

**LARGE PELAGICS RESEARCH CENTER
SEMI-ANNUAL PROGRESS REPORT**



Report: #3

Reporting Period: 5/30/2007 – 05/30/2008

Project Title: Habitat utilization and movement patterns of porbeagle sharks (*Lamna nasus*) in the North Atlantic.

Principal Investigator(s): Gregory Skomal, Lisa Natanson, Nancy Kohler, Diego Bernal

1. Purpose of the Project: (one paragraph):

The primary objective of the proposed study is to deploy pop-up satellite (PSAT) tags to examine the migratory routes, potential nursery areas, swimming behavior, and environmental associations that characterize habitat utilization by the porbeagle shark.

2. Progress during the last six months: (one-two paragraphs including a comparison between the proposed objectives and the actual accomplishments achieved.)

The study has moved forward as proposed. During this reporting period, 17 out of 20 PSAT tags deployed on juvenile porbeagle sharks (128-154 cm FL) from the F/V Eagle Eye II on George's Bank in November, 2006 popped up as programmed on March 20 (n=5), July 20 (n=7 including 2 early), and November 20 (n=5 including 2 early), 2007.

Data from these tags were compiled, processed, and analyzed for trends in spatial use as it relates to temperature, season, and depth.

3. Preliminary Data:

Based on known and derived geositions, the porbeagles exhibited broad seasonally-dependent horizontal and vertical movements ranging from 77-870 km and from the surface to 1300 m, respectively. All of the sharks remained in the western North Atlantic from the Gulf of St. Lawrence and the coast of Nova Scotia to Georges Bank and oceanic and shelf waters south to North Carolina. In general, the population appears to contract during the summer and fall with more expansive radiation in the winter and spring. Although sharks moved through temperatures ranging from 2-26°C, the bulk of their time (77%) was spent in water ranging from 8-16°C. In the spring and summer months, the sharks remained epipelagic in the upper 200 m of the water column. In the late fall and winter months, some of the porbeagles (n=10) moved to mesopelagic depths (200-1000 m). Temperature records indicate that these fish were likely associated with the Gulf Stream.

4. Difficulties: (Provide details for any delays in meeting milestones and how they are being resolved).

None to date.

5. Plans for the next six months to year: (one paragraph)

Spatial and temporal analyses of the data are ongoing. These include the incorporation of conventional tag/recapture data (NMFS database) and statistical modeling to assess relationships between porbeagle behavior and environmental variables. Project completion, marked by the submission of peer-reviewed manuscript(s), is expected in late summer, 2008. Results of the study will be disseminated at the annual meeting of the American Elasmobranch Society (July, 2008) in Montreal.

6. Dissemination

Publications: In preparation.

Workshops: Preliminary findings were presented at the LPRC principal investigator meeting May 1, 2008.

Conferences: American Elasmobranch Society, Montreal, Canada, July 23-28, 2008.

Manuals, Protocols:

Outreach Activities: This research has been highlighted in no less than 12 public presentations made by G. Skomal as part of the outreach campaign of the MA Shark Research Program.

Patent, Copyright, Invention Disclosure Activity:

7. Collaborators and Personnel: (list collaborators and personnel working on this project, include terminal degree and institution not listed on the proposal).

In addition to the principal investigators, this project has been assisted by:

John Chisholm, MA Marine Fisheries Biologist, MS - Univ. of Massachusetts
Heather Marshall, MS student - Univ. of Massachusetts, Bernal Lab
Ben Galuardi, LPRC

8. Students: (list students receiving funding, degree type, anticipated graduation date, thesis or dissertation title)

Although a student participated, she was not funded by this grant.

Note: Information provided will be included in the Center's reports to NMFS-NOAA and made public through the center's website. Clearly indicate any confidential information that you do not wish to make public at this time.

9. Images and Captions: Please send two or three high resolution images (preferably in color) of people at work, graphic data, schematics, etc. as JPEG images. Include appropriate photo/analysis credit. Images will be used in the Center's reports to NOAA and on the Center's website to highlight your research.

