Table S1: List of intervention options with descriptions, the relevant demographic outcome that the intervention addresses, and an indication of their impact on humans. Direct impact (D) refers to the presence of the intervention directly impacting turtles, while the indirect (I) impact refers to indirect impact on turtles (i.e., impacts the human behaviour or turtle environment). Threat categories are: marine debris (DEBR), altered onshore and nearshore light conditions (ON SH), modification to beaches (MOD), introduced animals (non-native animals) (INT A), sea level rise (SLR), and increasing temperature (beach and ocean) (TEMP). Vulnerability categories are: Sensitivity (S), Exposure (E) and Adaptive capacity (AC). Type of action are: Education (EDU), On ground action (ACTION), and Policy/legislation (POL/LEG).

Intervention	Intervention description	Direct/ indirect impact	Demographic outcome	Threat category	Vulnerability category	Type of action*
1. Cool turtle nests with shade	Cool turtle nests with shading using canopies of solid canvas or mesh.	D	Change hatchling sex ratio	TEMP	S	EDU
2. Exclude feral animals	Exclude feral animals from nesting areas (e.g. fencing out pigs and foxes).	I	Boost egg survival	INT A	E	POL/LEG
3. Exterminate feral animals	Exterminate feral animals in areas around nesting colonies (e.g. shooting or poisoning).	I	Boost egg survival	INT A	E	POL/LEG
4. Exclude 4WD activity	Prohibit 4WD activity from nesting areas to reduce nests being crushed.	I	Boost egg survival	MOD	E	POL/LEG
5. Enhance beach depth	Change the availability and depth of sand on beaches so that eggs are not inundated by rising sea levels.	D	Boost egg survival	SLR	S	ACTION
6. Artificially incubate eggs offsite	Collect eggs from beach and incubate offsite.	D	Boost egg survival	TEMP	E	POL/LEG
7. Translocate nests to better locations on same beach	Move eggs or nests to location on the same beach where hatching success is higher.	D	Boost egg survival	SLR	E	POL/LEG
8. Translocate nests to new locations	Move eggs or nests to new beaches where hatching success is expected to be higher.	D	Boost egg survival	TEMP	E	POL/LEG
9. Kill predatory fish living under jetties	Harvest predatory fish living under jetties to minimise hatchlings being preyed upon.	I	Boost hatchling survival in water	MOD	E	POL/LEG
10. Lights off for jetties and houses	Turn lights off on jetties and ships during hatching season (where safe to do so).	I	Boost hatchling survival in water	ON SH	E	POL/LEG

11. Transport hatchlings offshore (collected from waters edge)	Collect hatchlings from the waters edge and transport them offshore to avoid predators.	D	Boost hatchling survival in water	ON SH	S	EDU
12. Transport hatchlings offshore (collected from nests)	Collect hatchlings directly from the nest and transport them offshore to avoid predators.	D	Boost hatchling survival to water	ON SH	S	EDU
13. Nest guarding when hatching	After the turtle hatchlings emerge from nests, threats they face on their way to the water edge can be reduced by people guarding their path.	I	Boost hatchling survival to water	INT A	S	EDU
14. Cool nests with electrical cooling tubes	Cool individual nests with electrical equipment to hatch both males and females.	D	Change hatchling sex ratio	TEMP	S	EDU
15. Replace existing sand with lighter coloured sand	Replace dark beach sand with light sand to lower nest temperature to hatch both males and females.	I	Change hatchling sex ratio	TEMP	S	EDU
16. Shade nests with shade sails	Reduce beach temperatures with shade erected over groups of nests	D	Change hatchling sex ratio	TEMP	E	ACTION
17. Artificially incubate eggs offsite	Manage the temperature experienced by eggs by rearing in incubators	D	Change hatchling sex ratio	TEMP	E	ACTION
18. Translocate nests to cooler locations	Manage the temperature experienced by eggs by moving them to sites that are naturally cooler.	D	Change hatchling sex ratio	TEMP	E	EDU
19. Minimise disturbance on feeding grounds	Protect feeding areas by excluding all vessel activity within the area to minimise disturbance and maintain a high density of the soft-bodied invertebrates favoured as food.	I	Boost female breeding frequency	MOD	S	EDU
20. Enhance beach depth with sand nourishment and re-profiling	Enhance beach depth (e.g. with sand nourishment) to reduce salt water flooding of nests.	I	Boost egg survival	SLR	S	EDU
21. Modify sand composition	Changing the density of sand to better reflect the density that is preferred by nesting turtles can create additional suitable nesting areas.	I	Improve area size suitable for nesting	MOD	AC	ACTION

