

**JIMAR, PFRP ANNUAL PROGRESS REPORT  
FY 2003**

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**Project Proposal Title:** Incorporating Oceanographic Data in Stock Assessments of Blue Sharks and Other Species Incidentally Caught in the Hawai'i-based Longline Fishery

**Funding Agency:** Pelagic Fisheries Research Program

**1. Purpose of the project and indicative results.**

Improve habitat based standardization of longline effort by accounting for the affects of current shear and other oceanographic features on the depth distribution of longline hooks and the degree to which that distribution overlaps the depth distribution of particular fish species.

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

During FY 2003 this PFRP project joined forces with a non-PFRP project that has similar aims with regard to habitat-based effort standardization but a target species of bigeye tuna rather than blue sharks. The bigeye project is conducted by K. Bigelow of NFMS and J. Hampton of the Secretariat of the Pacific community. The computer specialist funded by this PFRP project, V. Khurana, has worked on data base applications applicable to both projects. He has implemented a way to access fishery data held on Oracle data bases directly from the statistical and graphics program, R. He has also developed an application in which an arbitrary geographical mosaic can be conveniently specified, and fishery catch, effort, and size data are then aggregated into that mosaic in preparation for input to the stock assessment program, MULTIFAN-CL.

A workshop on longline effort standardization sponsored by this project in FY 2002 (see previous progress report) spawned two informal data-gathering efforts both outside the work originally envisioned for this project but nevertheless highly relevant to it. One of these has been assembling data for a Pacific-wide assessment of striped marlin. The data include catch, effort, and size sample data from most fisheries that catch striped marlin in the Pacific. Tagging data are also included. The data are almost complete as of the time of this writing, awaiting keypunching of Mexican fishery data and receipt of Japanese size sample data.

The other data-gathering effort spawned by the workshop is an attempt to assemble from various agencies information bearing on the depths at which longline caught fish are habitually hooked. The data are to include hook timer and time-depth

recorder data from experimental or commercial longline sets plus data from longline observer programs in which positions of hooked fish relative to floats are noted. Information from P. Bach of the Institut Recherche pour le Developpement in Tahiti has been received so far, and another French scientist, F. Poisson is presently working for a time at the NMFS Honolulu lab in part to examine and organize a backlog of hook timer and time-depth recorded data held there. It is hoped that extensive similar data collected by Japanese scientists can also be included.

The plan for FY 2003 to work up longline shoaling indices from oceanographic data provided by the Oceanic Atlases project has been postponed to the following year to allow time for the PI (P. Kleiber) to work on a project to develop and document MULTIFAN-CL. While this task is not specifically funded by this PFRP project, it is still very relevant in that MULTIFAN-CL is the principal assessment tool which will be used to analyse standardized longline effort and associated other fishery data.

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

Work with data from the Oceanic Atlases project to further develop indices of longline shoaling, and test them as habitat variables in MULTIFAN-CL assessments of blue shark.

Run MULTIFAN-CL assessments of striped marlin with nominal effort data and with various effort standardizations, including the habitat standardization technique of M. Hinton, IATTC, and also standardization taking account of longline shoaling.

Continue to participate in collaboration on assembly and analysis of data relevant to hooking depths.

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

none

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

none

**6. Names of students graduating with MS or Ph.D. degrees during FY 2003.**

**Include title of thesis or dissertation.**

none

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

Is attached.