



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE

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February 7, 1980

TO: FILE

FROM: D. R. Ekberg, F/SER6

*Don Ekberg*

SUBJECT: Loggerhead Sea Turtles in the Cape Canaveral Area

In a letter to Mr. James L. Garland, Chief, Engineering Division, Jacksonville District, Department of the Army, Corps of Engineers, on January 22, 1980, the Fisheries Assistant Administrator, Terry L. Leitzell, stated "We issued a biological opinion on a previous consultation request for this area on March 30, 1979. Based on the results of that threshold examination, and on new data gathered in the interim, I am of the opinion that dredging may result in the loss of large numbers of loggerhead sea turtles, but is not likely to result in jeopardizing either the loggerhead or Atlantic ridley sea turtle stocks." This decision by Mr. Leitzell apparently was based on lack of information from the Southeast Region pertaining to sea turtle populations in the Cape Canaveral area. We had not demonstrated adequately to the Washington office that the Cape Canaveral group of turtles was a sub-species or a distinct population segment of loggerheads in that area. Even though the Cape Canaveral Channel probably has the most dense concentration of loggerhead sea turtles in the United States, and in spite of the Regional Office recommendation of jeopardy, the Washington office was not convinced that dredging this channel would have a jeopardizing effect on these turtles.

Data pertinent to the Cape Canaveral sea turtle population have been gathered from shrimp trawl captures and surface observations in the channel, estimates of nesting females in the Cape Canaveral area, tagging data from nesting females and observations of the number of eggs laid by nesting females (see references). These data are summarized in Table 1. The nesting females in the Cape Canaveral area are estimated at 850 which is approximately 10% of the total Florida nesting females. Assuming that only 40% of the adult females nest on a yearly basis, the total adult female population in the Cape Canaveral area is estimated at 2125, and, assuming a one-to-one sex ratio of males to females, the total adult loggerhead sea turtle population in the Cape Canaveral area may be estimated at 4250. If each female who nests deposits 100 eggs per nesting and nests 3.2 times per year, the total number of eggs deposited in the Cape Canaveral area by nesting females is 270,000. If it is assumed that only 10% of the eggs survive to hatchlings that enter the sea, 27,000 hatchlings result. Although the age structure of turtles is not known, Figure 1 was constructed based on approximately 10 turtles of age 26 years and slightly less than a



thousand turtles at age 8 (which is taken as the age required for sexual maturity). The turtles in the 8 to 26 year class total approximately 4250. Since the mortality of younger turtles is certainly higher than older turtles, the curve for adult turtles and entering hatchlings was fit with a curve of gradually increasing slope as the age of turtles decreased. (Hillestad and Richardson, 1977, have discussed possible slopes for this portion of the curve depending on the fate of juvenile sea turtles.) If the population curve for turtles in Figure 1 is reasonable, then the subadults (4 to 8 years old) are estimated at 7,900. Carr and co-workers in 1979 and Berry in 1979 have shown that turtles exist in the Cape Canaveral Channel throughout the year. Observations of turtles in the channel and captures using 75-foot trawls range from about 40 to 200 turtles. If it is assumed that this sampling of turtles is approximately 10% of the total Cape Canaveral Channel population, then the population in the channel may be estimated at 400 to 2,000 turtles. Since the majority of these turtles are subadults, the percentage of the Cape Canaveral population present in the Cape Canaveral Channel may be estimated to be 5 to 25 percent. The dredging of the entire Cape Canaveral Channel could result in the death of up to 2,000 turtles or approximately 25% of the available subadult turtles in Cape Canaveral area.

This rough analysis of the loggerhead sea turtle in the Cape Canaveral area certainly can be improved with a better data base. More information is needed on sex ratio, hatchling survival and other population dynamics. However, in view of the available data, it appears that dredging the Cape Canaveral Channel should be considered as placing an already threatened species in further jeopardy. If the population trend in loggerhead sea turtles is downward, and this must be the case if the turtles are considered to be threatened, then destroying several hundred turtles can only hasten the time to extinction.

