

VELADOR

Using Science-based Conservation to Protect Sea Turtles and Their Habitats Since 1959

Issue 2, 2007

Sea Turtles and North Carolina Inshore Fisheries



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The coastal inshore waters of North Carolina are an important habitat for loggerhead, green and Kemp’s ridley turtles; occasionally, leatherbacks and hawksbills are also found here. Pamlico and Albemarle Sounds represent one of the largest estuarine systems in the country, second in size only to the Chesapeake Bay, and until the turn of the 20th Century, when sea turtle populations declined dramatically, loggerheads and green turtles were plentiful enough to

support a sea turtle fishery. Today sea turtles of various sizes are found in the coastal inshore waters of the state from April through December, moving in from the ocean as water in the sounds and bays warms in the spring and moving out as the water cools in the winter. The majority of these turtles are loggerheads (80%), with a number of greens (14%) and Kemp’s ridleys (6%) as well. Inshore fishermen accidentally catch all three species in the spring

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TURTLE TIDES
Newsletter Inside!

Up Front - Dr. Clay Frick, Jr.

The Caribbean Conservation Corporation (CCC) mourns the passing of Dr. H. Clay Frick, II. As one of CCC's founding Board members, Dr. Frick and his family have been friends and supporters of the organization for nearly 50 years. Dr. Frick helped initiate the Bermuda Turtle Project, which stands today as the longest continuous in-water study of sea turtles in the world.

In addition to his renowned enthusiasm for sea turtles, Dr. Frick was a noted surgeon and medical professor at Columbia University. He contributed greatly to heritage collections and to the field of medicine, but was better known by conservationists for the study and protection of marine turtles both in Bermuda and the Caribbean.

In the name of the CCC, Clay undertook monitoring the dynamics of CCC's turtle restocking initiative (Operation Green Turtle) within Bermuda, and he launched a project to study the growth and maturation of young green turtles, a program that continues in Bermuda to this day as a joint program of CCC, the Bermuda Department of Conservation Services and the Bermuda Aquarium.

In 1968, Clay and Jim Burnett-Herkes, then with Bermuda's Division of Fisheries, started tagging and releasing turtles caught by the public and brought to the aquarium. This continued until 1975 when Dr. Frick himself started fishing with a boat called "Rockfish." To assist with the project, he employed local Bermudians who had fished turtles for many years before it became illegal to do




so. Clay worked very closely with Bermudians and was involved 100% in the project himself. He operated the boats, set the net, swam the net, worked up the turtles, and kept the data books, all in addition to ensuring his crew was safe and well fed.

In 2002, CCC's Board of Directors chose Dr. Frick as the first-ever recipient of the "Archie Carr Lifetime Achievement Award," in recognition of his outstanding contributions toward the study and protection of sea turtles.

For nearly fifteen years, Dr. Frick personally carried out his unique, in-water turtle studies in Bermuda. The Bermuda Turtle Project continues to be supported by Dr. Frick's family. Dr. Frick's passion for scientific

discovery has added volumes to the world's understanding of sea turtle biology. In Bermuda, Dr. Frick's lifework encouraged the country to initiate a pro-active sea turtle conservation program that is helping to recover turtle populations throughout the Caribbean.

CCC is in debt to this unique individual and his life's work for helping make CCC a world leader in the field of sea turtle research and conservation. We honor Dr. Frick for his unwavering support, and for his direct, personal, and irrepressible contributions to green turtle research and conservation. We are very pleased that the Frick Family remains very involved with CCC's work through the establishment of the Frick Family Seat on the Board of Directors, a position filled jointly by Dr. Frick's children, Elise Frick, Clay Frick, III, and Adelaide Trafton. 

By David Godfrey (Dr. Anne Meylan and Jennifer Gray of the Bermuda Turtle Project contributed to this article)

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 outreach, policy and education program of the CCC.

