



Plans for Fiscal Year 2005

Equatorial Oceanography

The University of Hawaii Sea Level Center

P.I.: Mark Merrifield

Plans for the Next Fiscal Year

We will provide technical support to host countries seeking to reestablish dormant tide gauge stations in Sri Lanka, India, Brazil, Argentina, and Indonesia. We hope this will result in at least 6 new stations. We are in the process of hiring a new technical staff person who will implement the real-time database in support of GODAE. We are working with colleagues in Brazil to tie continuous GPS stations with a new tide gauge installation at Salvador. We will submit papers on the Tuvalu sea level rise analysis, the extreme sea level event at Hawaii, and an assessment of GPS vertical land motion rates in the Pacific. We are collaborating with Philip Woodworth of the Proudman Oceanographic Laboratory and Gary Mitchum of the University of South Florida on an annual report describing sea level variability for the previous year (similar to the annual climate assessments made each year in BAMPS). The first set of products is under development, including updates on sea level trends, extreme events, and large-scale variations.

Penetration of Anthropogenic CO₂ in the Oceans Based on Analysis of Recent WOCE/JGOFS/OACES Carbon Data Using the Remineralization Ratios Obtained by the New Three-End-Member Mixing Model

P.I.: Yuan-Hui Li

Plans for the Next Fiscal Year

To estimate the preformed nutrients and alkalinity in three major oceans; to work out the models on the nitrification/denitrification in the Indian and Pacific Oceans; to estimate the anthropogenic CO₂ inventory in three major oceans.

Tsunami Research

Archiving and Analysis of High-Resolution Sea Level Data from the Hawaiian Islands

P.I.: Douglas S. Luther

Plans for the Next Fiscal Year

Collection, processing and dissemination (through ARSHSL) of rapidly sampled Hawaiian sea level will continue. Depending on the amount of effort needed to maintain the archive, enhancements to the archive will be attempted, including (i) updating files of concatenated, quality-controlled, hourly-averaged sea level data for low-frequency studies; and, (ii) improving and automating the procedures for editing the 1-second data from 8 PTWC gauges.

Climate Research

Transition from Experimental Climate Prediction to Operational Climate Forecasting and Information Services for the U.S.-Affiliated Pacific Islands

P.I.: Thomas A. Schroeder

Plans for the Next Fiscal Year

We intend to incorporate the results of the PEAC review workshop in development of improved products. We shall continue to develop experimental sea-level predictions.

Effects of the Andes on the Eastern Pacific Climate

P.I.: Shang-Ping Xie and Yuqing Wang

Plans for the Next Fiscal Year

We have been developing a regional coupled ocean-atmospheric model over the eastern tropical Pacific. The simulation skills have recently improved significantly. We are making further tests of the model and will apply to study the long-standing problem that global GCMs fail to simulate the strong equatorial asymmetry of eastern Pacific climate.

Roles of Ocean-Atmosphere-Land Interaction in Shaping Tropical Atlantic Variability

P.I.: Shang-Ping Xie

Plans for the Next Fiscal Year

This secondary cooling in November-December is associated with an easterly wind acceleration in October, which is not simulated in any of the global GCMs we have examined. We plan to investigate the mechanism for this easterly acceleration using a high-resolution regional atmospheric model, which preliminary analysis shows captures this wind acceleration.

JASMINE, The Joint Air-Sea Monsoon Interaction Experiment: Upper Ocean Survey

P.I.: Peter Hacker, Roger Lukas, and Eric Firing

Plans for the Next Fiscal Year

During the next year the project will continue collaborative work with Dr. W. Han at the University of Colorado on the evaluation of realistic upper ocean models for the Indian Ocean, and on the ability of these models to capture the primary processes in the upper ocean as observed in the JASMINE and more recent Indian and Japanese mooring data. In addition, we will continue planning activities for sustained observations and process studies as part of CLIVAR.

Establishment of a Data and Research Center for Climate Studies

P.I.: Julian P. McCreary, Jr., Peter Hacker, Ron Merrill, Humio Mitsudera, and Takuji Waseda

Plans for the Next Fiscal Year

The project will continue work addressing the original four goals of the APDRC. In addition, we plan to expand our activities in support of applications users. The APDRC plans to serve as a GODAE Product Server for a broad range of research and applications users with focus on satellite and model-derived products. Regional focus will be on the Pacific Islands users. Second, we plan to implement a high-resolution, regional ocean model for downscaling operational models in the Pacific. The Hawaiian Islands region will be our first focus area; however, the model is planned to be used in other Pacific Islands regions as well. The model is intended to provide added value for public safety, climate adaptation, fisheries, and coastal resources applications, as well as for research users. The final new activity will be to assess the needs and develop APDRC plans in support of the data management needs of the Atmospheric Brown Cloud (ABC) project in collaboration with NOAA/NESDIS partners.

