SUPPORTING STATEMENT
ECONOMIC SURVEYS OF AMERICAN SAMOA, GUAM, AND THE COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS (CNMI) SMALL BOAT-BASED FISHERIES
OMB CONTROL NO. 0648-0635

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample are to be provided in tabular form. The tabulation must also include expected response rates for the collection as a whole. If the collection has been conducted before, provide the actual response rate achieved.

Potential Respondent Universe
The potential respondent universe, approximated from WPacFIN's estimation, can be defined in two aspects: in terms of the number of unique small fishing boats fishing and the number of fishing trips on an annual basis. Table 2 below shows the estimated number of small fishing boats in the three island areas. The combined survey population (boats) is 845.

Table 2. Estimated Number of Small Fishing Boats

Guam	506
CNMI	300
American Samoa	39
Total	**845**

(Source: NOAA PIFSC – WPacFIN, unpublished data)

For the potential respondent universe in terms of number of fishing trips, it is estimated from the expanded number of trips derived from the creel survey using the expansion systems developed by WPacFIN (creel survey expansion methodologies detailed in Hamm and Quach[1] (1988, included as a supplementary document)). The total number of fishing trips is approximated at 11,304 in Guam, 9,201 in CNMI, and 950 in American Samoa. Table 3 below shows the actual averages of 2006 to 2008.

Table 3. Estimated Total Number of Trips Derived from Creel Survey (2006-2008)

	2006-2008 Average
Guam	11,304
CNMI	9,201
American Samoa	950
Total	**21,455**

(Source: NOAA PIFSC – WPacFIN, unpublished data)

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[1] Hamm, David and Michael Quach. 1988. *Fishery Statistics of the Western Pacific, Volume III*. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA, Honolulu, HI 96822-2396. Administrative Report H-88-04, p172.

Sampling and Other Respondent Selection Methods
The sampling frame of the Boat-based Interview in the creel survey was developed by WPacFIN and the three local fisheries agencies as described in Question 4. Interviews are conducted several times a month (4 to 10 times) using a systematic random sampling protocol at sites (ramps/docks) that are actively used for launching fishing boats. Sample dates are drawn for monthly sampling which continues throughout the year. Each selected sample date contains two shifts: AM and PM. The data collection efforts are organized and carried by the local fisheries agencies. An interview is conducted during the shift time by well-trained fisheries staff at the scheduled site when fishermen return from their fishing trip.

Expected Response Rate
According to WPacFIN, the actual response rate from the Boat-based Interview was 76% in CNMI (2011-2013),75% in American Samoa (2011-2013), and 65% in Guam (2012-2013). Based on these response rates, we are confident that we can expect a relatively high response rates for the future.

The detailed sampling design for the economic survey is shown in Table 4. The creel survey intercept sample sizes and expected response rate are calculated based on the average number of creel surveys received and the average responses of economic surveys in Guam (2012-2013), CNMI (2011-2013), and American Samoa (2011-2013), respectively.

Table 4. Sampling Design & Response Rate for the Economic Add-on to the Creel Survey

	Guam	CNMI	American Samoa
Total number of boats (population)*	506	300	39
Creel survey intercept sample	150	70	20
Expected response rate	73%	79%	75%
Target number of surveys (boats)	110	55	15
Total number of trips (population)*	11,304	9,201	950
Creel survey intercept sample	340	145	200
Expected response rate	65%	76%	75%
Target number of surveys (trips)	220	110	150

**(Source: NOAA PIFSC – WPacFIN, unpublished data)

2. Describe the procedures for the collection, including: the statistical methodology for stratification and sample selection; the estimation procedure; the degree of accuracy needed for the purpose described in the justification; any unusual problems requiring specialized sampling procedures; and any use of periodic (less frequent than annual) data collection cycles to reduce burden.

The sampling methodology of the proposed survey will follow that used for the Boat-based Interview, as our survey is an 'add-on' portion to the creel survey. The Boat-based Creel Survey programs in the three island areas have been running for over 20 years. The creel survey is conducted several times a month, based on random sampling by type of day (weekday/weekend/ holiday) at sites that are actively used for launching fishing boats, throughout the year on an ongoing basis. Details of the survey locations, minimum survey days and shift times are shown

in Appendix A. An interview is conducted by well-trained fisheries staff at the scheduled site when fishermen return from their fishing trip. Boats are chosen on a first-come-first-served basis for interviews, with the priority being for collecting boat log data first and interviews second. When too many boats return at the same time and cannot all be interviewed, staff prioritize interviews so that boats fishing with the least-encountered fishing methods for the past month are interviewed first.