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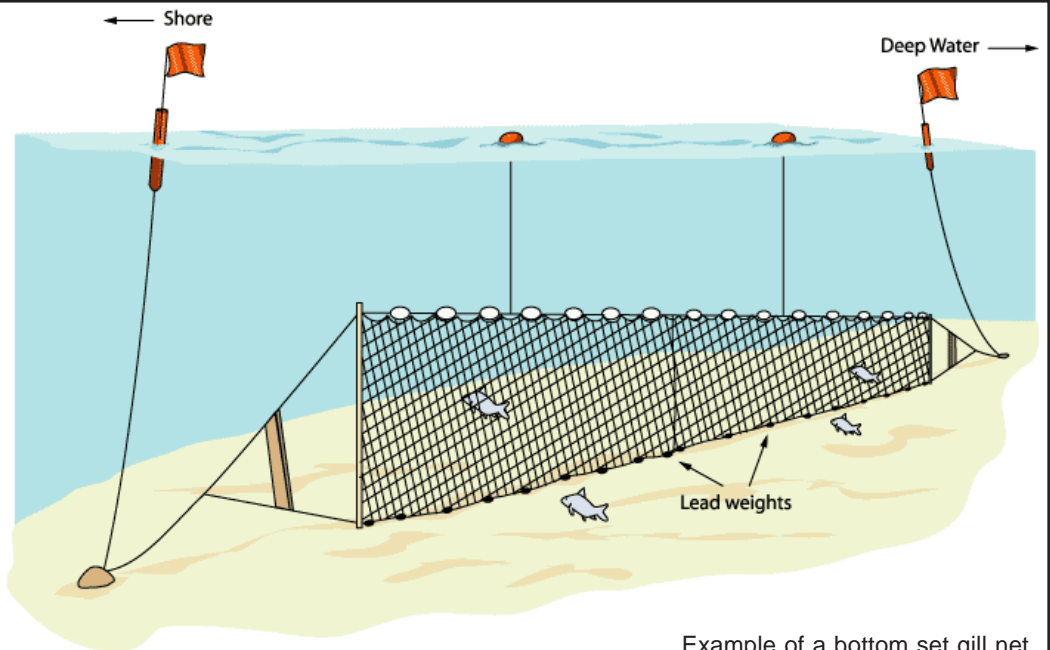
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...from cover

and fall, but generally only loggerheads are caught during the summer. Fall catches include a high proportion of small Kemp's ridleys and green turtles.

Loggerheads in the inshore waters of North Carolina originate from four distinct nesting subpopulations from the Carolinas to the Yucatan, Mexico. Genetic samples have not been undertaken on green turtles yet, but they probably originate from Florida and other Western Atlantic beaches; the Kemp's ridleys are from Mexico. Twenty years ago immature ridleys found along the Atlantic seaboard were thought to be lost waifs from the Gulf of Mexico. As nesting has increased on the species' principal beach in Mexico, and numbers of small ridleys have returned to the Gulf from the eastern seaboard, the importance of Atlantic developmental habitat for the Kemp's ridley has become apparent.

Today, biologists are concerned about high levels of sea turtle capture, injury, and mortality in the inshore waters of North Carolina. Anecdotal reports suggest that fishermen catch two, three or four turtles per day in some areas. Strandings of dead, injured or debilitated live turtles that wash ashore are high in North Carolina, but these numbers represent only a small proportion of the actual mortality. Because currents may carry carcasses away, inaccessible areas are not surveyed, and many stranded animals are not reported. On average about 480 stranded



Example of a bottom set gill net.

- turtles are documented in North Carolina each year, but
- this number varies considerably. Officials estimate that
- 2,667 to 5,333 turtles are injured or killed here annually. A
- little more than a third of all stranded turtles are found
- inshore; the majority are large juvenile or sub-adult
- loggerheads, the age-classes that are critical to the ability
- of a sea turtle population to survive into the future and
- breed.

