

JIMAR/PFRP ANNUAL REPORT FOR FY 2001

Principal Investigator: Dr. Michael D. Travis/Dr. John Sibert

Project Proposal Title: Economic Interactions Between U.S. Longline Fisheries

Funding Agency: National Oceanic and Atmospheric Administration

I. Purpose of the Project

Dramatic changes in fleet size can indicate significant changes in a fishery and/or alternative fisheries as well as create them. For example, a significant decrease in fishery size can cause significant decreases in effort and catch, which in turn leads losses of income and jobs for fishermen, industry suppliers and fish dealers. Assuming the existence of multiplier effects, the loss of income and jobs to the local economy will be further magnified. However, in the case of multi-species fisheries, a decline in one component of the fishery can simply result in a reallocation of vessels and effort and subsequent growth in another component of the fishery. For example, in the case of Hawaii's pelagic longline fishery, a decline in the swordfish directed component of the fishery could lead to an increase in the tuna directed component. Alternatively, a decline in the entire fishery's fleet size could indicate that vessels and effort have been reallocated to other U.S. longline fisheries. Thus, one region's loss would be another region's gain. In regions where fleet sizes are expanding, management is likely to respond with increased monitoring and measures intended to curb further expansion. Although the impacts of variations in fleet size are not the primary focus of the proposed research, they do illustrate the importance of such changes. Given that importance, it is necessary to determine what causes these changes in fleet size (i.e. what causes a vessel to leave, enter, or remain in a fishery). This is the primary purpose of the proposed research. Given that a vessel or group of vessels has decided to leave a particular fishery, how do they decide which fishery to enter? Determining how fishermen answer that question is the second purpose of the proposed research.

II. Activities and Progress During FY2001

The primary activity of the project staff was to generate a report on the economic profile of the U.S. pelagic longline fleets in the Atlantic, Caribbean, and Gulf of Mexico for 1997. An initial draft of the cost-earnings profiles was completed just before the end of the previous fiscal year. However, the initial results indicated that interpretational and/or computational errors were likely made with respect to certain cost data collected via the survey. In part, these errors were caused by the greater than anticipated heterogeneity in the fleet with respect to level of participation in the fishery (which affects the allocation of fixed costs to pelagic longline activity), different types of cost sharing agreements between the boat owner(s) and crew, and different arrangements with respect to the transporting and selling of fish, and the costs associated therewith. A fair amount of heterogeneity remained even after stratifying the fleet according to vessel size and species target. Therefore, the data was re-worked, the fleet was further stratified into full-time and part-time participants, and a decision was made not to extrapolate the sample data to the entire population. In addition to these efforts, the project's subcontractors completed their paper which models

fishermen's fishing location decisions under uncertainty. The paper was published in the November 2000 edition of the American Journal of Agricultural Economics.

III. Plans for this Fiscal Year

With the completion of the cost-earnings report and the paper on modeling location decisions, we are hoping to continue research with respect to building a model of the entry-exit decision. Since all project funds have been expended, such research would have to be done as part of an academic exercise, most likely as the subject matter for a doctoral dissertation by one of the subcontractor's students. Also, the 1996-97 survey data of the Pacific longline fleet collected under this project is currently being used by a University of Hawaii project, headed by Dr. John Yanagida. In this coming year, staff on that project hope to use the survey data to develop a production function for Hawaii-based longliners and thereby analyze the technical efficiency of vessels in the fleet. Eventually, this research will be used to analyze the economic effects of potential regulations on the longline fishery.

IV. Papers Published in Refereed Journals

Mistiaen, Johan A. and Ivar E. Strand. "Location Choice of Commercial Fishermen with Heterogeneous Risk Preferences," American Journal of Agricultural Economics. Nov. 15, 2000, v. 82, 5, 1184.

V. Other Papers, Technical Reports, etc.

Porter, Richard M., Maribeth Wendt, Michael D. Travis, and Ivar Strand. Cost-Earnings Study of the Atlantic-Based U.S. Pelagic Longline Fleet. SOEST 01-02, JIMAR Contribution 01-337. 2001. Presentations of this report and the previously noted location choice paper were made at the December PFRP PI's meeting in Hawaii.

VI. Students Graduating with MS or Ph.D. Degrees

None