LOGGERHEADLINES

Sea Turtle News from South Carolina

January - May, 2004

***Greetings*!**

This spring is proving to be another interesting and unusual sea turtle season, as you will read in this issue of *Loggerheadlines*.

Strandings

No strandings were recorded January through March. However, there were 20 in April and 39 in May, which is the highest total for these two months since 1982, when the sturgeon gill net fishery was still in operation. Strandings were distributed along the entire coastline. Most were either victims of boat/ship strikes or sick. There were 47 loggerheads, four Kemp's ridleys and eight leatherbacks.

Once again, a portion of these strandings (29%) were debilitated, emaciated loggerheads, including seven from April 10th to the 25th. There was a lapse of about two weeks and then 10 more came ashore between May 10th and the 23rd, with five in two days in the Myrtle Beach area.

Two leatherback turtles were entangled in crab pot lines off Hilton Head Island. These animals were very close to shore and local beach patrol staff were able to free them. The turtles' flippers becoming entangled between the two floats. As a result, South Carolina DNR Marine Resources Division (MRD) sent out an emergency announcement for crabbers to remove one of two floats on their lines. Either this was successful or the leatherbacks moved out of the area, as we had no more entanglements.

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Necropsy Summary

Necropsies were performed on 11 (18.6 %) of the 59 strandings that were documented since January 2004. Ten were loggerheads and the other was an adult female leatherback, which appeared to have tag scars. Of the loggerheads, seven were female and three were male. Only one was an adult (male), one was a subadult and eight were juveniles. All of the loggerheads died of a chronic condition and most of them were considered "Barnacle Bills". The leatherback died acutely by a prop strike from a large ship.

Rehabilitation at the SC Aquarium

The South Carolina Aquarium is still treating two loggerheads from last summer. One was from Harbor Island at the end of June and the other was received from Hilton Head the first of August. The green turtle, found in March 2003 at Myrtle Beach, was released into Grice Cove at Fort Johnson on May 21st.

This spring, the Aquarium accepted a "Barnacle Bill" from Kiawah and a loggerhead found entangled in a crab pot rope in Hamlin Sound, Charleston County, by fishermen. This entanglement nearly cost the turtle its front flipper and cut its neck. The Aquarium also accepted a large, female loggerhead that stranded in Georgia.

These two stories with photos appear on the South Carolina DNR marine turtle web site under Current Features.

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Nesting Update

Thru 5/31	2002	2003	2004
Myrtle Beach S. P.	0	1	0
Huntington Beach S. P.	0	1	0
S.C.U.T.E.	12	6	5
South Island	14	9	3
Cape Island	153	132	38
Lighthouse Island	15	37	15
Dewees Island	5	5	1
Sullivans/Isle of Palms	9	7	0
Folly Beach	11	6	3
Kiawah Island	49	50	10
Seabrook Island	7	11	0
Botany Bay Isl & Plan	48	47	17
Edingsville Beach	16	17	3
Edisto Beach S. P.	15	22	5
Edisto Beach	19	12	2
Harbor Island	6	12	5
Hunting Island	8	16	6
Fripp Island	6	9	0
Pritchards Island	33	17	6
Hilton Head Island	47	37	10
TOTAL	473	454	129

Note: 2003 does not include 2 Dc nests.

While stranding numbers are setting new high records compared to the recent past, nesting numbers are setting new lows. Some of the nest protection projects have no nests yet and everyone wants to know "why". Here are some things to consider.

First, as many already have seen, there tends to be somewhat of a cycle in nesting numbers for loggerheads with high, medium and low years. After the last encouraging two years we were due for a low one.

Second, you may remember that in 2001 we lost a lot of adults, especially females, when the TED openings were too small. At least 1/3 of those animals would have been returning this year. But they will not be here this year or ever.

And third, there was a cold-water upwelling last summer along the entire south Atlantic Bight and it moved up into the mid Atlantic states persisting into this spring. It could have affected the turtles themselves, but more importantly, their food resources.

