

JIMAR ANNUAL REPORT FOR FY 2008

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NOAA OFFICE (Of the primary technical contract): PIFSC

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-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

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.

PROGRESS DURING FY 2008 (One-two paragraphs, including a comparison of the actual accomplishments to the objectives established for the period, and the reasons for the slippage if established objectives were not met):

Objective 1: American Samoa 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 and landings were largely explained by vessel size and effort. Oceanographic variables contributed little to explaining catch or CPUE in the fishery, due possibly to a spatial mismatch between the longline set and remotely-sensed variables and/or albacore tuna occupy upper portions of the thermocline where oceanography is not defined well from surface measurements.

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 was 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: A full south Pacific albacore assessment will be completed in July 2008 and reviewed at the 4th Scientific Committee of the Western and Central Pacific Fisheries Commission (August 2008). Previous assessments were based on 5°-month catch and effort data from distant-water (Japan, Korea and Taiwan) fisheries. Considerable reappraisal of the CPUE time-series was conducted by developing an albacore targeted fleet of distant-water vessels landing in Pago Pago, American Samoa and Levuka, Fiji. Operational level data consisted of >450,000 longline sets from 1960–2007. Results indicated better coherence in CPUE amongst fleets in the albacore targeted fleet compared to aggregated (5°-month) data. The development of an albacore targeted fleet allows catchability to be constrained (i.e. no time-series variation) in the assessment, an important structural assumption that reduces uncertainty compared to previous assessments.

PLANS FOR THE NEXT FISCAL YEAR (One paragraph):

Plans for the last fiscal year of the project will: (1) address effects of local depletion in American Samoa with various statistical models; (2) continue analysis of longline gear depth with data collected within Fisheries Disaster Relief Project (with the ~4.3K of remaining funds); and (3) publish one paper on the spatial and temporal dynamics in the American Samoa longline fishery or incorporating south Pacific albacore targeted fisheries into a regional assessment.

LIST OF PAPERS PUBLISHED IN REFERRED JOURNALS DURING FY 2008, in the following format: (Author or authors with last name and initials, publication year: Article title. *Journal name*, volume, page range.)

None

OTHER PAPERS, TECHNICAL REPORTS, ETC.:

Influence of oceanography on albacore (*Thunnus alalunga*) longline catch in American Samoa, Marco Kienzle (manuscript in review)

GRADUATES (Names of students graduating with MS or PhD degrees during FY 2008; Titles of their Thesis or Dissertation): None

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

PUBLICATION COUNT (Total count of publications for the reporting period and 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
Peer Reviewed			
Non-Peer Reviewed	1		

PERSONNEL:

For projects that awarded subcontracts in the fiscal year, please provide the number of supported postdocs and students from each subgrantee. N/A

IMAGES AND CAPTIONS (We will also be including images for the annual report.

Please send two of your best high-resolution, color images (photo, graphic, schematic) as a **JPEG or TIFF (300 dpi)** with a caption for each image. If you do not have an electronic version of the image, a hardcopy version may be dropped off at the JIMAR office located in the Marine Sciences Building, Room 312):

- Caption 1:
- Caption 2: