

JIMAR/PFRP ANNUAL REPORT FOR 1999/2000

Project Title:

Economic Fieldwork on Pelagic Fisheries in Hawaii (JIMAR project 653530)
aka Hawaii Fleet, Industry, and Vessel Economics (HIFIVE)

Co-Principal Investigator: Samuel G. Pooley, Honolulu Laboratory, NMFS

Associate Investigators: Minling Pan, Edward Glazier¹

Funding Agency: NOAA/Pelagic Fisheries Research Program/JIMAR/University of Hawaii

Abstract

This project is designed to provide detailed economic information (especially cost of operations) on Hawaii-based domestic pelagic fishing vessels: longliners, trollers and handliners, and charter boats. Detailed cost-earnings reports (published as JIMAR/SOEST reports) on each of these fisheries have been prepared since the project began in 1994, and plans are underway to update the longline cost-earnings information. The project is also obtaining information on the expenditures and motivations of charter boat patrons. The data from these studies has been used in a variety of economic and social analyses of these fisheries, both within the HIFIVE project, by other PFRP projects, and by the National Marine Fisheries Service.

1. Purpose of Project

The overall objective of this research is to provide fishery management information based on the economic characteristics and dynamics of the Hawaii longline, troll-handline, and charter fishing fleets, as well as on the dynamics of seafood markets and the motivations of clients of the charter-boat fleets.

The project was scheduled for 3 fiscal years (to conclude mid-1997) and was extended for a 4th fiscal year in 1997 (RCUH # 2123). It has subsequently been partially funded to another two years. The project consists of two major components: a detailed economic analysis of the Hawaii-based domestic longline fishery, and comprehensive information on the economics of the small boat pelagic fishery in Hawaii, including charter boats. Charter boat patron studies were initiated in 1999 and are on-going in 2000.

¹ Pan and Glazier received permanent jobs elsewhere in mid-2000. Replacements are being sought. Ms. Marcia Hamilton, Dr. Rita Curtis, and Dr. Michael Travis were collaborators in the earlier years of the HIFIVE project.

2. Progress during 1999/2000

Progress in 1999/2000 has centered on two areas: charter boat patrons and longline dynamics and markets.

! **Charter-boat patrons analysis – Interim report (Glazier, 2000).**

Associate investigator Glazier began fielding the charter patron survey in May 1999. This study is composed of two parts: patron expenditures and motivations, and patrons self-valuation of their charter boat fishing experience. Approximately 500 charter boat fishing patrons are expected to complete a voluntary self-administered instrument. Glazier's interim report (2000) indicated that response to the survey was less than anticipated with a response rate of less than 250. Later this year the Co-PI intends to work with temporary staff to provide a field test of in-person interviews and mail-back surveys at Kewalo Basin on Oahu and at Kaunakakai, Kailua-Kona. This should not only boost the response rate but will also test various biases which might have occurred in the previous sampling strategy.

! **Development of fishing capacity and production function data bases for Hawaii's pelagic fisheries**

! **Pelagic seafood market in Hawaii – completion of draft manuscript on time-series analysis of demand factors (Pan, 2000)**

Most work this year has involved continued development of a number of catch, effort, price and revenue time-series which would update the parameters for Associate investigator Pan's dissertation programming model of the Hawaii fishery (part of the PingSun Leung JIMAR Pelagics project). These parameters also prepare the way for estimation of the "fishing capacity" of the Hawaii longline fleet which should be completed later this year (pending replacement of Pan).

Pan also completed a draft report using a time-series linear regression analysis of factors affecting the price of pelagic species in Hawaii using the Hawaii Division of Aquatic Resources (HDAR) commercial catch reports. The paper found quite robust results for particular species, as well as substitution effects between several related species. Additional analysis of the price-quantity relationship of bigeye tuna was required and several variables were found significant, including sea surface temperature as an inverse proxy for quality. This paper is being completed for publication by the Co-PI as a SOEST/JIMAR report and the information has been used in NMFS assessments of the economic impacts of potential time-area closures in the longline fishery.

Other progress included:

- ! **Small-boat fisheries – Publication of a method of differentiating the motivations of small boat pelagic fishing vessels in Hawaii (Hamilton, 1999).**
- ! **Recreational fisheries -- A summary of non-commercial and recreational fisheries literature pertinent for Hawaii for the Western Pacific Regional Fishery Management Council's (Council) Recreational Fisheries Task Force (Glazier, 1999).**
- ! **Collaboration with Leung "Multilevel project" – completion of manuscript accepted for publication in the North American Journal of Fisheries Management (Pan, 2000).**

3. Plans for 2000/2001

The first order of business for the remainder of 2000 is recruitment to fill the vacant Pan and Glazier positions. Assuming this is accomplished in a timely manner, the following are the major planned activities for the remainder of 2000 and into 2001.

