### JIMAR, PFRP ANNUAL PROGRESS REPORT FY 2002

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### **Collaborator:** *Omar El-Gayar*

**Project Proposal Title:** Modeling Longline Effort Dynamics and Protected Species Interaction

# Funding Agency: NOAA

# 1. Purpose of the project and indicative results.

The general aim of the proposed study is to refine and extend the existing fleet dynamic model, and the specific objectives and tasks are as follows:

- (1) Extend the longline trip level time-series data set to 2002.
- (2) Re-estimate the technical and economic interrelationships among different species landed; and the entry/stay/exit behavior.
- (3) Estimate the catch-effort relationships for each species and for each fleet.
- (4) Analyze the factors, rate, and degree of protected species interaction (e.g., turtles, and seabirds) with longline fishing activities.
- (5) The information generated above will be incorporated into the existing fleet dynamic model in maximizing fishery welfare and fishing effort considering broader implications on protected species and stock conditions.

# 2. Progress during FY 2002. Provide a thorough discussion of accomplishments <u>and</u> problems.

The project started on January 1, 2003 when funding became available. Most of the project work during the last three months has been related to getting the project off the ground and acquiring the extended data set for the years 1999-2002 of the longline fleet. The following summarizes the major activities:

- (1) A research assistant has been hired and will begin on May 19, 2003.
- (2) Two papers from the previous project (which has led into this current project) have been finalized and accepted for publication (see publication list below).
- (3) Two papers have been drafted and sent to journals for publication consideration. Both papers are based on previous project work using data up to only 1998. One paper is on longline trip choice modeling and the other one is on longline fishers' entry, stay, and exit behavior.
- (4) Met with NMFS modeling group (Sam Pooley, Mingling Pan and Keiichi Nemoto) discussing the possible areas of improvement of the present fleet dynamic allocation model and possible avenues for cooperating in the overall modeling effort.
- (5) Discussed with NMFS group on the possibility of combining the data preparation effort in order to have a consistent set of data for all concerns.
- (6) Made necessary arrangement in obtaining the observer data set.
- (7) Reviewed literature on modeling protected species interaction and a preliminary review of literatures on modeling catch-effort relationships.

### 3. Plans for the next fiscal year.

The next twelve months will be spent on

- (1) Completing the longline trip level time-series data set to 2001.
- (2) Re-estimating the technical and economic interactions of the longline tuna fishery and vessel entry/stay/exit behavioral models using the extended dataset, and comparing with the previous results.
- (3) Estimating the catch and effort relation using the extended dataset.
- (4) Estimating the species interaction model with the longline observer data set.
- (5) Prepare papers from (2), (3), and (4) above for conference presentations and journal publications.

# 4. List of papers published in refereed journals during FY 2003.

Pradhan, N.C., K.R. Sharma and P.S. Leung. "Analyzing Technological and Economic Interrelationships in Hawaii's Longline Fishery", *Marine Resource Economics*, accepted for publication.

Sharma, K.R., N.C. Pradhan, and P.S. Leung "Technological and Economic Interrelationships in Hawaii's Troll and Handline Fisheries" *North American Journal of Fisheries Management*, accepted for publication.

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

6. Names of students graduating with MS or Ph.D. degrees during FY 2003. Include title of thesis or dissertation.

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