

SUPPORTING STATEMENT
ANNUAL ECONOMIC SURVEY OF FEDERAL GULF AND SOUTH ATLANTIC SHRIMP PERMIT HOLDERS
OMB CONTROL NO. 0648-0591

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 population of interest is all vessels fishing for penaeid and rock shrimp in the federal waters of the Gulf of Mexico and South Atlantic, i.e. off the States of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas, during one calendar year. An excellent sampling frame is available for this and future survey efforts, because vessels shrimping in the federal waters of the Gulf and South Atlantic are required to have a federal permit. Their contact information should be up-to-date due to the annual permit renewal process. The sampling frame consist of all fishermen holding at least one of four federal shrimp permits at any time during the previous calendar year (including individuals whose permits might have expired but are still legally renewable, i.e. “latent permit holder”). Note that the survey effort conducted each year, e.g., 2013, will be collecting the previous year’s annual economic data, e.g. 2012.

Roughly, we aim to randomly sample without replacement about a third of the whole population each year, covering the population once every three years. As of February 2012, the total population was 1,972 unique vessels with one or more federal shrimp permits. For the 2011 survey, we sampled 760 vessels, hoping to arrive at approximately 684 completed surveys based on an expected overall response rate of 90% (our “goal” response rate).¹ Due to the management and political importance attributed to delineation by state, we stratify the total population by state. Within each stratum we randomly sample vessels in proportion to each stratum’s weight in the total population. By sticking to a simple, straightforward design, we hope to avoid many potential problems.

Currently, the best estimate of the size of the sampling frames for 2013 through 2015 would be 1,972 vessels. Table 1 below breaks down this preliminary sampling frame into the strata, lists the permits held, offers some descriptive data for the vessels in each, and generates the tentative number of respondents sampled and surveys completed in each. Of the total sampling frame, 1,314 vessels (67% of the 1,972) hold only a Gulf shrimp permit and thus represent the dominant group (note: this information cannot be deduced

¹ Even though the data collection will be mandatory, a 100% is almost always impossible. Some permit holders will be unreachable, and others, who do not plan to renew their permit or sold their vessel, are unlikely to voluntarily submit a survey.

from the table). There is significant variation within the industry across several variables, but none seems to further divide the population into discrete groups (offering no advantage of further stratification). These numbers are unlikely to change dramatically in the coming years. The actual number of permit holders in the fishery might change a little due to new entrants (the South Atlantic penaeid permit and rock shrimp permit (Carolinas zone) are open access permits), owners and vessels leaving the fishery (permits non-renewed or terminated), or changes in vessel ownership or state of registration. The final sampling frame will use all the information available just prior to the survey implementation.

The raw response rates for the Annual Economic Survey of Federal *Gulf* Shrimp Permit Holders has ranged from 78% to 92% between 2007 and 2010. After adjusting for vessels that were deemed ineligible because their permits were sold or terminated, the adjusted response rate has ranged from 86% to 95%. For South Atlantic permitted-vessels the raw and adjusted response rates in 2010 were 80% and 90%, respectively.

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.

For sampling, we will stratify the population by state as this is a policy relevant variable. We will then randomly sample in each strata proportional to each strata's weight in the population. Each year, we will sample approximately a third of the population (see also Table 1). The very tractable proportional random sampling approach should require only simple adjustments to the inclusion probabilities used for the estimation of population means and other aggregate statistics if non-response is significant and skewed across the strata.

The owner of each vessel selected will be contacted by mail in late February/early March of each year, first by a selection letter, followed by the survey package. The package will contain a cover letter, information material, instructions, the two-page survey instrument and a return envelope. They will be asked to return the completed survey instrument to us in the enclosed, pre-paid envelope. If no response is received by April 30, up to two further letters will be sent (including additional survey instruments). We will also attempt to contact the non-responders by phone and urge them to return the survey. Information will not be collected during the phone call, and a further survey instrument will be sent – by mail, fax, or email – if requested.

After data entry, verification and cleaning, descriptive statistical analysis will be conducted on the relevant variables collected (costs and profits). Results will be reported by state and by other relevant post-stratifications (such as size of operation). The accuracy for the population level totals and means of the important variables should exceed the standard +/- 10% confidence interval at a 95% significance level for the larger groups. Given the overall uncertainty inherent to policy assessments of economic conditions in fisheries and given the quality and accuracy of other data used, the standard accuracy should suffice. The accuracy of the results for subpopulations (>100 observations), such as rock shrimp permit holders, is unknown at this time.

The use of periodic instead of annual collection will be considered in the future. The burden on the public will depend on how frequently significant changes occur in this industry. Currently, the fishery is still undergoing substantial changes, making the annual collection of data necessary.

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.

The central approach to maximizing the response rate is to make answering a very concise and simple survey a requirement for future permit renewal. The first cover letter will politely emphasize this point. The second and third reminder letters will be more explicit. The telephone call will also explain the consequences of not complying. The call has the further advantage of being a different mode of contact and should discover non-response due to an incorrect address. Given the potential loss of permit, we expect compliance from all fishermen wanting to continue to fish for shrimp in federal waters. The behavior by those who have left the fishery by the time of the survey, or are planning to leave it before their current permit expires, will not be influenced by the implicit threat. Since the data will be used primarily for assessments and predictions about future developments, under-reporting by individuals leaving the fishery is less problematic.

A good sampling frame, with annually updated contact information (through the ongoing permit renewal), will help to reduce the non-contact component of non-response. If necessary due to low response, at the conclusion of the survey, we will contact port agents (local federal employees who collect data and report from a limited area) and ask them for any information on non-responding vessels/individuals. Should non-response be a significant factor, we might even ask port agents to inquire themselves, and/or we will debrief a few (<10) individuals about reasons for not responding in order to establish potential non-response biases.

Beyond the above, we will take every action available to us to facilitate completing and returning the survey by the fishermen. General survey design techniques (Dillman method) and experience from the previous surveys will guide us. Noteworthy actions include:

- Timing of the survey during the slow shrimp fishing season (winter and spring) and coinciding with tax time, when business records are being consulted and financial concerns are “top of mind.”
- Disseminating together with the survey effort-specific outreach material (see Figure 1 in Supplementary Document for an example).
- Using plain language and translating the survey into “language” spoken by southeast shrimp fishermen.

The statistical design and size of this sample survey will allow for valid generalizations of the results to the population and larger

subpopulation levels. The anticipated accuracy of the results is discussed in more detail in the previous question (Part B, Question 2).

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 are not testing any procedures or methods.

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.

Individual consulted on the statistical aspects of the design:

Juan Agar, Ph.D.
National Marine Fisheries Service
Southeast Fisheries Science Center
Social Science Research Group
(305) 361-4218

Persons who will actually collect and analyze the information:

Christopher Liese, Ph.D.
National Marine Fisheries Service
Southeast Fisheries Science Center
Social Science Research Group
(305) 365-4109