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Hitting the Beach

Sea turtles have been around since the age of the dinosaurs. But their days may be numbered unless Americans find the will to save them

By Ted Williams

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The people who knew what they were doing wouldn't arrive for another 14 hours. So I stepped out of my chilled room at Tiara by the Sea, the funky motel in Melbourne, Florida (where the great sea turtle researcher and conservationist Archie Carr used to stay), and plunged into the steamy black night of July 26, 2005.

At least I knew enough to wear dark clothes and move slowly along the dry part of the Archie Carr National Wildlife Refuge, the 20.5-mile stretch of beach (if you count private inholdings) between Melbourne and Wabasso. I headed north, staying 50 feet above the white surf line. The glow from the phalanx of low, oceanfront houses hung over the beach like swamp mist, barely staining the sand.

I crossed a turtle track about every 20 feet, some fresh, some days old, some on top of each other, all resembling snowmobile spoor. The flippers of the loggerheads left alternating impressions, like the divots a kayaker cuts on a quiet lake surface with a double-bladed paddle. The rarer greens, whose nesting season was just getting under way, left parallel prints like those cut by a sculler.

I didn't see my first turtle for an hour—a green well over 300 pounds at the edge of the grass, kicking sand eight feet into the air. I sat and watched her until she'd buried her eggs. And when she hauled back toward the Atlantic she almost ran me over, showering my head and shoulders with sand and brushing my leg with her left flipper.

As the air cleared and the Milky Way lit the sea, I saw or imagined dark forms in the breakers. And then, before I could stop and crouch, I almost tripped over a loggerhead. She turned and retreated, aborting her nesting attempt as well as my outing, and leaving me dispirited and wondering if this qualified as a "take" under the Endangered Species Act.

The Archie Carr National Wildlife Refuge, designated by Congress in 1989, is one of the stunning successes of the Endangered Species Act and the National Wildlife Refuge System. It is far and away the most important sea turtle nesting area in the United States and one of the two most important in the world. Greens, which have a biennial nesting cycle, construct something like 2,800 nests here in a high year and 200 in a low year. Corresponding figures for the whole state are 8,000 and 500. Leatherbacks—the largest turtle on earth (up to 2,000 pounds) and the most grievously endangered of all sea turtles—nest on the refuge. A quarter of all loggerhead reproduction in Florida occurs within refuge boundaries. Loggerheads were doing okay here until about six years ago, when they started a steep decline. In 2004 loggerhead nests reached a 20-year low of 8,000, down from 20,000 in 2000. But 2005 was a better year—11,085 nests, while greens (3,640 nests) and leatherbacks (68 nests) had record seasons.

Because Florida's beaches sustain 90 percent of the nation's sea turtle nesting, it's imperative that the state have especially enlightened policies for beach management and coastal development. Instead, it has the most backward in the nation.

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Because Florida's beaches sustain 90 percent of the nation's sea turtle nesting, it's imperative that the state have especially enlightened policies for beach management and coastal development. Instead it has the most backward in the nation. For example, it is one of the few states that still permit extensive shoreline "armoring" with cement and metal seawalls. Seawalls do little to protect human dwellings, which shouldn't be built on the beachfront any more than they should be built on a river's floodplain. And seawalls deflect wave energy seaward, thereby eroding sand. Instead of a beach, sea turtles find gravel and bedrock that's inundated at high tide. In the unlikely event that a turtle keeps moving inland, she hits her head on the seawall. In Florida you can even build seawalls for land speculation—that is, you may lawfully use them in an attempt to protect undeveloped land.

Seawalls encourage development, which, in turn, brings more seawalls. And seawalls give home buyers a false sense of security. Florida's beachfront dwellings, allegedly protected by seawalls, are forever being destroyed by storms. In many cases owners are able to collect taxpayer-provided state and federal insurance, then rebuild.

Sarasota County, on Florida's west coast, provides a vignette of what's happening statewide. About a third of the county's 35-mile oceanfront has been armored with seawalls, and more are going up. On Casey Key, where houses built in the path of the advancing sea are being washed away, residents have recently obtained a permit to construct a 600-foot-long cement-and-aluminum seawall. And in Manasota Key—with the highest density of turtle nests on the Gulf Coast—beachfront residents are pushing for, and doubtless will get, a 2,400-foot seawall. *Retreat* is a word anathema to Florida bureaucrats and the \$200 million-a-year Florida seawall industry. But when you're squaring off against a storm-prone sea—particularly one swelling with ice-cap meltwater from global warming—retreat is the only sane course.

