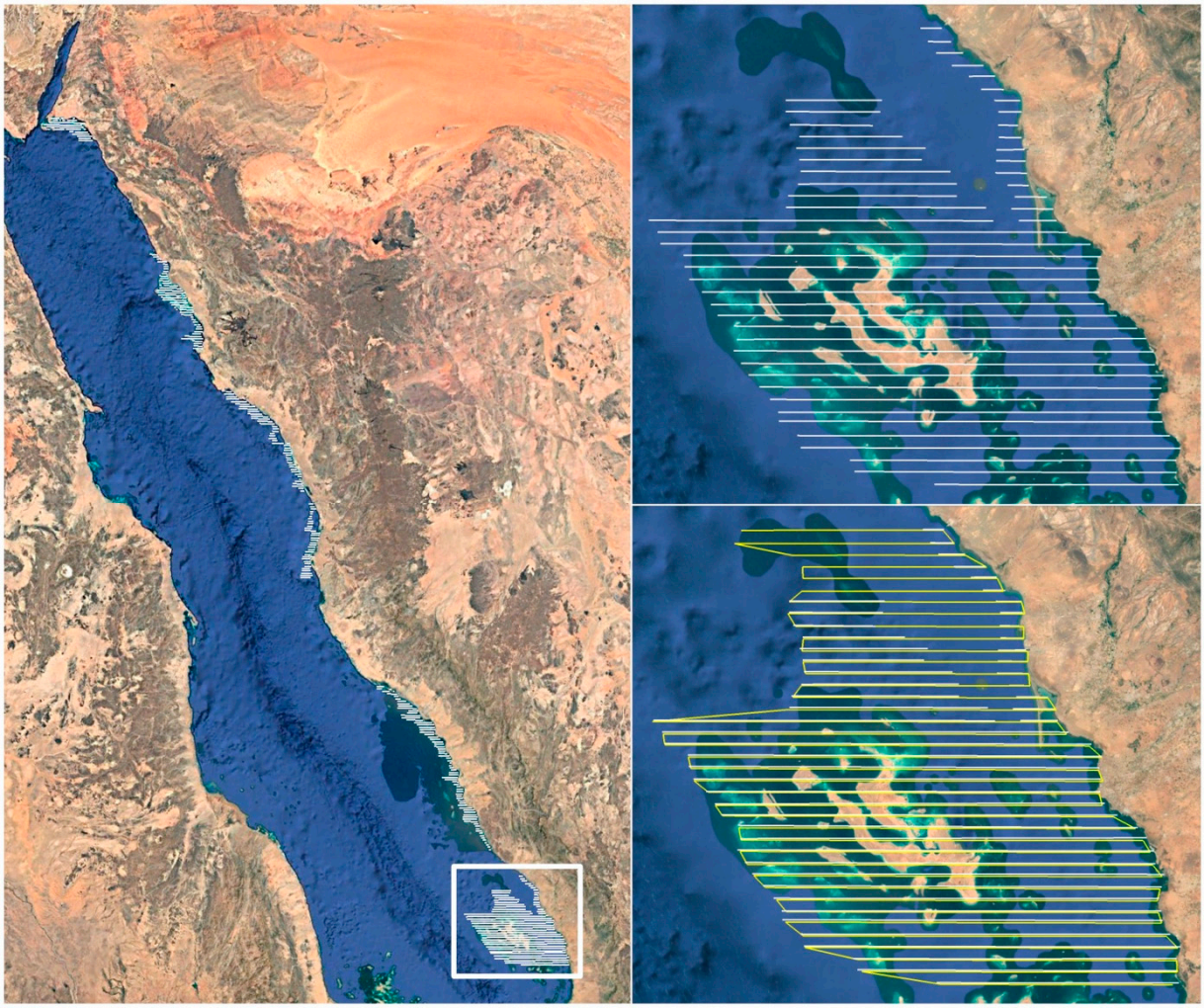


Figure S1: Digitised copy of tracks by Preen (1989) for dugong surveys (left). Close up view of planned tracks by Preen around the Farasan Islands (top right). Close up view of Preen tracks overlaid with tracks from this survey (in yellow; bottom right).

