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Costs, Earnings, and Employment in the Alaska Saltwater Sport Fishing Charter Sector, 2011-2013

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Abstract

This report describes the development, design, testing, and implementation of the Alaska Saltwater Sport Fishing Charter Business Survey, a survey that collects baseline economic information from the saltwater sport fishing charter businesses in Alaska. The survey was administered for three consecutive years (2011-2013) to collect annual costs, earnings, and employment information of sport fishing charter businesses. Descriptive statistics of the samples of item respondents are presented, as well as population-level estimates of key variables that are adjusted for missing data using sample weighting and data imputation methods.

The adjusted population-level results suggest that in 2011 the Alaska saltwater sport fishing charter sector as a whole operated at a loss, but in 2012 and 2013, as the population of charter businesses shrank, the sector yielded an overall profit. The analysis examines sector-level trends and is a first attempt to provide a basic understanding of the economic conditions in the charter sector leading up to the implementation of the Alaska halibut catch sharing plan (CSP) implemented in 2014. The 3-year period leading up to the CSP implementation saw slight changes in employment and spending patterns by the charter businesses that remained in the fishery. This includes a shift to decreasing the amount spent on charter trip expenses and cash investments in vehicles, machinery, equipment, buildings and real estate. At the same time, average revenues increased. To better understand the effects of management changes on costs, earnings, and employment, business-level models should be developed.

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Introduction

In recent years Alaska's sport fisheries have undergone substantial changes, particularly in the management of the Pacific halibut (*Hippoglossus stenolepis*) charter fishery. As a result of these regulatory changes, participation in the charter sector Pacific halibut fishery has been capped with a limited entry program and charter vessel operators in some areas have been subject to size restrictions and bag limits on the catch of Pacific halibut during guided trips. Additionally, a halibut catch sharing plan (CSP) formalizing the process of allocating catch between the commercial and charter sectors was implemented in January 2014 (78 FR 39121).

In spite of regulatory changes in Alaska's sport fisheries over the last decade, information about how changes in fisheries management tools affect sport fishery anglers and charter businesses has generally been limited to date (Lew and Larson 2012). While some information on the Alaska charter boat sector has been collected through the Statewide Harvest Survey¹ and Saltwater Charter logbook program², the accompanying data has generally been limited to information about angler participation and harvest and amount of charter activities. Information on vessel and crew characteristics, services offered to clients, and information detailing cost and earnings have generally not been available for study. To address this gap in information, the Alaska Fisheries Science Center (AFSC) of the National Marine Fisheries Service (NMFS) developed and implemented the Alaska Saltwater Sport Fishing Charter Business Survey to collect baseline economic information about the charter fisheries sector for use in understanding the economics of the charter sector and evaluating the effects of regulatory changes on the sector. The survey was administered by the Pacific States Marine Fisheries Commission (PSMFC) in 2012, 2013, and 2014 and collected information on the respective preceding year's charter fishing seasons.

This report describes the development, implementation, and results from the Alaska Saltwater Sport Fishing Charter Business Survey. The next section provides the regulatory history of the Pacific halibut charter sector, with an emphasis on management issues. The three subsequent sections present the development, design, and implementation of the survey. Next, the methods used to summarize survey respondent data and calculate population estimates are presented. This is followed by a section that summarizes responses from survey respondents for each year of the survey and compares them across survey years. Then, summaries of the population estimates derived from the sample data are presented individually for each survey year and across the three years. The report concludes with a discussion of the survey findings and next steps for this research.

Background

Pacific halibut in the North Pacific are harvested in commercial, sport, and subsistence fishery sectors. The International Pacific Halibut Commission (IPHC), which was created by a treaty between the United States and Canada in 1923, is responsible for conducting stock assessment research and setting harvest strategies and catch limits for Pacific halibut. In the United States, the North Pacific Fishery

¹ The Statewide Harvest Survey has been conducted as a survey of anglers by the State of Alaska annually beginning in 1977.

² Regulations (5 AAC 75.076) requiring logbooks for saltwater charter vessels in Alaska were adopted in February 1998 by the Alaska Board of Fisheries.

Management Council (NPFMC), which was created in 1975, is responsible for allocating Pacific halibut among the three aforementioned harvest sectors off Alaska. The NMFS is primarily responsible for enforcing and developing regulations concerning the management of Pacific halibut within U.S. waters per the authority of the Northern Pacific Halibut Act of 1982 (Halibut Act).

Prior to 1973, sport halibut fishing was legal only during the commercial halibut seasons; however, this regulation was not strictly enforced due to the small size of the fishery (Alaska Department of Fish and Game 2014). For instance, the estimated take of halibut by the sport fishery was only 10,000 pounds in 1975 (Alaska Department of Fish and Game 2014). But by the mid-2000s, harvest of halibut by the sport fishery increased to half a million fish annually (Lew and Seung 2010). With growing participation in the halibut sport fishery, the IPHC officially recognized and established regulations specific to the sport fishery.

Along with growth and regulatory change in the sport fishery came changes to the management of the commercial halibut fishery. Beginning in 1995, the commercial halibut fishery experienced a change from open access, derby-style fishing characterized by overcapitalization and short seasons to an individual fishing quota (IFQ) system wherein vessel owners were allocated quota based on catch histories (Fina 2011). The switch to the IFQ program resulted in a larger share of the halibut catch sold to fresh fish markets and reductions in gear losses and the associated mortality (Fina 2011), but did not go so far as to formally establish allocation rules among the three main fishing sectors.

Each year, the IPHC assesses the abundance and potential yield of Pacific halibut using data from fishery surveys. From this information, harvest levels for each of two main regulatory areas (Areas 2C and 3A; Fig. 1) are determined. A biological target level, called constant exploitation yield (CEY), is then set by multiplying a fixed harvest rate by the estimate of exploitable Pacific halibut biomass. In the early 1990s, estimates of each regulatory area's Pacific halibut guided charter harvest, subsistence harvests, and wastage³ was deducted off the top of each year's CEY. The amount of fish remaining after these subtractions constituted the catch quota for each regulatory area's commercial fishing sector. Any growth in the charter sector harvest needed to be offset by a reduction in the allowable commercial sector catch limit (68 FR 47256).

³ Commercial wastage is defined by the IPHC to include (1) fish not meeting the minimum size requirement that are released and subsequently die, (2) fish captured by fishing gear that has been lost or abandoned, and (3) fish discarded for regulatory reasons.

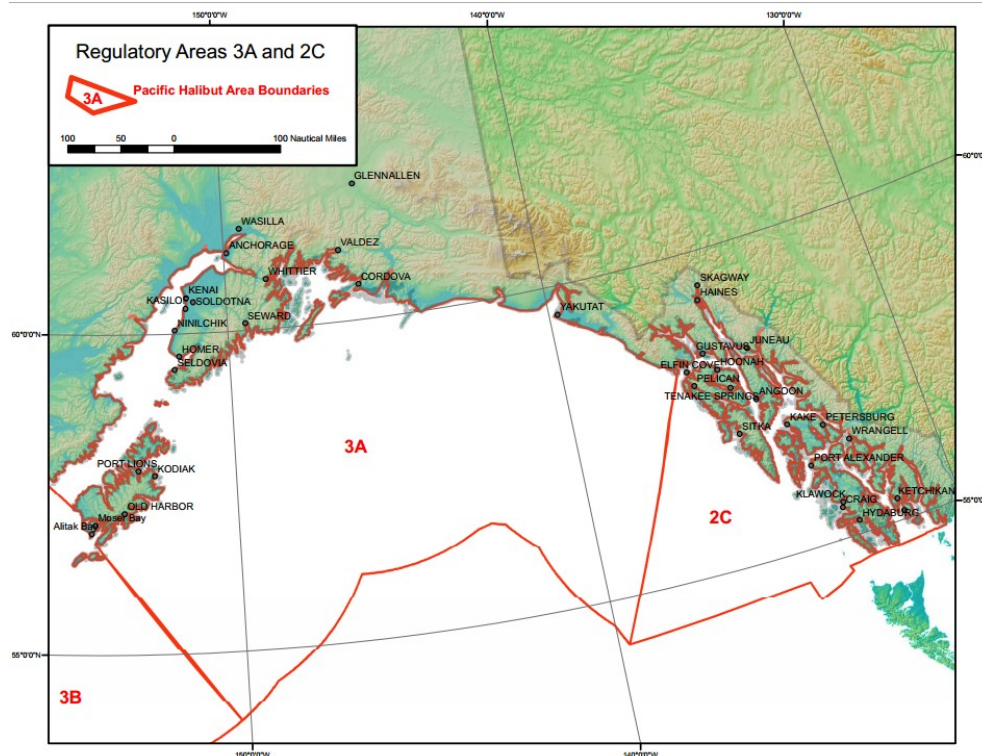


Figure 1. -- Pacific halibut regulation areas (Source: NOAA, 2014).

In recognition of the growth of the Alaska sport halibut fishery and a need for a more formalized process of allocation between the guided sport and commercial sectors, a guideline harvest level (GHL) policy for the charter sector was established in the fall of 2003 (68 FR 47256). The GHLs were designed to serve as benchmarks for an acceptable level of charter sector harvest of Pacific halibut, per IPHC estimates of abundance. In particular, the GHL established a pre-season estimate of allowable harvests for the guided sport fishery in Areas 2C and 3A (Fig. 1) (68 FR 47256). To accommodate limited future growth in the sector, GHLs were structured to allow for a 25 percent growth over the average of 1995-1999 guided charter harvest estimates using statewide harvest survey data. The initial GHLs were set at 1,430,000 pounds net weight for Area 2C and 3,650,000 pounds net weight in Area 3A.

However, due in part to growth in the guided charter sector and revisions to IPHC stock assessment methodologies that resulted in lower estimates of Pacific halibut abundances, the guided charter fishery exceeded the GHL for Area 2C every year between 2004 and 2007 (50 FR 30504) (Meyer 2010). As a consequence, in 2007 charter-specific angler harvest rules in Area 2C were put in place for the first time. These restrictions took the form of size and bag limits that were more restrictive than those applied to unguided anglers. For example, in 2007 unguided anglers were allowed to catch and keep two Pacific halibut of any size, while charter anglers were restricted to one fish of any size and one no longer than 32 inches with its head on. In later years, guided charter anglers in Area 2C were restricted to a one-fish retainable limit. Since harvest by the charter sector in Area 3A only slightly exceeded the GHL between 2004 and 2007, charter anglers in that area were not subject to additional limitations during the years in which the GHL policy was in place.

To control the growth of the guided charter sector, NMFS issued regulations in 2010 creating a limited entry program for charter vessels in the guided sport fishery for Pacific halibut off Alaska (75 FR 554).

The limited entry program limits the number of charter vessels that may participate in the halibut guided sport fishery and applies to waters of Areas 2C and 3A (Fig. 1). The program goals are to increase the value of the halibut fishery and enhance economic stability in rural coastal communities by limiting boats to qualified active participants. Under the limited entry program, NMFS issues Charter Halibut Permits (CHPs) to applicants who are licensed by the Alaska Department of Fish and Game (ADF&G) based on their past participation in the charter halibut fishery per the Saltwater Charter Vessel logbook program. The CHPs are also issued to Community Quota Entities that have been created by some rural Alaska communities (69 FR 23681). As of February 1, 2011, all charter vessel operators in Areas 2C and 3A with charter anglers onboard catching and retaining Pacific halibut were required to have a valid CHP onboard during every charter fishing trip. A CHP limits charter operators to the regulatory area and number of anglers specified in the permit.

To provide more structure to the allocation rules between the commercial and charter fishing sectors, a Pacific halibut Catch Sharing Plan (CSP) in Areas 2C and 3A was adopted by the NPFMC and implemented by NMFS in January 2014 (78 FR 75843). The CSP defines a formal process for allocating Pacific halibut between the commercial and charter fisheries in Areas 2C and 3A, allows for sectoral allocations that vary in proportion to changing annual estimates of halibut abundance, addresses specific needs of the commercial and charter fisheries, and provides a public process through which the NPFMC may develop recommendations to the IPHC for charter fishery harvest restrictions. Allocations under the CSP replace the GHL with an annual combined (commercial and charter) catch limit (CCL) for the Pacific halibut fishery. The annual CSP CCL will be determined by the IPHC and apportioned through a predictable and standardized process to the commercial and charter fisheries in Areas 2C and 3A.

The CSP also authorizes CHP holders to lease limited amounts of commercial halibut IFQ for use in the charter fishery. The annual IFQ, measured in pounds, are converted to guided angler fish (GAF) based upon a conversion rate published by NMFS annually⁴, which then can be fished by a CHP holder's client anglers (78 FR 39121). Fish caught as GAF by charter client anglers are not subject to the harvest controls imposed on the charter sector that are more restrictive than on unguided anglers. For example, since (currently) unguided anglers are allowed to retain two fish of any size, a fish retained as GAF can be any size regardless of the size limit imposed on charter sector harvests. Additionally, if a bag limit of one fish is imposed on charter anglers, GAF can be used to legally harvest a second fish. These GAF leases are area-specific. As a result, the GAF leasing program is intended to provide charter businesses a way to relax harvest restrictions for their angler clients.

Survey Development and Testing

The questionnaire used in this study was developed by the NMFS with input from a series of focus groups, cognitive interviews, and discussions with charter business associations and staff within NMFS, the NPFMC, and ADF&G. Four focus groups were held in two cities in Alaska (Homer and Seward) during 2011 with small groups of charter businesses to get feedback on some preliminary survey questions and other materials, as well as input on how best to conduct the survey—in terms of content, presentation, and logistics—to maximize response rates and accuracy. Cognitive interviews (in-depth, one-on-one interviews) were also conducted during 2011 with a small number of charter business operators in Juneau and Homer to help refine the survey instrument and related materials.

⁴ GAF numbers and conversion from IFQ to GAF for Areas 2C and 3A for each fishing year are posted at <http://alaskafisheries.noaa.gov>

Survey Design

Mail Questionnaire

The 12-page questionnaire was designed to collect information about charter businesses' costs, revenues, employment, and business characteristics. The questionnaire is divided into six sections and includes both open-ended and categorical questions (the full survey is included in Appendix B).

Section A is short and asks for information that identifies the respondent's charter business to enable linking the information collected in the survey to supplemental data on fishing trips (i.e., catch, number of clients, dates of trips) collected in ADF&G's saltwater charter logbook program (see *Methods* section).

Section B collects information on employees and employee compensation during the previous season. Questions are asked to identify the number of people employed as vessel operators and sport fishing guides⁵ (B1), deckhands or other crew (B2), and staff of onshore business operations (B3). Since there are several distinct fishing periods during the year (main season, early- and late-shoulder, and offseason), these questions ask respondents to break down employment numbers by time period. Question B4 asks respondents to indicate the total compensation provided to each of the employee classes asked about in questions B1 to B3, and B5 collects information on the terms of compensation for each type of employee.

Section C asks respondents for information on the business' offerings, including types of fishing trips offered and other services such as lodging, non-fishing trips, etc. Respondents are asked to identify the types of trips they offer in question C1, and then are asked in questions C2 and C3 to identify the specific fishing trip offerings by trip length and number of species targeted. Questions C2 and C3 also collect information on the average price charged per person and per full boat. Question C4 collects information on additional services provided on fishing trips, such as food and beverages, fish cleaning services, lodging services, etc. Question C5 asks respondents to indicate whether lodging services are offered to non-fishing clients. Question C6 collects information necessary to calculate the annual revenues from the business' activities. Question C6 also asks for information on the number of CHPs sold or leased and the associated revenues from these transactions.

Cost information is collected in Section D. The section begins with a question (D1) on amounts paid by charter businesses toward goods and services required for trip operations (such as fuel, vessel cleaning, supplies, etc.) or general overhead purposes (such as non-wage payroll costs, telephone and internet, insurance, etc.). Question D2 collects information on capital expenditures, including rental and loan servicing on previously financed purchases and total expenditures on new investments toward capitalized assets used by the business.

The next section asks respondents for information about their clients. Questions E1 through E3 ask for the percentage of clients that were returning customers (E1), booked trips a month or more in advance (E2), and booked at the last minute (defined as less than 48 hours in advance) (E3). Question E4 asks respondents to identify the percentage of clients that booked fishing trips through different sources.

⁵ Sport guides in the state of Alaska must have a current ADF&G sport fishing guide license, U.S. Coast Guard Operator's license (if operating a motorized vessel), and American Red Cross first aid certification.

The final section contains questions aimed at further classifying respondents and their businesses, and at understanding respondents' investment in the businesses. Questions F1 and F2 are used to identify the type of business structure utilized by the charter business. Question F3 asks respondents for the percentage of the business they (and their families) own, question F5 asks for the percentage of their household income earned from the business, and question F4 collects information on the number of people from the respondent's household involved in the business and their role(s) therein. To assess off-season activities undertaken by owners of charter businesses, question F6 asks the respondent to identify what they did in the off-season.

Web-based Survey

An online web version of the survey was constructed to closely resemble the paper version of the survey to minimize potential mode biases. It was developed using the print version of the questionnaire, formatted for on-screen display, functionality, and ease of use with standard web browsers. As with the mail questionnaire, the web-based survey was divided into six sections. Each section of the web-based survey collected the same information as the mail questionnaire and was organized in a manner consistent with the mail survey. Survey respondents using the web version were allowed to save work and logout to permit completion of the survey over multiple sessions. For a number of questions, logic checks were put in place to alert respondents when invalid values (such as negative costs or revenues) were input and to prompt re-entry of valid value formats.

Survey Implementation

The Alaska Saltwater Sport Fishing Charter Business Survey was administered in 2012, 2013, and 2014 to collect data from eligible charter businesses for their activities in the previous year's fishing season.⁶ The target population for a given year's survey was all licensed charter businesses that had conducted charter fishing in the previous year, according to ADF&G charter logbook records. All eligible businesses were identified as those with charter fishing activity recorded in the ADF&G charter logbook data. Entries that had matches across license registry data and logbook records constituted the population of saltwater sport fishing charter boat businesses offering fishing trips in Alaska during the target year. For the 2012 survey, the target population consisted of 650 charter business license holders. In the latter two years, the population declined, dropping to 592 in the 2013 survey and 572 in 2014 survey.

The Pacific States Marine Fisheries Commission (PSMFC) administered the survey following a modified Dillman tailored design method (Dillman et al. 2009) approach consisting of several mailings and a telephone interview. Specifically, members of the target population were contacted up to five times, receiving an advance letter, an initial mailing of the questionnaire, a postcard reminder, a follow-up telephone interview, and a second full mailing of the questionnaire. In addition, respondents were given the option of completing the survey online. Due to numerous charter business operators residing outside Alaska during the off-season, survey materials were mailed to both Alaskan and out of state addresses, if applicable.

⁶ Fishing seasons correspond to the calendar year. In a given year, the recreational charter fishing season is generally considered to run from April through September, with the most fishing occurring in what is considered the main season, from Memorial Day weekend through Labor Day weekend. Since very little recreational fishing occurs between October and March, this period is generally considered the off-season.

In discussions with charter business operators, it became clear that to maximize participation in the survey, it would have to be implemented sometime in the off-season, and completed prior to the Memorial Day weekend, which is typically the beginning of the full fishing season. Given that some of the information requested in each survey would be most accurate and readily available only after the charter business operator had completed their Federal tax return, implementing the survey in the late winter and early spring was determined to be optimal. However, due to several administrative delays, including a late distribution of a subset of surveys (discussed below), the full implementation of the 2012 survey that collected data for the 2011 fishing season took place between April and July 2012. For the 2013 survey of the 2012 charter halibut fishing year, the full survey implementation occurred between February 27, 2013 and May 31, 2013. In 2014, the survey of the 2013 fishing season was conducted between March 6, 2014 and April 15, 2014. The timeline of the 2012, 2013, and 2014 survey contacts is presented in Table 1.

Table 1. -- Dates of survey contacts for the 2012, 2013, and 2014 surveys.

Stage	2012 Date	2013 Date	2014 Date
Advance letter mailed	April 3, 2012	February 27, 2013	March 6, 2014
Initial survey mailed	April 27, 2012*	March 5, 2013	March 13, 2014
Postcard reminder	May 4, 2012*	March 12, 2013	March 20, 2014
Phone call reminders	May 9 - July 17, 2012	March 26, 2013	March 31, 2014
Second survey mailed	June 7, 2012*	April 11, 2013	April 15, 2014

*A mailing delay occurred for these survey elements.

The advance letter was the earliest point of contact for each year's survey and informed respondents that the National Oceanic and Atmospheric Administration (NOAA) and PSMFC were conducting a study to gather information about saltwater charter businesses and that a questionnaire would be forthcoming. The letter also communicated that responses were voluntary and subject to strict confidentiality. The initial mailing was sent subsequent to the advance letter and contained a personalized cover letter, instructions, authentication credentials for secure access to the online survey, a printed questionnaire, and pre-addressed and postage-paid return envelopes. The endorsement of the survey by the three largest Alaska charter business associations⁷ was noted, and logos for all three were displayed on both the advance letter and initial mailing. Postcard reminders were sent about one week after the initial questionnaire was mailed.

The advance letter, initial mailing of the questionnaire, and postcard reminder were sent to the entire population of active charter businesses identified according to the protocol above. Those who did not complete surveys in response to these contacts were contacted by telephone to encourage response to the mail or web survey. The telephone contacts were attempted between May 9, 2012 and July 17, 2012 for the 2012 survey year. For the 2013 survey year, telephone contacts began on March 26, 2013 and extended for 13 business days. For the 2014 survey year, telephone contact began March 3, 2014 and continued for eight business days. All individuals who had not returned the survey up to the beginning date of the phone call stage (e.g., May 9 for the 2012 survey year) were contacted and encouraged to complete the online or mail survey questionnaire. In addition, all contacted respondents were asked a few questions that could help inform non-response behavior. Moreover, if the respondent indicated

⁷ The charter organizations endorsing the survey were the Alaska Charter Association, SouthEast Alaska Guides Organization (SEAGO), and Deep Creek Charterboat Association.

that they would be unlikely to complete the mail or online questionnaire, they were asked to participate in a slightly longer interview during which additional questions were asked that could be used to assess non-response behavior. Up to five attempts were made to reach the identified charter business in the 2012 survey. The maximum number of attempts increased to six in the 2013 and 2014 surveys. Once the intended person was contacted, regardless of whether or not they agreed to complete the survey, no further attempts were made.

For the 2012 survey year, there were 1,259 telephone calls made during survey implementation. Approximately 40 percent of these call attempts resulted in respondents participating in a telephone survey. For the 2013 survey, 587 of the 1,224 total call attempts made, or approximately 48 percent of total logged calls, resulted in short or long telephone surveys. For the 2014 survey year, there were 1,243 telephone call attempts logged during survey implementation. Of this total, 732, or about 59 percent of the total phone call attempts, resulted in either participation in the short or long telephone surveys. Table 2 summarizes this information.

Table 2. -- Summary of total calls logged (call attempts) during survey implementation and the number of successful attempts resulting in a phone interview.

Year	Total call attempts	No. of successful phone contacts	Phone contact rate
2012	1,259	553	44%
2013	1,224	587	48%
2014	1,243	732	59%

Individuals who had yet to complete the web or mail survey, and who had not already refused to participate in the survey in the telephone interview, were sent a second full mailing of the survey. A new cover letter addressing some of the hesitations voiced during phone conversations with the survey population was included with the second full mailing. This second full mailing served as the final contact with potential respondents.

Following the protocols discussed above, the surveys achieved overall response rates between 22 and 28 percent (Table 3). The 2012 survey had a response rate of approximately 27 percent, yielding a respondent sample of 174 item respondents from the 2011 fishing year. The response rate declined slightly with the 2013 and 2014 surveys, yielding response rates of 24 percent (141 unit respondents) and 22 percent (125 unit respondents), respectively. Figure 2 shows the distribution of returned mail questionnaires by week (with the initial mailing representing week zero) for the 2012, 2013, and 2014 surveys. In all surveys years, over half of the completed questionnaires were returned within the first five weeks of the initial mailing (Fig. 2).

Table 3. -- Summary of survey sample size, responses, and response rates for the 2012-2014 survey years.

Year	Population size	Unit responses	Response rate
2012	650	174	27%
2013	592	141	24%
2014	572	125	22%

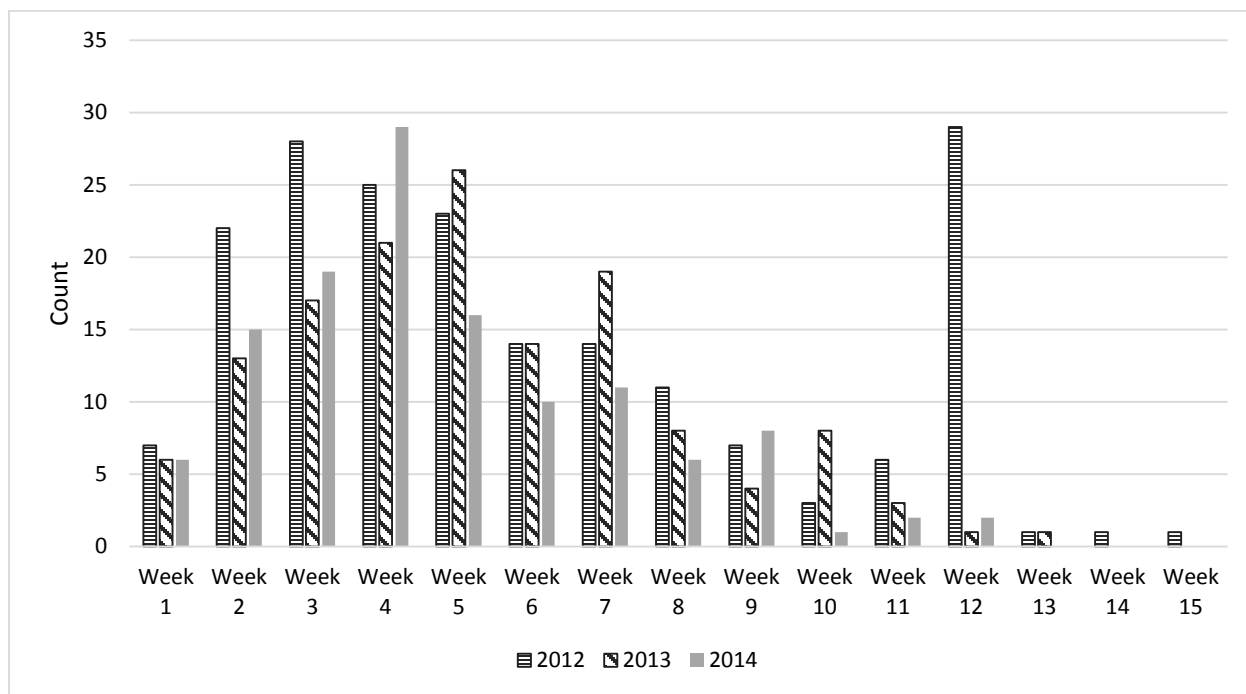


Figure 2. -- Completed mail surveys returned by week for 2012, 2013, and 2014 survey years.

For the 2012 survey, nearly 65 percent of the total respondents completed the mailed paper version of the questionnaire, with the remaining respondents submitting the web version. For the 2013 survey, approximately 70 percent of respondents completed the mailed version of the questionnaire while the remainder completed the web version. For the 2014 survey, the proportion of respondents completing the web version increased to 50 percent.

Returns from the 2012 survey differ from the other two surveys primarily in the spike at week 12 (Fig. 2). This is attributable to an administrative error that resulted in 141 survey packets mailed out a month later than the initial survey mailing of April 27 of that year.

