

**SUPPORTING STATEMENT  
COMMERCIAL FISHING VESSEL COST AND EARNINGS DATA  
COLLECTION SURVEY IN THE GREATER ATLANTIC REGION  
OMB CONTROL NO. 0648-0643**

**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 consists of all active commercial fishing vessels holding a current Northeast Region permit in any fishery. Active fishing vessels are defined as having reported landing fish through the Northeast Seafood Dealer Reporting System during the calendar year of study. Based on 2013 calendar year data, there were 3,493 active vessels in the Northeast Seafood Dealer Reporting System.

Sampling and Other Respondent Selection Methods

A sample consisting of 50% of the population of active vessels in the Northeast Dealer Reporting System will be selected for each of first two years in a four year cycle, beginning in early 2016. The population will be all active commercial fishing vessels holding a current Northeast permit in any fishery that are is not made up of exclusively chartering vessels for calendar year 2015. For example, assume there were 3,493 active vessels with valid permits in calendar year 2015. In early calendar year 2016, 1,750 vessels will be asked to participate in the survey. These vessels will be stratified by primary gear group and vessel length. In the second year of the four year cycle (early 2017), the rest of the population will be sampled (those vessels that were not sampled in 2016). There will be no data collection in the remaining two years of the four year cycle, and the survey will not be implemented again until early 2020, when this method of sample selection will continue.

Note that the sample size may increase or decrease from implementation year to implementation year as some vessels become active or inactive or if there is exit/entry from or to the fishery. In the past eight years, the population has varied from 2,785 in 2006 to 3,493 in 2013. Therefore, on average, the sample size can be expected to be around 1,400 to 2,000 each year the survey is implemented.

Expected Response Rate

The NEFSC SSB collected cost information from commercial fishing vessel owners for calendar years 2011 and 2012. Adjusted response rates were 29.1% for the 2011 Cost Survey and 20.7% for the 2012 Cost Survey. Responses rates were adjusted for non-deliverable surveys and for

vessels that were out of scope (e.g., had been sold to another owner, were exclusively charter vessels, etc.).

We are anticipating a response rate of 30% for the third round of this data collection effort. The methods that will be followed to improve response rates are explained in Question B3.

No. vessels in the sample universe	No. of vessels in the sample	Expected response rate	No of expected respondents
3,493	1,750	30%	524

**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.**

In the third round of this data collection, the SSB will strive to continue to improve coverage and response rates. A stratified sampling method will be used to select the sample. The vessel-level populations are stratified by gear and length. All vessels are grouped into one of seven gear categories: (1) dredge, (2) gillnet, (3) handgear, (4) longline, (5) pot/trap, (6) purse seine, and (7) trawl. Mobile gear includes dredge and trawl gears. Stationary gear includes gillnet, handgear, longline and pot/traps. For most gear groups, the vessels are then further stratified based on vessel length. Two length categories are created for each gear group based on the mean length of the vessels within each gear group. This further stratification will not be done for gear groups that have a small number of vessels (e.g., longline and purse seine). Based on the 2011 and 2012 Cost Survey sampling methodology, the SSB expects to have twelve strata. A random sampling method will be followed to select fifty percent of the population from each stratum.

The survey data will be used to infer unobserved population cost estimates from the observed cost values. Data from this survey will be used to develop a variety of economic models covering applications such as fleet efficiency and fishery participation. For better inference, high response rate and a high degree of accuracy in the data collection process is desired. Question B3 discusses the steps that will be taken to promote high response rates and reduce non-response errors.

**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.**

Increasing Response

This request is for the extension of a currently approved cost data collection, under which two rounds of cost data collection have occurred: the 2011 and 2012 Cost Surveys. During the

design and implementation of those surveys, a considerable amount of effort was directed towards reducing non-response. Response to these two rounds of the cost survey was an improvement over response to SSB's earlier cost 2006-2008 survey effort<sup>1</sup>. However, the SSB will continue to look for ways to improve response rate and is cognizant of the need to address non-response bias in its analyses of the collected cost data.