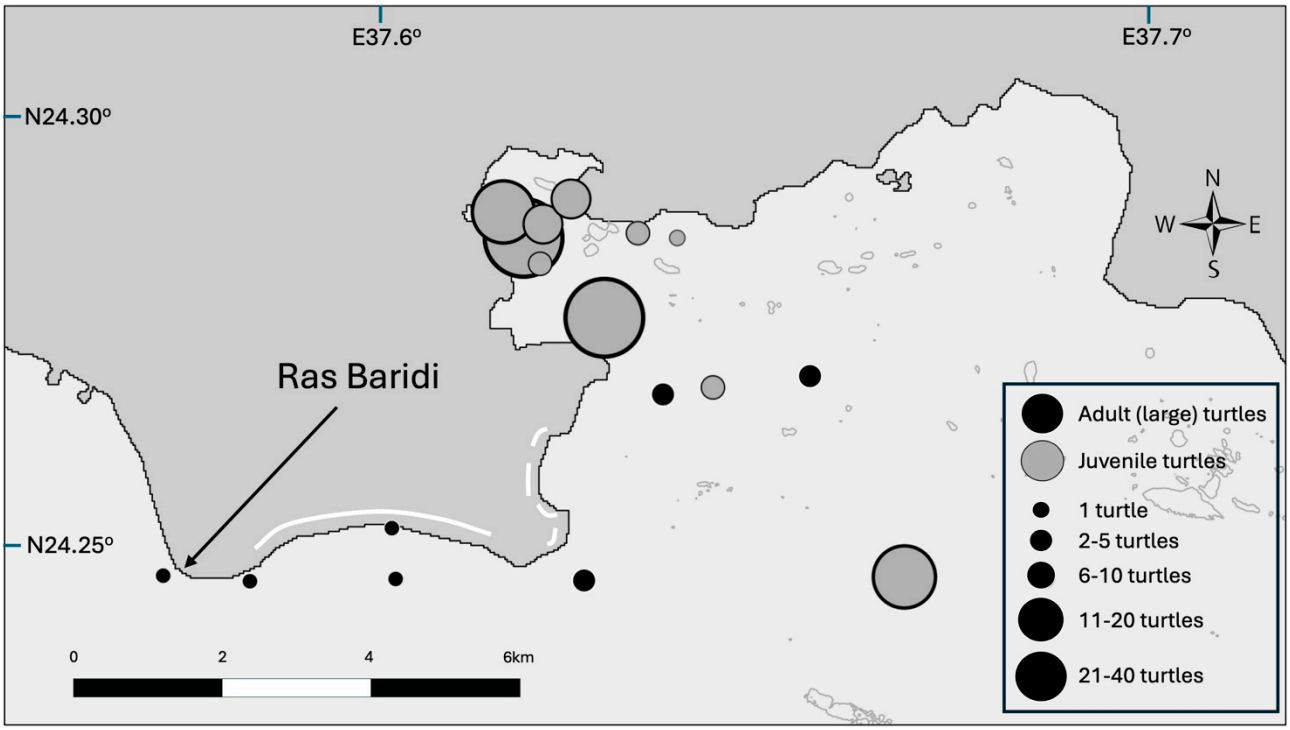


Figure S2: Distribution and relative abundance of juvenile green turtles in the shallow seagrass habitat within the bay south of Ras (Cape) Baridi, where a large-scale cement factory is co-located. White line indicates general location of nesting beaches.

Table S1. Flight log for the aerial surveys. Note: Flight lengths and 'on effort' areas do not always match the flight strip width of 400m (200m to either side of the helicopter) as total flight length includes transit to and from observation areas.