- In addition to stranding data, information about
- interactions between sea turtles and fisheries can be
- obtained from fishery observers, enforcement personnel,
- and the logbooks of fishermen. However, the lack of
- fishery observations and enforcement in state waters is
- an issue of concern. Like other states, North Carolina
- currently does not observe its state fisheries.

- North Carolina has begun to address sea turtle
- interactions in inshore fisheries through its Marine Fisher-
- ies Commission Sea Turtle Advisory Committee (STAC). Established in late 2003 with 10 representatives from commercial and recreational fisheries, the scientific community, federal agencies, the conservation community and academia, the Committee recently made a series of recommendations to the NC Marine Fisheries Commission and the National Marine Fisheries Service (NMFS) on ways to minimize sea turtle capture in inshore commercial and recreational fisheries without affecting participants economically.

STAC identified shrimp trawls, gillnet sets (with 5 inch mesh or greater), commercial and recreational rod-and-reel fisheries, and pound nets as gear of primary concern in inshore fisheries; these fisheries operate year-round and are known to interact with sea turtles. The NC

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U.S. Fish & Wildlife Service File Photo



Juvenile and adult sea turtles, as well as other marine species, are vulnerable to in-shore gill nets and other fisheries.

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Marine Fisheries Commission and NMFS currently are in the process of completing a long-overdue agreement to enforce shrimp trawling regulations in the state's inshore and offshore waters (state waters extend to three miles). Under federal regulations mandated since 1992, all U.S. shrimp fishermen are required to use turtle excluder devices, or TEDs, at all times to ensure that entrapped turtles can escape the nets before drowning. Without its own enforcement boats, however, NMFS has no way to enforce these regulations in North Carolina and other states. The new agreement will allow NMFS and state personnel to work together to enforce TED regulations in North Carolina.

U.S. fisherman everywhere recognize the potential for lethal sea turtle interactions in gill nets. In 1999 and again in 2000 NC strandings reached an all-time high as hundreds of sea turtles perished in large mesh gill nets in southeastern Pamlico Sound. Subsequently, North Carolina instituted a permanent large-mesh gill net closure in the deep waters of the Sound from September through December; the state has a Section 10 agreement with NMFS under the Endangered Species Act that allows gill net fisheries to continue, but only with numerous restrictions. Gill nets are popular with fishermen throughout the state, including those working the shallow oceanic waters along the Outer Banks. The STAC recommended that the state establish a 2% mandatory observer coverage for all large mesh gill net fisheries in inshore waters, with coverage increasing to ~10% in areas with sea turtle interactions.

Among its other priority recommendations, STAC noted the need for changes in the pound net fishery, such as removing webbing during closed seasons and educating fishermen about resuscitating turtles. Although pound nets in North Carolina appear not to be problematic for loggerheads, small green turtles drown when their heads become caught in the twine webbing of the net.

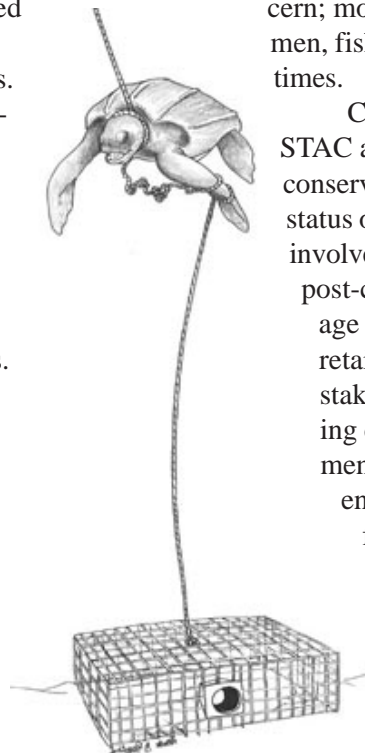
STAC recognized nine additional types of gear to be concerned about, including butterfly nets and skimmer trawls for




(c) Rich Galiano

Gill nets are popular with fishermen throughout North Carolina, including those working the shallow oceanic waters along the Outer Banks.

