

ANNUAL PROJECT REPORT

Kiawah Island Turtle Patrol 2005

Assembled by Art Zackrison

I. Nesting

A. Coverage

1. Nesting teams patrolled the beach each morning at first light in a four-wheel-drive Dodge Dakota truck with extended cab.
2. Each nesting team consisted of a driver and usually three other volunteers. A team was on duty for four consecutive days and on those days patrolled the full length of the beach, this year a distance of about nine miles. Volunteers served one term of four days each, and drivers two such terms.

B. Locating/Relocating

1. Upon locating a crawl, the team made a visual analysis of the site, noting the incoming and outgoing crawls, and using the five standard nest criteria. When the most likely nest position had been determined, the driver or another experienced person carefully probed the area using a standard probe. When a soft area was located, the presence of eggs was verified by carefully digging with the hands.
2. A nest was relocated only if it was a) seaward of the spring high tide line, which had been marked at that time by the numbered distance posts, located at 0.2 mile intervals, and by white posts midway between these distance posts; b) in an area of heavy foot or vehicle traffic; or c) in the zones at the extreme ends of the island, which experience has shown to be subject to a fatally high water table in the event of heavy rains. The coincidence of strong storms and high tides prior to 2002 caused severe erosion at the eastern end of the island causing the total loss of a number of nests from that area. During the year 2002, we adopted the policy of relocating all nests from the two miles at the eastern end to areas west of the Kiawah Island Beach Club. This policy is still in force.
3. If possible, the artificial nest location was chosen near the original nest site, above the marked spring tide line, on a gently sloping dune face, and in an area as free as possible of vegetation. Nests from the erosion area at the east end were relocated to the remaining six zones as evenly as possible to ease the load on hatching patrol volunteers.

C. Methods of marking nests

1. Each nest was marked with a 2"x2"x 4' post, consecutively numbered and located two feet to the east of the nest center on a line parallel to the shore. The top of each post was painted orange and carried a laminated notice: "Turtle Nest. Do Not Disturb".
2. A 2.5" x 3.5" red plastic flag on a 15" wire stake was placed five feet directly landward of the nest post and labeled with the nest number. Other pertinent information was recorded in a permanent notebook.
3. If the analysis of the crawl suggested that a nest had been laid but none could be located by probing, the most likely spot was marked by a 1"x 2"x 18" numbered stake, painted orange on top and carrying the laminated notice: "Turtle Nest. Do Not Disturb".

D. Nest monitoring methods

1. Nests were monitored daily by the nesting patrol until the time that hatching patrols began their daily routine (refer to Section II below), and after that by the hatching patrols themselves. Problems noted by the nesting patrol are recorded in the daily logbook. Problems noted by the hatching patrol are listed on their daily log and weekly report.
2. If any depredation was observed, a count of the number of eggs destroyed and the type of the predator was recorded. The nest was then screened if not previously done.
3. The date and the extent of any over wash were noted.

II. Hatching

A. Determining emergence activity

1. Forty five days after the first nest is laid in each zone, the hatching patrols begin checking each nest in that zone daily, usually beginning at dawn. These foot patrols also watch for wild nests as well as for predation of any nests along the route.
2. Hatching of a nest is indicated by hatchling tracks coming from the nest. In the absence of visible tracks, because of wind or rain, the exit crater could often be seen. A red flag is placed behind the exit hole. If emergence is not detected, an inventory of the nest is made 75 or more days from the date the nest was laid.

B. Method used to inventory nests

An attempt is made to inventory all nests. At least three days after hatching is seen, the team members carefully dig down into the nest by hand – often wearing rubber gloves for protection. A count is made of hatched eggshells, unhatched eggs, dead hatchlings and live hatchlings.

C. Time of day inventories performed

Nest inventories usually were performed during hatching patrols that began soon after dawn.