Date	Flight #	Total Flight length (km)	'On-effort' area (sq km)	Zone	Adults / Sub-Adults	Juveniles
21/02/2022	1	413.75	159.65	4	0	0
22/02/2022	1	386.57	148.42	4	2	0
23/02/2022	1	406.61	156.26	1	1	0
23/02/2022	2	406.41	156.12	1	5	0
23/02/2022	3	295.19	114.72	1	0	0
28/02/2022	1	328.06	118.99	1	1	0
01/03/2022	1	338.85	129.36	1	6	0
01/03/2022	2	356.48	139.12	1	1	0
01/03/2022	3	367.61	141.51	1	0	0

02/03/2022	1	505.94	0.77	1	8	0
02/03/2022	2	522.68	83.02	1	0	0
03/03/2022	1	310.53	111.62	1	2	0
03/03/2022	2	309.52	111.93	1	5	0
27/03/2022	1	397.12	120.38	3	10	0
27/03/2022	2	380.15	107.77	3	0	0
28/03/2022	1	441.04	125.48	3	9	0
28/03/2022	2	397.85	111.48	3	7	0
29/03/2022	1	383.88	69.82	3	0	0
29/03/2022	2	456.63	99.12	3	2	0
29/03/2022	3	448.65	94.77	3	0	0
01/04/2022	1	490.02	193.18	2	2	0
01/04/2022	2	494.12	194.91	2	2	0
02/04/2022	1	422.76	156.74	2	16	0
02/04/2022	2	400.09	149.73	2	3	0
02/04/2022	3	246.47	97.89	2	1	0
03/04/2022	1	435.32	168.45	2	5	0
03/04/2022	2	488.74	192.51	2	3	0
04/04/2022	1	293.00	110.81	2	5	0
04/04/2022	2	344.69	125.68	2	3	0
14/04/2022	1	367.02	143.09	3	0	0
14/04/2022	2	353.09	136.22	3	0	0
15/04/2022	1	210.03	74.95	3	0	0
15/04/2022	2	412.47	149.64	3	0	0
05/05/2022	1	356.93	140.14	4	4	0

05/05/2022	2	331.77	129.06	4	11	0
07/05/2022	1	353.79	129.06	4	17	0
07/05/2022	2	358.33	138.62	4	12	0
08/05/2022	1	461.33	180.29	4	30	0
08/05/2022	2	363.58	144.74	4	7	0
09/05/2022	1	417.30	163.18	4	4	0
09/05/2022	2	423.22	163.95	4	14	132
10/05/2022	1	481.89	188.94	4	5	0
14/05/2022	1	329.38	123.25	4	21	0
14/05/2022	2	364.30	142.49	4	26	0
14/05/2022	3	268.19	105.32	4	6	0

Table S2. Environmental variable classification used in R-script coding to determine their effects on overall abundance estimates.

Variable	Value	Descriptor
Sea State	0	calm
	1	light breeze
	2	gentle breeze
	3	moderate breeze
	4	not observed
Sun Altitude	0	low; 0-30^{o} above horizon
	1	medium; 30-60^{o} above horizon
	2	high; 60-90^{o} above horizon
Cloud Cover	0	clear (0%)
	1	partly_cloudy (10-49%)

	2	mostly_cloudy (50-79%)
	3	overcast (>=80%)
Sun position	recorded as the 24-hour time notation relative to the aircraft	e.g., "1300" = 1 o'clock, "2100" = 9 o'clock) and categorized as port (1900-2300), starboard (1300-1700), ahead (1200 o'clock), or behind (1800).
Glare (combination of sun position and sun altitude.)	none	Sun either too high (no glare) or not aligned with observer viewpoint
	high	Assigned only when these conditions were met: (1) sun on the observer's side of the aircraft, and (2) sun altitude was medium or low
Haze	0	none
	1	light
	2	moderate
	3	heavy
Depth	mean depth_m	Determined by extracting values from highly detailed georeferenced data sets provided by the Saudi government, which proved more accurate and reliable than publicly available data sets such as GEBCO[1]

[1] https://www.gebco.net/data-products/gridded-bathymetry-data