Floridians have a legal right to laterally traverse the sandy beaches of the state. But by removing beaches, seawalls usurp that right. When state and county bureaucrats allow a community to build a seawall, they are sacrificing a public beach for the express benefit of private property owners and developers.

Once the beach is gone the only option is "beach renourishment"—a euphemism for making a fake beach. Usually the U.S. Army Corps of Engineers attends to this by using huge dredges to strip-mine sand from the ocean floor (along with juvenile turtles and entire benthic communities, including crustaceans, mollusks, worms, sponges, corals, and sea grasses). The resulting turbidity can last for months, clogging the delicate gills of filter feeders and starving sight feeders such as pelicans, terns, gulls, gannets, loons, cormorants, sea ducks, and all manner of predatory fish. A billion dollars in federal, state, and municipal funds has been spent in Florida for fake beaches, and 90 percent of these fake beaches have washed away within five years.

In the process of sucking up offshore sand, the Corps smothers coral reefs, critical habitat for juvenile sea turtles of five species, all of which are protected by the Endangered Species Act. Then, when adult turtles make landfall, the alien sand may be too coarse for them to dig through or so fine that it falls back into their egg chambers as fast as they dig. The habitat of shorebirds is destroyed. Invertebrates are smothered. Maybe the beach ecosystem recovers; maybe it doesn't. It's as if you dumped five feet of dry, gritty dirt on your front yard. Something will grow there eventually, but not your lawn.

My guides arrived at noon the following day—David Godfrey, Gary Appelson, and Renée Zenaida, all of the Caribbean Conservation Corporation, the world's oldest sea turtle research and protection outfit. Godfrey, the CCC's director, drove us to a typical seawall, tucked up against the refuge's southern boundary, in Wabasso.

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Seventeen oceanfront cottages supposedly protected by the wall had been torn up in 2004 by hurricanes Frances and Jeanne; of these, eight had been totally destroyed. The 1,800-foot seawall had broken in half and caved in. Most of the beach—prime turtle nesting habitat—was gone. Instead of protecting the cottages, the wall had destroyed most of the beach in front of it and severely damaged 200 yards of beach to the south. “Over there was Wabasso Park,” said Godfrey, pointing to a gravel-lined gully on our right. “That’s where the public bathrooms used to be. Gone. And the people who buy these lots are going to come back and build something bigger and feel like they’re safe because of the [repaired] wall.” Godfrey related a confrontation he’d had with one of the homeowners when the wall was going up: “The guy came out on the beach and started grilling me: ‘Who are you? What do you want?’ I told him we were concerned about sea turtle nesting and had differing opinions about how to deal with beach erosion. ‘Well, this is my house, and I’m gonna do what I need to protect it, and blah, blah, blah.’ Well, that’s how he ‘protected’ his house.” Godfrey pointed to a gray floor—all that was left.

The new buildings that will go up will be subsidized by state and federal flood insurance. And now that the seawall has removed most of the sand, residents will demand perpetual beach renourishment. “This is just a tiny snapshot,” declared Appelson.

And Godfrey added: “Rather than allowing this monstrosity on the beach, the state should have bought these dinky little bungalows. Granted, I wouldn’t want my home destroyed if it were on the beach, but the sea is here, and rather than protecting every one of these buildings, we ought to identify places where we can move back. If there’s not a high-rise, we should be buying these people out.”

As a classic example of what not to do, the Wabasso seawall fiasco has proved a net benefit to sea turtles. Beachfront development interests had pushed a law through the Florida legislature in 1995 that allowed local governments to authorize seawalls sans state permitting in the event of “emergencies.” Construction had to start within 60 days of the emergency, and the seawall had to be “temporary.” Suddenly “emergency” seawalls were popping up all over the state. One of the first armoring projects under the new law was the Wabasso seawall in Indian River County. Construction began more than a year after the emergency, and there was nothing “temporary” about it (at least until the hurricanes ripped it apart). The Florida Department of Environmental Protection (DEP) and the U.S. Fish and Wildlife Service looked the other way. So the CCC sued the county for illegal seawall authorization. It then asked the DEP to issue a statement that the project was illegal. The department demurred. The CCC asked the Fish and Wildlife Service to issue a statement explaining that authorization of the wall resulted in a “take” of sea turtles and was therefore unlawful under the Endangered Species Act. The service demurred. However, the discovery process forced the state to admit that the wall was illegal.

