

Earth Day Science Symposium: Sea Turtles

Sea Turtles: Basic Facts

Sea turtles are reptiles. Their closest relatives are snakes, lizards, crocodiles, and alligators.

Female sea turtles come ashore on sandy beaches to nest and lay eggs.

The sea turtle life cycle includes 4 stages: egg (42-80 days), hatchling (3-6 days), juvenile/subadult (11-40 years), adult (7-50 years).

Sea turtles migrate long distances between nesting beaches and feeding grounds.

Sea turtles are among the world's most endangered species.

The following characteristics distinguish reptiles from other animals.

- They are vertebrates: they have spinal columns.
- Their bodies are covered by scales.
- They are ectothermic: their body temperatures are determined by the temperature of what surrounds them (air, water, mud).
- Their eggs are fertilized inside the mother's body. Males place sperm inside females.
- They lay amniotic eggs with shells to protect embryos and internal membranes to assist their development. (Some lizards and snakes give birth to live young.)
- Their bodies are protected by shells, formed by the fusing of their ribs and vertebrae with other bones. The convex upper shell, or carapace, is covered with scutes. Scutes are scales made of keratin, the material in human hair and nails.
- Turtles first appeared in the fossil record 250 million years ago, long before dinosaurs.

- Their habitats are salty oceans and sandy beaches.
- Their carapaces are flattened and streamlined for swimming.
- Their limbs are flippers rather than legs with clawed feet.
- They cannot retract their heads and limbs into their shells.

Sea Turtles: Surprising Facts

1. Sea turtles don't have accordion necks. Unlike other turtles and tortoises, they cannot retract their heads and limbs into their shells.
2. Sea turtles cry all the time. They aren't upset or in pain. Their tears contain large amounts of salt, which they must eliminate from their bodies in order not to dry up and die of salt poisoning.
3. Male sea turtles have bifurcated penises. Females have two oviducts. These structural adaptations help insure that females lay large clutches of fertile eggs.
4. Sea turtles have a hard time growing up. Scientists estimate that only one out of every thousand sea turtle eggs will produce a fully mature adult. Turtles that hatch from the other 999 eggs will die before they mate, from natural or anthropogenic (human-caused) events.
5. Sea turtles are magnetic. Scientists have demonstrated that turtles use the Earth's magnetic field to find their way to distant beaches, but they don't know how this "geomagnetic" navigation works. They have observed that some sea turtles' heads contain enough magnetite (a common, highly magnetic, black mineral made of iron oxide) to attract a small magnet.
6. Sea turtles hold their breath for hours and weeks. Sea turtles regularly spend 3 minutes to half an hour underwater as they dive and forage for food, and often as long as 60 to 70 minutes. In cold weather, some loggerheads and green turtles hibernate underwater for weeks at a time.

7. Loggerhead sea turtles snap. Scientists report that, unlike the other sea turtle species, loggerheads bite when disturbed. Their huge jaw, adapted for crushing crabs and mollusks, can do quite a lot of damage. They also stink of rotten crab, and their shells are usually covered with an ugly assortment of sponges and barnacles. These qualities have caused them to become known as the bad-tempered sea turtle.

8. Hawksbill sea turtles eat glass. The adult hawksbill's primary food is sea sponges, which are filled with razor-sharp barbs, called spicules, formed from silica (the main ingredient in glass). Sponges are also filled with a toxin that sickens most predators. Hawksbills develop immunity to this toxin and resistance to spicules as they become adults. Hatchlings and juveniles eat less dangerous foods, including algae and sea pens (a species of soft coral).

9. Leatherback sea turtles are Earth's only warm-blooded reptile—sort of. Their bodies do not produce and regulate heat through respiration, like the bodies of mammals and birds. But once they have warmed up, their massive body fat and high energy levels allow them to maintain a constant body temperature. They are less affected by surrounding temperatures than other reptiles. This allows them to dive deep into freezing water without harm.

10. Leatherbacks have long esophagi. Because they eat only jellyfish, which are mostly water and a bit of protein, huge, fat-filled leatherbacks must eat a lot. In fact, they often eat so much at once that their stomachs cannot digest fast enough to keep up. To solve this problem, the leatherback species has some special adaptations, including an esophagus that is 1.5 meters (5 feet) long. The solid parts of dozens of jellyfish pass slowly through the length of the esophagus as the stomach digests a little at a time.

Sea Turtle Facts

1. How many sea turtle species are there?

2. Sea turtles, like all reptiles, are ectothermic. Their body temperature is determined by

3. How is the diet of the adult green sea turtle unlike all the diets of all other sea turtles?

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4. Which sea turtle is not found in U.S. waters?

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5. Describe one characteristic that distinguishes sea turtles from all other turtles.

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6. What do the internal membranes in an amniotic egg do?

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7. Where do sea turtles nest?

_____.

8. What are the four stages of the sea turtle life cycle?

_____.

9. How long have sea turtles been around on Earth?

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10. All but one sea turtle species is endangered. Which are critically endangered?

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11. Sea turtles migrate long distances between feeding grounds and what else?

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