

Nest Relocation Programs

If beach nourishment programs are carried out during turtle nesting season in a nesting area, it is essential to conduct a program of locating new nests each morning and relocate the eggs to a protected hatchery area. The hatchery is essentially a fenced natural sand area which is protected from humans and other predators. Care is necessary in moving and placing the eggs to avoid a high mortality. Nelson, et al. (1987) have found the hatching success to be above 85% if natural sand is used in the hatchery area. This is only slightly less than in natural reference areas. Thus it can be concluded that although further study is necessary, egg relocation to a carefully monitored hatchery area is effective in maintaining the survival rate of hatchlings.

A Case Study: Jupiter Island, Florida

Lund (1986) has reported on a comprehensive monitoring program on Jupiter Island to evaluate the impact of beach nourishment on sea turtle nesting. The program was carried out each summer from 1969 to 1983 and extended from Blowing Rocks to St. Lucie Inlet, a distance of approximately 23 kilometers. This monitoring period encompassed major beach nourishments in 1973, 1977, 1978 and 1983, totalling 4.4 million cubic yards.

To compare the nourished and unnourished beach segments, the beach was segmented into "South", "North" and "Fill" regions, the latter region denoting a segment of some 8 km within which the nourishment occurred.

High erosion rates along the northern end of Jupiter Island are due to the interruption of the longshore sediment transport by St. Lucie Inlet which was cut in 1892. The long-term shoreline change rates vary from 9 m/year erosion at the north end of the study area to a stable shoreline near the south end. The "South" and "Fill" regions are within the Town of Jupiter Island. Prior to the major nourishment projects which commenced in 1973, many shore protection structures including seawalls, groins and revetments had been constructed to limit erosion of the upland (Aubrey and Dekimpe, 1988). Because of the erosional trend and the presence of the shore protection structures, the beach narrowed significantly reducing the beach area suitable for turtle nesting.

The beach material used in nourishment was substantially finer than the sand naturally present on the beach. The silt-clay content was sufficiently high to result in a beach somewhat more compact and dense than optimum for nesting.