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SEA TURTLE NESTING AND HATCHING SUCCESS IN BROWARD COUNTY, FLORIDA, 1989

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Six beach areas spanning Broward County were patrolled daily at sunrise from 21 April to 15 September, 1989 during the Broward County Sea Turtle Conservation Project. Nests and false crawls were counted. Endangered nests were relocated to hatcheries or safe beach areas. Relocated nests and 99 natural nests were excavated after hatching for hatching success determinations. The data collected were compiled, analyzed and plotted primarily with Lotus 123. Full results of the project are found in Burney et al. (1989).

A total of 1695 sea turtle nests were surveyed county-wide. Of these, 1670 were *C. caretta*, 21 were *C. mydas*, and 4 were *D. coriacea* nests. The density of sea turtle nesting has increased in Broward County since 1981 (Figure 1), but the slope of the trend line is significantly greater than zero at only the 93.7 percent confidence level. There were no significant long term trends in *C. mydas* and *D. coriacea* nesting patterns, only considerable interannual variability. The seasonal nesting pattern is presented in Burney et al. (1989, 1990).

Total nests per km and per km per day are shown in Table 1. A 1-way ANOVA and a SNK test (Zar, 1974) showed that Hollywood-Hallandale was significantly lowest and Hillsboro clearly highest in terms of mean daily nesting per kilometer. Both these groups were statistically distinct from all the others. The higher nesting densities at Hillsboro beach are possibly related to its predominately single-family residential development, but it is difficult to relate the degree of development to nesting densities in the rest of the county. Lloyd Park is undeveloped but was the site of an ongoing beach renourishment project. Although Lloyd Park had the second lowest nesting density (Table 1), it was not statistically different from Fort Lauderdale North.

Total and mean daily nesting success is shown in Table 2. Lloyd park had the lowest nesting success, but it was not statistically different from that at Pompano Beach. If the renourishment project impacted nesting at Lloyd Park, the effect was not statistically different than that caused by heavy beach development at Pompano. Nesting success at the other beaches was statistically higher than for Lloyd Park and Pompano.

Mean loggerhead clutch size varied from 103.6 at Pompano to 118.3 at South Fort Lauderdale (county mean = 108.7). Clutch size at Pompano was significantly smaller than at all other beaches. Clutch size also declined over the season, county wide. This trend has been reported previously (Caldwell, 1959; Lebuff and Beatty, 1971).

A total of 1392 nests (82.1 percent of total nests) were relocated to hatcheries or safer beach locations. Most of the relocations were due to beach lighting which would have disoriented many of the hatchlings. A total of 104,622 hatchlings were released, a 41 percent increase over 1988. With only one exception, there has been an increasing number of hatchlings released each year since 1978. This indicates an increasing emphasis on hatchery operations rather than increased nesting.

Hatching success (live hatchlings / total eggs) of relocated nests was 69.9 percent which compares favorably to the 66.7 percent success for natural nests. Although hatching success for both relocated and natural nests was down from 1988, it was similar to several other years since hatchery operations commenced in 1981. The source of the great interannual variability is unknown, but may be related to weather conditions. The summer of 1989 was unusually hot and dry.

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