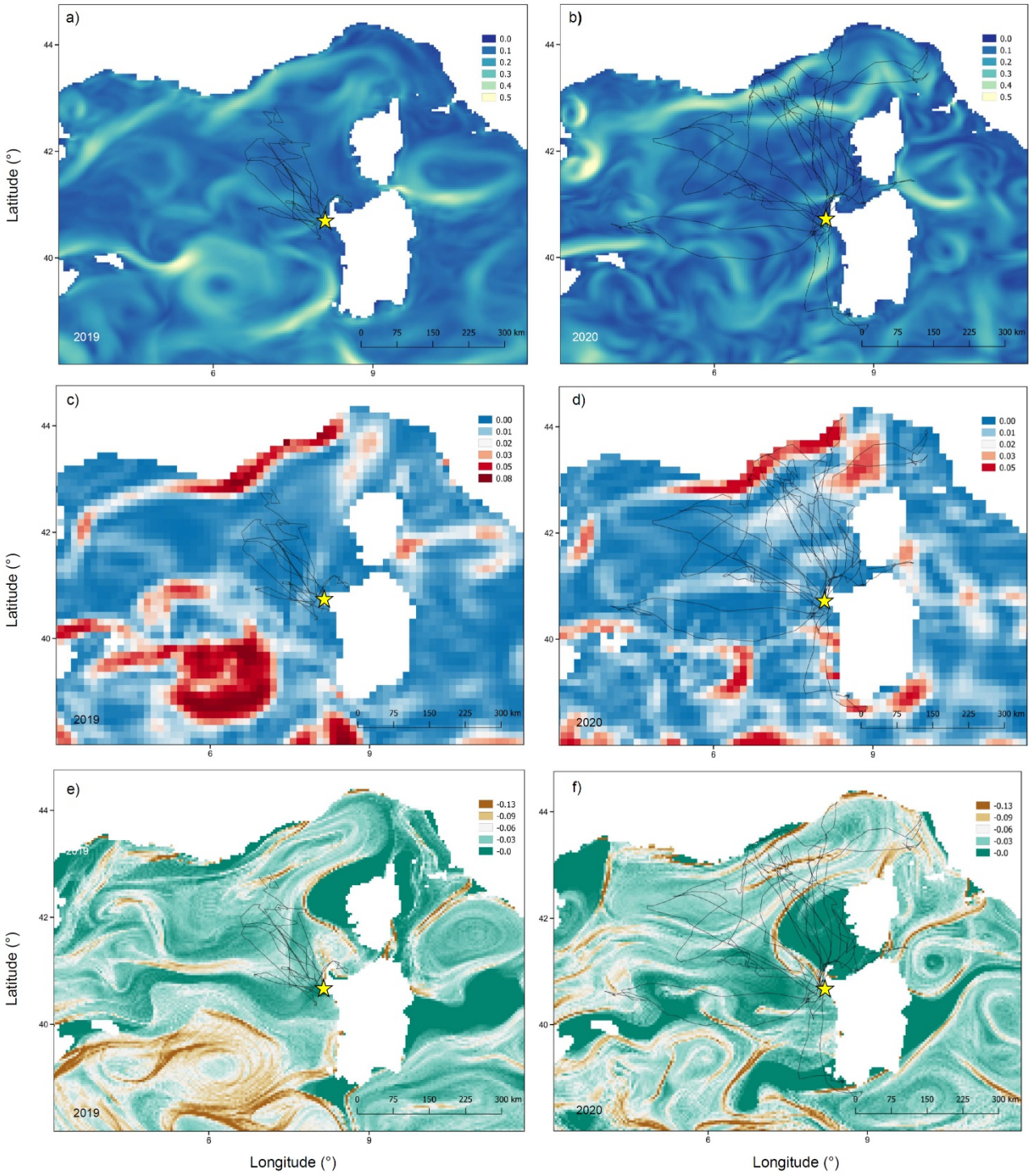

Fig. S3. Depth of the central Mediterranean sea (m). The colony location is indicated with a star and grey lines show foraging trips.

