

Table S1. Number of locations and tracking days per turtle. Telemetry data provided by the Argos satellite system classifies the quality of position fixes into seven location classes (LC) based on error estimation associated with each point: LC3 (<250 m), LC2 (250-500 m), LC1 (500-1500 m), LC0 (>1500 m), LCA, LCB, and LCZ, with no error estimates provided for the latter three classes (CLS 2016).

Turtle	Total Tracking Days	n Locs Total	LC 3	LC 2	LC 1	LC 0	LC A	LC B	LC Z
1	563	2477	259	258	393	692	236	635	4
2	180	1173	30	40	121	493	165	323	1
3	107	876	11	19	11	21	148	666	0
4	372	3048	30	33	47	48	363	2523	4
5	1216	8112	40	51	44	13	284	7675	5
6	525	5897	53	53	117	116	888	4670	0
7	149	2135	21	35	80	90	531	1378	0
8	498	7359	79	71	85	37	698	6389	0
9	768	4634	56	92	424	984	804	2271	3
10	600	5097	44	103	557	1842	880	1662	9
11	323	2621	10	41	259	938	479	892	2
12	329	1440	14	26	97	649	233	416	5
13	329	3532	16	38	196	1616	683	981	2
14	653	5637	20	76	595	2197	981	1764	4
15	417	3221	28	82	357	1160	506	1083	5
16	168	1004	3	10	28	36	231	696	0
17	87	902	7	13	69	170	183	460	0
18	137	1696	100	78	156	301	346	715	0
19	378	2680	74	108	410	1106	378	604	0
20	138	1203	43	48	73	93	241	703	2
21	238	1886	31	67	240	891	209	448	0
22	31	223	1	2	3	4	45	168	0
23	53	360	31	10	9	8	97	205	0
24	37	322	5	15	53	130	45	74	0
Total:	8296	67535	1006	1369	4424	13635	9654	37401	46
Mean:	345.7	2814.0	41.9	57.0	184.3	568.1	402.2	1558.4	1.9
Minimum:	31	223	1	2	3	4	45	74	0
Maximum:	1216	8112	259	258	595	2197	981	7675	9
% of Total:			1.49%	2.03%	6.55%	20.19%	14.29%	55.38%	0.07%

Table S2. Summary of temporal data gaps in raw Argos data.

Gap length (days; n)	Percent of all gaps	Cumulative percent of all gaps
4 (12)	26.7%	26.7%
5 (8)	17.8%	44.4%
6 (3)	6.7%	51.1%
7 (3)	6.7%	57.8%
8 (3)	6.7%	64.4%
9 (2)	4.4%	68.9%
10 (2)	4.4%	73.3%
11 (3)	6.7%	80.0%
13 (2)	4.4%	84.4%
14 (2)	4.4%	88.9%
24 (2)	4.4%	93.3%
30 (1)	2.2%	95.6%
64 (1)	2.2%	97.8%
130 (1)	2.2%	100.0%
Gap Summary		
Total (n)	Mean ± SD (days)	Range (days)
45	12.2 ± 20.6	4 - 130
Interneesting (n)	Migration (n)	Foraging (n)
3	0	42