III. Problems

A. Predators

1. Raccoons were our primary predators this year and we had one nest raided by a fox. Ghost crabs did minor damage to a few nests and ants were not a factor this year.
2. First night depredation by raccoons destroyed approximately 103 eggs from four nests, a fox destroyed 17 eggs from a fifth nest, and eight eggs were lost to ghost crabs from another nest.
3. At hatching/emergence, 51 eggs from one nest were lost to raccoons compared to no nests effected last year. Only one nest was partially damaged by ghost crabs (10 eggs).
4. All nests in zones 10 and 11 were covered by 4'x4' wire screens with 2"x 4" openings, held down by wooden pegs at four corners. A second screen of 18" x 18" hardware cloth attached by garden ties was sometimes employed. A few additional nests were screened in zones 12 to 40 with the 4"x4" screens.

B. Lighting

Three problems with lights remaining on during nighttime hours were reported during the season. All were resolved quickly and satisfactorily. All residences were unoccupied when the reports were received. With the assistance of Town Of Kiawah Island (TOKI) personnel, the rental agency/property owners were notified and arrangements made to turn off the exterior lights.

TOKI and all public organizations on the island as well as real estate rental companies support the 'lights out for turtles' program by actively advertising it to all visitors to the island.

C. Overwash and erosion

Although there continued to be erosion in the unstable east end of the island this year, our policy of relocating all nests out of that region was completely successful in avoiding damage to nests. Nest 139, the last nest laid in the year, was overwashed as a result of tropical storms Ophelia and Tammy, and all 75 eggs were drowned. A few other nests had minor overwash during the season but it did not seem to effect their hatch success rate.

D. Crowd management

1. Observers during both nesting and hatching activity were generally considerate of the need not to interfere with the patrols. No problems were encountered.

2. Usually the volunteer teams were large enough that one member could be talking to the observers while the other members completed the tasks required.
3. No general information was made available on nests due to emerge or be inventoried. When inquiries were made by phone (usually by friends or family of patrol members) or by visitors on the beach, information about nests to be inventoried was provided.

E. Strandings

There were six strandings reported this season compared to ten in 2004 and 12 in 2003. Usually reports were made by the Town Beach Patrol, and most times the turtles were sighted during the patrol's first morning sweep of the beach. There were some sightings later in the day. Some reports were made by members of the nesting patrol as they made their tour of the beach. The first stranding was May 15 and the last one on July 19. Four of the strandings were identified as Loggerheads and two as Kemp Ridleys.

Three members of the patrol are permitted by DNR to examine, report to Ft. Johnson and complete the required paperwork documenting type, size, location and final disposition of the carcasses. The final step before burial by Beach Patrol personnel is to spray paint the carapace in the event the remains were rediscovered.

Genetic sampling of strandings continued until the end of June. Tissue samples were collected from each stranding and held for pickup by the Ft. Johnson staff.

IV. Education

A. Types of educational programs conducted

Kiawah Island Resort sponsors two programs through the Nature Center that are presented by the Kiawah Island Turtle Patrol. The first, a slide presentation and talk about sea turtles, with a description of turtle patrol activities, was conducted weekly on Tuesdays at 9:30 AM from June 7 to August 30 at the Nature Center. Two members from the Turtle Patrol gave these talks, attended by from 5 to 25 island visitors and residents. Concerns about lighting and beach activity were also discussed.

The second program was a nesting demonstration conducted weekly at 7:30 AM on the beach. A faux nest is dug and eggs (ping-pong balls) are placed in it. A simulated crawl to the nest is made to demonstrate its appearance. Following a description of nesting activity, the beach and nest markers, the nest is probed and the eggs removed, usually with help from the observers. An explanation of post-hatching activity of the hatchlings concluded the demonstration.

B. Types of printed materials produced

The Town of Kiawah Island produces a printed brochure, “THE LOGGERHEAD TURTLE”, which is available to visitors at the Town Hall, the Nature Center and through the rental agencies. It is also handed out by the turtle patrol to observers on the beach. (see attachment #1)

C. Types of media articles and TV spots produced

During turtle season, regular updates of the nesting and hatching activities were provided on two websites (www.WelcomeToKiawah.com and www.KiawahTurtles.com).

