Turtle nesting site

DEFINITION

The location at which sea turtles lay their eggs. Turtle nesting sites occur on land, and are typically found on sandy beaches.

DESCRIPTION

Sea turtles are air-breathing reptiles spending most of their lives at sea. All sea turtle species lay their eggs on land, typically on sandy beaches. Sea turtles may migrate hundreds or even thousands of kilometres between established feeding and breeding sites [1].

GEOGRAPHIC DISTRIBUTION

The seven different species of sea turtles occupy different, although often overlapping, geographic ranges. In general, sea turtles occupy a wide range of oceanic habitats and will travel widely in their lifetimes. The leatherback turtle (*Dermochelys coriacea*) is global in distribution, with the exception of the poles [2, 3]. Turtles are reptiles, so they use the external environment to moderate their temperature. For this reason, temperature generally provides some level of restriction to their movements, and most species prefer sea temperatures above 20°C [4]. The leatherback turtle is more tolerant to lower temperatures and has been sighted as far North as the waters of Newfoundland, in temperatures ranging from 0 to 15°C [5].

Sea turtle nesting beaches are much more restricted in their geographic distribution, with the major nesting areas for most species being located in the tropical and subtropical regions [6]. Turtles are also able to migrate between their foraging and nesting sites with a high degree of accuracy, with many displaying a strong degree of nest site fidelity [7].

ECOLOGY

During the breeding/nesting seasons, both sexes typically aggregate in the waters close to the nesting beaches [8]. Kemp’s ridley and olive ridley turtles can exhibit mass nesting events (or ‘Arribada’), during

which thousands of females come up to nest at the same time on the same beaches [7], possibly to lower predation risk (although there are advantages and disadvantages to both 'Arribada' and 'solitary' nesting [9]).

Sea turtles provide a key ecological component when abundant. They are part of the marine food web, within which they are both prey and consumer. They are also important in substrate and nutrient transport, helping to ensure a healthy functioning system [10].

ECONOMIC & SOCIETAL VALUE

Turtles have been hunted throughout their history of interactions with human populations. In the early days of shipping, sea turtles were caught and kept on the decks of ships where they stayed alive for weeks, providing a fresh source of meat for the sailors. Turtles are still caught for food, and their eggs are a delicacy in some regions [11]. Turtle shell from hawksbill turtles is made into jewellery and other ornamental pieces. Oil and leather are other products sourced from sea turtles. Unfortunately, this direct consumption is leading to population declines in many species.

Turtle tourism has provided more sustainable source of economic revenue in some regions [12]. Turtles are a charismatic marine species and hold fascination for people who see them.

THREATS

Fisheries bycatch is regarded as the main threat to sea turtles globally [13]. As slow-growing species, with relatively late sexual maturity (between 7 and 30 years, depending on the species [14]), they are particularly vulnerable to the impacts of bycatch [15] and the degradation of breeding and nesting habitats. It is hence essential that nesting sites are preserved, both in quality and surface area.

Nesting beaches themselves are under threat from a variety of factors. Human exploitation of eggs and hunting of nesting females is a significant threat in many areas [16]. The development of coastal areas is linked with increased pollution, water quality degradation, erosion and overexploitation of natural resources [17]. Noise and light pollution can disturb nesting females and disorientate emerging hatchlings on their way to the sea, and vehicle use can cause compaction and destroy nests [18]. Feral pigs and dogs cause significant nesting losses in some areas [19], and litter may prevent hatchling movement and cause deleterious effects to adult turtles [20].

In addition to direct impacts, the temperature-sensitive sex determination and migratory behaviour of sea turtles make them particularly vulnerable to the impacts of climate change [21]. Increased nesting beach temperatures have been shown to skew the sex ratio of hatchlings with increased percentage of females being born in warmer nest sites [3]. Finally, sea level rise is recognised as a significant threat to turtle nesting sites [22], with a 0.5m rise in sea level predicted to result in a loss of up to 32% of the total current beach area of a Caribbean island, with lower, narrower beaches being the most vulnerable [23].

INTERNATIONAL THREAT STATUS

Of the seven existing species of sea turtles, three are classified as Critically Endangered (hawksbill turtle *Eretmochelys imbricata*, Kemp's ridley turtle *Lepidochelys kempii* and leatherback turtle *Dermochelys coriacea*), two as Endangered (green turtle *Chelonia mydas* and loggerhead turtle *Caretta caretta*), one as Vulnerable (olive ridley turtle *Lepidochelys olivacea*), and one as Data Deficient (flatback turtle *Natator depressus*) [24]. The range of global threat levels indicates varying population dynamics across species, but also masks disparate population trends across different regions of the world [25, 26]. For instance, the Marine Turtle Specialist Group of the IUCN highlighted steep declines in the populations of

leatherback turtles and loggerhead turtles in the Pacific [27], but encouraging trends were recorded in Kemp's ridley turtles (Tamaulipas and Vera Cruz, Mexico), and small but steady nesting populations of hawksbill turtles (Buck Island, Caribbean) [14].

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Baby loggerhead turtle (Caretta caretta) on beach. Benjamin Albiach Galan/Shutterstock.com

Category:

Marine biodiversity features

Tools

Ocena Data Viewer A tool for easy access to a range of datasets that are important for the conservation of marine and coastal biodiversity. The data can be downloaded or viewed online.

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