- shrimp, crab pots and trawls, haul seines, and floating and
- sinking gillnet sets; the potential for sea turtle interactions
- with this gear exists. The number of participants in the
- crab pot fisheries, for example, make it North Carolina's
- largest commercial fishery; in terms of catch, it is the
- state's second largest fishery. Lastly, STAC determined
- that 31 types of gear, such as dip nets, were of no concern; most of this gear is used by only a few fishermen, fished in shallow or cold water, or attended at all times.



Leatherbacks can become entangled in a crab pot line.

CCC endorses the recommendations made by STAC and the needs it identified for sea turtle conservation, including collecting more data on the status of non-breeding sea turtles; increasing public involvement in monitoring and strandings; studying post-capture mortality; expanding observer coverage throughout the state; developing gear that retains fish and reduces bycatch; continuing stakeholder and agency cooperation; and evaluating compliance. We will advocate for the implementation of STAC's recommendations and will encourage the Committee to review offshore fisheries in state waters so that it can make additional recommendations to reduce sea turtle interactions. CCC will continue to monitor and provide comments on these issues as opportunities arise. 

By Marydele Donnelly

Director of International Policy

2007 Legislative Wrap Up

CCC first reported on a new experimental type of coastal armoring called geotextile sand bags, or “geotubes”, in the Winter 2005 issue of the *Velador*. When installed on turtle nesting beaches, geotubes can present serious obstacles to nesting turtles. During the 2007 Florida Legislative session the company that makes geotubes, Alabama-based Advanced Coastal Technologies, mounted an aggressive lobbying effort to change coastal laws to open up the market for these structures. CCC, working with an array of partners, successfully educated lawmakers about geotubes and the many problems associated with them. Ultimately, lawmakers passed a law that included restrictions on the future installation of geotubes to protect consumers, beach users, and sea turtles.

Geotubes are 1000-ton sand bags that can be up to a quarter of a mile long. They are placed in a ditch dug seaward of the existing dune line and then filled with a slurry of sand and water to form a rock-hard sloped barrier about 5 feet high and 15 to 25 feet wide. The tubes are covered with several feet of sand and vegetation is sometimes planted on top.

Maintaining adequate sand cover over the tubes for sea turtle nesting is very problematic. The sand cover is removed by wind, waves and high tides, leaving the tubes exposed on the beach. By design, geotubes are installed considerably closer to the water than a traditional sea wall. They are often buried in active turtle nesting habitat. When three feet of sand can't be maintained on top, there is not enough sand for turtles to dig their nests. The uncovered tubes also block turtles from reaching suitable nesting habitat, can hinder public access along the beach, and may increase erosion on surrounding properties.

Under current Florida law geotubes are regulated as coastal armoring by the Department of Environmental Protection (DEP). They can only be installed to protect habitable structures built prior to 1986 that are “vulnerable” to coastal erosion. The geotube company sought to have the law changed by establishing a new category called “Dune stabilization or restoration structures” specifically for geotubes. This would allow installation on any beach for any reason, regardless of the need to protect major structures. Florida would become the only state to allow the “hardening” of its dunes.

After the “company” bill was filed in the Senate, an investigative piece ran in a major newspaper exposing the fact that the geotube company had recently made a considerable political contributions and that it would be the primary beneficiary of the new law. Due to the work of CCC and others, the Senate bill was withdrawn.


The geotube bill language surfaced in the House as one section of a larger comprehensive beach management bill, HB 7175. In the

first committee meeting to discuss the bill CCC led off the debate with an eye opening 15 minute presentation on geotubes. Legislators received emails and letters from constituents, coastal engineers, county beach managers, and others opposing the easing of restrictions for geotubes.

