

Ecography

**Supplementary material**

**ECOG-04929**

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## Appendix 1

**Table A1.** Summary data of estimated hatchling production at focal nesting aggregations for years 1993-2017, in numbers of turtles.

Species	Nesting Region	Annual Mean Hatchlings (% of total)	Standard Deviation (Coefficient of Variance %)
<i>Kemp's ridley</i>	Texas	7,425 (1)	7,471 (101)
	Tamaulipas	506,218 (89)	311,182 (61)
	Veracruz	54,405 (10)	52,533 (96)
<i>Green turtle</i>	NE Florida	35,525 (<1)	48,487 (136)
	SE Florida	833,656 (8)	1,065,135 (128)
	NW Florida	1,855 (<1)	2,085 (112)
	SW Florida	5,236 (<1)	9,637 (184)
	Campeche	108,444 (1)	106,447 (98)
	Yucatan	251,744 (2)	328,533 (131)
	Quintana Roo	529,156 (4)	529,156 (108)
	Costa Rica	9,308,403 (84)	3,724,917 (40)
<i>Loggerhead turtle</i>	NE Florida	87,635 (1)	39,502 (45)
	SE Florida	5,203,645 (83)	1,212,096 (23)
	NW Florida	242,220 (4)	71,469 (30)
	SW Florida	275,272 (9)	275,272 (46)
	Quintana Roo	141,281 (2)	58,971 (42)

**Table A2.** The geographic coordinates of nesting sites comprising the nesting regions (Table S1).

Nesting Region	Nest Site	Latitudinal Range (°N)	Longitudinal Range (°E)	Species Modeled
NE Florida, USA	Nassau	30.75 - 30.52	-81.41 - -81.45	Loggerhead, Green
NE Florida, USA	Duval	30.52 - 30.29	-81.37 - -81.41	Loggerhead, Green
NE Florida, USA	St. Johns	30.2 - 29.8	-81.26 - -81.35	Loggerhead, Green
NE Florida, USA	Flagler	29.78 - 29.33	-81.08 - -81.23	Loggerhead, Green
NE Florida, USA	Volusia	29.28 - 28.73	-80.78 - -81.03	Loggerhead, Green
SE Florida, USA	Brevard	28.5 - 27.5	-80.3 - -80.7	Loggerhead, Green
SE Florida, USA	Indian River	27.87 - 27.61	-80.31 - -80.44	Loggerhead, Green
SE Florida, USA	St. Lucie	27.57 - 27.23	-80.19 - -80.31	Loggerhead, Green
SE Florida, USA	Martin	27.25 - 26.95	-80.07 - -80.19	Loggerhead, Green
SE Florida, USA	Palm Beach	26.9 - 26.5	-79.97 - -80.08	Loggerhead, Green
SE Florida, USA	Broward	26.43 - 25.89	-80.06 - -80.12	Loggerhead, Green
SE Florida, USA	Miami-Dade	25.93 - 25.47	-80.12 - -80.17	Loggerhead, Green
SW Florida, USA	Monroe	24.68 - 24.58	-82.87 - -82.97	Loggerhead, Green
SW Florida, USA	Collier	26.23 - 25.78	-81.6 - -82	Loggerhead, Green
SW Florida, USA	Lee	26.68 - 26.23	-82 - -82.4	Loggerhead, Green
SW Florida, USA	Charlotte	26.99 - 26.63	-82.25 - -82.35	Loggerhead, Green
SW Florida, USA	Sarasota	27.25 - 26.96	-82.4 - -82.6	Loggerhead, Green
SW Florida, USA	Manatee	27.64 - 27.28	-82.6 - -82.8	Loggerhead, Green
SW Florida, USA	Hillsborough	27.63 - 27.52	-82.73 - -82.8	Loggerhead, Green
SW Florida, USA	Pinellas	28.01 - 27.72	-82.82 - -82.91	Loggerhead, Green
NW Florida, USA	Franklin	29.65 - 29.55	-84.8 - -85.2	Loggerhead, Green
NW Florida, USA	Gulf	29.75 - 29.65	-85.2 - -85.6	Loggerhead, Green
NW Florida, USA	Bay	30.3 - 29.9	-85.55 - -85.85	Loggerhead, Green
NW Florida, USA	Walton	30.34 - 30.18	-85.95 - -86.45	Loggerhead, Green
NW Florida, USA	Okaloosa	30.46 - 30.33	-86.43 - -86.88	Loggerhead, Green
NW Florida, USA	Santa Rosa	30.38 - 30.36	-86.83 - -87.18	Loggerhead, Green
NW Florida, USA	Escambia	30.34 - 30.27	-87.2 - -87.6	Loggerhead, Green
Texas, USA	Padre Island	27.44 - 27.03	-97.3 - -97.39	Kemp's Ridley
Tamaulipas, MX	Rancho Nuevo	23.74 - 23	-97.66 - -97.86	Kemp's Ridley
Veracruz, MX	Boca del Rio Alvarado	19.17 - 18.87	-95.88 - -96.08	Kemp's Ridley
Veracruz, MX	Northern Veracruz	20.58 - 20.38	-96.91 - -97.11	Kemp's Ridley
Campeche, MX	Isla del Carmen	18.74 - 18.65	-91.62 - -91.86	Green
Campeche, MX	Isla Aguada	18.84 - 18.74	-91.38 - -91.62	Green
Campeche, MX	Sabancuy	19.09 - 18.89	-91.04 - -91.34	Green
Campeche, MX	Cayo Arcas	21.25 - 21.15	-91.92 - -92.02	Green
Yucatan, MX	El Cuyo	21.54 - 21.49	-87.52 - -87.79	Green
Yucatan, MX	Celestún	21.08 - 20.87	-90.3 - -90.43	Green
Yucatan, MX	Alacranes	22.41 - 22.36	-89.65 - -89.71	Green
Yucatan, MX	Las Coloradas	21.61 - 21.55	-87.8 - -88.18	Green
Quintana Roo, MX	Holbox	21.57 - 21.53	-87.12 - -87.33	Green
Quintana Roo, MX	Cahpechen-Lirios	20.05 - 19.93	-87.45 - -87.47	Loggerhead, Green
Quintana Roo, MX	Aventuras-Kanzul	20.38 - 20.2	-87.31 - -87.43	Loggerhead, Green
Quintana Roo, MX	Punta Venado	20.56 - 20.52	-87.15 - -87.19	Loggerhead, Green
Costa Rica	Tortuguero	10.77 - 10.37	-83.39 - -83.58	Green

