

DISTRIBUTION AND SPECIES COMPOSITION OF SEA TURTLES IN NORTH CAROLINA, 1989-1990.

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In June 1988 the National Marine Fisheries Service Beaufort Laboratory began a multi-year study, funded cooperatively by NMFS and USFWS, to assess the species composition and distribution of sea turtles in North Carolina. Survey methods included qualitative reporting of turtle sightings by the public, more quantitative surveys of sightings by intercept interviews of recreational fishermen and aerial surveys of Core and Pamlico Sound (Figure 1), and the hands-on approach of capturing and tagging sea turtles on the water. In 1988 a pilot project assessed the feasibility of these methods and in 1989-1990 they were fully implemented.

The public sighting program yielded 595 and 775 reports of live turtles in 1989 and 1990, respectively. The majority of sightings were in offshore waters (offshore COLREGS Demarcation Line) during the spring (March-May) and summer (June-August); in 1990 there were also a large number of fall (September-November) sightings. Sightings in offshore waters were reported year-round, and in inshore waters were reported all seasons except winter (December-February). The majority of inshore sightings were in Core and Pamlico Sounds.

The Marine Recreational Fishery Statistics Survey queried 10,869 anglers in 1989 and 10,894 in 1990; over 70% of the anglers were fishing in the Atlantic Ocean. Each year about 3% of the anglers reported sighting at least one sea turtle on their trip. In 1989, with the exception of Core Sound (8.0%) and North River (4.9%), sea turtles were sighted most frequently in the Atlantic Ocean (3.1%). In 1990, the frequency of Atlantic Ocean (3.3%) sightings was exceeded in Core Sound (5.6%), North River (3.4%), White Oak River (2 of 4 interviewed), Cape Fear River (4.0%), and Pamlico Sound (3.8%). Inshore and Atlantic Ocean sightings were reported during all months except January and February. In the Atlantic Ocean, sea turtles were sighted most frequently 3 miles or greater from shore (4.4-4.8%).

Aerial surveys revealed sea turtles in estuarine waters spring - early winter. Spring aerial surveys yielded sightings distributed mainly along the eastern edges of Core and southern Pamlico Sounds with only one sea turtle sighted in northern Pamlico Sound. Summer and fall surveys yielded sea turtle sightings along both the eastern and western edges of Core and Pamlico Sounds, but none were sighted during fall 1990. Pamlico Sound was not surveyed during the winter. In December 1989, 5 sea turtles were sighted in Core Sound (9 estimated on surface), including 3 leatherbacks (*Dermochelys coriacea*), but no sea turtles were sighted in January 1990. Densities of sea turtles on the surface of Core Sound were consistently higher than for Pamlico Sound, reaching a density of 0.28/km² in May 1989. As waters warmed, densities in Pamlico Sound increased, peaking one or two months later than Core Sound at 0.04 and 0.02/km² sq for southern and northern Pamlico Sound, respectively. Densities began to decrease in the fall. Fewer sea turtles were sighted during 1990 than in 1989.

The species composition of incidental catches of sea turtles reported by volunteer fishermen was similar throughout the three-year period. Most sea turtles captured were loggerheads (*Caretta caretta*, 71-90%) followed by greens (*Chelonia mydas*, 5-17%) and Kemp's ridleys (*Lepidochelys kempi*, 2-11%). All sizes of loggerheads were caught, but only the more common juvenile and subadult size classes were tagged.

Except for one adult green sea turtle caught behind Hatteras Island, only juvenile green and Kemp's ridleys were captured and tagged. Pamlico and Core Sound fishermen related an annual pattern of mixed-species catches (loggerheads and Kemp's ridleys) in May-early July, loggerhead only catches throughout the summer and early fall, and mixed-species catches (loggerhead, Kemp's ridley and green) again in the fall.

In summary, sea turtles were present in the offshore waters of North Carolina during all months of the year and were abundant inshore from April into December. Loggerhead, green, Kemp's ridley and leatherback sea turtles were documented occurring in both estuarine and offshore waters. In estuarine waters, sea turtles show a pattern of immigration in the spring, dispersal throughout the summer, and emigration in the late fall and early winter.

Figure 1. Coastal counties and water bodies of North Carolina

