WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

DRAFT
Cooperative Research Priorities for 2015/2016

AMERICAN SAMOA ARCHIPELAGO

1. Estimating Fish Aggregating Devise (FAD) productivity from fishermen-collected data

Fish aggregating devices (FADs) attract numerous pelagic fishes and have been frequently used by sportsfishermen and subsistence fishermen to enhance fisheries. The main objective of this proposal is to determine the relative productivities of FADs that are variously located in American Samoa. Subsistence and sportsfishermen will regularly report species and size classes of pelagic fish collected in shallow-water and deep-water FADs using standard data collection forms. These data will be correlated with oceanographic data such as current patterns. Current data will be collected by deploying current meters in variously FADs. The products of this proposal will include: (1) catch data in FADs; (2) seasonality of catch in these FADs; (3) model on the relationship between current data and distance from shore of catch data; and (4) a workshop at the end of the project to feedback these information to subsistence and sportsfishermen

MARIANAS ARCHIPELAGO

1. An evaluation of shark depredation occurrence in the Guam and Saipan small boat fishery

The series of public meetings in Guam and Saipan yield some issues with depredation by sharks in the Guam and Saipan small boat fishery. Shark depredation results in loss of income of the fishermen as well as some bias in the catch reporting where the catch is lowered whereas the effort is reported in total yielding a decrease in CPUE. This is an artificial decrease due to non-reporting of depredated catch. Environmental organizations are pushing for the conservation of sharks in the Marianas based on supposed decline in shark biomass from the underwater census surveys. Evaluating the depredation rates would provide a different angle to the shark population status because these are the population segments that interact with the fishery as opposed from those that are being sighted on a depth limited and area specific survey.

2. A study of near shore FADs including catches and stock structure by tagging fish

A baseline assessment of near shore FADs is needed to determine the amount of catch it generates relative to open ocean fishing and also to determine the stock structure of assemblages associated with FADs. These FADs are essential for the small boat fishery that has limited sea time and area coverage. Taking advantage of aggregations makes the trip efficient resulting in an increase in CPUE if the catches from FADs are reported properly. The effectiveness of FADs would also vary depending on location.

FADs known to be close to a larger structure has less aggregation. Fishermen will contribute to the site selection, deployment of FADs and collection of data from these FADs.

3. **Improving catch-by-fishing location information and ground-truthing interview information through advanced technology**

Geographic Information System assisted mapping had revolutionized spatial management across different disciplines including marine, fishery science and fishery management. This was made possible through development of advanced technology that enabled accurate mapping of habitats, critical fishing grounds and associated biota using optical and acoustic instrumentation all coupled with the use of a geographic positioning system. Marianas currently derive its fishing ground information from the catch interview phase of the creel survey. This needs to be validated using the GPS with the collaboration and consent of the participating fishermen. All the data generated will be treated confidentially. This will also generate area specific CPUE to determine area productivity with the aim of generating an enhanced stock assessment.

HAWAII ARCHIPELAGO

1. **Continuation of the bottomfish tagging study**

Bottomfish tagging is essential to determine the spatial distribution of its home range as well as elucidating the temporal vertical migration pattern of this essential resource for the Hawaii market. Part of elucidating home ranges is the evaluation of the effectiveness of the Bottomfish Restricted Fishing Areas both in federal and state waters. The effectiveness of Restricted Fishing Areas would depend on whether it was properly designed (by size and location) incorporating biology and ecology of bottomfish. Cross area tagging would elucidate information on BRFA retention of adults when the tagged bottomfish inside the BRFA are captured outside the BRFA boundary. The tagging data would also fine tune the survival estimates as well as the population parameters needed for stock assessments.

2. **Continue cooperative sampling through bottomfishers and PIFG in obtaining bottomfish samples for life history studies**

Researchers within PIFSC's Fisheries Monitoring and Stock Assessment Division (FRMD) have been working with cooperative bottomfishers and the Pacific Islands Fisheries Group (PIFG) to capture rarely encountered sizes (juveniles and large adults) of Deep-7 bottomfish species. These sizes are needed by FRMD Life History Program researchers to determine early growth rates and to verify 1st and 2nd annual growth marks within otoliths (juvenile stages) and to determine longevity (from large adults) based on otolith trace geochemistry techniques. This information provides a more complete determination of the length-at-age relationship, size at sexual maturity, and lifespan within these species; information that is essential to provide an improved stock assessment of this species group.

Fishermen participating in this research project had established a good working relationship with their clients (either markets or restaurants). One of the arrangements was to supply the fish already gilled and gutted which provides a good opportunity to sample otolith and gonads from the fish they provide their clients. This increases the sampling opportunity for life history studies.

PACIFIC PELAGICS

1. Study to determine longline fishery post-hooking mortality of marlin and secondarily of other species, as appropriate

An increase in size limits for any given fishery will result in an increase in the number of fish that will be tossed back to sea after being caught in a fishing gear if it does not meet the minimum size requirement. In the longline fishery, it will entail release of hooked marlins (or other pelagic species) and it has to be determined whether post-hooked individuals are able to survive. It is important to determine the post hooking mortality in a situation where a regulatory change will result in an increase in release of caught fish whereby it may be just a biological waste if the fish is not able to survive and would have been better off being retained.

2. Mark and recapture studies of reef and pelagic sharks in the Mariana Archipelago to determine residency time and migration

This priority is supplemental to the shark depredation priority in the Marianas Archipelago. There are conflicting views between the fishing industry and scientist towards the status of the shark population in the Marianas archipelago. Mark and recapture studies can support determining the shark population size, residency times, and migration patterns. Tagging using pop-up archival tag or radio tags could provide home ranges information and habitat utilization pattern that could resolve the differences in view and opinion regarding visual observation and capture via fishing interactions.

PROTECTED SPECIES

1. Protected species bycatch reduction and engineering in the Hawaii longline fishery

Addressing protected species interactions in the Hawaii longline fishery continue to be a high management priority. In particular, long-term technical solutions to false killer whale hookings and entanglements, as well as associated depredation events are needed to ensure that the fishery, as managed under the Pelagic Fishery Ecosystem Plan, continues to be managed consistently with the Marine Mammal Protection Act. Close collaboration between fishermen and researchers are essential in developing technical solutions that are effective and practical for commercial operations.