

**SUPPORTING STATEMENT B**  
**U.S. Department of Commerce**  
**National Oceanic & Atmospheric Administration**  
**Social and Economic Survey of Hired Captains and Crew in Commercial Fisheries**  
**OMB Control No. 0648-0636**

**B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS**

For Items 1 and 2, NMFS has provided separate responses for each of the following three sets of fisheries:

1. New England, Mid-Atlantic, U.S. South Atlantic, Gulf of Mexico, Puerto Rico, and U.S. Virgin Islands
2. West Coast
3. Pacific Islands

The Northeast Fisheries Science Center (NEFSC) will conduct the survey for the New England and Mid-Atlantic fisheries; the Southeast Fisheries Science Center (SEFSC) will conduct the survey for the U.S. South Atlantic, Gulf of Mexico and Caribbean fisheries; the Northwest Fisheries Science Center (NWFSC) and the Southwest Fisheries Science Center (SWFSC) will jointly conduct the survey for the West Coast fisheries; and the Pacific Islands Fisheries Science Center (PIFSC) will conduct the survey for the Pacific Island fisheries.

- 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 government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.**

**1.1 NEFSC and SEFSC**

Target and Sampling Populations

**Table 1. Definitions of the target and sampling populations for the survey.**

Category	Crew Survey
<b>Target population</b> – The population that the survey effort is interested in collecting data about.	Individuals who work as hired captains or other crew members on commercial fishing vessels operating in the New England, Mid-Atlantic, U.S. South Atlantic, and Gulf of Mexico, Puerto Rico, and the U.S. Virgin Islands commercial fisheries

<b>Sampling population</b> – The set of individuals from which the sample units are drawn.	Individual hired captains and other crew members that can be encountered on the public areas of docks.
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### Population and Sample Sizes

The target population for the Survey consists of individuals who work as hired captains and crew (here to be referred to as crew) on commercial fishing vessels operating in the New England, Mid-Atlantic, U.S. South Atlantic, Gulf of Mexico, Puerto Rico, or the US Virgin Islands commercial fisheries (Table 1). There is no available database of information on those who work as crew on commercial fishing vessels in these commercial fisheries from which to calculate appropriate sample sizes. The employment estimates in New England and the Mid-Atlantic come from two Census data sources, County Business Patterns (CBP) and Nonemployer Statistics data for the NAICS code “Fishing”. The CBP provides annual statistics for establishments with paid employees. The Nonemployer Statistics covers establishments with no employees; most are sole proprietorships. These estimates of commercial fishing employment by state are provided in Table 2. The total estimated population of individuals employed in commercial fishing in New England and the Mid-Atlantic is 16,328. The commercial fishing employment population size is the estimated size of the universe from which our sample will be drawn. Since there is no sample frame, we calculate a sample size based on this estimated population size. The sample is not stratified because the population estimates are available only at broad geographic scales and are not specified at the fishery level. Table 1 describes the population universe and sample and Table 2 provides the estimated size of the population within the universe of potential respondents to be sampled.

**Table 2. Estimated Population Sizes, Target Numbers of Responses and Required Sample Sizes for NEFSC and SEFSC Commercial Fisheries.**

<b>Fisheries</b>	<b>Estimated Population</b>	<b>Target Number of Responses</b>	<b>Required Sample Size</b>
New England	10,769	371	464
Mid-Atlantic	5,559	359	449
<b>Northeast Total</b>	<b>16,328</b>	<b>730</b>	<b>913</b>
South Atlantic and Gulf of Mexico Shrimp	4,085	351	439
South Atlantic and Gulf of Mexico Highly Migratory Species (HMS)	283	163	204
South Atlantic and Gulf of Mexico Other Finfish	3,663	348	435

Puerto Rico	1,680	313	391
USVI	235	146	183
<b>Southeast Total</b>	<b>9,946</b>	<b>1,321</b>	<b>1,651</b>
<b>NEFSC &amp; SEFSC Grand Total</b>	<b>26,274</b>	<b>2,051</b>	<b>2,564</b>

*\*Due to rounding, some totals may not correspond with the sum of the separate figures*