Remote Forcing on the Warm Season Rainfall of North America and Eastern Pacific Climate

P.I.: Bin Wang

Plans for the Next Fiscal Year

The Pacs project will be ended this year and we are seeking for new funding to support our study of the US western Mountain climate variability through NOAA/CPPA.

Impacts of Warm Pool and Extratropics on ENSO

P.I.: Bin Wang

Plans for the Next Fiscal Year

We would like to complete the current two research topics. A new endeavor will be looking into the impacts of ENSO on midlatitude intraseasonal and interannual variability.

Profiling CTD Float Array Implementation, Delayed-Mode Salinity Adjustments, and Ocean Climate Research

P.I.: Thomas A. Schroeder [Gregory C. Johnson]

Plans for the Next Fiscal Year

In FY 2005, collaboration with PMEL and other Argo partners will continue, with testing, deployment, and performance monitoring for more floats. Delayed-mode salinity quality control of US data will also continue, with work on clearing backlogs of UW, WHOI, and PMEL floats. Also, climate studies will continue using Argo data in the south Indian Ocean.

Warm Pool Dynamics in the Interaction Between Asian Summer Monsoon and ENSO

P.I.: H. Annamalai

Plans for the Next Fiscal Year

We will continue to explore the possible role of Indian Ocean SST variability on the local and remote climate. In particular, we will conduct sensitivity experiments with ECHAM5 AGCM to assess the role of southwest Indian Ocean (SWIO) SST on the East Asian winter monsoon, and also on the northern hemispheric circulation during boreal winter. Having recognized that the SST anomalies over SWIO persist for more than 5-6 months, we will evaluate their impact on the Indian summer monsoon too.

Tropical Meteorology

NWS Pacific International Training Desk

P.I.: Thomas A. Schroeder

Plans for the Next Fiscal Year

The program will continue handling a steady stream of trainees.

Compilation, Digitization, and Use of Hawaii State Rainfall Records

P.I.: Pao-Shin Chu

Plans for the Next Fiscal Year

After completion of data processing for all six islands, we are in the process of sending data to the NCDC. As we continue to work with the data, we correct typing errors, data errors, or anything that is deemed necessary to fix in order to complete a perfect data set. We also plan to produce maps showing the location of state gages island by island using Geographic Information System tools. Once the data is completely accepted by NCDC, we plan to publish it on our web site for wider dissemination.

Fisheries Oceanography

Applications of Satellite Ocean Remote Sensing to Living Marine Resources (Ocean Remote Sensing) [CoastWatch]

P.I.: Thomas A. Schroeder [Jeffrey J. Polovina]

Plans for the Next Fiscal Year

In FY05, a focus will be to access and provide near real time Modis ocean color data and to work with researchers to develop ecosystem indicators based on satellite data to monitor the North Pacific.

Western Pacific Fisheries Information Network (WPacFIN)

P.I.: Thomas A. Schroeder [David C. Hamm]

Plans for the Next Fiscal Year

The overall goal of the WPacFIN project is to continue providing the wide range of technical support needed to continue improving fisheries monitoring, management, and research programs throughout the region. Systems development efforts are ongoing in each of the Pacific island areas. The project will develop new and robust data integration algorithms for HDAR data to improve creation of “best available” statistics from the various data sets (e.g. integrating dealer- and fisherman-reported data), data quality-control and reporting modules for HDAR’s new aquarium fish reporting system, and data integration and reporting modules for DAWR’s inshore and offshore and commercial landings data systems. It will continue work on and complete the design, programming, and implementation of DFW’s vessel classification system. Also, it will design, program, and implement a Tutuila-based inshore creel survey system for the DMWR (note: this was part of last year’s project, but it was delayed due to lack of staff and support from DMWR. DMWR intends to implement it and a survey in the Manu`a islands next year if possible). Reports are also a priority for the WPacFIN project, and related goals include 1) completing the design, programming, and implementation of automated annual report module generators for the Bottomfish and Pelagics Plan Teams for Hawaii; 2) designing, programming, and implementing processes for generating summary statistics and graphical outputs for use by the Coral Reef Ecosystem Plan Team (CREPT) to produce the first annual report for this FMP for Guam, CNMI, American Samoa, and Hawaii fisheries agencies (note: this is a continuing project because the CREPT only recently developed specifications for the report); and 3) continuing the development and improvement of automated production software for “Fisheries of the United States” and “Fishery Statistics of the Western Pacific” for Guam, CNMI, American Samoa, and Hawaii. The WPacFIN Webpage, having received major improvements this year, will be upgraded and maintained as resources permit. Likewise, DIAS implementation and form archival procedures at all island agencies will be improved, expanded, and standardized where possible.

