

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

**P.I. Name:** Michael P. Seki

**Project Proposal Title:**

Investigating the life history and ecology of opah and monchong in the North Pacific.

**Funding Agency:** Pelagic Fisheries Research Program

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

Two miscellaneous pelagics incidentally caught by longliners targeting bigeye tuna are the opah (*Lampris guttatus*) and monchong (*Taractichthys steindachneri* + *Eumegistus illustris*). Particularly valued by the restaurant trade in Hawaii, these exotic, deep-water fishes are generally harvested in small, but nevertheless significant, quantities. For the period 1987-99, as much as 300,000 lbs. of monchong were landed at United Fishing Agency (UFA) with individual fish averaging 14.2 to 17.7 lbs. Mean price ranged from \$1.35 to \$2.06 per lb. with annual ex-vessel revenue ranging from negligible (<\$10K) to \$420K. Over the same time period, 150,000 to 1.2 million lbs of opah have been landed annually with individual fish weighing 97-111 lbs. Annual ex-vessel revenue for opah ranged from \$240K to \$1.4 million at a price per lb ranging from \$0.87 to \$1.40. Since neither are targeted species, these fishes have historically been poorly studied and as a result available information pertaining to the biology and ecology of this resource are virtually nonexistent.

The primary purpose of this study is to investigate and define some of the fundamental life history and ecological characteristics of the opah and monchong resources in the North Pacific through a combination of comprehensive shoreside data and biological sample collection, analysis and merging of industry (NMFS observer and logbook, North Pacific driftnet, auction), research, and environmental datasets, and capture depth information collected from vessels of opportunity. Products from the study will include (1) comprehensive seasonal and where possible, interannual biometric summaries and relationships (e.g. length-weight, sex ratio, etc.), (2) determination of reproductive parameters (size and age at maturity, fecundity, spawning season, gonadosomatic index), and elucidate distribution patterns, preferred habitat, faunal associations, and trophic relationships for both specific resources. These results will provide fishery managers with new and much needed fundamental biological information that will help refine a precautionary reference point and provide insights into factors that enhance and reduce the incidental take of these species.

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

The project activities for both the opah and monchong resources fall under two major categorical subprojects: (1) a comprehensive shore-based biological sampling program designed to monitor landings and catch composition and to obtain the metrics (length, weight, sex) and samples (ovaries, otoliths, and stomachs) required for a comprehensive biological and ecological assessment and (2) an analysis of spatial distribution patterns, preferred habitat, faunal associations, and trophic relationships which involves the analysis and merging of industry,

research, and environmental datasets, and capture depth information collected from vessels of opportunity.

Among the study highlights to date, it was fortunately discovered early on that opah exhibit sexual dimorphism thereby enabling the determination of sex without having to cut into the body cavity to access the gonads; this determination has saved considerable time and energy, allowing substantially more data collection.

During efforts to estimate age-and-growth, preliminary examination of hard parts indicated that the second dorsal fin ray for opah and both sagittal otoliths and fin rays for monchong provide the best opportunity for ageing these animals. As suspected, sagittal otoliths in opah are of vaterite form and are not conducive for daily increment enumeration. Assuming that annuli are formed annually, opah taken in the fishery are estimated between 1+ and 6+ years (i.e., 2 to 7 annuli) and the oldest monchong would be about 7 yrs. If microincrements (on postrostrum and/or rostrum of sagittal otolith) are daily, monchong appear to grow rapidly in the first year; ages of 42-49 cm fork length fish ranged from ~1 year - 13.5 months.

We've been particularly successful in obtaining capture depth information for both opah and monchong as well as biological samples on cooperative commercial longline fishing trips. On two trips, a total of 108 monchong and 34 opah were caught on 26 longline sets. Of these, 15 monchong and 1 opah were caught on the sections of longline instrumented with a series of time-depth-temperature recorders (TDRs) and hook timers. Additionally, another 7 opah (4 males, 3 females) were instrumented with Wildlife Computers popup satellite archival tags (PATS) upon capture and released.

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

FY2003 was the second and final year of financial support for this project. While the fiscal year will end, initial funding did not occur until September 2001. Data and sample collection and analysis will continue through the end of the calendar year (2003) with final summaries to be generated and manuscripts as the study is completed.

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

None

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

Hawn, Donald R., Michael P. Seki, and Robert N. Nishimoto. An investigation of the life history and ecology of opah and monchong in the North Pacific. Presented at the 15<sup>th</sup> Standing Committee on Tuna and Billfish, 22-27 July 2002, Honolulu, Hawaii. Working paper BBRG-2, 10 p.

Hawn, Donald R., Michael P. Seki, and Robert N. Nishimoto. Life history and ecology of opah and monchong in the North Pacific. Presented at the 54th Annual Tuna Conference, Lake Arrowhead, California 13-16 May 2003.

### **6. Names of students graduating with MS or Ph.D. degrees during FY 2001. Include title**

**of thesis or dissertation.**

None