Using the trip population and target number of surveys (trips), the sampling errors at the 95% confidence level are 7% for Guam and American Samoa and 9% for CNMI. This level of accuracy will provide good estimation of fishing expenses in general. The data collected will be used for descriptive and economic analyses. Detailed economic analyses are described in Part A, Question 2.

3. Describe the methods used to maximize response rates and to deal with nonresponse. The accuracy and reliability of the information collected must be shown to be adequate for the intended uses. For collections based on sampling, a special justification must be provided if they will not yield "reliable" data that can be generalized to the universe studied.

Strategy to Maximize Response Rates
Several steps will be taken to maximize the response rates. First, all staff members are trained in in-person interviewing techniques to make sure the survey is administered properly. This includes requesting permission to do the interview. Second, the participation is completely voluntary. If the interviewers feel the fisherman does not want to participate, they immediately terminate the survey and thank the fisherman for the time. Third, the survey is short in length, only five major trip cost item questions and one question about engine type will be asked; the estimated time to complete the questions is 5 to 10 minutes. Fourth, because of the long history of the creel survey with the economic data having been collected in the past few years, the interviewers have already established good relationships with small boat fishermen and fishermen are also familiar with the questions being asked.

Non-Response
We will try to do follow-up calls to non-respondents. In addition, the boat log survey conducted at the same shift as the interview records the boats going out for fishing by type of fishing method. The boat registration number is recorded on the boat logs and also on the completed interviews so that respondents and non-respondents can be identified by fishing method. If there is a significant difference between the two groups, weights can be applied when estimating the total fishing expenses.

Accuracy and Reliability of the Information
Because the fishing expense data will be collected right after the fishing trip is completed, it is expected that the fisherman will have good recall and can provide accurate data of the fishing expenses. From the interviews with the creel data survey managers (Question 8 above), they all agreed fishermen are able to provide accurate answers.

In addition, to ensure the quality of the collected data, all staff in the creel survey programs

undergo quality assurance and quality control training for data handling, backing up the database, and archiving the raw data.

Based on the actual economic survey response rates, we should have an adequate sample size for reliable estimates of fishing expenses. The sample mean is expected to be within 10% of sampling error at the 95% confidence level.

4. Describe any tests of procedures or methods to be undertaken. Tests are encouraged as effective means to refine collections, but if ten or more test respondents are involved OMB must give prior approval under the Paperwork Reduction Act.

This economic survey has been conducted in the three island areas for more than two years; there is no need to pre-test the survey.

5. Provide the name and telephone number of individuals consulted on the statistical aspects of the design, and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

Dr. Minling Pan, economist and program lead of the WPacFIN, and David Hamm, employed by the NMFS, were consulted on the statistical design[2]. The creel survey fieldworkers/crew in the three local agencies are collecting the data (as listed in Section A, Question 4). NMFS economists will oversee the data collection program, and NMFS social scientists and WPRFMC staff and the local agencies will use the data for regulatory analysis.

Appendix A. Creel Survey: Boat-Based Interview Sampling Location and Time

	Minimum Survey Days	**Shift: Day**	**Shift: Night**
GUAM			
Agana Boat Basin	2 weekdays, 2 weekends (per month)	5:00-12:00	16:00-24:00
Agat Harbor	1 weekday, 1 weekend (per month)	5:30-12:00	16:00-24:00
Merizo Pier	1 weekday, 1 weekend (per month)	6:00-11:00	16:00-24:00
CNMI			
Sugar Dock, Fishing Base, Smiling Cove	9 weekends and 9 weekdays (per quarter)	13:00-18:00	20:00-2:00
AMERICAN SAMOA			
Main docking area between Fagatogo and Pago	4 weekdays per week and 2 Saturday per month	5:00-13:00	17:00-1:00

Sources: NOAA PIFSC, Guam Boat-based Creel Survey Documentation, 2008, unpublished.
NOAA PIFSC, Saipan's Boat-based Creel Survey Documentation, 2008, unpublished.
American Samoa: http://www.pifsc.noaa.gov/wpacfin/as/Pages/as_coll_2.php

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[2]Dr. Minling Pan, Pacific Islands Fisheries Science Center, National Marine Fisheries Service and be reached at 808-725-5349 and David Hamm is retired.