

development, fishery interactions and the exponential growth of the local human population. The existence of threats to all sea turtle life stages highlights the urgency of conservation efforts. Unfortunately, no data are available about sea turtles in the region. This report attempts to start filling these gaps by presenting stranding data as an indicator of the presence and distribution of sea turtles in Bohol. The local stranding network, named the Bohol Rescue Unit for Marine Wildlife (BRUMW) and the non-profit organization Physalus responded to and recorded sea turtle strandings in the province. From June 2011 to September 2012, fifteen sea turtle strandings were documented. Hawksbill turtles were the most commonly stranded species (8), followed by green (5), leatherback (1), and olive ridley (1). The leatherback turtle stranding in May 2012 was only the second record of the species from the area and the olive ridley turtle currently in rehabilitation represents the first record of this species in Bohol. Of the fifteen stranded turtles, nine were of unknown sex (mostly juveniles). Six of the eleven live strandings were immediately released. Three turtles were rehabilitated and successfully released back to the sea and one arrived in critical condition and did not survive the first twelve hours of therapy. In addition, beach patrols and targeted interviews have identified and protected more than fifteen nests in the municipality of Anda, where a 20-year old illegal headstarting facility has been demolished and all the hatchlings released. Starting in 2010, an intensive information, education, and communication (IEC) campaign led by Physalus comprehensively trained municipal response units, provincial BRUMW members and local veterinarians to respond to strandings. This complimented Physalus' IEC program which presented lectures about turtles and marine ecosystems to more than 10,000 students from schools along the south coast of Bohol. This is just a small first step toward the protection and conservation of sea turtles in the province. IEC is a key tool for conservation and will be supported by more rigorous data collection on the distribution of these species. The stranding data will be used to identify, quantify and manage threats that are bringing these species to the brink of extinction.

δ13C AND δ15N BULK TISSUE STABLE ISOTOPE PATTERNS OF OLIVE RIDLEY SEA TURTLES (*LEPIDOCHELYS OLIVACEA*) IN THE EASTERN PACIFIC OCEAN

Lindsey E. Peavey¹, Jeffrey A. Seminoff², Robert L. Pitman², and Steven D. Gaines¹

¹ Bren School of Environmental Science & Management, University of California, Santa Barbara, CA, USA

² National Marine Fisheries Service, Southwest Fisheries Science Center, La Jolla, CA, USA

Olive ridley sea turtles (*Lepidochelys olivacea*) come to shore annually to nest in the eastern Pacific Ocean, but otherwise spend all of their time in the open ocean. Individuals have the ability to travel great distances, however actual habitual movement patterns (niche width, distinct foraging regions, etc.) are largely unknown. To advance our understanding of open ocean sea turtle foraging ecology, we analyzed the δ13C and δ15N stable isotope values of bulk epidermis samples from 200 olive ridley sea turtles (*Lepidochelys olivacea*) that were hand-captured in 2006 in three eastern tropical Pacific Ocean sub-regions: (1) Gulf of California (GOA; n=29); (2) North Equatorial Current (NEC; n=33); and (3) Eastern Pacific Warm Pool (n=138). We compared our findings to results from the analysis of 45 samples collected in 2003 from the same region by Hess *et al.* in 2007. We found no significant difference in δ13C and δ15N between size classes for all samples. We observed a significant difference in δ13C values between the GOC and the two more southern sub-regions, but not between the two southern sub-regions themselves. We found δ15N to enrich as latitude increased, with a significant difference between the values in the GOC and the two southern sub-regions, but not between the two southern sub-regions themselves. Here, we spatially contextualize observed isotopic patterns in olive ridleys oceanographically across the eastern Pacific Ocean, which is a dynamic region that supports diverse ecosystems and foodwebs. We have identified potential reasons for observed nitrogen isotopic patterns related to spatial variation in nutrient supply across the region due to changes in thermocline depth, iron deficiency, and/or oxygen depletion. The most interesting difference between our investigation and the prior study is that we found that both δ13C and δ15N values decreased as distance from shore increased in the NEC region. Since δ13C values reflect the carbon source for photosynthesis, this is an expected result because cell boundaries of plants in pelagic regions are thicker,

which results in resistance to diffusion and subsequent assimilation of ¹³C, as diffusion is a rate-limiting step in photosynthesis. This analysis is part of a larger research study aiming to develop a biochemical roadmap to open ocean sea turtle foraging on the seascape scale intended to provide useful open ocean foraging ecology information to marine resource managers.

