

VELADOR

Protecting Sea Turtles and their Habitats since 1959

Issue 2, 2005

Chiriquí Beach Project Leads to Increased Sea Turtle Protection and Research Opportunities



The Chiriquí Beach Sea Turtle Research and Conservation Project, begun in 2003, is a multi-agency effort coordinated by the Caribbean Conservation Corporation and modeled after its successful program in Tortuguero, Costa Rica. This Panama-based program consists of intensive monitoring of hawksbill (*Eretmochelys imbricata*) and leatherback (*Dermochelys coriacea*) sea turtle nesting activity at Playa Chiriquí and neighboring nesting sites, protection of nesting females and their nests, community education and collaboration with other groups working in the region. Chiriquí Beach was once described by Dr. Archie

Carr as the most important nesting beach in the Caribbean for the “critically endangered” hawksbill turtle. It also remains one of the most important sites for leatherback nesting in the Atlantic, with as many as 7,170 to 14,005 nests being deposited yearly between the Nicaragua/Costa Rica border and Central Panama.

Conservation efforts at Chiriquí Beach have raised awareness about the importance of the region to the survival of hawksbills and leatherbacks, both regionally and globally. 2005 saw increased sea turtle protection efforts and the attachment of satellite transmitters to

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Daniel Evans



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Sea Level Rise

Over the past 300 years, the industrialized world has been adding carbon dioxide and other gases to the air by burning fuels (wood, coal, oil, and gas). This layer of gases, like the glass on a greenhouse, allows the sun's heat in, but not back out. Global climate data suggest that this is warming the Earth—the average global temperature has already risen 1 degree F over the past century. Given the current rate of greenhouse gas production, global temperatures are predicted to rise another 3 to 6 degrees F over the next century. It may seem like an insignificant change—until you consider that there is only a 9 degrees F difference between one of the full-blown ice ages and a warm interglacial period, such as the one we are living in.

The Intergovernmental Panel on Climate Change (IPCC) has been studying the global warming issue for 17 years, and has predicted it to significantly affect coastal areas through sea level rise. In fact, some scientists postulate that we are seeing these effects already. Over the past 100 years, sea levels worldwide have risen an average of six inches. Geologist Stephen Leatherman



Ecological Associates, Inc.

estimates that for every inch of sea level rise, the Atlantic shoreline retreats an average of 12.5 feet. This means that over the past 100 years, the Atlantic coastline has moved inshore an average of 75 feet—about the length of two buses. Some beaches lose more land and some less, according to local conditions, but the overall trend is disturbing and is predicted to continue.

With a rise in sea level, all of the current coastal armoring structures (sea walls, rock revetments, geotubes) will be less and less effective in protecting coastal properties. Although coastal armoring may protect coastal buildings for awhile, these structures interfere with the

natural coastal processes, like sand transport and dune building that could, if left alone, preserve the beach.

Sea level rise and shoreline retreat could be a significant threat to sea turtle nesting sites around the world, especially in areas with coastal development. On beaches with coastal armoring, sea level rise will result in the loss of what little nesting habitat exists in front of the coastal armoring structures. A beach may shift 60 feet inland in 25 years, but on beaches without sea walls, there would still be a beach to provide sea turtle nesting habitat. Where there are sea walls, the beach is prevented from shifting inland and will be lost as the high tide line moves higher up the beach until it covers the entire beach.

Sea level rise induced by global warming arises from two main sources: melting ice and thermal expansion. There are large volumes of water in the ice on our planet, in both glaciers and ice sheets. The glaciers found on the world's mountain ranges will melt much faster than the vast ice sheets of Greenland and Antarctica. In fact, scientists monitoring the size of various glaciers have noted that many of them have already shrunk—some significantly. Predicting the amount of ice expected to melt is difficult because there are so many uncertainties, but the best estimate is that ice melt has added 1 to 2 inches to sea level already within the past century, and will add about 9 more inches to sea level by 2100.

