**JIMAR – PFRP ANNUAL REPORT FOR FY 2007**

P.I./Sponsor Name:  John Sibert (Mark Maunder)

Project Proposal Title:  A General Bayesian Integrated Population Dynamics Model for Protected Species

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 objective of the project is to generate a general Bayesian integrated modeling framework for protected species modeling that can be applied to multiple species and used to provide management advice. Models will be developed based on the general framework and used to estimate the effect of fisheries on the protected species populations.

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):
The application of the general framework to the black footed albatross and the yellow-eyed penguin was completed and the results presented as a poster at the EURING conference. In addition, a presentation titled "Comparison of estimators for mark-recapture models using AD Model Builder" using the penguin and albatross mark-recapture data was given at the EURING conference and a manuscript has been prepared and submitted for the proceedings. The application of the general framework to the Tern Island population of black footed albatross has not been completed and was not presented at the EURING conference. The lack of completion of this project is due to staff changes at the IATTC. The ADMB course was not taught in Seattle due to lack of interest by statisticians. MM attended the Stock Synthesis II workshop in Seattle, but did not attend the PI meeting in Hawaii due to the low relevance of the theme topic. We conducted research into methods to include information in models of protected species and to

estimate uncertainty. In particular, the research on random effects presented at the EURING conference. We collaborated with Tore Schweder at the Centre for Ecological and Evolutionary Synthesis to investigate bias in assessment models and use of confidence distributions to represent uncertainty. MM attended a related workshop in Norway, funded by the Centre for Ecological and Evolutionary Synthesis and a manuscript is in preparation. Collaboration with Jaume Forcada at the British Antarctic Survey continued on a limited basis.

A simplified general model for protected species designed to include multiple sources of mortality on multiple populations was developed. This model was based on using the Baranov catch equation to model the multiple sources of mortality. A preliminary model was developed in AD Model Builder and applied to the Hawaiian black footed albatross population. Dr Carlos Alvarez-Flores was contracted to complete the model and application. MM collaborated with Jon Schnute and James Ianelli to outline future prospects of a software framework for fisheries stock assessment. Much of this software framework is based on concepts used in this project. A book chapter and a journal article have been accepted for publication.


3.  Plans for the next fiscal year (one paragraph):
The application of the general framework to the Tern Island population of black footed albatross and the simplified general model for protected species will be completed and the results presented at the PFRP funded albatross modeling workshop to be held in Hawaii on November  7-9, 2007.

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


5.  Other papers, technical reports, meeting presentations, etc.
Comparison of estimators for mark-recapture models using AD Model Builder. Mark N. Maunder, Hans J. Skaug, and Simon D. Hoyle. EURING 2007 Technical Meeting, January 14-21, 2007, Dunedin, New Zealand

Evaluating fishery impact on a yellow-eyed penguin population using mark-recapture data. Mark N. Maunder, David M. Houston, Alistair Dunn, Philip J. Seddon, and Terese H. Kendrick. EURING 2007 Technical Meeting, January 14-21, 2007, Dunedin, New Zealand

6.  Graduates (Names of students graduating with MS or PhD degrees during FY 2007.
     Provide titles of their thesis or dissertation):
NA

7.  Awards (List awards given to JIMAR employees or to the project itself during the
     period):  NA

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 |  |  |  |  |  |  | 3 |  |  |
| Non-peer reviewed |  |  |  |  |  |  | 1 |  |  |

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):
NA

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):  0A

   (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 of 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:

   ● Caption 2:

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 receiving continuation funds (e.g., year 2, year 3), and for budget preparation assistance, lau@hawaii.edu