Methods

In this report, we summarize information on costs, revenues, employment and business characteristics provided by respondents, then extrapolate results to the population of charter businesses using sample weighting and data imputation methods detailed in Lew et al. (2015). To describe the sample of respondents, descriptive statistics such as sums, means, medians, minimums, and maximums were calculated for each non-categorical survey item where a numerical item response was expected; statistics were calculated for the subset of respondents who provided a valid answer for the item. For categorical survey items, response frequency distributions were produced for item respondents. The descriptive statistics and frequency distributions are examined individually for each year of survey data and also compared across the three years of survey data. Since the survey collected monetary data over multiple years, we used the Consumer Price Index to correct for inflation over time, reporting all

monetary figures in 2013 U.S. dollars.⁸ This method applies to both the respondent sample and population estimates.

Information about the population of active charter businesses was inferred from the data provided by the sample of charter businesses responding to the survey. Generally speaking, in order for the sample estimates to be accepted as good estimates of the population parameters, the charter business respondents constituting the sample need to be considered representative of the population of charter businesses and all items in the survey need to be completed by respondents. In the presence of unit non-response (i.e., the failure of a potential respondent to complete and return a survey) and item non-response (i.e., the failure of a sample respondent to answer an individual survey item), the representativeness of the sample is less certain and thus the validity of extrapolating unadjusted sample results to estimate the characteristics of the population is brought into question.

Several unit response rate benchmarks have been put forth as a way to determine whether survey response is sufficiently high to assume representativeness of the sample for making inferences about the population. For instance, the results of Dolsen and Machlis (1991) have been used to support ignoring any potential unit non-response bias when unit response rates exceed 65 percent. Other results, such as Groves (2006), suggest that the use of response rates as a predictor of non-response bias is uncertain. Hence, it may be generally insufficient to rely on response rate alone when determining the potential presence of non-response bias in survey results.

The 2012-2014 surveys achieved unit response rates ranging from 22 to 27 percent while also experiencing widespread item non-response (see Appendix A tables A17-A19). Although the relatively low unit response rates are not uncommon among voluntary cost and earnings surveys of commercial fisheries (Holland et al. 2012), they are below the benchmark level of Dolsen and Machlis (1991), suggesting that adjustments must be made for missing data in order for the population-level estimates to be calculated with confidence.

Adjusting for Unit Non-response

We addressed survey unit non-response through sample weighting methods described in more detail in Lew et al. (2015).⁹ These methods involve applying weights to individuals in the sample that adjust for the missing data associated with unreturned questionnaires. The objective is to give more weight to underrepresented individuals in the sample and less weight to overrepresented individuals in the sample so that the sample better reflects the profile of the population. In this context, representativeness can be determined by sample selection, external data on the sample respondents and non-respondents, follow-up surveys of non-respondents, or some combination thereof. A handful of studies have applied weighting methods to adjust for unit non-response in economic surveys of participants in recreational (Fisher 1996, Hunt and Ditton 2002, Tseng et al. 2012) and commercial (Knapp 1996, 1997) fisheries.

⁸ We used the inflation calculator based on the yearly Consumer Price Index provided by the U.S. Bureau of Labor Statistics (<http://data.bls.gov/cgi-bin/cpicalc.pl>).

⁹ Lew et al. (2015) apply survey statistical methods commonly employed in the survey literature to adjust for unit non-response in the 2012 survey data described in this report. For more information about dealing with unit and item non-response in the survey statistics literature, see Brick and Kalton (1996), Groves et al. (2002), Little and Vartivarian (2003), Lohr (2010), and Graham (2012).

To demonstrate the weighting approach, let the individual weight given to the i^{th} respondent in a given year's survey sample be denoted w_i . The weight w_i may be represented as a product of one or more weights such that (Brick and Kalton 1996):

$$w_i = w_{i1} \times w_{i2} \times w_{i3} \quad (1)$$

The three weights in Equation 1 can be referred to as the base weight (w_1), non-response adjustment weight (w_2), and post-stratification weight (w_3). The base weight is equal to the inverse probability of being selected for the sample from the population (Brick and Kalton 1996). Since the survey was administered to the population of active charter businesses, then no member of the population was excluded and hence the base weight w_1 is set equal to one.

The non-response adjustment weight is designed to account for any differences between charter businesses that responded and those from the population who did not. In this study we exploited an auxiliary dataset obtained from the ADF&G's Saltwater Charter Logbook Program that contains information for the population of charter businesses concerning when fishing occurred during the year, the amount of fishing effort, the species of fish targeted, and clientele type. Since the auxiliary dataset provides information about both respondents and non-respondents, a logit regression model was used to estimate the likelihood of a charter business responding to the survey as a function of auxiliary variables collected in the logbooks. Table 4 lists the auxiliary variables used in the fully specified logit regression model. In addition, an alternative-specific constant, which captures the average utility across respondents of unmodeled components (Train 2003), was also included in the specification¹⁰.

¹⁰ Although other data sources are available to be used as auxiliary data for sample weighting and data imputation, the ADF&G charter logbook data were deemed to capture the most important dimensions for adjusting the data for both item and unit non-response. Excluded variables available in other datasets, like the number of CHPs held and residency, were proxied in the analysis with other variables that relate to effort, location, and timing of fishing activities. A larger set of variables than those reported below were tried before the auxiliary variables used were finalized (including alternative thresholds for dummy variables). However, future analyses may wish to re-evaluate additional variables and datasets for use in adjusting sample data.

Table 4. -- Auxiliary variable descriptions and logit model estimates for the survey years 2012-2014.

Variable	Estimate by year		
	2012	2013	2014
Alternative specific constant	-0.1476	-1.3037	-1.1398
Did not fish in Southeast Alaska	-0.1901	0.1021	0.6501**
Only used a single guide	0.2637	0.1656	-0.2011
Only used a single vessel	-0.3034	-0.1538	0.0776
Took 50 trips or less	-0.6132	-0.2710	-0.5531
Fished 50 calendar days or less	0.4158	0.3337	0.3805
Did not fish in early shoulder season (April to mid-June)	0.0000	0.5270	0.0158
Did not fish in late shoulder season (mid-August through September)	-0.5124*	-0.0036	-0.8325**
Did not fish in the off-season (October through March)	-0.7710**	0.2848	-0.4470
Did not report any crew fishing trips	-0.1900	-0.0719	0.4298
Reported no Alaska resident clients	-0.0822	-0.3092	0.0240
Proportion of clients that are Alaska residents	0.4003	-0.3233	-0.9442
250 or fewer clients	0.4052	-0.2937	0.0660
1000 or more clients	-0.0196	0.1035	0.4921
Did not report any non-paid trips	-0.1127	-0.1082	0.1145
Did not report fishing for salmon	0.1934	0.6092*	0.1510
Did not report fishing for bottomfish	-0.0778	-0.5287	-0.3647

Note: Asterisks denote significance at either the 10 percent level (*) or 5 percent level (**).

Results from the fully specified logit regression model are summarized in Table 4 for each of the survey years. Moreover, for each survey year a parsimonious regression model was estimated for a specification that includes only those variables found to be statistically significant in the fully specified model. These parsimonious models generally confirmed the statistical significance of the variables found to be significant in the more inclusive specification. Of principal importance for purposes of determining sample weighting are the statistically significant variables in each year's model.¹¹

For the 2012 survey year, only two variables exhibited statistical significance between survey respondents and non-respondents, holding all else constant. These variables were whether fishing was done in the late season and whether fishing was done in the off season. For the variables identified as significant in the logit model, cross-tab frequency tables for the survey respondents and charter business population were constructed. From these tables, weights were constructed from the ratio of the number of charter business population elements¹² to the number of survey response unit respondents in each cell (Table 5). The non-response adjustment weights range from 0.53 for respondents that fished both in the late shoulder and off-season to 2.30 for respondents that did not

¹¹ Recall that these models identify variables that are different between respondents and non-respondents and thus may need to be accounted for in sample weights to adjust for potential non-response bias during a specific year. As a result, our focus is on the statistically significant (i.e., statistically different from zero) parameters.

¹² These include any potential respondent and non-respondent.

fish during the late shoulder but did fish during the off-season. Larger weights were applied to underrepresented groups in the respondent sample.

Table 5. -- Non-response adjustment weights (w_2) and corresponding percentage of responding sample to which the weight applied for the 2012 survey using information on whether or not charter businesses reported fishing during the late shoulder or off-season.

Variable	Weight (w_2)	Percent of responding sample
No late shoulder or off-season fishing	1.3248	15.52
No late shoulder fishing but some off-season fishing	2.2996	0.57
Some late shoulder fishing but no off-season fishing	0.9808	74.71
Both late shoulder and off-season fishing	0.527	9.20

For the 2013 survey year, the only variables for which there was a significant difference between survey respondents and non-respondents was whether or not salmon fishing was conducted. More non-respondents tended to fish for salmon during the 2012 fishing year than respondents. Cross-tab frequencies were constructed using the salmon fishing variable in an analogous way to the non-response weights for the 2012 survey. The resulting non-response weights are presented in Table 6.

Table 6. -- Non-response adjustment weights (w_2) and corresponding percentage of responding sample to which the weight applied for the 2013 survey using information on whether or not charter businesses reported salmon fishing during the 2012 fishing year.

Variable	Weight (w_2)	Percent of responding sample (%)
Did not fish for salmon	0.6562	14.08
Fished for salmon	1.0588	85.92

For the 2014 survey year, the significant variables from the fully specified logit model were whether any fishing took place in Southeast Alaska and whether fishing took place during the late shoulder season. More non-respondents tended to fish in Southeast Alaska and to not fish during the late shoulder season during the 2013 fishing year. However, unlike the model estimates for the 2012 and 2013 survey years, the 2014 survey year estimates from the parsimonious logit model differed from the fully specified logit model. In particular, the only variable significant in the parsimonious model was whether or not fishing was conducted during the late shoulder season. That is, in the parsimonious model the dummy variable specifying whether fishing was reported in Southeast Alaska was not statistically significant, while the dummy variable specifying whether fishing was conducted during the late shoulder remained significant. Model fit criteria (Akaike's information criterion, Bayes information criterion) suggested that the parsimonious model was the preferred specification. As a result, only the dummy variable specifying whether fishing occurred during the late season was used to construct non-response adjustment weights. The non-response adjustment weights derived from the parsimonious logit model and cross-tab frequencies are presented in Table 7.

Table 7. -- Non-response adjustment weights (w_2) and corresponding percentage of responding sample to which the weight applied for the 2014 survey using information on whether or not charter businesses reported any fishing during the late shoulder season during the 2013 fishing year.

Variable	Weight (w_2)	Percent of responding sample
No late season fishing	1.8837	10.32
Late season fishing	0.8983	89.68

The post-stratification weight (w_3) is designed to address potential non-coverage bias resulting from underrepresentation of certain key variables in the population. The post-stratification weight is therefore intended to reduce potential biases resulting from incomplete coverage of the population of charter businesses (Brick and Kalton 1996). Post-stratification weights were calculated such that the respondents in each class are multiplied by a factor so that the weights for the class respondents sum to the known population total for that class. With respect to this study, the key dimension to control for is the size of charter businesses, defined as the number of client fishing trips reported during the fishing year. A second dimension to control for is the regulatory region in which charter fishing took place (e.g., Area 2C or 3A).

We considered three different post-stratification approaches in this study: no post-stratification weighting, post-stratification weighting based only on the number of client trips (weight A), and post-stratification weighting based on both the IPHC regulatory area (i.e., Area 2C or 3A) and the number of client trips (weight B). We argue that weight B is preferred to both weight A and no weighting based on the fact that the estimates derived from weight B are matched with several key population-level variables. Hence, in this study we used an approach where post-stratification weights are applied by class of charter business size and by IPHC regulatory area (weight B). Since the population totals for each class are known from charter logbook data, calculating the post-stratification weights for each business size and regulatory area class was straightforward. Table 8 summarizes the post-stratification weights for each survey year.¹³ Population level estimates derived using no post-stratification weighting and weight A post-stratification weights are presented in Appendix A.

Table 8. -- Post-stratification weights for the 2012-2014 survey years using charter business size and regulatory fishing area (weight B).

Total client trips	2012		2013		2014	
	Area 3A	Area 2C	Area 3A	Area 2C	Area 3A	Area 2C
100 or less	1.0977	1.0749	0.9671	1.4309	1.2501	1.5398
101-200	1.1400	1.2562	1.0745	0.9741	0.8391	1.1353
201-300	0.7836	0.7665	0.7215	1.1001	0.8459	1.0852
301-400	1.2009	0.7506	1.0855	1.3815	0.7314	0.8237
401-500	0.7985	1.4479	0.7236	0.8059	1.0389	1.1576
501-1000	0.7410	1.3505	0.7931	1.2280	0.8348	1.1131
1001-7000	0.7300	1.2137	0.7894	0.8289	0.6011	0.8587

¹³ See Table A4 in Appendix A for the percentage of the responding sample to which each weight was applied.

Adjusting for Item Non-response

To address item non-response, we used data imputation methods described in Lew et al. (2015) in order to fill in the missing survey responses with appropriate responses from other respondents. A number of imputation techniques are available to the researcher, and generally involve either auxiliary information that may include data external to the survey, other variables from within the survey, or other item responses for the variable of interest (Brick and Kalton 1996, Durrant 2009, Lohr 2009). The general imputation method can be conceptualized using a regression framework (e.g., Brick and Kalton 1996). Suppose y_r is the value of the variable of interest when reported and y_m is the missing value due to item non-response. Also suppose that z is a vector of auxiliary information available to the researcher. Then, the imputation method can be expressed for the i^{th} observation in a regression framework according to

$$y_{mi} = f(z_{mi}) + \epsilon_{mi} , \quad (2)$$

where $f(z_{mi})$ is a general function involving the vector of auxiliary information and ϵ_{mi} is an unobserved error component that is modeled stochastically. Regression-based imputation approaches estimate Equation 2 for the item respondents using the observed auxiliary information (z), then use the estimated function to predict the missing values.

Imputation methods differ according to the structure of the auxiliary information and the assumptions made over the stochastic component of Equation 2. For instance, single-value imputation approaches can be used when the auxiliary information is assumed to have no effect on the missing value and the stochastic component is ignored. Often times the mean or median of item responses serve as the single value used to fill in for the missing value. However, single-value imputation approaches are generally less desirable when there is a source of auxiliary information correlated with the reported variable that can be exploited when predicting the missing values.

Methods that involve the use of auxiliary variables are referred to as regression imputation methods. If all the auxiliary information used to impute responses is categorical (such as in this study), then the method is referred to as an imputation class method approach. For imputation class approaches, a small number of auxiliary variables are used as a means to classify respondents. Values from an item respondent (the donor) are then taken and assigned to a non-respondent according to a measure of similarity across the auxiliary information between the donor and non-respondent. Hot deck imputation is one type of imputation class approach (Andridge and Little 2010). In hot deck imputation, the value from an item respondent (the donor) is assigned to a non-respondent. The donor is generally selected from the group of item respondents that are most similar to the respondent with the missing value. As Brick and Kalton (1996) note, the number of imputation classes must be selected carefully since there needs to be at least one donor in each class. Another hot deck method uses a distance function-based approach (Chen and Shao 2000). In this approach, a distance function is minimized to identify the “nearest neighbor” from the set of item respondents. That is, for the j^{th} item non-respondent, the researcher could specify a function (D_j) that minimizes the algebraic distance over a set of auxiliary variables (x) across all item respondents (N^r) according to

$$D_j = \sum_{i=1}^{N^r} |x_i - x_j|, \quad \text{for all } i \neq j. \quad (3)$$

The “nearest neighbor” is then the i^{th} respondent that best satisfies the objective in Equation 3 for the j^{th} non-respondent and thus provides the donor value for the missing value.

Variations on the imputation class method can be used to obtain donor values in accordance with the nature of the auxiliary information and respondent sample. For instance, the researcher could simply choose a donor value within a class at random and without regard to distance functions, such as the one specified in Equation 3. Alternatively, the researcher could find the single nearest neighbor which best minimizes the objective in Equation 3 when choosing the donor value. Similarly, the researcher can choose a donor at random from amongst the K -nearest neighbors that best meet the objective in Equation 3 (herein referred to as K -nearest neighbor imputation).

In this study, we follow the approach of Lew et al. (2015) and focus on two single value imputation and three imputation class method approaches. In particular, for the single value imputation approaches, we focused on a *zero imputation* method where missing values were assigned a value of zero and a *mean imputation* method where missing values were assigned a value equal to the mean of item responses for that particular variable. For the imputation class method approach, we focused on a *random class hot deck imputation* method where missing values were replaced with randomly selected donor values taken from within the same class, a *deterministic nearest neighbor imputation* where missing values were replaced with donor values taken from the item respondent best satisfying a minimum distance objective such as Equation 3, and a *K -nearest neighbor ($K = 3$) imputation* where missing values are replaced with a donor value selected at random from one of the K -nearest neighbor item respondents.

For the random imputation approach, we set up three respondent classes based on the number of client trips taken during the respective fishing year. The respondent classes were the following: businesses reporting fewer than 200 trips, those reporting between 201 and 400 trips, and those reporting more than 400 trips. Donor values were then selected at random from respondents within the same class as the non-respondent. For the deterministic and K -nearest neighbor approaches, eight variables were chosen from logbook data to be used in Equation 3. Similarity between the donor respondent and non-respondent was then evaluated using these eight variables and the distance function in Equation 3. The eight variables were (i) a dummy variable indicating whether fishing occurred in Area 3A, (ii) the number of guides used, (iii) the number of calendar days fished, (iv) the total number of client fishing trips, (v) a dummy variable indicating whether crew fishing trips were taken, (vi) a dummy variable indicating whether some unpaid fishing trips were taken, (vii) the number of hours spent fishing for Pacific salmon, and (viii) the number of hours spent fishing for bottomfish.

Lew et al. (2015) argue that of the methods evaluated here, the K -nearest neighbor imputation is the preferred approach for two reasons. First, there is a robust set of auxiliary data on both respondents and non-respondents to exploit in this application. Since we believe that the variables of interest from the survey are likely to be correlated with information from the auxiliary data, namely the size of the charter business and regulatory area of fishing, we have a good source of candidate variables to explain the variation in the dependent variable in Equation 2. Hence, we argue that an approach utilizing the auxiliary information is preferred to the single-value imputation approaches. Second, choosing at random from amongst the three nearest neighbor’s hedges against the risk of undue influence from any outliers being used as a donor. Hence, the K -nearest neighbor approach is preferred to the deterministic nearest neighbor approach. We present estimates from the single value imputation and other imputation class approaches in Appendix A.

It is well known that standard variance estimation procedures (e.g., Taylor-series approximation, jackknife, and simulation methods) of imputed data will generally underestimate the true variance. For example, Rao and Shao (1992) discuss how the jackknife resampling approach to estimating variance leads to a naïve estimator when applied to data imputation due to the fact that the standard (delete-1) jackknife method does not account for the variance due to the imputation itself. To remedy this shortcoming, they propose a general approach for adjusting the jackknife variance estimator so that it does incorporate the imputation method in the variance calculation. The procedure involves replicating the imputation of values in each jackknife-replicated dataset. Shao (2002) discusses how the procedure can be extended to any imputation method. We employ this approach to estimate the variance in this study. Therefore, all estimates of variance (e.g., standard errors of totals or means) account for the data imputation approach used.

Calculating Population Level Estimates

For each post-stratification weighting assumption (no weight, weight A, weight B) and imputation method (i.e., zero imputation, mean imputation, random imputation, deterministic nearest neighbor, K -nearest neighbor), the population-level costs, revenues, and earnings are calculated. These estimates are the weighted sum over all the costs, revenues, and earnings categories, respectively. Summation occurred after data imputation was applied to account for item non-response.

Results

This section summarizes data collected from the 2012, 2013, and 2014 Alaska Saltwater Sport Fishing Charter Business Surveys. The sample results, defined as the survey respondents for each year's questionnaire, are first presented individually for key variables related to total costs, earnings, and employment for each of the three years of survey data. Sample results are also presented across the three years that the survey was conducted in order to compare results across time and infer any short-term trends. Across-year sample results include variables related to charter business characteristics as well as total costs, total earnings, and total employment. Population estimates are presented for each of the three survey years individually and across the three years in a manner similar to the sample results.

Survey Results – Respondent Sample

This section presents results from analyzing data associated with the *item respondents* only. The statistics presented in this section were calculated directly from the sample data, with no weighting or data imputation methods used to adjust the sample to better reflect the population (presented later in the report). All monetary values are presented in 2013 U.S. dollars.

2011 Respondent Sample

The total number of active vessels owned or leased during the 2011 charter fishing year was 319. Of this total, approximately 96 percent was constituted by owned vessels. The median number of vessels owned or leased by item respondents was 1.0 and the mean was 1.99. The minimum number of vessels owned or leased by a given item respondent was also 1 and the maximum was 33. A summary of active vessels and other selected attributes across the item respondent sample is presented in Appendix A.

Total revenues across all reported charter and non-charter trips and all other reported income streams totaled \$28 million. The mean revenue per respondent was \$204,706 (with standard deviation of \$50,493) and the median was \$75,578. There was a broad range of revenues reported by the sample; the minimum reported was less than \$100 for the year while the maximum was over \$5.5 million for the year. Total costs, excluding new investments, amounted to just under \$33 million, suggesting that the sample respondents as a whole operated at a loss. Mean and median costs per respondent were \$256,789 and \$70,179, respectively.

The total number of trips and seats sold by the respondent sample in 2011 were 17,759 and 115,701, respectively. The median number of trips sold per respondent was 52.50 and the mean was 138.74. The minimum number of trips reported per respondent was 3 and the maximum was 5,141. The median number of seats sold per respondent was 180 and the mean was 911.03. The minimum and maximum number of seats sold per respondent was 9 and 50,000, respectively.

With respect to labor personnel, the largest category of employment was full-time shore employee positions (e.g., business managers, booking agents, and other administrative and support functions) with a reported total of 573 across all 174 sample respondents.¹⁴ The mean and median number of full-time shore worker positions per respondent was 11.94 and 6, respectively. The second largest category of employment was full-time vessel operators (e.g., captains), with a total of 456 reported positions over the year. The mean and median number of full-time operator positions per respondent was 5.77 and 4, respectively. Full-time crew worker positions constituted the third largest employment category, with a total of 306 positions and mean and median of 5.46 and 3, respectively. Part-time operator, crew, and shore worker positions totaled 83, 77, and 131, respectively.

The fishing year is divided into four seasons: the early shoulder season (April 1 to mid-June), the main season (mid-June to mid-August), the late shoulder season (mid-August to the end of September), and the off season (October through March). Total employment was highest across all personnel categories (guides and operators, crew, and onshore workers) during the main season (Fig. 3). Employment during the early and late shoulder season were similar, with the late shoulder season having slightly higher employment than the early shoulder season across the three personnel categories. During the off season, total employment was reduced to about 10-15 percent of the levels reported during the main season, with crew worker positions experiencing the largest decline.

¹⁴ Note that these worker positions were collected as season-specific counts, and summary statistics reported here are aggregated over all four fishing seasons. Thus, the annual totals represent counts of season-level positions, not the number of distinct individuals employed during the year in one or more seasons or in different capacities (e.g., shore worker and guide/operator). Similarly, mean and median values reported are calculated over all observations without respect to season-level differences.

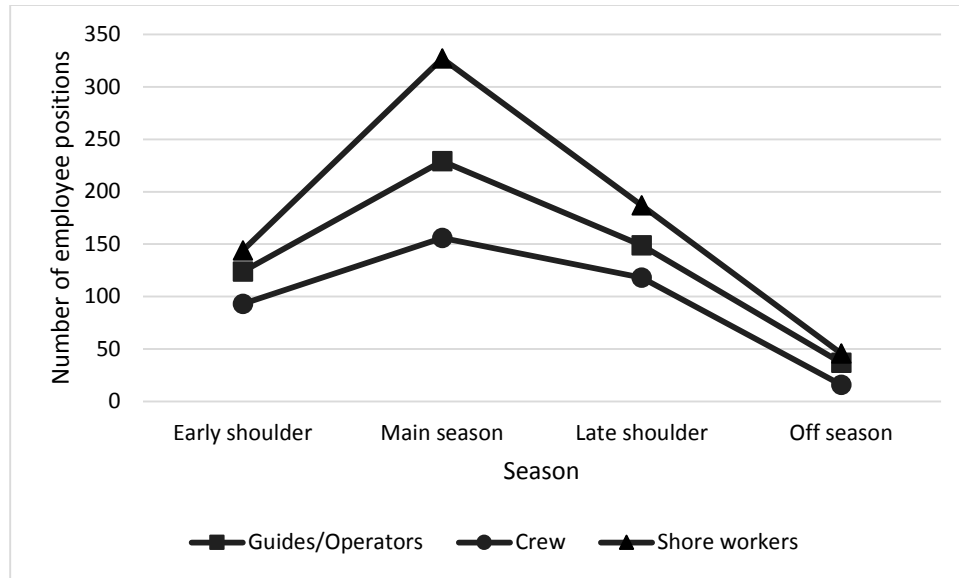


Figure 3. -- 2011 employment by season for both part-time and full-time positions across the sample of item respondents.

The percentage of full-time employment was relatively constant across the three personnel categories for the early shoulder, main season, and late shoulder (Table 9). Full-time employment during the off season was 10-20 percentage points lower than the rest of the fishing seasons.

Table 9. -- 2011 respondent sample percentage of full-time employee by season and type.

	Guide/Operator	Crew	Shore worker
Early shoulder	82%	82%	81%
Main season	87%	79%	83%
Late shoulder	87%	81%	81%
Off season	65%	63%	70%

Across the three personnel categories (guides/operators, crew, and shore workers), wages were the most common way of compensating employees (Fig. 4). The second most common was a salary system. The least commonly reported compensation type was revenue sharing; guides/operators were most frequently compensated through revenue sharing while shore workers were least commonly compensated by revenue sharing.

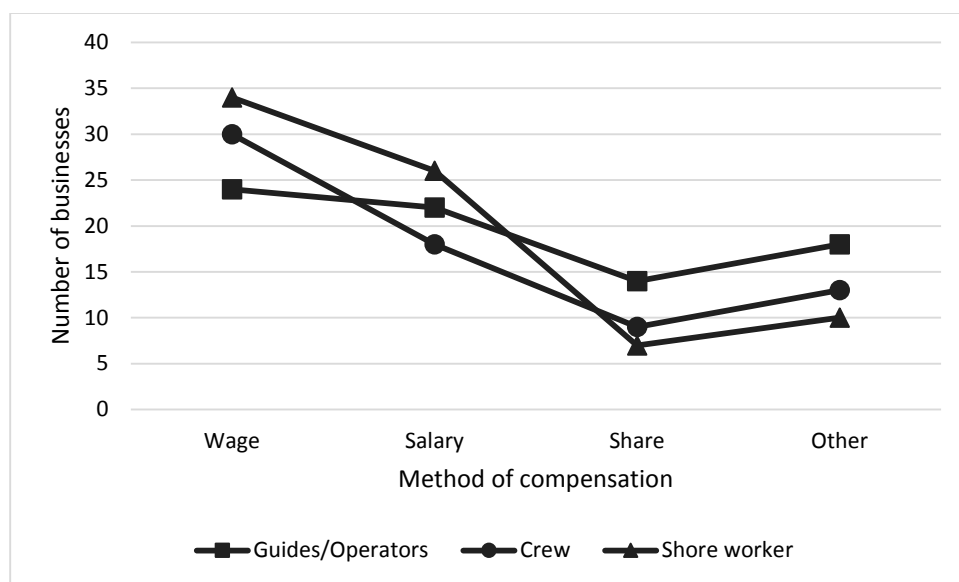


Figure 4. -- Number of charter business in the item respondent sample by form of payment and type of employee during the 2011 charter fishing year.

