

From: [Cyndy Holda](#)
To: [Bob davis](#)
Cc: [Barbara Ackley](#); [bob davis](#); [larry hardham](#)
Bcc: [Mike Murray](#)
Subject: Re: Requested Sea Turtle Information
Date: 08/17/2011 10:29 AM

Good Morning Bob,

The following information was supplied to me by resource management staff. Time restraints on their busy daily schedules resulted in the delay but there seems to be a lot of turtle nests again this year and they are hatching rapidly with the extremely hot, dry summer that we've experienced this year. Anyway, I hope the following information is helpful to you and answers your questions:

"Questions on Sand Temperature Study:

Currently, all the raw data gathered for 2008, 2009, and 2010 has been given to Dr. Matthew Godfrey for analysis. Unfortunately, with staff reductions, Dr. Godfrey has yet been unable to analyze all the data and indicates that the timeframe for a finalized report is unknown at this time. It is our understanding that the DNA report will focus on nesting female population size and nesting patterns and will not focus on sex ratios.

There is no specific data available on the exact pivotal temperature of loggerhead nesting in Cape Hatteras. It is assumed that it is similar to data from loggerheads nesting nearby, in Bald Head Island (pivotal = 29.15 °C) or Georgia (pivotal = 28.7 °C). Some of the early data supports warmer incubation temperatures as you move away from the water line, but there is a significant amount of variability across beaches and sampling locations.

We have less information about temperature-dependent sex determination (TSD) over the entire range of incubation temperatures that sea turtle eggs may experience in Cape Hatteras and other places in NC, and this should be recognized as a potential limiting factor when converting temperatures to sex ratios. The only way to have direct measure of sex ratio is to sample hatchlings and do histology of the gonads, but this necessitates destruction of the hatchlings. At this time, CAHA has no intention to conduct such sampling. The best description of the relationship between incubation duration and sex ratio is featured in *Godley et al. (2001); Estimating hatchling sex ratios of loggerhead turtles in Cyprus from incubation durations. Marine Ecology Progress Series 210:195-201. A recent publication discussed the potential limitations of using incubation duration to estimate sex ratio: Mrosovsky et al. (2009); Methods of estimating natural sex ratios of sea turtles from incubation temperatures and laboratory data. Endangered Species Research 8:147-155.*

In response to your final question, the sea turtle nests East of Ramp 49 were naturally laid in their current locations."

Cyndy M. Holda
Public Affairs Specialist

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08/14/2011 12:35 PM

To "cyndy holda" <cyndy_holda@nps.gov>, "larry hardham" <hardhead@embarqmail.com>

cc "Barbara Ackley" <ackleybc@aol.com>, "bob davis" <davisrb@embarqmail.com>

Subject Re: TURTLE INFORMATION

CYNDY : Any response on this request for Sand Temperature Reports ? Thanks for reply on Avian Predation. Witnesses believed the victim was a small adult gray and white bird. Yes, our summer has been great since Cape Point opened. My son and his family along with 3 of my daughters and one grandson just left after a week here. They all enjoyed the open beaches on Hatteras and Ocracoke. The visit had a special joy for my youngest daughter when she caught 2 red drum on South Beach and can lord over big brother who was fishless. A joyous experience is important for her after surviving surgery for breast cancer and now finds herself in the middle of divorce proceedings with a dismal financial future. This is just another example how beach access can be important to so many aspects of human use of this park and serves to remind myself and others like me why we can not allow the NPS to change this Recreational Area. She won't fish that hole next year because your plans call for a VFA on that location and none of us can walk that far. That hole has been within the proposed VFA for several years and she has had the small joy of catching red drum in both the summers since her mastectomies. I will work hard to keep that opportunity open for her. BOB

Sent: Friday, August 05, 2011 7:55 PM

To: [cyndy holda](#) ; [larry hardham](#) ; [bob davis](#)

Cc: [Barbara Ackley](#)

Subject: TURTLE INFORMATION

CYNDY : Back in 2007 Larry Hardham and I ran a study of sand temperatures to infer sea turtle sex ratios on the beaches of Cape Hatteras. After concluding that research study the

Anglers Club donated our equipment to your NPS Group with the understanding that your people would continue and expand upon this work to provide a better understanding of the turtle resource. Data has been gathered by your resource group and analyzed by Matthew Godfrey at NCWRC then equipment and results sent back to NPS. I realize there have been a few personnel changes but you have a large and competent staff that should have been able to prepare those reports by now for the years 2008,2009 and 2010. As I recall the initial work indicated a 10% to 20% increase of females when nests relocated to the warmer beach near the dunes as compared to the cool tidal line. This projected an advantage to nest relocation for more female hatchlings to return to these beaches as adults after 20 to 30 years. Has your data shown any results contrary to the earlier study ? I have noticed an emphasis on reporting the total time (Days) of incubation for each turtle nest. Could your resource folks supply a working chart of estimated sex ratio vs. days of incubation in Cape Hatteras ? I know there are a lot of caveats but most people have developed their own little "cheat sheets" on this topic. As a matter of curiosity ; The turtle nests blocking Ramp 49 ; were they nestled against the dune naturally or relocated there ? Thank you. BOB DAVIS