

JIMAR – PFRP ANNUAL REPORT FOR FY 2006

P.I./Sponsor Name: Yonat Swimmer, Mike Musyl, Lianne M^cNaughton, Rich Brill

Project Proposal Title: Survivorship, migrations, and diving patterns of sea turtles released from commercial longline fishing gear, determined with pop-up satellite archival transmitters

Funding Agency: NOAA

NOAA Goal (Check those that apply):

- To protect, restore, and manage the use of coastal and ocean resources through ecosystem-base management
- To understand climate variability and change to enhance society’s ability to plan and respond
- To serve society’s needs for weather and water information
- To support the nation’s commerce with information for safe, efficient, and environmentally sound transportation

1. Purpose of the Project (one paragraph)

The objectives of this project are two-fold: 1) to provide estimates of delayed mortality and morbidity in sea turtles following interactions with longline fishing gear, and 2) to compare the movements and behaviors of sea turtles caught and released from longline gear to free-swimming controls. To do this, we’ve deployed pop-up satellite archival tags (PSATs) on longline-caught and free-swimming hard-shelled turtles in the Eastern Tropical Pacific, the North Pacific, and the South Atlantic Oceans.

2. Progress during FY 2006 (One-two paragraphs, including a comparison of the actual accomplishments to the objectives established for the period, and the reasons for slippage if established objectives were not met):

Since July 2005, we have deployed additional PSATs on 9 loggerhead turtles caught and released from longline fishing boats in the Hawaii swordfish fishery in the North Pacific Ocean and on 4 loggerhead turtles released from Brazilian longline vessels in the Southwest Atlantic Ocean. We have trained ca. 40 Brazilian and Hawaii-based at-sea observers in attachment procedures, and also conducted workshops with observers and fishermen on the use of dehooking equipment to encourage use of best-practices for turtle release. We have also begun to deploy PTTs on turtles in Brazil.

The number of turtles we've had access to for such tagging has been somewhat out of our control due to extensive fisheries measures to reduce sea turtle bycatch. Therefore, we deployed tags on as many turtles as possible before the Hawaii swordfish fishery was shut down in March, and also worked with Brazilian colleagues to get tags on turtles. We have had problems with tag retention and with the amount of useful data obtained from the tags.

3. Plans for the next fiscal year (one paragraph):

We are currently working to analyze the data we've collected from all tags deployed on turtles since the beginning of this research project. To date, we have deployed 15 tags on primarily olive ridley turtles (plus one green turtle) caught and released on fishing gear off Costa Rica, 29 on loggerhead turtles and 1 olive ridley turtle in the North Pacific with the assistance of Hawaii and California-based NOAA fisheries observers, and 9 on loggerheads in the Southwest Atlantic Ocean attached by observers from Brazil. We will work cooperatively with Dr. Milani Chaloupka to establish survivorship models to meet our grant's objectives. Additionally, with regards to future tagging efforts in Brazil and in the Hawaii fishery, we will work to improve tag retention and the amount of data obtained from each PSAT. Additionally, turtles' most probable tracks are currently being determined via the Kalman-filter modeling approach. We continue to work with Anders Nielsen to refine these estimates based on incorporation of sea surface temperature data. Regarding the biochemical aspect of this proposed work, we plan to work with Dr. Amanda Southwood from University of North Carolina at Wilmington to analyze blood parameters from blood collected from incidentally-caught loggerhead turtles in Brazil.

4. List of papers published in refereed journals during FY 2006.

Swimmer Y, Musyl Y, Arauz R, McCracken M, M^cNaughton L, Ballestero J, Bigelow K and R. Brill. *In Press*. Survivorship and Dive Behavior of Olive Ridley (*Lepidochelys olivacea*). Sea turtles after their Release from Longline Fishing Gear off Costa Rica. *Marine Ecology Progress Series*. Summer 2006.

