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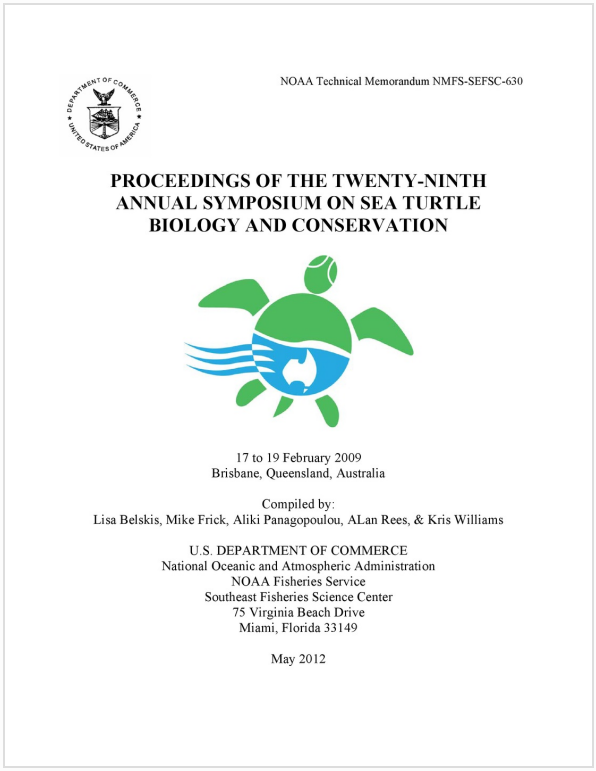

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17 to 19 February 2009
Brisbane, Queensland, Australia

Compiled by:
Lisa Belskis, Mike Frick, Aliki Panagopoulou, ALan Rees, & Kris Williams

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National Oceanic and Atmospheric Administration
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May 2012

A Tri-National Aerial Survey of Leatherback Nesting Activity in New Guinea and The Solomon Islands

by Scott Benson

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STUDENT AWARDS

There were 103 student presentations – 39 papers and 64 posters with $3,000 US awarded to eight recipients. The awards committee was composed of Lisa Campbell, Matthew Godfrey, Jeanette Wyneken. Judges were Karen Arthur, Ken Lohmann, Melissa Snover, Dave Owens, Annette Broderick, Sheryan Epperly, Kirstin Fritsches, Thane Wibbels, Zoe Meletis, Bryan Wallace, Nick Pilcher, Kiki Dethmers, Marydelle Donnelly, Anna Barragan and Andrea Phillott. The awards were financed by the Chelonian Research Foundation and the International Sea Turtle Society.

ORAL PRESENTATIONS

Best Biology Oral Presentation
First Prize: **Wendy Dow**, Duke University, USA
In-water and in-air hearing sensitivity of the juvenile green sea turtle (*Chelonia mydas*).

Runner up: **Hoyt Peckham**, UC Santa Cruz, USA
Demographic and conservation implications of alternative foraging strategies in juvenile loggerhead turtles.

Best Conservation Oral Presentation
First Prize: **David Pike**, University of Sydney, Australia
Climatic change and changes in sea turtle nesting distributions.

Runner up: **Mariana MPB Fuentes**, James Cook University, Australia
Assessing the vulnerability of key sea turtle rookeries to predicted geographic shifts in cyclone activity.

POSTER PRESENTATIONS

Best Biology Poster Presentation
First Prize: **Suzanne E Roden**, NOAA Fisheries - Southwest Fisheries Science Center / University of San Diego, USA. Detecting green turtle population structure in the Pacific using single nucleotide polymorphisms (snps).

Runner up: **Kimberly Reich**, University of Florida, USA
Effects of repeated tissue sampling on the growth of immature loggerhead turtles; a controlled study.

Best Conservation Poster Presentation
First Prize: **Juan Patiño-Martínez**, Estación Biológica de Doñana. Spain
The accumulation of driftwood on the beach disturb leatherback nesting and newborn behaviour affecting reproductive success.

Runner up: **Antonio Nogueira**, Wildlife Conservation Society
The use of geographic information system (GIS) for the support of the marine turtle research and conservation in Soyo, northern Angola.