Had it filed for an Endangered Species Act violation, the CCC might have gotten the county and the homeowners to provide mitigation for the wall through a habitat conservation plan, but the group saw an opportunity for a great deal more. It went after and obtained a settlement for a habitat conservation plan for the entire county that included a moratorium on all seawall construction pending Fish and Wildlife Service approval. The plan, approved in 2004, finally forced the service to admit that seawalls do indeed result in a take of sea turtles, and it requires the county to monitor turtle nesting along its beaches, sponsor sea turtle education programs, protect nests from such predators as skunks and raccoons, place a cap on the number of seawalls it authorizes, and enforce a strict coastal lighting code so that adult turtles aren’t repelled and hatchlings don’t become disoriented and move away from the sea.

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From Wabasso we drove north to a beachfront cottage in Brevard County that had supposedly been made storm safe by tubes—portable, plastic seawalls that are filled with sand and that hold back the sea about as successfully as did King Canute. The county has a ban on seawalls, but the tubes' developers got around it with shrewdly applied political pressure and by putting on a medicine show in which they asserted that their device shouldn't count as a seawall and that it was the next best thing to Dr. Kickapoo's Elixir for Rheum, Ague, Blindness, and Insanity. The developers have even tried to push through legislation that changes the definition of "dunes" to include their tubes. The tubes I saw, erected inside the refuge and after the hurricanes of 2004 had blown out the cottage's walls, were also "protecting" a vacant lot (illegally, because the tubes are regulated differently than hard seawalls).

"The kindest thing I can say about these tubes is that they're experimental," said Godfrey. "Engineers who have looked at this stuff say it's essentially worthless. We're laying out this experimental crap in the middle of the densest sea turtle-nesting beach in America to protect homes that are already destroyed. It's ridiculous. It makes me want to vomit when I see this. State, federal, local governments, and the Richard King Mellon Foundation spent over \$100 million buying land for this refuge. There should be a mechanism for the state to evaluate a house like this and force it to be moved back."

In 1986 the state developed a program called the Coastal Construction Control Line by which dwellings allowed within the impact area of 100-year storm events must be built "hurricane safe" and sited to protect the beach-dune system. Since then the state has presided over the building of all manner of allegedly "hurricane-safe" structures, many of them behind seawalls and tubes, but it has done little to enforce protection of the beach-dune system. The nonenforcement is a function of property values. A single lot—100 feet of beach frontage—in this part of Florida now sells for about \$2 million; that's up from \$100,000 just 10 years ago. Moreover, the lavish tax base funds schools, hospitals, police, and other services, addicting communities to unregulated coastal development.

When the allegedly hurricane-safe replacement for the ruined cottage goes in behind the tubes, it will set the new line for coastal construction, and state and federal taxpayers will again get to pay for flood insurance. "You've heard about all that swampland for sale in Florida?" Godfrey asked me. "Well, these 'storm-proof' beaches are the new Florida swampland."

These tubes are just one of countless quack cures with which beachfront residents and politicians are continually seduced. Another is the net groin—a four-foot-high porous fence, perpendicular to the beach, that extends 150 feet seaward from the mean high-water line and is anchored by steel posts driven into the sand. It's supposed to function like those rock jetties called "groins," which build up the beach on one side and starve it on the other. Last July, a day before the Brevard County commissioners were to consider spending \$592,595 to install net groins inside refuge boundaries and across from the Crystal Lakes subdivision, the newspaper *Florida Today* asked Godfrey to comment on the system's efficacy. "Let's forget about all the turtle impacts and pretend this thing works," he told the reporter. "It's going to cause sand to build up on the north side and deplete sand on the south side. Is that success? We've all seen what that looks like at Sebastian Inlet. The people to the north are happy; the people to the south are furious and suing." The next day no commissioner would second the motion to approve.

Turtles are adored by the public—so much so that Steven Spielberg's hugely successful ET, the extraterrestrial, was modeled after one. But whether or not Americans are willing to make the sacrifices necessary to save sea turtles from extinction is much in doubt. Still, I was heartened to see the way the locals had embraced sea turtles. Under special permits, citizens groups walk beaches nightly, identifying species,

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monitoring nesting activity, reporting strandings, documenting light-induced hatchling disorientation. There were sea turtle motifs everywhere I looked—on buildings, mailboxes, and signs. A tile mural of sea turtle hatchlings adorns the wall of the Publix supermarket in Melbourne. When my guides stopped there to buy red cellophane for our flashlight so the beam wouldn't spook the turtles, Appelson asked the girl at the counter if she had something smaller and less expensive than the big roll on the shelf. "No," she answered, grabbing the roll and ripping it open. "See," she said. "This one's damaged. You can have it. Go watch turtles."

