

Pelagic Fisheries Research Program --
Hawaii Fishing Industry & Vessel Economics Project
(HI FIVE)

Status of Current Activities

April 30, 1994

Introduction

The Hawaii Fishing Industry & Vessel Economics project (HI FIVE) is a collaborative research project under the University of Hawaii's Pelagic Fisheries Research Program (PFRP). The objective of the HI FIVE research is to provide fishery management information based on the economic characteristics of the Hawaii longline and troll-handline (and charter boat) fisheries.

The overall objectives of the proposed HI FIVE research project are to:

- 1) determine the economic characteristics and optimal number (and spatial distribution) of Hawaii-based domestic longline fishing vessels;
- 2) identify the determinants of longline fishing vessel operations (spatial, temporal, and species) relative to interaction with other domestic fishing fleets; and,
- 3) identify the economic characteristics of commercial troll-handline and charter boat operations.

The objectives specific to year 1 funding are:

- (1) *Cost-earnings*: to determine the basic cost-earnings and fishing operations relationships of longline, pelagic handline, and commercial troll fishing and charter boat vessels in Hawaii.
- (2) *Exogenous fishing effort*: to develop a model of the impact of fish price and factor input prices on the supply of fishing effort in these fisheries.
- (3) *Endogenous fishing effort*: to develop a model of dynamic factors of at-sea longline fishing behavior.

The primary client for the research is the Western Pacific Regional Fishery Management Council (Council), a Federal

organization authorized under the Magnuson Fishery Conservation and Management Act of 1976 (MFCMA) which regulates fishing within the U.S. 200-mile Exclusive Economic Zone (EEZ) surrounding Hawaii as well as American Samoa, Guam, and the Northern Mariana Islands.

The Pelagic Fisheries Research Program is funded through the University of Hawaii's School of Ocean and Earth Science and Technology (SOEST) and its Joint Institute for Marine and Atmospheric Research (JIMAR). The program is the outgrowth of a collaborative process including the Council, SOEST, and NMFS. The Hawaii Pelagic Fishing Vessel Economics project is expected to last three years, depending on funding availability for the second and third years.

The HI FIVE project staff and collaborating researchers have participated in a series of orientation, planning, and information compilation meetings since initiation of the project this January. The following summarizes this activity to date and indicates what is anticipated over the next several months.

Project staff

Project staff were recruited in mid-to-late 1993 and came on-board in January and February, 1994. The researchers are Michael Travis, research assistant, and Rita Curtis and Marcia Hamilton, research associates.

Travis is receiving his doctorate in economics from the University of Notre Dame. His dissertation is titled "Lemon laws and dispute resolution mechanisms: an economic analysis of power", which analyzes the differential impact of manufacturer-sponsored and government-run dispute resolution mechanisms. The empirical work uses both qualitative and quantitative techniques, including binary and multinomial logistic regressions.

Curtis received her masters in agricultural and resource economics from the University of Maryland. Her thesis is on land use valuation. She uses hedonic analysis (which relates the price of land with its quality attributes) to determine the value of benefits provided by open space as well as the externality effects associated with alternative land uses.

Hamilton received her masters in agricultural and resource economics from the University of Hawaii. Her thesis is on the economics of cut flower production. She focuses on production efficiency with an emphasis on the contribution of labor to output. Hamilton also just completed a contract with the NMFS Pacific Area Office on the economics of bottom fishing vessels in the Northwestern Hawaiian Islands (SWFSC Administrative Report H-94-1C).

The principal investigator is Dr. Samuel G. Pooley, industry economist, NMFS Honolulu Laboratory.

Orientation Workshop

The project was initiated with a three-day workshop (Feb 15-17, 1994) designed to provide a general orientation to the pelagic fisheries management problem and to determine detailed objectives and workplans for the research project. Participants in the workshop included the three PFRP economists as well as various personnel from the Laboratory and a second Honolulu Laboratory PFRP program (Local Catch Effort, C.H. Boggs, principal investigator), John Sibert as the PFRP program manager, and Bunny Lowman, economist from the Western Pacific Regional Fishery Management Council (Council).

The first half-day session was a general orientation to the PFRP as a program, to the pelagics fishery management problem and process, and to types of pelagic fishing in Hawaii. John Sibert, PFRP program manager, gave an introduction to the UH JIMAR pelagic fisheries research program. Bunny Lowman of the Council gave an introduction to the fisheries management problem and process. Also discussed were problems of research coordination, particularly amongst the various PFRP socio-economics projects.

The second half-day session involved discussion of the types of research methodologies which could approach the pelagic fisheries management problem, an introduction to the type of data that already exist for examining the problem, a discussion of cost-earnings modeling data requirements, and an extensive discussion of "fishing effort."

The third half-day session discussed types of economic models in more detail, including the relationship between economic research and regulation. Also determined were assignments for completing "research outlines" on the elements of the HI-FIVE project.

The results of this workshop are manifested in two primary research products: the flow chart of project objectives and activities (attached), and the research project outlines which are discussed later in this report.

Research activities

The workshop was followed by an on-going series of seminars on economic research methodologies, as well as a session directed toward a logical mapping of the economic research objectives. The topics of these seminars ranged from survey sampling methodology to the economic basics of production theory to the theory of discrete choice modeling. Also included was a seminar by Dr. Chris Boggs on population assessment and interaction analysis for pelagic fisheries.

Concurrently, Rita Curtis completed a preliminary "data grid" which scales each of the primary research topics in this project against key economic data bases available to the researchers. This grid is the first step to comprehensive documentation and management of the data to be used in the project.

The cost-earnings survey of the Hawaii-based domestic longline fishing fleet is the center piece of field work during year one of the project. Marcia Hamilton has prepared a survey instrument for obtaining cost and earnings information from the Hawaii-based domestic longline fishing fleet. At present sampling logistics are being ironed out, and fielding of the survey is expected to begin in May, 1994. While preparations for surveying the troll-handline and charter boat fleets will be initiated in year 1, fielding is not expected now until year 2 due to the need to concentrate more resources on understanding longline fleet dynamics.

Research topic outlines

Research outlines on major topics related to year 1 objectives were completed in draft in March and April 1994 and serve as a detailed workplan for the project. They cover the following topics:

- Institutional framework
- Market dynamics
- Longline cost-earnings
- Production modeling
- Effort modeling
- Production efficiency
- Behavioral modeling
- Troll-handline cost-earnings*
- Retail/consumer demand**
- Valuation***

A brief synopsis of the research on these topics is attached.

Current Project Milestones

The HI-FIVE project research group has identified 35 major project milestones for the next six months (attached). Given the resources available, it is quite conceivable that not all milestones will be met in full. However they provide an initial prioritization of work and benchmarks against which to measure progress.

pr94d
April 30, 1994

* Outline delayed pending progress in the longline cost-earnings project.

** Outline deferred until year 1 market dynamics work is completed.

*** Outline deferred until later in year 1.

Attachments

Workshop agenda
List of workshop participants
Research objectives flow chart
Economics data grid
Research topic outlines
Milestones