INFORMATION RELATING TO THE RELEASE OF CAPTIVE REARED JUVENILE GREEN SEA TURTLES

Over the past $2\frac{1}{2}$ years the Aquaculture Project at the Hawaii Institute of Marine Biology has conducted a number of experiments dealing with the dietary requirements and growth of captive green sea turtles (Chelonia sp.). Animals used in this research were originally obtained as one day old hatchlings from French Frigate Shoals (Hawaiian Islands National Wildlife Refuge) with the approval of the U. S. Fish and Wildlife Service. The overall purpose of the captive growth studies was to evaluate the suitability of the green sea turtle for commercial husbandry, with special emphasis being placed on the field of nutrition. Unfortunately, the results of this work, viewed in combination with information provided by other researchers, have necessitated a rejection of the animal for such purposes at the present time. Three of the more important reasons for this decision center around 1) the relatively high levels of protein needed in artificial diets in order to produce good growth (resulting in an expensive diet), 2) the inability of large numbers of young to be produced in captivity (thereby forcing the removal of eggs or hatchlings from the natural environment for aquaculture purposes), and 3) problems relating to the effects of commercial sea turtle husbandry on the conservation of the world's declining natural populations.

With the completion of the Institute's captive turtle experiments, plans have been formulated to tag and return the animals to the wild. During May, 30 such individuals ranging from 20 to 30 lbs. in weight will be transported back to French Frigate Shoals on a U. S. Coast Guard buoy tender, under arrangements made by the U. S. Fish and Wildlife Service. Release will take place at several sites in the Shoals known to be frequented by wild green turtles of a similar size.

The green turtle has a complex and little understood life cycle and it is presently unknown if animals raised in captivity from hatchlings will have the ability to successfully mature and eventually enter the breeding population after being returned to the wild. Releasing captive reared juveniles is therefore an unproven procedure with respect to conservation and should be regarded with caution until sufficient supportive information becomes available. Hopefully, future recoveries of turtles released by the Institute will help to provide insight on this matter. In addition to a numbered and addressed tag on each front flipper, the animals will also be experimentally marked by the formation of a harmless internal antibody that can be detected at a later date through laboratory analysis. A major problem in following the growth and development of sea turtles in the wild is the absence of a suitable marking technique that can be depended upon to remain with the animal as it travels and greatly increases in body size. Green turtles reach maturity at a minimum weight of approximately 175 lbs. but it is unknown how long it takes to reach this size.

Most of the world's distinct populations of green turtles are either endangered with extinction or rapidly declining due to over-exploitation and/or destruction of habitat. In the Hawaiian Archipelago the only remaining green turtle nesting site is French Frigate Shoals (480 miles NW of Honolulu), however, beaches on several of the major islands were utilized during former years. Available evidence indicates that Hawaii's population is reproductively isolated and members do not migrate outside the Archipelago. Studies by both U. S. Fish and Wildlife and Hawaii Institute of Marine Biology personnel have shown that long distance movements in the Archipelago regularly occur, with adults traveling between the major islands and French Frigate Shoals for reproduction. The Hawaiian green turtle is of particular interest to biologists because of the unique land basking behavior displayed at isolated and undisturbed sites. In addition, the population is one of the few that can be completely protected by a single government as no management difficulties arise from international migrations. Although a few separately nesting green turtles still utilize a portion of Florida's coastline, Hawaiian green turtles comprise the only intact viable population remaining in the United States.

George Balazs, Jr. Marine Biologist with the Hawaii Institute of Marine Biology will be accompanying the captive-reared turtles back to French Frigate Shoals and will subsequently conduct studies on this year's wild nesting population. Research at this site during 1973 and 1974 revealed that fewer than 200 adult females were present during each season.