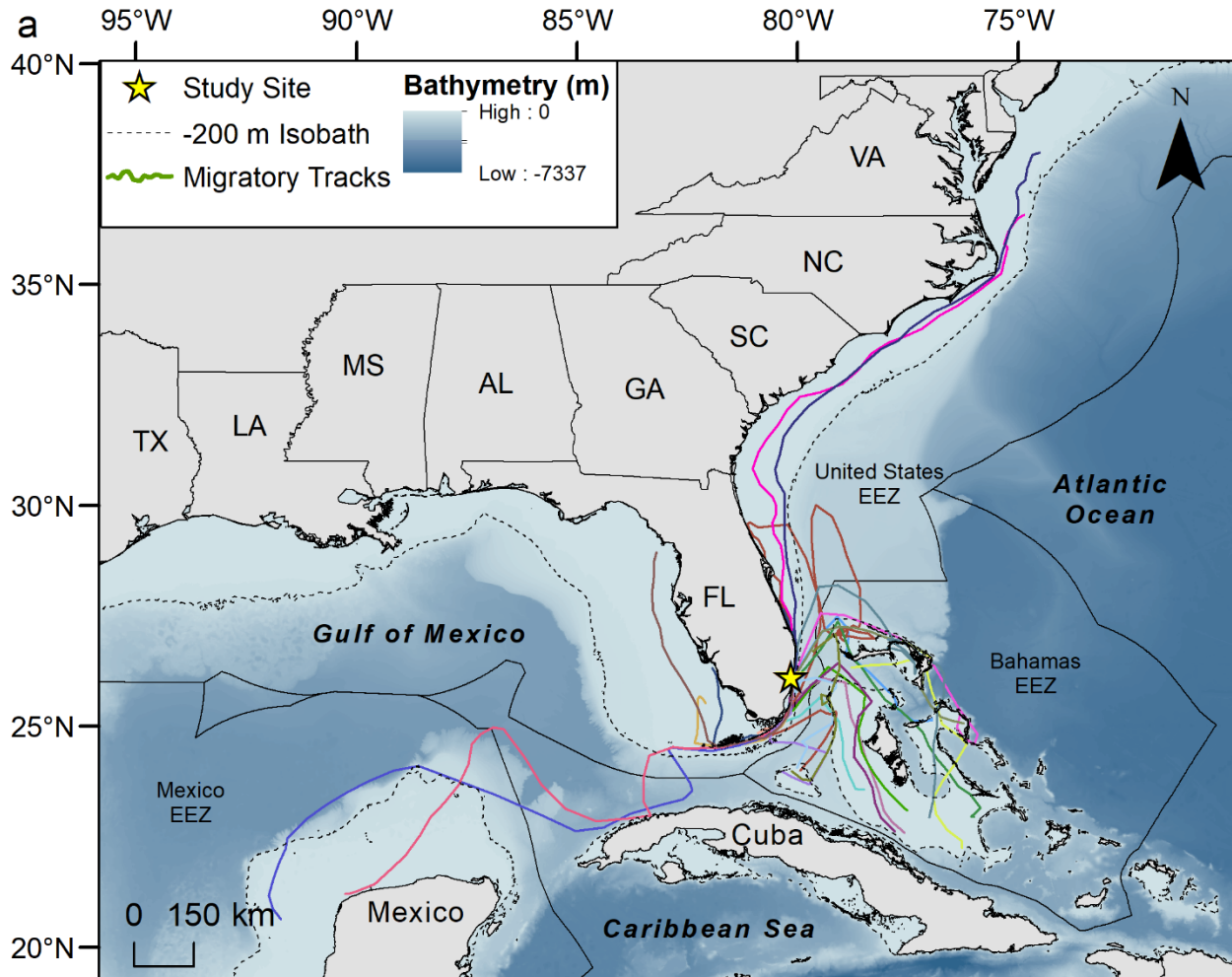
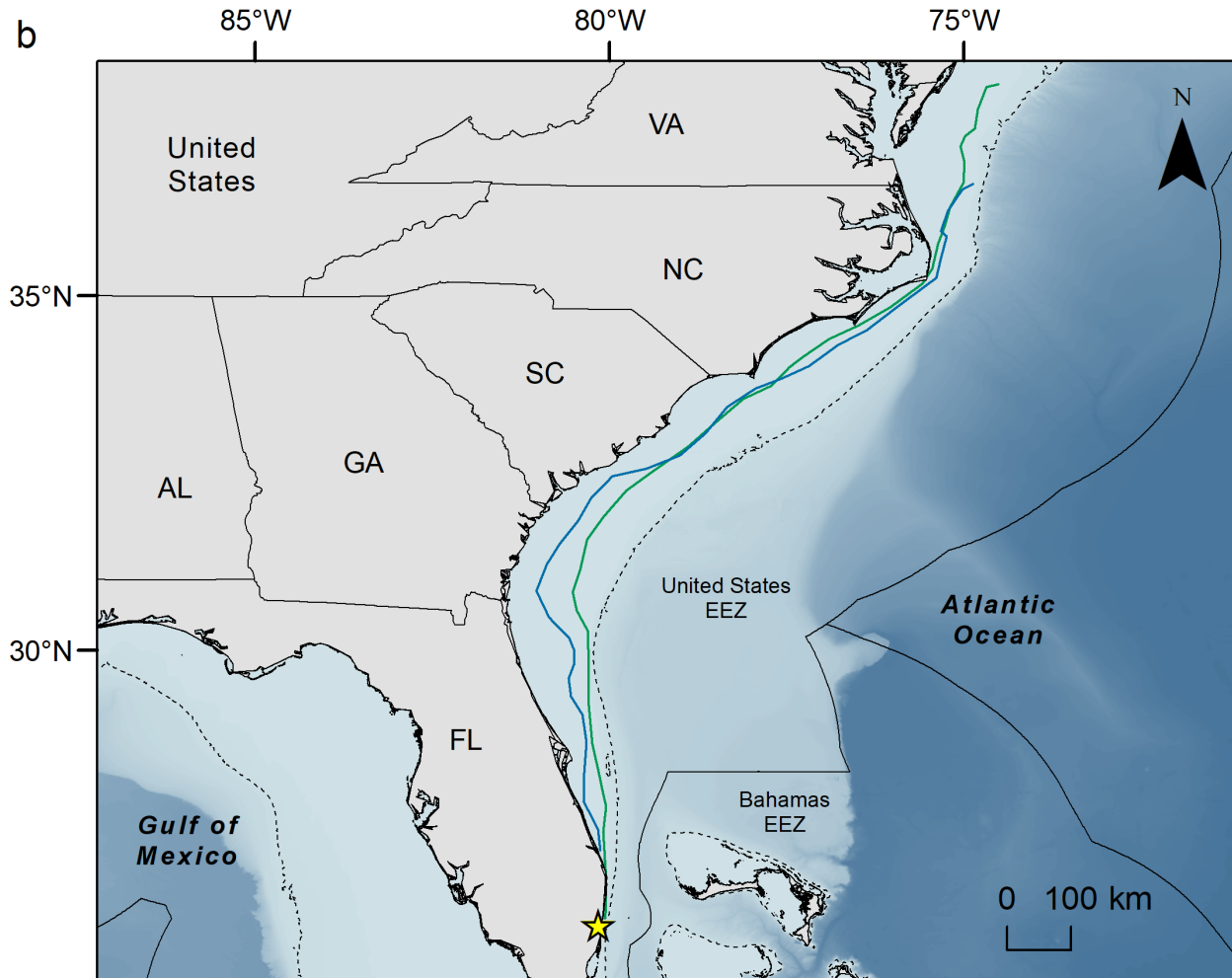
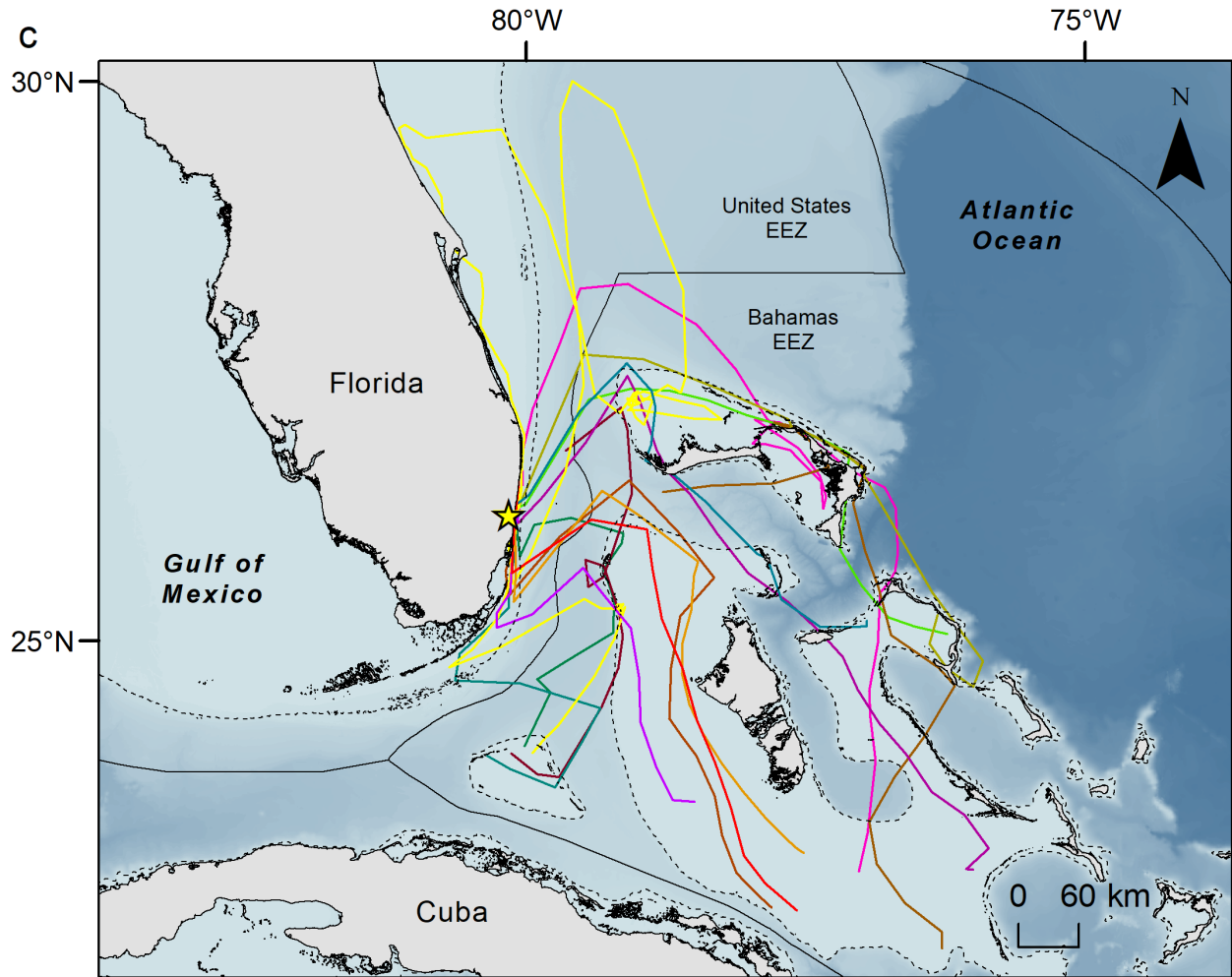