Similar to the NEFSC approach, the SEFSC will utilize estimates of employment in the U.S. South Atlantic and Gulf of Mexico commercial fisheries as the sampling frame from which to calculate an appropriate sample size. The commercial fisheries in the Southeast Region are divided by species groups based on separate fishery management plans. Those species groups include snapper-grouper (SG), reef fish (RF), coastal migratory pelagics (CMP), dolphin/wahoo (DW), shark (SHK), and other (OTH) fisheries. The Southeast Region also includes two shrimp fisheries – U.S. South Atlantic and Gulf of Mexico – managed by separate management plans. Finally, the Southeast Region is home to a highly migratory species (HMS) fishery. The geographic distribution of participation in these species groups varies widely across the southeast region and it is not uncommon for licensed vessels to participate in multiple fisheries. The SEFSC expects that crew members may also participate in multiple fisheries across the region depending on the season, value of the fishery at the time, and opportunities for multiple trips/days at sea. The crew employment estimates in Table 2 come from Northern Economics, Inc., which provided a preliminary implementation plan for a Southeast Region crew survey and included a range of quantitative data on the various fisheries in the Southeast Region, including the number of vessels, average crew size, and geographic distribution of participant vessels. The population estimates for Puerto Rico and the U.S. Virgin Islands (USVI) were derived from information from Puerto Rico’s Department of Environmental and Natural Resources, USVI’s Division of Fish and Wildlife and the last two commercial fishermen censuses conducted in these jurisdictions (Shivlani, 2021; Kojis et al. 2017).<sup>1</sup> The total estimated population of individuals employed in the commercial fishing in the Southeast is 9,946.

From these population estimates, the target numbers of responses were calculated using Cochran’s (1977) formula for categorical data, described in detail in Question 2. Then, we re-calculated the sample size that we would expect to produce that number of responses allowing for a 20% nonresponse rate. The resulting estimates of the target number of responses and the

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<sup>1</sup> Shivlani, M. 2021. A commercial fishery census of Puerto Rico to develop a new baseline on fishery participation, markets, and infrastructure in the small-scale fishery sector. Final SK Report submitted to the National Oceanic and Atmospheric Administration (NA18NMF4270197).

Kojis, B., N. Quinn, and J. Agar. 2017. Census of licensed commercial fishers of the U.S. Virgin Islands (2016). NOAA Technical Memorandum NMFS-SEFSC-715, 160 p.

required sample sizes are in Table 2.

Data collection will involve a random (i.e., times and locations) intercept survey method at docks where commercial fishing activity takes place “to maximize response rates for hard-to-find individuals” (Miller et al. 1997) such as crew for whom there is no registry from which to draw a strictly random sample (Pollnac et al. 2015). Pollnac and Poggie (1978) found this approach to be an effective method to achieve high response rates. Note that this approach was used for the second implementation of this study in 2018/2019, achieving over a 90% response rate (Silva et al., 2021). For the intercept method process, interviewers approach individuals on the docks and vessels and ask whether they are crew or hired captains and then solicit for participation in this voluntary and anonymous survey. Our efforts to increase the likelihood of making contact include working with Port Agents and local stakeholders, and using vessel trip report data to identify the optimal times to find vessels in port.

To further maximize the response rate, the NEFSC and SEFSC will select a random sample of fishing ports from the universe of ports for the New England, Mid-Atlantic, U.S. South Atlantic, Gulf of Mexico, Puerto Rico, and U.S. Virgin Islands commercial fisheries. To ensure that the most active ports are selected, the NEFSC and SEFSC will employ a probability proportional to size (PPS) sampling method. Specifically, under a PPS approach a port’s probability of being selected into the sample will be related to the “size” of the port, with larger ports being more likely to be selected into the sample. The PPS approach is necessary to ensure that selected ports are more active and thus, more likely to result in completed crew surveys. For this study, the size of the port will be assessed using the commercial fishing engagement index from the [NOAA Fisheries Community Social Vulnerability Indicators](#) (CSVIs) developed by NEFSC and SEFSC scientists (Jepson and Colburn 2013) and implemented nationally at all NOAA Fisheries science centers (see CSVI list of publications [here](#)). The commercial fishing engagement index is reported by the community and is generated from a principal component factor analysis of variables associated with fishing activity. The “community level” here refers to data at the level of Census Designated Place (CDP) nested within a set of counties designated as “coastal” by their connection to the ocean through a coastline, river, bay, or estuary. The variables used to determine commercial fishing engagement include the number of commercial fishing permits, the value of landings, dealers with landings, and the total landings in pounds. Community sample size may vary year to year due to variation in commercial engagement scores over time. We selected from “high” and “moderately high” commercial engagement communities in the target regions. Fifty communities were selected using the PPS approach.

