

JIMAR – PFRP ANNUAL REPORT FOR FY 2007

P.I./Sponsor Name: John Sibert, Keith Bigelow, Adam Langley and John Hampton

Project Proposal Title: Fishery Dynamics in the Samoan Archipelago

Funding Agency: NOAA

NOAA Goal (Check those that apply):

- ☒ X 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 purpose of the project is to improve understanding of the dynamics of south Pacific albacore. Major objectives include: 1) to analyze the spatial and temporal dynamics and fishery interaction of longline fisheries within and around the American Samoa EEZ, 2) to compare albacore fishery dynamics in other Pacific Island Countries and Territories (PICTs) longline fisheries and 3) to improve the regional albacore stock assessment.

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):

Objective 1: A Fisheries Research Analyst started working on the project in January 2006. Longline logbook data were merged with oceanographic data (e.g., sea surface temperature, ocean color, dynamic height and subsurface temperature measurements) using spatio-temporal information. The resulting dataset was used to investigate variations in catch of the American Samoa based longline fishery. Generalized Linear Models (GLMs) and General Linear Mixed Models (GLMMs) were the exploratory statistical tools employed with a negative binomial error distribution. Results indicated, that catch is linearly related to effort. Catch and landings were largely explained by vessel size and effort.

Objective 2: A co-PI (AL) completed an analysis of south Pacific albacore dynamics for the Fiji and French Polynesia longline fisheries. Results indicated that catch and CPUE appeared directly related to seasonal fluctuations and trends in fisheries in adjacent EEZ waters are likely to be influenced by similar variations in oceanographic conditions.

Inter-annual variation in albacore catch rates were also evident in most of the PICT fisheries. The sustained period of low catch rates that commenced in late 2002 appears to be attributable to inter-annual variation in oceanographic conditions and at a local scale, very high levels of fishing effort appear to be capable of causing localized depletion of albacore tuna.

Objective 3: Considerable reappraisal of the underlying model structure of the south Pacific albacore stock assessment was conducted in 2005 and 2006. Investigations in 2005 included: appropriate stratification of the model spatially and by fishery, investigation of the performance of the model to the assumptions of seasonal movement between model regions, ability to estimate age specific natural mortality, and various sensitivity analyses with regard to the assumptions of the number of age classes and initial conditions. Investigations in 2006 included key biological inputs such as growth, natural mortality, and age at maturity.

Results of the project were presented at a south Pacific albacore fisheries forum sponsored in September 2006 by the Western Pacific Regional Fisheries Management Council.

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

Plans for the last fiscal year of the project will complete the analyses on fishery dynamics in the Samoan archipelago. Aspects of the albacore availability due to operational and oceanographic effects and local depletion will be analyzed with various statistical models.

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

None

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

Langley, A. 2006. The south Pacific albacore fishery: a summary of the status of the stock and fishery management issues of relevance to Pacific Island countries and territories. SPC Oceanic Fisheries Programme, Tech. Rep. No. 37.

Langley, A. and J. Hampton. 2006. An update of the stock assessment for South Pacific albacore tuna, including an investigation of the sensitivity to key biological parameters included in the model. WP SA-4, WCPFC-SC2, Manila, Philippines, 7-18 August 2006.

Kienzle, M. 2006. Statistical analysis on the trends of calbacore in American Samoa. First Workshop on South Pacific Albacore Longline Fisheries, September 19-21, 2006, Honolulu, Hawaii.

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								1	2

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 grant provided salary support for Marco Kienzle (PFRP/JIMAR, Fisheries Research Analyst, c/o Pacific Islands Fisheries Science Center).

- (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 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:

- 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
Not applicable, final year of funding received.