Across all item respondents, the largest categorical expenditure representing the highest cost in aggregate was general overhead expenses (e.g., non-wage benefits, repair and maintenance), with respondents reporting spending approximately \$11 million in total (Table 10). The second largest categorical expenditure was charter trip-related expenses (e.g., vessel fuel and cleaning, processing, fees), which amounted to \$8.3 million. Labor payments (e.g., payments to operators, guides, vessel crew, on shore laborers) were the third largest categorical expenditure, and totaled just over \$7 million (Table 10 and 11). In addition, respondents reported a total of \$6.5 million as capital expenditures (i.e., payments made in full or payments for loans financed during or before 2011) toward durable goods, such as vehicles, machinery, and equipment (e.g., annual expenditures to purchase and improve vessels, machinery, and equipment) and buildings, land, and real estate (e.g., equipment storage, office space, etc.).

Table 10. -- 2011 respondent sample mean, median, and total major cash expenses in 2013 dollars by type.

Major expense type	Mean	Median	Total (in millions)
Labor payments	72,979 (19,555)	20,280	7.30
Charter trip operating expenses	57,037 (14,329)	18,736	8.33
General overhead expenses	73,772 (13,802)	20,800	10.84
Capital expenditures (equipment & real estate)	53,002 (15,982)	10,364	6.47

Note: Standard errors of the mean are given in parentheses.

Table 11. -- 2011 respondent sample total and mean labor expenses in 2013 dollars by type.

Employee Type	Mean	Median ¹⁵	Total (in millions)
Guide/Operator	21,700 (3,724)	22	2.78
Crew	8,954 (2,703)	0	1.13
Shore worker	26,500 (11,637)	364	3.39

Note: Standard errors (S.E.) of the sample mean are in parentheses

Total new investments financed in the 2011 fishing year amounted to approximately \$2.2 million (Table 12). Note that these investments included the full value of the investment, such as the principal and down payment for financed items. At the aggregate level, new investments toward vehicles, machinery, and equipment were nearly double those toward buildings, land, and real estate. Mean new investments were approximately \$48,000, with investments toward equipment outweighing real estate investments.

Table 12. -- 2011 respondent sample mean, median, and total major new investments in 2013 dollars.

	Mean	Median	Total (in millions)
Equipment & real estate	48,245 (12,875)	26,520	2.22

Note: Standard errors of the mean are given in parentheses.

For many item respondents, income earned from the charter business represented only a fraction of their total annual household income (Fig. 5). In fact, less than 20 percent of item respondents reported that the entirety of their annual household income was earned from the charter business. Approximately 22 percent of item respondents reported that income derived from charter businesses accounted for between 1 and 25 percent of their annual household income.

¹⁵ Note that respondents inserting a "0" for employee pay in the survey counts as an item response, regardless of whether that business had a positive number of employees on the payroll.

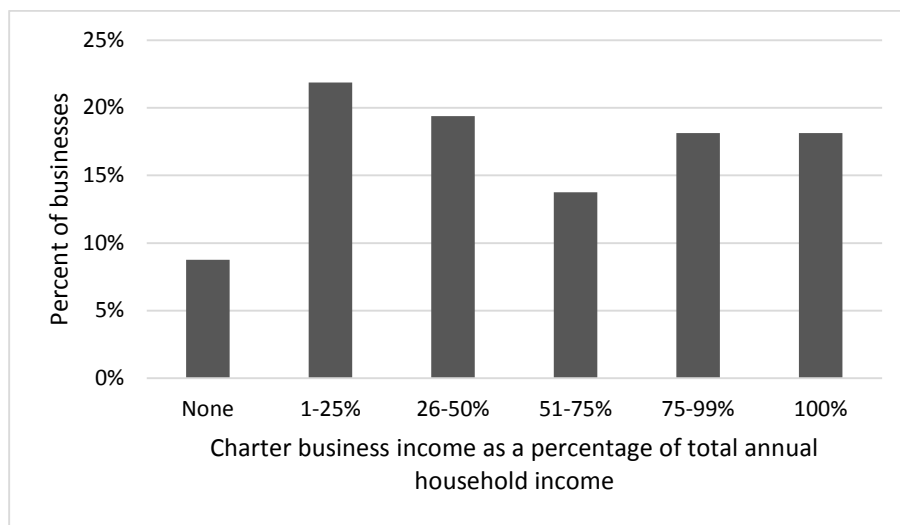


Figure 5. -- Distribution of 2011 respondent sample of total annual household income earned from the charter business.

During the off season, owners of charter businesses have a number of opportunities for spending their time, including continuing to work in the charter business, working in Alaska commercial fishing, working in a non-fishing job in Alaska, living in Alaska without working, working outside Alaska in a fishing job unrelated to their business, working outside Alaska in a non-fishing job, and living outside Alaska but without a job. Many item respondents during the 2011 charter fishing year reported that they, at least in part, continued charter business work during the off season (Table 13). A large number of respondents also reported working, at least in part, in Alaskan non-fishing related jobs during the off season. Approximately 78 percent of item respondents reported undertaking only one off season activity during the 2011 charter fishing year. Another 18 percent of item respondents reported undertaking two activities, and 4 percent of respondents reported doing three of these during the off season. For respondents reporting participating in two or more types of off-season activity, the most common combination was continuing charter business work, and either working in an Alaskan non-fishing related job or working in an Alaskan commercial fishing job.

Table 13. -- Counts of 2011 respondents by off season activity.

Off season activity	Count of respondents	Percentage of respondents
Continued charter business work	71	46%
Worked in AK commercial fishing	10	6%
Worked in AK non-fishing job	59	38%
Live in AK with no job	24	16%
Work outside AK in fishing job unrelated to business	3	2%
Work outside AK in non-fishing job	15	10%
Live outside AK with no job	12	8%

Note-- off season activities are not mutually exclusive and respondents could report more than one activity.

Of the 2011 fishing year item respondents, approximately 7 percent identified their businesses as being structured as a C corporation. For those that did not identify as a C corporation, approximately 56 percent of the item respondents identified their business as a sole proprietorship, and 43 percent identified it as a limited liability partnership (LLP), limited liability company (LLC), or S corporation.

2012 Respondent Sample

The total number of active vessels owned or leased across all item respondents during the 2012 charter fishing year was 229. Of this total, approximately 90 percent was constituted by owned vessels. The median number of vessels owned or leased was 1.0 and the mean was 1.7. The minimum number of vessels owned or leased was also 1 and the maximum was 10. A summary of the total vessels active in 2012 as well as select attributes for the item respondent population is presented in Appendix A.

Total revenues across all charter and non-charter trips and all other income streams totaled just under \$20 million. The mean revenue per respondent was \$176,822 (standard error \$35,157) and the median was \$68,630. Similar to 2011, there was a broad range of revenues reported by item respondents; the minimum reported was under \$5,000 for the year while the maximum was over \$3 million for the year. Total costs for the 2012 fishing year, excluding new investments, amounted to slightly more than \$19.6 million for the respondent sample. Hence, at least for the responding sample as a whole, the charter fishery operated profitably during the 2012 fishing year. Mean and median costs were \$192,566 and \$85,789, respectively.¹⁶

The total number of trips of any type and seats sold by item respondents in 2012 were 20,497 and 57,092, respectively. The median number of trips sold per respondent was 62 and the mean was 184.66. The minimum number of trips reported per respondent was 1 and the maximum was 9,000. The median number of seats sold per respondent was 270 and the mean was 533.57. The minimum and maximum number of seats sold per respondent was 4 and 10,000, respectively.

For 2012 the largest group of employee positions was full-time operators, with a reported total of 427 across the sample of 141 item respondents. The mean and median number of full-time operator positions per respondent was 6.19 and 4, respectively. The second largest employment category was full-time shore worker positions, with a total of 375 reported. The mean and median number of full-time shore worker positions per respondent was 9.87 and 5.5, respectively. Full-time crew worker positions constituted the third largest employment category, with a total of 295 and mean and median of 5.18 and 3 full-time crew worker positions per respondent, respectively. Part-time operator, crew, and shore positions totaled 51, 65, and 92, respectively.

As expected, employment during the 2012 charter fishing year was highest in the main season (Fig. 6). Guides and operators represented the largest personnel category during the early shoulder and main seasons, but shore workers were reported to be more numerous during the late shoulder and off seasons. Crew personnel were uniformly the least numerous of any personnel category across all seasons.

¹⁶ Although the mean and median costs exceed the corresponding revenue amounts for the item respondents in 2012, the determination of net profitability in the sector during 2012 is due to a comparison of totals reported. Note the discrepancy arises due to missing data resulting in smaller numbers of item respondents reporting costs than revenues. This illustrates a difficulty with making comparisons using only item respondent data (and not adjusting for missing data, which is done below).

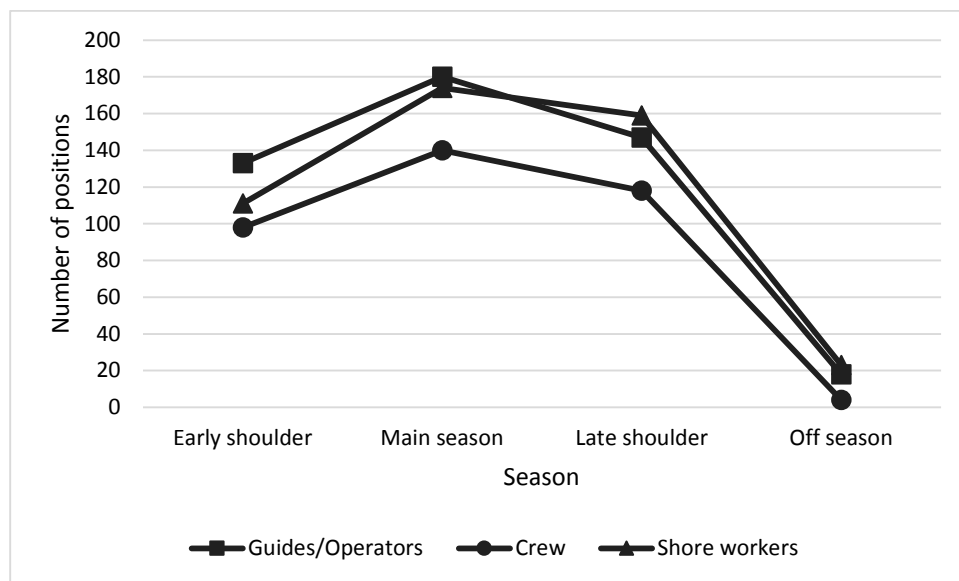


Figure 6. -- 2012 employment by season for both part-time and full-time positions across the sample of item respondents.

Full-time positions represented at least three-quarters of respondent sample employment for all fishing seasons during the 2012 fishing year (Table 14). The percent of full-time employee positions was generally highest for guides/operators. Full-time employment was generally lowest during the early shoulder season. No part-time crew workers were employed during the off season.

Table 14. -- 2012 respondent sample percentage of full-time employee positions by season and type.

	Guide/Operator	Crew	Shore worker
Early shoulder	85%	77%	76%
Main season	91%	86%	80%
Late shoulder	92%	81%	82%
Off season	89%	100%	87%

Respondents from the 2012 fishing year reported that wages were the most common method of compensation to charter fishing employees (Fig. 7). A salary system was the second most common method of compensation. Revenue sharing was the least common method of compensation and was reported to be most prevalent amongst the guide/operator personnel category. Shore workers, though the second largest personnel category numerically, represented the least common recipients of revenue sharing.

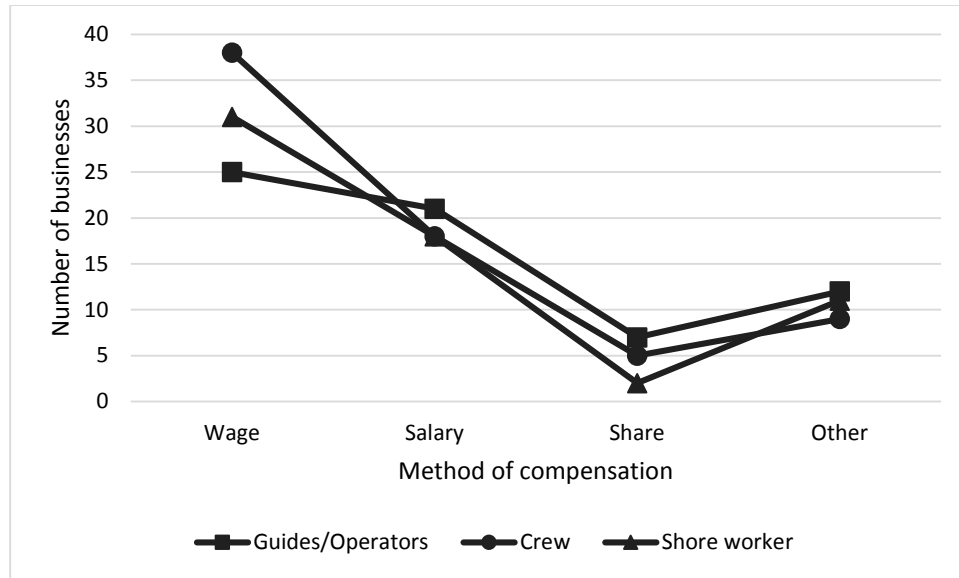


Figure 7. -- Number of charter business in the item respondent sample by form of payment and type of employee during the 2012 charter fishing year.

The largest type of expenditure during 2012 for the respondent sample was charter trip expenses, where respondents reported a total of approximately \$5.9 million in expenses (Table 16). The second largest expenditure category was general overhead expenses, which amounted to approximately \$5.8 million. Labor payments were the third largest expenditure category and accounted for just over \$5.2 million (Table 15). In addition, respondents reported a total of \$1.8 million as capital expenditures toward vehicles, machinery, and equipment and \$0.9 million as capital expenditures toward buildings, land, and real estate for a total of about \$2.7 million in capital expenditures.

Table 15. -- 2012 respondent sample total and mean labor expenses by type in 2013 dollars.

Employee type	Mean	Median ¹⁷	Total (in millions)
Guide/Operator	24,262 (4,097)	8,585	2.52
Crew	10,209 (3,175)	909	1.04
Shore worker	18,168 (6,169)	0	1.67

Note: Standard errors of the mean are given in parentheses.

¹⁷ Note that respondents inserting a "0" for employee pay in the survey counts as an item response, regardless of whether that business had a positive number of employees on the payroll.

Table 16. -- 2012 respondent sample mean, median, and total major cash expenses by type in 2013 dollars.

Major expense type	Mean	Median	Total (in millions)
Labor payments	63,853 (14,268)	22,473	5.24
Charter trip operating expenses	49,362 (11,452)	21,306	5.87
General overhead expenses	50,387 (6,905)	27,072	5.84
Capital expenditures (equipment & real estate)	28,964 (4,216)	14,939	2.69

Note: standard errors are given in parentheses.

New investments during the 2012 fishing year amounted to approximately \$2.5 million, with the majority consisting of investments toward vehicles, machinery, and equipment (Table 17). Mean new investments were approximately \$59,000 per respondent, with investments toward vehicles, machinery, and equipment constituting the majority of the total.

Table 17. -- 2012 respondent sample mean, median, and total major new investments by type in 2013 dollars.

	Mean	Median	Total (in millions)
Equipment & real estate	58,646 (13,042)	27,018	2.58

Note: standard errors are given in parentheses.

In terms of the sources of annual household income for item respondents, approximately 85 percent of item respondents reported some household income was derived from outside the charter business (Fig. 8). Only 7 percent of item respondents reported zero household income deriving from their charter business. Nearly one quarter of the item respondents reported that 25 percent or less of their total annual household income was derived from their charter business.

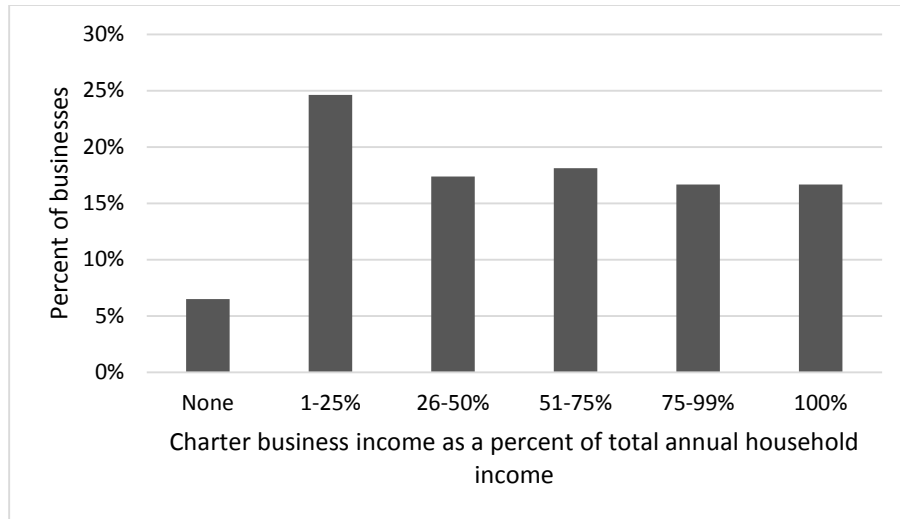


Figure 8. -- Distribution of 2012 respondent sample of total annual household income earned from the charter business.

Approximately half of item respondents reported continuing work related to their charter business during the off season (Table 18). Likewise, many respondents reported working, at least in part, in Alaskan non-fishing related jobs during the off season. Relatively few respondents reported any sort of work outside of Alaska. Approximately 25 percent of item respondents reported engaging in two or three activities during the off season. Most frequently, respondents reported continuing charter business work and either working in non-fishing or commercial fishing inside Alaska.

Table 18. -- Counts of 2012 respondent off season activity.

Off season activity	Count of respondents	Percentage of respondents
Continued charter business work	61	47%
Worked in AK commercial fishing	11	8%
Worked in AK non-fishing job	50	38%
Live in AK with no job	21	16%
Work outside AK in fishing job unrelated to business	6	5%
Work outside AK in non-fishing job	14	11%
Live outside AK with no job	9	7%

Note-- off season activities are not mutually exclusive and respondents could report more than one activity.

For the 2012 fishing year, 13 respondents (or about 10 percent) identified their businesses as being structured as a C corporation. For those that did not identify as a C corporation, approximately 55 percent of the item respondents identified their business as a sole proprietorship, and 43 percent identified as a LLP, LLC, or S corporation.

2013 Respondent Sample

The total number of active vessels owned or leased across all item respondents during the 2013 fishing year was 213. Owned vessels accounted for about 95 percent of the total vessels. The mean and median number of vessels owned or leased per respondent was 1.7 and 1, respectively. The number of vessels owned per respondent ranged from a minimum of zero to a maximum of ten.

Total revenues accruing to the item respondents from charter and non-charter trips and all other forms of revenue was approximately \$28 million. The mean and median revenues per respondent was \$282,058 (standard error of the mean \$70,112) and \$86,000, respectively. Total costs, excluding new investments, were approximately \$24.6 million. Hence, the item respondent class as a whole operated profitably during the 2013 fishing year. Mean and median costs per respondent was \$276,605 and \$90,723, respectively.

The total number of trips and seats sold by the respondent sample in 2013 were 11,578 and 52,357, respectively. The median number of trips sold per respondent was 70 and the mean was 127.2. The minimum number of trips reported per respondent was one and the maximum was 1,352. The median number of seats sold per respondent was 270 and the mean was 563. The minimum and maximum number of seats sold per respondent was one and 4,891, respectively.

With respect to labor personnel, the largest employment type was full-time shore worker positions with a reported total of 601 across all 125 sample respondents. The mean and median number of full-time shore worker positions per respondent was 14.3 and 5, respectively. The second largest group of employee positions was full-time operators, with a total of 488. The mean and median number of full-time operator positions per respondent was 7.4 and 4, respectively. Full-time crew worker positions constituted the third largest employment group, with a total of 345.

Total employment was highest for all three types of personnel during the main season, followed by the late shoulder (Fig. 9). Shore worker positions outnumbered both guides/operator positions and crew positions throughout the year. Crew were consistently the least numerous category of personnel across the year.



Figure 9. -- 2013 respondent sample of full and part-time positions by season and type.

The percentage of full-time employees generally ranged above 70 percent for all seasons and personnel, with the exception of crew during the off season (Table 19). Full-time employment during the main season was 12-15 percentage points higher than the early shoulder and 11-34 percentage points higher than the off season.

Table 19. -- 2013 respondent sample percent of full-time employee by type.

	Guide/Operator	Crew	Shore worker
Early shoulder	73%	77%	78%
Main season	88%	90%	90%
Late shoulder	79%	81%	83%
Off season	77%	56%	73%

Wages and salary were by far the most common method of compensating employees (Fig. 10). Crew workers were the most likely to be on a wage system and the least likely to be part of a revenue sharing system. Yet, generally speaking, the fraction of personnel receiving either wage, salary, revenue sharing, or other method was similar across personnel categories.

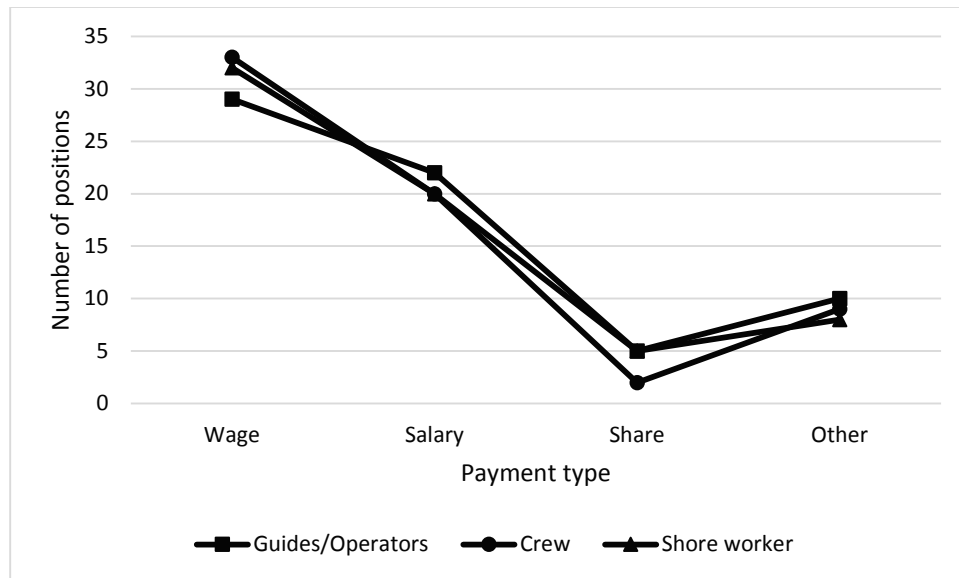


Figure 10. -- 2013 respondent sample method of compensation by type.

With respect to charter business expenditures, general overhead was the largest expense during the 2013 fishing year, with a total of approximately \$8.3 million (Table 21). Labor payments, which totaled just over \$6.7 million, was the second largest expense (Tables 20 and 21). Charter trip operating expenses, at just over \$5.8 million, was the third largest expense. Capital expenditures for equipment (e.g., vehicles and machinery) and real estate (e.g., buildings and land) amounted to just under \$3.8 million.

Table 20. -- 2013 respondent sample total and mean labor expenses in 2013 dollars by type.

Employee type	Mean	Median	Total (in millions)
Guide/Operator	26,730	5,000	2.49
Crew	(5,577)	1,400	1.04
	10,918		
Shore worker	(4,083)	500	3.18
	35,318		
	(12,497)		

Note: standard errors are given in parentheses.

Table 21. -- 2013 respondent sample mean, median, and total major cash expenses by type in 2013 dollars.

Major expense type	Mean	Median	Total (in millions)
Labor payments	91,805 (24,400)	24,250	6.70
Charter trip operating expenses	57,172 (10,910)	24,252	5.83
General overhead expenses	81,790 (19,290)	29,284	8.34
Capital expenditures (equipment & real estate)	45,838 (11,579)	12,938	3.76

Note: standard errors are given in parentheses.

A total of \$1.75 million in new investments was reported during the 2013 fishing year, with 90 percent arising from investments in vehicles, machinery, and equipment (Table 22). Mean investments per charter business were \$47,316.

Table 22. -- 2013 respondent sample mean, median, and total major new investments by type in 2013 dollars.

	Mean	Median	Total (in millions)
Equipment & real estate	47,316 (10,476)	23,600	1.75

Note: standard errors are given in parentheses.

For the 2013 item respondent sample, approximately 17 percent reported the entirety of their household annual income deriving from charter business (Fig. 11). Over one quarter of item respondents reported 25 percent or less of their annual household income deriving from charter business.

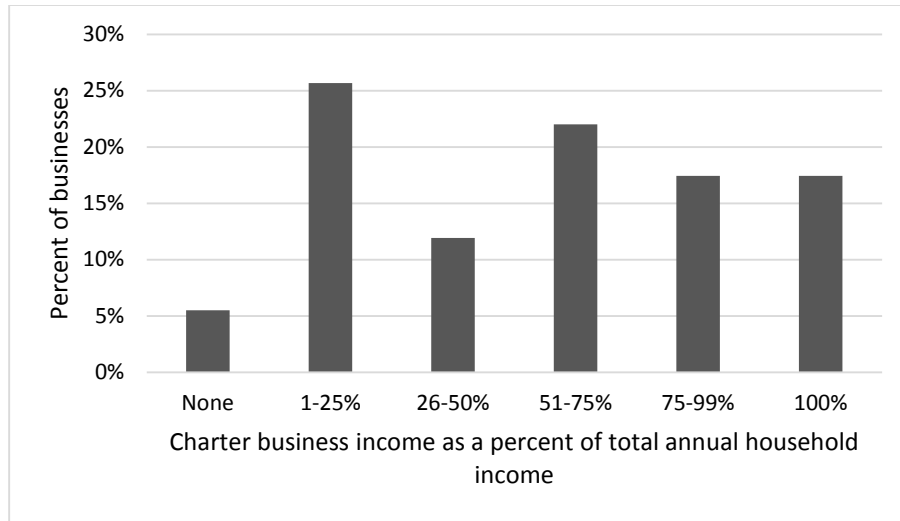


Figure 11. -- Distribution of 2013 respondent sample of total annual household income earned from the charter business.

The 2013 item respondents reported that continuing charter business-related work was their most common activity during the off season (Table 23). The second most common off season activity was working in an Alaskan non-fishing related job. Approximately 24 percent of item respondents reported two or more of these activities applied to them during the off season. Every respondent that reported working outside Alaska in a fishing job unrelated to the charter business also reported continuing work for the charter business during the off season. Over half of the respondents reporting two or more activities engaged in during the off season continued charter business work and either worked in Alaskan commercial fishing or non-fishing related jobs.

Table 23. -- Count of 2013 respondent off season activity.

Off season activity	Count of respondents	Percentage of respondents
Continued charter business work	53	55%
Worked in AK commercial fishing	8	8%
Worked in AK non-fishing job	35	36%
Live in AK with no job	8	8%
Work outside AK in fishing job unrelated to business	3	3%
Work outside AK in non-fishing job	12	12%
Live outside AK with no job	7	7%

Note-- off season activities are not mutually exclusive and respondents could report more than one activity.