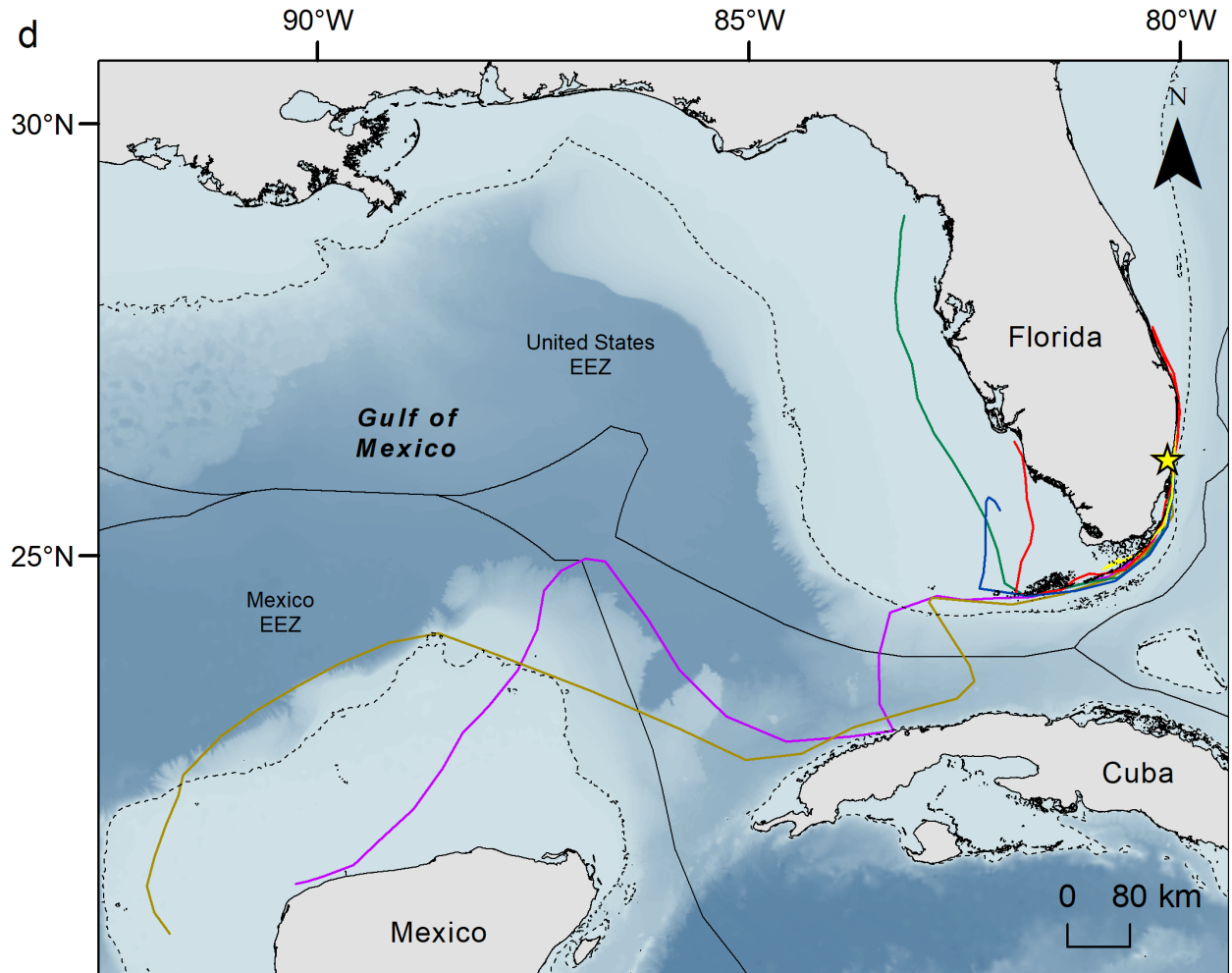
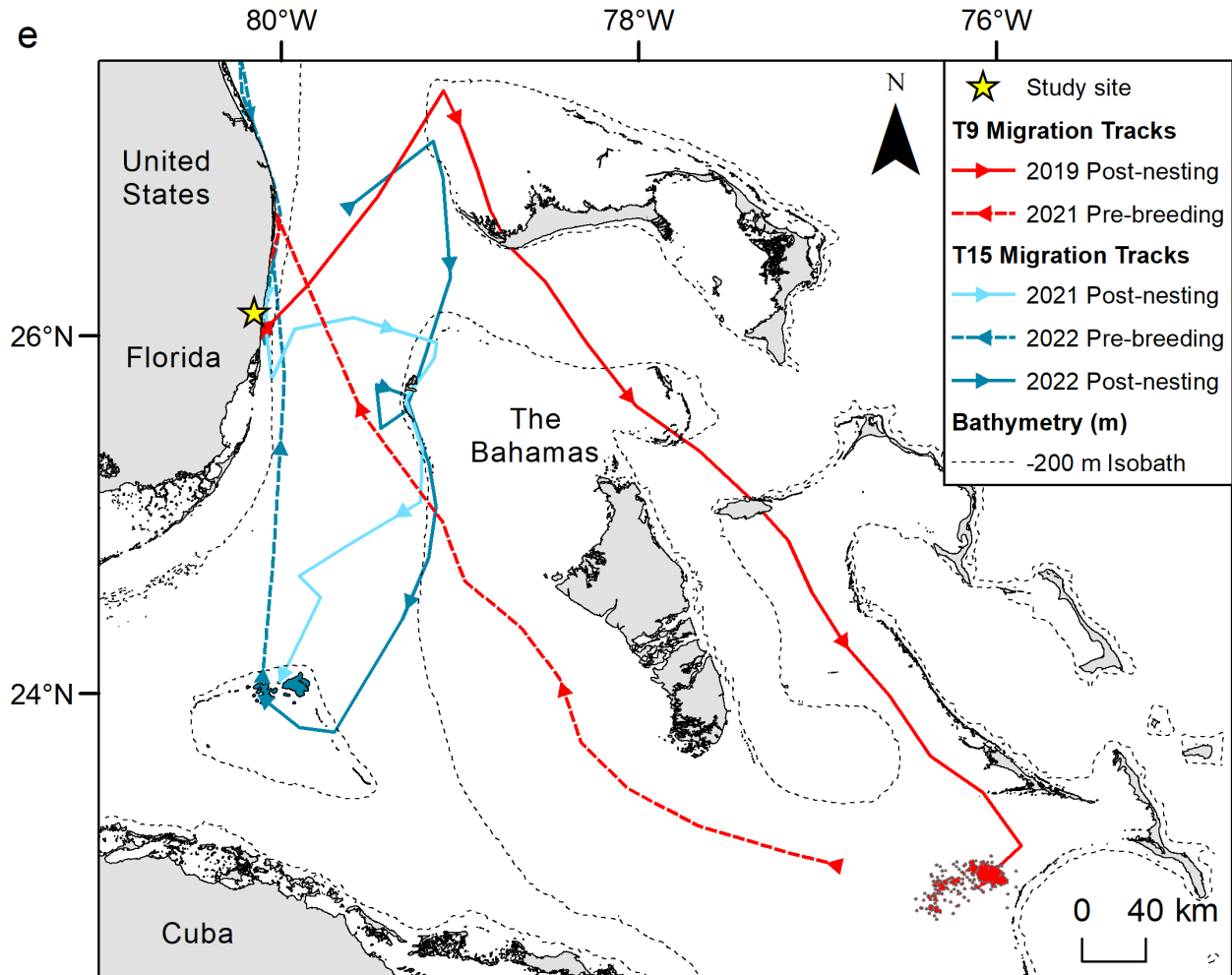