The sample of individuals from each community is determined based on availability of crew during our port visits. We return to ports multiple times on different days of the week and at different times of day when crew will most likely be present. The sample size typically corresponds to the size of the port, such that New Bedford, MA, for example, generally represents a larger proportion of the responses relative to other ports in the sample. There is no exact target per port because our employment estimates do not go to that level of geographic resolution.

## Response Rates

Although we expect that the response rate will be greater than 80 percent, we based the sample size on a response rate of 80 percent. The previous data collection effort achieved greater than a 90% response rate due to effective outreach through pre-survey correspondence with stakeholders and coordination with NMFS Port Agents who have substantial knowledge of the ports in our sample. We will once again conduct outreach prior to survey implementation and will work closely with Port Agents to engage with local stakeholders to boost response rates.

## 1.2 NWFSC and SWFSC

### Target and Sampling Populations

**Table 3. Definitions of the target and sampling populations for the survey.**

<b>Category</b>	<b>Crew Survey</b>
<b>Target population</b> – The population that the survey effort is interested in collecting data about.	Individuals who work as hired captains or other crew members on commercial fishing vessels with commercial landings to West Coast (CA, OR, WA) commercial fisheries
<b>Sampling population</b> – The set of individuals from which the sample units are drawn.	Individual hired captains and other crew members that can be encountered on the public areas of docks.

### Population and Sample Sizes

The target population for the Survey consists of individuals who work as hired captains and crew (here to for referred to as crew) on commercial fishing vessels operating in California, Oregon and Washington (Table 3). There is no available database of information on those who work as crew on commercial fishing vessels in these fisheries, Therefore, the NWFSC and SWFSC will utilize estimates of employment in commercial fishing as the sampling frame from which to calculate an appropriate sample size. These estimates of commercial fishing employment by state are provided in Table 4. The total estimated population of individuals employed as crew or hired captains on the West Coast is 7,052 for 2022, the most recent year for which these data are available. The commercial fishing employment population size is the estimated size of the universe from which our sample will be drawn. Since there is no sample frame, we calculate a sample size based on this estimated population size. The sample is stratified at the state level because the population estimates are accurate only at broad geographic scales and are not specified at the fishery level. We also do not anticipate sufficient funding to support a survey stratified at a fishery or finer geographic scale. Table 3 describes the population universe and sample and Table 4 provides the estimated size of the population within the universe of potential respondents to be sampled by state.

**Table 4. Estimated Population Sizes, Target Numbers of Responses and Required Sample Sizes for NWFSC and SWFSC Commercial Fisheries.**

Fisheries	Vessel Count	Crew	Hired Captains	Total	Target Number of Responses	Required Sample Size
California	1,554	2,660	357	3,018	341	426
Oregon	775	1,779	233	2,012	322	403
Washington	724	1,877	1,81	2,058	324	405

Similar to the NEFSC approach, the NWFSC and SWFSC will use commercial fisheries by states as the sampling frame from which to calculate an appropriate sample size. The commercial fisheries in the West Coast can be divided further by species groups based on separate fishery management plans. However, the geographic distribution of participation in these species groups varies widely across the West Coast and it is not uncommon for licensed vessels to participate in multiple fisheries. The NWFSC and SWFSC expects that crew members may also participate in multiple fisheries across the region depending on the season, value of the fishery at the time, and opportunities for multiple trips/days at sea. For these reasons as well as insufficient resources to accurately survey with a fishery level stratification, we do not attempt to stratify the survey by fishery but will attempt to spread the intercept survey across fisheries as well as ports.

