

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/332171273>

An Evaluation of 16 Years Monitoring and Conservation Studies of Sea Turtles on Dalaman, Dalyan And Fethiye Beaches, Turkey

Conference Paper · October 2018

CITATIONS

0

READS

61

4 authors:



Eyup Başkale

Pamukkale University

161 PUBLICATIONS 469 CITATIONS

SEE PROFILE



Yusuf Katılmış

Pamukkale University

155 PUBLICATIONS 516 CITATIONS

SEE PROFILE



Doğan Sözbilen

Pamukkale University

69 PUBLICATIONS 206 CITATIONS

SEE PROFILE



Yakup Kaska

Pamukkale University

193 PUBLICATIONS 3,575 CITATIONS

SEE PROFILE



UNIVERSITY
OF PRIMORSKA



6TH MEDITERRANEAN CONFERENCE
ON MARINE
TURTLES
POREČ/CROATIA 2018



BOOK OF ABSTRACTS

EDITORS

Bojan Lazar, Matic Jančič

16TH - 19TH OCTOBER 2018 / VALAMAR DIAMANT CONFERENCE CENTRE, POREČ, CROATIA

POSTER PRESENTATIONS

SESSION 1: POPULATION BIOLOGY AND ECOLOGY

AN EVALUATION OF 16 YEARS MONITORING AND CONSERVATION STUDIES OF SEA TURTLES ON DALAMAN, DALYAN AND FETHIYE BEACHES, TURKEY

Başkale E.^{1,3}, Katılmış Y.^{1,3}, Sözbilen D.^{2,3}, Yakup Kaska^{1,3}¹ Pamukkale University, Faculty of Arts and Science, Department of Biology, Denizli, Turkey² Pamukkale University, Acıpayam Vocational High School, Veterinary Medicine, Denizli, Turkey³ Sea Turtles Rescue, Research and Rehabilitation Centre (DEKAMER), Turkey

Fethiye, Dalaman and Dalyan beaches are important nesting beaches that are located on western Mediterranean coasts of Turkey. Sea turtle monitoring and conservation studies were carried out in these three nesting beaches in the last 25 years, but Dalaman beach was monitored regularly since 2002. In this study, we evaluated nesting population in the last 16 years in three important beaches of Turkey. A total of 1,483, 1,245 and 5,495 loggerhead turtle nests were found in Fethiye, Dalaman and Dalyan beaches, respectively. In the study period, the number of nests were dramatically increased in Dalyan beach ($r^2 = 0.62$) while Fethiye showing a stable trend ($r^2 = 0.20$) and Dalaman showing stable trend with a slight decrease ($r^2 = 0.17$). The nesting trend in these beaches are stable in these beaches while Dalyan nesting population is growing. The number of hatchlings reached to the sea was increased to 92% in Dalyan beach in 2017. This ratio is lower in Fethiye and Dalaman beaches due to light pollution. In addition, predation rate is lowest in Fethiye beaches (4.4%) in 2017 and highest at Dalaman beach (22.0%) in 2017. The predation rate was 11.5% in Dalyan beach in the same year. Among these three beaches, Dalyan is the best protected nesting beach. Coastal development or light pollution

is prohibited around the nesting beach. On the other hand, coastal development and light pollution is high in Fethiye and Dalaman beaches. A well protected area with less human pressure on the beach increases the predatory activities but carrying out all conservation activities during the night increased the nest protection and hatching success rate. On the other hand, beach development and beach usage were increased in the same period in Fethiye and Dalaman beaches. In addition to the development in these beaches, the fishing activities, light pollution, water sport activities and boat traffic were also increased. Therefore, the nesting and hatchling success were affected negatively. Despite observing an overall increase in the number of loggerhead turtle nests in the Mediterranean, we observed a stable trend in Fethiye and a slight decrease in Dalaman beaches. It can be foreseen that the existing conservation measures will be inadequate to protect the population and that the population of sea turtles nesting in Fethiye and Dalaman beaches will decrease in the region with the increase of activities such as tourism and fishing.

