JIMAR – PFRP ANNUAL REPORT FOR FY 2007

P.I./Sponsor Name: John Sibert, William A. Walsh and Keith A. Bigelow (co-PIs)

Project Proposal Title: "Evaluation of Data Quality for Catches of Several Pelagic Management Unit Species by Hawai'i-based Longline Vessels and Exploratory Analyses of Historical Catch Records from Japanese Longline Vessels"

Funding Agency: NOAA

NOAA Goal (Check those that apply):

- **X** To protect, restore, and manage the use of coastal and ocean resources through ecosystem-based 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)

This project was intended to generate well-documented and verified data sets for use in multi-species modeling efforts. The work continued and expanded upon two previous Pelagic Fisheries Research Program (PFRP) projects ("Distributions, Histories, and Recent Catch Trends with Six Fish Taxa Taken as Incidental Catch by the Hawaii-based Commercial Longline Fishery" by W.A. Walsh and S.G. Pooley, and "Comparisons of Catch Rates for Target and Incidentally Taken Fishes in Widely Separated Areas of the Pacific Ocean" by W.A. Walsh and S.G. Pooley.

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):

This project has been completed. Related activities in FY 2006 consisted of completion of a paper summarizing the results ("Corrected Catch Histories and Logbook Accuracy for Billfishes (Istiophoridae) in the Hawaii-based Longline Fishery", by William A. Walsh, Keith A. Bigelow, and Russell Y. Ito. It is now in the final stages of in-house review at the Pacific Islands Fisheries Science Center. The paper will be submitted to the peer-reviewed journal Fisheries Research; the expected submittal date is July or August 2007. The Abstract from the paper follows.

Abstract

This paper presents corrected catch histories, standardized catch rates, and evaluations of the accuracy of federally mandated commercial logbooks for billfishes (Istiophoridae: blue marlin, Makaira nigricans, striped marlin, Tetrapturus audax, shortbill spearfish, T. angustirostris, black marlin, M. indica, and sailfish, Istiophorus platypterus) taken as incidental catch by the Hawaii-based longline fishery. The study (March 1994–February 2004) was undertaken because billfish misidentifications in logbooks caused by similarities in body size, shape, and coloration have long represented a major challenge in monitoring this fishery. The objective was to improve understanding of the composition and magnitude of incidental billfish catches. This paper represents a substantive expansion upon an earlier, published analysis of blue marlin catch data by using a longer time series, including all of the istiophorid billfishes taken by this fishery, and providing estimates of standardized catch rates. Results generated by fitting generalized additive models to fishery observer data, applying the model coefficients to the corresponding predictor variables in logbook reports, and comparing the logbook results to sales records documented that the nominal catch data for all species were significantly biased, with inflated estimates for blue marlin, black marlin, and sailfish and negatively biased totals for striped marlin and shortbill spearfish. These biases were caused primarily by misidentifications, the most common of which was striped marlin logged as blue. Sailfish, and to a greater extent, black marlin, were rare in the incidental catch of this fishery. After correction of the data, striped marlin was shown to be the dominant species, in both numbers and biomass. Bycatch of billfishes appeared to be rather minor in scope, primarily involving discards of striped marlin and small shortbill spearfish at times of peak abundance. Standardized catch rates for blue marlin, striped marlin, and shortbill spearfish appeared stable during this short 10-year time series. We conclude that nominal catch data for billfishes can be highly biased as a result of mistakes by a small number of fishermen, even in a carefully monitored fishery, and that the techniques employed herein proved useful in identifying, characterizing, and correcting such bias. The corrected data will serve as the foundation for a research database intended for use in stock assessments and ecosystem-based research.

3. Plans for the next fiscal year (one paragraph): None

4. List of papers published in refereed journals during FY 2007. None

5. Other papers, technical reports, meeting presentations, etc. None

6. Graduates (Names of students graduating with MS or PhD degrees during FY 2006. Provide titles of their thesis or dissertation): None

7. Awards (List awards given to JIMAR employees or to the project itself during the period): None

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		
	FY05	FY06	FY07	FY05	FY06	FY07	FY05	FY06	FY07
Peer-reviewed									
Non-peer reviewed									

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):

None

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): This project did not support anyone in FY 2007

(ii) Number of employees/students that received 100% of their funding from an OAR laboratory and/or are located within that laboratory.
None

(iii) Number of employees/students that were hired by NOAA during the past year:
None

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.

Not applicable

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

No funds are requested. A small amount of money (approx. $1000) remains in this budget and should suffice to cover publication costs.