

Supplementary Materials

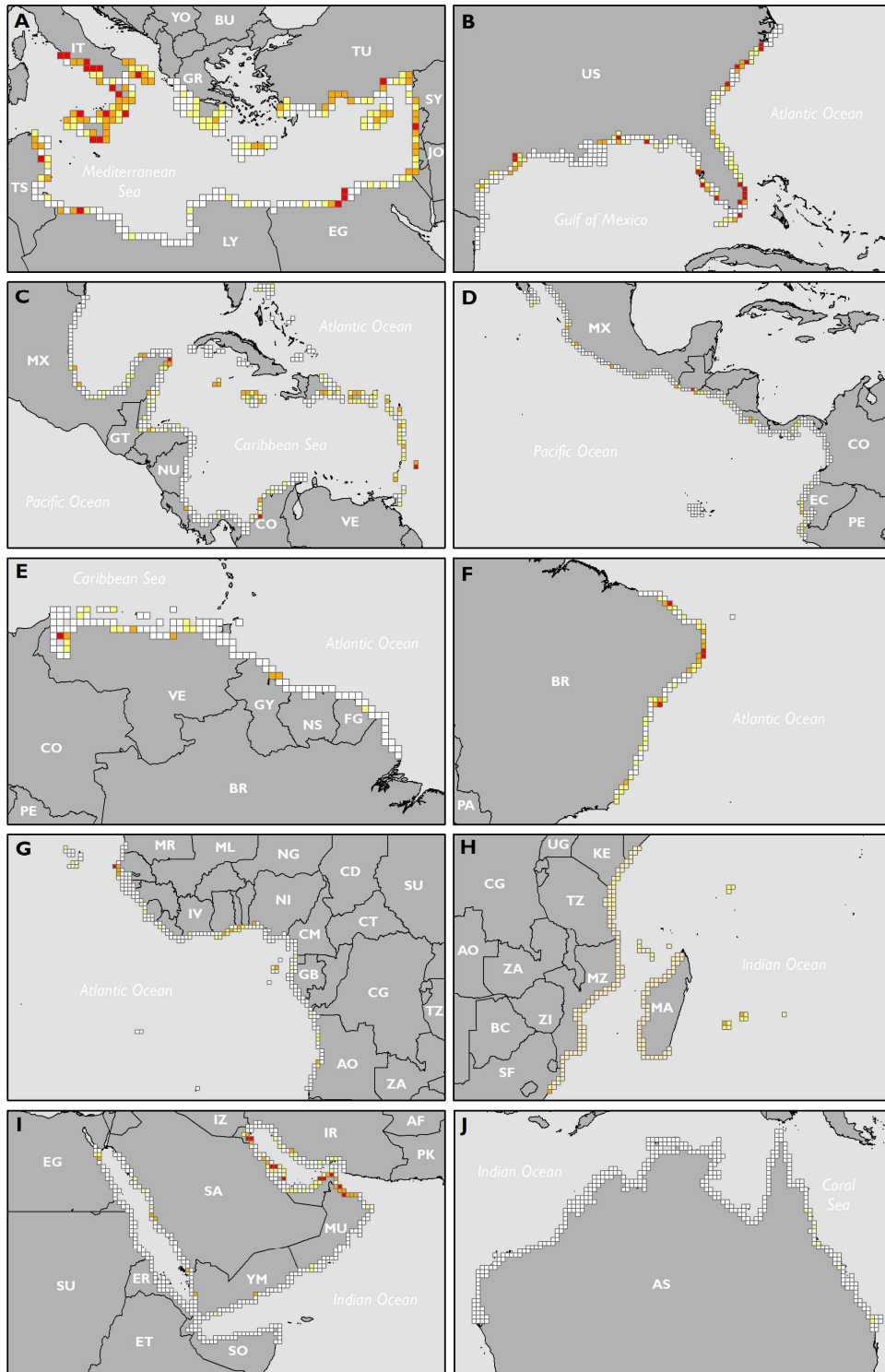


Figure S1. Maps showing gridded anthropogenic coastal development scores (where 0 = no hard anthropogenic coastal structures behind the nesting beach and 100 = all land behind the nesting beach is backed by hard anthropogenic coastal structures) for turtle nesting beaches in (A) the Mediterranean, (B) North America, (C) the Caribbean, (D) the central Pacific, (E) Central America, (F) South America, (G) West Africa, (H) East Africa, (I) Middle East, (J) Australia. Maps shown to different scales and projections.

Table S1. Table of data by region: median year of satellite imagery in Google Earth, length of each coastal transect (km), and percentage of survey points that were highly developed (50% of the area behind the beach was covered in hard anthropogenic coastal development, HACD), that had 25% of the area behind the beach covered in HACD, and where there was no HACD.

