An Introduction to Sea Turtles

Seven distinct species of sea turtles grace our oceans today; they constitute a single radiation that was distinct from all other turtles at least 110 million years ago. During that radiation, sea turtles split into two main subgroups, which still exist today: the unique family *Dermochelyidae*, which consists of a single species, the leatherback; and the six species of hard-shelled sea turtle, in the family *Cheloniidae*.

The Family *Cheloniidae* (hard-shelled turtles)

Green

Chelonia mydas—Endangered

The most widespread of the seven species, the green sea turtle earns its name from the color of its body fat, called calipee, which is the main ingredient in green turtle soup and was once highly sought after in Europe. Although now illegal to trade in many areas of the world, the green sea turtle and its eggs continue to be consumed by many coastal peoples. In the Eastern Pacific, there is a morphologically distinct subpopulation of this species, often called the black turtle and considered by some to be a separate species.

Hawksbill

Eretmochelys imbricata—Critically Endangered

Named for its sharp, pointed beak, the hawksbill's Latin name refers to the overlapping arrangement of scutes on its shell. These turtles are omnivorous, feeding on both invertebrates and algae. In much of the Caribbean, they feed primarily on reef sponges, invertebrate organisms whose bodies contain indigestible glass spicules. Hawksbills have beautiful, translucent shells that have been used in tortoiseshell jewelry for centuries—a form of consumption that has contributed to their sharp population declines in the past century.

Flatback

Natator depressus—Data Deficient (Status Unknown)

The flatback is the least studied of the sea turtles and has one of the smallest geographic ranges. Flatbacks stay within a relatively small area around northern Australia, southern Indonesia, and southern Papua New Guinea.

Loggerhead

Caretta caretta—Endangered

Loggerheads are named for their large heads, with jaws powerful enough to crush an adult queen conch. Like most sea turtles, loggerheads are famed for their vast migrations; for instance, loggerheads that mate and nest in Japan regularly cross the Pacific to feed in Mexican waters. Likewise, loggerheads that nest on beaches in the southeastern United States spend a portion of their lives in the northeastern Atlantic Ocean, sometimes even venturing into the Mediterranean Sea.

Kemp's Ridley

Lepidochelys kempii—Critically Endangered

The Kemp's Ridley is the smallest of the sea turtles and has a very restricted range, nesting only along the Caribbean shores of northeastern Mexico, and more recently in Texas, USA. Fifty years ago the Kemp's Ridley was almost extinct; this species now shows signs of recovery, although much work remains before it can be considered "out of the red."

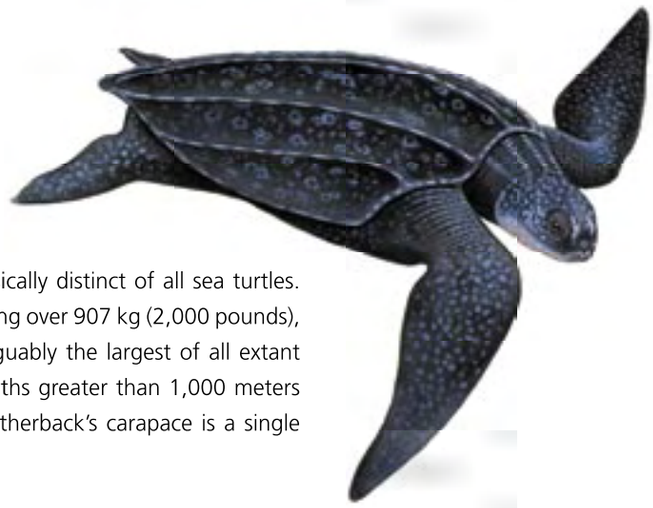
Olive Ridley

Lepidochelys olivacea—Endangered

Olive Ridleys are the most abundant of the sea turtles. At their largest nesting rookery in Escobilla, Mexico, anywhere between 730,000 and 1,120,000 nests are laid each year. Like Kemp's Ridleys, these turtles nest synchronously en masse in a phenomenon known as the *arribada*, Spanish for "arrival." During these spectacles of nature, thousands of turtles can come ashore to nest simultaneously, using a "safety in numbers" strategy for reproduction.

Family *Dermochelyidae* (leathery turtles)

diverged from Cheloniids 100 mya to 150 mya



Leatherback

Dermochelys coriacea—Critically Endangered

The leatherback is the sole species in its scientific family and the most physically distinct of all sea turtles. Sometimes reaching over two meters in length (six and a half feet) and weighing over 907 kg (2,000 pounds), it is the largest of all Chelonians (land, sea, and freshwater turtles) and arguably the largest of all extant reptiles. Leatherbacks swim the greatest distances and regularly dive to depths greater than 1,000 meters (3,281 feet), feeding primarily on jellyfish and other ocean drifters. The leatherback's carapace is a single piece with five distinct ridges and a rubbery feel.

Their Greatest Challenge in 100 Million Years: Facing the Hazards of Humankind

Sea turtles were born of the Cretaceous period and survived the extinction of the dinosaurs by 65 million years. Now they face the greatest peril of their 110-million-year existence: us. The progressively diminishing number of sea turtles on Earth is a direct result of human actions.

In the recent "Burning Issues Assessment" undertaken by the Marine Turtle Specialist Group of the World Conservation Union-IUCN, human behaviors that threaten sea turtles were identified, categorized, and prioritized. These hazards are defined as specific pressures that will result in declines in numbers, instigate local extinctions, and prevent the recovery of sea turtle populations.

Burning Issues Assessment—Hazards to Sea Turtles

Fisheries Impacts. Sea turtles virtually everywhere are impacted by fisheries—especially by longlines, gill nets, and trawls. Bycatch mortality, habitat destruction, and food web changes are the most severe of these impacts.

Coastal Development. Sea turtle habitats are degraded and destroyed by coastal development. This includes both shoreline and seafloor alterations such as nesting beach degradation, seafloor dredging, vessel traffic, construction, and alteration of vegetation.

Direct Take. Throughout the world, people kill sea turtles and consume their eggs for food and for products such as oil, leather, and shell.

Pollution and Pathogens. Marine pollution—plastics, discarded fishing gear, petroleum by products, and other debris—directly impact sea turtles through ingestion and entanglement. Light pollution disrupts nesting behavior and hatchling orientation, leading to hatchling mortality. Chemical pollutants can weaken sea turtles' immune systems, making them susceptible to pathogens.

Global Warming. Global warming may impact natural sex ratios of hatchlings; escalate the frequency of extreme weather events; increase the likelihood of disease outbreaks among sea turtles; and result in loss of nesting beaches, destruction of coral reefs, and other alterations critical to sea turtle habitats and basic oceanographic processes.

The hazards are numerous, yet the mitigation of each one is possible and depends on human behavior—often simple changes to the actions we take. Ultimately, the fate of the world's sea turtles depends on us.