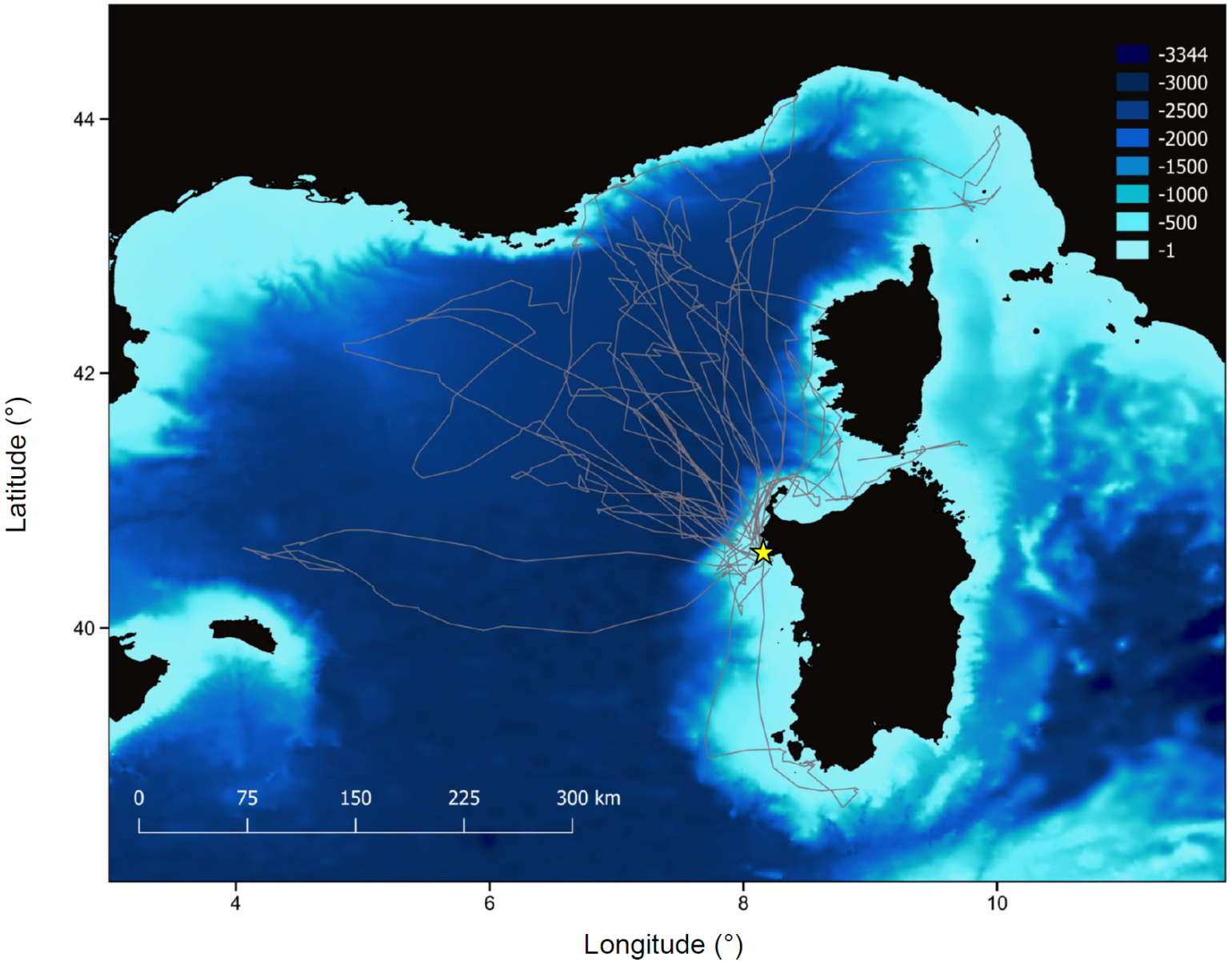

Fig. S4. Contour plot of the combined effect of sea depth (m) and current speed (m s^{-1}) on foraging behaviour of incubating storm petrel from a fitted GAMM. A binary GAMM was fitted (0: non- use i.e. travelling, 268 GPS fixes; 1: use i.e. searching/foraging, 390 GPS fixes) with sea depth and current speed fitted as a bivariate tensor (with cubic regression splines with shrinkage, and an auto-regressive AR1 correlation structure applied on each individual foraging trip at regularly spaced time-steps) to data collected during incubation (model $r^2 = 0.10$; $p < 0.001$, edf = 8.28; n = 12 trips). This graph provides some evidence that the combined effect of shallow waters and high current speed could increase foraging probability in incubating storm petrels.