The crew employment estimates in Table 4 come from a Fishery Participation Survey implemented as a mail survey in 2023. It surveyed all vessel owners with West Coast commercial fishery revenues in 2022 and had a 40% response rate. The survey asked vessel owners the maximum number of crew other than the captain they employed during the year and whether they ever used a hired captain. We generated estimates of crew size by state using the proportion of vessels in each state with different crew sizes and the total number of active vessels in each state, which we obtained directly from PACFIN landings data. Applying this process by state, we estimated total crew employment of 3,018, 2,012 and 2,058 respectively for California, Oregon and Washington.

From these population estimates and using Cochran's (1977) formula for categorical data, described in detail in Question 2, we calculated the target number of responses of 341, 322 and 324 respectively for California, Oregon and Washington. Then, we calculated the sample size that we would expect to produce that number of responses allowing for a 20% nonresponse rate. The resulting sample sizes are 426, 403 and 405 respectively for California, Oregon and Washington for a total target of 1,233 intercepts.

For the same reasons as noted above for the NEFSC and SEFSC surveys, data collection will involve a random (i.e., times and locations) intercept survey method at docks where commercial

fishing activity takes place. For the intercept method process, interviewers approach individuals on the docks and vessels and ask whether they are crew or hired captains and then solicit for participation in this voluntary and anonymous survey. Our efforts to increase the likelihood of making contact include working with the NMFS observer program and local stakeholders, and using vessel trip report data to identify the optimal times to find vessels in port.

To further maximize the response rates for West Coast ports, the NWFSC and SWFSC will take the same actions as described above for the NEFSC and SEFSC. In addition, the NWFSC and SWFSC will spread sampling over the year as some fisheries (e.g., Dungeness crab) occur primarily in the winter while others (e.g., salmon) occur in the summer.

The sample of individuals from each community is determined based on availability of crew during our port visits. We will return to ports multiple times on different days of the week and at different times of day when crew will most likely be present. The sample size typically corresponds to the size of the port, such that San Diego, CA, for example, generally represents a larger proportion of the responses relative to smaller ports in the sample. There is no exact target per port because our employment estimates do not go to that level of geographic resolution.

### Response Rates

Although we expect that the response rate will be greater than 80 percent, we based the sample size on a response rate of 80 percent. The previous data collection effort achieved greater than a 90% response rate due to effective outreach through pre-survey correspondence with stakeholders and coordination with the NMFS Observers program who have substantial knowledge of the ports and vessel activity in our sample. We will once again conduct outreach prior to survey implementation and will work closely with harbor masters to engage with local stakeholders to boost response rates.

## 1.3 PIFSC

### Target and Sampling Populations

**Table 5. Definitions of the target and sampling populations for the survey.**

<b>Category</b>	<b>Crew Survey</b>
Target population – The population that the survey effort is interested in collecting data about.	Individuals who work as hired captains or other crew members on commercial fishing vessels operating in the Pacific Islands.
Sampling population – The set of individuals from which the sample units are drawn.	Individual hired captains or other crew members that can be encountered on the public areas of docks or via email or mail.

## **Population and Sample Sizes**

The target population for the Survey consists of individuals who work as hired captains and crew (here to for referred to as crew) on commercial fishing vessels operating in the Pacific Islands (Table 5). With the exception of Hawaii, there is no available database of information on those who work as crew on commercial fishing vessels in the Pacific Islands. Therefore, the PIFSC will utilize estimates of employment in commercial fishing as the sampling frame from which to calculate an appropriate sample sizes for all but Hawaii.

Hawaii small boat fisheries: The potential respondent universe in Hawaii is 1,318 small boat commercial fishermen, according to the Hawaii Division of Aquatic Resources' record of Commercial Marine License (CML) holders in 2019. Fishermen who catch fish for commercial purposes are required to apply for a Hawaii Commercial Marine License (CML) from the State of Hawaii. The list of CML holders provides a population of commercial fishermen in the State of Hawaii. The State of Hawaii Division of Aquatic Resources (HDAR) provided the population for this study. It included 1,318 fishermen who held a State of Hawaii CML and with the following criteria that we considered comprising the small boat fishery: fishermen who caught, landed, and sold at least one marine life using small vessels during 2019 and with valid mailing address; but excluded charter, longline, aquarium, and precious coral fisheries. That estimate overstates the target population because it includes an unknown number of fishing boat owner/operators who are not either hired captains or crew.