"Before commencing vitellogenesis [egg production], the turtle must be sexually mature, have recovered from any previous reproductive episode, and have accumulated enough energy (fat) reserves to support vitellogenesis. Vitellogenesis requires the mobilization of stored energy (fat) and its modification via the liver under the control of the endocrine system with deposition into the previtellogenetic follicles. To prepare multiple clutches of follicles to support a breeding season requires at least 8 months. The quality and quantity of food are likely to play a major role in the timing of reproduction." (Limpus and Nicholls, 2000).

The cold-water upwelling may have negatively impacted the crabs and whelks upon which loggerheads depend, thus robbing them of the necessary energy to prepare for this breeding season. The timing of the event in relation to this year's nesting season seems relevant. All three factors may be working together to produce the unusually low nesting numbers being recorded for the entire southeast.

Nesting News

Hilton Head Island

The green sea turtle nest laid last September and incubated at the Coastal Discovery Museum during December finally produced hatchlings in January. Unfortunately, of the 11 that emerged, only one survived and is now on display at the South Carolina Aquarium. – ***Kim Washok Jones***

Sullivan's Island and Isle of Palms

On May 24th three fishermen, **Eric Sellers, Patrick Brennan,** and **James Van Alen** found a juvenile loggerhead with a crab pot rope wrapped tightly around its left front flipper and neck. They cut the rope, freed the turtle, and took it to the Isle of Palms Marina in their small boat. They waited patiently, keeping it quiet and damp, until **Bev Ballow** with the Stranding

Network arrived. She assessed the situation and called **DuBose Griffin** with South Carolina DNR who transported the badly wounded loggerhead to the South Carolina Aquarium. The rope had dug deeply into the flipper and neck, and would have been fatal if these three men had not discovered the turtle in time. The capable rehabilitation staff at the Aquarium is now caring for "Hamlin". Donations are needed for the long term expensive care of this and other turtles being treated and can be mailed to: SC Aquarium, Sea Turtle Rehabilitation, 100 Aquarium Wharf, Charleston, SC 29401. – ***Mary Pringle***

South Island

The new intern at Yawkey Wildlife Center is **Megan Bryan** from Warren Wilson College. She is a rising junior with a major in Environmental Studies and Conservation Biology. Megan is from Indianapolis, Indiana and her introduction to the beach at South Island was only the third time she has seen the ocean. She is enjoying bird watching and the Yawkey lifestyle. – ***Charlotte Hope***

Dewees Island

An adult, male loggerhead stranded dead on our island. I found it very interesting that their plastrons become "spongy" during the mating season. It was very evident that this male was ready for the mating season before he died. – ***Arla Jessen***

Debidue

In June, the Fish and Wildlife Foundation awarded a grant for $47,000 to the SC Beach Vitex Task Force to help stop the spread of this non-native invasive plant. The SC Exotic Pest Plant Council applied for the grant. The first year's goal will be to survey eleven major South Carolina beaches by volunteer groups to document and remove beach vitex seedlings. The grant provides the salary for a coordinator, production of brochures, hand trowels, GPS units and other equipment. Sea turtle volunteers have been asked to help in documenting occurrences of this aggressive, invasive plant that could potentially have a negative impact on sea turtle nesting.

Huntington Beach State Park hosted a Plant Identification Workshop on May 26th. About 50 participants learned how to identify native beach dune plants. Park rangers "planted" beach vitex cuttings to test their students. Hopefully, this workshop will be duplicated at other beaches along the South Carolina coast this summer. Clemson University, United States Geological Survey and South Carolina Department of Health and Environmental Control-Office of Coastal Resource Management will also make Ecological and Regulatory Assessments. – ***Betsy Brabson***

Regional News

North Carolina

Matthew Godfrey, North Carolina Sea Turtle Coordinator, reports 150 strandings so far this year. This is below average, but live strandings are above average, (so for the staff, it feels like there have been more). Most have been loggerheads, but they have also had leatherbacks, Kemp's ridleys and green sea turtles. Nesting has also been slow in North Carolina with less than 50 nests to date.