Region	Median Imagery Year	Length of Transect (km)	Highly Developed ($\geq 50\%$)	Low HACD (25%)	No HACD (0%)
North America	2014	10,120	24.1	11.4	64.5
W. Central America	2013	11,160	12.1	23.5	64.4
Central America	2013	13,010	21.1	24.8	54.1
South America	2013	9870	20.9	23.4	55.7
Mediterranean	2013	11,950	40.3	28.2	31.6
Africa	2013	29,200	9.3	12.2	78.5
Middle East	2013	15,840	13.3	11.9	74.9
Indian ocean	2014	10,780	14.8	28.0	57.1
S.E. Asia	2013	27,960	10.6	19.1	70.3
Australia	2010	16,700	1.5	7.1	91.4
Pacific Islands	2013	3420	27.5	31.0	41.5

Table S2. Results of pairwise tests of HACD between regions. Table shows Dunn test z-statistic and p value for AFR = Africa, CAM = Central America, IND = Indian Ocean, MID = Middle East, MED = Mediterranean, NAM = North America, AUS = Australia, PAC = Pacific islands, SAM = South America, SEA = south east Asia and WCA = West central America. Bold text denotes statistically significant pairwise differences.

Region	AFR	CAM	IND	MID	MED	NAM	AUS	PAC	SAM	SEA
CAM	-15.08 P = 0.00	X	X	X	X	X	X	X	X	X
IND	-11.49 P = 0.00	2.25 P = 0.67	X	X	X	X	X	X	X	X
MID	-3.05 P = 0.06	10.89 P = 0.00	7.96 P = 0.00	X	X	X	X	X	X	X
MED	-30.50 P = 0.00	-13.62 P = 0.00	-15.18 P = 0.00	-24.85 P = 0.00	X	X	X	X	X	X
NAM	-9.88 P = 0.00	3.38 P = 0.02	1.12 P = 1.00	-6.59 P = 0.00	16.08 P = 0.00	X	X	X	X	X
AUS	9.24 P = 0.00	21.26 P = 0.00	17.73 P = 0.00	10.79 P = 0.00	35.12 P = 0.00	16.16 P = 0.00	X	X	X	X
PAC	-13.65 P = 0.00	-4.58 P = 0.00	-5.98 P = 0.00	-11.49 P = 0.00	4.35 P = 0.00	-6.71 P = 0.00	-17.92 P = 0.00	X	X	X
SAM	-13.05 P = 0.00	0.51 P = 1.00	-1.61 P = 1.00	-9.50 P = 0.00	13.18 P = 0.00	-2.68 P = 0.20	-19.02 P = 0.00	4.78 P = 0.00	X	X
SEA	-5.87 P = 0.00	10.35 P = 0.00	7.09 P = 0.00	-1.91 P = 1.00	25.81 P = 0.00	5.59 P = 0.00	-14.18 P = 0.00	10.91 P = 0.00	8.78 P = 0.00	X
WCA	-7.44 P = 0.00	5.89 P = 0.00	3.45 P = 0.02	-4.27 P = 0.00	18.87 P = 0.00	2.27 P = 0.64	-14.10 P = 0.00	8.39 P = 0.00	5.00 P = 0.00	-3.01 P = 0.07

Table S3. Results of pairwise tests of HACD between species. Table shows dunn test z-statistic and p value for Nd = Australian flatback turtle, Cm = green turtle, Cc = loggerhead turtle, Dc = leatherback turtle, Ei = hawksbill turtle, Lo = Olive ridley turtle, Lk = Kemps ridley turtle. Bold text denotes statistically significant pairwise differences.

Species	Cm	Cc	Dc	Ei	Lo	Lk
Nd	0.387 P = 1.00	1.434 P = 1.00	-0.135 P = 1.00	0.772 P = 1.00	0.449 P = 1.00	0.323 P = 1.00
Cm	X	4.738 P = 0.000	-0.609 P = 1.00	-3.141 P = 0.018	-2.427 P = 0.160	-0.970 P = 1.00
Cc	X	X	3.487 P = 0.05	1.582 P = 1.00	2.486 P = 0.136	1.265 P = 1.00
Dc	X	X	X	-2.075 P = 0.399	1.399 P = 1.00	-0.638 P = 1.00
Ei	X	X	X	X	0.850 P = 1.00	0.458 P = 1.00
Lo	X	X	X	X	X	-0.060 P = 1.00

Table S4. Table showing the median hard anthropogenic coastal development (HACD) score for nesting rookeries by size for the seven species of sea turtles (approximate numbers of nests laid per year, data from SWOT; [43]). HACD is expressed as 0% (no HACD behind the turtle nesting beach), 1 to 25% (approximately one quarter of the area behind the beach was covered by HACD), 26 to 50% (approximately half of the area behind the beach is covered by HACD), 51 to 75% (approximately three quarters of the area behind the beach is covered by HACD) and 76 to 100% (all the land behind the nesting beach was backed by HACD).

Species	Overall Median	< 25 Nests.yr ⁻¹	25–100 Nests.yr ⁻¹	100–500 Nests.yr ⁻¹	500–1000 Nests.yr ⁻¹	> 1000 Nests.yr ⁻¹
Flatback	0	(-)	(-)	0	(-)	12.5
Green	0	0	0	0	0	0
Loggerhead	25	(-)	50	25	25	50
Leatherback	0	0	0	25	0	0
Hawksbill	25	25	50	0	12.5	25
Olive Ridley	25	0	25	0	25	25
Kemp's Ridley	0	(-)	(-)	12.5	25	0