DEVELOPMENT OF A GEOGRAPHIC INFORMATION SYSTEM AS A MANAGEMENT TOOL TO REDUCE BYCATCH OF SEA TURTLES IN U.S. ATLANTIC OCEAN AND GULF OF MEXICO FISHERIES

Barbara A. Schroeder[1], Connie Moy[2], Elizabeth J. Petras[1], Ellen Keane[3], Michael Coyne[4]

[1] NOAA, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, MD, [2]NOAA, National Ocean Service, Silver Spring, MD, [3]NOAA Fisheries, Northeast Regional Office, Gloucester, MA [4] NOAA Fisheries, Northeast Fisheries Science Center, Woods Hole, MA [4]Duke University, Durham, NC

PROJECT SUMMARY

All species of sea turtles inhabiting the Atlantic Ocean and Gulf of Mexico are listed as either endangered or threatened under the Endangered Species Act (ESA). Incidental capture in fisheries is a major limiting factor in the recovery of sea turtles in these areas. NOAA Fisheries, the agency responsible for protecting sea turtles in the marine environment, continues to implement conservation and monitoring programs, regulations, and other actions under the ESA to recover these species. To further help meet ESA recovery goals for sea turtles, NOAA Fisheries is implementing the Strategy for Sea Turtle Conservation and Recovery in Relation to Atlantic Ocean and Gulf of Mexico Fisheries (Strategy). The Strategy is a new approach to reducing incidental capture of sea turtles in U.S. commercial and recreational fisheries based on evaluating sea turtle bycatch across gear types. A key element of the Strategy is the development of a Geographic Information System (GIS) as a management tool to facilitate implementation of the Strategy. The GIS will integrate fishing effort, known sea turtle distribution, observed sea turtle bycatch, existing regulations with relevance to sea turtle bycatch, and relevant oceanographic features. This will be the first comprehensive GIS management tool dedicated to addressing the problem of sea turtle bycatch in the region (Figure 1). The GIS is currently under construction and the target date for completion of an initial product is mid-2005.

Loggerhead turtle (*Caretta* caretta) entangled in pound net leader, Chesapeake Bay, VA. Photo: Mike Tork

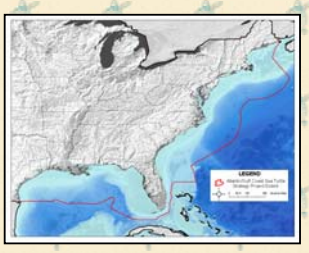

Figure 1. Atlantic/Gulf of Mexico Strategy project extent – state and federal waters.

Leatherback turtle (*Dermochelys coriacea*) entangled in lobster pot line, Cape Cod Bay, MA. Photo: Don Lewis

GIS DATA LAYERS

1. Fishing effort data on all gear types fished in the region (Figure 2).
2. Known sea turtle distribution based on aerial and shipboard surveys, satellite telemetry studies, and strandings (Figure 3).
3. Observed bycatch of sea turtles.
4. Existing regulations under the Endangered Species Act, Marine Mammal Protection Act, and Magnuson-Stevens Fishery Conservation Act that are designed to or have the potential to reduce sea turtle bycatch (Figure 4).
5. Relevant oceanographic features such as sea surface temperature and bathymetry.

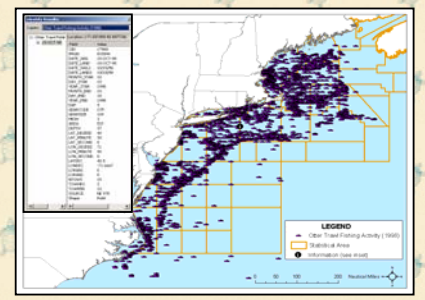

Figure 2. Sample data - fishing effort.

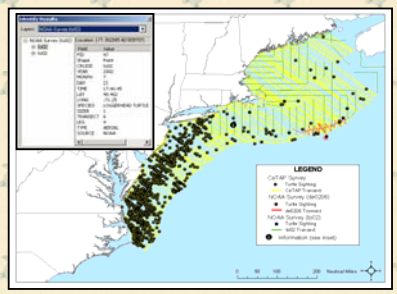

Figure 3. Sample data - sea turtle distribution.

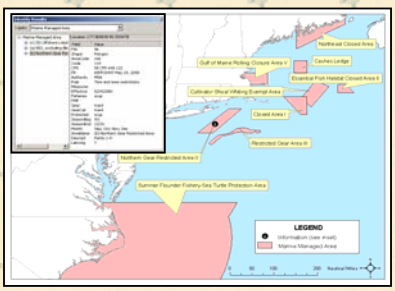

Figure 4. Sample data – existing regulations.

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