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The reason the beaches of the Archie Carr refuge are so dark is because people dim their lights so as not to drive away adult turtles or draw hatchlings from the ocean and into harm's way—not much of a sacrifice, especially considering the energy it saves. But many people in Florida aren't willing to do even that. Hotel magnate Charles Hilton of Panama City Beach (no connection with the Hilton hotels) has been fighting Bay County's turtle-safe lighting ordinance. Hilton and his family own a Holiday Inn SunSpree, a Day's Inn, and a Ramada Inn. Because of the intense lighting around these hotels, they're the dominant features on the beach, and Hilton wants to keep it that way. The turtle eggs should be taken out of his way, he explained to the Bay County commissioners in writing: "It seems apparent that a [turtle egg] relocation program will be more effective than passing an extensive turtle lighting ordinance, and certainly the cost-benefit ratio will be better."

The trouble with digging up and relocating turtle eggs is that you don't know where they all are and that lots of the ones you relocate don't hatch, as a result of being disturbed. On August 3, 2004, the Fish and Wildlife Service issued Hilton the following warning: "The emergence from the nest and crawl to the sea is one of the most critical periods of a turtle's life. Hatchlings that do not quickly make it to the sea become food for ghost crabs and birds or become dehydrated. . . . The courts determined that beachfront lighting causes take of sea turtles, and that local governments and other parties can be liable for that take." The service has even offered to share the cost of retrofitting Hilton's lights. He refused. "Total disorientation" of hatchlings has been documented under Hilton's lights.

"Has there been any progress with Mr. Hilton and his people since you issued your warning?" I asked the Fish and Wildlife Service's Lorna Patrick.

"No," she replied. "I've been trying to get them to work with us, and they are unwilling to do so." When I asked her if her agency was going to prosecute for an Endangered Species Act violation, she said: "I don't make that decision; our law-enforcement people do."

When I walked the refuge with my CCC guides, the beach seemed darker, the Milky Way brighter. One house, however, was ignoring the lighting ordinance with front-yard floodlights. "See," said Appelson, "that guy doesn't care." But no sooner were the words out of his mouth than the lights died. The guy did care.

It wasn't 10 minutes before turtles started lumbering out of the sea. The first one emerged directly in front of us, and we dropped quickly to our knees. "She sees us," said Godfrey. "She's gonna bail." And with that the big loggerhead turned quickly and reentered the waves. Godfrey and Appelson weren't concerned. This happens all the time, they said. You want to do everything you can to avoid it, but sometimes you can't.

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"She'll try again, probably within an hour," said Godfrey. So I was absolved. There had been no "take" the previous night.

After the seventh turtle, Appelson said, "I've never seen it this good." But it was both good and bad. All the turtles I saw that night turned back when they hit the "FEMA berm." Four months earlier, supposedly to protect beachfront houses from hurricanes, the Federal Emergency Management Agency had constructed an artificial dune along the top of the beach. There was something about it the turtles didn't like, explained Godfrey. Maybe the sand is too soft for egg chambers. When I tried digging a hole in the berm the walls instantly collapsed. In 2005 the rate of "false crawls" on the refuge was 59 percent for loggerheads and 66 percent for greens. Before the berm the average had been 44 percent for loggerheads and 49 percent for greens.

If you are sitting or lying down and a sea turtle passes you within arm's length, it's okay to touch it provided you have clearly seen it turn around and head back to the sea. As my fingers brushed one, dinoflagellates on its black carapace left trails of phosphorescence.

I watched the turtles until I fell asleep, ancient, hard-wired reptiles as old as the dinosaurs, hitting this compromised beach—the best beach they have left—as relentlessly as the waves. They've been doing this for 200 million years. I had trouble imagining that it might stop in my lifetime.

What You Can Do

If you live on the beachfront from North Carolina to the Gulf Coast, don't impede sea turtle nesting with beach armament. Dim your outside lights and draw your curtains during nesting season (May 1 through October 31). For more information, call the Caribbean Conservation Corporation at 800-678-7853 or log on to www.cccturtle.org.