TABLE OF CONTENTS

Abstract titles marked with an * denote Oral Presentations

AUSTRALIA MINI-SYMPOSIUM

BREEDING BIOLOGY

BREEDING BIOLOGY

BODY WEIGHT AND THE ENERGY BUDGET OF GRAVID HAWKSBILL TURTLES (*ERETMOCHELYS IMBRICATA*) DURING THE NESTING SEASON

Armando Barsante[1,2], Eliza M. X. Freire[2], Claudio Bellini[3], and Gilberto Corso[2]

[1] Fundação Pro-Tamar, Natal, Rio Grande do Norte, Brazil
[2] Universidade Federal do Rio Grande do Norte, Natal, Rio Grande do Norte, Brazil
[3] Projeto Tamar – Instituto C.M.C. Bio, Fernando de Noronha, Pernambuco, Brazil

Female hawksbill turtles (*Eretmochelys imbricata*) nesting along the southeast coastline of Rio Grande do Norte State, Brazil (6°13'40"S, 35°03'05"W) were captured and weighed during the 2006/2007 and 2007/2008 egg-laying seasons. The mean value for the first post-oviposition weight was 79.6 kg (range 56.2 – 105.7 kg; SD = 11.3 kg; n = 72 females). Those individuals which were subsequently recaptured showed a mean weight loss of 1.6 kg (range -3.7 – 5.1; SD = 1.43; n = 75 sets of measurements on 36 females) in the interval between two consecutive post-oviposition (i.e. after one internesting interval). In the cases where the female aborted the nesting process, the pre-oviposition weight was measured. The total effective egg-laying investment was found to be 5.46 kg (range 4.3 – 8.2; SD = 1.09; n = 12 sets of measurements). The mean recovery in body weight was found to be 3.2 kg (range 1.8 – 4.6; SD = 1.05; n = 9 sets of measurements). The recovery in body weight was found to be always significantly lower ($p<0.005$) than the total effective egg-laying investment. This is in agreement with the observed weight loss tendency throughout the breeding season for this species. The weight recovery was analysed using allometric law, converting both loss in body weight and total egg-weight to energy. Using mean body weight of the turtle we calculated that the metabolic maintenance rate of the hawksbill turtle during the nesting period to be 2870 $kJ \cdot d^{-1}$ and the energy that the turtles expended in egg-laying to be 1183 $kJ \cdot d^{-1}$. The daily net weight loss converted into energy is 4213 $kJ \cdot d^{-1}$. The total daily energy consumption (maintenance plus egg production) is of the same magnitude as the daily energy from weight loss. We argue that there is no reason for a significant extra intake of energy during the oviposition period. Hence we conclude that the observed weight recovery is due to rehydration. Acknowledgements: Santuário Ecológico de Pipa, Projeto TAMAR ICMBio, Programa de Estudos e Pesquisas em Preservação Ambiental nas Áreas Marítimo Terrestre da Bacia Potiguar (IBAMA-UFRN-FUNPEC-PETROBRAS). We also thank the Australian Government DEWHA, Queensland Environmental Protection Agency, Disney Animal Kingdom, Western Pacific Regional Fisheries Management Council, US National Marine Fisheries Service, and the US Fish and Wildlife Service (Marine Turtle Conservation Fund) and the International Sea Turtle Symposium.

A TRI-NATIONAL AERIAL SURVEY OF LEATHERBACK NESTING ACTIVITY IN NEW GUINEA AND THE SOLOMON ISLANDS

Scott Benson[1], Vagi Rei[2], Creusa Hitipeuw[3], Betuel Samber[4], Ricardo Tapilatu[5], John Pita[6], Peter Ramohia[6], Patrick Pikacha[6], Joe Horoku[7], Bas Wurlanty[8], and Barry Krueger[9]

[1] NOAA Fisheries, Southwest Fisheries Science Center, Moss Landing, California, USA
[2] Office of Environment and Conservation, Boroko, Papua New Guinea
[3] WWF Indonesia, Denpasar, Bali, Indonesia
[4] KSDA II Papua, Forestry Department, Sorong, Papua Barat, Indonesia
[5] State University of Papua, Manokwari, Papua Barat, Indonesia
[6] The Nature Conservancy, Honiara, Solomon Islands
[7] Department of Environment and Conservation, Honiara, Solomon Islands
[8] WWF Indonesia, Sorong, Papua Barat, Indonesia
[9] Marine Research Foundation, Kota Kinabalu, Sabah, Malaysia