Georgia

Mark Dodd, Georgia Sea Turtle Coordinator, reports 121 strandings this spring, with 82 occurring during a two-week period in May. He believes contributing factors were TED violations and no TEDs in try nets. During inspections, some TEDs were at too steep an angle and one actually had a dead loggerhead in front of the TED grid. At least one live turtle was documented caught in a try net.

Their nesting is also slow with 53 loggerhead nests found in Georgia during May. By comparison, they averaged 185 nests during the same period from 1999-2003. Last year (a

record nesting year in Georgia), they documented 248 nests in May

During June, Sea Island, Georgia, is hosting the historic G-8 Conference where world leaders will meet to discuss important global economic issues. School kids in kindergarten through fifth grade were given the opportunity to submit names for eight loggerhead turtles that will be part of a satellite tracking study. Over 1,200 Georgia students took part in the sea turtle naming contest. Turtles were named in honor of the eight countries participating in the G-8 Conference including the United States, the United Kingdom, Japan, Russia, France, Italy, Germany and Canada. The winning children were then invited to take part in a special ceremony with Governor Sonny Perdue at the State Capitol. Go to www.seaturtle.org and click on Satellite Tracking to get more information on the Georgia loggerhead project, the winning students and their turtles' names.

Florida

Allen Foley, Stranding Coordinator for Florida reports that strandings started slow but have now caught up and are slightly above average. Through May 29th they have recorded 600 compared to 561 for the ten-year average during the same period. Early reports also show it to be an unusually slow year for loggerhead nesting.

Other News

The National Ocean Service's publication titled "Oil and Sea Turtles: Biology, Planning, and Response" is now available online at http://response.restoration.noaa.gov/oilaids/turtles/pdfs

Recovery Team News

Don't forget you can review drafts of the new Loggerhead Recovery Plan at this web site http://northflorida.fws.gov/SeaTurtles/loggerhead-recovery/default-loggerhead.htm
--***Sandy MacPherson***, National Sea Turtle Coordinator with the U.S. Fish and Wildlife Service.

South Carolina
Marine Turtle Conservation
Program Web Site

The South Carolina Marine Turtle Conservation Program web site provides extensive information about the program, news and events, and research. It also provides resources to our South Carolina Sea Turtle volunteers.

Several of the stories mentioned in this newsletter, along with photos, appear on the web site.
http://www.dnr.state.sc.us/marine/turtles

Research

Satellite Tracking of Nesting Loggerheads - Update

2002

We continued to hear from Jessamine, a 2002 satellite instrumented turtle, until April 20, 2004. Her last location was about 80 km off Cape Lookout, North Carolina. She is our longest transmitting turtle and holds the record of 642 days.

2003

Five nesting loggerheads were instrumented with satellite transmitters on July 10th. Cowgill's Charm, Marlow's Maiden and Lofton's Lass migrated north of Cape Hatteras for the summer/fall, returned to warmer waters off the North Carolina coasts for the winter, and have now migrated back to their summer/fall foraging areas. Lofton's Lass actually bypassed her 2003 summer/fall area to take up a new resident foraging area near Delaware Bay.

Baldwin's Belle migrated to an area approximately 100 km east of the nesting beach and has remained there. She stopped transmitting this spring.

You can follow the turtles' migrations at www.dnr.state.sc.us/marine/turtles.

Leatherback Surveys

Seven coastwide aerial surveys were conducted to document density and distribution of leatherback turtles during their spring migration. Data from previous years indicate an earlier peak of leatherbacks in our state waters. Therefore, surveys began in mid April (rather than late April) and continued until May 25th. A flight in May was cancelled because of mechanical problems with the aircraft. Numbers of leatherbacks counted were: 41, 91, 52, 29, 23, 3 and 4. There were no areas of high turtle concentrations.

