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Sea Turtles

What is a Sea Turtle?

Sea turtles are large **reptiles** that spend almost all of their lives in the ocean. As **ectothermic** animals, they prefer temperate waters as their habitat. Turtles breathe air, but some species have been known to hold their breath for as many as 5 hours by slowing their heart rate. There are currently seven species of sea turtles: hawksbill, green, loggerhead, kemp's Ridley, olive Ridley, Australian flatback, and leatherback. They range in size from about 3.5 feet (107 cm) in length and 78 pounds (35 kg) (Hawksbill sea turtle) to 6 feet (2 m) in length and 1,900 pounds (506 kg) (leatherback sea turtle). Sea turtles may be carnivorous, herbivorous, or omnivorous, depending on the species, with a diet consisting of crustaceans, shellfish, jellyfish, sea grass, and algae.



A common characteristic of sea turtles is a large oval or heart shaped shell or carapace that protects their soft bodies. For most sea turtles, the shells are hard and covered with **scutes** except the leatherback which has a leathery shell instead of the hard plates. The backbone and ribcage of the turtles are attached to the **dorsal** side of the shell, which is called the **carapace**. Unlike some land turtles and tortoises, sea turtles can not retract their limbs into their shell. Sea turtles have four flippers adapted for swimming. The fore flippers are used as paddles, while the rear flippers act as rudders. The shell and flippers may be green, yellow, brown or black in color depending on the species.

Reproduction

Male and female sea turtles are the same size and do not differ in external appearance until they reach sexual maturity. The exact age of sexual maturity is unknown, but is thought to range from 3-50 years, depending on species. Scientists speculate that the size of the carapace is related to the age of sexual maturity, meaning smaller species become sexually mature at a younger age. When a male turtle reaches sexual maturity, the tail becomes thicker and longer, sometimes extending past the rear flippers.

Early spring is the period when most sea turtles mate. Some species congregate in large groups

offshore of the nesting beaches, for this purpose. Occasionally males will exhibit aggressive behavior while competing to mate with a female. The males mount the carapace of the female and have claws on their front flippers to help hold on. Mating takes place in water. Females may mate with several males resulting in a **clutch** of eggs fertilized by a variety of males. This behavior helps increase genetic diversity within the species. A few weeks after mating the females are ready to go ashore and nest.

Nesting

When a female sea turtle is ready to nest, she returns to the same area where she was hatched. For most species, nesting occurs at night. The female uses her front flippers to make her way up the beach and digs a hole above the high tide line. Depending on the species, she lays anywhere from 50 to 200 eggs. The eggs are about the size of a ping-pong ball with a leathery covering to keep them from cracking while being laid. The female then covers the nest with sand to keep the eggs moist, protect them from predators, and maintain their temperature. Females may lay as many as nine nests in one season, coming ashore on a different night each time and laying eggs in each one

The incubation period for most species of sea turtles is 45 to 70 days. In many areas, nests are monitored and protected by scientists and local conservation groups. Those monitoring the nests sometimes mark them with stakes and colored tape to warn beach-goers to keep a safe distance from the nests. When the **hatchlings** have completed their development, they use a **caruncle** to help break open the shell. Once the hatchlings have successfully emerged from the egg, they begin their climb through the sand to the surface. This can take anywhere from 3 to 7 days. For most species the hatchlings emerge from the nest at night and in large groups to help avoid predation.

Once they reach the surface of the nest, they head towards the ocean. It is thought that hatchlings use the reflection of the moon on the breaking waves to find their way to the water. Upon reaching the water, the hatchlings begin swimming and continue to do so 24 to 48 more hours. This frantic trip brings the hatchlings out to deeper water where they find protection from many predators. For many species little is known about the first year, but scientists speculate that most hatchlings make their home in floating **sargassum seaweed**, where they find food and are shelter from predation.

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Life Span

The exact life span of sea turtles is unknown. It is estimated that most species have a reproductive life of about 30 years. Since sea turtles reach sexual maturity at about 30 years of age it is possible that individuals can live 60 years or more. Currently, there is no accurate method of aging sea turtles. However, scientists can estimate a turtle's age by counting the number of growth rings of the scutes on the carapace.



The predators of adult sea turtles are tiger sharks and killer whales. Currently all seven species of sea turtles are listed as threatened or endangered due largely to human impact. There are currently no accurate population figures as sea turtles are difficult to count. The numbers that are available, are based on counting the adult females that come ashore to nest. These figures seem to indicate that sea turtle numbers are rapidly declining.

Conservation

Humans have a large impact on the sea turtle population. Development on beaches can deter nesting females from making the trip up the beach to nest. Since it is speculated that hatchlings find their way to the water using the light of the moon, artificial lighting of beach front property can sometimes disorient the hatchlings leaving them more susceptible to predation. Many communities encourage home and business owners to reduce lighting during the nesting and hatching season to minimize this impact.

Fishing nets are also a threat to sea turtles. As air breathers, turtles can drown if they become trapped in nets. Over the years, different methods have been attempted to keep turtles from getting trapped. The National Marine Fisheries Service developed the turtle excluder device, or T.E.D., in response to the problem. The T.E.D. is a metal grate located inside a trawl net which allows shrimp to pass through while guiding turtles to an escape hole. Since 1989, most fishermen have been required by law to install T.E.D.s on their trawl nets. As a result, the number of sea turtles caught in these nets has decreased significantly.

Glossary

Carapace: The top of a turtle's shell.

Caruncle: Temporary tooth-like appendage that the hatchlings use to break out of the egg.

Clutch: A group of eggs.

Dorsal: Refers to the back or top.

Ectothermic: Cold blooded. These animals regulate their body temperature externally.

Hatchling: A sea turtle that has just emerged from the egg.

Plastron: The bottom of a turtle's shell.

Reptile: Vertebrate animals that are cold blooded, have scaly skin, and breathe air. Most reptiles lay eggs although some produce eggs that hatch internally.

Sargassum: A type of marine algae that forms large floating rafts.

Scutes: A horny, or bony external plate or scale, as on the shell of a turtle or the underside of a snake

Temperate: Moderate.

Resources

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