

JIMAR, PFRP ANNUAL PROGRESS REPORT FY 2003

P.I. Name: Michael P. Seki and Jeffrey J. Polovina

Project Proposal Title: Oceanographic characterization of the American Samoa longline fishing grounds for albacore, *Thunnus alalunga*..

Funding Agency: Pelagic Fisheries Research Program

1. Purpose of the project and indicative results.

The American Samoa domestic longline fishery has recently undergone extraordinary growth, particularly in the fleet composition of large (>50 ft in length) vessels that have fueled a fivefold increase in fishing effort and landings from 1999 to 2001. Prior to the sudden expansion, most longline fishing around American Samoa were accomplished through a fleet of smaller, 30 ft, open-decked catamarans known as *alia*. To illustrate the expansion, over 50 boats actively participated in the fishery during 2001 deploying 4,690 sets (over 5 million hooks) resulting in catch rates of about 40 fish 1000 hooks⁻¹. By comparison, only 23 vessels made up the fishery in 1999, making 2,102 sets (ca. 912,742 hooks) yielding 32.38 fish 1000 hooks⁻¹. Albacore tuna (*Thunnus alalunga*) is the target species in the fishery and dominates the catch.

Oceanographically, there has been little study regarding the pelagic habitat in the American Samoa region, much less the spatial and temporal variability of the oceanographic climate. This newly funded project will (1) conduct an extensive oceanographic characterization of the pelagic habitat and fishing grounds occupied by the American Samoa longline fishery through the use of satellite oceanographic remote sensing and *in situ* shipboard surveys and (2) couple the oceanographic assessment with fishery information to develop a functional understanding of the spatial and temporal occupation and movement tendencies of large South Pacific albacore and the role of the environment on longline gear performance and catch. In the latter phase of the project, fishery information will include incorporation of albacore depth distribution and gear performance obtained from commercial longlines instrumented with time-depth-temperature recorders (TDRs) and the set level catch information from the American Samoa fishery logbook program. Products from the study will lead to a better understanding of the pelagic habitat and an improved interpretation of catch rates and patterns, thus providing information necessary to move forward on ecosystem-based fishery management policies and stock assessment efforts.

2. Progress during FY 2003. Provide a thorough discussion of accomplishments and problems.

Initial funding for the project was received only recently in January 2003 and the study at the time of this writing is very much in its infancy. A combination satellite remote sensing and shipboard field program will highlight the efforts to characterize the oceanography of the region frequented by participants of the American Samoa longline fishery and particularly, the waters of the American Samoa EEZ. We have begun to assemble the time series of satellite products, including sea surface temperature (SST), ocean color (SeaWiFS, MODIS) and particularly, sea level height (SLH) from AVISO for the region. The first shipboard survey in waters around

American Samoa is scheduled to be conducted aboard the NOAA ship *Oscar Elton Sette* in February 2004. The survey lines, which coincide to the JASON-I/TOPEX overpass orbits, will include sampling station intervals spaced to accomodate time and space scales necessary to address oceanographic mesoscale variability (e.g., 15-30 km).

3. Plans for the next fiscal year.

FY 2004 (second year of the study) will see continued sampling and analysis as in year I with the conducting of the second oceanographic survey, completion of analysis, and manuscript preparation.

4. List of papers published in refereed journal during FY 2003.

None

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

Michael P. Seki and Jeffrey J. Polovina. A new study to characterize the oceanography of the American Samoa longline fishing grounds for albacore, *Thunnus alalunga*. Presented at the 15th Standing Committee on Tuna and Billfish, 22-27 July 2002, Honolulu, Hawaii. Working paper ALB-2, 10 p.

6. Names of students graduating with MS or Ph.D. degrees during FY 2001. Include title of thesis or dissertation.

None

7. For multi-year projects, provide budget for the next year on a separate page.

Budget FY 2004
South Pacific Albacore Oceanography, Yr-2

I. Direct Costs

A. Personnel

Salaries/Wages	
M. Seki, P.I. (4-6 m y ⁻¹)	\$0
J. Polovina, co-P.I. (3 m y ⁻¹)	\$0
Seagoing Fishery Biologist	\$ 48.0 K
Fringe Benefits (@30%)	\$ 14.4 K
<i>Total Personnel:</i>	<i>\$ 62.4 K</i>

B. Equipment

TDRs	\$12.0K
<i>Total Equipment:</i>	<i>\$12.0 K</i>

C. Supplies

Servicing (recalibration) of CTD sensors	\$ 2.2 K
Cruise supplies	\$ 2.6 K
Computer software (incl. license renewals)	\$ 1.0 K
<i>Total Supplies:</i>	<i>\$ 5.8 K</i>

D. Printing

Publication/reprint costs	\$ 2.6K
<i>Total Printing</i>	<i>\$ 2.6 K</i>

II. Indirect Costs (20.4%) *\$ 17.1 K*

Total budget for year 2: ***\$ 99.9 K***