

The Struggle Of The Ancients

by *Veronica S. Schweitzer*

They lived through the age of the dinosaurs. They survived the earth's age of ice. Sea turtles, the true ancients of the world, have been swimming the oceans for over 200 million years. And for the first time in all these millennia, six out of the seven species are either endangered and on the verge of extinction, or threatened to become endangered under the U.S. Endangered Species Act. At the end of the 20th century, we are facing an imminent tragedy affecting the future of our planet in ways we cannot foresee.

In Chinese mythology, the sea turtle represents wisdom. In Hawaii, legend tells about a green sea turtle, Kauila, who could change herself into a girl to watch over the children playing at Punalu'u Beach on the Big Island. When Kauila's mother dug her nest, a fresh water spring surged upward, quenching the children's thirst. Kauila is the "mythical mother" of all turtles, and perhaps of our children as well. It's also said that turtles were the guides for the first voyagers to Hawaii.

In the Hawaiian waters, living close to our shores, swims the threatened green sea turtle (*Chelonia mydas*), the petroglyphic "honu" of the Hawaiians. Not only the ali'i, chiefs and leaders in the years of monarchy, feasted on the flesh but millions of these trusting reptiles have ended up in soup pots worldwide.

Around Hawaii's coral reefs dwells also the shy, almost extinct hawksbill (*Eretmochelys imbricata*), 'ea' in Hawaiian, whose fate is linked to the continuing, be it illegal, demand for its shining tortoise shell. Prices in the hundreds of dollars lure silent hunters out of demand for decorative dishes, hair combs and jewelry. Now, only a few dozen hawksbills nest each year in Hawaii.

In deep water, away from the shores, the leatherback turtle (*Dermochelys coriacea*) feeds on its way to far away destinations. At 2000 pounds, the leatherback is the giant of sea turtles, the largest of all sea reptiles in the world. Unlike the other turtles, it doesn't have a hard shell, but has instead a mantle of seven long keels of black rubbery skin. The leatherback doesn't nest in Hawaii.

As for the loggerhead, the two ridleys, the black turtle, and the Australian flat back, they visit Hawaii seldom, or never at all.

Hawaii's popular green sea turtle, growing up to 45 inches and weighing as much as 200 to 400 pounds by the time it reaches maturity at the average age of 25 years, has a heart-shaped gray-brown shell. Only her body-fat is green. Her head is proportionally much smaller than that of other turtles, making the dark eyes appear even larger.

Like all other sea turtles, the green turtle crawls on shore to lay her eggs. Turtles return to the place of their own birth to mate and make their nests. For most Hawaiian turtles, with several hundred females, this involves a migration to the quieter shores of the French Frigate Shoals, 800 miles northwest of Hawaii.

The nesting ritual of the sea turtle is as ancient as it is unique. When the female is ready to hatch, she waits bobbing the surf until the calm and coolness of evening. At the right moment she moves over the sand



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shedding large tears with excess salt. The tears also protect her eyes from the sharp sand. With her flippers she digs a two foot deep hole, then crouches over it, and lays her eggs. During a single season she might fill three or four nests with up to 100 eggs in each. And after filling the nest with sand, she will dart back to the water, her mission complete for two to three years, when she mates again.

But not all her eggs will hatch, and not all the two inch, one ounce hatchlings will be able to run through the salty surf into the freedom of their adolescent turtle life. Rats, mongooses, people, fungi, crabs, dogs, larvae, prey on the precious eggs. The few babies that survive have to dig themselves out of the sand and run for life.

The development of resorts, beach houses and beach lights, new vegetation, artificial sand, beach construction, as well as beach erosion, can confuse the hatchling enough for it to run in the wrong direction, towards lights and highways. At times it's unable to crawl out from the sand at all. Thousands of eggs might produce only a handful of sexually mature sea turtles!

Scientists aren't sure about the young sea turtles' behavior and patterns of habitat. Young turtles reappear on the shores of their home-to-be, having grown up to 14 inches long. Soon they find their permanent niche. They feed and graze, adopting a vegetarian diet of sea grasses and algae.

While reefs are the turtle's playground, disaster lurks in every wave, in every splash, in every object coming their way. Some islanders still hunt for the turtle's meat. Turtles get trapped in shrimp trawls and fishing gear. They can become entangled in discarded fishing nets. They collide with boats and ski jets. Many turtles die ingesting plastic bags, the infamous six-pack beer- and soda-holders, Styrofoam, tar balls, balloons, and toxic waste. Swimming through oil, a turtle loses its ability to cry away extra salt, and respiration becomes difficult.

These facts don't look promising and protective laws have caused a gradual increase in turtle numbers. But that growth has been stifled. A mysterious and debilitating disease is rapidly capturing the Hawaiian green sea turtle.



Fibropapillomatosis, a virus-like invasion that causes fibrous tumors and warts, was first noted on a Hawaiian turtle in Kaneohe Bay in 1958. Similar symptoms were found and had already been described elsewhere in the 1930's, and similar tumors have also been found in loggerheads and olive ridley turtles, non-Hawaiian residents .

During the 1980's and 90's, the killer disease has grown in such magnitude in the green sea turtle population that in certain areas, mostly close to shore and heavily used by humans, over 90% of the turtles are affected. Both juveniles and adults can

attract the tumors. Youngsters will emaciate and die in as little as two years. On adults, the tumors can spread slowly, causing endless suffering until the relief of death.

The virus starts out as a collection of small white lesions around neck and throat. Gradually those spots grow into two to three inch tumors protruding from eyes, mouth and neck, at times also chewing away on the inside.

The sick turtle, dependent on "cleaning stations" where surgeon fish nibble the algae off its shell, starts avoiding these places. Uninvited guests attack its tumors filled with parasites and the growing algae on its carapace makes swimming increasingly difficult.

With tumors growing on the eyes and the mouth the green sea turtle finds it difficult to either see or eat. Gradually the ancient turtle wastes away, till one day, it is no more.

While we don't know what the immediate cause of fibropapillomatosis we also don't know why it is spreading simultaneously and just as fast in the Caribbean and Florida. We don't even know if the virus, or what we think is a virus, could harm humans as well. What we do know is that it is related to what we humans have done to our planet.

Studies indicate a direct connection between chronic stress on the turtle, environmental factors (pollutants, increased solar radiation, temperature changes) and the disease. Pollutants in the water may weaken the animal's immune system and a decreasing shark population might allow those weaker turtles to survive and to further spread the disease. The damage we have done to our reefs combined with the pollution of our waters might have created a thriving climate for the lethal papillomatosis.

Government and nonprofit agencies are doing what they can to help the problem and here in Hawaii, George Balazs at the National Marine Fisheries Service in Honolulu, has labored over the most complete and scientific laboratory reports. He has also generously helped other groups and individuals on the islands, including myself as a writer, to learn the facts and to learn what we can do to help the green sea turtle. For a great site on the web, look for TURTLES.ORG.



As far as watching the green turtles here in Hawaii, don't be shocked by what you might see. Above all, if you decide to visit with a turtle, there are ways in which you can keep the turtle calm and relaxed, which might help in preventing the spread of disease. Swim above or alongside it, so its vulnerable belly is not exposed and don't ever touch, disturb, or harass the turtle. Did you know that a relaxed turtle can stay under water easily for 40 minutes to 5 hours and that a turtle under stress can drown within a couple of minutes?

The sea turtle mirrors the health of our planet and the struggle for survival for these ancient creatures is in our own hands.