22. Reduce fishing mortality	Seasonal fishing bans in regions where adult turtles are present to prevent the occasional capture of adult turtles in fishing gear.	I	Increase adult survival	MOD	AC	ACTION
23. Lavage adults	Flush the stomachs of large flatback turtles when encountered to remove large plastics.	D	Increase adult survival	DEBR	AC	ACTION
24. Disease management	Treat turtles with infections and diseases (e.g. remove tumours).	D	Increase adult survival	TEMP	S	EDU
25. Improve condition of feeding grounds	Improve condition of feeding grounds by banning dredging.	I	Increasing nesting attempts per year	MOD	AC	ACTION
26. Reduce local disturbance	Reduce disturbance by restricting beach and water activities within a 5 km radius of the nesting beach.	I	Increasing nesting attempts per year	MOD	E	POL/LEG
27. Reduce fishing mortality	Impose seasonal fishing bans in areas where juvenile turtles are present.	I	Increase juvenile survival	MOD	AC	ACTION
28. Aid natural selection	Focus protection on early maturing (less than 20 years) turtles and their nests to increase population.	D	Reduce age at maturity	TEMP	S	EDU
29. Genetic intervention	Intervene genetically so females breed earlier and more often (e.g. via gene editing).	D	Reduce age and maturity	TEMP	S	EDU

* Most interventions require more than one type of action but here we only indicate the first step action to allow for general categorisation.

Table S2. Values for each of the adaptation options shown in Figure 3. The Average score is the average of the scores for each expert that ranked the interventions. The pairwise score corresponds to the 2D distance from the origin on the plots shown in Figure 3. The top ranked options are shown in green shading in the final three columns.

		Average Score			Pairwise score			Rank		
Intervention number	Intervention Name	Economic Cost	Implementation Feasibility	Social Acceptability	Cost & Feasibility	Cost & Acceptability	Feasibility & Acceptability	Cost & Feasibility	Cost & Acceptability	Feasibility & Acceptability
1	Cool turtle nests with shade	2.0	1.4	1.6	2.43	2.55	2.06	9	5	2
2	Exclude feral animals from nesting areas	2.1	1.4	1.5	2.48	2.56	2.07	11	6	3
3	Exterminate/reduce feral animals around colonies	2.0	1.5	1.4	2.50	2.46	2.07	12	1	4
4	Exclude 4WD activity from colony areas	1.6	1.2	2.1	1.99	2.61	2.35	1	7	14
5	Enhance beach depth	2.1	1.8	1.7	2.79	2.73	2.45	17	14	20
6	Artificially incubate eggs offsite	2.4	1.6	1.6	2.85	2.85	2.21	21	21	9
7	Translocate nests to better locations on same beach	2.1	1.6	1.6	2.63	2.66	2.26	13	11	12
8	Translocate nests to new locations	2.2	1.7	1.7	2.83	2.80	2.42	20	18	17
9	Kill predatory fish living under jetties	2.0	2.0	1.9	2.81	2.70	2.73	18	12	25
10	Lights off for jetties and houses	1.7	1.2	1.9	2.02	2.52	2.23	2	3	10
11	Transport hatchlings offshore (water's edge)	2.1	1.6	1.6	2.67	2.64	2.26	15	9	11
12	Transport hatchlings offshore (from nest)	2.1	1.6	1.5	2.66	2.61	2.20	14	8	8
13	Nest guarding when hatching	2.1	1.3	1.3	2.46	2.48	1.87	10	2	1
14	Cool nests with electrical cooling tubes	2.4	1.6	1.4	2.89	2.78	2.18	23	17	7
15	Replace existing sand with lighter coloured sand	2.1	2.0	1.8	2.91	2.76	2.74	24	15	26
16	Shade nests with shade sails	2.0	1.4	1.6	2.40	2.54	2.09	8	4	5
17	Artificially incubate eggs offsite	2.4	1.5	1.6	2.83	2.85	2.18	19	22	6
18	Translocate nests to cooler locations	2.2	1.7	1.6	2.79	2.76	2.32	16	16	13
19	Minimise disturbance on feeding grounds	1.7	1.4	2.0	2.23	2.65	2.43	3	10	18
20	Beach nourishment	2.1	1.9	1.8	2.89	2.83	2.67	22	20	22

Intervention number	Intervention Name	Average Score			Pairwise score			Rank		
		Economic Cost	Implementation Feasibility	Social Acceptability	Cost & Feasibility	Cost & Acceptability	Feasibility & Acceptability	Cost & Feasibility	Cost & Acceptability	Feasibility & Acceptability
21	Modify sand composition	2.2	2.1	1.9	3.01	2.93	2.83	27	26	28
22	Reduce fishing mortality	1.8	1.4	2.3	2.27	2.88	2.69	6	23	23
23	Lavage animals to remove plastics	2.4	1.8	1.6	3.02	2.94	2.43	28	27	19
24	Disease management and treatment	2.4	1.7	1.6	2.99	2.92	2.38	26	25	15
25	Improve condition of feeding grounds	1.9	1.4	1.9	2.38	2.70	2.41	7	13	16
26	Reduce local disturbance (beach and water)	1.8	1.3	2.2	2.25	2.90	2.59	5	24	21
27	Reduce fishing mortality with net bans in region	1.8	1.3	2.4	2.24	3.00	2.70	4	28	24
28	Aid natural selection	2.1	2.1	1.9	2.94	2.81	2.82	25	19	27
29	Genetic intervention	2.3	2.2	1.9	3.19	3.01	2.93	29	29	29