The SSB will take the following steps in order to further increase response rates:

1. The SSB will analyze the cost data and comments collected in the initial two rounds of the data collection effort to identify modifications to the existing survey instrument that may serve to increase response rates in future rounds. The external company that was hired to implement the 2011 and 2012 Cost Surveys has provided the SSB with information about issues that arose during implementation (e.g., questions and concerns that were expressed during telephone calls to the 1-800 number set up to respond to vessel owners questions and comments about the data collection), and some recommendations about how SSB might consider modifying the existing survey instrument.
2. The SSB will collect cost data on a four year cycle in order to reduce survey fatigue among commercial fishermen. This differs from the frequency of collection described in the initial request for clearance, where a commercial fishing vessel would be sampled every other year. Future rounds of the survey will be conducted on a four year cycle. In the first year of the four year cycle, approximately 50% of the population of the Northeast's commercial fishing vessels will be sampled. In the following year (the second year of the four year cycle), the remaining half of the population will be sampled. The survey will not be implemented in the last two years of the four year cycle. Therefore, the same commercial fishing vessel will not be sampled more than once in a four year period. However, it is possible that an owner of multiple commercial fishing vessels could receive a survey two years in a row during a four year period; however, these surveys would be for different vessels.
3. SSB will time implementation of future rounds of the cost data collection effort to avoid having commercial fishing vessel owners in the Northeast receive two surveys from NEFSC/SSB in the same year. This may have occurred in the second round of this data collection effort, the 2012 Cost Survey, as the first round of the vessel owner's socio-economic survey (another NEFSC/SSB data collection effort) was also implemented in 2013. Informal feedback from commercial fishermen suggests that they do not easily distinguish between the different purposes of NMFS data collection efforts, even when accompanying cover materials explain why the vessel owner may have received another survey, for another NMFS data collection effort, that year. In addition, the SSB intends to time implementation of the third round of this data collection between late February and late March of calendar year 2016. Discussion with commercial fishermen suggests that because much of the information collected in this survey is similar to information

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<sup>1</sup> The response rates for the 2011 and 2012 Cost Surveys were 29.1% and 20.7%, respectively. For the earlier NEFSC/SSB cost data collection, response rates were 20.6%, 16.5%, and 8.0% for the 2006, 2007, and 2008 Annual Cost Surveys, respectively (see Das, 2013).

that must be collected for federal income tax purposes, it would be helpful to fishermen to receive the cost survey around the time when they are most organized and familiar with their cost information, and before the peak fishing season for several Northeast fisheries begins.

4. The SSB will continue to use different modes of communication to contact the survey respondents. Studies have shown that making distinction between modes of contacts improves response rate in mail surveys (Dillman et al. 2008). A detailed explanation of the different modes of contact SSB will use can be found below:
  - a. A pre-notice letter will be developed and sent to all vessel owners selected to be in the sample. This letter will inform vessel owners about the impending survey, and the value of their cost data to the fisheries management process. Research has shown that pre-notice letters improve response rates in mail surveys by 3 to 6 percentage points (Dillman, 1991). In the third round of this data collection, to be implemented in early 2016, materials will be included with the pre-notice letter to (1) provide potential respondents with a summary of cost data collected in the 2011 and 2012 Cost Surveys and (2) inform vessel owners on how the collected data are being used in SSB analyses. Potential respondents will also be provided with a reference for further information. The SSB believes that concrete demonstration of how the cost data from the initial two rounds of the survey is being used will encourage vessel owners to be responsive to additional rounds of data collection.
  - b. One week following the pre-notice letter, each vessel owner selected as part of the sample will receive a survey instrument and cover material. The cover material will explain the importance of the survey and how responding to the survey will provide valuable information to NMFS to ensure that decision-makers have accurate information about the full costs of running a commercial fishing business. The cover material will also explain the option to complete the survey online, and information about how to follow up on results of the survey.
  - c. Approximately 2-3 weeks following the first mail-out, a reminder postcard will be sent to the non-respondents. The postcard will provide contact information (phone and email) to respondents if they wish to receive a replacement hard copy in the mail or information to access the online survey.
  - d. Approximately 2-3 weeks following the reminder postcard, vessel owners that have still not responded will be mailed a second copy of the survey. The survey will arrive with a cover letter explaining that a second copy is provided to ensure the survey was not lost, and again stress the importance of responding. Once more information to access the online survey will also be provided.
  - e. Two weeks following the mail-out of the second survey packets, final attempts to contact the non-respondents will be made via telephone. Answering machine messages will be left if no individual is reached directly.