For the 2013 fishing year, 13 respondents (22 percent) identified their businesses as being structured as a C corporation. For those that did not identify as a C corporation, approximately 98 percent of the item respondents identified their business as a sole proprietorship and 2 percent identified as a LLP, LLC, or S corporation. Note, however, that the business structure variable had over 50 percent item non-response for the 2013 fishing year.

2011-2013 Respondent Sample Comparisons

To understand changes in the charter sector between 2011 and 2013, we compare sample results across the survey years with respect to total revenues, total costs, total employment, and certain charter business attributes. Although we discuss them for completeness, the respondent sample totals compared are not adjusted for differences in response rates or population sizes and are not directly comparable. Instead, trend comparisons are made between measures of central tendencies each year (i.e., means and medians).

Total revenues reported by item respondents ranged from slightly under \$20 million to slightly over \$28 million for the three fishing years (Table 24). Mean and median revenues per item respondent ranged from approximately \$176,000 to approximately \$282,000 and approximately \$68,000 to \$86,000, respectively. Mean and median revenues per respondent were highest for the 2013 fishing year and lowest for the 2012 fishing year. However, mean revenues per respondent were within two standard errors of the mean for all fishing years (Fig. 12), thus implying statistically insignificant differences across years.¹⁸ For all years, the mean revenues exceed the median revenues, suggesting some potential positive skewness in the distribution of revenues across item respondents. This is supported by the fact that the maximum reported revenue less the mean revenue per respondent for any given fishing year was at least \$3 million (see Tables A1, A2, and A3 in Appendix A).

¹⁸ Values outside of two standard errors around the mean are outside the 95% confidence interval. In this report, we consider means with non-overlapping 95% confidence intervals statistically different.

Table 24. -- Summary of revenues and expenditures for the three fishing years.

	2011			2012			2013		
	Total (in millions)	Mean	Median	Total (in millions)	Mean	Median	Total (in millions)	Mean	Median
Revenues	28.25	204,706 (50,493)	75,578	19.98	176,822 (35,157)	68,630	28.21	282,058 (70,113)	86,000
Labor expenditures	7.30	72,979 (19,555)	20,280	5.24	63,853 (14,268)	22,473	6.70	91,805 (24,400)	24,250
Charter trip expenses	8.33	57,037 (14,329)	18,736	5.87	49,362 (11,452)	21,306	5.83	57,172 (10,910)	24,252
Overhead expenses	10.84	73,772 (13,802)	20,800	5.84	50,387 (6,905)	27,072	8.34	81,790 (19,290)	29,284
Capital expenditures	6.47	53,002 (15,982)	10,364	2.69	28,964 (4,216)	14,939	3.76	45,838 (11,579)	12,938
Investment payments	2.22	48,245 (12,875)	26,520	2.58	58,646 (13,042)	27,018	1.75	47,316 (10,476)	23,600

Note: standard errors are given in parentheses.

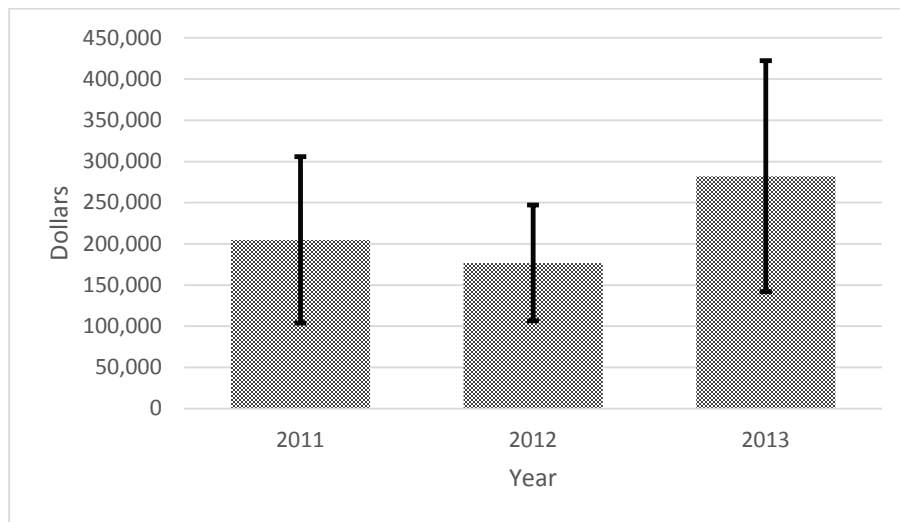


Figure 12. -- Mean revenues for the 2011, 2012, and 2013 fishing years. Error bars represent two standard errors of the mean above and below the mean.

Charter business expenses are broken down into four categories: labor expenses (e.g., payments to employees), charter trip operation expenses (e.g., vessel fuel and supplies costs), overhead expenses (e.g., non-wage payroll costs, legal services), and capital expenditures (e.g., purchases and improvements made to equipment and real estate). Total labor expenses ranged from approximately \$5.2 million to \$7.3 million over the three fishing years (Table 24). Mean labor expenses per item respondent ranged from approximately \$64,000 to \$92,000. However, there is no significant difference in mean labor expenses across fishing years (Fig. 13). Median labor expenses were uniformly lower than the mean labor expense per respondent (Table 24).

Total charter trip expenses ranged from approximately \$5.9 million to \$8.3 million. Mean and median charter trip expenses per respondent were fairly consistent, ranging from roughly \$49,000 to \$57,000 and \$18,000 to \$24,000, respectively (Table 24 and Fig. 13). There is no statistically significant difference in mean charter trip expenses across the three fishing years.

Total overhead expenses ranged from a low of \$5.8 million in 2012 to a high of \$10.8 million in 2011 (Table 24). The mean overhead expense per respondent dropped considerably between the 2011 and 2012 fishing years; decreasing from approximately \$74,000 in 2011 to \$50,000 in 2012. This difference is not statistically significant (Fig. 13). However, the 2013 fishing year experienced a significant increase in the mean overhead expense; exceeding the 2012 mean by \$30,000. The median overhead expenses per respondent are lower than the mean for each of the three fishing years and exhibit less variation across years (Table 24).

Capital expenditures represented the smallest expense category for each of the three fishing years and ranged from \$2.7 million to \$6.5 million (Table 24). Mean capital expenditures per respondent were approximately \$53,000 in 2011. In 2012 the mean capital expenditure dropped considerably to approximately \$29,000. As with the overhead expenses, mean capital expenditures increased considerably from 2012 to 2013, rising from approximately \$29,000 to over \$45,000 (Fig. 13). Median

capital expenditures per respondent were consistently and considerably lower than the mean capital expenditure for all three fishing years.

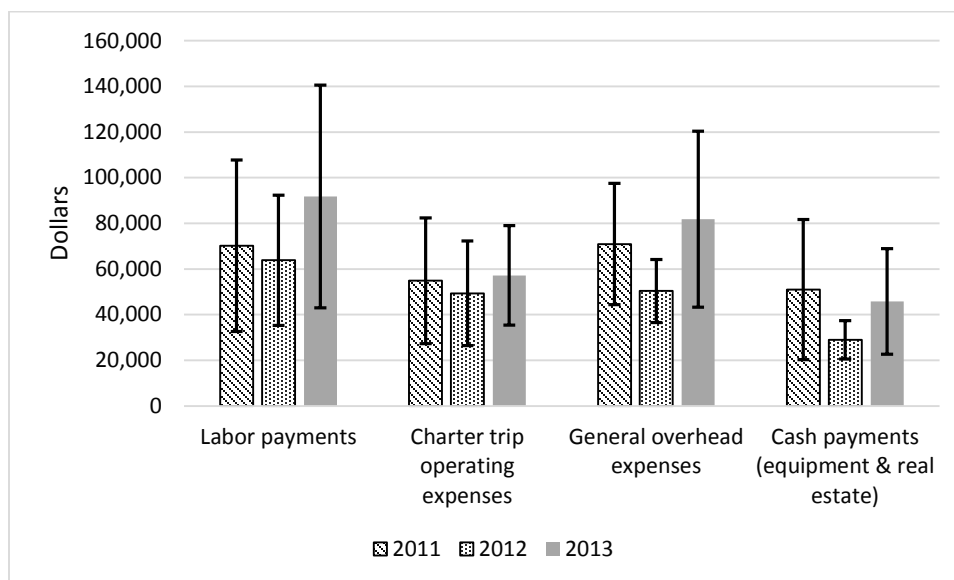


Figure 13. -- Respondent sample mean major expenses by type from 2011 to 2013. Error bars represent two standard errors around the mean.

Charter business part-time and full-time personnel positions are broken into three categories: operators, crew, and shore workers. For each of the three years of data, the total and mean number of season-specific full or part-time positions are presented. That is, each count represents one particular position over one particular season (e.g., full-time operator during early shoulder)¹⁹. For the item respondents, total full-time and part-time season-specific operator positions ranged from 427 to 488 and 51 to 112, respectively (Table 25). The mean number of full-time operator positions increased each year from 2011 to 2013, though not significantly so. The mean number of part-time operator positions experienced a significant increase between 2012 and 2013, raising from 2.2 to 3.1. Median full-time and part-time operator positions were unchanged across the three fishing years, however.

Total full-time and part-time season-specific crew positions ranged from 295 to 345 and 65 to 77, respectively. Neither the mean number of part-time nor full-time crew positions varied significantly across the three fishing years. Median part-time crew positions per respondent increased from 2.0 to 3.0 between 2011 and 2012 and then decreased back to 2.0 between 2012 and 2013. Median full-time crew positions per respondent was unchanged across the three fishing years.

Season-specific shore worker positions constituted the largest personnel category per respondent for the three fishing years. Total full-time and part-time shore worker positions ranged from 375 to 601 and 92 to 131, respectively (Table 25). Mean full-time and part-time shore worker positions ranged from 9.9 to 14.3 and 3.8 to 4.4, respectively, but neither the mean full-time shore worker positions nor the mean part-time shore worker positions varied significantly across the three fishing years. The median number

¹⁹ As before, “position” refers to any one individual being employed for one season. Thus, two positions can refer to either one individual being employed for two seasons or two individuals being employed in the same personnel category in one season.

of full-time shore worker positions decreased from 6.0 in 2011 to 5.0 in 2013. Similarly, the median part-time shore worker positions per respondent decreased from 4.0 in 2011 to 3.0 in 2013.

Table 25. -- Summary of full-time (FT) and part-time (PT) positions for the three fishing years. The entries represent the number of season-specific positions employed over the year.

	2011			2012			2013		
	Total	Mean	Median	Total	Mean	Median	Total	Mean	Median
FT operators	456	6 (0.8)	4	427	6 (0.9)	4	488	7 (1.3)	4
PT operators	83	2 (0.2)	2	51	2 (0.2)	2	112	3 (0.5)	2
FT crew	306	5 (1.0)	3	295	5 (0.8)	3	345	7 (1.9)	3
PT crew	77	2 (0.3)	2	65	3 (0.9)	3	68	3 (0.4)	2
FT shore workers	573	12 (3.0)	6	375	10 (2.1)	6	601	14 (3.8)	5
PT shore workers	131	4 (0.7)	4	92	4 (0.6)	3	113	4 (0.6)	3

Note: standard errors are given in parentheses.

In terms of labor expenses, regardless of whether full-time or part-time, shore workers and guides tended to be more costly than crew (Fig. 14). In general, charter business labor expenses tended to increase from 2011 to 2013. However, for a given personnel category none of the differences in expenses over time can be considered statistically significant.



Figure 14. -- Respondent sample mean labor expenses from 2011 to 2013 by personnel type. Error bars represent two standard errors around the mean.

In 2011, the lowest percentage of full-time employee positions occurred in the off season, regardless of personnel category (Fig. 15). In 2012, however, the lowest percentage of full-time positions occurred during the early shoulder season. Similar to 2011, the 2013 fishing year generally exhibited the lowest percentage of full-time employees during the off season. Across personnel categories, there is no clear difference in the percentage of full-time employment.

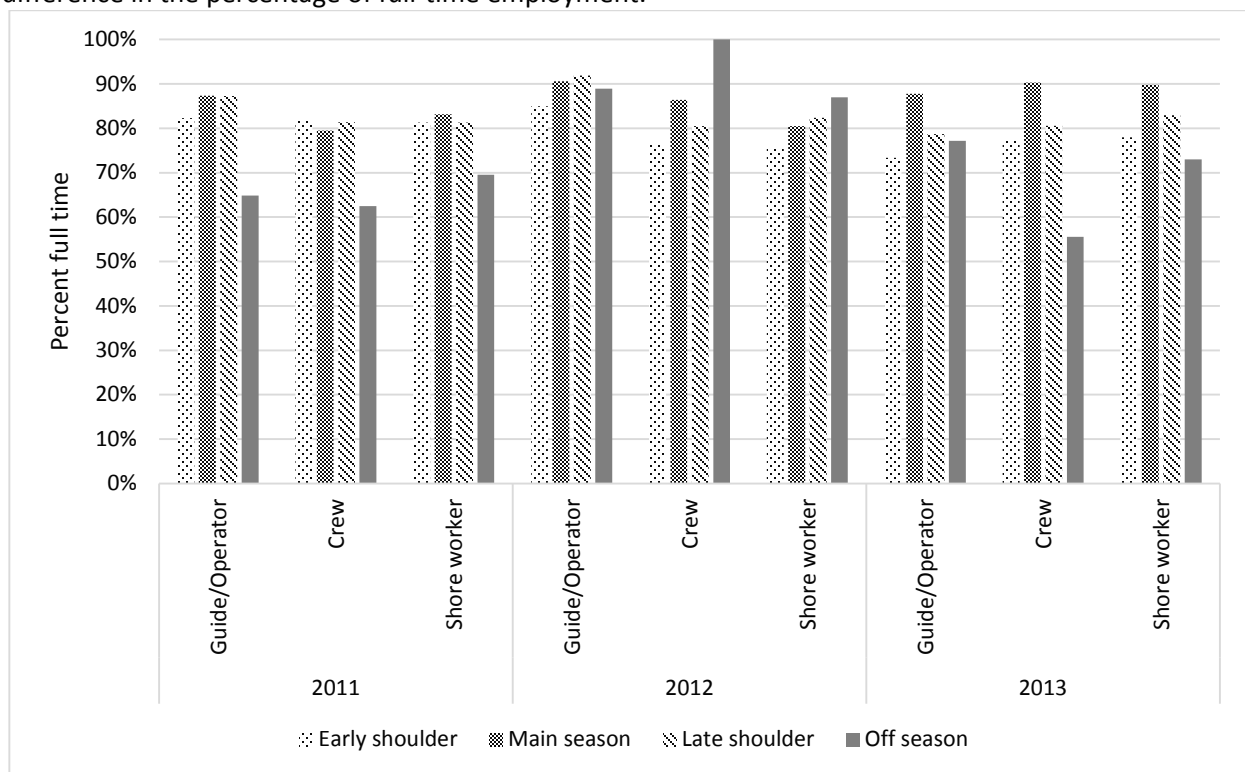


Figure 15. -- Respondent sample percent full-time positions by season and type from 2011 to 2013.

Personnel levels were always highest during the main season (Figs. 16-18) for the three personnel categories. The early and late shoulder seasons tended to have similar numbers of positions, with the late shoulder generally having slightly larger numbers. Note that the 2012 fishing year had the lowest numbers for nearly every personnel category and season, but also had the lowest sample size of the three survey years.

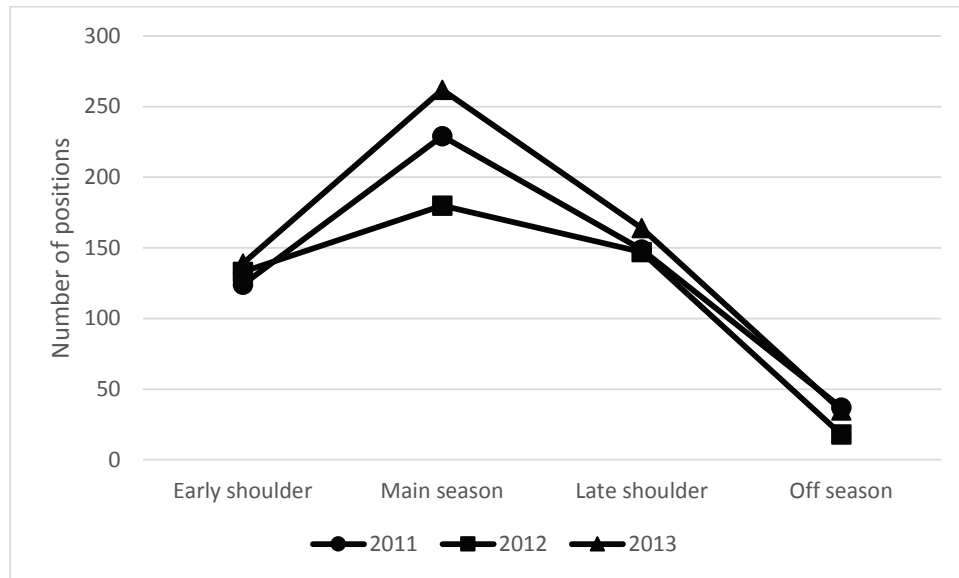


Figure 16. -- Respondent sample number of full-time and part-time guides/operator positions across seasons from 2011 to 2013.

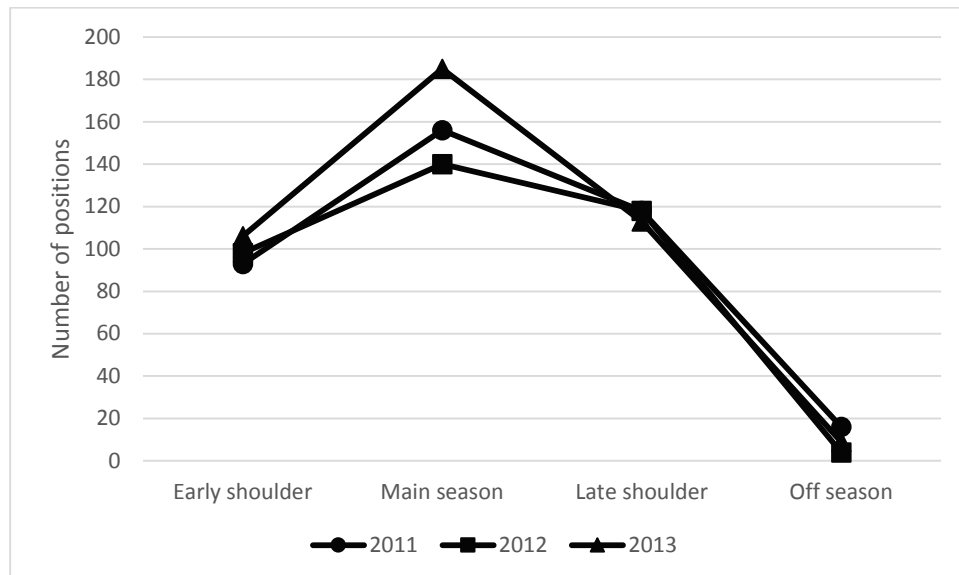


Figure 17. -- Respondent sample number of full-time and part-time crew positions across seasons from 2011 to 2013.

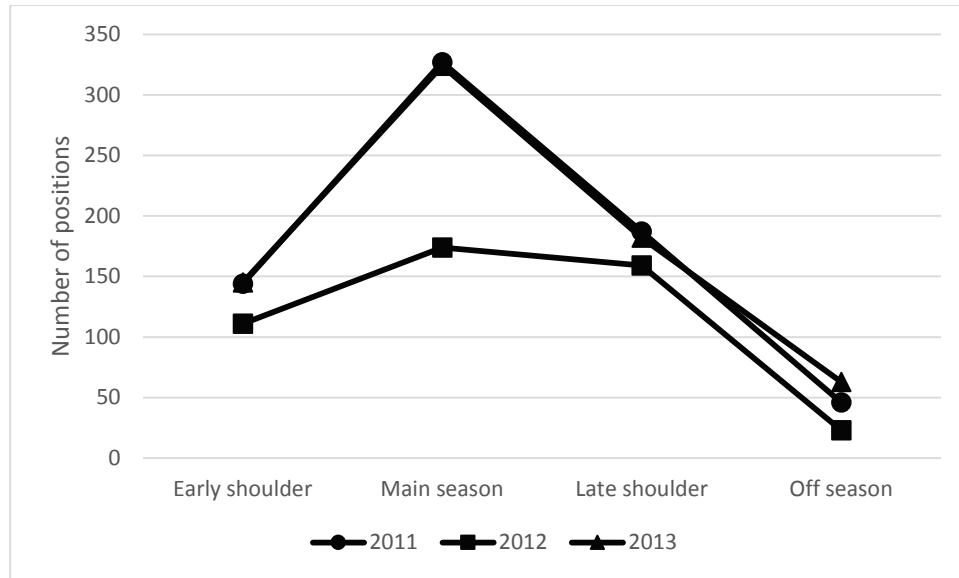
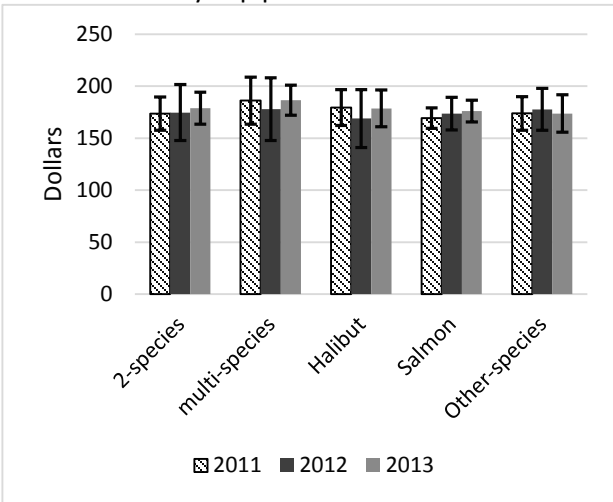


Figure 18. -- Respondent sample number of full-time and part-time shore worker positions across seasons from 2011 to 2013.

Alaska charter businesses as a whole offer a variety of charter trip experiences that vary in length and target species. The surveys collected data on whether respondents offered trips that were half-day, three-quarter-day, full day, overnight, or multi-day in duration, as well as prices associated with these offerings. Survey questions on trip offerings were additionally divided by the types of species targeted: single-species fishing trips (Pacific halibut only, Pacific salmon only, and "other" saltwater species), two-species trips, and multi-species trips (more than two species targeted).

Half-day charter trips were offered by approximately 60 percent of respondents, on average (Fig. 19 B). The percentage of respondents offering half-day halibut, salmon, and other species increased between 2011 and 2012. Mean prices charged per person to charter clients for half-day trips were on average approximately \$175 for each of the five species-type offerings (Fig. 19 A). Moreover, there is no statistical difference in the prices charged by charter businesses across the three years of data.

A. Mean half-day trip prices



B. Percent of respondents offering half-day trips

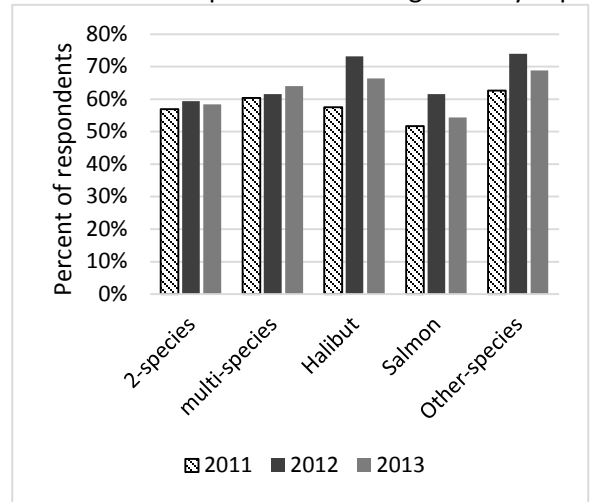
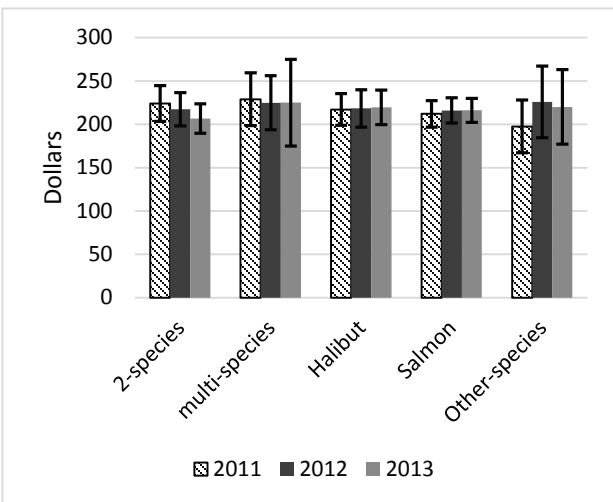


Figure 19. -- Respondent sample of half-day trip offerings. Error bars represent two standard errors around the mean.

Three-quarter day charter trips were offered by approximately 60 percent to 75 percent of the respondents and were generally found to increase between 2011 and 2013 (Fig. 20 A). Mean prices charged per client for three-quarter day trips ranged from approximately \$200 to \$225 (Fig. 20 B). Similar to the half-day trips, there was minimal variation in the mean prices charged for these trips across target species and over the three years.

A. Mean three-quarter day trip prices



B. Percent of respondents offering three-quarter day trips

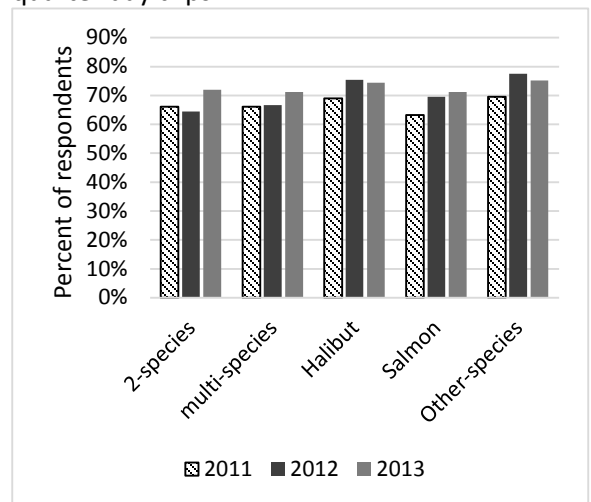


Figure 20. -- Respondent sample of three-quarter day trip offerings. Error bars represent two standard errors around the mean.

The percentage of respondents offering full day charter trips ranged from a low of approximately 30 percent (2-species and multi-species) to a high of approximately 55 percent (other species) (Fig. 21 B).

The percentage of respondents offering full day halibut, salmon, or other species trips increased between 2011 and 2012. For full day trip offerings, prices charged per client generally ranged from \$300 to \$400 (Fig. 21 A). Although there is some variation in the mean reported prices charged across species offerings and years, none of the differences are statistically significant.