Fig. S1a–e. Post-nesting migration routes for southeast Florida loggerhead turtles *Caretta caretta*. The continental shelf is delineated by the 200 m isobath. The different track colors indicate different turtles. EEZ: exclusive economic zone. Plots are of turtles migrating to a. all foraging areas, then specifically foraging areas in the b. mid-Atlantic bight, c. The Bahamas, and d. Gulf of Mexico, and e. post-nesting and return migration tracks for two turtles that were tracked for two nesting seasons, with colored polygons representing the 95% KDEs for each turtle.









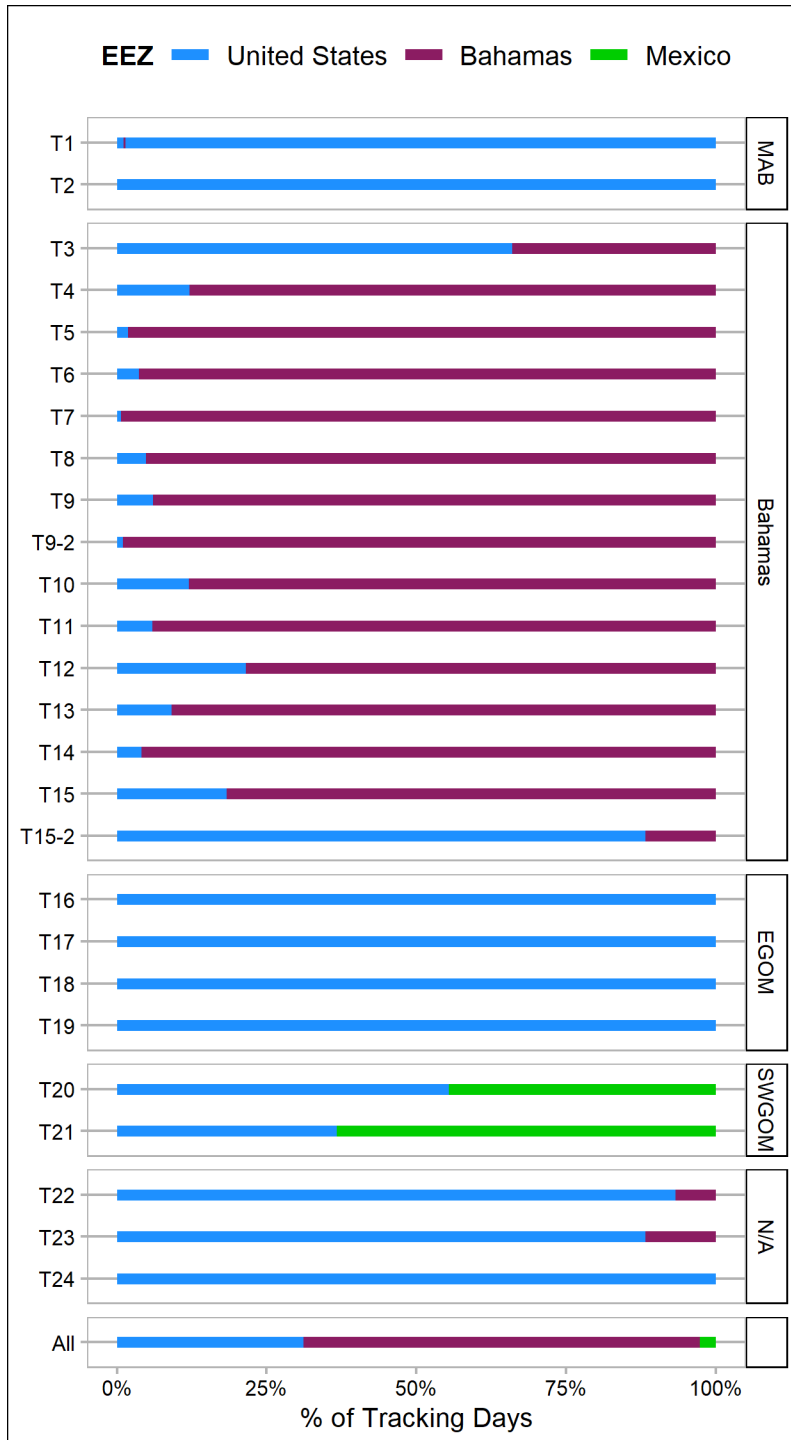


Fig. S2. Percent of total tracking days each turtle spent in the exclusive economic zones (EEZ) of the United States, The Bahamas, and Mexico, grouped by foraging region. MAB: mid-Atlantic bight; EGOM: eastern Gulf of Mexico; SWGOM: southwestern Gulf of Mexico; N/A: turtles not tracked to a foraging area.