**Table A3.** Summary data of strandings (<38 cm CCL) across the northern Gulf of Mexico. Data span 1996-2017, in numbers of turtles.

<b>Species</b>	<b>Region</b>	<b>Annual Mean Strandings (% of total)</b>	<b>Standard Deviation (Coefficient of Variance %)</b>
<i>Kemp's ridley</i>	Campeche-Yucatan	0.1 (<1)	0.3 (324)
	Texas	45.3 (39)	27.9 (62)
	Louisiana - Alabama	41.2 (35)	46.4 (113)
	West Florida	30.5 (26)	26.9 (75)
<i>Green turtle</i>	Campeche-Yucatan	1.3 (<1)	2.5 (194)
	Texas	242.5 (65)	290.7 (120)
	Louisiana – Alabama	3.7 (1)	4.8 (129)
	West Florida	127.1 (34)	203.9 (160)
<i>Loggerhead turtle</i>	Campeche-Yucatan	0 (0)	0 (0)
	Texas	7.5 (31)	6.3 (84)
	Louisiana – Alabama	1.1 (5)	1.4 (122)
	West Florida	15.9 (65)	44.7 (282)

**Table A4.** Results of Spearman’s correlation tests relating predicted juvenile turtle abundance to strandings  $\leq 38$  cm CCL along different coastal regions of the Gulf of Mexico, spanning 1996-2017. Numbers outside of parentheses indicate Spearman’s r-value, numbers within parentheses indicate the p-value. Numbers in bold highlight statistically significant relationships ( $p \leq 0.05$ ).

Species	Nesting Areas	Stranding Regions			
		Texas Coast	Louisiana-Alabama Coast	West Florida Coast	Campeche-Yucatan Coast
<i>Kemp’s ridley</i>	<u>Aggregate (3 regions)</u>	0.11 (0.61)	0.31 (0.15)	<b>0.52 (0.01)</b>	--
	Texas	<b>0.58 (&lt;0.01)</b>	0.29 (0.19)	0.05 (0.83)	--
	Tamaulipas	0.08 (0.74)	0.16 (0.47)	<b>0.46 (0.03)</b>	--
	Veracruz	0.39 (0.07)	0.40 (0.06)	<b>0.45 (0.03)</b>	--
<i>Green turtle</i>	<u>Aggregate (8 regions)</u>	<b>0.76 (&lt;0.01)</b>	<b>0.58 (&lt;0.01)</b>	<b>0.42 (0.05)</b>	<b>0.61 (0.01)</b>
	NE Florida	0 (1)	0 (1)	0 (1)	0 (1)
	SE Florida	0 (1)	0 (1)	0.25 (0.25)	0 (1)
	NW Florida	0.24 (0.29)	0.18 (0.43)	-0.09 (0.70)	<b>0.60 (0.01)</b>
	SW Florida	0.41 (0.06)	<b>0.60 (&lt;0.01)</b>	0.39 (0.07)	<b>0.68 (&lt;0.01)</b>
	Campeche	<b>0.74 (&lt;0.01)</b>	<b>0.64 (&lt;0.01)</b>	0.35 (0.11)	<b>0.74 (&lt;0.01)</b>
	Yucatan	<b>0.79 (&lt;0.01)</b>	<b>0.60 (&lt;0.01)</b>	0.24 (0.28)	<b>0.74 (&lt;0.01)</b>
	Quintana Roo	<b>0.67 (&lt;0.01)</b>	0.41 (0.06)	0.29 (0.20)	<b>0.61 (0.01)</b>
Costa Rica	<b>0.54 (&lt;0.01)</b>	<b>0.65 (&lt;0.01)</b>	0.36 (0.10)	0.24 (0.36)	
<i>Loggerhead turtle</i>	<u>Aggregate (5 regions)</u>	-0.02 (0.93)	0.13 (0.58)	0.39 (0.07)	--
	NE Florida	0 (1)	0 (1)	0 (1)	--
	SE Florida	0 (1)	0 (1)	0 (1)	--
	NW Florida	-0.06 (0.79)	0.03 (0.91)	0.12 (0.58)	--
	SW Florida	-0.08 (0.74)	0.11 (.62)	0.35 (0.11)	--
	Quintana Roo	-0.10 (0.66)	-0.01 (0.96)	0.06 (0.81)	--