

JIMAR – PFRP ANNUAL REPORT FOR FY 2007

P.I./Sponsor Name: Yonat Swimmer, Rich Brill, Mike Musyl, Lianne McNaughton

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)

To provide estimates of post-release mortality of hard shelled sea turtles caught and released in longline fishing gear. Our research set out to tag sea turtles with both pop-off satellite archival tags (PSATs) as well as platform terminal transmitters (PTTs) in order to track the movements of turtles after their release from a fisheries encounter. We have worked with observers in numerous foreign longline fisheries with relatively high sea turtle encounter rates in order to tag as many individual turtles as possible. An original goal to compare the movements of longline-caught turtles to “controls” was previously completed (see publication list). Additionally, we sought to use biochemical parameters of incidentally-caught and released turtles to determine likelihood of mortality associated with different types of hooking (e.g. deep or shallow).

2. Progress during FY 2007 (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):

In the past 4 years, we have trained over 75 observers in Hawaii, California, Brazil and Costa Rica. During FY07, we accomplished the following work (related to this grant) in these countries:

Brazil: Working with collaborating scientists and fishermen, we tagged an additional 4 loggerhead sea turtles with PTT's. We currently have tracking data (in various stages, some still tracking) for 12 loggerhead turtles released from fishing gear. We trained the observers during previous years, and this year we had the observers attach slightly fewer PTT's as we had anticipated, and this was largely due to a delayed start in the fishery (February vs. November) as a result in limited availability of the correct bait for the fishing experiments.

Costa Rica: We used the Kalman filter (with SST component) to identify the most probable tracks of 11 olive ridley turtles tagged during previous years. We also worked with collaborators at the NOAA SWSC- Environmental Research Division in Monterey, California to correlate turtles' movements with oceanographic features.

This work is nearly complete and an ms is in process.

California/Hawaii: Working with Milani Chaloupka, a contracted collaborator, we used a Bayesian approach to interpret PSAT data from loggerhead sea turtles tracked in the N. Pacific Ocean after their release from commercial longline vessels. These turtles were tagged and released from commercial vessels during 2001-2006.

Biochemical parameters study: We have successfully subcontracted this work to Amanda Southwood at the University of N. Carolina, Wilmington, and we have assisted in her ability to acquire blood samples through our collaborative research efforts.

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

Write papers on results. Specifically, we will finish the work with Milani Chaloupka and submit to a journal by Fall 2007. We will also write up the results from the olive ridley turtle movements and FFSST with a goal of submission by December 2007.

4. List of papers published in refereed journals during FY 2007.

Swimmer, Y. 2006. Relationship Between Atmospheric Basking and Disease in Captive Green Turtles (*Chelonia mydas*). *Chelonian Conservation and Biology* 5 (2): 305-309.

Swimmer Y, Musyl Y, Arauz R, McCracken M, M^cNaughton L, Ballestero J, Bigelow K and R. Brill. 2006. Survivorship and Dive Behavior of Olive Ridley (*Lepidochelys olivacea*). Sea turtles after their Release from Longline Fishing Gear off Costa Rica. *Mar Ecol Prog Ser* Vol. 323: 253-261.

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

Swimmer, Y., McNaughton, L., Southwood, A., Brill, R., 2007. Tests of Repellent Bait to Reduce Sea Turtle Bycatch in Longline Fisheries. *Bycatch Communication Network Newsletter* (5) pp. 18-20.

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-TM-NMFS-PIFSC-7. April 2006. 106 p.

Swimmer and Chaloupka. 2006. Bayesian semiparametric modelling of factors affecting post-release mortality of loggerheads in the North Pacific: Preliminary results. Presented at the PFRP PI Meeting, Nov. 2006, University of Hawaii.

6. Graduates (Names of students graduating with MS or PhD degrees during FY 2007. 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): n/a

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):

	JL Lead Author			NOAA Lead Author			Other Lead Author		
	FY05	FY06	FY07	FY05	FY06	FY07	FY05	FY06	FY07
Peer-reviewed	0	0	0	2	1	2	0	0	0
Non-peer reviewed	0	0	0	2	3	4	2	3	3

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):