However, ice melt isn't even expected to be the biggest source of sea level rise—thermal expansion is. Think of the ocean as a large cup of water, completely full, the edges of the cup being the beach. Now think of heating that water up. Similar to heating the air in a balloon, when water gets warmer, it expands and fills more space. You may not notice much of a difference in a cup of water, but on the scale of the oceans, a small rise in average temperature can mean a significant rise in volume (because you are starting out with a lot of water). The extra volume of water has to go somewhere, and, like an overflowing cup, it spills onto the shore. Thermal expansion is responsible for 4 to 5 inches of sea level rise in the past century, and is expected to be responsible for about another foot by 2100.

Under the "business as usual" plan (where nothing is being done to curb global warming), IPCC's current estimate of total sea level rise from ice melt and thermal expansion is another 5 inches by 2030—that's almost the same amount as its risen over the past century—but within the next 25 years! By 2100, it is expected to rise a full 20 inches. These are IPCC's average estimates, not even the worst-case scenario estimates. Using Leatherman's 1:150 vertical to horizontal ratio, this could mean that by 2030, the "average" Atlantic shoreline will have eroded another 60 feet; and by 2100, as much as 250 feet (just shy of the length of a football field). Although the amount of uncer-

VELADOR {bel.a.dor}

In Caribbean cultures, *Velador* translates as "one who stands vigil" — originally referring to turtle and egg harvesters who waited at night for turtles to come ashore. Now CCC claims this title for its newsletter, and around the Caribbean, CCC's researchers and volunteers are replacing poachers as the new veladors.

Velador is published for members and supporters of the nonprofit **Caribbean Conservation Corporation (CCC)** and its **Sea Turtle Survival League (STSL)** program.

CCC is a nonprofit organization dedicated to the conservation of sea turtles through research, training, advocacy, education and the protection of habitats.

STSL is the US-based public awareness, advocacy and education program of the CCC.

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tainty in these calculations is rather large (given all the factors that feed into the calculations, and local variations in erosion rates), none of the global warming models are predicting sea level to fall. Sea level will rise, and we will continue to refine by how much as scientists gather more data and improve their models.

In the meantime, it seems prudent to start acting now. What kinds of actions can we take to address these issues? Most certainly, we should be doing everything we can to address global warming — most involve conserving fuel, switching to alternate fuel sources, and stemming the tide of deforestation (trees take up excess carbon dioxide), and urging our government to make the commitment to do the same. 🐢

By Karen Moody-Springer

Karen worked for six years in the Bureau of Protected Species Management, Florida Fish & Wildlife Conservation Commission



Editors note: In Florida, where most beaches are being heavily developed, rising seas pose extreme problems for sea turtles. This is specially true because Florida's coastal policies continue to allow and encourage development on critically eroding shorelines. As the shorelines continue to retreat, development continues to get closer to the water's edge. Since beaches and dunes are no longer able to naturally fluctuate, they become increasingly vulnerable to both minor and major storm events. To protect coastal development, Florida allows property owners to build seawalls. Seawalls, which are built by the score after almost every major coastal storm, prevent turtles from reaching suitable nesting sites and increase erosion on nesting beaches, thereby increasing the demand for more sea walls. In addition, as the dunes are lost, upland lighting sources become more visible to both nesting turtles and hatchlings.

CCC is working to bring about an overall reassessment of Florida's coastal management policies. Earlier this year CCC sent a letter to the Governor of Florida requesting such a reassessment and proposing a list of issues that should be considered. In July, CCC met with the executive director and the staff of the Florida Department of Community Affairs (DCA), the agency that oversees coastal development policies. Following that meeting, CCC was requested to submit suggestions for a coastal policy reassessment. Our recommendations to the governor and DCA include a call to study and prepare for the impacts of climate change, particularly how projected sea level rise will impact Florida's beaches and dunes.

By almost all accounts, Florida will be one of the states most heavily impacted by sea level rise, yet there is not one word about these issues in any Florida statute or state agency rule. There is nothing about sea level rise or climate change in any coastal policy documents. It is as if the issues do not exist in Florida. The state continues to allow high density development on critically eroding beaches while failing to consider any increased risks to property, the public, or our coastal resources posed by credible sea level rise projections. We believe this policy, or lack thereof, is a threat to the future of Florida's coastline, and are working hard to change it. To learn more about the need for coastal policy reform in Florida visit www.cccturtle.org/florida/free-the-beach.htm.