The comprehensive House bill, with the exception of the geotube section, was supported by the Florida Shore and Beach Preservation Association (FSBPA), an organization of coastal governments and others dedicated to protecting Florida's beach nourishment program. Fortunately, the bill's primary sponsor, Representative Stan Mayfield, gave FSBPA the opportunity to be involved in the bill's content. CCC worked with FSBPA and legislative staff to revise the geotube section of the bill through a series of good amendments. The House beach bill with the amended geotube section was taken up by the Senate, amended again, and passed (SB 1472). By then the problems associated with geotubes were well known.

CCC was successful in ensuring the inclusion of many turtle protections in the final bill. The bill provides a framework to determine if and where geotubes may work. It eliminates the current ability of county governments to authorize geotubes as emergency armoring, which has been very problematic. It requires that they can only be used to protect major structures and infrastructure and must be located as far landward as practicable. The bill requires adequate sand cover for sea turtle nesting. Property owners and successive owners must provide financial assurances that they will remove the tubes if the permit requirements can't be met. Property owners must be notified of all the statutory requirements when they apply for the permit, and they must file them in the county's public records. Unfortunately, the bill may allow geotubes to be installed to protect new structures. Under current law only older structures can be armored.

The DEP will have to initiate formal “rule making” to implement the bill. CCC will be very involved in this process to ensure that the intended interpretation of the bill language is adhered to.

Coastal policy is a complicated balancing of many needs, and changes in policy should be based on careful deliberation and sound science, not by the needs of special interests. In the end this reasoning prevailed. CCC would like to thank Representatives Stan Mayfield and Thad Altman (whose districts contain the Archie Carr Refuge), and Senators Dennis Jones and Burt Saunders for their leadership in protecting Florida's beaches. We would also like to thank the Surfrider Foundation and the FSBPA for their help and support. 

By Gary Appelson

Policy Coordinator

Tortuguero Update

CCC Coordinates Tortuguero Turtle Spotter Program

In 2004, a pilot project aimed at reducing the impact of tourism visitation on green turtle nesting was implemented on the public beach in Tortuguero, Costa Rica, host to one of the largest green turtle nesting rookeries in the world. Seven local turtle spotters were hired with funds from local hotel and cabaña owners. Each night the turtle spotters patrolled the beach searching for nesting females. When they encountered a turtle they radioed her location back to the guides, who then walked their tourists to her, using a path located behind the beach. The spotters replaced the old tour system, in which tourists would walk the beach with their guide searching for turtles, thus reducing the impacts of the tourists on the turtles coming ashore to nest.

In 2005, the Turtle Spotter Program was extended to the National Park section of the beach. Thirteen turtle spotters were hired. This allowed more visitors to participate in turtle tours while maintaining a low level of impact. However, due to inadequate funding, the project had to be discontinued earlier than planned.

CCC, committed to sustainable ecotourism in the region, began work with Área de Conservación Tortuguero and the group ProParques to provide suitable funding for the Turtle Spotter Project starting with the 2007 nesting season. As part of the project, CCC will



oversee the program.

Funding will be provided through the purchase of stickers and educational brochures, which will cost \$4. The stickers and brochures will be purchased by the local hotels and cabaña operators. The stickers will be used to identify hotel guests that are on the guided turtle tours.

Tortuga Lodge, one of the major “eco-hotels” in the area, has already committed to purchasing the brochures and stickers for its guests participating in its turtle tours. Many other hotels are expected to join in by the start of the 2007 green turtle nesting season.

