Estimating hatching success on a high density nesting beach

Matthew H. Godfrey[1], Cecilia Torres[2], and Marc Girondot[2]

[1] Université Paris XI, CNRS UPRESA 8079, Batiment 362, 91405 Orsay, France
[2] Institute of Ecology, University of Georgia, Athens, Georgia 30602, USA

An important parameter in demographic studies of sea turtles is the hatching success of nests laid by females on nesting beaches. Theoretically, hatching success is a straightforward measurement, being the proportion of live hatchlings produced from the total number of fertilized eggs laid in a single clutch. Less straightforward is the method of sampling employed to ensure that the nests used to estimate mean hatching success consititute an unbiased sample of the overall population. On low density nesting beaches (less than 10 nests per night), this problem can be avoided by sampling all nests laid. On high density nesting beaches (with over 100 nests a night), it is not possible to investigate hatching success for every nest. The beach of Awala-Yalimapo, French Guiana, is a high-density leatherback nesting beach. In the 2000 and 2001 nesting seasons, we used different sampling protocols to estimate hatching success. The merits and limitations of the different protocols are discussed.

Sea turtle pound net tagging and health assessment study in Maryland's Chesapeake Bay in 2001

Tricia Litwiler, Susan Knowles, Brenda Kibler, and Cindy Driscoll

Maryland Department of Natural Resources, Cooperative Oxford Lab, 904 S. Morris St., Oxford, Maryland 21654, USA

The incidental capture of sea turtles in pound nets offers a unique opportunity to study wild, live specimens, which might otherwise be inaccessible in open waters. Many researchers along the Atlantic coast of the United States have taken advantage of these opportunities to gather information on sea turtle biology and ecology in their region. There have been anecdotal reports of sea turtles incidentally captured in pound nets in Maryland waters, but few have been documented. A pound net tagging and health assessment study was initiated in the summer of 2001 to assess the health and status of the sea turtle population in Maryland's Chesapeake Bay. Through a cooperative agreement between Department of Natural Resources' biologists and pound net fishermen, one Kemp's ridley and six loggerhead sea turtles were examined between July and October 2001. The turtles were removed from pound nets and measured, weighed, photographed and scanned for internal tags. They were also tagged with flipper and PIT tags, sampled for tissue and blood, and then released unharmed back into the water. Blood samples were analyzed for baseline biochemical values and sex determination and tissue samples were archived for future genetic analysis. Over time, the collection of this data will provide essential details on migratory behavior, baseline health and blood parameters, growth rates, sex ratios, capture rates, mortality and geographical origin of sea turtles in the Chesapeake Bay. This information has important implications for the development of regional management and conservation strategies to protect these endangered and threatened species.

An analysis of apparent growth in nesting hawksbills: Jumby Bay, Antigua, West Indies

Peri Mason and James Richardson

Institute of Ecology, University of Georgia, Athens, Georgia 30602, USA

Curved carapace lengths (CCLs) have been recorded for nesting hawksbill turtles (*Eretmochelys imbricata*) at Jumby Bay, Antigua, West Indies for fifteen consecutive seasons. Measurements were taken according to project protocol: median carapace length from most anterior point of the nuchal to the most posterior point of the supracaudal. In excess of a thousand CCL measurements have been recorded from 150 individuals. Large sample size and realistic estimates of sampling error allow us to evaluate the confidence of using CCL measurements to assess growth. For instance, collective CCL measurements for an individual display a range of lengths both within and between nesting seasons. We attribute CCL growth within seasons to human error, while growth between seasons is considered a combination of error, actual growth, and wear of the supracaudal scutes. Some individuals exhibit "negative" growth between seasons, suggesting that supracaudal wear exceeds growth in carapace length. However, this observation is equally explainable as the result of measurement error (variance) within season. Whereas CCLs provide an estimate of relative size for a population of nesting hawksbills, variance precludes any findings of real growth in terms of CCL between seasons. Therefore, CCL should be questioned, if not rejected, as an indication of annual growth in adult female hawksbills at Jumby Bay.