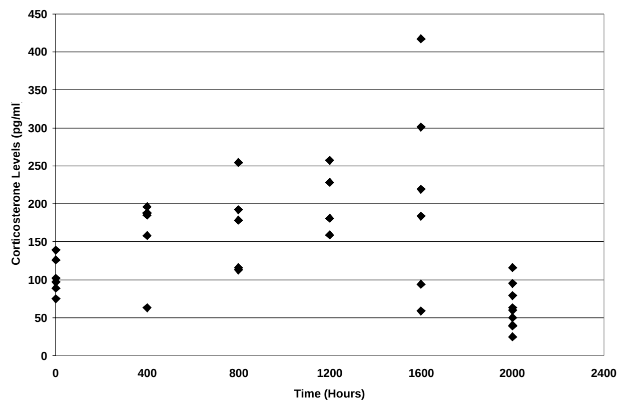

Figure 3. Corticosterone levels during timed series

fused for mild stress depending on the cut-off point chosen. This analysis accounts for only 59 % of the variability in B levels. There are several other sources of variability which need to be investigated more thoroughly. Feeding patterns and activity associated with daylight hours are two which may have the greatest impact (Figure 3). Correlation analyses for feeding times and sunrise/set were not performed for this poster.

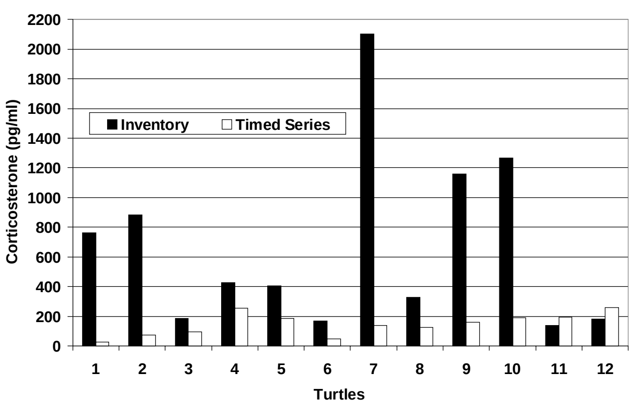

Figure 4. Comparison of Corticosterone (B) Levels During the Inventory vs. Timed Series

The implications which this study could have on experimental design are significant. A population of animals which cycle on a daily basis could inadvertently bias any corticosterone (B) levels recorded. Many experiments measure B as a stress indicator, whether or not the stress response is expected. We have shown an area of overlap between the daily peak in B, and a mild stress response observed during the inventory sampling (Figures 1 and 2). The two could be mistaken if there is no relative baseline for comparison.

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THE BIOLOGY OF BASKING IN THE GREEN TURTLE (*CHELONIA MYDAS*)

J. Yonat Swimmer[1] and George H. Balazs[2]

[1]School of Natural Resources and Environment, University of Michigan, Ann Arbor, Michigan 48109-1115 U.S.A. yswim@umich.edu

[2]National Marine Fisheries Service, Southwest Fisheries Science Center, Honolulu Laboratory, Honolulu, Hawaii 96822 2396 U.S.A.

The green turtle (*Chelonia mydas*) is the only species of marine turtle known to atmospheric bask, whereby large numbers of turtles remain hauled out on shore. Historic records indicate that basking was once a common phenomenon, yet coastal development may have reduced basking populations to only a few remote areas worldwide. Our study aims to determine physiological roles that this behavior serves. Data from both captive and wild populations of the Hawaiian green turtle indicate that basking is correlated with air and substrate temeperature, thereby indicating a role in thermoregulation. In captivity, only turtles afflicted with green turtle fibropapillomatosis (GTFP) were observed basking, suggesting a relationship between basking and disease.

Despite significantly increased body temperatures of basking turtles, metabolic rates of turtles post-basking were lower than metabolic rates of turtles post-swimming for the majority of turtles. These data suggest that basking serves as an energy-conserving mechanism. Furthermore, due to the prevalence of nesting females on basking beaches in all basking sites, this behavior likely serves a role in reproduction. The numerous physiological functions served by basking indicate the importance of this behavior in the biology of green turtles and the necessity in preserving their basking habitat.