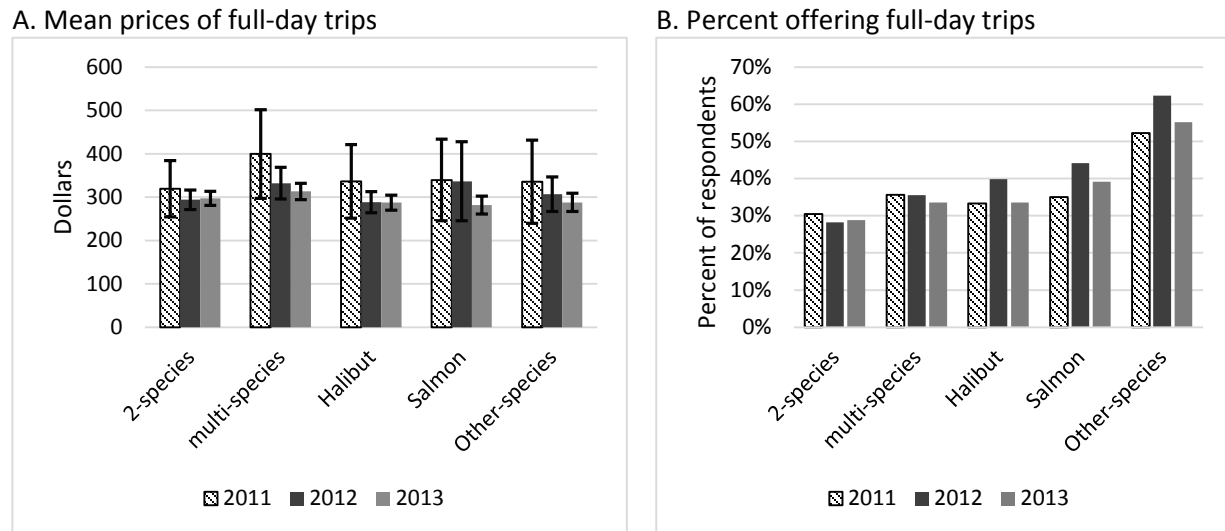
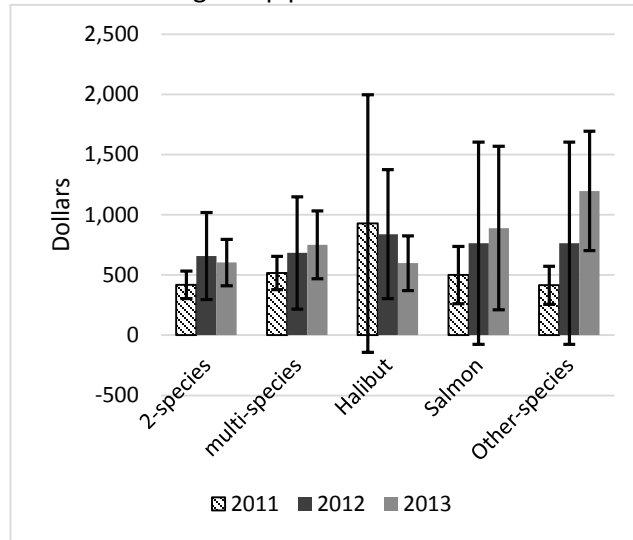


Figure 21. -- Respondent sample of full day trip offerings. Error bars represent two standard errors around the mean.

Overnight charter trips were offered by approximately 65 to 75 percent of respondents and were fairly uniform between 2011 and 2013 (Fig. 22 B). Mean prices per client for overnight trips ranged from a low of less than \$420 (other species in 2011 and 2012 and two species in 2011) to a high of nearly \$1,200 (other species in 2013) (Fig. 22 A). Although the variation in reported mean prices across years and species offerings is large, the low number of item respondents resulted in relatively large standard errors of the mean. Hence, none of the differences in prices charged are statistically significant.

A. Mean overnight trip prices



B. Percent offering overnight trips

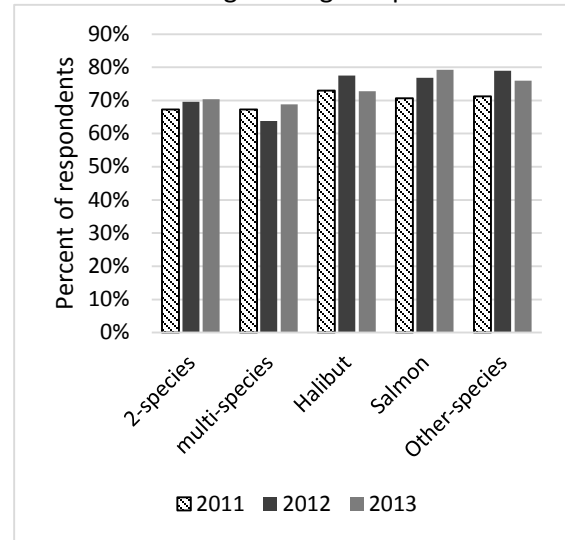
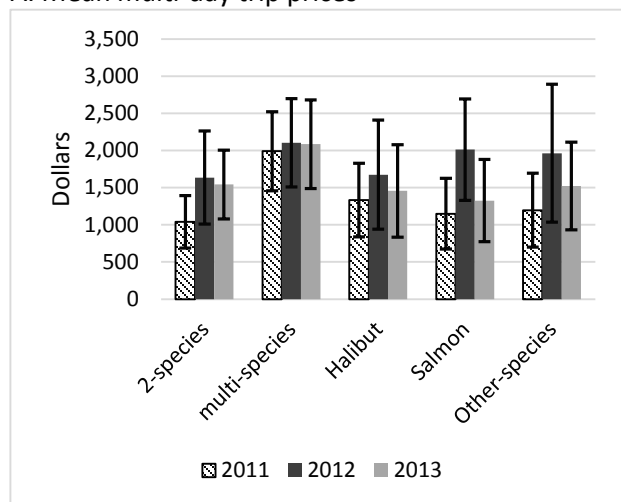


Figure 22. -- Respondent sample of overnight trip offerings. Error bars represent two standard errors around the mean.

The percentage of respondents offering multi-day charter trips ranged from approximately 50 percent (2-species and multi-species) to 70 percent (halibut, salmon, and other species (Fig. 23 B). The percentage of respondents offering multi-day trips generally increased between 2011 and 2013. With respect to the different multi-day fishing trips offered, multi-species options had the highest price per client on average (Fig. 23 A). Mean prices went up for every multi-day fishing trip offering between the 2011 and 2012 fishing years. Though the price changes were sometimes considerable (e.g., approximately \$900 for multi-day salmon trips), the differences were not statistically significant. Between the 2012 and 2013 fishing years, prices charged decreased slightly, but still remained higher than those charged during the 2011 fishing year (though not statistically higher).

A. Mean multi-day trip prices



B. Percent offering multi-day trips

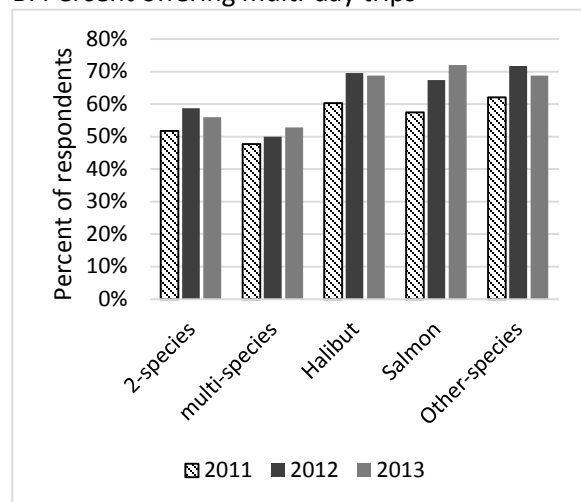


Figure 23. -- Respondent sample of multi-day trip offerings. Error bars represent two standard errors around the mean.

All three years of sample data suggest that relatively few charter businesses rely on charter business revenues for 100 percent of their household income. For each of the three years of sample data, less than one-fifth of item respondents reported 100 percent of their household income deriving from charter business (Fig. 24). The largest proportion of respondents reported that charter business accounted for between 1 and 25 percent of their total annual household income. Between 2011 and 2013, the fraction of item respondents reporting 51-75 percent of total household income earned from charter business grew by over 8 percent. The fraction of item respondents reporting that between 26 and 50 percent of total household income derived from charter business declined by 7 percent over the same period.

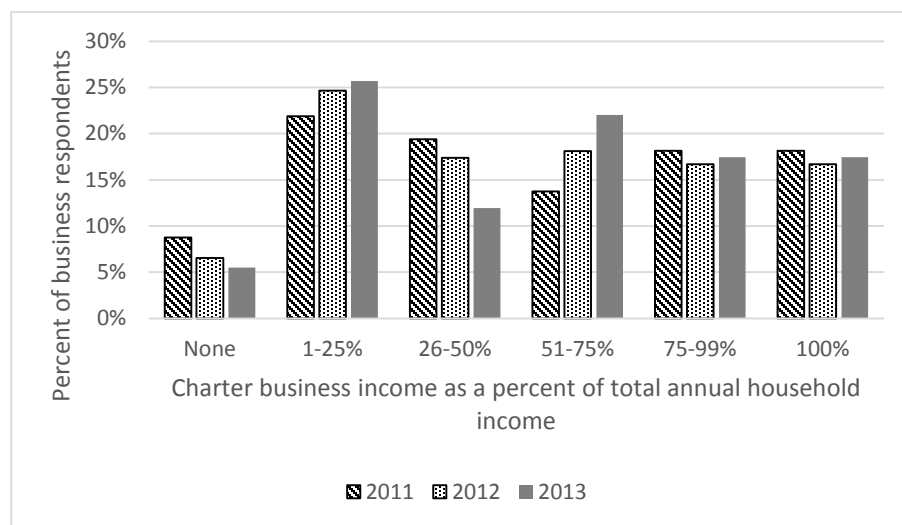


Figure 24. -- Distribution of 2011-2013 respondent sample of total annual household income earned from the charter business.

During the off season, charter business operators have a number of different, though not mutually exclusive, options available with respect to employment. For each of the three years, continuing charter business work, on its own or as part of an off season portfolio, represented the most common off season option (Fig. 25). In fact, over 40 percent of item respondents in each of the three years reported continuing charter business work as part of their off season schedule. Between 2011 and 2013, the proportion of item respondents continuing charter business work grew by approximately 9 percent. Over 30 percent of respondents reported working a non-fishing related job in Alaska as part of their off season schedule. The proportion of item respondents reported to live in Alaska but not work during the off season dropped by half between 2011 and 2013.

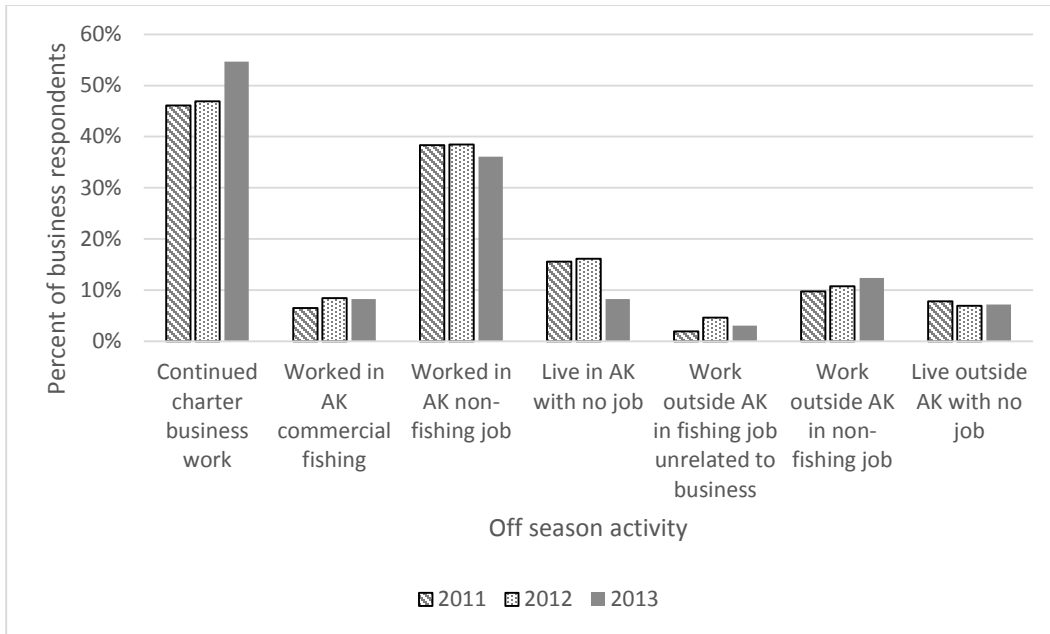


Figure 25. -- Proportion of 2011-2013 item respondents participating in at least one off season activity. Charter businesses can engage in multiple opportunities during the off season. The figure shows the distribution of how item respondents, at least in part, spend their off season time.

Across the three years of sample data, the number of off season activities engaged in remained relatively constant (Fig. 26). Most respondents reported being engaged in one off season activity, with the fraction of respondents ranging from 73 percent in 2012 to 78 percent in 2011. The proportion of respondents engaged in two or three activities was also consistent over the three years. No respondent reported being engaged in more than three activities during the off season. For each of the three years, over half of the respondents who were engaged in two activities during the off season combined the continuation of charter business work with working in an Alaskan non-fishing related job.

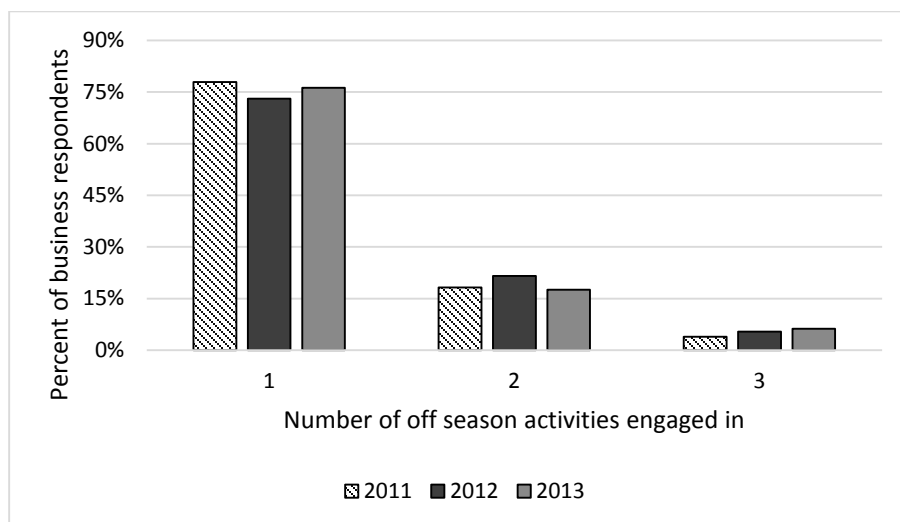


Figure 26. -- Number of off season opportunities engaged in by 2011-2013 item respondents.

With respect to the composition of charter business clients, over half of the item respondents for the 2011-2013 fishing years reported that returning customers and personal referrals from previous customers accounted for 51 to 99 percent of their client base (Fig. 27). Between 2011 and 2013, the percent of respondents reporting that 51 to 75 percent of their clients were returnees or referrals grew by 8 percent. At the same time, the percent of respondents reporting that 76-99 percent of clients were returnees or referrals dropped by 13 percent.

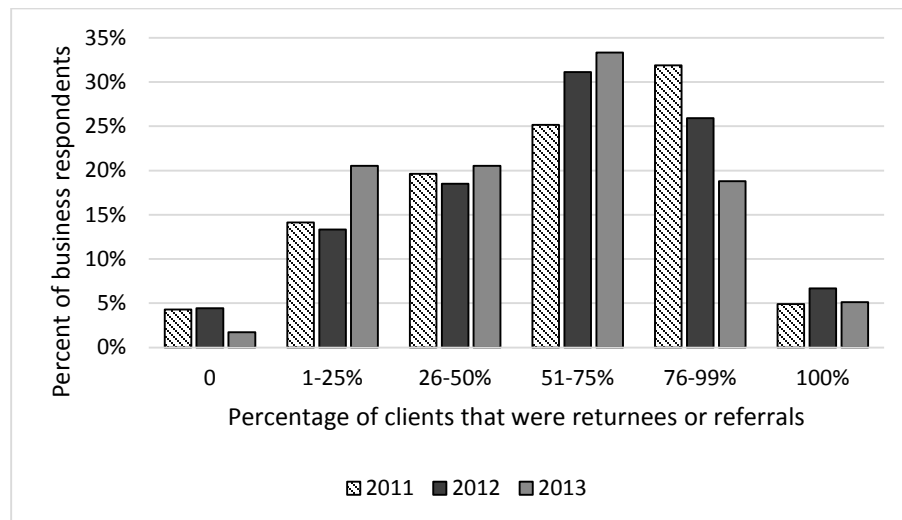


Figure 27. -- Percentage of charter business clients that were either return customers or personal referral from previous customers for 2011-2013 item respondents.

Approximately 90 percent of item respondents reported that more than 25 percent of their clients booked at least one month in advance (Fig. 28). Over the same period, less than a quarter of respondents reported that more than 26 percent of clients booked less than 48 hours in advance. Between 2011 and 2013, however, the proportion of respondents reporting that fewer than 25 percent of clients booked less than 48 hours in advance dropped from 89 percent to 78 percent.

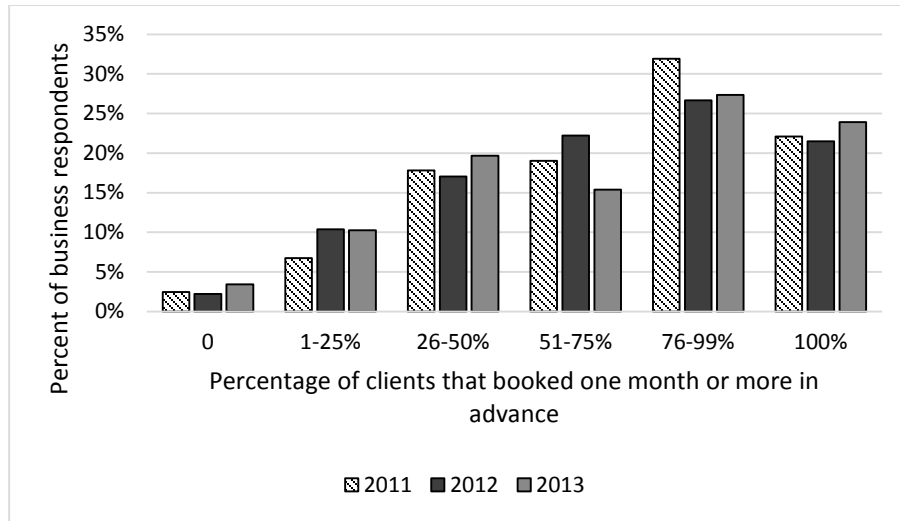


Figure 28. -- Percentage of charter business clients that booked their trip at least one month in advance for 2011-2013 item respondents.

Many charter businesses rely on independent bookings (i.e., bookings not done through an intermediary, like a travel agent) for much of their clientele (Fig. 29). In fact, across all three years of survey data, approximately half of item respondents reported at least 76 percent of their clients making independent bookings. About one-fifth of respondents did not book any independent clients, while approximately the same proportion of respondents did book at least some clients through cruise ships across the three years. About half of charter respondents booked clients through specialty charter booking services.

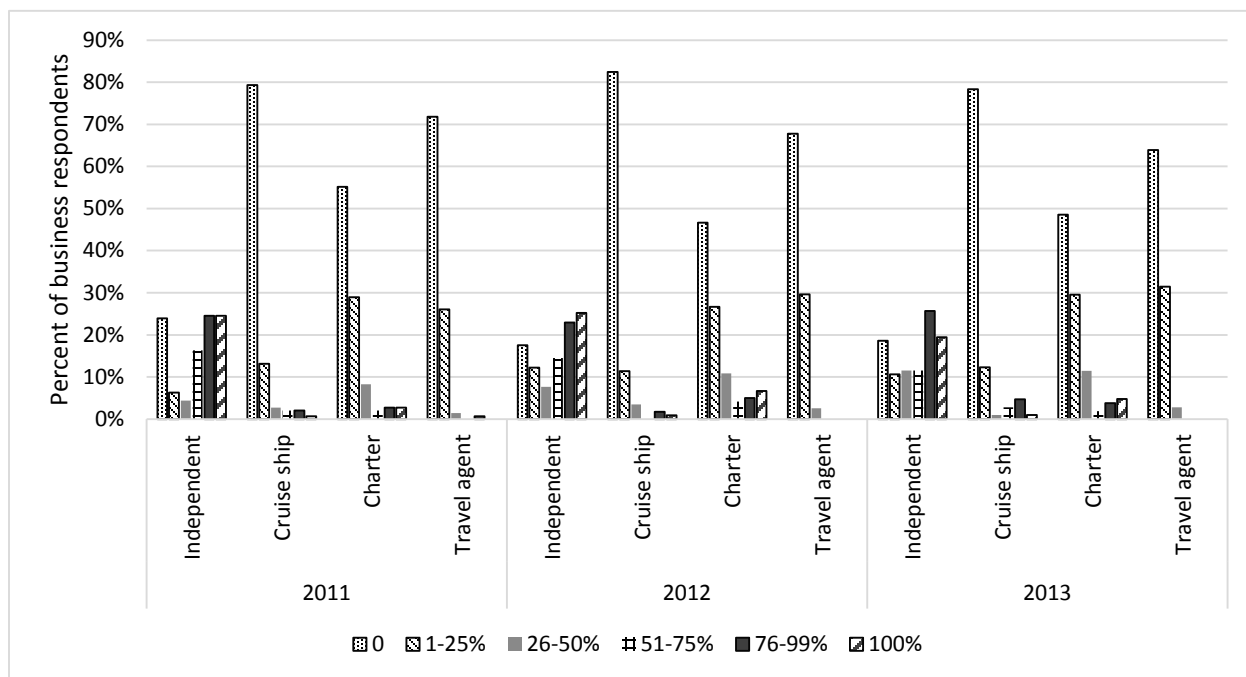


Figure 29. -- Distribution of 2011-2013 charter business respondents according to the percentage of clients booked by source. Independent denotes an independent booking, cruise ship denotes booking through a cruise ship, charter denotes booking through the charter business itself or a specialty charter booking service, and travel agent denotes booking through a general travel agent.

Population Estimates

In the previous section, we summarized the descriptive statistics for the item respondents for each survey's sample, then compared the totals, means, and medians across years. In those comparisons, a limiting factor is that there were different sample sizes each year and unit and item non-response were not accounted for, making it difficult to draw conclusions from year-to-year changes. In this section, we estimate corresponding population-level estimates after applying sample weighting and data imputation methods described earlier. These population estimates correct for differences in sample sizes, as well as missing data, which was prevalent in each year's survey data.²⁰ As a result, they provide a more complete picture of the costs, earnings, and employment in the charter sector during 2011-2013.

2011

Total revenues for the 2011 population of 650 active charter businesses were estimated to be approximately \$145 million (standard error [S.E.] = \$4.4 million). Total costs were estimated to be just under \$182 million (S.E. = \$7.1 million). Hence, the charter fishing industry operated at an estimated loss of approximately \$37 million. The mean revenues and costs per charter business were estimated to be approximately \$221,000 (S.E. = \$6,719) and \$277,000 (S.E. = \$10,164), respectively.

²⁰ See Appendix A tables A17-A19 for the number of blank responses (item non-responses) per question.

With respect to labor aggregated across all four fishing seasons, shore worker positions (both full-time and part-time) were estimated to represent the highest employment category (Fig. 30). An estimated 2,700 full-time (S.E. = 81) and 1,192 part-time (S.E. = 64) shore worker positions were employed during 2011. The mean number of full-time and part-time shore worker positions per business was estimated to be 4.1 (S.E. = 0.1) and 1.8 (S.E. = 0.1), respectively. Guides/operator positions represented the second largest employment category, where an estimated 2,068 full-time (39) and 598 part-time (27) positions were employed during 2011. The mean number of full-time and part-time operator positions per business was estimated to be 3.2 (S.E. = 0.1) and 0.9 (S.E. = 0.0), respectively. Crew positions represented the smallest category, where a total of 1,255 (S.E. = 58) full-time and 632 (S.E. = 35) part-time positions were estimated to be employed in the charter sector during 2011. Mean full-time and part-time crew positions were estimated at 1.9 (S.E. = 0.1) and 1.0 (S.E. = 0.1), respectively.

Total employment was estimated to be highest during the main season (Fig. 30). Employment during the late shoulder and early shoulder seasons were similar, with the late shoulder slightly higher for all three personnel categories. Total employment during the off season was estimated to be approximately 10-20 percent of the main season levels, with crew workers experiencing the sharpest decline, as would be expected.

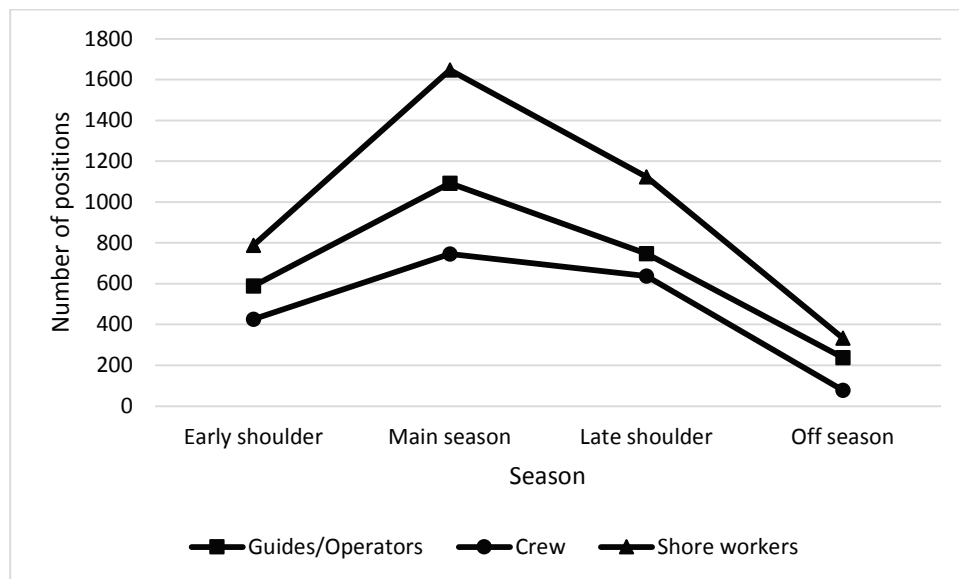


Figure 30. -- 2011 population estimates for full- and part-time positions by season and type.

The percentage of full-time positions was estimated to range from 48 percent to 82 percent across the three personnel categories and four seasons (Table 26). Full-time employment during the off season was about 10 to 20 percentage points lower than the other seasons. In addition, the percentage of full-time positions was estimated to be generally highest for the guides/operators personnel category.

Table 26. -- 2011 population estimates for percent of full-time positions by season and type.

	Guide/Operator	Crew	Shore worker
Early shoulder	76%	70%	70%
Main season	79%	63%	75%
Late shoulder	82%	70%	67%
Off season	60%	54%	48%

The largest total categorical expense during 2011 was general overhead expenses (approximately \$57 million). The mean overhead expense per charter business was estimated to be over \$84,000 (Table 27). The second largest categorical expense was charter trip operating costs, where the estimated totals and mean were approximately \$43 million and \$55,000, respectively. Labor costs represented the third largest categorical expense, with an estimated total and mean of approximately \$33 million and \$50,000, respectively.

Table 27. -- 2011 population estimates for mean and total major cash expenses by type in 2013 dollars.

Major expense type	Population mean	Total (in millions)
Charter trip operating expenses	54,579 (4,233)	42.60 (2.77)
General overhead expenses	84,400 (3,554)	57.47 (2.34)
Vehicles, machinery, equipment	42,350 (2,596)	21.42 (1.71)
Labor expenses	50,489 (1,941)	33.11 (1.28)
Buildings, land, real estate	53,617 (7,030)	27.05 (4.62)

Note: standard errors are given in parentheses.

Within labor expenditures, compensation for shore workers was estimated to be the largest cost (Table 28). Total shore worker expenses were estimated at nearly \$15 million, with a mean of approximately \$22,000 per charter business. Crew were estimated to be the least costly personnel category, with a total of approximately \$7 million. In addition, payments toward the purchase and upkeep of vehicles, machinery, and equipment and buildings, land, and real estate were estimated to account for a total of \$21 million and \$27 million, respectively.