VANUA-TAI TURTLE MONITORS A STORY OF SUCCESSFUL TURTLE CONSERVATION IN VANUATU

George Petro

Wan Smolbag Theatre, Port Vila, VANUATU

The Republic of Vanuatu is a chain of 83 islands in the South Pacific lying between 13°S-20°S Latitude and 170°E- 166°E Longitude. Vanuatu is home to three of the six marine turtle species in the Indo-Pacific region, namely the green turtle, the hawksbill turtle and the critically endangered leatherback turtle. Turtle meat and eggs are a delicacy to the indigenous people of Vanuatu similar to the situation in other Pacific Islands. Recent archeological evidence suggests a three thousand year history of consumption of marine turtles. Currently on some former nesting grounds there is no longer nesting probably due to a long history of turtle egg harvesting. Sea turtle conservation in Vanuatu was first introduced to local communities in 1995 when a local non-government organization, Wan Smolbag Theatre (WSB) implemented a sea turtle awareness campaign using a play on the plight of marine turtles that was performed in local villages on the main Island of Efate. After the performance a discussion was held with villagers searching for solutions, out of this came the suggestion for the village to nominate a knowledgeable fisherman as a turtle monitor. This was the beginning of WSB's sea turtle conservation and monitoring program with the establishment of village turtle monitors and a network, the Vanua-Tai Resource Monitors Network who now number over 500 and are spread throughout Vanuatu. The monitors initially focused on conservation and sustainable use of marine turtles but have proved invaluable documenting marine turtle occurrence and nesting beaches, tagging turtles and carrying out research. A 2005 survey suggested that the Vanua-Tai network in only 5 villages had conserved over 1200 marine turtles, extrapolated over the whole of Vanuatu this would amount to over 10,000 turtles conserved. The network has subsequently expanded to involvement in broader marine resource issues including coral reef monitoring and other marine resource conservation. Some of the significant achievements have been the identification and subsequent monitoring of important leatherback, green and hawksbill nesting beaches, the negotiation with tribal elders to reduce the take of large adult turtles for a traditional ceremony from 300 to 50 turtles, the development of turtle related ecotourism activities including sponsoring by tourists and cruise ship visitors of tagged and released turtles, and a village based turtle nesting beach watching activity.

ASSESSING A POTENTIAL LIGHTING PROBLEM FOR LOGGERHEAD HATCHLINGS NEAR THE BRIGHTEST LIGHTHOUSE IN THE WORLD: ARENA ASSAYS AT HILLSBORO BEACH, FLORIDA, USA

Nicole Reintsma, Morgan Young, and Mike Salmon

Biology Dept., Florida Atlantic University, Boca Raton, Florida, USA

Florida's East Coast is home to 90 percent of all loggerhead sea turtle (*Caretta caretta*) nests in the U.S. It is also home to most of the 19 million people in Florida. This concentrated human population affects the



NOAA Technical Memorandum NMFS-SEFSC-645

PROCEEDINGS OF THE THIRTY-THIRD ANNUAL SYMPOSIUM ON SEA TURTLE BIOLOGY AND CONSERVATION



2013 INTERNATIONAL SEA TURTLE SYMPOSIUM

Baltimore, Maryland USA

5 to 8 February, 2013
Baltimore, Maryland, USA

Compiled by:

Tony Tucker, Lisa Belskis, Aliko Panagopoulou, Alan Rees, Mike Frick,
Kris Williams, Robin LeRoux, and Kelly Stewart

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, Florida 33149

May 2013



NOAA Technical Memorandum NMFS-SEFSC-645

PROCEEDINGS OF THE THIRTY-THIRD ANNUAL SYMPOSIUM ON SEA TURTLE BIOLOGY AND CONSERVATION

5 to 8 February, 2013
Baltimore, Maryland, USA

Compiled by:

Tony Tucker, Lisa Belskis, Aliki Panagopoulou, Alan Rees, Mike Frick,
Kris Williams, Robin LeRoux, and Kelly Stewart

U.S. DEPARTMENT OF COMMERCE
Dr. Rebecca Blank, Acting Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Dr. Kathryn D. Sullivan, Acting Under Secretary for Oceans and
Atmosphere

NATIONAL MARINE FISHERIES SERVICE
Samuel D. Rauch III, Acting Assistant Administrator for Fisheries

May 2013

This Technical Memorandum is used for documentation and timely communication of preliminary results, interim reports, or similar special-purpose information. Although the memoranda are not subject to complete formal review, editorial control or detailed editing, they are expected to reflect sound professional work.

NOTICE

The NOAA Fisheries Service (NMFS) does not approve, recommend or endorse any proprietary product or material mentioned in this publication. No references shall be made to NMFS, or to this publication furnished by NMFS, in any advertising or sales promotion which would indicate or imply that NMFS approves, recommends or endorses any proprietary product or material herein or which has as its purpose any intent to cause directly or indirectly the advertised product to be use or purchased because of NMFS promotion.

For bibliographic purposes, this document should be cited as follows:

Tucker, T., Belskis, L., Panagopoulou, A., Rees, A., Frick, M., Williams, K., LeRoux, R., and Stewart, K. compilers. 2013. Proceedings of the Thirty-Third Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NOAA NMFS-SEFSC-645: 263 p.

Technical Editor:
Lisa Belskis

Copies of this report can be obtained from:

NOAA Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, FL 33149

PDF version available at <http://www.sefsc.noaa.gov/species/turtles/techmemos.htm>

or

National Technical Information Service
5301 Shawnee Rd
Alexandria, VA 22312
(703) 605-6050, (888)584-8332
<http://www.ntis.gov/numbers/htm>