

Developing and implementing specialized surveys to document fishing methods and event not adequately addressed by the existing creel survey

FY 2014 Proposal

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1. Overview

1.1. Sponsor

Joshua DeMello

1.2. Focus Group

Survey Design and Evaluation

1.3. Background

The current data collection programs are capable of documenting common fishing methods occurring regularly on fishing grounds represented in the sampling frame of the surveys. Fishing methods and events such as village atulai fishing, night time spearfishing, fishing tournament, chenchulu fishing etc. are poorly documented by the existing survey design. Incorporation of such acute fishing events tends to overestimate landings during the expansion process. Unless these fishing methods are evaluated against the common fishing activities in terms of its relative landings and effort, one cannot assume that such fisheries are minor components and could be disregarded. A more serious complication of not accounting for fishing methods beyond the current scope of the creel surveys is the specification of ACLs for American Samoa, Guam and CNMI reef fishes. The limitation of the current creel survey design in capturing the night spearfishery resulted in a low ACL for parrotfish and surgeonfish. The catch for these reef fish families were severely underestimated due to under-representation in the creel surveys that are conducted at day-time resulting in a low 75th percentile. This also applies for the hand harvest of slipper lobsters for all island areas.

1.4. Project Description

The fishery data collection programs in American Samoa, Guam and CNMI have been in operation for about 30 years. Creel survey was the common method used to document both non-commercial and commercial catches (Oram et al. 2010a, Oram et al. 2010b, Oram et al. 2010c, Oram et al. 2010d, Oram et al. 2010e, Oram et al. 2010f). The shore-based creel surveys capture mostly the non-commercial component of the fishery while the boat-based creel survey captures both commercial and non-commercial fisheries (Walker et al 2012). The creel surveys are based on a stratified random design and should provide an unbiased estimate of catch and effort. However, implementation of proper data collection is confronted by logistical challenges which infuse bias in the estimates (Bak 2012). Some of the challenges include: 1) inadequate coverage of night time spearfishery; and 2) low number of interviews of rare fishing methods and pulse fisheries that overinflates the expansion results. This project complements the existing creel survey data collection by determining the effects of pulse fisheries on the expansion. This project also evaluates the quantity of catch generated by fishing methods that are rarely encountered by the creel survey interviews. This will provide important information to gauge the impacts of undocumented fishing methods. The rare fishing events and low catch interview for rare fishing methods creates an upward bias in the current creel expansion system generating large fluctuations in the time series. This has an effect in ACL management where the ACLs are exceeded in some years not because the fishery landed large amount of fish but the expansion was overinflated due to low catch interviews.

1.5. Public Description

1.6. Objectives

This project aims to document the fishery statistics for these fishing methods and events and compare the results with the statistics from the creel surveys in order to evaluate the contribution of these methods and events in the overall fishery production. The objectives of this project are: 1. Design and conduct surveys to document fishery statistics of methods not adequately captured by the creel surveys; 2. Calibrate the results from this survey with the results taken from the creel surveys; 3. Evaluate these fisheries relative to the common fisheries to determine importance on these fisheries in the overall fishery production; and 4. Determine how to statistically incorporate the results into the creel survey expansions

1.7. References

Bak S. 2012. Evaluation of Creel Survey Program in the Western Pacific Region (Guam, CNMI, and American Samoa). Western Pacific Regional Fishery Management Council, Honolulu, Hawaii, USA. 96813. Pp. 59. Walker R, Ballou L, Wolfford B. 2012. Non-Commercial Coral Reef Fishery Assessments for the Western Pacific Region. Western Pacific Regional Fishery Management Council, Honolulu, Hawaii, USA. 96813. Pp. 191. Oram, R., N. R. Roberto, M. Trianni, M. Quach, D. Hamm, P. Tao. 2010a. Saipan Shore-Based Creel Survey Documentation. NOAA, National Marine Fishery Service, Pacific Island Fishery Science Center, Administrative Report x-xx-xx. Oram, R., N. R. Roberto, M. Trianni, M. Quach, D. Hamm, P. Tao. 2010b. Saipan Boat-Based Creel Survey Documentation. NOAA, National Marine Fishery Service, Pacific Island Fishery Science Center, Administrative Report x-xx-xx. Oram, R., N. TuiSamoa, J. Tomanogi, M. Sabater, M. Quach, D. Hamm, C. Graham. 2010c. American Samoa Shore-Based Creel Survey Documentation. NOAA, National Marine Fishery Service, Pacific Island Fishery Science Center, Administrative Report x-xx-xx. Oram, R., N. TuiSamoa, J. Tomanogi, M. Sabater, M. Quach, D. Hamm, C. Graham. 2010d. American Samoa Boat-Based Creel Survey Documentation. NOAA, National Marine Fishery Service, Pacific Island Fishery Science Center, Administrative Report x-xx-xx. Oram, R., T. Flores, B. Tibbatts, J. Gutierrez, J. P. Gesner, S. Wusstig, Quach, D. Hamm, P. Tao. 2010e. Guam Shore-Based Creel Survey Documentation. NOAA, National Marine Fishery

