

separate egg layers with thin layers of mud (Ernst and Barbour 1972. *Turtles of the United States*. University of Kentucky Press, Lexington, Kentucky. 347 pp.; Ehrenfeld 1979. In Harless and Morlock [eds.], *Turtles: Perspectives and Research*, pp.417–434. Wiley and Sons, New York), but this behavior has been recorded only once for sea turtles (Caldwell 1962. *Quart. J. Florida Acad. Sci.* 25:287-302). Caldwell (*op. dr.*) recorded similar behavior in two loggerheads on **Jekyll Island**, Georgia, but these turtles only separated two layers of eggs by one layer of sand. Caldwell (*op. cit.*) hypothesized that these **animals** were young, inexperienced **nesters** because of their small body sizes, small clutches, early nesting, and unusual behavior. However, the body size and clutch size of the larger female we observed do not support this hypothesis. The mean carapace length reported for the Brazilian loggerhead population is 92.9 cm and the mean clutch size is **130.5** eggs (Tiwari and Bjorndal 2000. *Herpetologica* 56:343-356). Additionally, the smaller female had been observed to produce a normal nest two weeks prior to this event.

Shifts among the phases of the nesting sequence may result from external stimuli (Hailman and Elowson, *op. cit.*). For instance, the shift from digging the egg chamber to ovipositing is apparently triggered when the hind flippers come up without sand on at least two consecutive digging attempts. Termination of oviposition may be controlled by an external stimulus when the **cloacal** tip touches the egg pile, or by an internal stimulus, possibly depletion of eggs (Hailman and Elowson, *op. cit.*). It is difficult to ascertain what triggered the aberrant behavior we observed.

Submitted by **MANJULA TIWARI**, Archie Carr Center for Sea Turtle Research, University of Florida, P.O. Box 118525, Gainesville, Florida 32611, USA, and **ALEX SILVEIRA**, **Fundação Pró-Tamar**, Caixa Postal 2219, Salvador, **Bahia**, CEP 40210-970, Brazil.

TESTUDINES

CARETTA CARETTA (Loggerhead Sea Turtle). **ABNORMAL NESTING BEHAVIOR**. Loggerhead sea turtles have very stereotypical nesting behaviors (Hailman and Elowson 1992. *Herpetologica* 48:1–30). After a female has dug the nest chamber, she lays her eggs, fills the chamber with sand, camouflages the nest, and returns to **sea**. Herein we report unusual nesting behavior observed in two loggerheads nesting on Busca Vida Beach, Bahia, Brazil. These turtles dug an egg chamber and commenced ovipositing, then started covering the eggs with sand only to stop and recommence ovipositing. This procedure was repeated **ca.** five times by one female and **ca.** nine times by the other female. The straight carapace lengths (= distance from middle of nuchal to **pygal** tip) of the loggerheads were 95.3 cm and **90.1** cm. The larger female laid a clutch of **ca.** 145 eggs including one unusually large **egg**, which was broken by her hind flippers, and an abnormal L-shaped egg that measured **ca.** 14.6 cm in length. The smaller turtle **laid** **ca.** 127 eggs, two of which were joined together. Fourteen **broken** eggs were found in the larger clutch, and one broken egg **was** found in the smaller clutch. The females broke the eggs with their flippers. No data on hatching success are available.

Some chelonians such as the map turtle, *Graptemys geographica*,