SUPPORTING STATEMENT

COST-EARNINGS SURVEY OF MARIANA ARCHIPELAGO SMALL BOAT FLEET
OMB CONTROL NO. 0648-xxxx

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 used. Provide data on the number of entities (e.g., establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample 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 the Western Pacific Fisheries Information Network's (WPacFIN) estimation, is defined in terms of the number of unique small fishing boats fishing in 2015 in Guam and 2014 in CNMI (most recent available information). Table 2 shows the estimated number of small fishing boats in the two island areas. The combined survey population (boats) is 655.

Table 2. Estimated Number of Small Fishing Boats

	Estimated Number of Active Vessels
Guam (2015)	372
CNMI (2014)	283
Total	**655**

(Source: NOAA PIFSC – WPacFIN, unpublished data)

Sampling and Other Respondent Selection Methods

The last cost-earnings survey in Guam and the CNMI was contracted to the Pacific Islands Fisheries Group (PIFG)[1] to administer the survey. The majority of the surveys were completed in-person by fishermen who attended the community meetings, with additional surveys distributed and collected by PIFG for fishermen who were unable to attend the community meetings but willing to fill out the survey voluntarily(Table 3). Additionally, in-person interviews were conducted in first languages to accommodate literacy and language barriers. Anyone who had fished from a boat in the past 12 months was eligible and encouraged to attend the community meetings and participate in the survey.

For this study, we plan to use the same methodology as the previous cost-earnings studies (Hospital and Beavers, 2012 and 2014) and contract an outside vendor to administer the survey. Surveys will be completed by fishermen who attend the community meetings. In addition, a point-intercept component will be added to distribute survey to fishermen who are unable to

[1]The Pacific Islands Fisheries Group (PIFG) is a Hawaii-based 501(c)3 nonprofit organization established in 2005 to help organize and keep Pacific Island fishermen engaged and informed on the management and conservation of fishery resources in the Pacific. The PIFG administers and supports programs that benefit our marine and fishery resources, enhances fishing experiences, raises community awareness and encourages responsible fishing and conservation practices, with the mission to facilitate communication and participation amongst all marine resource users to support sound resource use, management, research, conservation and education (source: http://www.fishtoday.org/about-pifg).

attend the community meetings. This includes fishermen who may be under-sampled in the community meetings, e.g. those who do not go fishing very often. Similar to past studies, anyone who has fished in the past 12 months are eligible to participate the survey and no sampling or other respondent selection methods will be used, as there is no viable sampling frame to draw from.

The survey coverages are estimated based on the results from the past studies (Hospital and Beavers, 2012, 2014). The number of vessels covered from the survey are estimated from: 1) number of vessels covered by boat captains, and 2) number of vessels covered by crew. From the past studies, 69% of sample in Guam and 52% of sample in the CNMI were boat captains, and these convert to 101 vessels in Guam and 58 vessels in the CNMI. For the estimation of vessels covered by crew, it is more complicated because it depends on the percent of crew fished on multiple vessels and whether there are any overlaps of vessels between the sampled captains and crew. For the first part, past studies indicate that 58% of crew in Guam and 55% of crew in the CNMI always fish on the same vessels. But for the second part, we do not have any information and we calculate an upper limits assuming no overlapping of sampled captains and crew, and the lower limits assuming complete overlapping. For example, we know in Guam 58% of crew always fish on the same vessels, that means 42% of them fish on multiple vessels (assuming 2 vessels maximum). Assuming no overlapping of vessels between the sampled captains and crew, this means 65 vessels were covered in the Guam sample (46 crew * 58% + 46 crew * (1-58%) * 2 vessels). If there is complete overlap between the sampled captains and crew, that means no additional vessels were covered by the crew. Table 3 shows the coverage estimations.