American Samoa, Guam, and The Commonwealth of The Northern Mariana Islands Small Boat-Based Fisheries: The potential respondent universe in terms of number of hired captain and crew is difficult to estimate because there are no definitive measures of small boat fishing participation in the three island areas. The most relevant estimation of the active vessels was done by Western Pacific Fisheries Information Network (WPacFIN) based on the creel survey programs administered by American Samoa Department of Marine and Wildlife Resources (DMWR), Guam Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR), and CNMI government Department of Lands and Natural Resources' Division of Fish & Wildlife (DFW). The potential number of boats in the American Samoa small boat fishery is about 20. This is based on the average number of small boats from the boat-based creel survey in 2001-2018. WPacFIN estimated the number of active vessels were 398 in Guam and 75 in CNMI in 2018. However, WPacFIN's estimates for CNMI only include the island of Saipan; there are also small boat fishing in Tinian and Rota. It is estimated that there are 15 small boats in the island of Tinian and 20 small boats in the island of Rota. Therefore, the total number of small boats in the CNMI is estimated to be 110 in 2018. If there are on average three fishermen per boat and one of them is usually a hired captain, the population of hired captains and crew for these fisheries is approximately 1,056.

Table 5 describes the population universe and sample and Table 6 provides the estimated size of the population within the universe of potential respondents to be sampled.

**Table 6. Estimated Population Sizes, Target Numbers of Responses and Required Sample Sizes for PIFSC Commercial Fisheries.**

<b>Fisheries</b>	<b>Estimated</b>	<b>Target</b>	<b>Required</b>
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	<b>Number Hired Captains and Crew</b>	<b>Number of Responses</b>	<b>Sample Size</b>
Hawaii small boat fisheries	1,138	287	359
American Samoa, Guam, and The Commonwealth of The Northern Mariana Islands Small Boat-Based Fisheries	1,056	282	352
<b>Pacific Islands Total</b>	<b>2,194</b>	<b>569</b>	<b>711</b>

### Response Rates

Although we expect that the response rate will be greater than 80 percent, we based the sample size on a response rate of 80 percent. The previous data collection effort achieved greater than a 90% response rate due to effective outreach through pre-survey correspondence with stakeholders and coordination with NMFS Port Agents who have substantial knowledge of the ports in our sample. We will once again conduct outreach prior to survey implementation and will work closely with Port Agents to engage with local stakeholders to boost response rates.

- 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.**

## **2.1 NEFSC and SEFSC**

### Sample Selection

We calculated the sample size using Cochran’s (1977) formula for categorical data (Bartlett et al. 2001). Determining sample size requires specifying acceptable margins of error for the “items that are regarded as most vital to the survey,” (Cochran 1977). Since we will be collecting both categorical (e.g., educational level and ethnicity) and continuous (e.g., years of experience and five-point scales for attitudes, beliefs, and perceptions) data, the formula and procedures for categorical data will be utilized given that categorical data require larger sample sizes than continuous data.

In determining sample size, we will consider two key factors as derived from Cochran’s formula: 1) an acceptable margin of error, and 2) an acceptable alpha level, or the probability of committing Type 1 error, i.e., incorrectly rejecting the null hypothesis (Bartlett et al. 2001). We will use the most common margin of error for categorical data (i.e., 5%) and the most common alpha level (i.e., .05) used in research in the social and behavioral sciences. The alpha level corresponds inversely to the confidence level such that increasing the alpha level will result in a

decreased confidence level. The alpha level of .05 used in this sample selection method will mean a confidence level of 0.95, or 95% confidence. Sample size determination also requires estimating the variance of the primary variables of interest in the study. We will employ the recommended .50 as an estimate of the population proportion (p) for categorical data.

$$n = \frac{(t)^2 * (p)(q)}{(d)^2}$$

Where  $t$  = the  $t$ -value derived from selected alpha level,  
 $(p)(q)$  = estimate of variance (using the proportion of the population ( $p$ ) with a certain characteristic of interest and  $q = (1-p)$ ),  
and  $d$  = margin of error