"Carbon dioxide in the atmosphere is now at its highest level in 400,000 years and it continues to rise. Nearly all climate scientists believe that much of the Earth's current warming has been caused by increases in greenhouse gases, mostly from the burning of fuels." - Report by Ralph Cicerone, Director of the National Academy of Sciences.

"This is the latest of a few hundred wake up calls that don't seem to stir the slumbering political establishment in the United States." - Professor Stephen Schneider, Stanford University, responding to a recent report in New Scientist (August 11, 2005) documenting the melting of the permafrost in western Siberia.

from cover...

leatherbacks as part of an Atlantic-wide leatherback conservation initiative.

Spear-heading Efforts To Reduce Turtle Fishing

Within the project area, the coastal zone offshore of Bocas del Toro Province is an important area for juvenile sea turtles but also attracts adult green turtles and hawksbills that mate near the coast before coming ashore to nest on beaches in Panama and nearby Costa Rica. Most green turtles in the region continue up the coast to nest at Tortuguero, Costa Rica, while many of the hawksbills emerge to lay their eggs in Panama at Chiriquí Beach, Escudo de Veraguas, the Zapatilla Cays and Long Beach on Bastimentos Island.

During the mating process, turtles float close to the surface and are oblivious to the threat posed by approaching fishermen. Although turtle fishing is prohibited in the region, each year many turtles fall prey to fishermen's harpoons. Many green turtles traveling to their nesting beach in Tortuguero, Costa Rica, are being caught illegally in Panama. In addition, rare hawksbill turtles are also harpooned whenever possible. Hawksbills are also taken from nearby unprotected nesting beaches. In August 2005, a student of CCC Research Coordinator Cristina Ordoñez discovered a nesting hawksbill that had been recently killed by poachers. The turtle's valuable shell had not yet been removed. The flippers showed marks from tags suggesting that the turtle may have nested on Chiriquí Beach or the Zapatilla Cays, where CCC and its collaborators conduct tagging work. Clearly, this illegal harvest is impacting conservation efforts at the Tortuguero and Chiriquí Beach projects.

Cristina and "Chencho" Castillo, a former turtle fisherman who is now a valued member of the turtle research program coordinated by Drs. Anne and Peter Meylan at Zapatilla Cays, grew increasingly impatient with the many illegal fishermen and the apparent lack of enforcement by Panamanian officials. They repeatedly informed ANAM, the Panamanian National Environmental Authority about the problem. Finally, in mid-July, ANAM staff began patrolling coastal waters to enforce turtle protection laws, thanks in part to money provided by CCC for boat fuel.

During its first patrol, ANAM confiscated 28 turtle harpoons and liberated four live green turtles that



ANAM officers with seized turtle harpoons and live green turtles, which were released.

Photos by Vidal Valdes



To learn more about CCC's Chiriquí Beach Hawksbill and Leatherback Research and Conservation Program visit our website at www.cccturtle.org/panama

had been caught illegally. Two of the turtles were brought back to Bocas del Toro, where CCC staff tagged them before their release. The enforcement patrol had an immediate effect on turtle fishing. During the week prior to the patrol, Chencho had counted up to ten boats with turtle hunters each day passing by the Zapatilla Cays.

After the patrol, less than one boat per day was seen.

During a follow-up action in August, ANAM confiscated another 20 harpoons and freed a male green turtle. ANAM is to be commended for undertaking these patrols.

As a result of increased awareness of the illegal turtle harvest and stepped-up enforcement activities of ANAM, the Chiriquí Beach Project is already resulting in unexpected conservation benefits for endangered sea turtles. It is our hope that this long-term program will continue to reduce illegal turtle fishing in the region.

By Sebastian Tröeng & Cristina Ordoñez

Ancient Mariners Phone Home

In June 2005, CCC and partner scientists with the World Wildlife Fund fitted the first-ever satellite

transmitters to critically endangered leatherback sea turtles nesting at Chiriquí Beach on Panama's Caribbean coast. Lightweight telemetry harnesses were attached to five leatherbacks after they had come ashore and successfully nested.