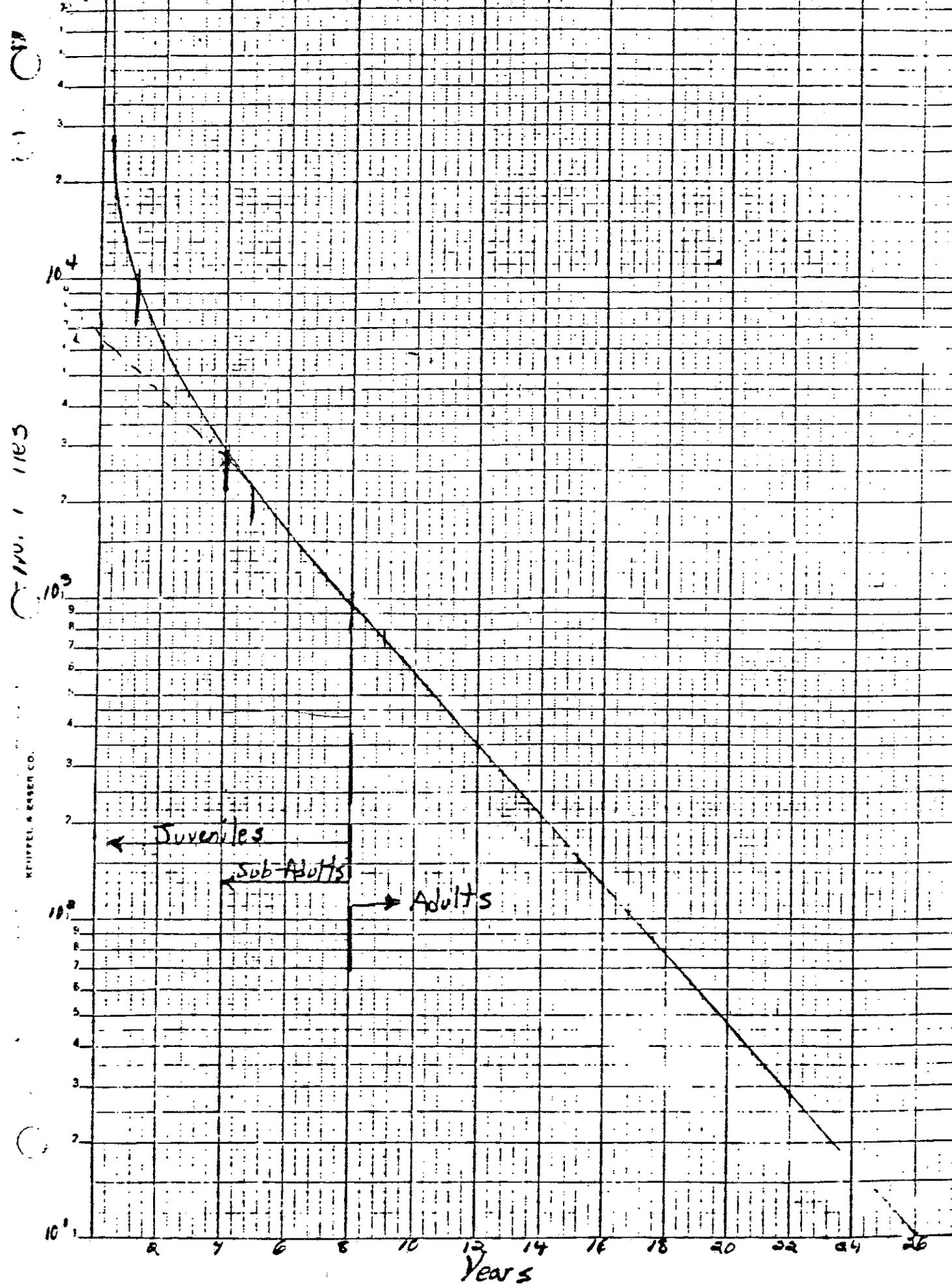
## REFERENCES

1. Ogren, L. Personal communication.
2. Carr, D. and P. H. Carr. 1977. Survey and reconnaissance of nesting shores and coastal habitats of marine turtles in Florida, Puerto Rico, and the U.S. Virgin Islands. NMFS Contract 03-6-042-3519.
3. Carr, A., L. Ogren and C. McVea. 1979. Apparent hibernation by the Atlantic loggerhead turtle off Cape Canaveral, Florida. Biological Conservation, Monks Wood experimental station. In press.
4. Berry, F. Personal communication.
5. Hillestad, H. O. and J. I. Richardson and G. K. Williamson. 1977. Incidental Capture of sea turtles by shrimp trawlers in Georgia. NMFS Contract #03-7-042-35129.

TABLE 1. LOGGERHEAD SEA TURTLE POPULATIONS

|   | <u>Cape Canaveral</u> | <u>Florida</u> | <u>SE USA</u> |
|---|-----------------------|----------------|---------------|
| Nesting Females <sup>1,2</sup>  | 850                   | 8,000          | 10,000        |
| Total Adult Females <sup>1,2</sup><br>(40% of adult females nest)             | 2,125                 | 20,000         | 25,000        |
| Total Adult Males<br>(1:1 sex ratio)  | 2,125                 | 20,000         | 25,000        |
| Total Adults  | 4,250                 | 40,000         | 50,000        |
| Eggs Layed <sup>1,2</sup><br>(3.2 nestings/ <sup>♀</sup><br>100 eggs/nesting) | 270,000               | 2,560,000      | 3,200,000     |
| Hatchlings <sup>1</sup><br>(10% survival)                                     | 27,000                | 256,000        | 320,000       |
| Sub-Adults<br>(4-8 years old) <i>(Cape Can Area)</i><br>See Figure 1.         | 7,900                 |                |               |
| Cape Canaveral Channel Population<br>(See Text)                               | 400-2000              |                |               |
| % Sub-Adults in Channel   | 5-25                  |                |               |

Figure 1 Cape Canaveral Turtle Population



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