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Aboriginal tradition in North America holds that Earth rests on the back of a turtle. Hence Earth is commonly referred to as "Turtle Island". That virtually all sea turtles are threatened or endangered could be taken as a sign that Earth herself is in the same plight.

COSTA RICA'S SEA TURTLES: The Caribbean coast of Costa Rica is a favorite and important nesting ground for several species of sea turtles. Greens, loggerheads, leatherbacks, hawksbills and olive Ridleys congregate in the area every June through October to breed and lay eggs. In the past, local villagers swarmed to the beaches to collect eggs and slaughter adults for meat. It became a vital part of the local economy especially in the area known as Tortuguero. This name translates as "the region of turtles". Then the Costa Rican government created a national park in the area and literally invented ecotourism. Locals were recruited to patrol the beaches and prevent nest robbing. Others were trained and licensed as tourist guides and such a license became a prized possession. Hotels were built and ecotourism was born. The locals became convinced that a live turtle on the beach was worth more than a dead one in the pot. This has become one of the most outstanding environmental success stories. A Florida State University biologist, the late Dr. Archie Carr, was instrumental in initiating this turnaround. He began researching the problem of sea turtle survival in 1952 when he was 43 years old. Thirty years later he was heartened to see hordes of turtles returning to "Turtle Bogue" (Tortuguera) (1).

Carr's wife Marjorie was instrumental in stopping the construction of a cross-Florida barge canal that would link the Atlantic and the Gulf of Mexico. Founding the Florida Defenders of the Environment (FDE) she spearheaded a massive environmental impact study that proved that such a plan would be a hydrological, geological, ecological and economic blunder rivalling the disastrous proposal some years earlier to drain the Everglades (2). About 110 miles (182 km) had already been finished when President Nixon signed the stop order in 1970. This just proved once again that the bottom-liners cannot be trusted to protect anything except their own pocket books.

FLORIDA'S SEA TURTLES: Many of these same species of turtles nest on Florida's beaches as well. Other threats to turtles include ambient light that can disorient the young and disrupt their march to the sea. Floating plastic bags can be mistaken for jellyfish, a favorite turtle food, and choke the adults. Stainless-steel fish-hooks can be ingested by turtles that eat the bait on them. Since they do not rust out, they constitute a death sentence for the turtles. Jack Rudloe, of the Gulf Specimen Marine Laboratory (GSML) in Panacea, has been conducting a campaign to discourage the use of stainless steel hooks. Figure 1 is a photo of a Kemp's Atlantic Ridley sea turtle that had swallowed a stainless steel hook that was removed surgically by the local veterinarian. I was fortunate to be present aboard GSML's little collection boat when the turtle

was returned to the sea after its rehabilitation at GSML. This photo first appeared in my recent book (3).

There are numerous organizations devoted to the preservation of sea turtles. The Sea Turtle Conservancy (STC), to which I belong, is one I would recommend.



Figure 1*

While Tortuguera is a major success story, devastation of the turtle population continues to occur elsewhere in the world. And poaching still occurs even in protected areas. **Figure 2* (below)**



Figure 2 shows Florida cooters (4), about the size of a dinner plate, sunning on a log in the Wakulla River. The name 'cooter' is thought to derive from an African word *kuta*, meaning turtle. Note the alligator in the upper left corner; contemplating lunch? These are not sea turtles but they inhabit a river flowing into the Gulf of Mexico not far away.

Other measures taken to protect sea turtles include the turtle exclusion device, or TED, developed by the National Marine Fisheries Service. This metal gate at the base of shrimp trawls allows turtles to escape the net with little effect on the shrimp catch. Figures 3 and 4 below show a turtle exclusion device on display at GSML. The large metal hoop is the mouth of the trawl (Figure 3). The TED is visible at the extreme left. Figure 4 is a close-up of the TED. The TED is kept upright by the white float seen at its top. When a turtle is swept into the trawl it is stopped by the Ted and escapes through an opening in the net at its base. The shrimp are swept through the TED into the collection bag. The accumulation of debris at the TED may deflect the shrimp catch out of the net opening and this lessens the acceptance of TEDs by the shrimping industry. Newer designs have been developed to reduce this likelihood.



Figure 3* (from a GSML demonstration, also Fig. 4)



Figure 4*



Figure 5* (from GSML aquarium)

Figure 5 shows a hawksbill turtle, so named for the beak-like upper jaw. Hawksbills have been slaughtered and mutilated for centuries for their beautiful tortoise shell carapace. This was made into the ornate mantilla combs that graced the coiffures of many Spanish señoritas. It was used also to make other ornamental objects. Notice that the left rear flipper is missing. It was possibly taken by a shark. This turtle is about two ft (60 cm) in length.

Sea turtles are still under threat. Some species have been so devastated that they may not recover. Some Caribbean countries still allow the sale of turtle products. Poaching still occurs. Turtle farms are not the answer. It takes twenty years for most sea turtles to reach breeding age. Perpetuating the demand for turtle products simply promotes further poaching. Other wildlife can also be a threat to sea turtles. Raccoons dig up the eggs and eat them. Any hatchlings still on the beach by daylight are likely to fall prey to gulls, coyotes and other predators.

In 1975 the Convention on International Trade in Endangered Species (CITES) was signed by all but 17 of the 193 members of the United Nations. It offers some degree of protection to some 34,000 species of animals and plants. It can only be hoped that it will save the sea turtles from extinction.

***Note that all photos were taken by the author.**

References

1. Stephenson, F. Archie Carr: the man who saved sea turtles. Florida State University: Research in Review. 17: 14, 2007.
2. Stephenson, F. Marjorie Harris Carr: the alum who killed the canal. *Ibid*, 17: 31, 2007.
3. Philp, R.B., Environmental Issues for the Twenty-first Century and their Impact on Human Health. <http://www.benthamscience.com/ebooks/9781608051021/index.htm>
4. Conant, R. Eastern Reptiles and Amphibians: Roger Tory Peterson Field Guides. The Easton Press, Norwalk, Conn., 1984.

Additional information may be had at-

Sea Turtle Conservancy (STC) www.conserveturtles.org

NOAA Office of Protected Resources www.nmfs.noaa.gov/pr/species/turtles/

The Marine Turtle Newsletter www.seaturtle.org/mtn/

The International Sea Turtle Society <http://iconferences.seaturtle.org/>
(Paste into address line.)

Wildlife Conservation Society Nicaragua Sea Turtle Program
www.wcs.org/international/marine/marinelacaribbean/nicaraguaseaturtle