

JIMAR – PFRP ANNUAL REPORT FOR FY 2008

P.I./SPONSOR NAME: David Itano and Kim Holland

NOAA OFFICE (Of the primary technical contact): PIFSC

PROJECT PROPOSAL TITLE: The Associative Dynamics of Tropical Tuna to a Large-scale Anchored FAD Array

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

PURPOSE OF THE PROJECT (one paragraph)

The purpose of this project is to apply acoustic tags and tuna monitoring techniques developed in Hawaii on a small-scale anchored FAD array to a larger system exploited by industrial-scale fisheries. The project was designed as an integral component of a medium-scale tuna tagging/assessment project of the Secretariat of the Pacific Community in conjunction with the National Fisheries Authority of Papua New Guinea. That PNG-linked project was part of Phase 1 of a larger-scale Pacific Tuna Tagging Project that encompasses the entire central and western Pacific Region. The project used a combination of tag types to address several critical issues of tuna movement and behavior in the Papua New Guinea EEZ that is being heavily exploited by domestic purse seine effort on a large-scale array of anchored FADs. The PFRP portion of the PNG Tagging Project funded acoustic tagging of skipjack, yellowfin and bigeye tuna to examine fine scale behavior of tuna resources aggregated to this large number of anchored FADs useful for management purposes.

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 slippage if established objectives were not met):

The fieldwork for this project, consisting of six months of tagging cruises in Papua New Guinea waters concluded in May 2007 (FY 07). The tagging cruises equipped seven groups of anchored FADs with Vemco VR2 automated fish monitoring receivers as

per the funding proposal protocols in the Bismarck and Solomon Seas of PNG. Vemco V9 and V9P sonic tags were surgically implanted and released in association with monitor-equipped FADs (69 skipjack, 135 yellowfin, 18 bigeye tuna). Monitors on five FAD groups were recouperated by the tagging vessel before the end of the tagging charter with data successfully downloaded. Two monitored FAD groups were left to collect additional data and were recovered and downloaded in FY 08. The project met all tag release goals set out in the proposal except for bigeye tuna which were simply not available in sufficient numbers during the tagging cruises. The associative dynamics of tuna to seamounts in PNG was not addressed due to a lack of tuna encountered on the few seamounts investigated during the field cruises.

Acoustic data was analyzed during FY 08 and results presented at meetings noted in section 5 below. Work progressed on the publication of results of the project and was accepted for publication. The PIs of this project assisted the National Fisheries Authority of PNG in the planning of continued acoustic tagging work of bigeye tuna. All funds for the project were expended during FY 08 officially ending the project activity but analysis of acoustic data will continue.

PLANS FOR THE NEXT FISCAL YEAR (one paragraph):

The project funding ended in FY 08. However, sonic data will continue to be analyzed to examine aspects of time-residence, inter-FAD movement and vertical behavior of tropical tuna in close association with a large number of anchored FADs. The sonic data will be combined with results from archival tagging data for further publication and presentation at relevant meetings and conferences.

LIST OF PAPERS PUBLISHED IN REFEREED JOURNALS DURING FY 2008.

Leroy, B., D. G. Itano, T. Usu, S. Nicol, K. Holland, and J. Hampton. (accepted). **Vertical behavior, habitat preference and the observation of FAD effects on tropical tuna in the warm-pool of the Western Pacific Ocean.** Proceedings of the Second International Symposium on Tagging and Tracking of Marine Fish with Electronic Devices, October 8-11, 2007, San Sebastian, SPAIN.

OTHER PAPERS, TECHNICAL REPORTS, ETC.:

The preliminary results from acoustic tagging data were presented at the Western and Central Pacific Fishery Commission, Scientific Committee Third Regular Session, 13-24 August 2007, Honolulu, USA. The following paper was presented and circulated:

Leroy, B., D. G. Itano, and S. Nicol. **Preliminary analysis and observations on the vertical behaviour of WCPO skipjack, yellowfin and bigeye tuna in association with anchored FADs, as indicated by acoustic and archival tagging data.** WCPFC-SC3 BI WP-4.

Project results were presented to the Second International Symposium on Tagging and Tracking of Marine Fish with Electronic Devices, October 8-11, 2007, San Sebastian, SPAIN. The following presentation was provided:

Leroy, B., D. G. Itano, S. Nicol, and K. Holland. 2007. **Preliminary observations on the vertical behaviour of skipjack, yellowfin and bigeye tuna found in association with anchored FADs around Papua New Guinea, as indicated by acoustic and archival tagging data.**

Project results were also presented to the Pelagic Fisheries Research Program, Principal Investigators Workshop in November, 2007. The following presentation was provided: Leroy, B., D. G. Itano, S. Nicol, and K. Holland. 2007. **Using acoustic and archival tagging data to refine estimates of vulnerability of tropical tuna exploited by WCPO purse seine fisheries**

GRADUATES (Names of students graduating with MS or PhD degrees during FY 2008.

Provide titles of their thesis or dissertation):

None

AWARDS (List awards given to JIMAR employees or to the project itself during the period): The Executive Director of the Western Pacific Regional Fishery Management Council commended the PIs and the PFRP study in writing and supported further research along these lines.

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
Peer Reviewed			1
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.

None

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: *photo and caption to be supplied after report submission*
- Caption 2: *photo and caption to be supplied after report submission*