Science, Service, Stewardship

The Movement and Habitat Associations of Sea Turtles in the Northern Gulf of Mexico

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Study Objectives

Deploy satellite telemetry tags on juvenile and adult loggerhead, Kemp's Ridley, and Green turtles to

1. Study movement and habitat use

2. Evaluate dive-surface behaviors

Applications and Benefits

1. Improve predictive models of seasonal spatial distribution for use in environmental assessments

2. Develop accurate abundance estimates for size classes detected during aerial surveys by correcting for seasonal and spatial differences in dive-surface behavior

3. Identify high-density areas or residence patterns within certain regions of the Gulf

Previous Gulf Loggerhead Turtle Tag-Telemetry Studies

7 immature foragers tagged on the Texas coast
4 adult males from the Florida west coast
65 nesting females from the Florida west coast

Juveniles remained near tagging site over the continental shelf off Texas and western Louisiana

Adults tagged in the eastern Gulf remained largely in the eastern Gulf over continental shelf waters, though some animals undertook large-scale migrations to the Yucatan Peninsula

Reviewed in Turtle Expert Working Group (2009)

Previous Gulf Kemp's Ridley Turtle Tag-Telemetry Studies

28 Adult females tagged on nesting beaches in southern Texas. Summarized in Shaver and Rubio (2008)

Additional studies of animals in Charlotte Harbor by Mote Marine Lab and earlier studies in waters off of Texas and Florida (Renaud 1995)

Juvenile studies (including dive behavior) off the west coast of Florida (Sasso and Witzel 2006; Schmid 1998)

Kemp's ridleys ranged throughout the northern Gulf in nearshore waters (generally <40m depth)

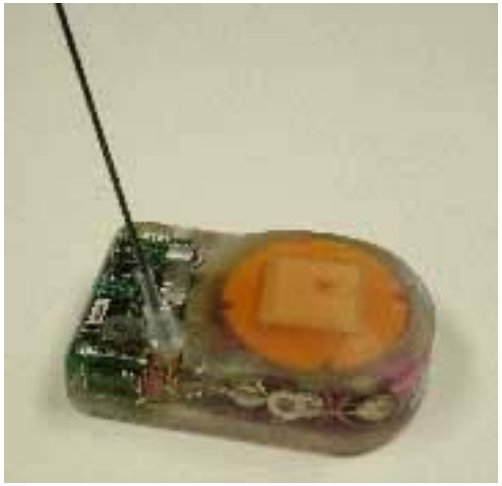
Some Significant Gaps

Most turtles tracked to date were nesting adult females – so very little information on movements and behaviors of larger juveniles

No published studies of adult loggerheads from the western Gulf and only one study of 7 juveniles

Few of the published studies include detailed dive behaviors and surfacing intervals