Service, Pacific Island Fishery Science Center, Administrative Report x-xx-xx. Oram, R., T. Flores, B. Tibbatts, J. Gutierrez, J. P. Gesner, S. Wusstig, Quach, D. Hamm, P. Tao. 2010f. Guam Boat-Based Creel Survey Documentation. NOAA, National Marine Fishery Service, Pacific Island Fishery Science Center, Administrative Report x-xx-xx.

2. Methodology

2.1. Methodology

An independent contractor will be hired to conduct the activities under this project. The team that conducted the field data collection for the MRIP funded project "Pilot surveys at unsampled ports and shoreline to calibrate adjustment factors in the expansion of catch, effort and CPUE from the existing creel survey in Guam - NA10NMF4410061" would be best suited for this project due to familiarity with the fisheries and would minimize training and familiarization time. A complementary survey will be conducted in which the survey and statistical design will be compatible with the existing creel survey protocols and expansion algorithm. A series of consultation will be held with the data collection staff of DMWR, DAWR, DFW and the managers of WPacFIN to design the survey and determine the range of inadequately represented fishing methods and fisheries. An evaluation of the existing data will be done in order to estimate how much of these fishing methods and events are represented in the existing creel. This will be the basis for the calibration between the existing data and against the information gathered through this project. The current creel surveys are limited to day time fisheries due to local government restrictions. The spear fishery is not adequately sampled because this fishery usually occurs at night. Utilizing a non-government managed survey team will address the survey limitations. In order to document catches and effort from this fishery, a night time survey will be conducted. This fishery is typically a boat-based fishery that leaves port early evening and return early morning the following day. Participation survey will be conducted at known fishing ports following a stratified-random design similar to the existing day time survey. Catch interviews are going to be conducted early in the morning to determine catch composition and CPUE information which will be used to expand the catch based on the participation data. The data will be compiled for one year and will be compared to the day-time creel survey reports. A calibration factor will be calculated for each family of reef fish documented in the survey. High participation fishing events like big-eye scad runs, juvenile rabbitfish and juvenile jack runs, and fishing tournaments will be documented using targeted catch and effort interviews. Local fishermen know when the runs occur and how intense the runs are going to be. The contractor will be conducting a structured interview to determine the most effective approach to conduct the survey of these pulse fisheries. It will most likely be a more intense creel survey during known periods of runs. In order to determine the relative contribution of these pulse fisheries to the overall landings of reef fish, an intense creel survey will also be conducted during the "off-peak" season. A three way comparison between: 1) regular creel survey; 2) known period of the seasonal runs; and 3) "off-peak" season will be conducted to determine appropriate calibration factors to adjust the expansion of the regular creel surveys. The expansion system will be reviewed for impacts of pulse fishery to the catch time series of big-eye scads, juvenile rabbitfish and juvenile jacks. The catch time series will be re-adjusted to address the biases that pulse fishery infuse on the expansion system. The current protocol requires omission of the data with low catch interviews to minimize the impacts of pulse fisheries. However, this was not done consistently over the years and there is currently no tracking on when this protocol applied thus putting the validity of the catch time series into question.

