

**SUPPORTING STATEMENT
U.S. CARIBBEAN COMMERCIAL FISHERMEN CENSUS
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 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.

The proposed data collection intends to sample commercial fishermen in Puerto Rico and the USVI. In total, we plan to complete 1,522 surveys with commercial fishermen (Tables 1 and 2).

Puerto Rico:

The Puerto Rican data collection will be structured in two phases. The first phase will replicate the method used in earlier censuses of active commercial fishermen dating back to 1988 when commercial licenses were optional. Briefly, personnel from PR DNER’s Commercial Fisheries Statistics Program, mainly port agents, will organize meetings in every fishing center (locally known as ‘villa pesquera’) to discuss the need for the census and to canvas commercial fishermen in attendance. Fishermen who do not attend these meetings will be identified with the assistance of the presidents of the fishing centers and other fishermen present at the meetings. Port agents will attempt to reach these elusive fishermen at the dock and/or at their homes. We anticipate interviewing about 1,000 fishermen in this fashion. This group represents mainly those “active” fishermen those who report landings statistics. This would likely sample most of the “active” fishers in the community which would be comparable to the population sampled in previous (“fishermen census¹”) efforts.

In the second phase, we would sample the “other” licensed fishermen from the license database that were not sampled in the first phase. These “other” fishermen have a valid fishing license but do not report landings. Many of these “other” licenses holders are probably recreational fishermen who have them just to keep their options open (so that they can sell their catch to local restaurants) and occasional commercial fishermen who may fish sporadically to supplement their income from a full-time job. Given the part-time nature of their fishing activities it is likely that many do not bother filling out catch forms. Also, there may be a group of license holders who intend to become active fishermen but do not for various reasons (e.g., lack of time). Currently,

¹ Matos-Caraballo, D. and Z. Torres-Rosado. 1989. Comprehensive census of the fishery of Puerto Rico, 1988. CODREMAR Tech. Rep. 1(3):1–55; Matos-Caraballo, D. 1998. Puerto Rico Fishery Census. *Proceedings of the Gulf and Caribbean Fisheries Institute*, 51:258–270; Matos-Caraballo, D., M. Cartagena-Haddock, and N. Peña-Alvarado. 2005. Comprehensive census of the marine fishery of Puerto Rico in 2002. *Proceedings of the Gulf and Caribbean Fisheries Institute*, 56:97–110.

there is a total of 3,400 licensed fishermen of which 1,000 report landings statistics (i.e., above cited active fishermen) so if we want a representative sample of the remaining 2,400 licensed fishermen (who do not report landings) with a 5% margin of error and a 95% confidence interval we need to 332 completed surveys.

In our calculations we adopted the more conservative response rate (85%) from the Kojis and Quinn (2012) census who mainly conducted in person interviews of ‘active’ fishermen in the USVI. We slightly decrease the response rate for the ‘other’ group (80%) to reflect the greater uncertainty or anticipated greater difficulty in contacting members of this population since they are usually not found in ‘villas pesqueras’.

Table 1: Sampling design for the Commonwealth of Puerto Rico.

Strata	Population Size	Survey Sample	Expected Response Rate	Expected Number of Completed Surveys per Strata
“Active” licensed fishermen (reporting landing statistics)	1,000	1,000	0.85	850
“Other” licensed fishermen (not reporting landing statistics)	2,400	415	0.80	332
Total	3,400	1,415	-	1,182

USVI:

In the USVI we plan to conduct a census. Following previous commercial fishermen census efforts², we will plan to sample the entire population of licensed fishermen when they into USVI’s DPNR office to renew their annual fishing license, typically in June. Port agents will also to reach these fishermen at the dock and/or at their homes if fishermen do not have time to complete the survey during license registration time. The fishing year extends from 1 July to 30 June of each year. Kojis and Quinn (2012) report a response rate of 0.85% for St. Thomian and St. Johnian fishermen and 89% response rate for Crucian fishermen based on their 2011 USVI commercial fishermen census (Table 2).

Table 2: Sampling design for the U.S. Virgin Islands.