By Roxana Silman
Costa Rica Director

Focus on Turtle Heroes

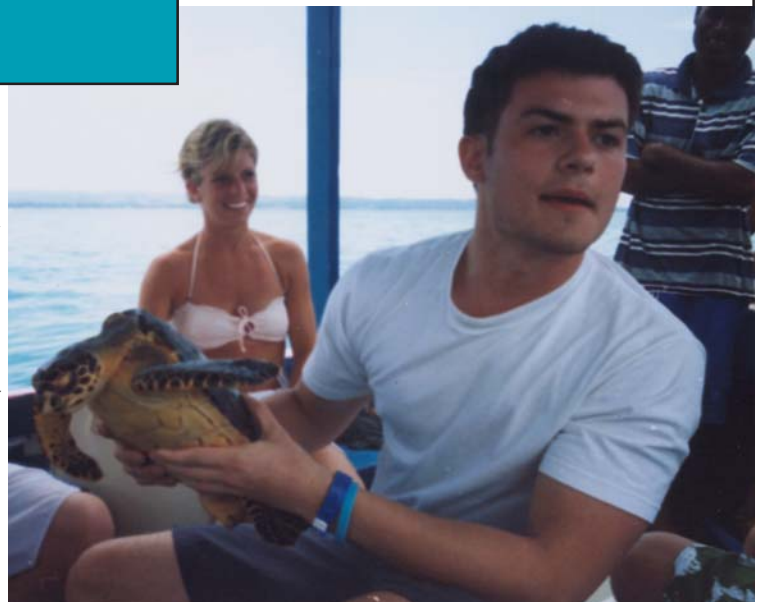
Turtle Saved From Poachers

While on a spring break trip with some friends to Jamaica, Joseph Di Como, a biochemistry/anthropology student from Drew University, had an experience he would not soon forget.

During their last day on the island, Joseph and his friends took a snorkeling trip with some locals to a nearby coral reef. While they were traveling to the reef, one of the men on the boat opened up a storage compartment to retrieve the snorkeling equipment. To do so he had to move a large cooler out of the way.

When he moved it, the lid fell off and Joseph saw a live hawksbill sea turtle in the cooler. He immediately picked the turtle up and asked what they were doing with it. The man then grabbed the turtle by its flipper and put it back in the cooler.

After a rather lengthy argument, Joseph picked up the



turtle and dropped it into the ocean where it quickly swam away. Someone on the boat took the photo of Joseph right before he set the turtle free.

Way to go, Joseph!

CCC Establishes Junior Board to Support CCC's Efforts

Caribbean Conservation Corporation recently established a junior board, the Caribbean Conservation Corporation's Junior Council for Creativity, Collaboration, and Commitment ("The 7Cs") to promote collaboration between younger conservationists and encourage commitment from younger CCC members to each other and to CCC. The goals of The 7Cs include helping grow and retain younger CCC members; build a foundation for the next generation of conservationists; and to encourage a better understanding of how junior individuals can have a positive impact on CCC's mission to protect sea turtles and their habitats through research, education and advocacy.

The 7Cs will be useful in building communication bridges with younger residents in the local communities where CCC works - such as Tortuguero, Bermuda and Chiriquí Beach. In order to facilitate the development of the Jr. Board, CCC staff and Board Members provide a modest amount of resources, communication tools, and guidance to help get the committed junior members to work together.

The 7Cs will be involved in writing articles or inserts for the Velador newsletter; conducting outreach activities at local educational, scouting, and/or conservation organizations; establishing partnerships between their schools and classrooms and the schools in Tortuguero; and to promote and energize the younger CCC members.

Below are some comments from a few of The 7Cs Junior Board members.

"I am very excited to have the opportunity to work with this awesome group of young participants. Even though most of the members live in different states, I still feel we can accomplish great things to help save the sea turtles! Despite our long distance relationship we communicate well enough to achieve our goals. Over the Christmas break we sold around 100 handmade bookmarks made by the schoolchildren in Tortuguero. Not only did we raise money for the children in Tortuguero, but we helped raise money for CCC research and spread sea turtle awareness in our home towns. Future goals for the Jr. Board include having the participants show their teachers the fantastic teaching opportunity of adopting a sea turtle for their class. Overall, our mission is to inspire the next generation to realize the importance of sea turtles, so that sea turtles don't have to just exist in their children's favorite fairytale." - Jenny



Jenny Carr visits the school in Tortuguero with letters from the Junior Board Members.