Hence, the minimum estimated sample size is:

$$n = \frac{(1.96)^2 * (.5)(.5)}{(.05)^2} = 384$$

Using the above outlined variables of measurement and the estimated population sizes ( $N$ ) for the Northeast and Southeast regions, we calculated the sample size based on Cochran's finite population correction formula for final sample size determination (Bartlett et al 2001):

$$n'_{\square} = \frac{n}{1 + \frac{n}{N}}$$

Cochran's correction for an estimated New England commercial fisheries population of 10,769 is:

$$n'_{\square} = \frac{384}{1 + \frac{384}{10,769}} = 371$$

Cochran's correction for an estimated Mid-Atlantic commercial fisheries population of 5,559 is:

$$n'_{\square} = \frac{384}{1 + \frac{384}{5,559}} = 359$$

Cochran's correction for an estimated U.S. South Atlantic and Gulf of Mexico shrimp fisheries population of 4,085 is:

$$n'_{\square} = \frac{384}{1 + \frac{384}{4,085}} = 351$$

*Cochran's correction for an estimated U.S. South Atlantic and Gulf of Mexico HMS fisheries population of 283 is:*

$$n'_{\square} = \frac{384}{1 + \frac{384}{283}} = 163$$

*Cochran's correction for an estimated U.S. South Atlantic and Gulf of Mexico other Federally managed other finfish fisheries population of 3,663 is:*

$$n'_{\square} = \frac{384}{1 + \frac{384}{3,663}} = 348$$

*Cochran's correction for an estimated Puerto Rico fisheries population of 1,680 is:*

$$n'_{\square} = \frac{384}{1 + \frac{384}{1,680}} = 313$$

*Cochran's correction for an estimated US Virgin Islands fisheries population of 235 is:*

$$n'_{\square} = \frac{384}{1 + \frac{384}{235}} = 146$$

Therefore, the total target number of responses for all NEFSC and SEFSC fisheries combined is 2,051 and, given a response rate of 80 percent, a sample size of 2,564 is sufficiently large to estimate the true values of the primary variables of interest in this population.

### Unusual Problems

The NEFSC and SEFSC do not expect to encounter any unusual problems.

## **2.2 NWFSC and SWFSC**

### Sample Selection

The NWFSC and the SWFSC will use the sample selection methods described above for the NEFSC and SEFSC. The resulting sample sizes for the of California, Oregon and Washington commercial fisheries are as follows:

Cochran's correction for an estimated California crew population of 3,018 is:

$$n' = \frac{384}{1 + \frac{384}{3,018}} = 341$$

Cochran's correction for an estimated Oregon crew population of 2,012 is:

$$n' = \frac{384}{1 + \frac{384}{2,012}} = 322$$

Cochran's correction for an estimated Washington crew population of 2,058 is:

$$n' = \frac{384}{1 + \frac{384}{2,058}} = 324$$

Therefore, the total target number of responses for all regions combined is 987 and given a response rate of 80 percent, a sample size of 1,236 is sufficiently large to estimate the true values of the primary variables of interest in this population stratified by state.

### Unusual Problems

The NWFSC and SWFSC do not expect to encounter any unusual problems.

## **2.3 PIFSC**

### Sample Selection

The PIFSC will use the sample selection methods described above for the NEFSC and SEFSC. The resulting sample sizes are as follows:

Cochran's correction for an estimated Hawaii small boat fisheries crew population of 1,138

$$n' = \frac{384}{1 + \frac{384}{1,138}} = 287$$

Cochran's correction for an estimated American Samoa, Guam, and The Commonwealth of The Northern Mariana Islands Small Boat-Based Fisheries crew population of 1,056

$$n' = \frac{384}{1 + \frac{384}{1,056}} = 282$$

Therefore, the total target number of responses for the Pacific Islands is 569 and given a response rate of 80 percent, a sample size of 711 is sufficiently large to estimate the true values of the primary variables of interest in this population stratified by state or territory area.

### Unusual Problems

The PIFSC does not expect to encounter any unusual problems.