Strata	Population Size	Survey Sample	Expected Response Rate ³	Target Number of Surveys per Strata
St. Thomas and St. John	191	191	0.85	163

² Kojis, B.L. and N.J. Quinn. 2006. A census of the US Virgin Islands commercial fisheries at the start of the 21th century. *Proceedings of the 10th International Coral Reef Symposium*. 1333-1341; Kojis, D., and N.J. Quinn, Census of the Marine Commercial Fishers of the U.S. Virgin Islands, 2011. Report to the Southeast Fisheries Science Center, NMFS, Miami, Florida.

³ Kojis, B. and N.J. Quinn, 2012. Consequences of Management Measures Implemented in the 1st decade of the 21st Century on the Demographic Structure of a Small Scale Artisanal Fishery in the US Virgin Islands. *Proceedings of the Gulf and Caribbean Fisheries Institute*, 64: 92-101.

St. Croix	198	198	0.89	177
Total	389	389	-	340

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 elicit information on demographics, fishing and marketing practices, vessel and fishing equipment, and miscellaneous attitudinal questions. The Puerto Rican data collection will be structured in two phases. The first phase will attempt to capture the entire population of active commercial fishermen (those who report landings statistics) to replicate the method used in earlier censuses of active commercial fishermen dating back to 1988 when commercial licenses were optional. In the second phase, we would sample the “other” licensed fishermen from the license database that were not sampled in the first phase. These “other” fishermen have a valid fishing license but do not report landings. For this “other” fishermen population, we anticipate using a stratified sampling, with the strata likely based on geographical region (and maybe municipality as well), license type (full-time, part-time, etc.), and/or age. The USVI population of commercial fishermen will be sampled in its entirety.

To minimize the burden on fishermen, an updated list of licensed of fishermen for each island will be provided to the contractor (to be selected). The list will contain the following information: fisherman name, address, and phone number. PR DNER and USVI DPNR agreed to provide the most recent list of licensed fishermen for this data collection effort.

The data collected will be used for descriptive and analytical purposes. Descriptive uses include the estimation of average harvesting costs per trip and total harvesting costs for the fleet. The procedures for estimating harvesting costs in the sampling universe will be based on the standard equations available in various statistical texts such as Thompson (1992).⁴ For a description of analytical purposes the reader is directed to section Part A, Question 2.

3. Describe the methods used to maximize response rates and to deal with non-response. 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.

Several steps have been taken to maximize response rates and to deal with non-response. First, we are working with the port agents of the local fisheries agencies which have extensive experience with local fishing communities and practices. They have reviewed the survey instrument and made suggestions to improve its clarity. We anticipate that many of the port agents will be either facilitating or surveying themselves once a contract is put in place, given their familiarity with fishermen. Second, the in-person interviews will be conducted at times and

⁴ Thompson, Steven K., 1992. Sampling. John Wiley and Sons, Inc., New York, 343 p.

places convenient to fishermen. This will minimize any potential disruption to their fishing practices. Third, respondents will be asked to provide easily conveyed information about demographics, fishing practices and capital investment, thus avoiding what respondents often perceive as unnecessary detail. In addition, surveys will be available in English and Spanish to further reduce any burden to non-English speaking fishermen. We also will require the contractor to hire surveyors that are fluent in both English and Spanish. To deal with non-response we will use call-backs and two-phase sampling procedures as described in textbooks such as Lohr's (see Lohr's, S., 1998. Sampling: design and analysis). A sample size of 1,522 will provide reliable estimates of key demographic and socio-economic characteristics of the industry.

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.

To refine the data collection, we initially shared our straw man survey with NMFS, CFMC, and local fisheries staff to seek feedback on its content and clarity. After detailed discussions, we incorporated their main suggestions and pre-tested the revised survey instrument with 9 fishermen to ensure that the questionnaire was succinct and easily understood.

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. Juan Agar from the NMFS was consulted on the statistical aspects of the study design. NMFS social scientists and CFMC staff will use the data collected for regulatory analysis. Dr. Juan Agar can be reached at 305-361-4218.

Contractors to collect the proposed data have not yet being selected. However, Mr. Daniel Matos from PR DNER and Mr. Roy Pemberton from USVI DPNR have graciously agreed to assist with this data collection effort.