to healthy turtles. These findings, along with those presented at the 2006 symposium, suggest that contaminants are mobilized into blood from adipose as lipid stores are depleted and that contaminants are stored in adipose again as DTs recover. The higher blood levels caused by weight loss, circulating to target tissues, may contribute to the progression of this illness. *Acknowledgements*: We thank Bruce Hecker and Jason Crichton from the SC Aquarium; DuBose Griffin, Tom Murphy, David Whitaker, Phil Maier, and Mike Arendt from SC Dept. Natural Resources; Mark Dodd from the Georgia Dept. National Resources; Joanne Braun-McNeill and Larisa Avens from the National Marine Fisheries Service; and Michelle Lee from the Medical Univ. SC for sample collection; and NMFS for partial funding.

AN ALTERNATIVE METHOD FOR ASSESSING BODY CONDITION OF HAWAIIAN GREEN TURTLES

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The objectives of this study are 1) to propose an alternative method of quantifying body condition in Hawaiian green turtles, 2) to compare this method to a field scoring technique based on a subjective estimate of body condition and 3) to determine if differences in body condition exist among foraging aggregations of immature green turtles in the Main Hawaiian Islands (MHI). Two accepted methods to quantify body condition include regression of body mass on straight carapace length (SCL) and the ratio of body mass to SCL3. Both of these methods utilize body mass, however, these measurements are often unavailable due to field conditions, the size of the animal (e.g. large nesting females), or other limitations. An alternative to using mass is to calculate volume based on SCL, straight carapace width (SCW), and body thickness (LAT). The basic shape of a green turtle is approximately a half-ellipsoid. The volume of a half-ellipsoid is given by $[(4/3^* \pi * a * b * c) / 2]$, where a = SCL / 2, b = SCW / 2, and c = LAT. Assuming the density of green turtles is approximately constant, then mass is proportional to volume, and a regression of volume on SCL should provide nearly identical results to a regression of body mass on SCL. This technique provides researchers with an alternative method of assessing body condition when body mass is not available. In this study, body condition of immature Hawaiian green turtles was quantified using the methods described above and results were compared. This stock has increased since protection began in 1978 under the US Endangered Species Act. Increases in the nesting stock have resulted in greater abundance of juveniles in the nearshore waters of the MHI. Analysis of mark-recapture data from sites throughout the MHI illustrates variability in growth rates among sites and a long-term decline in growth rates, possibly due to differences in population density. Differences in body condition, or robustness, of individuals are visually apparent. Body condition field scores were assigned to individuals based on appearance (0 = normal/robust, 1 = mild emaciation, 2 = moderate emaciation, 3 = severe emaciation). Body condition indices were calculated using mass, and using volume as proposed here. Data were statistically tested for differences between sites, and subjective field scores were compared to the quantitative measures. The difference between measured body mass and calculated volume was 19% when the maximum (anterior) body thickness measurement was used for the LAT value. This difference was reduced to 4% when a central body thickness measurement was used and the relationship between measured mass and volume was nearly 1:1, validating the assumption that density is constant. For the Hawaiian green turtle stock, body conditions indices correlate with subjective field scores, and differences in body condition exist among foraging aggregations. Based on these results, volume is an acceptable means of quantifying body condition for Hawaiian green turtles. This method may be applicable to other species, but further testing is needed.

MULTIPLE ANTIBIOTIC RESISTANT GRAM NEGATIVE BACTERIA FROM THE OVIDUCTAL FLUID OF THE GREEN TURTLES (*CHELONIA MYDAS*) DURING EGG LAYING

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Oviductal fluid was sampled by swabbing the cloacal chamber during oviposition. Three swabs were taken from each turtle. A total of forty turtles were examined. The swab samplings were taken after the turtle laid several eggs while the oviductal fluid is secreted from the oviductal glands. The swabbing was accomplished by inserting the swab ≈ 10 cm into the evaginated cloacal chamber. The samples were used to isolate bacteria following the standard procedures. The following bacteria were isolated *Pasteurella* spp. (44.6%), *Citrobacter* spp. (30.7%), *Salmonella* spp. (10.8%), *Pseudomonas* spp. (4.6%), *Shigella* spp. (3.1%), *Proteus* spp. (3.1%), *Brevundimonas* spp. (1.5%). The isolates were resistant to various types of antibiotics. The presence of antibiotic resistant bacteria in the oviductal fluid is an indication that the embryo becomes contaminated with these bacteria during early phases of embryogenesis. In addition, these antibiotic resistant bacteria may be considered as indicators of pollution in the feeding areas of sea turtles. The source of this pollution is probably due to human activities.

VULNERABILITY OF TURTLE EGGS TO THE PRESENCE OF CLAY IN NESTING BEACHES

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Egg survival can be very low in non-predated nests. Environmental factors such as temperature or hydric potential have been shown to be detrimental to hatching success. In this study we document the negative impact of clay in embryonic development. Soil erosion from adjacent areas or the proximity of nesting beaches to silty substrates can cause the exposure of turtle eggs to significant levels of clay in their incubation substrates. In some Cabo Verde nesting beaches, a high variability on the amount of clay present on nesting substrates was found. Loggerheads did not avoid silty substrates to dig their nests. Apparently, hatching success in natural nests was highly affected by the presence of clay when compare with non-flooded nests in sand. A percentage of eggs incubated in silty substrates were partially or totally covered by clay that was firmly adhered to the eggshell. Many nests in silty areas did not hatched and survivors usually hatched extenuated and totally covered by clay that difficult their movement to the water. Traslocated nest with eggs covered by clay suffered a significant mortality compared to nests with clean eggs after incubation under standard conditions in the hatchery.

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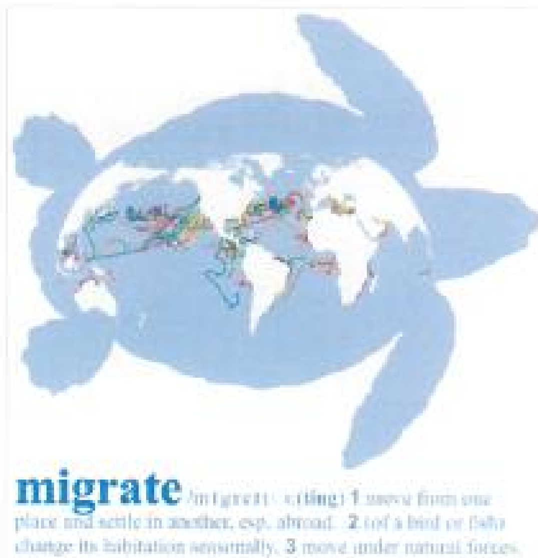
PROCEEDINGS OF THE TWENTY-SEVENTH ANNUAL SYMPOSIUM ON SEA TURTLE BIOLOGY AND CONSERVATION



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