

Commonwealth of Puerto Rico, Department of Natural and Environmental Resources
MARINE TURTLE CONSERVATION PROJECT
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PROYECTO TINGLADO

ISLA DE CULEBRA

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The Department of Natural and Environmental Resources of Puerto Rico manages the Sea Turtle Conservation Project on the island of Culebra. This project collects important biological information on turtles returning to Culebra's beaches to nest. Proyecto Tinglado is managed by a locally based conservation organization, CORALations. Proyecto Tinglado provides local conservation employment opportunities, technical support for the Marine Turtle Conservation Project, and educational volunteer opportunities for the general public interested in participating.

THE GIANT LEATHERBACK SEA TURTLE *(Dermochelys coriacea)*

Leatherbacks are the largest of the sea turtles and one of the earth's oldest living reptiles. Skeletal remains of similar turtles date back 100 million years. These extraordinary air-breathing animals live in the open ocean, roaming thousands of miles from the tropics to the poles. Although their ancestors survived the extinction of the dinosaurs, the future of these magnificent creatures is in peril due to many preventable human impacts. Many Leatherbacks are accidentally captured and drowned in large commercial fishing nets. Other threats to the survival of this species include marine pollution, the harvest of their eggs and flesh, and habitat destruction. Leatherbacks were listed as an endangered species in 1970, over 30 years ago. Marine scientists predict the species will be completely extinct in the

Pacific region by the year 2010. Culebra is one of the few places on earth where the nesting population is on the increase.

Like so many open ocean creatures, very little is known about this species. Most population assessments rely on monitoring solely focused on nesting females, since males and juveniles never return to shore. Researchers use the numbers of nesting females to estimate the total population of the animals, however this data may not accurately reflect the population as a whole since females nest anywhere from one to four year intervals, and at different beaches. Current estimates indicate 20,000 to 30,000 nesting leatherbacks worldwide. Little is known about the mortality of free-swimming leatherbacks.

The females nesting on Culebra's beaches average 1.5 m (5 ft.) in carapace length and weigh 455kg (1,000lbs). Leatherbacks are graceful, efficient swimmers. They have long powerful paddle-like front flippers and a streamlined body that tapers to a point at the tail. Unlike other sea turtles, the adult Leatherbacks have no claws, scales or shells. Their backs, or carapace have a ridged skeleton that is covered with a tough rubber like skin. There are seven ridges or keels that run along the carapace and aid the turtles in swimming and steering. The local island name given to these creatures is "Tinglado," a word used by the local fishermen to describe the wooden ridges that frame the bottoms of

their fishing boats. The females have a distinctive irregular shaped pink spot on the top of their head that aids in their identification. During nesting, the females scoot their immense bodies up the beach using their powerful front flippers. With incredible finesse, the smooth rear flippers scoop the sand and pad the sides of the hole until the structurally sound, meter deep nest chamber has been completed to the turtles satisfaction. Thick, slow moving tears flow down her face. Scientists say the turtle excretes excess salt from a gland in the eye, a process that occurs both above and below the water. The local islanders say the nesting sea turtle is crying because she will never see her babies.

Diet: The main course for Leatherbacks is jellyfish. The turtle can catch and swallow these spicy meals with the aid of their scissor-like beaks and primitive spikes called *papillae* that line the inside of their mouth and throat. Leatherbacks often mistake floating plastic trash bags or balloons for food with deadly consequence.

Adaptation: For a species to survive for millions of years, it has to be pretty special. Leatherbacks are highly migratory, circumnavigating the oceans to feed and reproduce. They can feast in jellyfish rich polar-regions and then cruise to the warmth of the tropics to reproduce. Leatherbacks routinely dive to depths of 500m(1500ft.), and have been documented on single dives reaching depths close to 1200m (4,000 ft). All sea turtles have a slow metabolic rate that reduces oxygen consumption. The muscle tissue of Leatherbacks has very high concentrations of myoglobin, an oxygen storing protein. The thick rubbery skin insulates the turtle from the cold, enabling them to maintain a more or less constant body temperature even in very cold ocean waters.

Reproduction: Mating occurs at sea. Females come ashore at night to lay their

eggs, many times at or near the same beach where they themselves hatched. Nesting season begins in February and continues through July. Hatching may begin as early as April and continues through September. During each nesting season a female may lay from one to eleven clutches of eggs, at 8 to 14 day intervals. They nest in sand near the vegetation line on the beach. Females lay between 50 -150 eggs in each clutch. After the 60 day incubation, the eggs hatch and the baby turtles emerge from the nests. A drop in the temperature of the surface sand triggers the hatchlings to mass emerge at night. The hatchlings, or "Tinglitos" are 5 - 6cm. (2 - 2.5in.) in length, and are proportionately identical versions of the adults. They frantically flap their way toward the sea, attracted by the subtle reflection of the moon and stars on the water's surface. They enter the sea through the huge breaking waves and swim, often continuously, for as many as two days out to sea. They seek food and refuge in expansive prairies of floating sargassum sea weed, pooled by open ocean currents. An average of 75% of the turtle eggs laid on Culebra hatch. Predators take many hatchling turtles and scientists estimate that as few as 1% of all hatchlings actually survive to adulthood. Little is known of their growth rate or reproductive age. It is suspected that these hatchlings feed on just about everything they can, and grow extremely fast in their first few years of life.

Hot Chicks and Cool Dudes: The temperature of incubation determines the sex of the turtles inside the egg. Different parts of the nest chamber may vary slightly in temperature. Warmer temperatures produce females, and cooler temperatures produce males. The majority of the hatchlings from a clutch will be either male or female depending on the mean temperature of the nest.