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EFFECT OF ENVIRONMENTAL TEMPERATURE AND RAINFALL ON THE NESTING BEHAVIOR OF GREEN TURTLES AT THE KOSGODA ROOKERY

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Reproductive migration, initiation of the nesting season and the length of the nesting season of sea turtles can be influenced by local environmental conditions such as temperature and rainfall. Sea turtle nesting usually occurs in the warmest months of the year but some are known to nest more frequently during the wet season. This study determined the effect of temperature and rainfall on the nesting frequency of the female green turtles at the Kosgoda turtle rookery. Kosgoda hosts a large green turtle rookery in Sri Lanka having year-round nesting with a clear peak in February to June.

The nesting frequency of female green turtles along a one kilometre stretch of beach at Kosgoda rookery was determined for a five year period from August 2003 to August 2008. Temperature and rainfall data of the study area were obtained from the Meteorological Department in Colombo. The effect of monthly mean air temperature and rainfall on the nesting frequency of the green turtles was determined using a regression analysis.

Nesting increased with the monthly mean air temperature with a significant positive relationship (linear regression; $r^2 = 0.342$, $p < 0.001$) and it decreased with increasing rainfall but this relationship was not statistically significant (linear regression; $r^2 = 0.008$, $p = 0.504$). Green turtles nesting at the Kosgoda rookery prefer warmer months. Sea turtles have temperature-dependent sex determination with lower temperatures producing more males while the higher temperatures produce more females. The estimated sex ratios of the green turtle population at Rekawa rookery in Sri Lanka where nesting peak during the warmer months, were skewed towards females.

Depending on the relationship between local environmental conditions and the nesting frequency of the female turtles, the sex ratios of such temperature-dependent sex determined species or population can be affected, thus having important demographic implications for predictions of future viable sex ratios of particular nesting sites.

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