LOGGERHEAD TURTLE RESPONSES TO AQUATIC PREDATION OFF SOUTHEAST NORTH CAROLINA, U.S.A.

Heather Miller Woodson
University of North Carolina at Wilmington, Department of Biological Sciences, Wilmington, North Carolina, U.S.A. WoodsonH@UNCWIL.EDU

Due to the perilous status of marine turtles, a great deal of time and money has been spent worldwide to study the life history of these animals. While many facets of the life of the sea turtle have been studied extensively, still other aspects need to be researched more thoroughly. The loggerhead turtle (*Caretta carreta*) is the most common of the sea turtles on the southeastern United States and thus the easiest to study. It is on this species that I focus.

Oceanic predation is largely a mystery to researchers. Many terrestrial predators of eggs and hatchlings have been identified, including raccoons, ants, ghost crabs, foxes, coyotes, pigs, dogs, armadillos, and birds (Van Meter 1992). Incidental accounts of oceanic predation on sea turtle hatchlings are scattered through the literature (Randall 1967; Witham 1974; Frick 1976; Witzell 1981; Dodd 1988). Few studies have attempted to quantify oceanic predation or identify potential predators. Witherington and Salmon (1992) tracked 74 loggerhead hatchlings, of which five turtles were lost to unidentified oceanic predators. In a study by Gyuris (1994), 57 free swimming hatchling green turtles (*Chelonia mydas*) were followed by snorkelers. Of these, ten were lost from sight and 44 of the 47 remaining hatchlings were consumed by oceanic predators (93.6%), mostly groupers (serranids) and snappers (lutjanids). During the course of the same study, 1,740 tethered hatchlings were followed by snorklers, and predation rates averaged 31% during these trials (range 0-85%). None of the hatchlings took evasive action to avoid oceanic predation (Gyuris 1994). Clearly, due to the limited body of knowledge regarding oceanic predation on sea turtle hatchlings, more work needs to be done to help determine oceanic predators worldwide and further quantify predation rates.

USING HATCHLINGS OF THE LOGGERHEAD, I TESTED THE HYPOTHESES THAT:

(1) predation on the hatchling stage of the loggerhead sea turtle by fish is high off coastal North Carolina;

(2) fast moving predators, such as those in the families Scombridae, Carangidae, Coryphaenidae, Pomatomidae and Sciaenidae, are potential predators of hatchling loggerhead sea turtles in this area;

(3) hatchlings make evasive action to avoid predation; and

(4) models can be used to accurately quantify oceanic predation on live hatchlings.

A two-part field component of this study, which tests hypotheses 1 and 2 is still in progress. The following methodology addresses hypotheses 3 and 4 only.

MATERIALS AND METHODS

Collections:

A total of thirteen live hatchlings were collected at random as they emerged from the nest cavities of five randomly selected nests on Bald Head Island, N.C. Hatchlings were used in the study within 24 hours of emergence. Dead hatchlings from nest inventories were also collected for later use as models in this study.

Laboratory experiment:

Hatchlings were used in experimental prey perception tests. This is necessary to insure that models are being perceived by predators in the same way as live hatchlings. Using a 17,000 gallon tank located at the North Carolina Aquarium at Ft. Fisher, perception was tested by simultaneously offering fish both a live and a fresh dead (model) hatchling protected within plastic spheres, 30 cm in diameter. The top 7 cm of both spheres remained out of the water to allow the live hatchling to surface for air. Dead hatchlings were suspended by monofilament line through the top of the sphere to allow them to be jiggled slightly to simulate movement by wave action as is expected in the field trials. The spheres with live and dead hatchlings were placed one meter apart in the tank, and the position of the live and dead hatchlings within the tank was switched prior to each trial. fish in the tank were classified as predatory or non predatory species, and their responses to the hatchlings were analyzed according to the respective group. Four types of response to either one of the hatchlings were recorded by three independent observers: no response, positive orientation towards prey, approach within 25 cm and contact with the sphere. Trials were videotaped as well to verify the decisions of the