

that the number of nests may exceed the limited space of the egg corrals in future nesting seasons. Consequently, some nests may need to be left to incubate on the beach (in situ). The results of this preliminary study suggest that the temperatures of in situ will follow the temperature trends observed in the egg corrals and will produce an overall female sex ratio in a typical year. Additionally, the results are consistent with previous years of this study (Geis et al., in press) indicating a significant female bias being produced in the egg corrals. It is plausible that this female bias has accelerated the recovery of this species.

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Seasonal sand temperature profiles of four major leatherback nesting beaches in the Guyana Shield

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INTRODUCTION

The Guyana Shield region stretches from eastern Venezuela to northeastern Brazil. Some of the most important nesting beaches for leatherbacks world-wide are found in eastern Suriname and western French Guiana. Peak nesting in the area occurs between April and July. In 2001, we measured sand temperatures concurrently on four major leatherback nesting beaches: Awa:la-Ya:lima:po, Babunsanti, Samsambo and Matapica. Beach topography differs between these beaches. The objective was to study spatio-temporal variation in sand temperature profiles and thus hatchling sex ratio of the leatherback population as a whole.

METHODS AND MATERIALS

Temperature dataloggers were placed at 75 cm depth at two different beach zones (High and Low perpendicular to the spring tide line) on the beaches at the beginning of the leatherback nesting season, and recovered at the end of the season. Data were recorded every two hours for the whole period. Data were grouped by 10 day intervals for which the average temperature was calculated. We used ANOVA, followed by Tukey multiple comparison test, to make statistical comparisons among sites.

RESULTS

Sand temperatures profiles fluctuated through the season with a gradual increase towards the end of the season. Sand temperatures differed significantly among the sites, specifically for Babunsanti and Matapica, also between the high and low zones. Beach sand on Samsambo was warmest, followed by Awa:la-Ya:lima:po and Babunsanti. Matapica sand was coolest for both beach zones. Both high and low beach zones were used by high numbers of leatherbacks for nesting.

DISCUSSION

The pivotal temperature for leatherbacks in the Guianas is 29.5°C (Rimblot-Baly et al. 1987) and the thermosensitive period for the determination of sex occurs in the middle third of the incubation (Desvages et al. 1993). Using this information with the sand temperature data, we estimate that: I. Only males were produced by nests laid on the low zones of Babunsanti and Matapica throughout the season, and also by nests laid before the beginning of June on the lower zone of Awa:la-Ya:lima:po, and before early July at the higher zone of Matapica. II. Females hatchlings were produced by nests laid after 15 May in the high zones of Awa:la-Ya:lima:po, Babunsanti and both zones of Samsambo. Thus, different beaches have a different sex ratio production. Further comparative

studies are needed to determine if these differences and variations are typical for these beaches.

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