0

10. Personnel:

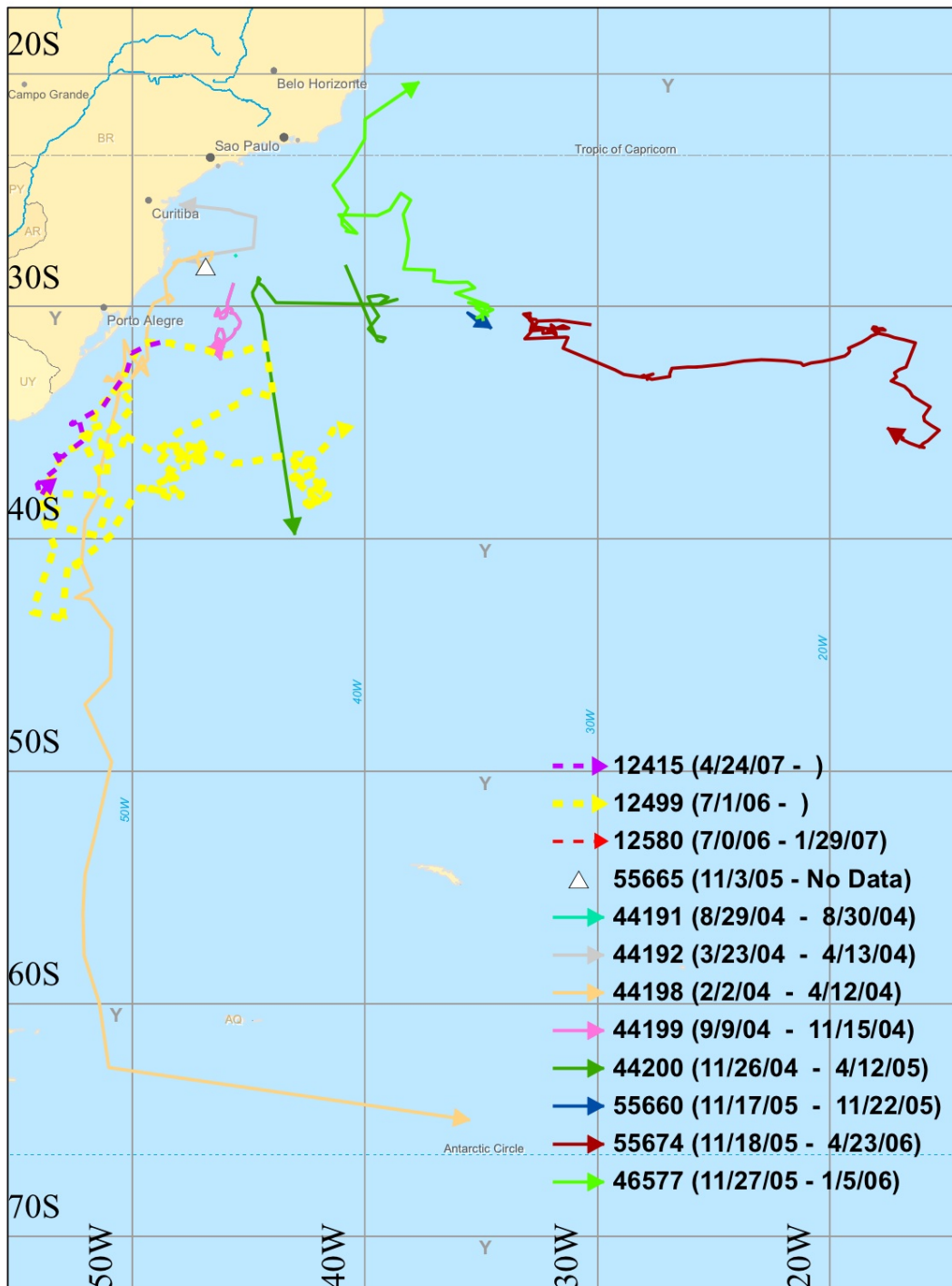
(i) Number of employees by job title and terminal degree that received more than 50% support from NOAA, including visiting scientists (this information is not required from subgrantees): 2

(ii) Number of employees/students that received 100% of their funding from an OAR laboratory and/or are located within that laboratory. 0

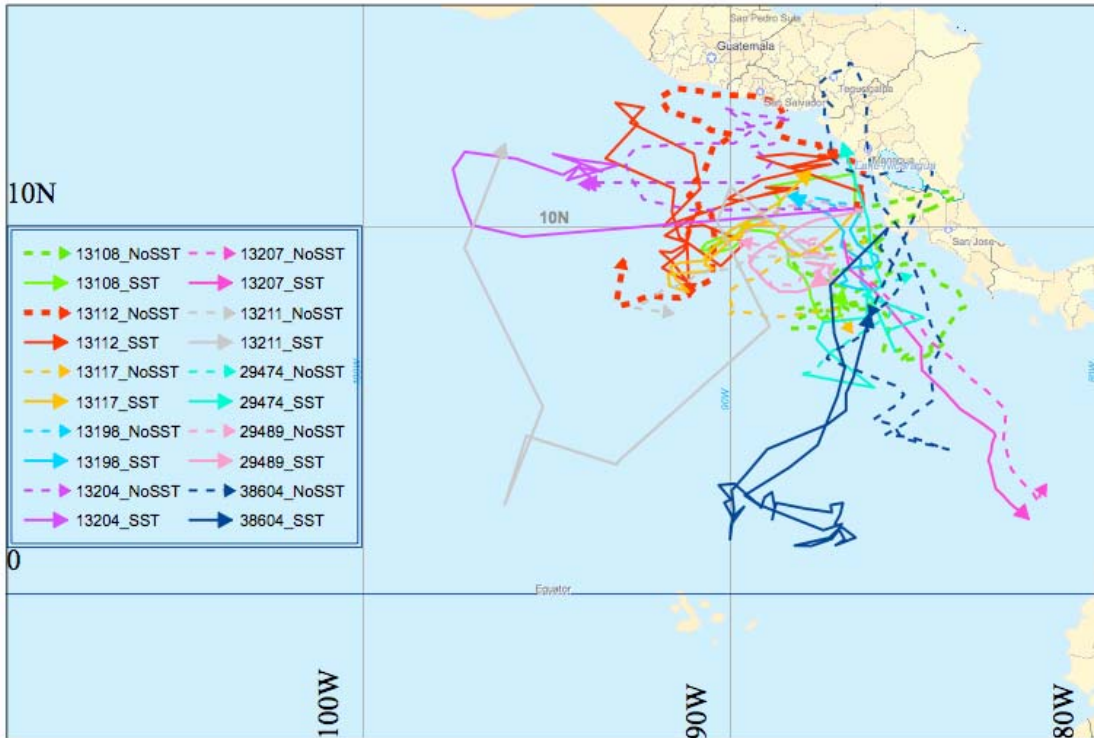
(iii) Number of employees/students that were hired by NOAA during the past year:

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 loggerhead sea turtles as tracked with PSATs or PTTs after their release from commercial longline fishing gear off the coast of Brazil (courtesy of Lianne M^cNaughton).



● Caption 2: Movements of olive ridley sea turtles tracked after their release from longline fishing gear off the coast of Costa Rica. Most probable tracks are from light-based geolocations filtered with the Kalman filter both with (solid line) and without (dashed line) incorporation of SST (courtesy of Lianne M^cNaughton).