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NOAA Technical Memorandum NMFS-SEFSC-701

doi:10.7289/V5/TM-SEFSC-701

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2014 INTERNATIONAL SEA TURTLE SYMPOSIUM

✿ NEW ORLEANS, LOUISIANA, USA ✿

14 to 17 April, 2014
New Orleans, Louisiana USA

Compiled by:

Lisa Belskis, Amy Frey, Michael Jensen, 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

December 2016

TEMPORAL AND SPATIAL COMPARISON OF SEX RATIO OF HATCHLINGS ON DALYAN BEACH, TURKEY

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Sex ratios for hatchlings were estimated by measuring temperatures of nests on Dalyan beach, Turkey during the 2012-2013 nesting seasons. Analyzing of the nest temperatures during the middle third of the incubation period, the incubation durations were used to analyze the sex ratio estimations different sections of the beach. The mean incubation period of 2012 nesting season 49.5 whereas it was 54.4 in 2013. In general, an increase in incubation temperatures was observed during the seasons. The sex ratios of males were found usually higher in early (May) and late (August) in the season when compared with the middle part of the nesting season, usually June and July. The differences between the incubation duration are attributed to the cooler sand temperatures. The relocation of nests close to the sea, which are usually relocated further inland may also effect sex of hatchlings produced in those nests. The relocation guidelines according to the sand and nest temperatures were applied in relocation of nests. In order to estimate the sex ratio of the hatchlings that were produced on Dalyan beach, temperatures of 83 nests and sand temperatures at nest depths were recorded electronically on the beach. The results of this study indicate between a 65-85% female dominated hatchling sex ratio. The rate of predation, relocation of nests, and temporal distribution of nests within the season were discussed in the view of sea ratio studies.

EVALUATION OF SEX RATIOS OF THE OLIVE RIDLEY SEA TURTLE (*LEPIDOCHELYS OLIVACEA*) IN AN ARRIBADA NESTING BEACH IN MEXICO: THIRD YEAR FOLLOW-UP*

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Climate change is one of the biggest issues facing the world today. During the last decades there have been reports of a temperature increase on a global scale with greater increases in temperature over the land than the sea surface; also, scientists predict a rapid climate change for the next century leading to concern regarding the impact of global warming in many species. Sea turtles present temperature dependent sex determination (TSD), which makes them particularly vulnerable to global warming, since a subtle increase in temperature can cause skewed sex ratios that could affect population dynamics. Therefore it is important to monitor sex ratios in wild populations. La Escobilla is an arribada nesting beach located in the Pacific coast of Mexico with more than 200,000 nests per year. In an attempt to assess the impact of climate change in sex ratios, we have been conducting a study at this nesting beach since 2010. Samples were obtained from overlapping arribadas during three hatching seasons from 2010 to 2013: summer-fall (July-November) and winter (December-March), and processed by histology with hematoxylin-eosin staining for sex identification. Main sexing criteria were based on the thickness of the surface epithelium (cortex in females) and development (in males) or fragmentation (in females) of medullar cords. We estimated sand temperatures from air temperature records from the closest beach of Puerto Ángel located 25 km (15.5 miles) from La Escobilla for every sample period. The percentage of females (68%) found for the overall period (2010-2013) was statistically different from 50%. Individually, for the 2010-2011 season, we found 54% females whereas in the next two seasons, the percentage of females increased to 79% and 80% for 2011-2012 and 2012-2013, respectively. Consistent with sex ratios data, sand temperature estimations showed an increment of 0.9°C from 2010-2011 (29.7°C) to 2011-2012 (30.6°C), and from 2011-2012 (30.6°C) to 2012-2013 (31.5°C). Interestingly, female-biased sex ratios coincided with