Table 28. -- 2011 population estimates for total and mean labor expenses per business in 2013 dollars by personnel type.

	Guide/Operator	Crew	Shore worker
Population mean	17,437	7,335	22,346
	(410)	(1,499)	(836)
Total	11.29	6.92	14.90
(in millions)	(0.27)	(0.98)	(0.55)

Note: standard errors are given in parentheses.

Total new investments toward equipment and real estate (including loan principals) for the 2011 fishing year were estimated to be approximately \$24 million (Table 29). Mean investments per business were estimated to be just over \$36,000.

Table 29. -- 2011 population estimates for mean and total major new investments by type in 2013 dollars.

Investments	Population mean	Total (in millions)
Equipment and real estate	36,051	23.64
	(2,823)	(1.85)

Note: standard errors are given in parentheses.

2012

The number of active charter businesses during 2012 was 592. Total revenue to the charter fishing sector for 2012 was estimated to be approximately \$125 million (S.E. = \$4.5 million). Total costs were estimated to be just over \$109 million (S.E. = \$1.7 million). Hence, it is estimated that the charter fishing sector operated profitably during the 2012 fishing year. Mean revenues per charter business were estimated to be approximately \$208,000 (S.E. = \$7,567) while mean costs were estimated to be \$183,000 (S.E. = \$2,597).

The largest personnel category across the four fishing seasons, full-time and part-time inclusive, was estimated to be guides/operators, followed closely by shore workers. Total full-time and part-time guides/operator and shore worker positions were estimated to be 2,436 and 2,429, respectively. The largest employment category was full-time operators, estimated at 1,978 (S.E. = 46), followed by full-time shore workers at 1,755 (S.E. = 70). The estimated number of mean full-time guides/operators and shore workers was 3.3 (S.E. = 0.1) and 2.9 (S.E. = 0.1), respectively. Part-time guides/operators and shore workers had an estimated mean of 0.8 (S.E. = 0.0) and 1.1 (S.E. = 0.1), respectively. Crew personnel were estimated to total 1,954 for the four fishing seasons. Of this total, 1,361 (S.E. = 44) were estimated to be full-time and 593 (S.E. = 48) were estimated to be part-time. Mean full-time and part-time crew per business was estimated to be 2.3 (S.E. = 0.1) and 1.0 (S.E. = 0.1), respectively.

Total employment during the 2012 fishing year was highest during the main season for guides/operators and shore workers. Total employment of crew was highest during the late shoulder season (Fig. 31). Guides/operators were estimated to be the most numerous personnel category for the early shoulder and main season, but during the late shoulder and off seasons were less numerous than shore workers. Off season employment for the three personnel categories ranged from 4 percent (crew) to 15 percent (shore workers) of their respective totals during the main season.

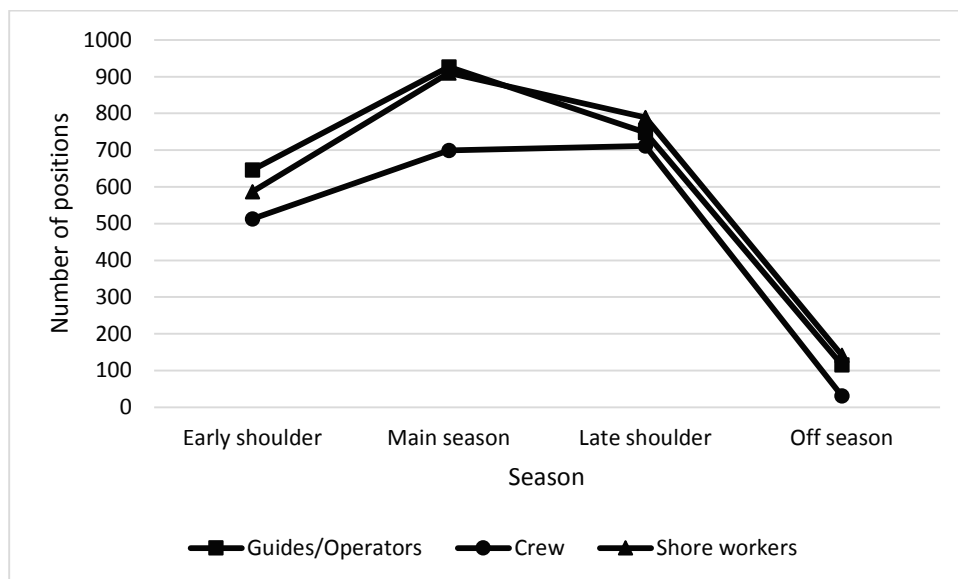


Figure 31. -- 2012 population estimates for full and part-time positions by season and type.

The estimated percentage of full-time positions during the 2012 fishing year ranged from 64 (crew, early shoulder) to 100 (crew, off season) (Table 30). Generally speaking, guides/operators were estimated to have the highest percentage of full-time positions, ranging from approximately 75 percent in the early shoulder to 90 percent in the off season. Crew and shore workers were estimated to have approximately 65 to 75 percent full-time positions throughout the season (excluding crew, off season).

Table 30. -- 2012 population estimates for percent of full-time positions by season and type.

	Guide/Operator	Crew	Shore worker
Early shoulder	76%	64%	71%
Main season	82%	73%	73%
Late shoulder	84%	69%	73%
Off season	90%	100%	68%

The largest type of expenditure during the 2012 fishing year for the charter business population was estimated to be general overhead expenses (Table 31). Total and mean general overhead expenses were estimated at approximately \$32 million and \$54,000, respectively. The second largest expenditure category was charter trip operating expenses, with an estimated total of \$30.1 million and mean of \$50,305. Labor expenses were estimated to total \$23.3 million with a mean of \$38,863 per business. Within the labor expenditure category, compensation toward guides/operators was estimated to be

roughly half of the total (Table 32). Mean expenditures per business for operators, crew, and shore workers was estimated to be approximately \$19,000, \$7,400, and \$12,500, respectively.

Table 31. -- 2012 population estimates for mean and total major cash expenses by type in 2013 dollars.

Major expense type	Population mean	Total (in millions)
Charter trip operating expenses	50,305 (1,601)	30.16 (0.96)
General overhead expenses	54,110 (1,284)	32.44 (0.77)
Vehicles, machinery, equipment	24,438 (1,178)	14.65 (0.70)
Labor expenses	38,863 (976)	23.30 (0.58)
Buildings, land, real estate	15,090 (1,014)	9.05 (0.61)

Note: standard errors are given in parentheses.

Table 32. -- 2012 population estimates for total and mean labor expenses per business in 2013 dollars by personnel type.

	Guide/Operator	Crew	Shore worker
Population mean	18,945 (696)	7,389 (231)	12,529 (516)
Total (in millions)	11.36 (0.42)	4.43 (0.14)	7.51 (0.31)

Note: standard errors are given in parentheses.

Total new investments of equipment and real estate during 2012 was estimated to be just under \$31 million (Table 33). Of this total, approximately 75 percent was investments toward equipment such as vessels, vehicles, and fishing tackle. Mean investments per business were estimated to be just over \$51,000.

Table 33. -- 2012 population estimates for mean and total major new investments by type in 2013 dollars.

Major Investment	Population mean	Total (in millions)
Equipment and real estate	51,249 (3,107)	30.73 (1.87)

Note: standard errors are given in parentheses.

2013

The number of active charter businesses during 2013 was 572. Total revenues accrued to the charter business population during the 2013 fishing year was estimated to be approximately \$171 million (S.E. = \$11 million). Total costs were estimated to be just over \$126 million (S.E. = \$2.4 million). Hence it is estimated the charter business population as a whole operated profitably during the 2013 fishing year. Mean revenues and costs were approximately \$293,000 (S.E. = \$19,000) and \$215,000 (S.E. = \$4,100), respectively.

Total labor personnel for the population of charter businesses, including both full-time and part-time positions, was estimated to range from 599 during the off season to 3,310 during the main season. For all three personnel categories, employment was highest during the main season and lowest during the off season (Fig. 32). Employment during the early and late shoulder seasons were similar, with the late shoulder having slightly larger personnel numbers than the early shoulder. Shore worker positions were estimated to represent the largest of the three personnel categories, with a total estimated 3,461 individuals (Fig. 32). Of this total, 2,642 (S.E. = 136) were estimated to be full-time and 819 (S.E. = 39) were estimated to be part-time. Guides/operators and crew were estimated to total 2,624 and 1,989, respectively. Full-time guides/operators and crew were estimated at 1,888 (S.E. = 49) and 1,479 (S.E. = 47), respectively.

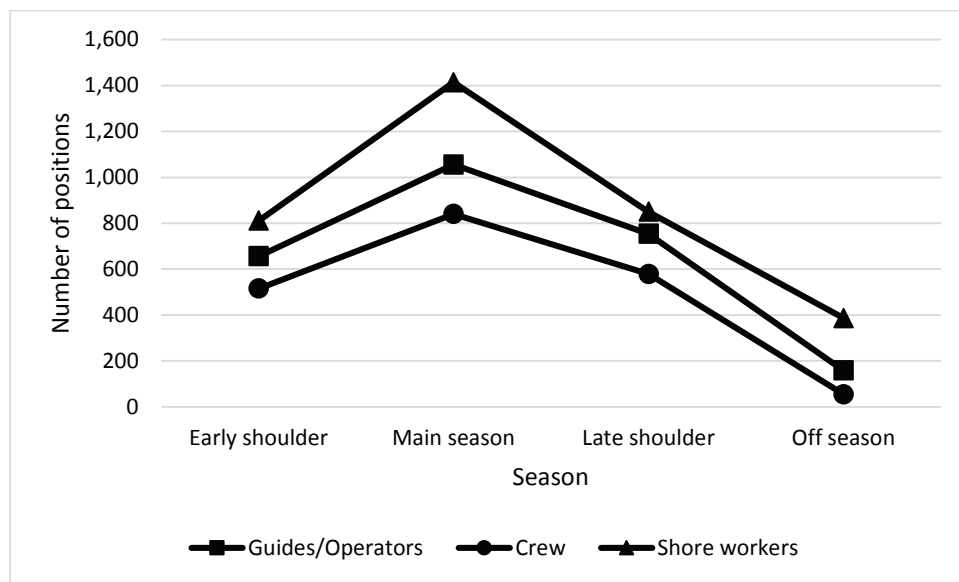


Figure 32. -- 2013 population estimates for full and part-time positions by season and type.

The estimated percentage of full-time positions across the three personnel categories and four fishing seasons ranged from 51 (crew, off season) to 84 (crew, main season) (Table 34). The percentage of full-time positions in the off season declined by at least 13 percentage points relative to the late shoulder for both crew and shore worker personnel. The percentage of full-time positions for crew/operator personnel was estimated to be roughly equal for the early shoulder and off seasons.

Table 34. -- 2013 population estimates for percentage of full-time positions by season and type.

	Guide/Operator	Crew	Shore worker
Early shoulder	64%	69%	73%
Main season	79%	84%	82%
Late shoulder	71%	67%	76%
Off season	66%	51%	63%

With respect to total charter business population expenditures, general overhead was the largest expense during the 2013 fishing year, with an estimated total of approximately \$45 million (Table 35). Mean overhead expenses per charter business were estimated to be nearly \$58,000. The second largest estimated expenditure was charter trip expenses, which totaled approximately \$30 million, followed closely by labor expenses at \$28.5 million. Mean charter trip and labor expenses were estimated to be approximately \$51,000 and \$48,500, respectively. Within the category of labor expenditures, shore worker compensation was estimated to be the largest expense, followed by guide/operator compensation (Table 36).

Table 35. -- 2013 population estimates for mean and total major cash expenses by type in 2013 dollars.

Major expense type	Population mean	Total (in millions)
Charter trip operating expenses	50,990 (1,391)	29.93 (0.81)
General overhead expenses	57,862 (1,984)	44.75 (1.14)
Vehicles, machinery, equipment	25,510 (1,103)	14.97 (0.65)
Labor expenses	48,499 (1,573)	28.47 (0.91)
Buildings, land, real estate	23,955 (2,156)	14.06 (1.26)

Note: standard errors are given in parentheses.

Table 36. -- 2013 population estimates for total and mean labor expenses per business in 2013 dollars by personnel type.

	Guide/Operator	Crew	Shore worker
Population mean	18,143 (573)	7,777 (434)	22,579 (1,357)
Total (in millions)	10.650 (0.33)	4.57 (0.25)	13.25 (0.79)

Note: standard errors are given in parentheses.

A total of approximately \$28 million in new investments was estimated for the population of charter businesses during 2013 (Table 37). Of this total, over 75 percent was directed toward investing in vehicles, machinery, and equipment. Mean new investments per business was estimated to be about \$47,500.

Table 37. -- 2013 population estimates for mean and total major new investments by type in 2013 dollars.

Major investment type	Population mean	Total (in millions)
Equipment and real estate	47,546	27.91
	(3,540)	(2.08)

Note: standard errors are given in parentheses.

2011-2013 Population Estimates Comparisons

Total estimated revenues for the population of charter businesses ranged from a low of \$125 million in 2012 to a high of \$172 million in 2013 (Table 38). It is estimated that the charter fishing sector, as a whole, operated at a loss during the 2011 fishing year. During the 2012 and 2013 fishing years, however, we estimate that the charter fishing sector operated profitably as a whole. Statistically speaking, there is no significant difference between 2011 and 2012 total revenues. However, there was a large and statistically significant increase in total revenues for the 2013 fishing year relative to 2011 and 2012. Mean estimated revenues ranged from a low of \$208,321 in 2011 to a high of \$292,535 in 2013. For 2013, mean estimated revenues were statistically higher than both 2011 and 2012 (Fig. 33). Moreover, mean costs per business during the 2012 fishing year were statistically lower than the 2011 fishing year. Mean costs rebounded in 2013, but remained lower than they were in 2011. For both 2012 and 2013, mean revenues per business statistically exceeded mean costs per business, further supporting the notion that the charter business sector operated profitably during those years.

Table 38. -- Summary of total (in millions) and mean revenues and expenses for the 2011, 2012, and 2013 fishing years (in 2013 dollars).

	2011		2012		2013	
	Total	Mean	Total	Mean	Total	Mean
Revenues	144.90	220,931	124.91	208,321	171.72	292,535
	(4.39)	(6,719)	(4.50)	(7,567)	(10.99)	(19,034)
Total costs (excluding investment payments)	181.65	276,956	109.61	182,807	126.14	214,883
	(7.14)	(10,164)	(1.70)	(2,623)	(2.35)	(4,130)
Labor expenses	33.11	50,489	23.30	38,863	28.47	48,499
	(1.28)	(1,941)	(0.58)	(976)	(0.91)	(1,573)
Charter trip expenses	42.60	64,952	30.16	50,305	29.93	50,990
	(2.77)	(4,233)	(0.96)	(1,601)	(0.81)	(1,391)
Overhead expenses	57.47	87,618	32.44	54,110	44.75	76,231
	(2.34)	(3,554)	(0.77)	(1,284)	(1.14)	(1,984)
Capital expenditures	48.47	73,897	23.70	39,528	22.99	39,162
	(5.18)	(7,874)	(0.93)	(1,550)	(0.91)	(1,556)
Investment payments	23.64	36,051	30.73	51,249	27.91	47,546
	(1.85)	(2,823)	(1.87)	(3,107)	(2.08)	(3,540)

Note: standard errors are given in parentheses.

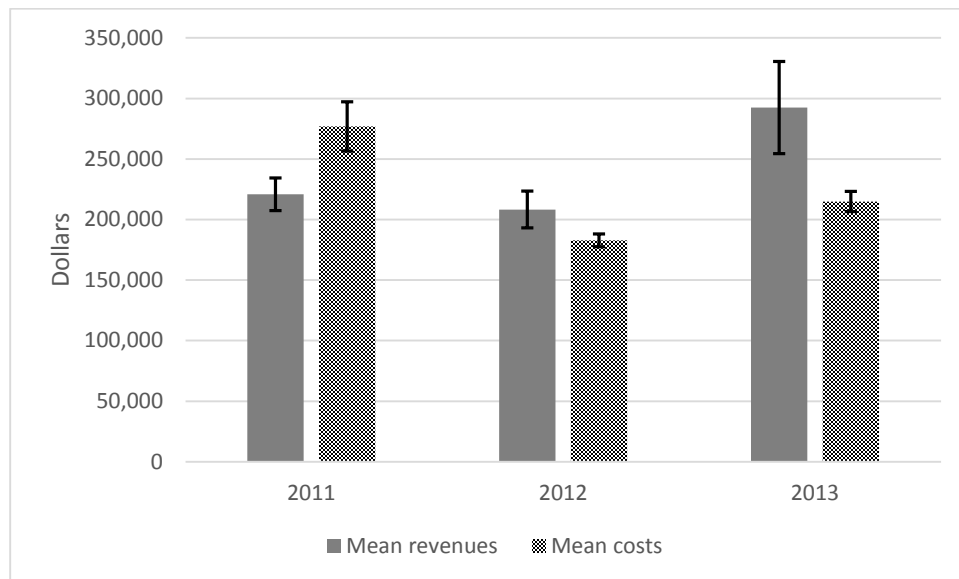


Figure 33. -- Mean estimated population-level revenues for the 2011, 2012, and 2013 fishing years. Error bars represent two standard errors around the mean.

Estimated overhead expenses were generally the largest category of expenditures for the charter business population and ranged from approximately \$32 million in 2012 to \$57 million in 2011 (Table 38 and Fig. 34). Labor payments were generally the lowest expenditure category. Capital expenditures toward durable goods were also low, excluding 2011. Mean overhead expenses ranged from \$54,000 in 2012 to over \$87,000 in 2011. Total labor expenses, charter trip expenses, capital expenditures toward durable goods, and new investments were estimated to generally range between \$20 million and \$30 million per year. Mean values for these expenditures generally ranged between \$35,000 and \$85,000 per year per business.

Between 2011 and 2012, mean expenditures were estimated to have large and statistically significant reductions across all four major expense categories (Fig. 34). The largest estimated reductions were toward capital expenditures to durable goods, with an estimated reduction from \$73,897 in 2011 to \$39,528 in 2012 and \$39,162 in 2013. In 2013, statistically significant increases in labor payments and general overhead expenses resulted relative to the 2012 estimated levels. Charter trip operating expenses and capital expenditures toward durable goods were relatively unchanged between 2012 and 2013.

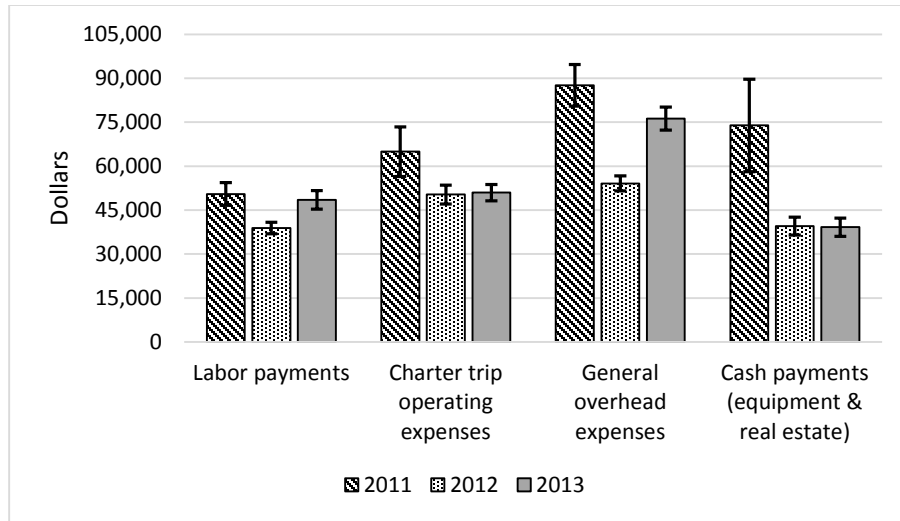


Figure 34. -- Mean estimated major expenses by type for the population of charter businesses for 2011-2013. Error bars represent two standard errors above and below the means.

In terms of the number of season-specific positions, total full-time shore worker positions were estimated to be the largest category, with estimated annual season-specific position totals of 2,700 (S.E. = 81.1), 1,755 (S.E. = 70.4), and 2,642 (S.E. = 136) for the 2011, 2012, and 2013 fishing years (Table 39). Full-time guides/operator positions were estimated to be the second largest category. Annual totals for full-time guides/operator positions were 2,068 (S.E. = 38.9), 1,978 (S.E. = 46.1), and 1,888 (S.E. = 49.2) season-specific positions for 2011, 2012, and 2013. The largest part-time employment group was shore worker positions, with estimated annual totals of 1,192 (S.E. = 64.1), 674 (S.E. = 31.6), and 819 (S.E. = 38.7) season-specific positions for 2011-2013. There was a large and statistically significant reduction in both the number of full-time and part-time shore worker positions employed between 2011 and 2012. Total full-time shore worker positions dropped from 2,700 in 2011 to 1,755 in 2012. Likewise, total part-time shore worker positions dropped from 1,192 in 2011 to 674 in 2012. The number of shore worker positions, full-time and part-time both, increased from 2012 to 2013, though not to the same level as 2011. Moreover, relative to the year 2011, the year 2013 was estimated to have statistically significant growth in both part-time operator and full-time crew positions.

Mean full-time guides/operator positions per charter business ranged from a low of 3.2 (S.E. = 0.1) in 2011 and 2013 to a high of 3.3 (S.E. = 0.1) in 2012. Mean full-time shore worker positions ranged from a low of 2.9 (S.E. = 0.1) in 2012 to a high of 4.5 (S.E. = 0.2) in 2013. The mean number of full-time shore worker positions was significantly lower in 2012 than it was in either 2011 or 2013. The number of mean part-time guides/operator positions was estimated to grow from 0.9 to 1.3 between 2011 and 2013 (which is statistically significant). Likewise, the mean number of full-time crew positions grew from 1.9 in 2011 to 2.5 in 2013.

Table 39. -- 2011-2013 mean and total population estimates for full-time and part-time season-specific positions by type.

	2011		2012		2013	
	Total	Mean	Total	Mean	Total	Mean
FT operators	2,068 (38.9)	3.2 (0.1)	1,978 (46.1)	3.3 (0.1)	1,888 (49.2)	3.2 (0.1)
PT operators	598 (27.3)	0.9 (0.0)	458 (25.5)	0.8 (0.)	736 (36.7)	1.3 (0.1)
FT crew	1,255 (58.0)	1.9 (0.1)	1,361 (44.)	2.3 (0.1)	1,479 (47.5)	2.5 (0.1)
PT crew	632 (35.2)	1.0 (0.1)	593 (48.3)	1.0 (0.1)	510 (30.1)	0.9 (0.1)
FT shore workers	2,700 (81.1)	4.1 (0.1)	1,755 (70.4)	2.9 (0.1)	2,642 (136.)	4.5 (0.2)
PT shore workers	1,191 (64.1)	1.8 (0.1)	674 (31.6)	1.1 (0.1)	819 (38.7)	1.4 (0.1)

Note: standard errors are given in parentheses.

With respect to labor, expenditures toward guides/operators and shore workers were estimated to each be twice the expenditures made for crew (Fig. 35). Mean guides/operator expenses per business ranged from a low of \$17,437 (S.E. = \$410) in 2011 to a high of \$18,945 (S.E. = \$696) in 2012. Mean crew expenses ranged from a low of \$7,335 (S.E. = \$1,499) in 2011 to a high of \$7,777 (S.E. = \$434) in 2013. Across the three years of data, expenditures toward both guides/operators and crew were fairly consistent. Shore worker expenses in 2012 were estimated to be roughly half of the 2011 and 2013 expenses. This difference is statistically significant.

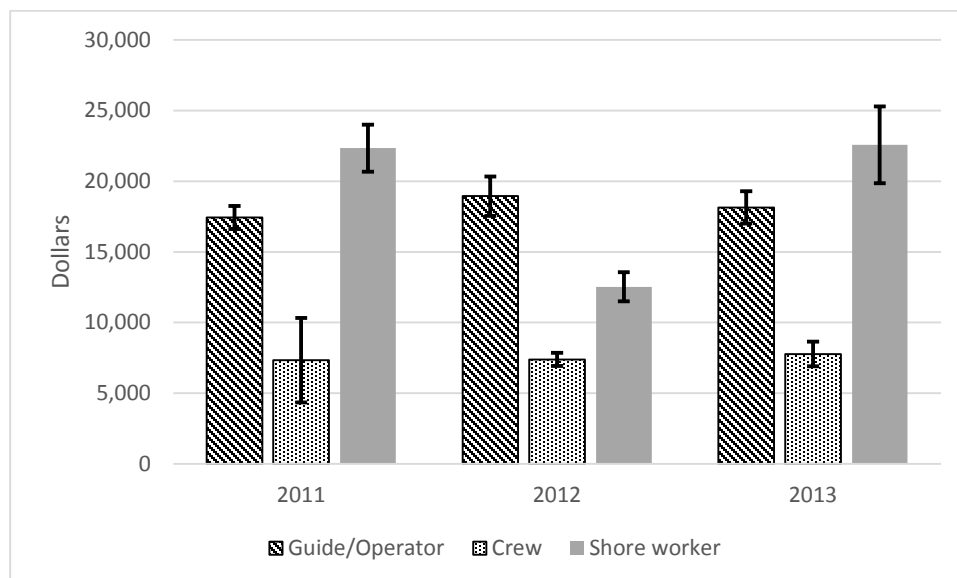


Figure 35. -- Population estimates for mean labor expenses by type for the years 2011-2013. Error bars represent two standard errors around the mean.

The lowest percentage of full-time positions occurred during the off season for the 2011 fishing year (Fig. 36). Guides/operator positions tended to have the highest percentage of full-time employment during 2011. Crew and shore worker personnel had similar full-time employment percentages for the early and late shoulder seasons. The percent of full-time positions peaked in the early and late shoulder seasons for crew. Full-time shore worker percentage peaked during the main season for shore workers.

The percentage of full-time positions increased slightly between 2011 and 2012 for some personnel categories (Fig. 36). In particular, the percentage of full-time guide/operator positions during the off season increased from 60 percent in 2011 to 90 percent in 2012. Moreover, the percentage of crew and shore worker positions that were full-time increased by 36 and 20 percentage points between 2011 and 2012, respectively. It is worth noting, however, that employment is generally lowest in the off season. Thus, while the differences between the percentage of off season employment that was full-time between 2011 and 2012 appears large, the difference in terms of absolute positions may be more modest in number (Figs. 37-39).

For the 2013 fishing year, the highest percentage of full-time positions tended to occur during the main season. The percentage of positions that were full-time during the 2013 main season ranged from 79 percent (guides/operators) to 84 percent (crew). By comparison, the percentage of full-time positions during the 2013 early and late shoulders ranged from 64 percent (guides/operators) to 73 percent (shore workers) and 67 percent (crew) to 76 percent (shore workers), respectively. Relative to 2012, the percentage of guide/operator positions that were full-time fell considerably in 2013. For instance, between 2012 and 2013, the percentage of full-time guides/operators dropped by 12 percentage points during the early shoulder, 3 percentage points during the main season, 13 percentage points during the late shoulder, and 24 percentage points during the off season.