Tag Type and Deployment



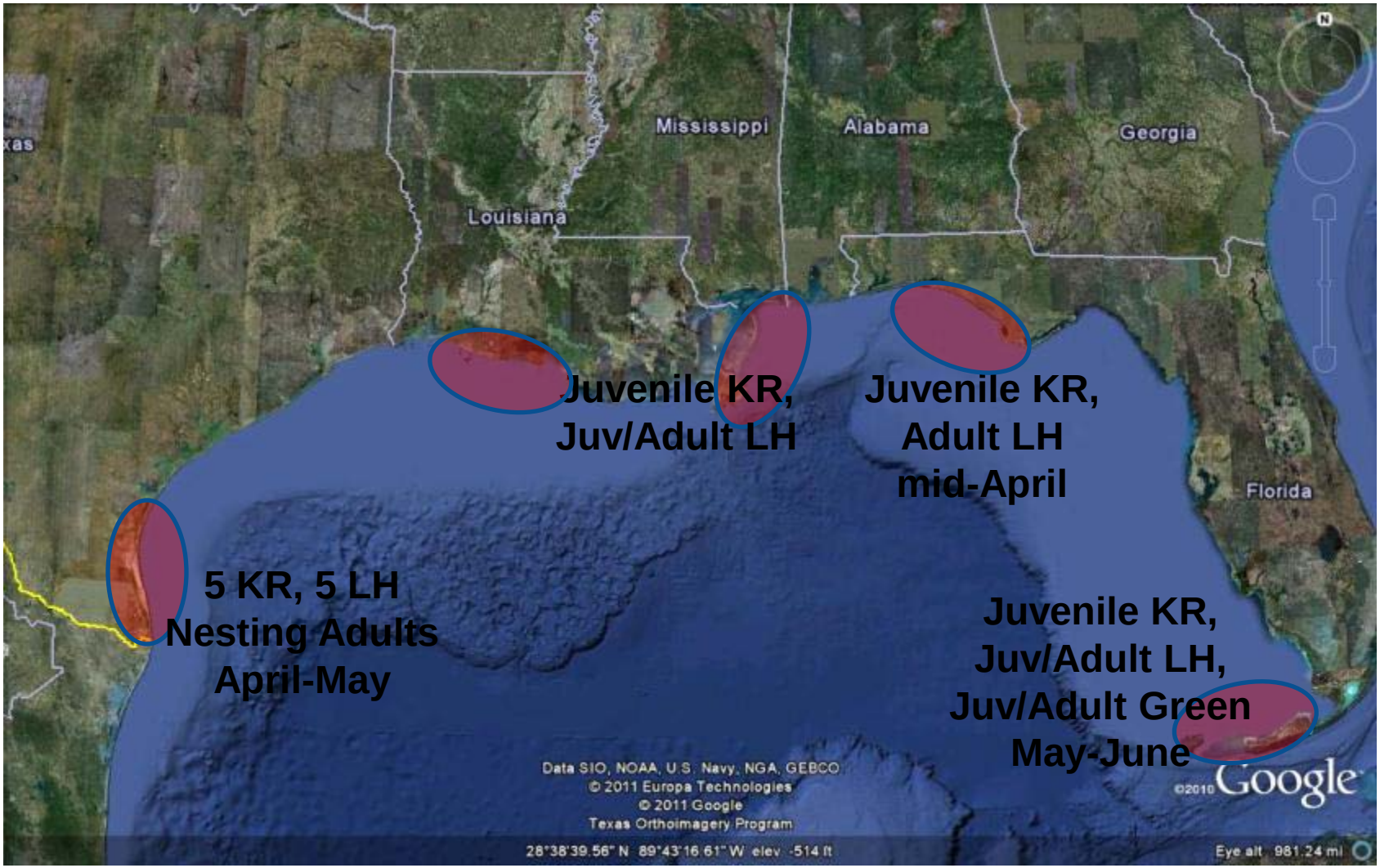
Wildlife Computers MK-10 AF Tag

- Fast-loc GPS for improved position accuracy
- Depth sensors and programming to report binned depth data and dive-duration
- Durations of up to one year