Table S3. Number and proportion of total tracking days spent in each EEZ summarized by foraging area. Abbreviations as in Figure S2.

Foraging region (n individuals)	Total tracking days			% of total tracking days		
	United States	Bahamas	Mexico	United States	Bahamas	Mexico
MAB (2)	739	3	0	100%	0%	0%
Bahamas (13)	714	5300	0	12%	88%	0%
EGOM (4)	769	0	0	100%	0%	0%
SWGOM (2)	163	0	213	43%	0%	57%
N/A (3)	109	10	0	92%	8%	0%
All (24)	2494	5313	213	31%	66%	3%

Table S4. Interinteresting grid characteristics for the primary (cells with  $\geq 2$  days) and high-use (cells with  $\geq 21$  days) interinteresting areas.

Cell type	Combined cell area (km <sup>2</sup> )	Distance to shore (km)		Depth (m)	
		Range	Median	Range	Median
Interinteresting	469.1	0-8.6	1.8	1-214	19
High-use	39.9	0.1-4.6	2.0	4-63	19

Table S5. The number of days each turtle spent in primary (cells with  $\geq 2$  days) and high-use (cells with  $\geq 21$  days) interesting areas, along with the proportion of time turtles spent in areas north and directly east of the study site. Note, Turtle 7 is not listed below as she began migrating within 24 hours following satellite tag deployment. Abbreviations as in Fig. S2.

Turtle	Days spent in cells (% of total interesting days)					Foraging region
	Primary interesting	High-use areas	North of survey site	East of survey site	All east of survey site	
1	17 (41%)	0	32 (78%)	0	0	MAB
2	25 (89%)	8 (29%)	0	25 (89%)	25 (89%)	MAB
3	56 (85%)	14 (21%)	55 (83%)	4 (6%)	0	Bahamas
4	33 (82%)	24 (60%)	0	33 (82%)	33 (82%)	Bahamas
5	7 (54%)	1 (8%)	0	7 (54%)	7 (54%)	Bahamas
6	9 (64%)	0	9 (64%)	1 (7%)	0	Bahamas
8	21 (91%)	1 (4%)	3 (13%)	18 (78%)	0	Bahamas
9	36 (92%)	27 (69%)	0	36 (92%)	0	Bahamas
9-2	76 (89%)	43 (51%)	1 (1%)	74 (87%)	0	
10	62 (84%)	20 (27%)	1 (1%)	53 (72%)	0	Bahamas
11	9 (50%)	5 (28%)	0	6 (33%)	0	Bahamas
12	31 (58%)	1 (2%)	4 (8%)	29 (55%)	0	Bahamas
13	17 (71%)	6 (25%)	0	17 (71%)	17 (71%)	Bahamas
14	16 (70%)	1 (4%)	19 (83%)	0	0	Bahamas
15	41 (80%)	16 (31%)	0	41 (80%)	41 (80%)	Bahamas
15-2	66 (71%)	25 (27%)	3 (3%)	63 (68%)	0	
16	59 (81%)	18 (25%)	0	62 (85%)	62 (85%)	EGOM
17	14 (70%)	0	0	6 (30%)	0	EGOM
18	36 (80%)	2 (4%)	17 (38%)	19 (42%)	0	EGOM
19	49 (86%)	1 (2%)	39 (68%)	14 (25%)	0	EGOM
20	47 (82%)	22 (39%)	0	47 (82%)	0	SWGOM
21	42 (63%)	7 (10%)	26 (39%)	32 (48%)	0	SWGOM
22	24 (89%)	16 (59%)	0	24 (89%)	24 (89%)	N/A
23	39 (87%)	16 (36%)	0	39 (87%)	39 (87%)	N/A
24	30 (81%)	4 (11%)	27 (73%)	6 (16%)	0	N/A
Total Days	862 (77%)	278 (25%)	236 (21%)	656 (59%)	248 (22%)	
Total PTTs	25 (100%)	22 (88%)	13 (52%)	23 (92%)	8 (32%)	