Marine Resource Dynamics and Assessment Program (MARDAP)

Cooperative Research

P.I.: Thomas A. Schroeder [Christopher H. Boggs]

Plans for the Next Fiscal Year

A Cooperative Research Workshop will be hosted in Honolulu as originally planned. The new marlin bycatch component of the project will compare the catch and revenue generated by contracted commercial fishing vessels alternating between modified gear and normal (control) gear on alternate sets beginning in late 2004. Research cruise results from the early 1990’s on catch by branch line positions have indicated a gear modification that could reduce istiophorid billfish catch rates by 70-80% compared to regular tuna longline gear, and by 40-60% compared to deep-set tuna longline gear, while bigeye tuna catch rates could increase by 60-460%. A cooperative commercial demonstration of this “win-win” concept using the Hawaii-based longline fleet could promote voluntary adoption by the international fleets, and could protect upwards of 50,000 Pacific blue marlins from capture per year. Benefits of global adoption would greatly exceed Pacific benefits, as marlins are overfished in the Atlantic. A report of initial results would be made at the Lake Arrowhead Tuna Conference in May ‘05. A peer-reviewed paper on the results would be completed and published by the end of the following year.

Research Support

P.I.: Thomas A. Schroeder [Susan K. Kamei]

Plans for the Next Fiscal Year

Continuing fishery monitoring support and research operations support. Efforts will continue to formalize the electronic longline logbook and to expand its use within the fishery both in Hawaii and American Samoa. Cross checking of the trip data from American Samoa may be done as the fishery observer program expands in the region. Will devote additional resources to website development and expansion of administrative capabilities to relieve scientific staff of these duties, so more time can be spent on direct research and professional development. Extensive logistical support will be required to assist in several major renovations and space projects.

Economics of Fisheries Initiative

P.I.: Thomas A. Schroeder [Minling Pan]

Plans for the Next Fiscal Year

First, to complete the on-going studies including the Economic Evaluation of Hawaii Fishing Tournaments and the cost-earning study on the NWHI bottomfish vessels; second, to begin the new projects funded in FY04, which include 1) to investigate technological changes and their impact on fishing capacity in the Hawaii-based longline fishery; 2) to study the costs of transshipping tuna and swordfish to the US mainland and foreign countries; and 3) to continue the continuous economic data collection system through the PIRO observer program.

Lobster Research Program

P.I.: Thomas A. Schroeder [Gerard DiNardo]

Plans for the Next Fiscal Year

Continue spiny lobster tagging experiments at Necker Island and slipper lobster tagging experiments at Maro Reef. Conduct the NWHI lobster resource survey in June 2005. Expand the spatial scope of the NWHI lobster resource survey and tagging experiments to archipelago wide. Plan and participate in the Third Scientific Symposium on Resource Investigations in the NWHI, scheduled for November 2004 at the Hawaii Convention Center. Conduct a NWHI lobster stock assessment and continue population model development.

Don't Duck Metadata

P.I.: Thomas A. Schroeder [Michael Parke]

Plans for the Next Fiscal Year

Project funding is exhausted.

Pelagic Fisheries Essential Fish Habitat Research

P.I.: Thomas A. Schroeder [Michael Parke]

Plans for the Next Fiscal Year

Need to hire temporary programmer to develop user interface to integrated data. Will use data to model pelagic fishery and endangered species interactions, as well as economic catch variations related to environmental variables.

Sociocultural Profile of Pacific Islands Region Fishing Communities

P.I.: Thomas A. Schroeder [Stewart Allen]

Plans for the Next Fiscal Year

Other information needs likely will require primary research such as interviews with fishermen and community leaders. Such variables include perceptions of various sectors of fishing, community involvement in fishing organizations, perceptions of trends in fishing regulations, information about individual fishing businesses operating in the ports, and fisheries events in each port. Over the next year, funding permitting, we plan to conduct 20-40 interviews with fishermen

and knowledgeable individuals in Hawaii and the flag territories to meet the needs identified in the project final report (anticipated October 2004).

