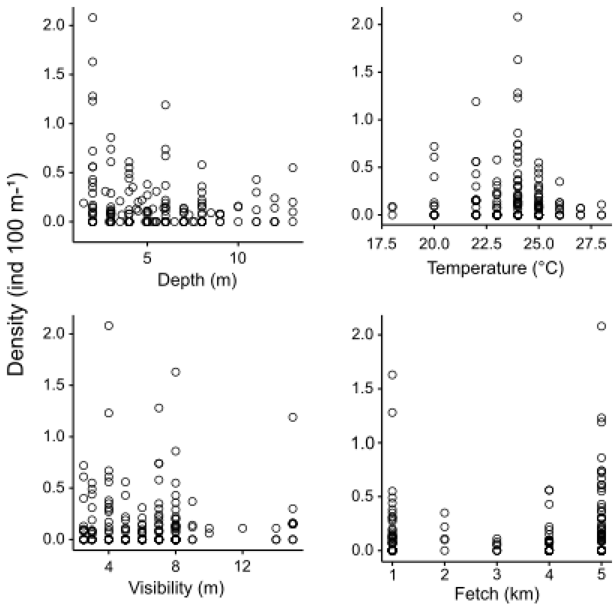

Fig S1: Relationship between density of *Chelonia mydas* and explanatory variables (depth, temperature, visibility and fetch) retained for the GLM model.

Table S1: Comparison of density of *Eretmochelys imbricata* populations in their feeding grounds along the Brazilian coast.

Foraging area	Latitude	Region	Habitat	Estimate	Author
São Pedro e São Paulo Archipelago, Brazil	0.9168°N	Tropical	Rocky reef	2.05 turtles $hour^{-1}$	Proietti et al. 2012
Abrolhos, Brazil	17.9631° S	Tropical	Coral reef	2.02 turtles $hour^{-1}$	Proietti et al. 2012
Arraial do Cabo, Brazil	23.0076°S	Subtropical	Rocky reef	0.87 turtles $hour^{-1}$	This study
Ilha do Arvoredo, Brazil	27.2258° S	Subtropical	Rocky reef	0.09 turtles $hour^{-1}$	Proietti et al. 2012

Table S2: Comparative green turtle (*Chelonia mydas*) densities among different studies and methods in feeding grounds.

Foraging area	Region	Habitat	Method	Estimate	Author
Southern Great Barrier Reef, Australia	Tropical	Coral reef	Capture-recapture	0.45 turtles ha^{-1}	Chaloupka and Limpus 2001
Florida Keys, USA	Tropical	Coral reef	Vessel-based surveys	0.29 turtles ha^{-1}	Herren et al. 2018
Tofo, Mozambique	Tropical	Coral reef	Dive logs surveys	0.28 turtles hour^{-1}	Williams et al. 2017
Fernando de Noronha, Brazil	Tropical	Rocky reef	Underwater surveys	1.45 turtles hour^{-1}	Cardona et al. 2020
São Sebastião, Brazil	Subtropical	Rocky reef	Underwater surveys	0.53 turtles hour^{-1}	Fernandes et al. 2017
Ilha do Arvoredo, Brazil	Subtropical	Rocky reef	Underwater surveys	4.42 turtles hour^{-1}	Reisser et al. 2013
Arraial do Cabo, Brazil	Subtropical	Rocky reef	Timed transect	10 turtles ha^{-1} 8.39 turtles hour^{-1}	This study

Table S3: Summary of recommendations for in-water monitoring of sea turtles.

	Details	Possible modifications
Sampling design	Hierarchical or stratified sampling design.	
Site selection	The surveyed area must be relevant to the research question. Select representative areas with adequate space to conduct timed transects. Sites should be separated by a hundred meters (to avoid spatial autocorrelation) and the location recorded.	A pilot study can help determine the most representative sites.
Survey frequency	Rapid assessment: a single survey effort on one occasion (i.e., season). Long term monitoring: initiated by a rapid assessment followed by regular monitoring (yearly and in the same season) to monitor density and threats for adaptive management.	-
UVC methods	Each census consists of two observers swimming parallel to the reef at consistent depth for 10 min (transect width 6m). It is imperative to record the time accurately, the clock must be stopped if a shortstop is needed and then restarted when swimming recommences. This is an important step because density measurements may be obtained from the sample time and swim speed. Observers should swim at a constant speed and record only animals within the transect, and ignore all animals that enter from the side or behind (avoiding double counts). Care must also be taken to spend the same amount of time observing each part of the transect. The length of each timed transect should be measured by marking the beginning and end of each swim with a GPS and measuring the distance between them. Surveys may be conducted through snorkelling and/or SCUBA depending on local conditions.	A GPS can be attached to a floating buoy that is towed by one diver, which can more accurately record the track. If a GPS is not available, calculate the average distance covered in 5 mins swim in a range of situations (current speeds, visibility and various sea turtle densities) and convert this to an average distance covered in 10 min. The latter method is less precise than the former.
Data acquisition during survey	Record species identity, number of individuals (including zeros) and size categories. Information on date/hour, water temperature, depth, visibility should by transect. Additional information on turtles' behaviour, number of divers or boats present during the survey are highly recommended.	Divers may video record the transect to avoid species misidentification.

Causes of bias	Detection probability involves two processes: (1) availability bias occurs when turtles are present but not available for detection (e.g., animals are hidden) and (2) perception bias results from observers missing turtles that are available for detection. Responsive movement before detection can cause bias. If turtles avoid the observers, density estimates will be negatively biased.	Perception and availability bias can be reduced by using two observers, or by recording transects for later analysis. Responsive movement bias may be lower in the larger and longer transect.
Field staff	Two observers. One observer swim at shallower depths and the other swims at deeper depths. If a boat is needed include specific staff.	-
Minimising disturbance	Observers should swim very quietly, waiting a few minutes to acclimate themselves before starting the census. When it is possible, observers should avoid tourism peaks and not drive the boat over survey areas before the survey.	-
Training	Observers should be trained in underwater sea turtle identification, counting and length estimation. It is also recommended that swimming speed is calibrated.	-
Equipment	Underwater slates, pencils and stopwatch. Snorkel and/or SCUBA equipment, including depth and temperature recorder. GPS to georectify survey tracks.	PVC pole or tape measure to estimate strip width and sea turtle size (optional).
Data analysis	1) Calculate the area of each sampling unit: the area equals the distance covered in each transect multiplied by their width. 2) Calculate the total density (m^2): density equals the number of turtles per total transect area standardized by individuals per 100 m^2. 3) Analyse the size structure of all species of sea turtles.	-

Note: This table does not aim to inform on occupational hazard, as they vary considerably depending on the region.

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