During the turtle season a column appears in “Kiawah Island Talk”, a monthly publication from the Kiawah Property Owners Group. (see attachments #2-5).

Frequent references to the turtle population on Kiawah and the turtle patrol activities are carried on the TOKI cable channel 60.

D. Number of public awareness turtle walks/watches and hatchling emergences conducted

In addition to the presentations and beach demonstrations described in item A above, nesting and hatching patrol volunteers interact regularly with interested beachgoers. Topics discussed range over the entire lifecycle of sea turtles and how the turtle patrol supports that cycle,

V. Project Organization

A. Level of training

An operating committee of five experienced members of the patrol organized the operation for the year. Each of these five was responsible for some phase of the program.

Fifteen percent of the 103 volunteers were new this year (compared to 13 percent of 110 volunteers in 2004). The more experienced members range from 3 to 16 years of experience. A new volunteer is always accompanied by at least one experienced patrol member, and learns by participating and studying the SCDNR Guidelines. A new volunteer becomes 'experienced' in the judgement of the zone captain(s) and senior members of the team with whom he/she patrols. This 'promotion' seldom happens in less than two years and frequently extends longer depending on the level of turtle activity, the variety of situations experienced by the new volunteer and the abilities of the individual.

B. Level of involvement

On nesting patrols all members routinely watch for crawls, and all participate in the analysis of the crawl. Probing is done by the driver or by another volunteer supervised by a highly experienced team member. All participate in moving eggs, under supervision of the driver. On hatching patrols a new volunteer is always accompanied by at least one experienced patrol member and learns to notice signs of emergence and to inventory nests by reading the guidelines and participating under supervision. Analysis of data and writing of this report was done by the five members of the operating committee.

VI. Concerns and Recommendations

A. Project concerns

The continued severe erosion of the beach at the eastern end of the island remains a major concern. In 2004 The Town of Kiawah Island was denied a permit to fill in the existing cut between the inland pond and the ocean, and to make a new cut around the point to the Stono River to alleviate the problem. A new permit request for a cut and beach renourishment from the existing spit has been filed and is currently under review by the appropriate state and federal agencies.

B. Technical concerns and needs

Our program is generously supported by the Town of Kiawah which fills our technical needs completely.

VII. Other Issues and Comments

Our volunteer count decreased by seven individuals this year. While this is only a slight decrease over last year, it reflects a similar continuation from the prior season. Additionally, as happened in 2004, a number of volunteers reduced their amount of time available on the beach which increased the time requirements for other volunteers. This has put an unusual burden on some of the more willing volunteers. While this may not continue to be a problem in the future, we need to continue to step up our efforts to recruit additional volunteers to cover our patrol requirements.

VIII. Supplemental Information

Sections I through VII constitute the information required by SCDNR, according to the outline required by them. However, there are additional data which may be of interest to volunteers.

- A. The progress of the year
The first nest was found on May 23rd and the last nest was laid on August 2nd. The total nest count of 154 (139 staked nests, nine marked as 'probables' that could not be confirmed by probing, and six wild nests) was lower than our average of 180+ nests while much higher than our total of 64 nests in 2004. The last nest was inventoried on October 16th making the entire length of the season 146 days, 7 days longer than 2004.
- B. Early on June 6th the nesting patrol was informed that there were many eggs rolling in the surf about 1 mile west of the Beach Club. By the time the patrol truck arrived, the undamaged eggs (138 out of 147) had been gathered and placed in a cardboard box. A new home (nest #25) was built for the remainder of the family even though the future seemed dim for the survival of any of the eggs. We were all happily surprised on August 10th to find that some of the eggs had hatched and after evaluation determined that 19 of the hardy troops had made it through this unusual experience. SCDNR said that this is the first report of this type that they can recall.
- C. The saddest of the strandings this year involved a juvenile turtle (15 years or so old) which was washed ashore entangled in a hard plastic lawn/deck chair. Apparently the turtle was trying to either follow a moving morsel or just feed off the growth on the chair, but it became stuck between the seat, back and arms of the chair and drowned. SCDNR said that while far from common, turtles 'involved' with articles washed from land (or thrown overboard), are becoming more frequent.
- D. As most of us are aware, TOKI has applied for a permit to renourish our beach from approximately two tenths of a mile east of the Beach Club to well past the Ocean Course clubhouse. TOKI was requested by the Fish and Wildlife Services to provide turtle nesting information in that area for the past several years. If anyone is interested in the detailed information by year (nest #, mileage marker #, date laid/false crawled) it is available on an Excel spreadsheet (contact Art Zackrison at zackrison@yahoo.com). However, a yearly summary is included here to give you an indication of turtle activity on the east end and how significant that activity has been on that section of the beach in past years.

