



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

RESEARCH INFORMATION REPORT TO SUPPORT DSEIS ON ENDANGERED AND THREATENED SPECIES OF SEA TURTLES, 1981

REPORT: Estimated Sea Turtle Incidental Catch and Mortality From Shrimp Trawling and the 1980 Sea Turtle Stranding Records, Southeastern U.S.

FOR: Southeast Regional Office, NMFS, St. Petersburg, FL

BY: Southeast Fisheries Center, NMFS, Miami, FL

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The attached table was prepared by the Pascagoula Laboratory under the Sea Turtle Incidental Catch and Mortality Project. Capture rate data were obtained by observers on board cooperating commercial shrimp trawlers and on the Sea Turtle Excluder Trawl Development Project's dedicated vessels.

Because there was no standard net size used on the commercial vessels, catch rates were normalized to 100 feet of trawl headrope length. This was accomplished by dividing each catch rate by the length of headrope used and multiplying the quotient by 100.

Fishing effort in column 2 was provided by SEFC/TIMS. These estimates were normalized to days of fishing with 100 foot headrope length. Hours of fishing were obtained by multiplying days of fishing by $9\frac{1}{2}$ for the South Atlantic and by $14\frac{1}{2}$ for the Gulf of Mexico. These multipliers are point estimates of numbers of hours fished per day by vessels in the two areas.

Estimated turtle captures in column 3 were computed by multiplying the normalized mean capture rate (column 1) by the normalized Effort-Hours (column 2). These estimates do not include turtles caught by the inshore shrimp fleet.

Estimated mortality is derived from mean tow times recorded in the South Atlantic, west Florida, Northeast Gulf and Northwest Gulf. Tow times were assumed to correspond to comatose and dead percentages found during the Excluder Trawl Project. It is further assumed that turtles are distributed evenly both temporally and spatially, throughout the shrimping area and that the catch rate is density independent. Also assumed is that there is an attempt to resuscitate all incidentally caught turtles. This is based on a requirement imposed on NMFS vessel observers to attempt to revive all turtles taken.

1 In addressing turtle captures, hours fished per day refers to the total time that the trawl was in the water. Shrimp harvesting considers only bottom time.

The 1980 Sea Turtle Stranding Data was provided by the Marine Mammal and Endangered Species Program at the SEFC. The SEFC data base stranding numbers are documented carcasses. State Records (column 7) showing a 3.8 to 34.7 percent difference reflect missed records. The Stranding Data is obtained through volunteer beach observers and is subject to a varying and unknown level of effort and coverage. Despite the apparent similarity between estimated mortality with resuscitation and turtle strandings, there is no clear cut correlation between the two.

MEAN ANNUAL SEA TURTLE INCIDENTAL CAPTURE AND MORTALITY
 ESTIMATES BASED ON DATA FROM 1978 THROUGH 1980 and 1980 SEA TURTLE
 STRANDINGS FROM TWO SOURCES

State	Normalized Mean Capture Rate	Normalized Effort - Hrs. 1	Estimated Turtle Captures	Estimated Mortality at Average Tow Time	Estimated Mortality with Resuscitation	1980 ² Sea Turtle Strandings SEFC Data	1980 ² Sea Turtle Strandings from State Records
South Carolina	.04473±12.63%	72,576	3,246	1,003	454	575	598
Georgia	.04473±12.63%	105,093	4,701	1,453	658	606	794
East Florida	.04473±12.63%	86,472	3,868	1,196	541	242	371
West Florida	.0068 ±70.05%	438,788	2,984	1,511	754		
Alabama	.00514±84.57%	215,936	1,110	386	180		
Mississippi	.00514±84.57%	26,390	136	47	22	2	
Louisiana	.00199±55.89%	960,988	1,912	968	483	5	
Texas	.00199±55.89%	1,076,852	2,143	1,085	541	68	87

Note: All values shown are point estimates.

No error associated with any of the estimates has been indicated.

1. In addressing turtle captures, hours fished reflect total time that trawl was in the water, not just bottom time, which would be used for shrimp harvesting.
2. Data includes all species including unidentified carcasses.