1. Purpose of the Project (one paragraph)

Construct a bio-economic model to explore tradeoffs between sea turtle take reductions and economic return for the Hawaii-based longline fishery. Through simulation analysis of multiple time and area closures, the study assesses possible policy options that allow fishing opportunity to be maximized without exceeding the caps on sea turtle interactions.

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):

- Developed a bio-economic model to explore tradeoffs between sea turtle take reductions and economic returns. Generalized Additive Models were applied to predict sea turtle interactions, and a cost function based on a regression analysis was built into the model to assess economic returns.

- Performed simulation analysis of time and area closures. The study assessed possible policy options that allow fishing opportunity to be maximized without exceeding the caps on sea turtle interactions. Several levels of fishing effort were...
employed in the evaluations. The study provided a suite of feasible policy options for the management of the shallow-set Hawaii-based longline fishery that targets swordfish.

- Finished a draft of the technical report (for JIMAR publication) and a draft manuscript targeting journal publication. These drafts were under review and revision.

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

The plan for FY2008 is to continue working on manuscripts for publications and to prepare new research proposal and apply for a new PFRP project regarding policy choices and impacts analysis under management of overfishing and climate change for the Hawaii-based longline fishery.


N/A

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


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):

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<th>JI Lead Author</th>
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<td>Non-peer</td>
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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):

N/A

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):

1

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

N/A

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

N/A

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 of TIFF with a caption for each image. Hardcopies of
Flexible Allocation of Fishing Effort by Month (Cumulative AE)

Multiple Combinations of Time and Area Closures

Spatial and Monthly Rates of Economic Return, Fish Catch and Sea Turtle Bycatch in Open Area(s)

Cumulative Loggerhead (LG) and Leatherback Bycatch by Month (LE)

Cumulative Net Revenue, Revenue, Swordfish Catch, and Other Fish Catch by Month

Iteration + 1 (Next Month)

Stop All Calculations to Previous Month

Caps of Loggerhead (CLG) (e.g., 17) and Leatherback (e.g., 16) (CLE)

LG >= CLG? or LE >= CLE?

Yes

No

Limit of Fishing Effort (FE) (e.g., 2120 Sets)

FE >= AE?

Yes

No

1994 to 2006 Longline Logbook Data; 2005 Auction Data and Cost-earnings Survey Data; 2002 to 2006 GAM Predicted Turtle Bycatch

images can be dropped off at the JIMAR office if no electronic versions are available.
Caption 1: Flow Diagram for Time and Area Closure Simulation Model

Caption 2: A example of Trade-offs of sea turtle takes and economic returns under various policy alternatives

12. For multi-year projects, provide budget for the next year on a separate page. Contact Dodie Lau to confirm whether or not your project is to receive continuation funds (e.g., year 2, year 3), and for budget preparation assistance, lau@hawaii.edu