2.2. Region

Western Pacific Islands

2.3. Geographic Coverage

Commonwealth of Northern Mariana Islands (Saipan), Guam, and American Samoa (Island of Tutuila)

2.4. Temporal Coverage

Data collection will run for one year and stat analysis will continue for another 6 months

2.5. Frequency

Data collected weekly as in accordance with existing creel survey design

2.6. Unit of Analysis

fisherman expanded to island level

2.7. Collection Mode

Using creel survey and opportunistic surveys

3. Communication

3.1. Internal Communication

Communication with the data collection team will be done on a monthly basis via monthly reporting and email. The data team will be supervised onsite through the Council's Island Coordinator. The project team will meet on a bi-monthly basis via conference call to discuss project status.

3.2. External Communication

Monthly reports will be filed through MDMS to appraise the OT on the status of the project. Any written reports will be posted with the MDMS report.

4. Assumptions/Constraints

4.1. New Data Collection

Y

4.2. Is funding needed for this project?

Y

4.3. Funding Vehicle

MRIP

4.4. Data Resources

none

4.5. Other Resources

Completion of the project will be dependent upon existing data collected through surveys conducted by DFW, DAWR, DMWR and archived/summarized by WPacFIN for comparison with the results of this project. Data to be collected through creel survey and opportunistic surveys.

4.6. Regulations

4.7. Other

5. Final Deliverables

5.1. Additional Reports

5.2. New Data Set(s)

5.3. New System(s)

6. Project Leadership

6.1. Project Leader and Members

First Name	Last Name	Title	Role	Organization	Email	Phone 1	Phone 2
Sunny	Bak	Statistician	Team Member	Mirae Info Design			
Jay	Gutierrez	Marine Biologist	Team Member	Guam Division of Aquatic and Wildlife Resources			
Kimberly	Lowe	Program Manager	Team Member	NMFS PIFSC WPacFIN			
Todd	Miller	Chief Scientist	Team Member	CNMI Division of Fish and Wildlife			

First Name	Last Name	Title	Role	Organization	Email	Phone 1	Phone 2
Domingo	Ochavillo	Chief Fishery Biologist	Team Member	American Samoa Department of Marine and Wildlife Resources			
Marlowe	Sabater	Marine Ecosystem Scientist	Team Leader	Western Pacific Regional Fishery Management Council	Marlowe.Sabater@noaa.gov	808-522-8220	808-522-8143

7. Project Estimates

7.1. Project Schedule

Task #	Schedule Description	Prerequisite	Schedule Start Date	Schedule Finish Date	Milestone
8	Submit final report	1,2,4,5,6	09/01/2015	09/30/2015	
9	Incorporate calibration factors in the expansion system	1,2,4,5,6	10/01/2015	10/30/2015	
2	Design of survey and protocol	1	04/15/2014	05/14/2014	
4	Interview and scoping of pulse fishery season	1,2	06/01/2014	06/30/2014	
5	Conduct fishery data collection	1,2	07/01/2014	07/30/2015	
1	Hiring of data collection contractors and statistician		04/01/2014	04/30/2014	
3	Training of survey team on protocol	1,2	05/01/2014	05/31/2014	
6	Submit interview and scoping report on pulse fishery season	1,4	07/01/2014	07/31/2014	
7	Submit mid-progress report with preliminary results and analysis	1,2,4	02/01/2015	02/28/2015	

7.2. Cost Estimates

Cost Name	Cost Description	Cost Amount	Date Needed
Contractual Services for	This line item includes	\$237600.00	01/01/2014

Cost Name	Cost Description	Cost Amount	Date Needed
data collection	contracting of personnel that will collect data for one year		
Supplies and equipment	This will be used for purchase of survey equipment and supplies	\$30000.00	01/01/2014
Contractual Services for statistical design, analysis and report writing	Contracting of personnel to design the data collection program; conduct stat analysis	\$20000.00	01/01/2014
TOTAL COST		\$287600.00	

8. Risk

8.1. Project Risk

Risk Description	Risk Impact	Risk Probability	Risk Mitigation Approach
The greatest challenge is the coordination of the data collection from three different jurisdictions.	The data collection might not be on the same timeframe since capacity, dedication and discipline varies between jurisdiction.	Medium	The Council's Island Coordinators and the local co-PI from the fishery agencies will follow up and be on top of the conduct of the project.

9. Supporting Documents