Protected Species Investigations

Hawaiian Monk Seal/Cetacean Program

P.I.: Thomas A. Schroeder [George Antonelis]

Plans for the Next Fiscal Year

In FY05 ongoing monk seal projects will include population monitoring and assessment, characterization of foraging ecology, and evaluation of health and disease. Also, cetacean studies will begin in collaboration with scientists from the following research groups: Southwest Fisheries Science Center, National Humpback Whale Sanctuary, and non-government organizations.

Swordfish Research

P.I.: Thomas A. Schroeder [Karen Sender]

Plans for the Next Fiscal Year

Continue implementation of the InPort metadata catalog with migration to HQ. Review, enhancement, and generalization of data management tools and techniques developed in FY 2003 and 2004 to promote migration of the Hawaii LODS to other Fisheries Science Centers. Development of an Economic Data Management Module and integration with LODS.

Marine Turtle Research Program

P.I.: Thomas A. Schroeder [George H. Balazs]

Plans for the Next Fiscal Year

Major emphasis will continue to be placed on the research of the pelagic ecology and movements of sea turtles to develop management strategies to reduce fisheries bycatch. Continuing research will be conducted on fibropapillomatosis disease with emphasis on specimens obtained from the Hawaii sea turtle stranding and salvage program.. Research and training will continue with Pacific island and Pacific Rim scientists to promote understanding of the biology, migrations, life history, and conservation of sea turtle populations in order to promote population recovery of these threatened and endangered species.

Research Aimed to Reduce Sea Turtle-Longline Interactions

P.I.: Thomas A. Schroeder [Jana Yonat Swimmer]

Plans for the Next Fiscal Year

- 1) Future work on identifying potentially repellent baits is planned at the NOAA Sea Turtle Facility in Galveston, TX. Specifically, we will conduct similar behavioral experiments as noted above, yet with chemicals likely to either mask odors (e.g., 2-phenylethanol) or serve as repellents (e.g., tiger shark homogenates). Fall 2004.
- 2) Conduct research on captive sea turtles in Brazil to determine potentially repellent odors.
- 3) Continue collaborative research with Costa Rican, Brazilian, and Ecuadorian scientists to conduct field trials to determine the efficacy of a proposed mitigation measures (e.g. large circle hooks). Additionally, blood samples will be collected from incidentally-caught turtles in order to analyze biochemical parameters associated with stress. Fall 2004, Winter 2005.
- 4) Host a meeting on the sensory physiology of marine turtles, specifically in relation to their attraction to longline fishing gear. Winter 2005.

Protected Resources Environmental Compliance Initiative

P.I.: Thomas A. Schroeder [Margaret Akamine and Tamra Faris]

Plans for the Next Fiscal Year

During FY2005, the program plans to continue all initiatives that were ongoing in FY2004, including hiring a protected resources workshop coordinator.

Sustainable Fisheries Initiative

P.I.: Thomas A. Schroeder [Alvin Katekaru]

Plans for the Next Fiscal Year

We plan to continue our dehooking education, data/monitoring, and permit related projects. As far as international projects are concerned, we plan to continue projects related to Turtle Excluder Devices (TEDs) in Papua New Guinea prawn trawl fleet, continue projects with the Marshall Islands observer program and fishery, and begin observer-training projects in the Solomon Islands. We also hope to hire two new JIMAR employees to assist the Sustainable Fisheries Initiative further.

Climate Change and Ecosystem Variability in the North Pacific Ocean and the Dynamics of Marine Resource Populations

P.I.: Thomas A. Schroeder [R. Michael Laurs]

Plans for the Next Fiscal Year

In the coming year, research in the environmental variability project will enter a new phase of research that will characterize the linkages between basin-scale climate variability and local responses in mesoscale coastal ocean circulation and structure. The research will involve collaboration with a diverse group of investigators from several Federal and academic institutions and will emphasize the development of metrics based on multiple marine data sets to provide robust indicators of the response of marine populations to climate change. The fisheries and ecosystems modeling research will concentrate further on understanding the mechanisms by which ecosystem processes influence the production of marine resources and as describing how Chinook salmon use habitats off the coast of California. The satellite remote sensing project will become a separate JIMAR Research Task with emphasis on conducting research related to near real-time satellite data products support for west coast regional associations of the Integrated Ocean Observing System (IOOS).