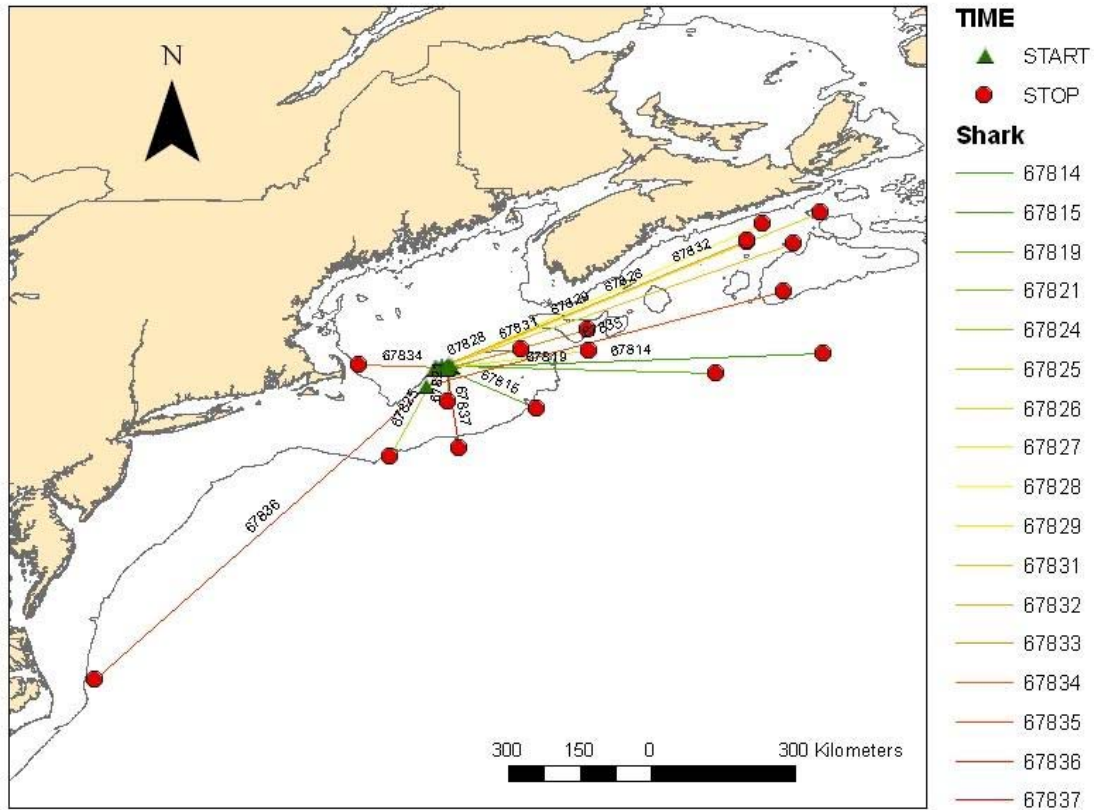


Figure 1: Porbeagle pop-ups.jpg
Caption 1: Pop-up locations of PSAT-tagged porbeagles

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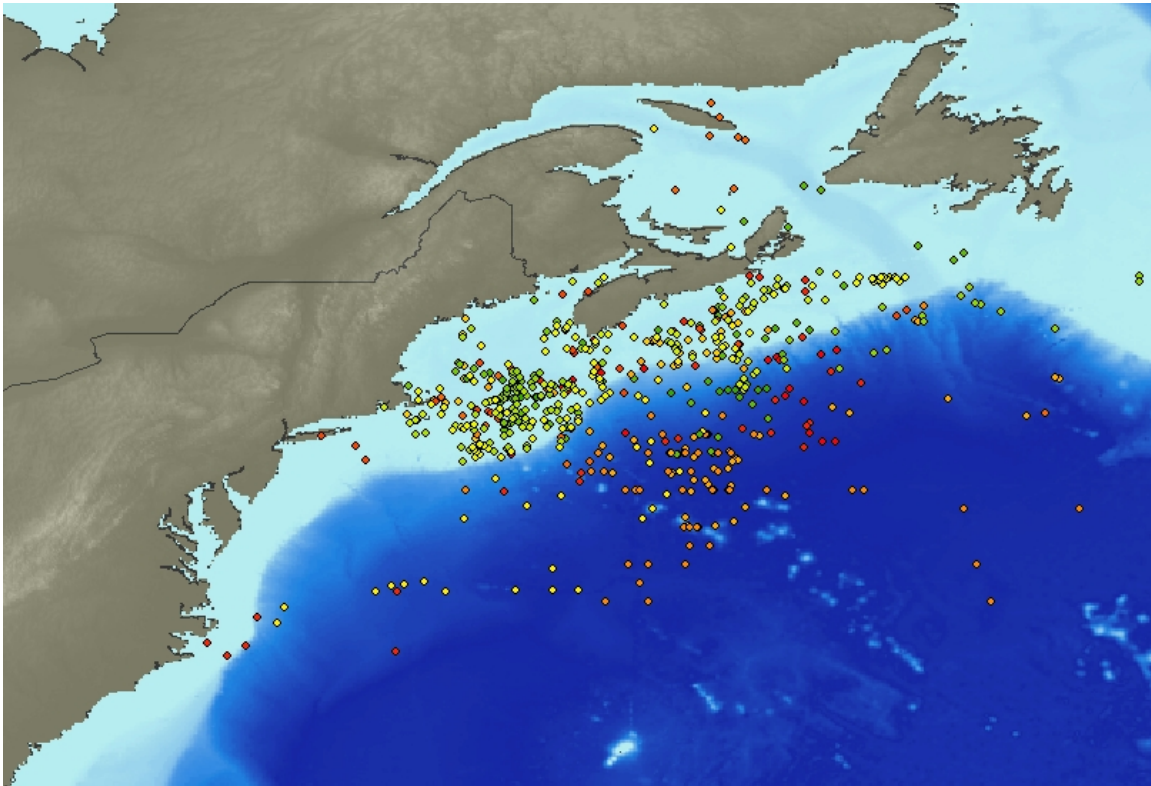


Figure 2: Porbeagle_sharks.jpg

Caption 2: Estimated geolocations of PSAT-tagged porbeagle sharks

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