Presenting Author: Eyup Baskale
(eyupbaskale@gmail.com)

POSTER PRESENTATIONS

SESSION 1: POPULATION BIOLOGY AND ECOLOGY

CLIMATIC CONDITIONS OF SPANISH BEACHES FOR NESTING OF SEA TURTLES

Marco A.¹, San Martin J.², Tomás J.³, Cardona L.⁴, Abella E.¹, Fernández G.⁵, Morón E.⁶, Núñez V.⁷, Gouseva A.⁸, Félix G.⁵, Eymar J.⁹, Esteban J.A.¹⁰¹ Estación Biológica de Doñana, CSIC, Américo Vespúcio 26, E-41092, Sevilla, Spain² Máster Universitario en Biología Avanzada, Faculty of Biology, University of Sevilla, Profesor García González s/n, E-41012, Sevilla, Spain³ Cavanilles Institute of Biodiversity and Evolutionary Biology, University of Valencia, Apdo. 22085, E-46071, Valencia, Spain⁴ Department of Evolutionary Biology, Ecology and Environmental Sciences and IRBLo, University of Barcelona, Diagonal 643, E-08028, Barcelona, Spain⁵ Fundación Palma Aquarium, Manuela de los Herreros 21, 07610, Palma de Mallorca, Spain⁶ Equinac, Almería, Spain⁷ Centre de Recuperació d'Espècies Marines, CREM, Cala Gració s/n, E-07820, Ibiza, Spain⁸ Asociación Tortugas Marinas Baleares, Menorca, Spain⁹ Conselleria de Medi Ambient, Generalitat Valenciana, Prof. Manuel Sala 2, E-03003, Spain¹⁰ Xaloc Asociación para el Estudio y Conservación del Entorno, Valencia, Spain

The incubation of sea turtle nests is affected by sand temperature in the nesting beaches. Temperatures higher than 34°C or lower than 25°C can be lethal for loggerhead turtle embryos. Furthermore, individuals of both sexes are only produced if the sand temperature is between 28.5°C and 30°C. The global warming is affecting the temperature in most of sea turtle rookeries, increasing the embryonic mortality and feminization the offspring. The colonization of beaches in colder zones is becoming important for an adaptive response to this global impact. The goal of the present work is to study the temperature of the sand of Spanish beaches and to evaluate its impact on the survival and sex-ratio production in loggerhead nests. This study was conducted in the Spanish warm coast throughout three years, from 2015 to 2017. 52 beaches were selected from the provinces of Girona in the northeast and Huelva in the southwest, including the Balearic Islands. Temperature data loggers (Onset HOB0 Tidbit v2) with an accuracy of $\pm 0.2^\circ\text{C}$ have been used. The loggers were programmed to record data every 30 minutes and were buried at a depth of 40 cm. Data was recorded from June 1st to November 15th. The beaches were grouped in 13 geographic zones, which were compared using the daily or biweekly average of the temperature and estimates

of viable periods for the incubation of the species. The analysis of the data indicates viable conditions for the incubation of loggerhead turtle eggs in all the different zones. In 87% (N = 45) of beaches, temperatures greater than 25°C were detected for at least 60 consecutive days, which guarantees a minimum of an annual hatch per female, as long as the nesting had taken place at the beginning of the warm period. Moreover, 40% (N = 21) of beaches enables four viable consecutive nesting events per adult female. The percentage of beaches which would produce females, considering a minimum temperature of 29°C, is equal to 21% (N = 11) and it is distributed all along the autonomous communities of Andalusia, Murcia, Valencia, Catalonia and Balearic Islands. There is spatial and temporal variability in the incubation conditions among the years and the months of the same year. In the same beach, there may be years with viable laying while others are not, or years with production of both sexes while others are not. These results will be relevant for the management of turtle nests found in Spain in the future years.

Presenting Author: Marco Adolfo
(amarco@ebd.csic.es)