

# Marine Turtle Newsletter

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## **Does Turning Green Turtles on Their Backs Affect Subsequent Reproductive Performance?**

In a recent issue of the Marine Turtle Newsletter it was suggested that turning turtles on their backs may be one cause of the widely observed low percentage of turtles that return to nest in later years (Pritchard, 1982, 121, 3-4). The research program directed by Dr. Archie Carr at Tortuguero, Costa Rica, provides data that allow us to evaluate the potential for danger in turning turtles. The northernmost 5 miles of the 22 mile Tortuguero beach are patrolled nightly. Until 1976, all turtles were turned on their backs after nesting so they could be tagged and measured shortly after dawn. In 1976, we experimented with tagging some of the nesting females at night without turning them. In 1977, we adopted this system for the northern 2.5 miles of the beach.

One approach to assessing the possible effect of turning turtles would be to compare the reproductive performance of turtles that were turned on the southern 2.5 miles with those that were not turned on the northern 2.5 miles in 1977. However, comparing the reproductive histories of turtles nesting on the northern half of the patrolled area with those of turtles nesting on the southern half is unsatisfactory, because turtles emerging on the southern half are more likely to return to nest south of our 5-mile patrolled study area, and thus not to be recorded. Therefore, I have compared the subsequent renestings and remigrations of turtles from the northern half of the study area in 1975, when they were turned with those from the same region in 1977, when they were not turned. In order to exclude turtles that had been

turned in earlier years, only recruits (turtles nesting for the first time) were considered; turtles with tags or with tag scars were omitted. Four variables were compared: percentage of turtles that remigrated within the next 4 years after nesting only on the northern 2.5 miles; length of remigration interval; percentage of turtles that renested within the same season after nesting first on the northern 2.5 miles; and the renesting interval between the first two recorded nestings within a season (Table). Both the percentage of remigrants and the remigrant intervals were limited to the 4 years after tagging so the 1977 cohort would have equal chance to remigrate as the 1975 cohort.

	<b>1975 Cohort (Turtles Turned)</b>	<b>1977 Cohort (Turtles Not Turned)</b>	
% of turtles remigrating within 4 yrs	27.6% n = 134	24.3% n = 70	N.S. <sup>1,2</sup>
Remigration interval (yrs)	x = 3.00 SD = .24 Range = 2-4	x = 2.94 SD = .56 Range = 1-4	N.S. <sup>3</sup>
% of turtles renesting in same season	40.65% n = 155	41.77% n = 79	N.S. <sup>2</sup>
Renesting interval (days)	x = 20.44 SD = 9.88 Range = 2-41	x = 18.34 SD = 9.20 Range = 10-41	N.S. <sup>3</sup>

<sup>1</sup>N.S. = not significant at the .01 level

<sup>2</sup>Chi Square Two Sample Test

<sup>3</sup>t Test, two tailed

None of the four variables is significantly different in the two cohorts. These data indicate that turning turtles does not affect the future reproductive performance of the colony - at least insofar as their reproductive periodicity is concerned. Although it is clearly wise to minimize the disturbance of sea turtles on their nesting beaches, the data presented here support continuation of the practice of turning turtles if this is necessary for tagging projects.

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