

May 3, 1978

Mr. Dick Gritman
U.S. Fish & Wildlife Service
Airport Plaza, International Way
Newark, NJ 07114

Dear Agent Gritman:

Sorry for the delay in sending you the information requested on our Loggerhead transplant program. Enclosed you will find a brief summary of our attempt at the northward extension of the breeding range of the Atlantic Loggerhead Turtle by egg transplants. I have also included a rough sketch of the egg protection basket in which we place the eggs and bury to the mid-section on the beach in a protected area. The cage is checked daily for new born turtles, which are, in turn, released on the beach. Dr. Otto Florschutz, East Coast Biologist, located at Cape Romain National Wildlife Refuge is the egg transplant coordinator. You may want to contact him for further information. Please feel free to contact Mr. Ed Britton of my staff, at 804-336-6122 if you need further assistance. Thank you for your interest in our Loggerhead transplant program.

Sincerely yours,



James P. Oland
Assing Refuge Manager

AN ATTEMPT AT THE NORTHWARD EXTENSION OF THE BREEDING RANGE OF
THE ATLANTIC LOGGERHEAD TURTLE (*Caretta caretta caretta*) BY
EGG TRANSPLANTS

The primary objective of this study is to attempt to re-establish the loggerhead turtle breeding population northward back to its former range. The annual release of hatchlings at Chincoteague hatched from eggs laid at Cape Romain NWR could reintroduce the turtles back to the protected beaches of its original range.

The first experimental transplant in this study took place from Cape Romain to Chincoteague in 1969. Annual egg transplants continue to Chincoteague each year.

Transplanting methods have changed little in the last few years of the study. Nests are located and marked on Cape Romain NWR beaches in June. They are then dug up and eggs counted per nest and infertile eggs discarded in July when personnel from Chincoteague come to transport the eggs. The eggs are kept separate per nest and transported in individual styrofoam coolers with a covering of sand. Transplanting usually takes place the next day near the primary dunes on the refuge. Daily visits are then made to the individual enclosures which each nest is transplanted into. As hatchlings emerge each day, they are released. At some point late in the incubation period the individual nests are dug up and unhatched eggs counted and the season's hatching is terminated.

On August 1, 1977, ten nests containing 742 Loggerhead sea turtle eggs were transported from Cape Romain Refuge to Chincoteague Refuge for the hatchling program. The nests yielded 483 hatchlings. The remaining transplanted eggs were uncovered and removed September 6, 1977. In late August, a visitor reported a "crawl" on the Chincoteague Refuge beach. Refuge personnel investigated and found a nest containing 144 freshly-laid eggs. Since the turtle returns to the surf after laying her eggs, the nest is left in a vulnerable situation. So, to insure greater hatching success, the eggs were removed from the natural nest and placed indoors under artificial light. A total of 83 eggs (58%) hatched, and the turtles were released on the refuge beach - hopefully to return in about 7 years to make their own nests.

Due to several adverse factors affecting Loggerhead turtle nesting activities on Cape Romain NWR, no egg transplants were made in 1976. Natural turtle activity was also down on Chincoteague NWR compared to 1975. No natural nests were found and Loggerhead turtle observations were reduced. Three dead Loggerheads were found on the refuge beach.

There were 832 fertile eggs in eight nests transferred to Chincoteague NWR on July 17, 1974. The nests were transplanted when they were 42 to 46 days old and averaged 43 days compared to 47 days in 1973. Of the total 832 eggs in the eight nests, 62.6 percent hatched and all 521 young entered the ocean. In 1973, 88.4 percent of the eggs hatched and 86.6 percent entered the ocean. One nest had no eggs

hatch while another nest exceeded 99 percent hatching. Incubation periods ranged from 57 days to 79 days with an average of 63 days to start hatching and 71 days to end of hatching; a nine-day span. Despite the eggs being one to five (and averaging four) days younger than those transferred in 1973, hatching began and ended two days earlier. Again there appears to be no relation between hatching span and hatching success. Nor does there appear to be a difference in hatching success in eggs 42 days old or 46 days old this year.

Starting in 1974, our sixth year, daily beach patrol surveys were run in hopes of turning up a Loggerhead turtle crawl in our first year in which we could expect a return from one of our released turtles.

The patrol turned up one crawl and nest of 115 eggs on July 21, 1974. The nest was dug up and put in the turtle nursery where it would be protected. It was estimated that the eggs would hatch by October 1, 1974. As of November 1, 1974 the eggs had not hatched. At that time an egg was dug up and checked to determine its development. The egg contained a fully developed live embryo.

It was felt that due to the cold weather, their development may have been delayed. A decision was then made to remove part of the eggs from the nursery and place them in a container at the refuge headquarters where they could be watched more closely.

On December 1, 1974, the eggs were checked again. On April 28 the eggs in the container and the nursery were both checked again and found to be dead. The embryos in the container were dehydrated but the eggs in the nursery were not. The embryos in all eggs were fully developed.

Summaries of previous years transplanting and hatching efforts follows:

1973 - Ten known nests containing 1,087 eggs were transferred to Chincoteague NWR on July 24, 1973. These eggs were transported in styrofoam coolers packed with sand from the nest to avoid any sudden temperature changes. These eggs were buried in predator-proof cages on the Chincoteague NWR beach. The nests were checked daily and any hatchlings were carried across the beach and released in the surf. A total of 961 eggs (88.4%) hatched and 941 (86.6%) turtles entered the ocean.

1972 - A total of 1,346 eggs from 11 known nests were transported from Cape Romain NWR on August 3 to Chincoteague NWR within 18 hours after the first nest was dug up in South Carolina. Each individual nest was transported in styrofoam coolers to avoid the possibility of over-heating the eggs. A total of 1,081 eggs (80.3%) hatched, the number entering the Atlantic Ocean was 1,075 (79.9%). Two hundred and sixty-five hatchlings or 19.7% of the total hatch failed to completely emerge from the egg and/or sand. Five turtles were donated to the oyster museum to be used in their exhibits.

1971 - A total of 1,488 eggs from 11 known nests were transported from Cape Romain NWR on July 27 to Chincoteague NWR within 18 hours after the first nest was dug up in South Carolina. Each individual nest was transported in styrofoam coolers to avoid the possibility of over-heating the eggs. A total of 594 eggs (39.9%) hatched, the number entering the Atlantic Ocean 547 (36.8%). Forty-seven hatchlings or 7.9% of the total hatch failed to completely emerge from the egg and/or sand.

1970 - A total of 677 eggs from six nests at Cape Romain NWR were transported in separate lard cans and sand on July 9, 1970 to Chincoteague NWR where 672 eggs were buried in six separate nesting cages on July 10. Only 23 eggs or 3.4% hatched. All 23 hatchlings entered the Atlantic Ocean.

1969 - On August 8, 612 Atlantic Loggerhead turtle eggs were collected at Cape Romain NWR and brought to this station. The eggs were buried inside four screened enclosures on the refuge beach. A total of 272 eggs hatched, and since no eggs were hatched from nest #3, the hatchling success was 54.9%. The number entering the ocean was 248.

Year	Chincoteague NWR				
	Nests	Eggs	Hatched	To Ocean	%
1969	4	612	272	248	40.5
1970	6	672	23	23	3.4
1971	11	1,488	594	547	36.8
1972	11	1,346	1,081	1,075	79.9
1973	10	1,087	961	941	86.6
1974	8	832	521	521	62.6
1975	10	1,294	607	606	46.8
1976	NO TRANSPLANT PROGRAM				
1977	7	741	484	482	65.3
TOTALS	67	8,072	4,543	4,443	55.0

EGG PROTECTION BASKET