Swimmer, Y. *In Press*. Relationship Between Atmospheric Basking and Disease in Captive Green Turtles (*Chelonia mydas*). *Chelonian Conservation and Biology*. Summer 2006.

Swimmer Y, M^cNaughton L, Foley, D., Nielsen, A., Arauz R, and R. Brill. Currently working on. Horizontal Movements of Olive Ridley (*Lepidochelys olivacea*) Sea Turtles after their Release from Longline Fishing Gear and their associated oceanographic correlates in the ETP.

5. Other papers, technical reports, meeting presentations, etc.

Southwood, A., Swimmer, Y. 2006. Biochemical predictors of mortality for sea turtles released from fishing gear: Can physiological data be used to refine post-release

mortality estimates?". [Abstr] In: Proceedings of the 26th Annual Symposium on Sea Turtle Conservation and Biology 4-8 April 2006, Crete, Greece.

Swimmer, Y. and R. Brill, eds. 2006. Sea Turtle and Pelagic Fish Sensory Biology: Developing Techniques to Reduce Sea Turtle Bycatch in Longline Fisheries. NOAA Technical Memorandum NMFS-PIFSC-6. April 2006. 121 p.

Swimmer, Y., Sales, G., Guffoni, B., Thomas J.C. In Press. Sea Turtles and longline fisheries interactions in Brazil: an update on field trials and post-release mortality and movements. [Abstr] In: Proceedings of the 26th Annual Symposium on Sea Turtle Conservation and Biology 4-8 April 2006, Crete, Greece.

Giffoni, B., Sales, G., Neves, CE, Niemeyer-Fiedler, F., Peppes, F. and Y. Swimmer. In Press. Experimento com anzol circular para mitigar a captura de tartarugas marinhas na pescaria de espinhel pelagico [Abstr] In: Proceedings from the Third Meeting of Research and Conservation of Sea Turtles in the Southwestern Atlantic Ocean, 12 -15 November 2005, Rio Grande, Brazil.

6. Graduates (Names of students graduating with MS or PhD degrees during FY 2006. Provide titles of their thesis or dissertation):

n/a

7. Awards (List awards given to JIMAR employees or to the project itself during the period): Fulbright Award given to Yonat Swimmer to include this aspect of the work in her research and teaching in Brazil.

8. Publication Count (Total count of publications for the reporting period and previous periods categorized by NOAA lead author and Institute (or subgrantee) lead author and whether it was peer-reviewed or non peer-reviewed (not including presentations):

	JI Lead Author			NOAA Lead Author			Other Lead Author		
	FY04	FY05	FY06	FY04	FY05	FY06	FY04	FY05	FY06
Peer-reviewed	0	1	0	0	2	2	0	0	0
Non-peer reviewed	5	5	1	3	2	3	0	0	0

9. Students and Post-docs (Number of students and post-docs that were associated with NOAA funded research. Please indicate if they received any NOAA funding. For institutes that award subcontracts, please include information from your subgrantees):

Dr. Amanda Southwood, 100% JIMAR

Lianne McNaughton, 100% JIMAR

10. Personnel:

- (i) Number of employees by job title and terminal degree that received more than 50% support from NOAA, including visiting scientists (this information is not required from subgrantees): 0
- (ii) Number of employees/students that received 100% of their funding from an OAR laboratory and/or are located within that laboratory. 0
- (iii) Number of employees/students that were hired by NOAA during the past year: 0

11. Images and Captions. (JIMAR will be including images in the annual report. Please send two of your best high-resolution, color images (photo, graphic, schematic) as a JPEG or TIFF with a caption for each image. Hardcopies of images can be dropped off at the JIMAR office if no electronic versions are available.



- Caption 1: Movements of 3 loggerhead sea turtles after their release from longline fishing gear in the Southwest Atlantic Ocean. PSATs attached by Brazilian fisheries observers. Turtles' most probable tracks were determined using a KFSST model in collaboration with Dr. Anders Nielsen.