Pelagic Fisheries Research Program: Program Management

P.I.: John Sibert

Plans for the Next Fiscal Year

- Work closely with the PIFSC to improve budgetary arrangements and coordination of research programming.
- Facilitate international collaboration in research on pelagic fisheries.

Integrative Modeling in Support of the Pelagic Fisheries Research Program: Spatially Disaggregated Population Dynamics Models for Pelagic Fisheries

P.I.: John Sibert

Plans for the Next Fiscal Year

- Augment the analysis of Coral Sea bigeye tracking data by comparison with sea-surface temperature.
- Analyze currently-used light-based geolocation algorithms to identify and correct the source of the auto correlated latitude bias.
- Refine the inclusion of temperature in the Kalman filter model.
- Complete analysis of HTTP data using the ADRM.

Integrated Modeling for Hawaiian Albatross Populations

P.I.: Dan Goodman and Jean-Dominique Lebreton

Plans for the Next Fiscal Year

- Complete CR analysis: clean database, select dataset for juvenile survival, and recruit in different islands to see if there are differences on survival between nest sites. A visit to Hawaii (fall 2004) to learn precise details of how data were obtained, will help to solve design problems due primarily to geographic distribution of effort.
- Test correlation between survival and by-catch based on a model with covariates by-catch (when known: Hawaiian fleet) and fishing effort when no estimate of by-catch is available.
- Collaborative Meeting to start the phase devoted to integrated modeling, in particular for what concerns Bayesian approaches.
- Compare the various approaches to integrated modeling. Reassess using these tools the relationship between survival and by-catch and effort covariates. Assess the consequences at the population level. Start writing down results.

Instrumented Buoys as Autonomous Observatories of Pelagic Ecosystems

P.I.: Kim Holland

Plans for the Next Fiscal Year

- Additional target strength and acoustic signature tests with captive tuna and other species that are commonly found in FAD-associations
- Laboratory testing of various “ecology tags” (with tuna and sharks)
- Deployment of prototype “Smart FAD”

Survivorship, Migrations, and Diving Patterns of Sea Turtles Released from Commercial Longline Fishing Gear, Determined with Pop-up Satellite Archival Transmitters

P.I.: Yonat Swimmer, Mike Musyl, Lianne McNaughton, Richard Brill

Plans for the Next Fiscal Year

We plan to continue tagging efforts with collaborators in Costa Rica and Brazil. Additionally, we have recently trained fisheries observers that will accompany Hawaii-based vessels for the required 100% coverage for the “experimental longline fishery”. Each observer will be equipped with PSATs for the purpose of tracking hard-shelled turtles post-release. We are also in contact with various organizations in the Central and Western Pacific that may assist in our efforts to tag turtles after their release from fishing gear. We will likely increase use of conventional satellite tags in an effort to get more accurate estimates of geolocations.

Comparisons of Catch Rates for Target and Incidentally Taken Fishes in Widely Separated Areas of the Pacific Ocean

P.I.: William A. Walsh and Keith A. Bigelow

Plans for the Next Fiscal Year

The intentions for FY 05 are to update and finalize the preliminary GAM's that have been fitted for all of the species of interest identified in the proposal, then use these as comparison standards for the logbooks from the Hawaii-based longline fishery as well as those of other US fisheries. Observer and logbook data are now available for the 10-year from March 1994 (the founding of the observer program) through March 2004. The preliminary data correction work for this project can probably be combined with the remainder from the previous project, furthering both, in order to assess methodology and logbook accuracy from a comparative perspective. It should prove useful to determine whether incidentally-caught and targeted species exhibit different types of biases, and assess whether the detailed and rather laborious efforts required to correct logbook data with the incidentally-caught species are necessary with the targets. Prior experience has indicated that logbook data for the latter tend to be considerably more accurate than incidental catch data. Logbook data from Guam and American Samoa are available as ORACLE files in the Honolulu Laboratory data archives (these log-

books are similar to those in the Hawaii fishery). Data from California (1991-2001) are also available, although in three formats. In addition, preliminary discussions have been held with Mr. Tim Lawson, fisheries statistician with the Secretariat of the Pacific Community, and he has expressed interest in data comparisons.

Incidental Catch of Non-target Fish Species and Sea Turtles: Comparing Hawaii's Pelagic Longline Fishery Against Others

P.I.: Paul K. Bartram and John Kaneko (PacMar, Inc.)

Plans for the Next Fiscal Year

Project final report completed.