	total #	# nests laid east	percent of nests laid
year	nests laid	of marker # 10	east of marker # 10
2005	139	22	15.8
2004	58	17	29.3
2003	225	60	26.7
2002	181	65	35.9
2001	156	43	27.6
2000	211	Unrecorded	-----
1999	262	95	36.3
1998	187	53	28.3
1997	167	59	35.3
1996	209	49	23.4
9 year summary (w/o 2000)	1584	463	29.2

There are also three years of detailed data on false crawls. A summary of that data is included in the following table:

	total #	# false crawls east	percent of false crawls
year	false crawls	of marker # 10	East of marker # 10
2005	142	58	40.8
2004	54	22	40.7
2003	157	47	29.9
3 year summary	353	127	36.0

E. Distribution of nests

Figure 1 on the following page shows the zone and mileage marker number where nests were found (laid) and where they ended up (total). For example, three nests were found in zone 1, marker 3 and none were left there. In zone 3, marker 12, three nests were found (laid) and five were left (total), showing that two nests were moved into this area from elsewhere. Figure 2 is a zone summary of the same data. In both figures W represents a Wild nest and S represents a Short stake nest that hatched.

MARKER DETAIL
Figure 1

<u>PATROL ZONES</u>	<u>MARKER NUMBER</u>	<u>FOUND NESTS/MARKER</u>	<u>TOTAL NESTS/MARKER</u>
Zone 1	E of 1	0	0
	1	0	0
	2	0	0
	3	3	0
Zone 2	4	4	0
	5	5	0
	6	4	0
	7	0	0
	8	2	0
Zone 3	9	4	0
	10	4	4 + 1 S
	11	3	3 + 2 S
	12	3	5
	13	3	4 + 1 S
Zone 4	14	4	5
	15	4	10 + 1 S
	16	4	6
	17	0	2
Zone 5	18	3	3
	19	4	4
	20	3	4
	21	4	5 + 1 W
	22	5	8 + 1 W
Zone 6	23	4	4
	24	1	1 + 1 W
	25	6	7 + 1 W
	26	2	2
	27	5	6
Zone 7	28	3	4
	29	7	6
	30	2	2
	31	7	7 + 1 S
Zone 8	32	1	1
	33	1	1
	34	3	3
	35	8	8 + 1 S
	36	9	11 + 1 W + 1 S
W of 40	37	1	2
	38	6	6 + 1 S
	39	2	5 + 1 W
	W of 40	5	0
	Totals	139	154

ZONE DETAIL
Figure 2

<u>PATROL ZONES</u>	<u>FOUND NESTS</u>	<u>TOTAL NESTS</u>
Zone 1	7	0
Zone 2	15	0
Zone 3	17	21 + 4 S
Zone 4	15	25 + 1 S
Zone 5	17	22 + 3 W
Zone 6	23	25 + 1 W
Zone 7	14	14 + 1 S
Zone 8	26	32 + 2 W + 3 S
West of Zone 8	5	0
	<u>found</u>	<u>total</u>
	139	154