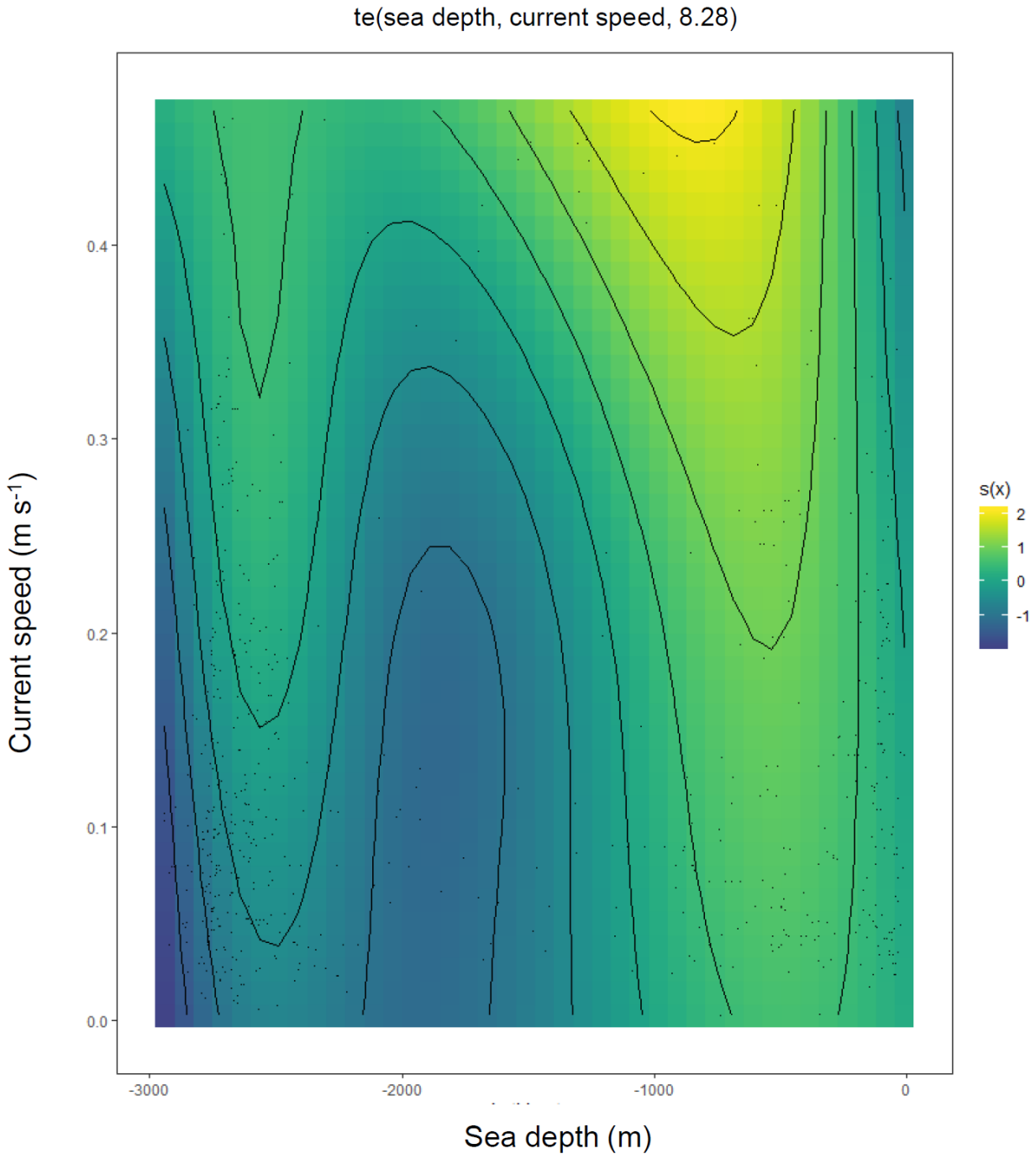

Table S1. Effect of body condition on foraging trip metrics. Spearman rank correlation coefficients between each trip metric and the scaled mass index (SMI) are shown. We considered only data from 2020 (n = 12) since in 2019 the sample of individuals with available SMI was too small (n = 5).

Trip metrics	**r_s**	**p**
Trip duration (h)	-0.01	0.96
Total trip length (km)	0.17	0.60
Maximum distance from colony (km)	0.19	0.54
Mean distance from colony (km)	0.42	0.18
Maximum distance from coast (km)	-0.31	0.32
Mean distance from coast (km)	0.05	0.87
Maximum speed (m s^{-1})	0.35	0.27
Mean speed (m s^{-1})	0.19	0.54
Home range size (km^2)[a]	0.25	0.43

Table S2. Full fitted binomial GAMMs. Models predicting the probability of use (1) vs. non-use (0) according to seven static/dynamic environmental variables during incubation (use: 390, non-use: 268 fixes) and chick-rearing (use: 138, non-use: 45 fixes). Cubic regression splines with shrinkage were used, and an auto-regressive AR1 correlation structure was applied on each individual foraging trip. Model r^2; incubation: $r^2 = 0.17$; chick-rearing: $r^2 = 0.16$.

Environmental variable	**Incubation**		**Chick-rearing**	
	edf	**p**	**edf**	**p**
Chlorophyll-a	1.75	0.25	1.04	0.01
Sea surface temperature	0.91	0.02	0.01	0.55
Sea depth	6.63	< 0.001	1.39	< 0.001
Slope	1.75	0.25	0.79	0.08
Eddy kinetic energy	1.00	0.91	1.00	0.02
Finite-size Lyapunov exponents	3.83	< 0.001	1.17	0.01
Current speed	1.35	< 0.001	0.46	0.18