### **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.**

The crew survey will be implemented as an intercept approach in which interviewers will intercept crew at the docks. A random intercept survey is being used to maximize response rates and is a method used for studies of hard-to-find individuals (Miller et.al. 1997) such as crew, who may not have a permanent address or phone number or may live aboard the vessel on which they work (Kitner 2006). A study similar to this one involved a 90 percent response rate from 350 fishermen in New England in 2009 and 2010 (Pollnac et al. 2015). Additionally, the prior 2018-2019 survey wave of this information collection effort was also able to achieve greater than a 90% response rate, as noted above.

To maximize response rates, surveys will be conducted in-person. Face-to-face interviews are an effective method for the collection of information from people such as individuals who may not be able to participate using other methods (Bernard 2006). Face- to- face interviews also make it possible to probe for more in-depth answers and clarify respondent questions (Bernard 2006). In addition, the individuals participating in the research have the opportunity to communicate with the researcher and provide additional information that is useful to the overall objectives of the study. This information will be collected principally using a structured interview administered in-person where hired captains and crew (heretofore referred to as crew) tend to congregate such as at docks. For crew who may be interested in completing the survey but are not willing to do so at the dockside intercept, NMFS will provide the option to complete the structured survey later by telephone or at a website.

In addition, to minimize the length of the survey instrument and to eliminate any confusion by the respondents about either who the survey is for or what questions are relevant, the survey instrument that OMB approved in 2021, which includes a few region-specific questions, was replaced with region specific survey instruments. NMFS did that by eliminating the few irrelevant questions for each region and renaming the survey instrument.

Prior to the implementation of the survey, interviewers will explain that the survey is OMB-approved, anonymous, participation is voluntary and that the interview can be stopped at any point. It will also be explained that participants can skip questions they do not want to answer.

The Fishery Science Centers will work with town harbor commissioners, NMFS port agents and/or NMFS observer program representatives in sample ports to determine the best times of the year and day to perform an intercept survey of crew. We will use an electronic vessel tracking system so that we have information on when vessels are departing/arriving. To foster “buy-in” to the project ahead of time, we will also conduct workshops/webinars leading up to deployment of the survey so that fishing industry members have some knowledge of the purpose of the survey. In addition, the Fishery Science Centers will advertise the survey in newsletters and on social media such as Facebook and Twitter. An example of a web-based newsletter used during the 2018-2019 implementation is included in this PRA package.

The Fishery Science Centers have and will employed the following practices to maximize response rate:

- Survey length—NMFS has limited the length of the survey to ensure it can be completed in a reasonable amount of time. The survey questionnaire is expected to take approximately 15 minutes to complete due to its focused topics and limited use of Likert-style questions, open-ended questions, and loaded or double-barreled questions.
- Best-practices design— Fishery Science Center scientists have expertise in survey design, including question sequencing, wording, and graphic elements on the survey. NMFS scientists also have experience programming many different survey software platforms to allow for question branching, skip patterns, and ideal question presentation for ease of interpretation and response (i.e., clear instructions, menu options, response formatting restrictions and error messaging, etc.).

**4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.**

With one exception, NMFS would use the same survey instrument that OMB approved in 2021 and that NMFS used in the previous waves of data collections under OMB Control No. 0648-0636. That survey instrument was used by the NEFSC in 2018-2019 and 2023-2024, resulting in 639 completed interviews, and it was used by the SEFSC in 2023-2024, resulting in over 200 responses. The exception, which was noted above, is that NMFS will use a separate survey instrument for each of the following four sets of commercial fisheries.

1. New England and Mid-Atlantic,
2. U.S. South Atlantic, Gulf of Mexico, Puerto Rico, and U.S. Virgin Islands,
3. West Coast
4. Pacific Islands

The survey instrument for each set of fisheries includes all the questions from the previous survey instrument that are relevant for that set of fisheries.

**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.**

The following individuals were involved in the statistical aspects of the design and will be responsible for the collection and analysis of data generated from this study.

<b>Name and Affiliation</b>	<b>Phone</b>	<b>Email</b>
Matthew Cutler, Northeast Fisheries Science Center	(508) 495-4731	matthew.cutler@noaa.gov
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