

WongBerman, Alexander, “Impacts of temperature and humidity of nearby mangrove cover on Olive Ridley *Lepidochelys olivacea* Egg Development.” Advisor: Manolo Spinola. Colorado College. 2010.

Olive Ridley hatching success is generally low during hot dry season. I studied the effect of natural shading treatments on Olive Ridley embryonic development during the months of March and April on Nancite Beach, Guanacaste, Costa Rica. Eggs were taken from turtles and translocated into a gradient of shade stretching from the open beach to beneath mangrove vegetation. Within this gradient temperature and humidity were measured with data loggers and sand samples. Mean incubation temperatures in vegetation shade were lower than at the border of the vegetation or open beach ($P < 0.0001$). Humidity was greatest in open beach, and smallest in vegetation shade. No embryonic development was found in open beach, where temperatures were highest. Hatching occurred in vegetation clutches only, where lowest temperatures were found. Mean incubation temperature was inversely related to hatching success ($P = 0.0208$), and greatest stage of development ($P = 0.0021$). Humidity was also inversely related to egg hatching ($P = 0.0345$). Shade from vegetation significantly lowered incubation temperatures, allowing more development and hatching success. Highest mortality was found at greatest clutch temperatures. This study demonstrated that a location within mangrove cover can increase hatching success and egg development, which has implications for future national park management. Managers could increase hatching success of dry season nesters by translocating clutches into adjacent mangrove shade.