Western Pacific leatherback turtles have declined during the past two decades, and obtaining accurate estimates of current nesting population size is essential for future leatherback recovery. Telemetry studies conducted from nesting beaches in Papua New Guinea (PNG), Solomon Islands, and Papua Barat, Indonesia have revealed that this meta-population is comprised of multiple foraging populations that nest throughout the year. Declines have been apparent to local villagers in most areas, but conservation and protection is hindered by a lack of knowledge of nesting population size and distribution. Comprehensive regional aerial surveys were conducted along the north coast of New Guinea and adjacent islands, and throughout the Solomon Islands during January-February 2004-2007, and in July 2005. The objectives of the surveys were to determine significant nesting beaches outside of monitored areas and to lay the groundwork for estimating the nesting population size of Western Pacific leatherbacks. Leatherback nests were counted by 2-3 observers from a fixed-wing aircraft flying at 200 ft (61 m) altitude using established methods. Coordinated ground counts were conducted at 11 beaches throughout the region where monitoring and protection programs had previously been established, to allow estimation of errors associated with aerial detection of nests. The greatest densities of leatherback nests were encountered on the northern Bird's Head coast of Papua Barat, and along the Huon Gulf of PNG. Limited nesting was observed within the Solomon Islands, with the greatest number of nests on Santa Isabel Island. Previously undocumented nesting beaches were identified on Bougainville Island, including one large concentration on the south-eastern coast. Scattered nests were also observed on the northern and southern coasts of New Britain, PNG. This study represents the first tri-national assessment of Western Pacific leatherback nesting activity and results will be used to develop new monitoring and conservation programs at key nesting beaches.

THE EFFECT OF RELOCATION AND KEY ENVIRONMENTAL FACTORS ON LOGGERHEAD SEA TURTLE (*CARETTA CARETTA*) NESTS ON CAPE ISLAND, SOUTH CAROLINA, USA*

Melissa Bimbi[1], Sarah Dawsey[2], and Derk Bergquist[3]

[1] College of Charleston and U.S. Fish and Wildlife Service, Charleston, SC, USA
[2] U.S. Fish and Wildlife Service, Cape Romain National Wildlife Refuge, Awendaw, South Carolina, USA
[3] South Carolina Department of Natural Resources, Marine Resources Research Institute, Charleston, SC, USA

Cape Island is the northernmost barrier island of the Cape Romain National Wildlife Refuge located in Charleston County, South Carolina. This 10 km undeveloped beach supports the highest density nesting for the Atlantic northern sub-population of loggerhead sea turtles (*Caretta caretta*), an area that extends from Amelia Island, Florida through Virginia. In order to determine the effect of nest relocation on hatch success, emergence success, incubation duration, and incubation temperature during the sex-determining period, relocated and in-situ nests were monitored throughout the entire 2008 nesting season. This study is an expansion of a 2007 study that compared in-situ nests to nests relocated into hatcheries during June and July. Key environmental factors such as sand characteristics, vegetation, and elevation were examined in both relocated and in-situ nests. MicroDAQ LogTag temperature data loggers with a +0.1°C were placed in the approximate center of relocated nests and in-situ nests during the entire incubation duration. Sediment samples were collected 1 m from each nest with a push core representing an integrated average of sediment characteristics within the egg chamber. Vegetation was determined by counting stems and identifying plants to the lowest practical taxonomic level around each nest. The elevation of each nest was determined using a Trimble R-8 GPS unit. Preliminary analysis of the data indicates there are no differences in elevation, vegetation, incubation duration, hatch success, emergence success, or sediment characteristics except moisture content between in-situ and relocated nests. These preliminary results suggest that nest relocation on Cape Island is an effective management tool. Thanks go out to the Australian Government DEWHA, Queensland Environmental Protection Agency, Disney Animal Kingdom, Western Pacific Regional Fisheries Management Council, U.S. National Marine Fisheries Service, U.S. Fish and Wildlife Service (Marine Turtle Conservation Fund), the Marisla Foundation, and the International Sea Turtle Symposium for providing travel funding.

A Tri-National Aerial Survey of Leatherback Nesting Activity in New Guinea and The Solomon Islands

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