Table 3. Survey Coverage from Past Studies

	Guam	CNMI
Completed surveys from community meetings	111	100
Completed surveys from in-person volunteer participants	36	12
Total completed surveys	147	112
Percent estimated to be aptain	69%	52%
Number of captains and vessels	101	58
Number of crew	46	54
Percent of crew always fish on same vessels	58%	55%
Number of vessels the crew fished on: maximum	65	78
Number of vessels the crew fished on: minimum	0	0
Maximum number of vessels	166	136
Minimum number of vessels	101	58
Estimated number of active vessels in 2010-2011	**454**	**122**
Maximum coverage of active vessels	**37%**	**100%**
Minimum coverage of active vessels	**22%**	**48%**

Expected Response Rate

The data for the previous cost-earnings studies of CNMI and Guam small boat fisheries (Hospital and Beavers, 2012, 2014) were successfully collected by a contracted outside vendor and it

achieved exceptional responses: 147 surveys were collected in Guam in 2011 and 112 surveys were collected in the CNMI. Nearly all fishermen who attended the community meetings completed the surveys. Although we do not have an exact response rate, we contacted the previous contracted vendor and they agreed 95% is a reasonable estimation of response rate for those attending meetings.

Regarding non-respondents, it is difficult to estimate the coverage of the survey sample because there are no definitive measures of small boat fishing participation in the Marianas. The most relevant estimation of the active vessels was done by WPacFIN based on the creel survey programs administrated by the Guam Division of Aquatic and Wildlife Resources (DAWR) and the CNMI Division of Fish and Wildlife (DFW). WPacFIN estimated the number of active vessels in 2010-2011 were 454 in Guam and 122 in CNMI, that converted to a maximum coverage of 37% in Guam and 100% in the CNMI and a minimum coverage of 22% in Guam and 48% in the CNMI (Table 3).

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.

One time, voluntary surveys will be used to obtain costs and earnings information. The whole population of small boat fishers will be targeted, so no stratification and sample selection will be employed.

Using the population and completed number of surveys in the two island areas listed in Table 3, the sampling errors at the 95% confidence level are 6.7% for Guam and 2.7% for the CNMI. This level of accuracy will provide good estimation of fishing expenses, revenues, and profitability in general. The data collected will be used for descriptive and economic analyses. Detailed economic analyses can be found in Section 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

The primary strategy to maximize response rates is to keep the survey short. This proposed cost-earnings survey is similar to the previous cost-earnings survey of Marianas small-boat fisheries but we have shortened it slightly. We tried to focus on the main questions related to costs, earnings, and fishing characteristics and eliminate any unnecessary questions that appeared in the previous survey.

Second, we will use the same methodology that was implemented successfully in the last cost-earnings survey in the Marianas to contract an outside vendor that has strong connections with

the fishing communities and is familiar with the logistics and culture in doing fieldwork in the Marianas to administer the survey. Additionally, given the timely feedback of results in 2012 through research summary brochures and the distribution of survey reports to all fishermen that completed the survey, as well as providing additional copies of results to local fishery agencies, we feel that we have built a trust within the community.

Third, before the administration of the survey, outreach including fishery management council meetings and other public meetings for fishing community members will be held to introduce the upcoming survey to encourage survey participation.

Fourth, participation in the survey effort is completely voluntary, if the fisher does not want to participate, he/she can simply disregard the survey.

Fifth, we did pre-test the survey through expert review and pilot test with about 5 fishers in the Marianas to make sure the question wording is easy to understand.

Addressing Non-Response

The contracted vendor will add a point-intercept component and reach out to non-respondents to encourage survey participation, via individually scheduled interviews, similar to the previous cost-earnings study in the CNMI. And we will compare the results collected from this point-intercept component with the results from the sampling frame using fishermen contacted in the community meetings. If the results are different, then we will take into account the differences in interpreting the results.

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.

We have pretested the survey through expert review, with PIFSC staff in the Marianas and WPRFMC staff. Also, we pilot tested the survey with 2-3 fishers in Guam and the CNMI to make sure the instrument is easy to understand and complete.

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.

Justin Hospital, Supervisory Economist, employed by the NMFS, was consulted on the statistical design and analysis. He can be reached at 808-725-5399. A contracted outside vendor will be used to implement the data collection. Researchers at PIFSC will enter and analyze the data under the supervision of NMFS economists. NMFS economists and WPRFMC staff will use the data for future regulatory analyses.