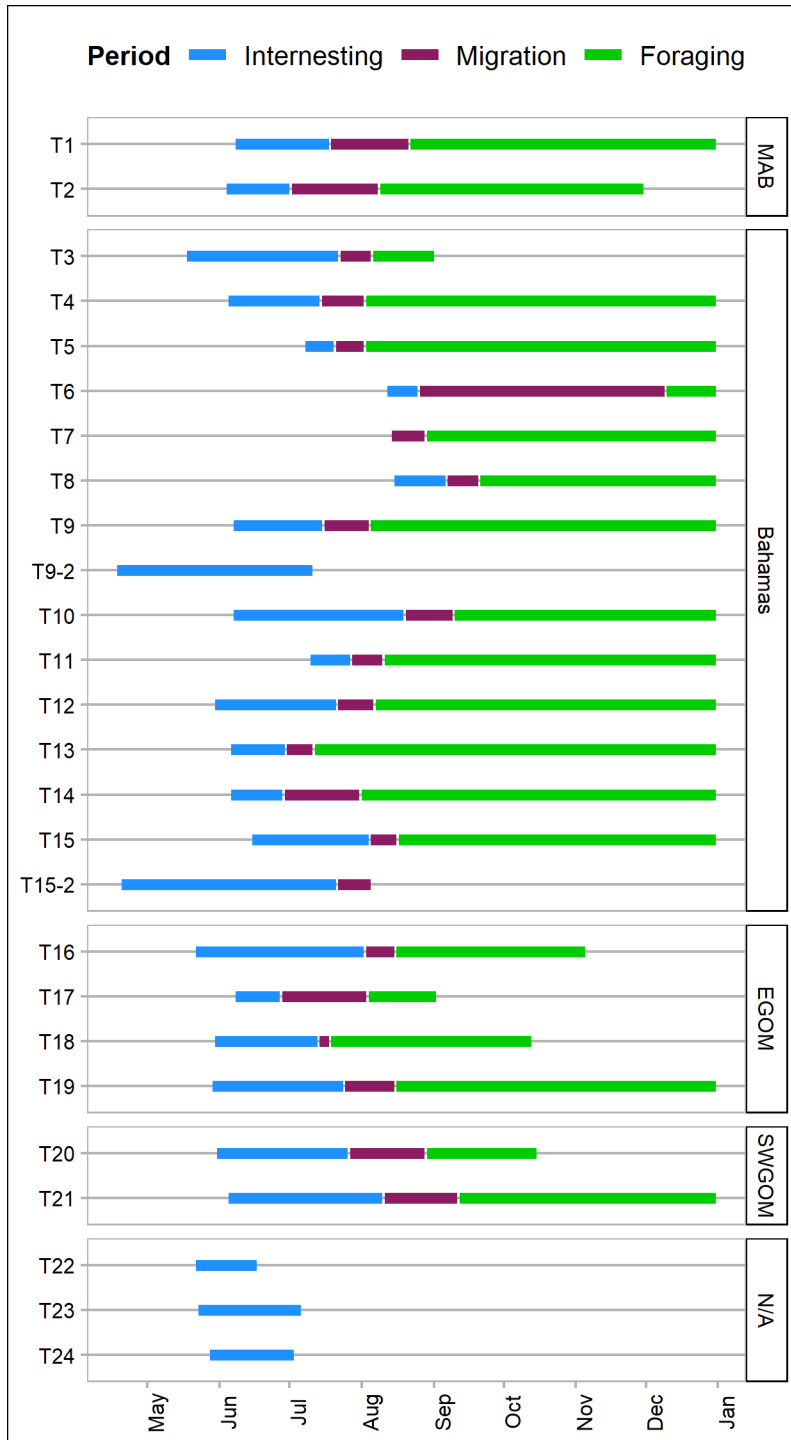


Fig. S3. Post-nesting movement timelines for southeast Florida nesting loggerheads grouped by foraging region. For simplicity, we cut off foraging periods on 31 Dec if tracking data continued beyond the end of the year that individuals were tagged. Abbreviations as in Figure S2.

Table S6. Number and proportion of total tracking days spent in each EEZ for each individual, summarized by foraging region, as well as number and proportion of migration days spent on and off the continental shelf (depth less than or greater than 200 m, respectively). Turtles without migration data did not complete a post-nesting migration. Abbreviations as in Figure S2.

Turtle	Total tracking days			% of total tracking days			Number of migration days		% of total migration days		Foraging region
	United States	Bahamas	Mexico	United States	Bahamas	Mexico	Over shelf	Off shelf	Over shelf	Off shelf	
1	559	3	0	99%	1%	0%	36	0	100%	0%	MAB
2	180	0	0	100%	0%	0%	40	0	100%	0%	MAB
Total	739	3	0	100%	0%	0%	76	0	100%	0%	MAB
3	70	37	0	65%	35%	0%	14	2	88%	12%	Bahamas
4	45	327	0	12%	88%	0%	18	3	86%	14%	Bahamas
5	19	990	0	2%	98%	0%	12	3	80%	20%	Bahamas
6	61	464	0	12%	88%	0%	86	22	80%	20%	Bahamas
7	1	148	0	1%	99%	0%	11	6	65%	35%	Bahamas
8	24	474	0	5%	95%	0%	9	7	56%	44%	Bahamas
9	40	626	0	6%	94%	0%	17	5	77%	23%	Bahamas
9-2	90	12	0	88%	12%	0%					
10	72	528	0	12%	88%	0%	17	6	74%	26%	Bahamas
11	19	304	0	6%	94%	0%	12	4	75%	25%	Bahamas
12	57	209	0	21%	79%	0%	15	3	83%	17%	Bahamas
13	30	298	0	9%	91%	0%	11	3	79%	21%	Bahamas
14	27	626	0	4%	96%	0%	26	9	74%	26%	Bahamas
15	54	242	0	18%	82%	0%	7	7	50%	50%	Bahamas
15-2	105	15	0	88%	12%	0%	10	6	62%	38%	
Total	714	5300	0	12%	88%	0%	265	86	75%	25%	Bahamas
16	168	0	0	100%	0%	0%	15	0	100%	0%	EGOM
17	87	0	0	100%	0%	0%	39	0	100%	0%	EGOM
18	137	0	0	100%	0%	0%	7	0	100%	0%	EGOM
19	377	0	0	100%	0%	0%	24	0	100%	0%	EGOM
20	76	0	62	55%	0%	45%	18	17	51%	49%	SWGOM
21	87	0	151	37%	0%	63%	21	13	62%	38%	SWGOM
Total	932	0	213	81%	0%	19%	100	30	77%	23%	Gulf of Mexico
22	28	3	0	90%	10%	0%					N/A
23	45	7	0	87%	13%	0%					N/A
24	36	0	0	100%	0%	0%					N/A
All	2494	5313	213	31%	66%	3%	465	116	80%	20%	

Table S7. Details of post-nesting and pre-breeding migrations for turtles that returned for a second nesting season.

Turtle	Migration type	Migration period (days)	Migration distance (km)	Mean depth (m)	Mean distance to shore (km)
9	Post-nesting	7/15/2019-8/4 (20)	795	234	20.2
9-2	Pre-breeding	4/3/2021-4/18 (16)	632.9	79.8	31.7
15	Post-nesting	8/4/2021-8/16 (12)	436.5	337.5	24.2
15-2	Pre-breeding	4/8/2022-4/20 (13)	584.6	92.2	7.3
15-2	Post-nesting	7/21/2022-8/5 (15)	574.6	241.9	20.1

Table S8. Foraging home range (95% kernel density estimate [KDE]) characteristics for female loggerhead turtles tagged in southeast Florida. Centroids were calculated for 50% KDEs. Abbreviations as in Figure S2. Seasonal foraging areas are indicated with an ‘S’ and ‘W’ for summer and winter, respectively.

