

**JIMAR, PFRP ANNUAL PROGRESS REPORT
FY 2004**

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Project Proposal Title:

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

Funding Agency: NOAA

Progress and problems in FY 2004:

The primary objective of the study is to investigate and define some of the fundamental life history and ecological characteristics of two of the more important incidentally caught species taken in the Hawaii-based longline fisheries, the opah, *Lampris guttatus*, and monchong, *Taractichthys steindachneri*. 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, output from the project includes (1) comprehensive seasonal and where possible, interannual biometric summaries and relationships (e.g. length-weight, sex ratio, etc.), (2) preliminary determination of age structure and 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. Results from the study provide fishery managers with new and much needed fundamental biological information that helps refine a precautionary reference point and provides insight into factors that enhance and reduce the incidental take of these species. Some highlights of the study to date follow.

For opah, we 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 both shoreside and in the field. Complementary studies where live opah are instrumented with archival tags have benefitted by this finding by allowing us to examine the movements of these fish by sex. The U.S. west coast observer program based out of Long Beach, CA as well as the Hawaii-based observer program has also recently incorporated the external gender determination into their monitoring program.

With regards to age and growth, as suspected the vaterite form sagittal otoliths in opah were found not conducive for daily increment enumeration and after some initial exploratory inspection, fin rays were deemed to provide the best opportunity for ageing these animals. Assuming that annuli are formed annually, opah taken in the fishery are presently best estimated between 1+ and 6+ years (i.e., 2 to 7 annuli). Both sagittal otoliths and fin rays are used for estimating age and growth parameters for monchong. If microincrements (on postrostrum and/or rostrum of sagittal otolith) are assumed 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; the oldest monchong sampled would be about 7 yrs.

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.

Over the past two years, while significant progress has been made advancing our knowledge of various life history parameters of the opah and monchong, much study is still needed to refine the ongoing assessment and to continue to fill in gaps in our knowledge that could not be accomplished within the framework of the present study. Unfortunately, our attempts seeking an extension of support for the study were unsuccessful during the recent request for proposals. A final report summarizing the reports of the project will be forthcoming by the end of calendar year 2004.

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

None

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

Hawn, D. R., M. P. Seki, R. N. Nishimoto, E. A. Howell, and J. J. Polovina. 2003. Status of research on the biology and ecology of the opah, *Lampris guttatus*. Presented at PFRP Principle Investigators' Workshop, Imin Conference Center, University of Hawaii at Manoa, 9-11 December 2003, Honolulu, HI.

Hawn, D. R., M. P. Seki, and R. N. Nishimoto. 2004. Status of research on the biology and ecology of opah (*Lampris guttatus*) and monchong (*Taractichthys steindachneri*) in the North Pacific. Presented at Tuna Conference, May 24-26, 2004, Lake Arrowhead, CA.

Seki, M.P., D. R. Hawn, and R. N. Nishimoto. 2003. Status of research on the biology and ecology of the monchong, *Taractichthys steindachneri*. Presented at PFRP Principle Investigators' Workshop, Imin Conference Center, University of Hawaii at Manoa, 9-11 December 2003, Honolulu, HI.