Leatherbacks' primary food in southeastern waters is cannonball jellyfish. For the past several years, SEAMAP sampling in the southeast has been documenting cannonball jellyfish in their trawl surveys. The mean count for the three years prior to 2004 was 22,720, while this spring they caught only 24 individuals. (This is not a typo.) Leatherbacks appeared to be moving quickly through our coastal waters, rather than pausing to feed. This may be due to the extremely low abundance of cannonball jellyfish. Normally leatherbacks would concentrate in an area of high jellyfish abundance.

A new web page was useful in obtaining additional observations of leatherbacks from the public.
http://www.dnr.state.sc.us/marine/turtles/lsf.htm

Marine Resources Division's In-water Study

Results of four years of the study have now been completed. The information that follows is from the Executive Summary of their report.

Concern over low catch rate of turtles was quickly dispelled. It appears that the loggerhead turtle population in this study area is much larger than it was in the 1970s and early 1980s. Our catch rates were much higher than those reported for fishery-dependent surveys carried out on commercial shrimp trawlers. Differences in gear and towing speed may account for these higher catch rates, but it appears that loggerheads, at least the juveniles, are indeed more abundant now.

Perhaps, this increase in abundance is due, in part, to the mandatory use of turtle excluder devices (TEDs) beginning in 1988 in South Carolina and regionwide in 1990. It may also reflect the rapid growth in nest numbers for loggerheads on south Florida beaches, in which case, perceptions among shrimp fishermen of an increasing turtle population for the northern subpopulation may be misleading.

Fishery-independent catch rates and shrimp trawler effort were used to estimate the number of interactions (captures) between shrimp trawlers and loggerhead turtles in South Carolina waters during the summer (May through August). Estimated total interactions during summer in 2001, 2002, and 2003 were 15,562, 14,311, and 18,625, respectively. These estimates are built on several assumptions that the reader should consider carefully. Despite these assumptions, we feel that the estimates are accurate within an order of magnitude.

Analysis of DNA data indicated that natal origin for loggerhead turtles captured in this study was 19% (range 14-25%) from the northern subpopulation and 66% (range 60-70%) from the southern subpopulation.

Juvenile turtles exhibited some noteworthy patterns in spatial distribution. We observed that juveniles may be more closely associated with inlets, perhaps because of more abundant prey, while adults may be more evenly distributed throughout the nearshore coastal area.

We also observed that juveniles, regardless of genetic haplotype, appear to have strong feeding site fidelity as demonstrated by inter-annual tag recaptures that were typically made near the initial tagging and release sites. This feeding site fidelity may underscore the importance of the prey base found in the near-shore areas of the Carolinas and Georgia and is probably a critical aspect of the life history of

loggerheads for both east coast subpopulations and perhaps others.

This project significantly improves understanding of turtle health. We provide values for blood chemistry of healthy and sick turtles as a reference for individuals charged with caring for sick turtles. Turtles that were deemed "sick" routinely exhibited blood chemistry values consistent with those of stressed or ill animals.

A spin-off study that was facilitated by project-provided blood and scute samples indicated that methyl mercury can be relatively high in sea turtles (Day, 2003). Given that this area of the coast is known to be high in methylation rates of mercury and methyl mercury is common in prey items, the use of local feeding sites may jeopardize the health of migratory juveniles.

Analysis performed North Carolina State University confirmed the presence of fibropapilloma in tissue samples of two loggerhead turtles collected in Georgia waters.

Additionally 5-13% percent (depending upon year) of the turtles found in this study had evidence of significant trauma from boat propellers or sharks. Although turtle mortality to shrimp trawlers may be greatly reduced now because of the latest advancements in TEDs, it is clear that juveniles and adults will continue to be directly and indirectly affected by man.

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COVER PHOTO: Courtesy of Barb Bergwerf of the lone surviving green sea turtle hatchling from Hilton Head Island now residing at the SC Aquarium.