Turtle	Foraging tracking duration (days)	Home range area (km <sup>2</sup> )	Centroid distance to shore (km)	Centroid depth (m)	Latitude	Longitude	Foraging region
1-S	173	12564.5	91.2	74	38.108	-74.074	MAB-S
1-W	222	2988.8	25.5	34	34.610	-76.197	MAB-W
2-S	76	1546.3	65.4	45	38.265	-74.327	MAB-S
2-W	20	386.3	11.8	24	35.337	-75.372	MAB-W
3	27	274	43.2	11	22.609	-77.580	Bahamas
4	313	35.1	58.5	5	23.099	-77.484	Bahamas
5	983	488.8	57.1	4	23.571	-78.408	Bahamas
6	405	253.2	16.1	11	23.720	-79.873	Bahamas
7	133	37.4	0.9	6	25.328	-76.445	Bahamas
8	461	22.5	0.8	6	25.200	-76.962	Bahamas
9	607	418.4	18.0	7	22.975	-76.025	Bahamas
10	505	106.3	38.3	10	22.315	-76.197	Bahamas
11	291	133.5	6.9	8	25.060	-76.210	Bahamas
12	197	707.5	29.9	10	22.649	-77.844	Bahamas
13	293	64.8	0.7	11	23.981	-80.343	Bahamas
14	597	249.6	77.3	9	22.978	-77.038	Bahamas
15	234	209.1	1.1	11	24.052	-79.892	Bahamas
16	82	4128.8	49.8	18	25.567	-82.074	EGOM
17	30	149.9	5.9	8	26.323	-81.911	EGOM
18	87	22.5	2.9	2	24.956	-80.715	EGOM
19	299	2461.5	24.6	9	29.098	-83.344	EGOM
20	48	55.6	51.3	64	20.622	-91.726	SWGOM
21	139	395.8	11.4	9	21.126	-90.362	SWGOM