Causes of Rapid Declines in World Billfish Catch Rates

P.I.: Ransom A. Myers

Plans for the Next Fiscal Year

[Project terminated in FY 2004]

Trophic Structure and Tuna Movement in the Cold Tongue-warm Pool Pelagic Ecosystem of the Equatorial Pacific

P.I.: Valerie Allain, Brian N. Popp, Felipe Galvan-Magana, and Robert Olson

Plans for the Next Fiscal Year

We have presented results of this study at the 4th Stable Isotope Ecology Conference in Wellington in April 2004 and at the PFRP PI meeting during the 55th Tuna Conference in Lake Arrowhead in May 2004. A workshop on isotopes, partially funded by GLOBEC, is being organized by the project PIs in La Paz, Mexico, in May-June 2004 with invited scientists working on similar projects in Australia and Atlantic/Indian Oceans. Concomitant to these meetings, but also during a meeting scheduled in March 2005 in Hawaii, PIs and collaborators will meet to discuss progress, problems, future plans, and to discuss interpretation of the stomach content and isotope analyses.

Western/central Pacific

In the western/central Pacific, sampling will be pursued to increase the number of predator stomachs, muscle, and liver samples collected. Stomach examination will continue, and data will be analyzed for most of the species and included in an Ecopath model of the ecosystems. The number of samples analyzed isotopically will be increased to establish an isotope-derived Pacific map for the most important species of the ecosystem.

Possibilities to join scientific cruises for collection of plankton and prey samples will be explored. We plan to still explore the possibility of requesting samples of sessile primary producers (i.e. barnacles) to be collected on NOAA vessels servicing the TOGA-TAO array in the central Pacific.

Eastern Pacific

Sampling is being intensified during 2004 due to a budget increase provided by PFRP for year 2, 2004. With the budget increase, we will sample 50 trips during 2004. The additional diet and isotope data obtained from intensified sampling will greatly help parameterize a new ecosystem model for the eastern Pacific. This will provide valuable input for continuing efforts to incorporate ecosystem considerations in fisheries management. Stomach contents analysis from purse-seine caught predators will continue by CICIMAR personnel. It is unlikely that we will obtain samples of POM, zooplankton, forage fishes, or invertebrates from the lone STAR cruise to be conducted by the U.S. National Marine Fisheries Service during 2004. This is because that cruise is planned to survey the mammal stocks in nearshore areas only. We will attempt to obtain samples from other research cruises on an opportunistic basis.

Distributions, Histories, and Recent Catch Trends with Six Fish Taxa Taken as Incidental Catch by the Hawaii-based Commercial Longline Fishery

P.I.: William A. Walsh and Keith A. Bigelow

Plans for the Next Fiscal Year

The intention is to continue to provide completed reports with corrected catch histories. Also, the data linkage and quality control efforts will be ongoing activities.

Recreational Fisheries Meta Data Project

P.I.: Paul Dalzell

Plans for the Next Fiscal Year

This project will terminate in 2004.

Development of a Hierarchical Model to Estimate Sea Turtle Rookery Contributions to Mixed Stocks in Foraging Habitats

P.I.: Benjamin Bolker

Plans for the Next Fiscal Year

We are not funded in the next fiscal year. In the remainder of this fiscal year we plan to finish our DIC and “many-to-many” stock-analysis mss.; to follow up contacts made at the PFRP meeting last December to work on applying our methods to Pacific sea turtle stock; and to continue working to make the procedures we have developed robust and to incorporate them into a relatively user-friendly package running on top of the R programming environment (possibly tying in the BUGS statistical estimation package as well).

Satellite Remote Sensing

P.I.: Thomas A. Schroeder [Jeffrey Polovina]

Plans for the Next Fiscal Year

During FY05 the data recovered from FY04 tagging will be analyzed to describe the habitats of key pelagic animals. Indices of the state of the North Pacific derived from satellite remotely sensed data will be updated and links between these indicators and the dynamics of living marine resources further explored.

Sociological Baseline of Hawaii's Longline Fishery

P.I.: Stewart Allen

Plans for the Next Fiscal Year

Plans for the next fiscal year include finishing data entry for the processing segment of the longline industry (i.e., fishermen), completing interviews with longline support sectors, and analyzing the processor information to produce a preliminary report. In addition, we plan to revise the interview process to accommodate individuals involved in the wholesale/retail distribution chain for longline-caught fish, interviewing 30-60 of those individuals, entering the data into project databases, and analyzing the data. We then will produce a final report that includes both the processor/support industry segment and the distribution segment of the industry.

