

GULF COAST

Turtle nest success surveyed at Dry Tortugas

Located 70 miles west of Key West, Florida, the islands of Dry Tortugas National Park are the most pristine subtropical marine environment in the contiguous United States. The park supports the largest loggerhead turtle (*Caretta caretta*) rookery in the Florida Keys and perhaps the largest green sea turtle (*Eretmochelys imbricata*) rookery in Monroe County. However, before being established as Fort Jefferson National Monument in 1935 and Dry Tortugas National Park in 1992, the turtles were hunted to near extirpation by both mariners and local turtle canners. Today, the national park is a refuge for these nesting season residents, giving them a chance to recover from historic exploitation. Where habitat preservation has undoubtedly aided turtle recovery over the last 60 years, inventory surveys are providing nesting success information on which to base management decisions and future population trend comparisons.

The park began inventorying both the endangered green and threatened loggerhead turtles as early as 1980 in an effort to determine their populations and reproductivity. Unfortunately, these efforts were inconsistent and inconclusive. Then, investigators began a 3-year tagging operation, limited to one island where over half the park turtle nesting occurs, and tagged 44 loggerheads and 2 green turtles. After nearly a decade of no further inventorying activities, the park revived the surveys in 1994, concentrating on excavating nest sites (after the hatchlings emerged). From

August through September, researchers counted 47 loggerhead and 25 green turtle nests. Although this research was incomplete, these results were exciting as this was the first time green sea turtles were verified as nesting in the park since the study of the early 1980s, and the 25 nests set a Monroe County record.

In 1995, recognizing a need for more comprehensive turtle research, the park recruited a Student Conservation Association-Americorps intern to expand inventorying to all park keys and make nesting observations throughout the entire nesting season. Investigator Scott Boykin explained that the April to September investigation period and consistent inventory methods distinguished the 1995 season from earlier efforts. "This project began before nesting and continued until all nesting was over," he said. "It provides the most realistic snapshot of turtle nesting activity on the Dry Tortugas to date."

During the study, Boykin determined that loggerhead turtles used 5 of the 7 islands within the park. Nesting success was generally high, with 79% of the loggerhead turtle eggs that were laid in successful nests emerging as viable hatchlings. Average clutch size was 98 eggs, with a range of 50-188. Average incubation was 54 days with a range of 45-58 days. Based on the estimate that loggerhead turtles nest an average of 4.1 times per season, 53 females used the Dry Tortugas in 1995.

Boykin also documented green turtle nesting in 1995, and found that numbers were down from 1994. In contrast to the more common loggerhead turtles, green sea turtles nested from late June to early August,

used only one key, and produced 4 nests, of which only 3 were successful. Combined with the 24 successful nests of

1998 because the typical nesting interval of loggerhead and green turtles is 2-3 years. This would allow for a proper assess-



Loggerhead female (above); (right) hatchlings emerge from their Dry Tortugas nest during 1995 nesting season surveys.



1994 (27 total over 2 years), 78% of the successful green turtle nests produced viable hatchlings. The average clutch size from the 2 seasons was 124 with a range of 55-191. Average incubation for the 1995 nests was 51 days. Investigators estimate that 7 female green turtles used park beaches for nesting during both 1994 and 1995.

The research also closely examined nesting loggerhead scute patterns to determine if hawksbill turtles were nesting in the park. The discovery of one nest with partially developed hatchlings possessing scutes characteristic of hawksbills indicated a possible nest of hybrids. After further analysis, however, the aberration was attributed to variation in loggerhead scutes.

Having had a successful 1995 field season, the park hopes to continue the surveys through

ment of turtle use patterns, seasonal fluctuations, and the population density of nesting females that use park beaches. Considering the historical importance of this rookery, a 4-year study would constitute the first comprehensive modern inventory, and would aid management in protecting the turtles. Boykin added, "the study is also important regionally as the Dry Tortugas are the least disturbed of any of the other Florida turtle nesting grounds. Results from these surveys will become valuable standards for regional comparison and for future park turtle population trend comparisons."