

**JIMAR- PFRP Annual Progress Report  
FY 2004**

**Date:** April 15, 2004

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**Project Title:** Incidental catch of Non-target Fish Species and Sea Turtles: Comparing Hawaii's Pelagic Longline Fishery Against Others. (Project No. RCUH Contract No. NA17RJ1230, Project No. 658849)

**Funding Agency:** PFRP/JIMAR

1. Purpose of the project and indicative results.

Purpose.

The purpose of the project is to evaluate the incidental catch of non-target fish species and sea turtles in Hawaii's longline fishery and make comparisons with other pelagic longline fisheries in a methodology patterned after Hall (1999). The purpose is to put the true bycatch (fishery waste) associated with the Hawaii pelagic longline fishery into perspective by using a comparable standard of ecological impacts to make comparisons with other fisheries for the same target species available in the U.S. seafood market. In order to make meaningful comparisons on a ton-for-ton basis of marketed species, the ratio of BPUE (bycatch per unit effort) to CPUE must be calculated. This allows a practical measure for comparison by relating bycatch impacts to a common volume of the targeted catch. By doing so, a method for quantifying the relative ecological trade-offs that result from management actions that promote shifts in fishing effort and shifts in the source of the market supply of the same species.

Indicative results.

- Gathered and reviewed literature on bycatch, responsible fishing and ecosystem-based management as background for approaching the project and establishing definitions.
- Collected information needed to describe the typology pelagic longline fishing methods. The typology profiles include details about the gear, the configuration, the number of hooks, the types of hooks and bait etc. These details help to distinguish the various methods so that comparisons of bycatch rates between Hawaii methods and other fisheries can be better understood. These profiles have been assembled and efforts are on going to have their accuracy confirmed by people in positions to verify the information.
- Efforts were made to determine the major sources of fresh swordfish imported into the US through the major ports of entry. The long-list of leading exporting countries was considered for potential comparisons with Hawaii's fishery. Work was done to estimate sea turtle take rate for western tropical Pacific tuna longliners, Brazilian longline-caught swordfish and fresh mahimahi taken in Costa Rica's mahimahi longline fishery. Bycatch per catch ratios were estimated and

comparisons of bycatch per ton of target species were made with product from the Hawaii fishery to estimate the magnitude of the potential effect on sea turtles.

- The PI's participated in the Second International Fishers Forum (IFF2) in November 2002 to make contacts with fishermen and fisheries scientists from around the world who are working on solutions to bycatch problems associated with pelagic longline fishing. Met with Martin Hall from IATTC and made other contacts from important countries including Mexico, Chile, Brazil, Taiwan, Costa Rica, Mexico, South Africa, SPC, etc. Follow-up efforts with these contacts have helped to gain perspective on how longline gear is configured and used in the various fleets. We have also been trying to determine if fisheries data on primary catch and bycatch are available in these countries. This type of information is not readily available but efforts are continuing.
- A short-list of fisheries to be compared with Hawaii's fishery has been prepared by interviewing major buyers of Hawaii swordfish that had to replace their supply with imported swordfish. The short-list consists of Mexico, Panama, Costa Rica and South Africa, the actual source of swordfish these major buyers used after the Hawaii swordfish supply was eliminated and the buyers were forced to substitute imported product. The short-list is being used to attempt to quantify the ecological trade-offs that might have occurred as a net effect resulting from the Hawaii swordfish fishery closure that was intended to reduce adverse impacts on sea turtles.

2. Progress during FY 2004. Provide thorough discussion of accomplishments and problems.

#### Accomplishments.

- The pelagic longline fishing typologies were completed. We have just received additional information on the longline fishing methods and gear configurations of Taiwan flagged vessels operating in Sri Lanka's tuna fishery. This typology will be added to the report.
- Comparisons with of BPUE/CPUE ratios have been prepared where possible in order to estimate the ecological trade-offs (in terms of sea turtle interactions) of substituting Hawaii swordfish with other sources.
- The finfish bycatch analysis is the being completed. Keeping with the definition of bycatch as true waste, Hawaii observer data is being analyzed to make the distinction between dead fish discards and live/viable releases. BPUE/CPUE ratios will be calculated.
- Four species have been selected for finfish bycatch analysis because they represent the range of fates of incidental catches. These are the short-billed spearfish, blue shark, silky shark and lancet fish. The possible fates of these fish include live release, sharks finned and carcass retained and utilized, sharks finned and carcass discarded and wasted, sharks released (regulatory discards), fish hauled aboard dead and discarded.

- Draft final report in preparation.

Problems:

Obtaining and analyzing Hawaii observer data for finfish bycatch has taken time. Obtaining information on other fleets for comparison has also been difficult and is the main cause of the delay in completing the project and final report. We do not anticipate further delay.

3. Plans for the next fiscal year.

Next work anticipated:

We expect to complete the analysis and comparison of the finfish bycatch data between the Hawaii longline fishery and representative fisheries in the western Pacific and eastern Pacific by the end of May. We are continuing to work on the draft final report and expect to be able to finish it by the end of June.

4. List of papers published in refereed journals during FY 2004.

None.

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

PFRP PI's Meeting. December 9, 2003. "Environmental Baggage: Comparison of Hawaii with other Longline Fisheries". Presenter Paul Bartram.

6. Names of students graduating with MS or Ph.D. degrees during FY 2004. Include title of thesis or dissertation.

None. Does not apply.

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

Does not apply.