

SOME ASPECTS OF ARTIFICIAL HATCHERY MANAGEMENT PRACTICES OF MARINE TURTLES IN SRI LANKA

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ABSTRACT.

Five out of the seven species of marine turtles in the world, nest in Sri Lanka. All marine turtles are considered endangered. Artificial hatchery programmes are implemented as a means of conserving marine turtles. This reduces the loss of eggs to human and to natural predators. Tourists find turtle hatcheries an interesting attraction. As a result the number of artificial hatcheries have increased over the years. In order to meet conservation objectives effectively, management practices of turtle hatcheries need to be studied.

Factors that may effect hatching success such as sand particle size, depth of nest, number of eggs in a clutch, handling of eggs and retention of hatchlings before release were studied. Further, an attempt was made to compare scute variations in hatchery produced hatchlings with those of wild hatchlings and adults.

The sand particle sizes of turtle nesting beaches differ significantly from each other. Beach locations, which are likely to have high emergence success rates are recommended for the establishment of hatcheries.

There is a critical period from 1 to 14 days after incubation, during which the hatching success of the green turtle (Chelonia mydas) eggs are significantly decreased by rough handling. Careful handling of green turtle eggs during this period will help to increase the hatching success rates at hatcheries. Selecting eggs for a hatchery could be based on the appearance

of the 'white patch' on eggs. Infertile eggs identified by the absence of the 'white patch' could be utilized for human consumption. Such practices will require honest and dedicated people as hatchery managers.

The nesting success of olive ridley (Lepidochelys olivacea) and green turtle (Chelonia mydas) showed a negative relationship with the increasing number of fertile eggs in the clutch. The combined mortality of the late embryonic stages and early hatchling stages showed a positive relationship with the increasing number of fertile eggs. Dividing larger egg clutches of olive ridley and green turtle into two batches, before transplanting, will increase the percentage of live hatchlings. Investigations on the incubation temperature of small egg clutches need to be made in order to find their effect on the sex ratio of hatchlings.

There appeared to be no relationship between the hatching success and the depth of the transplanted nests for small egg clutches of the green turtle (Chelonia mydas). However, it would be better to avoid transplanting small egg clutches of the green turtle in nests that are as deep as their natural nests. Instead the depth of the artificial nest should be reduced accordingly.

The carapace scute variations in hatchery produced hatchlings did not vary significantly when compared with the available information on wild hatchlings. However, the carapace scute variations of hatchery produced hatchlings were higher than those of wild adults (Present study and available information).

The percentage scute variation in the green turtle hatchlings (Chelonia mydas) that did not emerge from the nests were significantly higher than those normally emerged. This indicates a probable low survival capacity in the wild, of hatchlings with scute variations.

The activeness of turtle hatchlings significantly decreases with the increased retention time (days) before their release and probably results in the weakening of hatchlings, thus making them susceptible to predators and lowering their chances of survival. Therefore, turtle hatchlings of all species should be released to the sea as early as possible.

The increasing number of hatcheries need to be monitored to ensure that the objectives of turtle conservation are fulfilled.