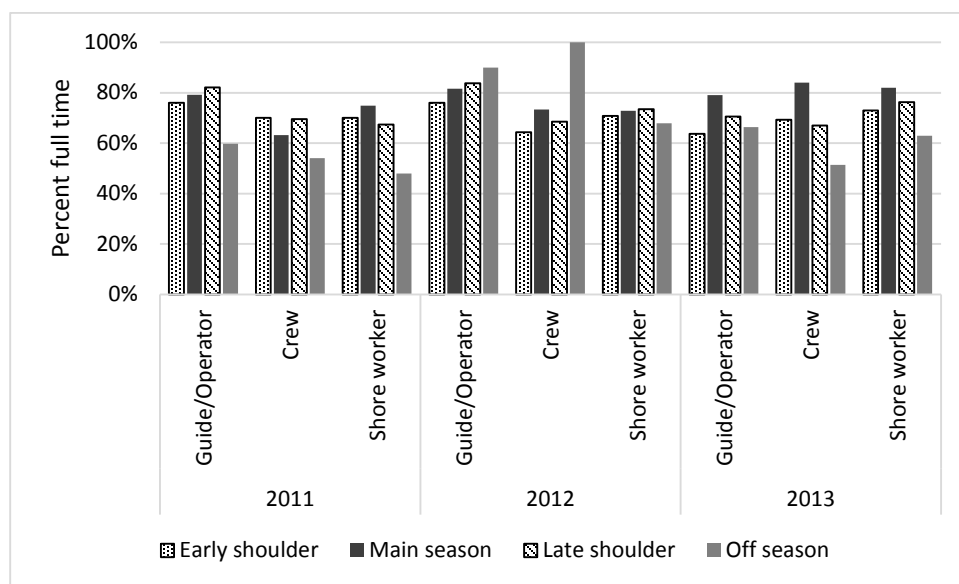


Figure 36. -- Estimated percent of full-time positions for the 2011-2013 charter business population.

For each of the three years of data, total (full-time and part-time) employment was estimated to be highest during the main season (Figs. 37-39). The exception was crew worker positions during the late

shoulder of the 2012 fishing year (Fig. 38). Total employment estimates during the early and late shoulder seasons were similar, though late shoulder employment tended to be slightly higher for each of the three years and three personnel categories.

The total estimated number of guides/operator positions was fairly uniform across the three years and tended to follow the same patterns across seasons (Fig. 37). However, the population of charter businesses declined from roughly 650 in 2011 to 590 in 2012 and 570 in 2013. For crew worker positions, 2011 and 2013 followed the same pattern across seasons and total employment levels were similar. For 2012, however, total employment of crew during the late shoulder exceeded total employment during the main season (Fig. 38). Estimated total crew employment exhibited the most differentiation across years. Total crew employment during the main season had the largest reduction between 2011 and 2012 (Fig. 39), with an estimated reduction from 1,647 to 911. At the same time, the number of active charter businesses declined by approximately 9 percent between 2011 and 2012. Total reductions of shore workers between 2011 and 2012 were estimated to be 201 during the early shoulder, 737 during the main season, 334 during the late shoulder, and 192 during the off season (Fig. 39). Estimated shore worker employment during the 2013 fishing year increased above 2012 levels, but employment during the main season and late shoulder remained below 2011 levels.

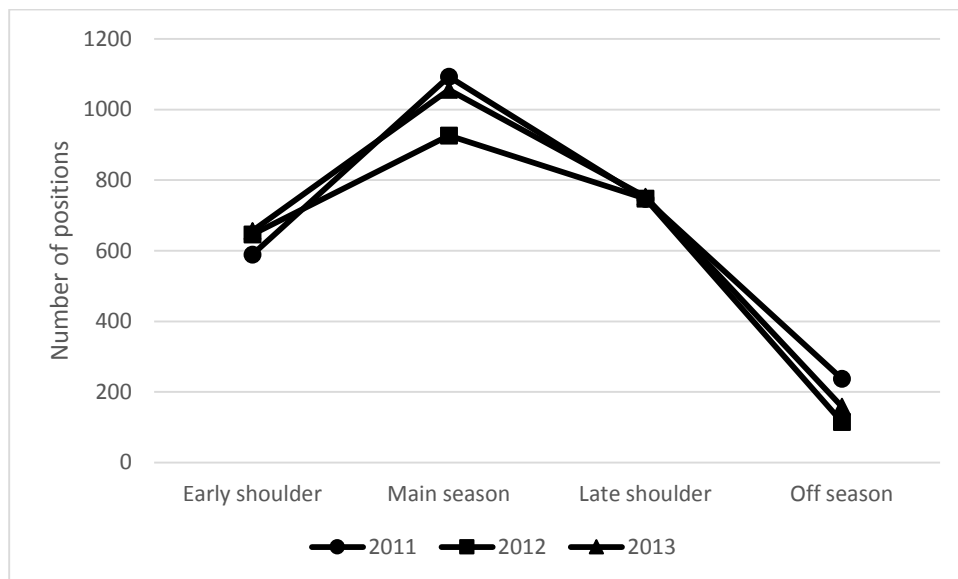


Figure 37. -- Charter business population estimates for the total (full- and part-time) number of guides/operator positions by fishing season, 2011-2013.



Figure 38. -- Charter business population estimates for the total (full- and part-time) number of crew positions by season, 2011-2013.

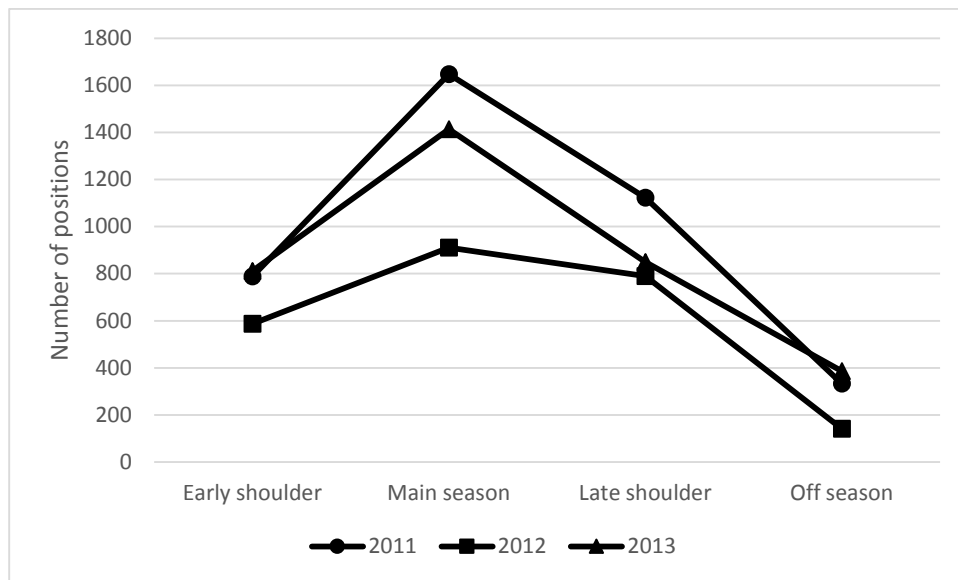


Figure 39. -- Charter business population estimates for the total (full and part-time) number of shore worker positions by fishing season, 2011-2013.

For half day charter fishing trips, we estimated the mean prices charged per individual ranged from approximately \$150 to \$175 (Fig. 40). Between 2011 and 2012, prices charged for multi-species and halibut half day trips were estimated to drop by 7 and 14 percent, respectively. Between 2012 and 2013, estimated mean prices charged for half day halibut charter trips increased from approximately \$158 to \$177, though still remained slightly below the 2011 prices. These changes are statistically significant. For two-species, salmon, and “other” species, there were negligible changes over time in the estimated

mean prices charged per half day trip. Note that the percentage of charter businesses offering the various trip lengths could not be estimated (primarily due to the item response rates being too low to apply data imputation methods).

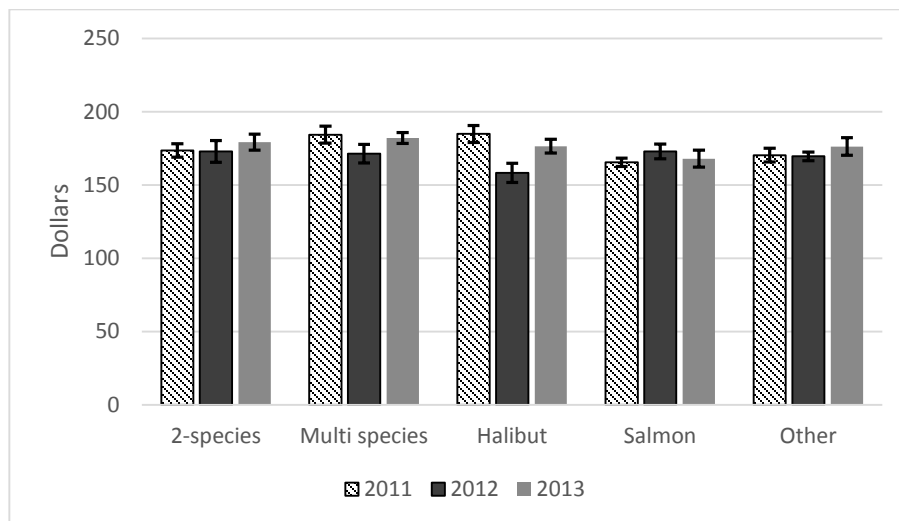


Figure 40. -- Mean estimated prices charged per individual for half-day trips for the population of charter businesses. Error bars represent two standard errors around the mean.

Mean prices charged for three-quarter day trips were estimated to range from approximately \$205 to \$225 for two-species, multi-species, halibut, and salmon charters (Fig. 41). Note that “other” species charter trip prices could not be estimated due to a lack of data. The only statistically significant change in estimated prices over time was the increase in salmon charter trip prices between 2011 and 2012, when mean prices rose by approximately 8 percent. Halibut, multi-species, and two-species charter trip mean prices were estimated to all decrease slightly between 2011 and 2013. With the exception of two-species trip prices between 2011 and 2013, none of these reductions were statistically significant changes.

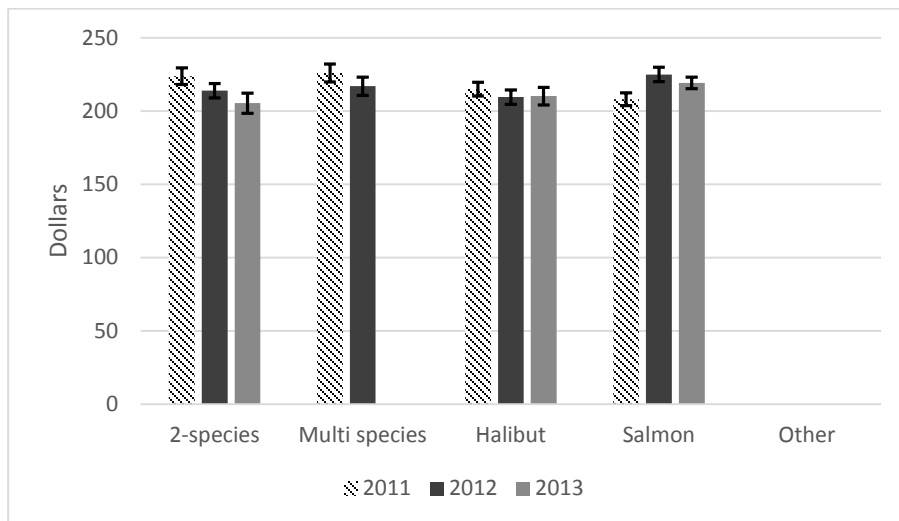


Figure 41. -- Mean estimated prices charged per individual for three-quarter day trips for the population of charter businesses. Error bars represent two standard errors around the mean.

Mean prices for full day charter trips were estimated to range from approximately \$277 (salmon, 2013) to \$375 (multi-species, 2011) (Fig. 42). Between 2011 and 2013, full day charter trip mean prices were estimated to drop across all five charter trip offerings. For instance, estimated prices for halibut, multi-species, salmon, and “other” species full day trips dropped by an average of \$66 between 2011 and 2013. The price reductions in all four of these species offerings are statistically significant. Multi-species charter trip prices tended to be highest across the different target species offerings, while two species and “other” species offerings tended to be the lowest.

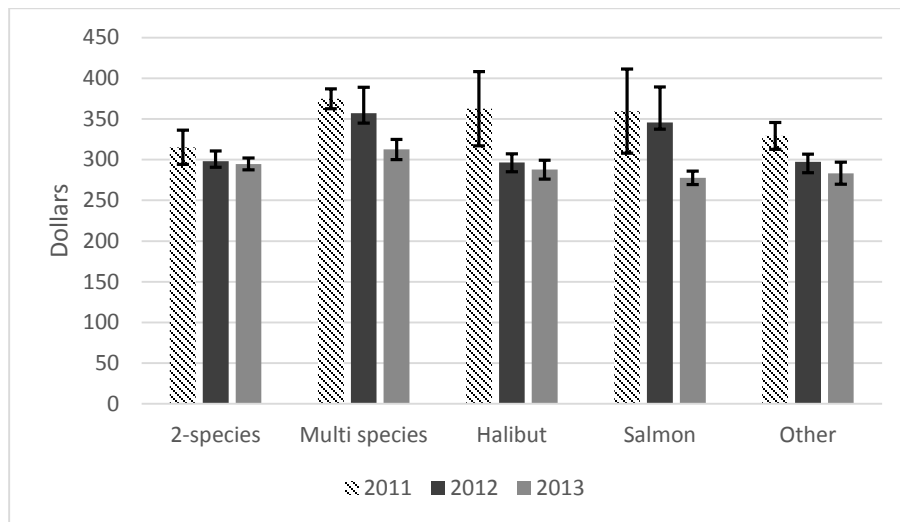


Figure 42. -- Mean estimated prices charged per individual for full day trips for the population of charter businesses. Error bars represent two standard errors around the mean.

There is considerable variance in the mean estimated overnight charter prices (Fig. 43). Moreover, not enough data existed to estimate overnight salmon or “other” species trips for each of the three years and for multi-species trips in 2013. Prices for trips targeting two-species were estimated to increase by approximately 70 percent between 2011 and 2013. Likewise, multi-species trip prices were estimated to increase by approximately 50 percent. Halibut trip prices, on the other hand, were estimated to decrease by 30 percent between 2012 and 2013.

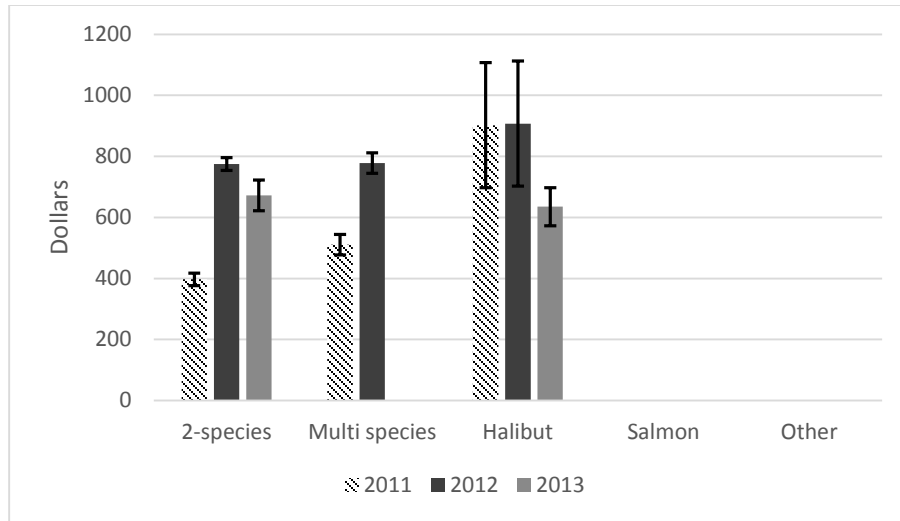


Figure 43. -- Mean estimated prices charged per individual for overnight trips for the population of charter businesses. Error bars represent two standard errors around the mean.

Estimated mean prices charged per individual for multi-day trips were generally lowest for trips targeting only salmon, followed by two species trips (Fig. 44). Charter salmon trip prices ranged from a low of \$1,259 (S.E. = \$82) in 2011 to a high of \$1,832 (S.E. = \$79) in 2012. Two species prices ranged from a low of \$1,001 (S.E. = \$63) in 2011 to a high of \$1,762 (S.E. = \$101) in 2013. Mean prices of multi-day charter trips targeting multiple species (three or more) were estimated to be the highest, with a low of \$1,914 (S.E. = \$79) in 2011 and high of \$2,366 (S.E. = \$146) in 2013. Between 2011 and 2012, mean prices increased for all types of multi-day charter trips regardless of species targeted. In fact, they increased by more than \$500 between 2011 and 2012. The largest price increases were for “other” species, two species, and salmon charter options. The price increases for each of these three types multi-day fishing trips were statistically significant (Fig. 44). Between 2012 and 2013, mean prices charged per individual for salmon and “other” species multi-day trips decreased by more than \$400. These price reductions are statistically significant. Nonetheless, mean prices for salmon and “other” species trip options remained higher in 2013 than they were in 2011. Mean prices charged in 2013 for multi-day trips targeting two species, more than two species, and halibut only were higher than in 2011, with the estimated difference being statistically significant.

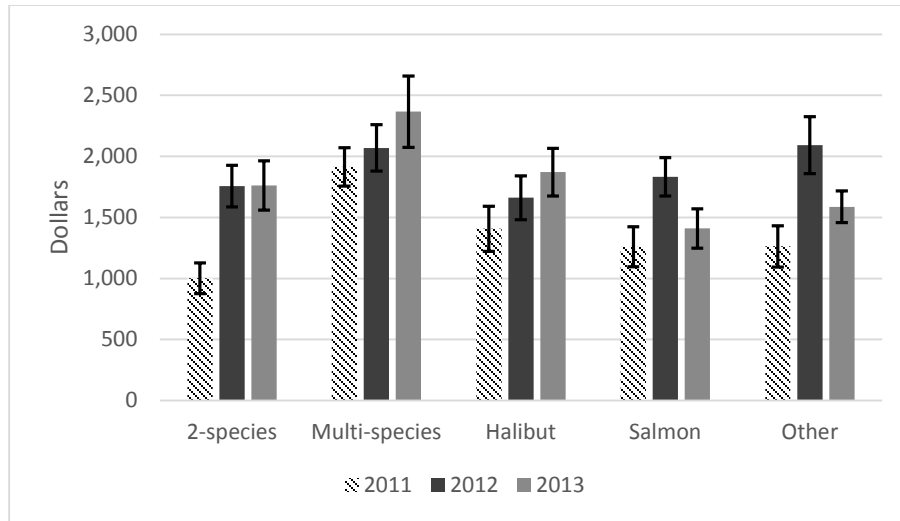


Figure 44. -- Mean estimated prices charged per individual for multi-day trips for the population of charter businesses by species targeted. Error bars represent two standard errors around the mean.

Discussion

In this report, we have described the development, testing, and implementation of the Alaska Saltwater Sport Fishing Charter Business Survey, descriptive statistics of the sample of item respondents, and population-level estimates of key variables after applying sample weighting and data imputation to adjust the sample for population representativeness. The results suggest that in 2011 the Alaska saltwater sport fishing charter sector as a whole operated at a loss, but in 2012 and 2013, as the population of charter businesses shrank the sector yielded an overall profit. The exit of less cost-efficient businesses may explain this shift to profitability, but determining the exact causes for this remains a question for further research involving a more structural analytic approach than was taken here. Nevertheless, the 3-year period highlighted here saw slight changes in employment and spending patterns by the businesses that remained. This includes a shift to using proportionately more part-time employees for onshore work and decreasing the amount spent on charter trip expenses and cash investments in vehicles, machinery, equipment, buildings and real estate. At the same time, revenues increased, despite prices for shorter duration charter trips remaining fairly stable over the period.

The population-level estimates relied upon sample weighting and data imputation methods. These methods have numerous benefits, and are generally viewed as necessary in the presence of missing data (Brick and Kalton 1996), but they also have limitations. In this case, adjusting for missing data has several noteworthy ones. The data imputation method used in this report relies upon there being a sufficient number of donor values (at least $K = 3$ of them). Due to the high item non-response rate for some variables, we were unable to apply this approach in some cases. Switching to another less data-demanding data imputation method, such as assuming a mean or median value, would likely introduce significant bias due to the already small item response rate. As a result, population estimates are not provided for a number of variables, including the mean prices of certain types of charter fishing trips offered in the population of charter businesses.

This points to a broader issue with respect to adjusting for missing data. As discussed earlier, the low unit and item response rates suggest adjustments are necessary to provide information about the population. To our knowledge, there is also no agreed-upon threshold on the maximum amount of unit or item non-response to which data imputation methods can be applied without compromising the integrity of the results. In this study, the data requirements imposed by our adjustment methods, which were dictated by the availability and quality of auxiliary data describing the population, as well as having a minimum number of data points necessary for the methods to be applied. Since the auxiliary dataset contained a rich set of variables that provided considerable information about the population, some of these concerns are alleviated. Still, the population-level estimates generated in this study should be viewed with caution due to the low response rates, and future iterations of the survey should endeavor to increase the unit and item response rates to increase the confidence in results that are generated.

Another cautionary note should be made regarding, specifically, the employment estimates. Our discussion of employment trends relied upon data about employment numbers by season and type of position (vessel operators/guides, crew, and onshore workers). As a result, individuals occupying more than one type of position and/or working in multiple seasons during the same year would appear as multiple positions in the data. As a result, our employment estimates cannot be used to reveal an estimate of the number of individual workers hired by season or in total over the year. Instead, they represent the number of positions filled that are specific to the season and position type.

This report presents baseline economic information about the Alaska saltwater sport fishing charter sector during the period immediately before the implementation of the Alaska Halibut Catch Sharing Plan. Future surveys are planned to collect similar data from this sector in the post-implementation era, which will allow for an evaluation of the economic effects of the CSP on the sector. Moreover, structural economic models are being planned that will enable modeling the behavioral responses at the individual business level. This includes modeling exit decisions (e.g., Schnier and Felthoven (2013); Bockstael and Opaluch (1983)) and trip (harvest) decisions (e.g., Haynie and Layton (2010); Lipton and Strand (1992)). These analyses will better explain the factors that influence charter business decisions and their likely response to management actions.

Citations

- Alaska Department of Fish and Game. 2014. Pacific Halibut Species Profile Retrieved July 22, 2014, from <http://www.adfg.alaska.gov/index.cfm?adfg=halibut.main>.
- Andridge, R. R., and R. J. Little. 2010. A review of hot deck imputation for survey non-response. *Int. Stat. Rev.* 78(1): 40-64.
- Bockstael, N. E., and J. J. Opaluch. 1983. Discrete modelling of supply response under uncertainty: The case of the fishery. *J. Environ. Econ. Manage.* 10(2): 125-137.
- Brick, J., and G. Kalton. 1996. Handling missing data in survey research. *Stat. Methods Med. Res.* 5(3): 215-238.
- Haynie, A., and D. F. Layton. 2010. An expected profit model for monetizing fishing location choices. *J. Environ. Econ. Manage.* 59(2): 165-176.
- Chen, J., and J. Shao. 2000. Nearest neighbor imputation for survey data. *J. Off. Stat. Stockholm* 16(2): 113-132.
- Dillman, D. A., J. D. Smyth, and L. M. Christian. 2009. *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken, New Jersey, John Wiley and Sons.
- Dolsen, D. E., and G. E. Machlis. 1991. Response rates and mail recreation surveys - How much is enough? *J. Leisure Res.* 23(3): 272-277.
- Durrant, G. B. 2009. Imputation methods for handling item-nonresponse in practice: Methodological issues and recent debates. *Int. J. Social Res. Methodol.* 12(4): 293-304.
- Fina, M. 2011. Evolution of catch share management: Lessons from catch share management in the North Pacific. *Fisheries* 36(4): 164-177.
- Fisher, M. R. 1996. Estimating the effect of nonresponse bias on angler surveys. *Trans. Am. Fish. Soc.* 125(1): 118-126.
- Graham, J. W. 2012. *Missing data: Analysis and design*. Springer Science & Business Media.
- Groves, R. M. 2006. Nonresponse Rates and Nonresponse Bias in Household Surveys. *Public Op. Q.* 70(5): 646-675.
- Groves, R. M., D. A. Dillman, J. L. Eltinge, and R. J. A. Little, Eds. 2002. *Survey Nonresponse*. New York, USA, Wiley.
- Holland, S. M., C.-O. Oh, S. L. Larkin, and A. W. Hodges. 2012. *The Operations and Economics of the For-Hire Fishing Fleets of the South Atlantic States and the Atlantic Coast of Florida*. University of Florida, Report prepared for the National Marine Fisheries Service 150.

- Hunt, K. M., and R. B. Ditton. 2002. Freshwater Fishing Participation Patterns of Racial and Ethnic Groups in Texas. *N. Am. J. Fish. Manage.* 22(1): 52-65.
- Knapp, G. 1996. Alaska halibut captains' attitude toward IFQs. *Mar. Res. Econ.* 11: 43-55.
- Knapp, G. 1997. Initial effects of the Alaska halibut IFQ Program: Survey comments of Alaska fishermen. *Mar. Res. Econ.* 12: 239-248.
- Lew, D. K., A. Himes-Cornell, and J. Lee. 2015. Weighting and data imputation for missing data in a cost and earnings fishery survey. *Marine Resource Economics* 30(2):219-230.
- Lew, D. K., and D. M. Larson. 2012. Economic values for saltwater sport fishing in Alaska: a Stated preference analysis. *N. Am. J. Fish. Manage.* 32(4): 745-759.
- Lew, D. K., and C. K. Seung. 2010. The economic impact of saltwater sportfishing harvest restrictions in Alaska: an Empirical analysis of nonresident anglers. *N. Am. J. Fish. Manage.* 30(2): 538-551.
- Lipton, D. W., and I. E. Strand. 1992. Effect of stock size and regulations on fishing industry cost and structure: the Surf clam industry. *Am. J. Agricult. Econ.* 74(1): 197-208.
- Little, R. J., and S. Vartivarian. 2003. On weighting the rates in non-response weights. *Stat. Med.* 22(9): 1589-1599.
- Lohr, S. 2009. Sampling: design and analysis. Boston, MA, Cengage Learning.
- Meyer, S. 2010. Changes coming for Alaska's charter halibut fishery. *Alaska Fish & Wildlife News*, Alaska Department of Fish and Game. October 2010.
- Schnier, K. E., and R. G. Felthoven. 2013. Production efficiency and exit in rights-based fisheries. *Land Econ.* 89(2): 538-557.
- Train, K. E. 2003. Discrete choice methods with simulation. New York, Cambridge University Press.
- Tseng, Y.-P., Y.-C. Huang, and R. Ditton. 2012. Developing a longitudinal perspective on the human dimensions of recreational fisheries. *J. Coastal Res.* 1418-1425.

Appendix A

Table A1. -- Summary of 2011 active vessels, employment, trips, services, expenditures, and revenues across the sample of item respondents.

