

Florida Gulf of Mexico Natural Resource Restoration Plan

FWC Potential Projects

Proposed Project or Program: **Reducing the Impact of Incidental Hooking of Marine Turtles during Recreational Fisheries**

Contact: Dr. Robbin Trindell, HSC-ISM, (850) 922-4330

1) Project description, including location

Gulf of Mexico inshore and nearshore waters provide important developmental habitat for three species of threatened and endangered marine turtles, loggerhead (*Caretta caretta*), green (*Chelonia mydas*), and Kemp's ridley (*Lepidochelys kempii*). All three species are known to ingest baited hooks from recreational fisheries. In other instances, sea turtles investigating baited hooks may become entangled in fishing line (Watson et al. 2005). Such interactions can be debilitating or even fatal for the animal if no action is taken to resolve the embedded hook or entangled hook and line (Oros et al. 2004). Fishing piers in particular can create an attractive nuisance as animals learn to exploit discarded fish carcasses and baited hooks as a food source. Sea turtles foraging at fishing piers or docks can accumulate hooks within their digestive tracts (Figure 1). While passage of hooks through the digestive tract can occur (Werneck et al. 2008), survival of these animals can be reduced, particularly if they return to forage at the site of the initial hooking after release.



Figure 1. X-ray showing hooks within digestive tract of live Kemp's ridley sea turtle

Incidental hooking of sea turtles occurs during commercial long line fisheries as well as recreational fisheries. Studies on commercial gear indicate that the incidence of potential hook ingestion by captive-reared loggerhead sea turtles varied with hook size, bait type and baiting technique (Stokes et al. 2007). Analysis of incidental hooking of loggerhead and leatherback sea turtles in the long line fishery in the Western North Atlantic found species-specific differences in incidental hooking due to soak times, hook type and bait type (Watson et al. 2005). Factors influencing incidental hooking of sea turtles by recreational fishers in the Gulf of Mexico have not been investigated.

Federal guidelines for commercial or recreational fishers interacting with hooked turtles in Hawaii may not be appropriate for Florida fisherman

(http://www.fpir.noaa.gov/PRD/prd_fishing_around_sea_turtles.html#oktohelp). Existing techniques recommended for releasing hooked turtles with minimal harm require tools and expertise (Epperly et al. 2004) not readily available to most recreational fishers. In addition, most fishers are reluctant to interact with an endangered species or are not aware of what actions to take once an animal has been hooked.

We propose to develop an incidental sea turtle hooking response strategy for animals captured by recreational fishers, to prepare educational materials, including signs, to be installed or distributed at boat ramps, piers, and bait shops, and to assess changes in fisher behavior with respect to incidental hooking of threatened and endangered sea turtles.

2) Provide a range of costs and if necessary, break down into capital costs, operational, or monitoring.

Capital/operational costs

Development of incidental hooking response strategy: \$100,000 to \$200,000

Coordination of an interagency team and veterinary experts to meet and recommend an appropriate strategy for sea turtles hooked incidentally by fishers in Florida waters (includes funds for FWC program staff to oversee project).

Educational materials: **\$200,000 to \$500,000**

Development, production, and installation of signs, video messages, artwork for social media.

Monitoring of program effectiveness: \$200,000

Surveys at fishing piers, boat ramps and shorelines to determine knowledge of fishers on how to react to an incidental hooking of a sea turtle.

Total cost: \$700,000 to \$900,000

3) Duration of project or program

The duration of the project is **3 years**.

4) Direct benefits to one of the following (pick the one that is the primary beneficiary)

- a. Restore and Conserve Habitat
- b. Restore Water Quality
- c. **Replenish and Protect Living Coastal and Marine Resources**
- d. Enhance Community Resilience
- e. Restore and Revitalize the Gulf Economy

References

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Stokes, L.W., D. Hataway, S. P. Epperly, A. K. Shah, C. E. Bergmann, J. W. Watson, and B. M. Higgins. Hook ingestion rates in loggerhead sea turtles *Caretta caretta* as a function of animal size, hook size, and bait. ENDANGERED SPECIES RESEARCH. Vol. 14: 1–11, 2011.

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