WWF / Carlos Drews

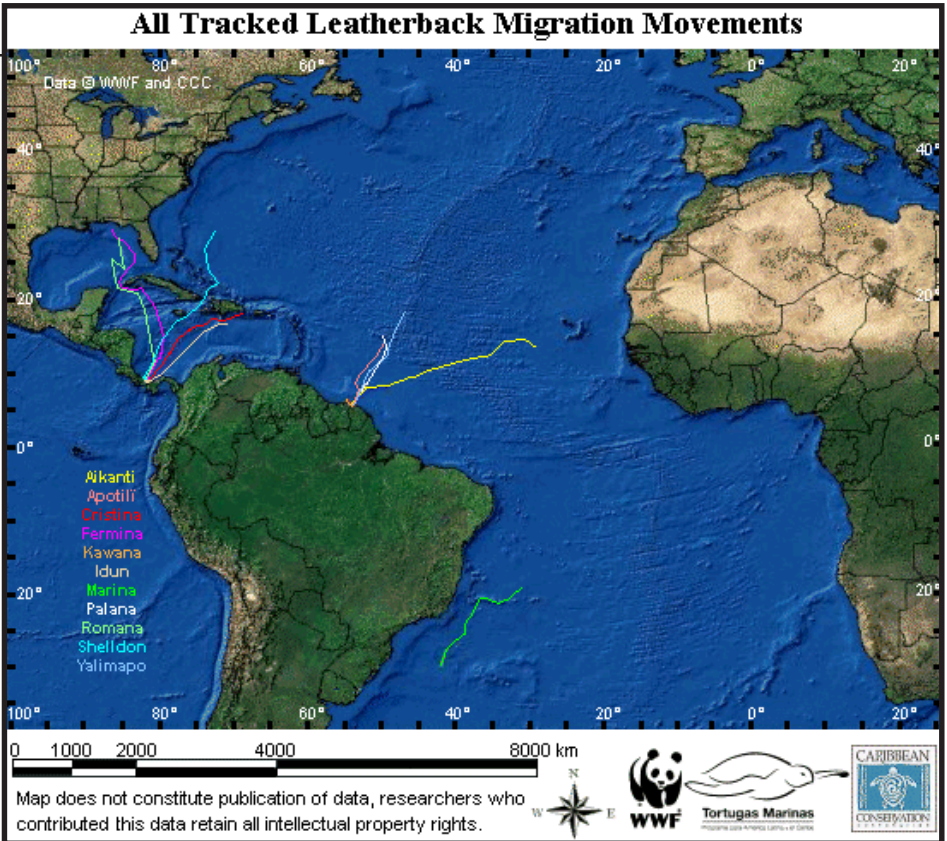
"Fermina" heads back to the ocean with a satellite transmitter harness fitted by CCC and WWF researchers.

With nests dug, eggs laid, and sporting high-tech satellite transmitters, Sheldon, Idun, Cristina, Fermina and Romana headed back to the open water, each equipped to “phone home.”

The telemetry devices, which transmit signals to orbiting satellites each time a turtle comes to the surface of the ocean to breathe, allow scientists to collect data on the migratory movements and diving behavior of sea turtles.

When these ancient mariners “phone home” it’s not just scientists who are picking up the call. As part of CCC’s internet-based Sea Turtle Migration-Tracking Education Program, anyone with Internet access can follow the travels of the Chiriquí Beach leatherbacks. And by participating in CCC’s Adopt-a-Turtle program, enthusiasts can show their support by adopting one of the many sea turtles being tracked right now.

“We got lucky,” says Dan Evans, Field Programs Coordinator for CCC, “We had lots of turtles nesting the first two nights, then nothing. But the last two nights, we had multiple turtles come ashore, which allowed us to deploy the final two transmitters in one night.”



- nesting females and eggs, accidental capture and killing of
- turtles in commercial fishing operations, and potentially
- fatal ingestion of floating debris resembling the adult
- leatherback’s main food—jellyfish, the future of this
- ancient mariner is seriously in question.

“These animals have been around for millions of years, yet it is very possible that we could see them disappear in our lifetime,” says David Godfrey, Executive Director of CCC. “Urgent priorities include the reduction of leatherback by-catch in fisheries, stopping the killing of nesting females, and promoting international cooperation in leatherback conservation.”