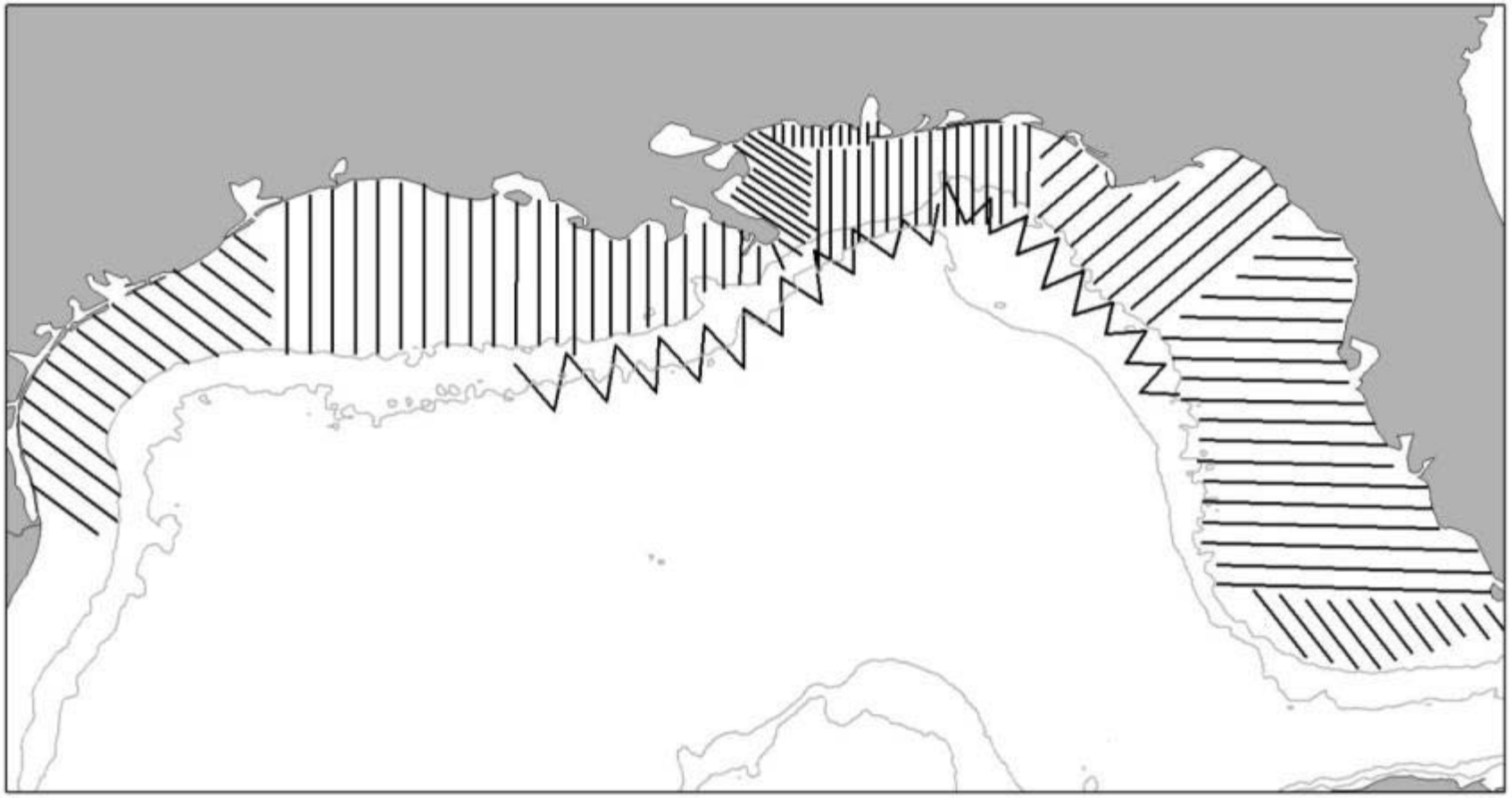
Species and Target Sample Sizes

Species	Number of Juveniles	Number of Adults
Loggerhead	*(50-70 cm CL)* 15	*(>80 cm CL)* 15
Kemp's Ridley	*(40-60 cm CL)* 10	*(>60 cm CL)* 10
Green	*(50-70 cm CL)* 5	*(>80 cm CL)* 5

Planned Deployment Areas



Seasonal NRDA Aerial Surveys



Dive-surface data from tag study will be essential for correcting abundance estimates from these surveys.

Deployment Timeline

Interagency Agreement Between BOEMRE and NMFS
Completed/Signed – August 2010

Funds Received – October 2010 (delayed by fiscal year end)

Tag order placed – November 2010

Tags received – Early March 2011

Deployments planned:

Florida Panhandle – Army Corps Relocation Trawls: mid-April

Padre Island, TX – NRDA Nesting beach studies: April – May

Louisiana, Southern Florida: May – June

References

Renaud, M.L. 1995. Movements and submergence patterns of Kemp's ridley turtles (*Lipidochelys kempii*). Journal of Herpetology 29:370–374.

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Schmid, J.R. 1998. Marine turtle populations on the west-central coast of Florida: Results of tagging studies at the Cedar Keys, Florida, 1986–1995. Fishery Bulletin 95:589–602.

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