"I really enjoy being in the group. I like corresponding with people, but the most important part for me is helping the sea turtles. I've grown up with a love for the ocean, and although I can't do everything, I can help the sea turtles. They're graceful creatures, they're intelligent, but my favorite thing about them is their eyes. There's something different in their eyes, something ancient. When you look in a sea turtle's eye, you get this feeling that they know things that you can't understand. They seem so wise and powerful, but because of us they're in trouble. So, helping them is like repaying a debt, one that humankind owes them." - Angelina

"I have had many, very memorable experiences with sea turtles, though they all took place in 5 days at the Tortuguero base. I counted their eggs (the results were 162 eggs; 1 twin egg; very rare; 7 yolkless), kept them from going back to the ocean while we were in the middle of tagging it, and even saving the life of a baby that hatched late. Tortuguero was amazing. I think that everyone should go there, especially in the summer. If you do go, I hope I see you there." - Zack

"Sea turtles are fascinating creatures. They are the most beautiful thing in the sea. I feel honored to be helping them. CCC's junior board is the best group I know. Everyone works together, even if we get off track occasionally. People are really nice, and our leaders are really cool. All the time sea turtles are in danger of something, and it's everyone's job to help. I try to work really hard to get people to get involved, but sometimes the public doesn't listen. That's why CCC is here, and I get to help." - Sarah

Leatherback Season Update

Leatherback Nesting Increased During 2007 Season

We are almost at the end of another leatherback nesting season in Tortuguero, Costa Rica. In mid-May Caribbean Conservation Corporation researchers began to wonder if the season hadn't come to a rather abrupt halt, as no turtles were reported nesting close to the station for 10 consecutive nights. This is rather unusual, as nesting typically continues until at least the end of June or even into July. In the last week of May, however, nesting picked up. The lull, fortunately, did not mark the end of the season.

CCC's new Field Coordinators, Dagnia Nolasco from Peru and Xavier Debadé from France, who are no strangers to Tortuguero, having been Research Assistants (RAs) during the 2002 Green Turtle Program, were joined by this year's research team in early March. As always, this year's group of RAs is a diverse mix, with people from Spain, Mexico, Costa Rica, Australia and the USA volunteering their time and energy for three months to collect data on the leatherbacks nesting in Tortuguero. Hundreds of miles have been walked along the 22 miles of nesting beach, in all kinds of weather conditions. CCC really appreciates all their hard work!

Every three days, a census of the entire 22-mile beach from Tortuguero to Parismina is conducted to count all the turtle tracks. These data are used to estimate the total number of nests laid throughout the season. CCC also monitors and calculates how many turtle nests have been illegally poached. As of May 20,

a total of 639 leatherback nests had been recorded (in 2006 only 481 nests were counted for the entire season).

Unfortunately, illegal poaching of nests and turtles is still a problem. The good news is that the level of poaching this year is considerably lower than that observed in previous years. Only about 8% of the leatherback nests have been poached this year, compared to nearly 19% in 2006.

During the night patrols, turtles are encountered when they come ashore to nest. After they have laid their eggs, they are tagged with metal flipper tags and measured. To date for the 2007 season, 103 leatherbacks have been encountered. Of these, 32 were new females, 49 were turtles that had been tagged in a previous year or on other nesting beaches, and 22 were individuals seen more than once this season.

Comparing the nesting and poaching figures to last year, it appears that the 2007 leatherback nesting season was better than the 2006 season. It is encouraging to see lots of untagged females, suggesting that they are possible "first time" nesters that are joining the nesting population. Researchers have also seen 19 early nesting green turtles and one hawksbill.

With the leatherback season coming to a close, CCC researchers are now eagerly awaiting the start of the hatching season. So far this year, CCC researchers have only seen evidence of two nests hatching. We will keep our fingers crossed for more signs of hatchlings crawling out of the sand and racing to the sea. CCC is hopeful this will be a successful year for the Tortuguero leatherbacks!



By Dr. Emma Harrison

Scientific Director

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