Direct Tests of the Efficacy of Bait and Gear Modifications for Reducing Interactions of Sea Turtles with Longline Fishing Gear in Costa Rica

P.I.: Yonat Swimmer, Randall Arauz, Christofer Boggs, Marti McCracken, Richard Brill

Plans for the Next Fiscal Year

Conduct similar experiments with 2 commercial fishing boats yet with the treatment as large (16/0 and 18/0) Circle hooks. Experiments will be conducted in November or December 2004.

Incorporating Oceanographic Data in Stock Assessments of Blue Sharks and Other Species Incidentally Caught in the Hawaii-based Longline Fishery

P.I.: Pierre Kleiber and Hideki Nakano

Plans for the Next Fiscal Year

The longline shoaling manuscript will be submitted to a refereed journal. The longline observer database and a TDR database will be linked to generate histograms of CPUE by depth and temperature strata for 11 species. Continue collaboration with a non-PFRP project (K. Bigelow of NOAA Fisheries and J. Hampton of the Secretariat of the Pacific Community) to estimate habitat-based longline effective effort. 1.

Modeling Longline Fleet Effort Dynamics and Protected Species Interactions

P.I.: PingSun Leung, Naresh Pradhan, and Sam Pooley

Plans for the Next Fiscal Year

The next 12 months will be spent on

1. Finalize the estimated catch effort relationships
2. Analyze the factors, rate, and degree of sea bird interactions with the longline fishery.
3. Continue to work on the modifications, improvements, and testing of the fleet effort dynamics by considering protected species interaction with the longline fishing activities and the newly estimated catch-effort relationships.
4. Prepare papers from (1), (2), and (3) above for conference presentations and journal publications.

Ecological Characterization of American Samoa's Alia Small-scale Longline Albacore Fishery

P.I.: John Kaneko and Paul K. Bartram (PacMar, Inc.)

Plans for the Next Fiscal Year

The data collection will be completed in August 2004. Analysis will be completed and the final report written in September 2004 and the project will be completed.

Mixed-resolution Models for Investigating Individual to Population Spatial Dynamics of Large Pelagics

P.I.: Patrick Lehodey

Plans for the Next Fiscal Year

The first advance related to half the personnel cost of the postdoctoral researcher (year 1) will cover his salary until October 2004. We will require the advance for the second half of year 1 that will cover the period until April 2005 (cf table in separate page). In 2005, we will require the advance for the second year of the project (US\$ 62,500) that will be closed after the first quarter of 2006.

Research activities will include:

- Simulations at different time and space resolutions based on predicted fields from the coupled physical-bio-geochemical model (ESSIC, Univ. Maryland) and the model SEAPODYM (SPC).
- Evaluation of the predicted biomass distribution of the three forage components in SEAPODYM.
- Analyses of bigeye tuna habitat predicted from SEAPODYM against observed tuna behaviour from archival tag data
- Development of the IBM model and first simulations using the predicted environment from ESSIC and SEAPODYM.
- Development of a multi-grid technique to be used in ESSIC and SEAPODYM models.

A General Bayesian Integrated Population Dynamics Model for Protected Species

P.I.: Mark Maunder

Plans for the Next Fiscal Year

Albatross

We intend to continue our collaboration with Jean-Dominique Lebreton's group on analyzing mark-recapture data for the Tern Island population of black-footed albatross and development of integrated models. In a comparative analysis, we will also apply MULTIFAN-CL to the data for the Tern Island population of black-footed albatross. Meetings will be held between our group, Jean-Dominique Lebreton's, and other albatross researchers. We plan to attend the 5-yearly albatross conference in Uruguay, August 2004.

Dolphins

We will develop the spotted dolphin model and analysis further for publication in a marine mammal-oriented journal.

Turtles

We will develop links with sea turtle researchers and apply a general integrated model to a sea turtle population. We will meet with turtle researchers to form collaborative research projects.

General model

The Bayesian integrated model will be further developed and applied to the Tern Island population of black footed albatross and other species. Presentation of results at a modeling conference will be desirable.

Methodological development

MM and SH will attend the 2004 International Biometric Conference and both will give presentations (<http://www.ozaccom.com.au/cairns2004/>). We will carry out further investigation into appropriate methods to include information in models of protected species and to estimate uncertainty.

Collaborations

We will collaborate with Jaume Forcada, Biological Sciences Division NERC, and British Antarctic Survey to produce a penguin population analysis.

