

Climate change and evolution of loggerhead sex-ratio in Cabo Verde

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Global warming can affect nesting success of sea turtles due to the rise of the sea level and the subsequent increased inundation or erosion of nesting beaches. Moreover, it can reduce male production to levels that can alter reproduction due to their temperature dependant sex determination (TSD). Now, mean nest temperatures all around the world predict a predominance of female hatchlings, and this trend may increase with global warming in the next decades. Many actual nesting beaches would not be adequate for seaturtle incubation in a warming future. During 2005 and 2006, we recorded the sand and incubation temperatures in 48 nests loggerhead (*Caretta caretta*) nests in the only important loggerhead rookery in the eastern Atlantic in Boavista Island (Republic of Cabo Verde). A prediction of how the primary sex ratios could change in the further 50 and 100 years is presented. The mean temperature of the middle third of incubation (TSD period) ranged from 28.4°C to 30.9°C. No correlation was found between nest temperature on the first third of incubation temperature (when metabolic heating is absent) and nest mortality ($p=0.87$). Sex ratio was female dominated (Mean: 71.9%, range: 45.8 - 89.2 %) and varied seasonally ($p<0.05$). We found warmer temperatures late on the nesting season (October-November, $p<0.01$). The most moderate climate change models (ICPP 2001) predict increases of temperature around 1°C and 2°C degrees respectively for 2050 and 2100. Hatchling sex ratio in Boavista could severely skew toward females both in 2050 (Mean: 79.8 %) and 2100 (Mean: 87.7 %). Natural nesting dispersal to colder beaches is highly improbable in the Archipelago.