Some sea turtle scientists have warned of the possible extinction of leatherbacks in the Pacific during the next decade. In keeping with recommendations developed at its recent Atlantic Leatherback Strategy Retreat, which brought together many of the world’s leading leatherback experts, CCC has partnered with groups like the World Wildlife Fund to extend the scope of its Caribbean Leatherback Tracking and Conservation Program. This research will aid in the development of international

- guidelines to
- protect
- foraging areas
- and limit losses
- in commercial
- fisheries.

For more information and to view current migration maps, visit www.cccturtle.org/sat-leatherback.htm.



Leatherback satellite tagging crew, Sebastian Tröeng (CCC), Cristina Ordoñez (CCC), Dan Evans (CCC) and Carlos Drews (WWF) pose with "Cristina."

For at least 65 million years leatherback turtles have cruised the oceans diving to depths in excess of 3,000 feet (1,000 meters) and traveling as far as 4,800 miles (7,724 kilometers) from their nesting beaches to foraging waters. Roughly the size of a small car and weighing up to 1,200 pounds, much about the life history of the leatherback remains a mystery.

Threatened on multiple fronts, including the taking of

Endangered Species Act Under Attack—Again

Photo Courtesy of D.R. Schrichte



Sea turtles are facing a new threat—right in the halls of Congress. The Endangered Species Act (ESA), passed in 1973 to prevent declining species, such as sea turtles, from going extinct, is under attack again from anti-environment legislators and lobbyists for industries that are inconvenienced with having to accommodate imperiled species. The ESA has been the single most important tool in the protection and recovery of sea turtles in the United States and its waters. Despite claims by those attacking this landmark legislation, the ESA helped bring back many species on the brink of extinction—including America’s national symbol, the bald eagle.

Led by long-term critic of the ESA, Representative Richard Pombo (R-CA), new legislation has been concocted that would completely reverse U.S. policy toward habitat and species conservation. The bill will be introduced formally after Congress returns from recess in the fall. Conservationists, scientists and environmental regulators have quickly labeled Pombo’s legislation as the “Extinction Bill” and are gearing up for a major battle to save the Endangered Species Act. Blocking the “Extinction Bill” could be one of the most significant battles of the conservation movement in almost 30 years.

“If you write or call your legislators about only one bad environmental bill this year, this is the one to get mad about,” said David Godfrey, CCC Executive Director. “Sea turtles, in particular, will be devastated if Pombo’s radical bill guts the Endangered Species Act.”

In an effort to get the word out about this threat to the ESA, CCC arranged a tour for Florida reporters to visit the Archie Carr National Wildlife Refuge, where the effectiveness of the ESA can be seen first-hand. Since its passage in the 70s, the ESA has led to fishing regulations that save thousands of sea turtles each year and encouraged the acquisition of important nesting habitat like that in the Carr Refuge.

Representative Pombo’s Extinction Bill would gut the Endangered Species Act on behalf of developers, oil

companies, timber companies, mining companies and extreme property rights groups. The full language of the bill has not yet been released to the public. However, summaries have been provided. The bill would:

- 2)21 Change the definition of conservation, to abandon the nation’s commitment to recovering species on the brink of extinction.
- 2)21 Redefine the definition of endangered species so that the species must be endangered throughout its entire range. This change alone could result in the “de-listing” of many sea turtle species, which thankfully still thrive in some areas of their range.
- 2)21 Weaken protections for species listed as “threatened” under the law, which would apply to loggerhead sea turtles.
- 2)21 Weaken habitat protection, by requiring that only occupied, and not unoccupied, habitat be protected. This section raises great concerns about the protection of critical sea turtle nesting beaches, which are only “occupied” by sea turtles during brief periods of the nesting season.
- 2)21 Exempt federal agencies from the requirement to consult with the U.S. Fish and Wildlife Service on actions that might impact endangered species. This provision would eliminate federal reviews of all major beach-dredging projects conducted by the Army Corps of Engineers.
- 2)21 Require the federal government to pay landowners for the cost of complying with the law, under an onerous “takings” provision.
- 2)21 Expire the Endangered Species Act in the year 2015.