- ! **Analysis of charter boat patrons motivations (demand for charter boat services)**

Because of the low response rate, fielding the survey has been extended. The Interim Report provided a convenient non-technical introduction to the results-to-date. Work on compiling economic information on charter boat patrons, including use of hypothetical valuation techniques, will be conducted throughout the remainder of 2000. It is likely that analytical assistance will be sought from the academic sector.

- ! **Analysis of fishing capacity and production function analysis of Hawaii's pelagic fisheries**

The production time-series prepared by Pan will be turned into quantitative indices of fishing capacity and up-dates to Pan's multilevel model. Each should be completed as JIMAR/SOEST reports and provide software approaches to updating these two estimation routines.

No additional funding is needed for this project at this time. It is anticipated that a funding request for additional analytical work on the longline fishery may be developed during the next round of PFRP proposals.

4. & 5. List of Papers and Technical Reports (attached)

6. Names of graduates. Rita E. Curtis, doctorate, University of Maryland (1999)

Publications & Reports

Curtis, Rita E.

1999. A Random Utility Model of Dynamic Supply Response under Uncertainty: The Case of the Hawaii Longline Fishery. (Doctoral dissertation in the University of Maryland, Department of Agricultural and Resource Economics.)

1998. Spatial allocation of effort: a dynamic discrete choice model of short run supply response in the Hawaii longline fishery. (Graduate paper in the University of Maryland, Department of Agricultural and Resource Economics.)

1998. The welfare effects of reducing sea turtle interactions: an application to the Hawaii longline fishery. (Graduate paper with the University of Maryland, Department of Agricultural and Resource Economics.)

1997. The effect of temporal aggregation in fishery supply models. (Paper submitted for publication.)

1996. Short-run supply response in a multi-species fishery. (Paper submitted for publication.)

Curtis, Rita and Robert L. Hicks.

2000. The cost of sea turtle preservation: the case of Hawaii's pelagic longliners. NMFS Office of Science and Technology. Working paper pending publication.

Glazier, Edward W.

1999. Non-commercial fisheries in the central and western Pacific: a summary review of the literature. SOEST 99-07/JIMAR 99-326. University of Hawaii.

2000. Interim report: Hawaii charter patron survey, 2000. Unpublished JIMAR report.

Hamilton, Marcia S.

1998a. Cost-earnings study of Hawaii's charter fishing industry, 1996-97. SOEST 98-08. University of Hawaii.

1998b. Small-boat fishery study complete. Hawaii Fishing News. January '98.

1999. A system for classifying small boat fishermen in Hawaii. *Marine Resource Economics*. 13(): 289-291.

Hamilton, Marcia S., Rita E. Curtis, Michael D. Travis.

1996. Cost-earnings study of the Hawaii-based domestic longline fleet. SOEST Publication 96-03. University of Hawaii: Honolulu, HI. 59 p.

1996. Hawaii longline vessel economics. Marine Resource Economics. 11(2): 137-140.

Hamilton, Marcia S and Stephen W. Huffman.

1997. Cost-earnings study of Hawaii's small boat fishery, 1995-96. University of Hawaii SOEST 97-06/JIMAR 97-314. 102 p.

Neubauer, Deane and Kerry Burch.

1998. Alternative perspectives on fishery management decision-making. (Under review)

Pan, Minling, PingSun Leung, and Samuel G. Pooley.

2000. A decision support model for fisheries management in Hawaii – a multilevel and multiobjective programming approach. Manuscript accepted for publication in the North American Journal of Fisheries Management (pending revision).

Pan, Minling and Samuel G. Pooley.

2000. Factors affecting the prices of pelagic fish in the Hawaii markets: a simple statistical analysis. SOEST JIMAR Contribution (under revision).

Travis, Michael D.

1998. Chronology of regulatory events relevant to Hawaii's pelagic longline fishery, 1987-96. (Unpublished working paper)

1998. Fishing effort, power, and capacity: the importance and evolution of terminology in fisheries science. (Unpublished working paper)

Walker, Julie.

1997. Sociology of Hawaii charter boat fishing. SOEST JIMAR Contribution 97-309. University of Hawaii. 50 p.

1996. Work and leisure in Hawaii small boat pelagic fishing. Masters thesis. School of Marine Affairs, University of Washington. 78 p.

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