PFRP

We will attend the tuna conference, give presentations on the research, and attend the PI meeting.

Evaluating Biochemical and Physiological Predictors of Long-Term Survival in Released Pacific Blue Marlin Tagged with Pop-up Satellite Archival Transmitters (PSATs)

P.I.: Michael Musyl, Christopher D. Moyes, and Richard W. Brill

Plans for the Next Fiscal Year

This project was originally planned as a two-year project and therefore no continuation is anticipated in FY05.

Pop-off Satellite Archival Tags to Chronicle the Survival and Movements of Blue Sharks Following Release from Longline Gear

P.I.: Michael Musyl and Richard W. Brill

Plans for the Next Fiscal Year

In FY 2004, project personnel will continue to analyze data outlined above. Other activities will consist of preparing draft manuscripts and disseminating preliminary findings to various venues, such as those provided by scientific conferences and through the popular press. Additional PSATs, provided in-kind through NMFS, will be used to opportunistically tag rare and other pelagic fish and shark species. Project personnel will also work with Dr Sibert and Johnnoel Ancheta of PFRP to develop a meta database for archival and PSAT data. Archival data from a mooring line experiment (see Musyl et al. 2001.) and bigeye tuna (Musyl et al. 2003., Sibert, et al. 2003) will officially launch the project. PSAT data from this

and other PFRP studies will be added to the database after publication. To further investigate PSAT reporting rates and possible explanatory factors, project personnel have organized the construction of a meta database which will incorporate PSAT information from a number of different researchers (i.e. Musyl, Brill, Swimmer, Lutcavage, Wilson, Arnold and Domeier) on many different species to explore for patterns and commonalities (e.g. comparing serial numbers of non-reporting tags, etc.) in tag failure. Next, personnel will try and test captive sharks' response to electrical fields emitted by PSATs and PTTs. These experiments are designed to ascertain whether sharks are attracted to electrical fields produced by PSATs and PTTs, which may account for some tag failures, especially during mating when nuptial biting behavior is enhanced.

Describing Habitat of Bigeye and Albacore Tunas

P.I.: Jeffrey Polovina and Mike Seki

Plans for the Next Fiscal Year

Continue tag deployment around Hawaii and American Samoa in FY05. Consider tag deployment in American Samoa during a period with cooler water temperatures to try to reduce tag and release mortality.

Regulatory Impact Analysis Framework for Hawaii Pelagic Fishery Management: A Multilevel and Multi-objective Programming Model

P.I.: Keiichi Nemoto and Samuel Pooley

Plans for the Next Fiscal Year

A manuscript is almost ready to publish to referee journals. At present, I'm considering Marine Policy, Marine Resource Economics, or Fisheries Research as the venue for publication. The remaining activities and further applications/extension of the models will be inherited to a new PFRP project ("Spatial Modeling of the Tradeoff between Sea Turtle Take Reduction and Economic Returns to the Hawaii Longline Fishery," co-PI with Michael Parke), which is an extension of the current project. Please refer to the proposal for the new PFRP project for its detailed activities.

Coastal Research

PIRO Coral Reef Management Initiative

P.I.: Thomas A. Schroeder [Alan Everson and John Naughton]

Plans for the Next Fiscal Year

Continue with the mitigation field assessments and complete literature review of coral reef mitigation techniques. Plan to hold a workshop on mitigation techniques in FY05. Also continue to co-chair mitigation working group and to establish draft coral reef functional assessment guidelines. The GIS database will be expanded and a working prototype used for impact assessment will be implemented. Participation in coral reef conservation in American Samoa will also continue. A coral reef fishery management workshop for American Samoa will be held in FY05 with the assistance of our field office.

Sustaining Healthy Coastal Ecosystems

P.I.: Thomas A. Schroeder [Russell E. Brainard]

Plans for the Next Fiscal Year

Continued coral reef assessment and monitoring efforts are scheduled for FY 2005 on board the NOAA Ships, Oscar Elton Sette and Hi'i Alakai. There will be CRED research cruises to the Northwestern Hawaiian Islands, Guam/CNMI, and the Main Hawaiian Islands. Benthic habitat mapping and characterization efforts will be conducted off the small boat AHI and the NOAA Ship Hi'i Alakai, and are scheduled for the Northwestern Hawaiian Islands, Guam/CNMI, and the Main Hawaiian Islands. Replacement and deployment of various oceanographic and meteorological monitoring platforms are also scheduled for all locations next fiscal year.