While all the details of the bill may change by the time it is introduced, the draft shows that the real purpose of this bill is to gut the Endangered Species Act. The ESA is a safety net that protects wildlife, fish and plants on the brink of extinction. It has been enormously successful in preventing the extinction of hundreds of species, including bald eagles, gray wolves, Pacific salmon and sea turtles. We must not diminish protections for these magnificent animals, or for the habitats they depend upon to survive. 🌊

How You Can Help!

It is critical that members of Congress stand up for our natural heritage and oppose this scheme to repeal the protections that the Endangered Species Act provides. Please call or write your legislator in Congress and ask them to oppose Representative Pombo’s bill that would weaken the protections of the Endangered Species Act.

Call the Capitol Switchboard at (202) 224-3121 and ask for your Legislator’s office.

Look up your Representative at: www.house.gov

Look up your Senators at: www.senate.gov

Focus on Turtle Heroes



Students Adopt a Big Friendly Turtle

In April, 2005 Mrs. York's second grade class at Seth Paine School, Ill., held a "Gently Used Book and Toy Sale" with the proceeds being donated to CCC to help save sea turtles. One student's father works in a print shop and made a 22 x 38" informational poster about leatherback sea turtles and CCC. He also made t-shirts with the words "Help Us Save Leatherback Turtles," which were given to each of Mrs. York's students to wear on the day of the sale.

Parker Matzinger with the sea turtle information poster at the Used Book and Toy sale.

"I plan to make this an ongoing project for my class next year," said Mrs. York. "We teach plant/animal interaction as a big theme in science."

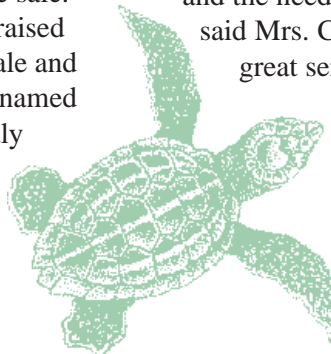
The students raised \$770 from the sale and adopted a turtle named BFT (Big Friendly Turtle), a spin-off of Roald Dahl's character Big Friendly Giant.

Leadership lesson leads to bake sale to help sea turtles

The students in Mrs. Crosswhite's 6th grade classes at St. Luke Parrish School, Ill., made good use of all the resources provided on the CCC website. As part of their oceanography unit, they studied ocean conservation. After learning about the various issues, the students were compelled to do more than just read about the topic – they wanted to take action!

The students held a bake sale to raise funds. The sale was well attended by the students in the school and members of the community and was even featured in the local newspaper. After the bake sale, which raised \$350 for CCC, the students broke into groups to decide on the name for their adopted turtles – Bumper, Crush Squirt, Waldo, Jorge, and Cheddar Bob.

"The class decided to take the concept of leadership and the needs of the ocean and put them together," said Mrs. Crosswhite. "The students now feel a great sense of ownership for their planet."



Want to become a Turtle Hero? Contact Renée Zenaida at renee@ccturtle.org or visit our website at www.ccturtle.org/turtleheroes.

Notes from Tortuguero

Green Turtle Season Sets Records

The 2005 green turtle nesting season at Tortuguero, Costa Rica, is shaping up to be a record year, both in terms of nesting and with regards to the reproductive lifespan of female green turtles. Over the past 35 years, CCC researchers have documented an increase in the number of green turtle nests at Tortuguero. If the high nesting numbers seen so far continue through the nesting season, 2005 will be the year with the most green turtle nesting in the last three and a half decades. During the previous record year of 1998, the greatest number of nests laid in a single night was around 2,300 nests. This year there have been more than 3,000 nests in a single night!

Another very exciting piece of news has been reported by Andrea de Haro, CCC's Tortuguero Field Coordinator. Two green turtles originally tagged at Tortuguero during the 1980 season have been seen coming ashore at Tortuguero in 2005. Both turtles have been seen numerous times during multiple nesting season. The reproductive lifespan of these two turtles is longer than that of any other green turtles tagged as part of CCC's Green Turtle Research Program.



CCC File Photo

Sea turtles have cruised
the Earth's oceans since
the age of the dinosaur...



Today, sea turtles are threatened with extinction.
With your will, you can leave a legacy that ensures sea turtle survival.
Call 1-800-678-7853 or visit www.cccturtle.org/giving to learn more.

Photo Courtesy of Jeff Rotman/jeffrotman.com

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