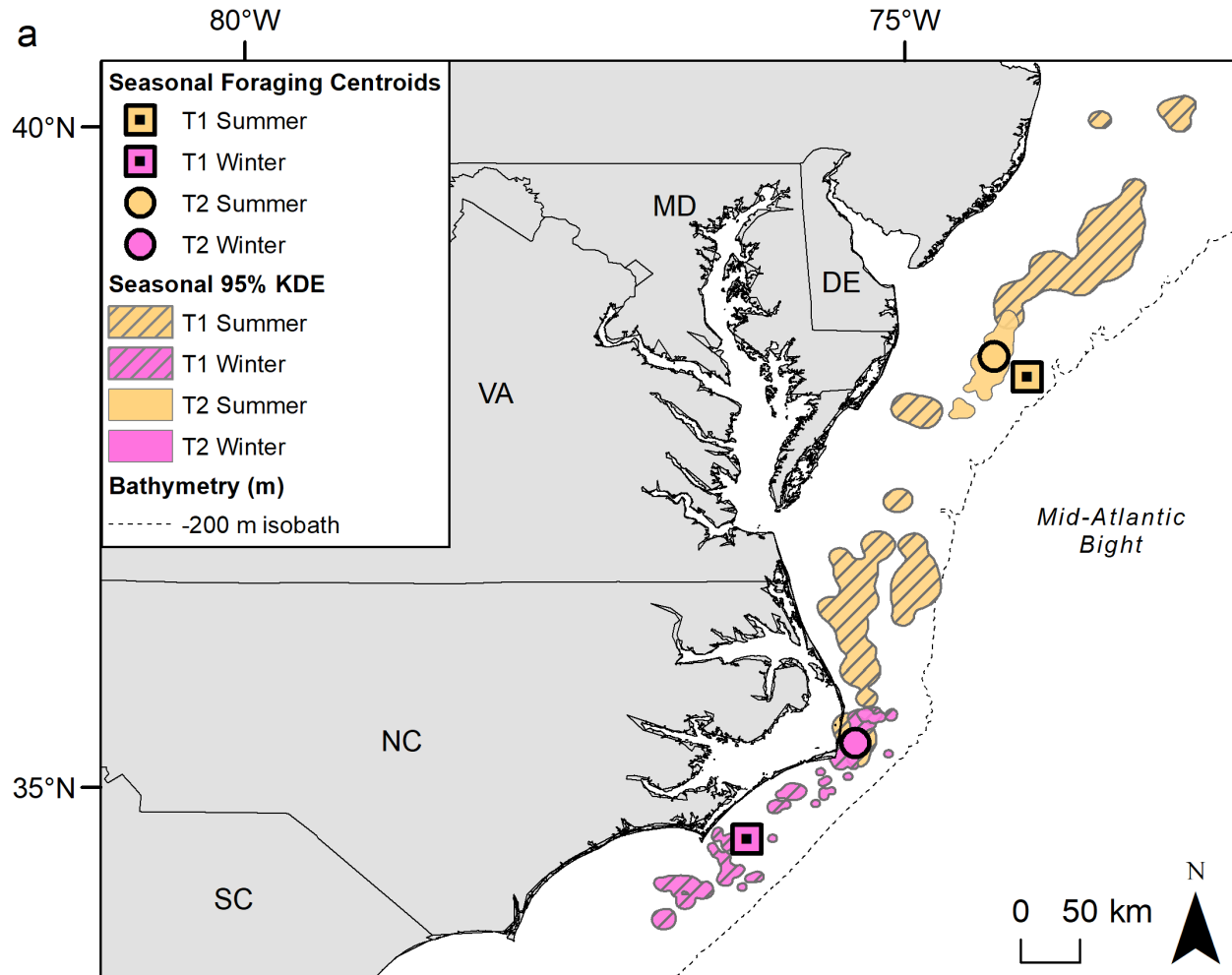
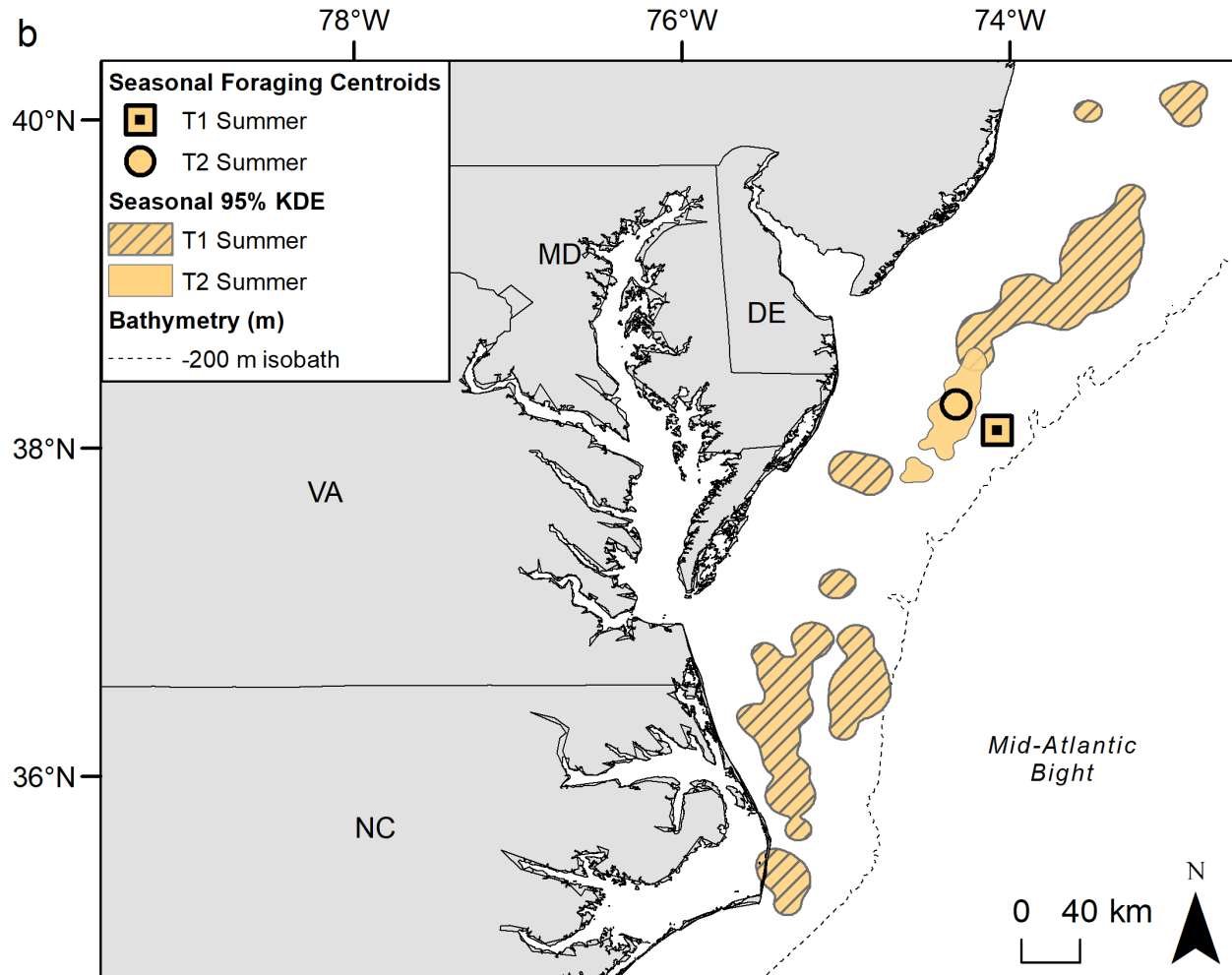
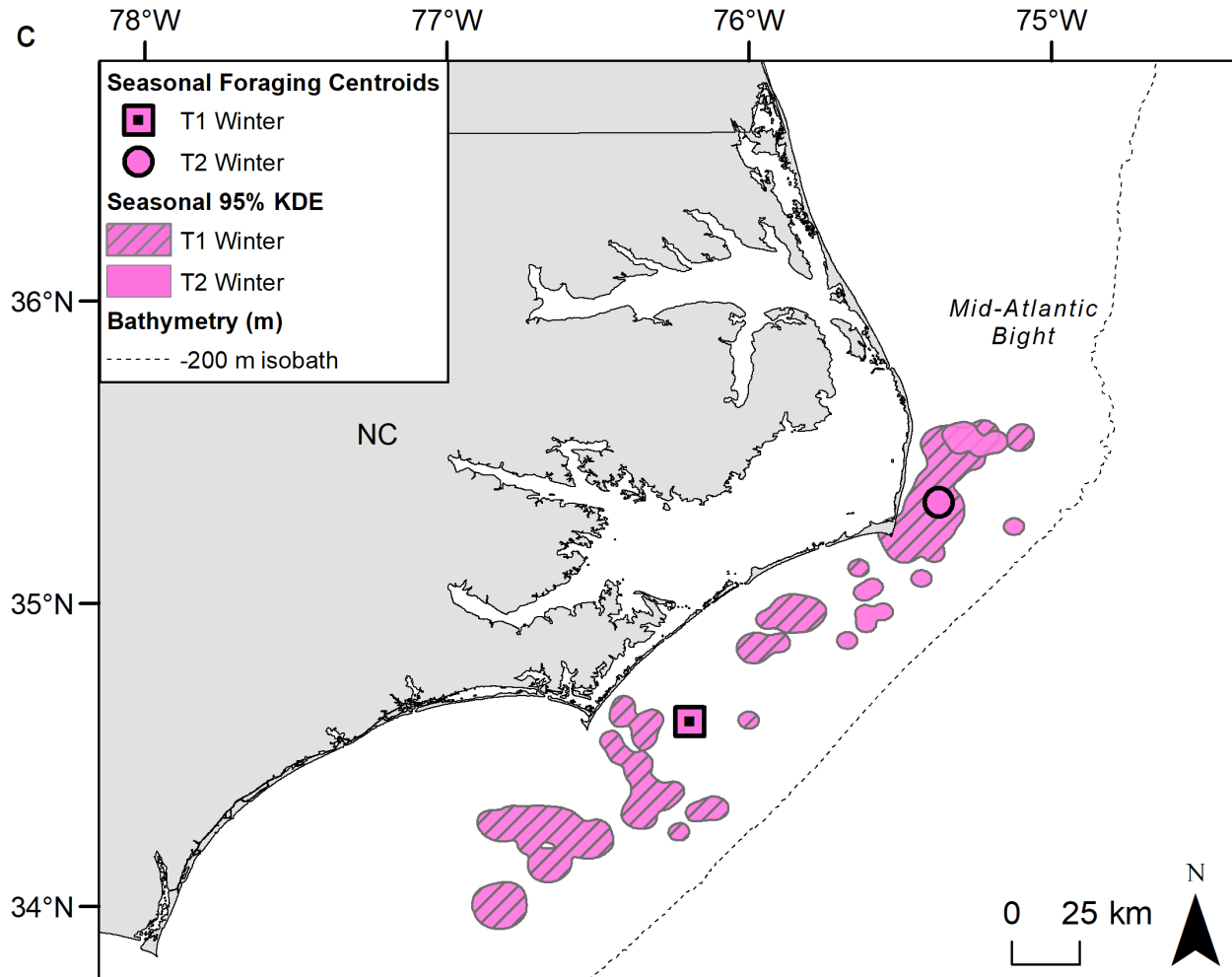


Fig. S4a–c. Seasonal foraging centroids (50% KDE) and 95% KDE polygons for southeast Florida female loggerheads with foraging areas in the mid-Atlantic bight for a. all foraging, b. summer foraging, and c. winter foraging. Abbreviations as in Table S8.







#### LITERATURE CITED

CLS (Collecte Localisation Satellite) (2016) Argos User's Manual. CLS, Toulouse, France.