5. The SSB will continue to provide a toll-free telephone line to answer the questions and respond to the concerns of potential respondents, as well as provide contact information for respondents that wish to communicate directly with a SSB staff member on the cost data collection team. The toll-free phone line will be set up by the private company hired to implement the survey. It will be staffed by trained employees to address any questions or concerns that the respondents may have regarding the survey. The toll-free line will be staffed outside of traditional business hours (Monday-Friday, 9am-5pm) to allow greater and more convenient access. In addition, a dedicated email account will be established for individuals that prefer to ask questions or express concerns via email.
6. The SSB will continue to offering respondents a web-based option for completing the cost survey. A web-based version of the cost survey was offered for the 2011 and 2012 Cost Surveys, along with the option to return the survey in hard copy via postage-page, addressed envelope. While most of the respondents to the cost survey in the initial two rounds chose to return the survey in hard copy, 18% and 15% chose the online option for the 2011 and 2012 Cost Surveys, respectively. Some vessel owners likely store their financial information electronically and the online option may complement this mode of record-keeping. Responding to the survey on-line may also be regarded by some as more convenient than a paper form that must be physically mailed. Dillman et al. (2008) discussed the potential of mixed mode surveys in improving response rates and reducing non-response errors.
7. In addition to the pre-notification letter, SSB also plans to perform outreach regarding the survey. This will include advertising the survey in publications likely to be read by commercial fishermen (e.g., *Commercial Fishing News*, the local newspapers for fishing ports, etc.). The SSB will also reach out to its contacts among commercial fishing organizations to spread the word that additional rounds of the cost data collection are about to be implemented.

### Addressing Non-Response Bias

The Northeast region of NMFS has a considerable amount of data currently available through its Northeast Seafood Dealer Reporting System, Vessel Trip Report, and permit databases. These data include information on vessel characteristics, landings and revenues for the survey population. These data allow SSB to compare the survey population with survey respondents. After additional rounds of cost data has been collected, the data will be tested for non-response bias. For example, tests for significant differences between characteristics of responding vessels versus characteristics of non-responding vessels (e.g., vessel length, horsepower, gross tonnage and gross revenue) will be conducted. If non-response bias is detected, procedures will be used to reweight the data or the estimated model to correct for any known bias (see Das 2013 for examples of types of response bias and approaches for addressing it).

Analysis of the existing cost data for 2011 and 2012 is on-going. However, statistical testing indicates that unit non-response bias is present. Unit non-response occurs when no response is received from a vessel owner in the sample for a particular vessel. Some strata (groups based on vessel primary gear type and vessel length) are under-represented, while others were over-represented. Consequently, summaries of the 2011 and 2012 cost data will need to be weighted

to adjust for the under- and over-representation of the various strata. This has been done using an approach recommended by Lohr (2010).

#### Adequacy of Accuracy and Reliability of Information for Intended Uses

1NMFS needs to measure the economic performance of the Northeast region's commercial fisheries in order to meet legal and regulatory requirements, support fisheries management decision making, and undertake economic research. Allowing the SSB to continue this cost data collection, which focuses on annual costs that NMFS does not otherwise collect for Northeast commercial fishing vessels, will enable SSB to collect the required data over time that is needed to construct key economic performance measures to examine trends in profitability, capacity utilization, efficiency, productivity, and economic impacts. The data gathered and performance measures constructed will be used to address a wide range of issues; these issues include (but are not limited to) the effects of alternative regulatory regimes. While the data will be used to comply with legal and regulatory requirements, these requirements do not specify a level of data accuracy.

#### **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.**

The SSB does not anticipate major changes to the existing cost survey instrument in the near future. However, if significant modifications are made, the survey instrument will be pre-tested with no more than nine vessel owners that will be selected randomly from the sampling frame. Both the web-based and mail survey instruments will be tested. Feedback from the vessel owners that participate in pre-testing will be considered in refining the survey instrument. Any cost data collected during the pre-testing process will be destroyed and therefore not included in the data sets used for analyses.

#### **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.**

As noted above, this request is for renewal of an existing cost data collection from the Northeast commercial fishing vessel fleet. Two rounds of cost data have already been collected to date, and the SSB seeks to implement a third round in early 2016.

The internal NMFS survey design team consists of:

1. Chhandita Das, Economist, Contractor to SSB/NEFSC through Integrated Statistics (508 495-4717)
2. Tammy Murphy, Economist, SSB/NEFSC (508 495-4716)
3. Andrew Kitts, Economist, SSB/NEFSC (508 495-4702)

The primary agency responsible for collecting data will be the survey firm that will be hired to administer the survey.

The primary individual expected to analyze the data is Chhandita Das, (508) 495-4717.

## **REFERENCES:**

Das, Chhandita. 2013. An overview of the annual cost survey protocol and results in the Northeast (2007 to 2009). NOAA Technical Memorandum NMFS-NE-226.

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