Description	Mean	Med.	Min	Max	Sum	Std Dev
Total number of vessels of any type	1.99	1	1	31	324	2.90
OPERATOR Full-time season workers for the year	5.77	4	1	43	456	7.13
OPERATOR Part-time season workers for the year	2.37	2	1	5	83	1.14
CREW Full-time season workers for the year	5.46	3	1	36	306	7.49
CREW Part-time season workers for the year	2.48	2	1	6	77	1.73
SHORE Full-time season workers for the year	11.94	6	1	137	573	20.63
SHORE Part-time season workers for the year	4.37	4	1	16	131	3.60
Total sold trips any type	138.74	53	3	5,141	17,759	481.04
Total seats sold any type	911.03	180	9	50,000	115,701	4,716.51
No. of trips of this type not offered, halibut	2.69	2	1	5	360	1.60
No. of trips of this type not offered, salmon	2.80	2	1	5	386	1.64
No. of trips of this type not offered, two species	2.71	2	1	5	396	1.56
No. of trips of this type not offered, other species	3.23	3	1	5	317	1.69
No. of trips of this type not offered, multi-species	2.75	2	1	5	388	1.69
Total labor payments (operators/guides , crew, onshore labor)	72,978.52	20,280	45	1,632,448	7,297,852	195,548.74
Charter trip expenses (vessel fuel and cleaning, processing, fees, supplies, etc.)	57,037.08	18,736	3	1,707,527	8,327,414	173,137.05
Overhead expenses (non-wage benefits, repair & maintenance, insurance, taxes and fees, etc.)	73,771.54	20,800	1,170	1,450,862	10,844,417	167,334.33
Capital expenditures (across vehicles, machinery, and equipment, buildings, land, and other real estate)	53,001.72	10,364	406	1,415,440	6,466,209	176,526.54
Investment payments (across vehicles, machinery, equipment, buildings, land, and other property)	48,245.22	26,520	260	551,200	2,219,280	87,323.96
Total revenue (over charter and non-charter trips, plus all other forms of revenue)	204,706.27	75,578	71	5,919,464	28,249,465	593,154.40

Table A2. -- Summary of 2012 active vessels, employment, trips, services, expenditures, and revenues across the sample of item respondents.

Description	Mean	Med.	Min	Max	Sum	Std Dev
Total number of vessels of any type	1.73	1	1	10	229	1.53
OPERATOR Full-time season workers for the year	6.19	4	1	36	427	7.22
OPERATOR Part-time season workers for the year	2.22	2	1	4	51	1.00
CREW Full-time season workers for the year	5.18	3	1	36	295	6.04
CREW Part-time season workers for the year	3.25	3	1	19	65	3.92
SHORE Full-time season workers for the year	9.87	6	1	77	375	13.13
SHORE Part-time season workers for the year	3.83	3	1	13	92	2.78
Total sold trips any type	184.66	62	1	9,000	20,497	867.52
Total seats sold any type	533.57	270	4	10,000	57,092	1,238.75
No. of trips of this type not offered, halibut	2.27	2	1	5	227	1.50
No. of trips of this type not offered, salmon	2.54	2	1	5	249	1.61
No. of trips of this type not offered, two species	2.59	2	1	5	303	1.60
No. of trips of this type not offered, other species	2.83	3	1	5	187	1.72
No. of trips of this type not offered, multi-species	2.72	2	1	5	307	1.66
Total labor payments (operators/guides , crew, onshore labor)	63,853.46	22,473	379	977,680	5,235,983	129,202.37
Charter trip expenses (vessel fuel and cleaning, processing, fees, supplies, etc.)	49,362.00	21,306	505	1,212,000	5,874,078	124,927.99
Overhead expenses (non-wage benefits, repair & maintenance, insurance, taxes and fees, etc.)	50,386.89	27,072	1,143	616,100	5,844,879	74,372.51
Capital expenditures (across vehicles, machinery, and equipment, buildings, land, and other real estate)	28,963.63	14,939	455	209,070	2,693,617	40,655.89
Investment payments (across vehicles, machinery, equipment, buildings, land, and other property)	58,645.95	27,018	277	489,850	2,580,422	86,508.47
Total revenue (over charter and non-charter trips, plus all other forms of revenue)	176,822.49	68,630	4,545	3,232,000	19,980,941	373,723.68

Table A3. -- Summary of 2013 active vessels, employment, trips, services, expenditures, and revenues across the sample of item respondents.

Description	Mean	Med.	Min	Max	Sum	Std Dev
Total number of vessels of any type	1.91	1	1	10	223	1.80
OPERATOR Full-time season workers for the year	7.39	4	1	64	488	10.16
OPERATOR Part-time season workers for the year	3.11	2	1	14	112	2.79
CREW Full-time season workers for the year	6.76	3	1	90	345	13.69
CREW Part-time season workers for the year	2.52	2	1	12	68	2.28
SHORE Full-time season workers for the year	14.31	5	1	140	601	24.73
SHORE Part-time season workers for the year	4.19	3	1	11	113	3.09
Total sold trips any type	127.23	70	1	1,352	11,578	206.92
Total seats sold any type	562.98	270	1	4,891	52,357	932.95
No. of trips of this type not offered, halibut	2.42	2	1	5	230	1.59
No. of trips of this type not offered, salmon	2.50	2	1	5	230	1.57
No. of trips of this type not offered, two species	2.46	2	1	5	268	1.53
No. of trips of this type not offered, other species	3.05	3	1	5	195	1.74
No. of trips of this type not offered, multi-species	2.54	2	1	5	262	1.74
Total labor payments (operators/guides , crew, onshore labor)	91,804.78	24,250	800	1,381,500	6,701,749	208,474.52
Charter trip expenses (vessel fuel and cleaning, processing, fees, supplies, etc.)	57,172.38	24,252	170	963,338	5,831,582	110,185.20
Overhead expenses (non-wage benefits, repair & maintenance, insurance, taxes and fees, etc.)	81,789.53	29,284	1,800	1,703,627	8,342,532	194,816.45
Capital expenditures (across vehicles, machinery, and equipment, buildings, land, and other real estate)	45,837.97	12,938	100	824,250	3,758,714	104,848.61
Investment payments (across vehicles, machinery, equipment, buildings, land, and other property)	47,315.81	23,600	2,000	329,200	1,750,685	63,723.60
Total revenue (over charter and non-charter trips, plus all other forms of revenue)	282,058.26	86,000	500	4,717,526	28,205,826	701,127.92

Table A4. – Percentage of respondent sample to which w_3 weights in Table 8 were applied (%).

Total client trips	2012		2013		2014	
	Area 3A	Area 2C	Area 3A	Area 2C	Area 3A	Area 2C
100 or less	15.52	16.67	14.08	11.27	10.32	9.52
101-200	7.47	6.90	8.45	9.86	10.32	7.94
201-300	8.62	7.47	9.86	6.34	7.94	6.35
301-400	5.75	9.20	4.93	6.34	5.56	7.94
401-500	4.60	1.72	4.93	4.23	4.76	3.97
501-1000	5.75	4.02	6.34	4.93	6.35	5.56
1001-7000	4.02	2.30	4.93	3.52	7.94	5.56

Note: Weights for a given year may not add up exactly to 100 percent due to rounding errors.

Table A5. -- 2011 total population employment estimates using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options. PT refers to part-time and FT refers to full-time.

No weighting						
Imputation method	FT operators	PT operators	FT crew	PT crew	FT onshore	PT onshore
Zero imputation	1,703	310	1,143	288	2,141	489
Mean imputation	2,240	710	1,570	649	3,179	1,078
Random imputation	2,159	691	1,513	609	2,742	1,020
Nearest neighbor	2,099	676	1,457	736	2,454	1,192
K-nearest neighbor	2,092	650	1,401	691	2,536	1,248
Weight A						
Imputation method	FT operators	PT operators	FT crew	PT Crew	FT onshore	PT onshore
Zero imputation	1,525	302	977	273	1,991	445
Mean imputation	2,066	692	1,406	628	3,034	1,027
Random imputation	1,936	632	1,323	588	2,555	919
Nearest neighbor	1,944	644	1,284	712	2,316	1,139
K-nearest neighbor	1,912	606	1,227	635	2,394	1,175
Weight B						
Imputation method	FT operators	PT operators	FT crew	PT Crew	FT onshore	PT onshore
Zero imputation	1,671	293	982	273	2,302	462
Mean imputation	2,217	688	1,421	629	3,357	1,047
Random imputation	2,074	630	1,356	591	2,902	927
Nearest neighbor	2,122	631	1,319	699	2,636	1,152
K-nearest neighbor	2,068	598	1,255	632	2,700	1,191

Table A6. -- 2011 total population revenues and costs (in millions of dollars) estimates using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options. Jackknife standard errors are in parentheses.

Imputation method	No weighting		Weight A		Weight B	
	Revenue	Cost	Revenue	Cost	Revenue	Cost
Zero imputation	105.5 (2.)	123.0 (1.9)	93.8 (1.8)	114.3 (1.7)	105.3 (2.4)	124.5 (2.1)
Mean imputation	160.8 (2.7)	201.7 (3.1)	150.0 (2.5)	193.5 (2.9)	162.1 (3.)	204.6 (3.4)
Random class hot deck	131.7 (8.6)	175.5 (6.1)	118.4 (7.3)	160.8 (5.4)	129.9 (8.3)	172.3 (6.)
Nearest neighbor hot deck	148.4 (2.8)	181.1 (2.7)	132.0 (2.3)	168.8 (2.4)	144.9 (2.8)	181.4 (2.9)
K-nearest neighbor hot deck	148.5 (4.5)	183.7 (7.2)	133.5 (4.1)	169.1 (6.3)	144.9 (4.4)	181.6 (7.1)

Table A7. -- 2011 total population employee compensation estimates using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options.

Method	Guide/Operator		Crew		Shore worker	
	Mean	Total	Mean	Total	Mean	Total
<u>Zero imputation</u>						
No weights	15,963	10,376,231	6,484	4,214,642	19,494	12,671,215
A weights	14,296	9,347,027	5,689	3,719,618	17,626	11,523,901
B weights	15,882	10,416,604	6,085	3,990,723	21,782	14,286,453
<u>Mean imputation</u>						
No weights	21,700	14,105,189	8,954	5,820,221	26,500	17,224,934
A weights	20,154	13,177,030	8,188	5,353,298	24,634	16,105,907
B weights	21,896	14,361,275	8,689	5,699,177	28,938	18,979,434
<u>Random class hot deck imputation</u>						
No weights	19,381	12,597,365	7,921	5,148,723	20,727	13,472,307
A weights	17,281	11,298,739	7,161	4,681,755	18,707	12,230,710
B weights	18,943	12,424,405	7,747	5,081,115	23,019	15,097,272
<u>Nearest neighbor hot deck imputation</u>						
No weights	18,209	11,835,575	7,828	5,087,999	20,443	13,288,065
A weights	16,381	10,710,330	7,104	4,644,932	18,525	12,111,782
B weights	18,002	11,806,874	7,687	5,041,474	22,666	14,866,252
<u>K-nearest neighbor hot deck</u>						
No weights	17,382	11,304,146	7,591	6,567,705	20,093	13,304,768
A weights	15,753	10,197,177	6,873	6,124,327	18,210	12,133,152
B weights	17,437	11,290,162	7,335	6,924,667	22,346	14,899,671

Table A8. -- 2011 total population major expense estimates using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options. Values shown in thousands of dollars. Standard errors are in parentheses.

Method	Major expense type							
	Operating		Overhead		Equipment		Land	
	Mean	Total	Mean	Total	Mean	Total	Mean	Total
<u>Zero imputation</u>								
	47.9	31,108.2	62.3	40,510.8	16.3	10,573.5	20.9	13,581.9
No weights	(0.9)	(600.8)	(0.9)	(586.3)	(0.3)	(189.7)	(0.6)	(416.9)
	43.1	28,173.6	59.0	38,567.8	15.6	10,168.4	19.5	12,767.2
A weights	(0.8)	(545.5)	(0.9)	(553.0)	(0.3)	(178.9)	(0.6)	(374.6)
	45.1	29,597.4	64.4	42,262.9	15.4	10,109.2	21.2	13,885.6
B weights	(1.0)	(643.7)	(1.1)	(703.8)	(0.3)	(177.4)	(0.6)	(418.9)
<u>Mean imputation</u>								
	69.5	45,146.8	95.0	61,736.3	33.2	21,563.1	55.5	36,104.5
No weights	(1.4)	(904.8)	(1.4)	(911.7)	(0.6)	(362.8)	(1.8)	(1,164.5)
	64.7	42,307.2	92.3	60,329.1	32.0	20,927.0	54.1	35,350.1
A weights	(1.3)	(854.)	(1.4)	(889.3)	(0.5)	(345.2)	(1.7)	(1,126.2)
	66.7	43,745.8	97.7	64,079.9	32.1	21,027.1	55.9	36,688.0
B weights	(1.4)	(934.1)	(1.6)	(1,043.7)	(0.5)	(343.2)	(1.8)	(1,171.0)
<u>Random class hot deck imputation</u>								
	63.1	40,971.8	87.6	53,935.4	35.1	20,059.1	38.9	29,337.9
No weights	(4.3)	(2,797.5)	(3.7)	(2,376.6)	(2.8)	(1,808.3)	(7.7)	(4,984.3)
	57.3	36,907.9	84.8	50,810.0	33.7	18,635.9	35.7	26,206.9
A weights	(3.8)	(2,464.2)	(3.6)	(2,350.4)	(2.5)	(1,630.2)	(6.4)	(4,201.2)
	58.6	38,339.5	91.5	55,105.5	33.3	18,339.5	37.4	27,881.3
B weights	(4.0)	(2,650.7)	(3.8)	(2,528.5)	(2.7)	(1,745.7)	(6.9)	(4,534.3)
<u>Nearest neighbor hot deck imputation</u>								
	59.0	38,343.0	92.0	59,822.7	42.0	27,274.1	39.2	25,473.7
No weights	(1.3)	(829.3)	(1.3)	(846.4)	(1.1)	(729.2)	(2.0)	(1,285.8)
	52.2	34,154.7	87.6	57,295.4	39.1	25,569.5	37.2	24,334.9
A weights	(1.1)	(686.9)	(1.3)	(838.1)	(1.0)	(666.4)	(1.7)	(1,103.2)
	54.5	35,722.4	96.4	63,205.5	39.2	25,731.6	38.2	25,046.4
B weights	(1.2)	(810.6)	(1.6)	(1,051.0)	(1.1)	(711.3)	(1.9)	(1,230.6)
<u>K-nearest neighbor hot deck imputation</u>								
	58.3	46,527.9	83.3	55,594.9	43.6	21,515.0	50.5	28,888.6
No weights	(4.9)	(3,189.2)	(3.2)	(2,055.3)	(2.7)	(1,749.3)	(7.3)	(4,745.8)
	52.6	39,865.7	78.9	52,184.9	41.3	20,968.1	47.6	27,630.2
A weights	(3.5)	(2,258.3)	(3.0)	(1,960.3)	(2.5)	(1,613.1)	(6.4)	(4,160.6)
	54.6	42,600.1	84.4	57,466.2	42.4	21,416.9	53.6	27,050.1
B weights	(4.2)	(2,772.3)	(3.6)	(2,337.0)	(2.6)	(1,707.1)	(7.0)	(4,617.5)

Table A9. -- 2012 total population employee compensation estimates (in thousands of dollars) using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options.

Method	Guide/Operator		Crew		Shore worker	
	Mean	Total	Mean	Total	Mean	Total
<u>Zero imputation</u>						
No weights	17.9	10,475.2	7.3	4,271.1	11.8	6,897.6
A weights	16.4	9,691.3	6.5	3,841.1	10.3	6,096.7
B weights	16.7	10,030.1	6.7	3,988.2	10.8	6,502.3
<u>Mean imputation</u>						
No weights	23.7	13,901.6	10.1	5,946.1	18.0	10,531.9
A weights	22.2	13,103.0	9.3	5,516.4	16.7	9,859.9
B weights	22.5	13,511.5	9.5	5,677.2	17.2	10,313.4
B weights	22.9	13,390.8	8.9	5,191.8	18.7	10,955.3
<u>Random class hot deck imputation</u>						
No weights	20.7	12,222.5	7.9	4,652.7	16.6	9,779.1
A weights	21.1	12,641.5	8.0	4,806.7	17.0	10,217.9
B weights	18.8	11,007.2	7.9	4,649.4	12.8	7,493.9
B weights	17.1	10,099.3	7.1	4,175.5	11.3	6,645.6
<u>Nearest neighbor hot deck imputation</u>						
No weights	17.4	10,411.3	7.2	4,319.0	11.8	7,051.0
A weights	20.2	11,809.1	8.0	4,694.9	13.4	7,847.8
B weights	18.6	10,952.4	7.3	4,288.1	11.9	7,051.0
B weights	18.9	11,359.5	7.4	4,430.5	12.5	7,512.2
<u>K-nearest neighbor hot deck imputation</u>						
No weights	17.9	10,475.2	7.3	4,271.1	11.8	6,897.6
A weights	16.4	9,691.3	6.5	3,841.1	10.3	6,096.7
B weights	16.7	10,030.1	6.7	3,988.2	10.8	6,502.3
B weights	23.7	13,901.6	10.1	5,946.1	18.0	10,531.9

Table A10. -- 2012 total population major expense estimates using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options. Values shown in thousands of dollars.

Method	Major expense type (000's dollars)							
	Operating		Overhead		Equipment		Land	
	Mean	Total	Mean	Total	Mean	Total	Mean	Total
<u>Zero imputation</u>								
No weights	42.1	24,653.7	134.8	24,767.5	12.8	7,483.1	6.6	3,878.4
A weights	37.8	22,308.0	128.8	23,644.8	12.7	7,502.5	6.4	3,756.3
B weights	38.2	22,894.2	257.7	24,640.0	12.9	7,762.7	6.8	4,097.4
<u>Mean imputation</u>								
No weights	65.9	38,642.8	380.5	36,368.3	25.3	14,839.6	15.8	9,275.7
A weights	61.5	36,298.1	626.5	35,292.3	25.2	14,864.2	15.6	9,223.7
B weights	61.7	36,990.8	995.5	36,498.0	25.4	15,245.6	16.0	9,609.3
<u>Random class hot deck imputation</u>								
No weights	54.2	31,775.1	1,610.3	34,871.2	22.6	13,250.7	13.8	8,107.7
A weights	49.1	28,944.7	2,595.9	33,644.5	22.0	12,998.6	13.4	7,926.3
B weights	49.9	29,890.2	4,196.7	35,207.2	22.5	13,505.5	13.6	8,138.2
<u>Nearest neighbor hot deck imputation</u>								
No weights	55.0	32,207.1	6,783.0	34,909.4	21.8	12,759.1	12.5	7,319.1
A weights	49.5	29,190.4	10,970.0	33,294.1	21.3	12,577.6	12.2	7,181.0
B weights	50.1	30,032.8	17,743.5	34,537.6	21.3	12,775.7	12.3	7,394.4
<u>K-nearest neighbor hot deck imputation</u>								
No weights	54.8	32,109.1	28,703.8	32,703.9	24.7	14,454.8	14.1	8,272.7
A weights	49.4	29,155.2	46,439.1	31,348.3	24.4	14,405.9	14.3	8,435.9
B weights	50.3	30,162.8	75,134.9	32,444.1	24.4	14,653.1	15.1	9,047.9

Table A11. -- 2012 total population employment estimates using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options. PT refers to part-time and FT refers to full-time.

No weighting						
Imputation method	FT operators	PT operators	FT crew	PT crew	FT onshore	PT onshore
Zero imputation	1,766	215	1,238	260	1,548	380
Mean imputation	2,366	437	1,712	565	2,277	746
Random imputation	2,248	441	1,601	576	2,147	733
Nearest neighbor	2,003	388	1,452	521	1,740	771
K-nearest neighbor	2,064	459	1,437	627	1,856	728
Weight A						
Imputation method	FT operators	PT operators	FT crew	PT crew	FT onshore	PT onshore
Zero imputation	1,619	217	1,133	250	1,410	370
Mean imputation	2,228	434	1,617	551	2,124	733
Random imputation	2,080	425	1,483	538	1,955	697
Nearest neighbor	1,855	377	1,351	511	1,582	745
K-nearest neighbor	1,911	445	1,341	588	1,717	707
Weight B						
Imputation method	FT operators	PT operators	FT crew	PT crew	FT onshore	PT onshore
Zero imputation	1,678	225	1,149	260	1,468	379
Mean imputation	2,284	440	1,632	559	2,176	738
Random imputation	2,145	434	1,505	552	2,020	706
Nearest neighbor	1,913	373	1,365	505	1,633	755
K-nearest neighbor	1,971	451	1,357	602	1,791	714

Table A12. -- 2012 total population revenues and costs estimates (in millions of dollars) using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options. Standard errors are in parentheses.

Imputation method	No weighting		Weight A		Weight B	
	Revenue	Cost	Revenue	Cost	Revenue	Cost
Zero imputation	84.3	82.4	77.7	76.9	81.3	79.9
	(1.4)	(1.0)	(1.2)	(0.8)	(1.3)	(0.9)
Mean imputation	147.8	129.6	141.8	124.2	146.8	127.9
	(2.2)	(1.7)	(2.0)	(1.5)	(2.1)	(1.6)
Random class hot deck	129.6	116.8	121.7	109.7	127.0	113.4
	(7.3)	(3.8)	(7.0)	(3.3)	(7.4)	(3.5)
Nearest neighbor hot deck	135.3	110.4	128.4	103.2	133.1	106.6
	(2.4)	(1.3)	(2.2)	(1.1)	(2.3)	(1.2)
K-nearest neighbor hot deck	57.6	110.0	120.4	103.8	125.6	107.5
	(3.4)	(1.7)	(4.2)	(1.6)	(4.5)	(1.7)

Table A13. -- 2013 total population employee compensation estimates (in thousands) using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options.

Method	Guide/Operator		Crew		Shore worker	
	Mean	Total	Mean	Total	Mean	Total
<u>Zero imputation</u>						
No weights	19.7	11,166.8	8.2	4,659.2	25.2	14,278.6
A weights	13.9	8,122.6	5.7	3,360.1	17.2	10,031.5
B weights	14.4	8,472.3	6.1	3,592.0	19.2	11,248.6
<u>Mean imputation</u>						
No weights	26.7	15,129.2	10.9	6,179.6	35.3	19,990.1
A weights	21.3	12,469.3	8.5	4,983.9	27.9	16,304.1
B weights	21.8	12,819.7	8.9	5,216.5	29.8	17,483.1
<u>Random class hot deck imputation</u>						
No weights	24.0	13,561.6	9.9	5,604.9	28.3	16,004.8
A weights	17.4	10,168.7	7.2	4,195.9	19.4	11,356.2
B weights	17.6	10,350.2	7.5	4,393.1	21.3	12,473.9
<u>Nearest neighbor hot deck imputation</u>						
No weights	23.1	13,084.7	9.9	5,600.4	27.3	15,473.3
A weights	16.8	9,851.7	7.0	4,118.4	19.8	11,589.1
B weights	17.1	10,039.0	7.4	4,344.6	21.6	12,695.4
<u>K-nearest neighbor hot deck imputation</u>						
No weights	24.4	13,834.1	10.1	5,697.0	29.0	16,403.7
A weights	17.9	10,485.1	7.4	4,318.3	20.3	11,848.1
B weights	18.1	10,650.1	7.8	4,565.1	22.6	13,254.2

Table A14. -- 2013 total population major expense estimates using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options. Values shown in thousands of dollars.

Method	Major expense type (000's dollars)							
	Operating		Overhead		Equipment		Land	
	Mean	Total	Mean	Total	Mean	Total	Mean	Total
<u>Zero imputation</u>								
No weights	46.3	26,195.8	66.2	37,475.2	22.9	12,967.4	6.9	3,916.9
A weights	34.5	20,173.1	51.4	30,071.8	16.5	9,672.7	5.6	3,294.4
B weights	35.3	20,711.7	54.1	31,752.1	17.6	10,340.0	5.6	3,274.1
<u>Mean imputation</u>								
No weights	68.6	38,814.8	109.0	61,714.5	40.7	23,015.6	28.0	15,826.2
A weights	58.7	34,343.8	97.2	56,868.3	35.4	20,719.2	26.8	15,653.0
B weights	59.2	34,755.8	99.3	58,282.2	36.1	21,213.8	26.6	15,614.7
<u>Random class hot deck imputation</u>								
No weights	71.6	40,506.8	110.5	62,514.7	38.4	21,723.8	21.0	11,904.2
A weights	56.0	32,724.8	90.9	53,139.9	30.6	17,868.9	17.8	10,423.4
B weights	57.2	33,553.8	92.5	54,322.0	31.4	18,454.9	18.3	10,722.7
<u>Nearest neighbor hot deck imputation</u>								
No weights	64.2	36,335.5	86.7	49,082.9	30.3	17,135.0	37.7	21,346.3
A weights	48.6	28,403.0	68.9	40,304.4	23.2	13,595.9	30.6	17,872.5
B weights	49.5	29,066.6	71.5	41,957.4	24.4	14,347.0	29.0	17,035.6
<u>K-nearest neighbor hot deck imputation</u>								
No weights	65.7	37,178.7	92.2	52,203.5	31.7	17,921.6	29.7	16,797.0
A weights	50.1	29,291.5	73.6	43,017.8	24.3	14,188.6	25.5	14,939.6
B weights	51.0	29,931.6	76.2	44,748.5	25.5	14,974.8	24.0	14,061.7

Table A15. -- 2013 total population employment estimates using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options. PT refers to part-time and FT refers to full-time.

No weighting						
Imputation method	FT operators	PT operators	FT crew	PT crew	FT onshore	PT onshore
Zero imputation	2,192	503	1,550	305	2,700	508
Mean imputation	2,909	994	2,115	649	3,930	1,047
Random imputation	2,820	1,018	2,032	655	3,853	1,098
Nearest neighbor	2,414	942	1,789	713	3,611	1,122
K-nearest neighbor	2,577	918	1,812	633	3,321	1,057
Weight A						
Imputation method	FT operators	PT operators	FT crew	PT crew	FT onshore	PT onshore
Zero imputation	1,617	407	1,236	241	1,971	402
Mean imputation	2,324	908	1,819	585	3,164	950
Random imputation	2,196	849	1,664	531	2,979	873
Nearest neighbor	1,809	805	1,428	590	2,766	870
K-nearest neighbor	1,933	763	1,449	505	2,505	827
Weight B						
Imputation method	FT operators	PT operators	FT crew	PT crew	FT onshore	PT onshore
Zero imputation	1,592	392	1,265	242	2,137	400
Mean imputation	2,306	898	1,855	587	3,335	949
Random imputation	2,178	842	1,695	535	3,149	872
Nearest neighbor	1,784	773	1,451	593	2,983	862
K-nearest neighbor	1,904	736	1,469	503	2,690	817

Table A16. -- 2013 total population revenues and costs estimates (in millions of dollars) using no weighting, weight A, and weight B post-stratification weight options and zero imputation, mean imputation, random imputation, deterministic nearest neighbor, and K-nearest neighbor options. Standard errors are shown in parentheses.

Imputation method	No weighting		Weight A		Weight B	
	Revenue	Cost	Revenue	Cost	Revenue	Cost
Zero imputation	126.7 (2.9)	110.8 (2.1)	95.7 (1.9)	84.7 (1.4)	102.5 (2.2)	89.5 (1.6)
Mean imputation	228.2 (4.5)	174.6 (3.2)	207.2 (3.8)	155.2 (2.6)	214.7 (4.1)	159.4 (2.8)
Random class hot deck	208.2 (19.3)	163.3 (5.1)	169.8 (17.1)	132.1 (4.1)	176.3 (17.3)	135.9 (4.1)
Nearest neighbor hot deck	202.3 (4.7)	147.1 (2.6)	160.8 (3.4)	116.8 (1.8)	168.7 (3.7)	121.2 (2.0)
K-nearest neighbor hot deck	204.1 (13.1)	150.7 (3.2)	161.3 (9.8)	119.8 (2.2)	169.6 (11.0)	124.2 (2.4)

Table A17. -- 2011 survey variable descriptions, summary statistics of survey questions, and item non-response.

Variable	Description	Mean	Median	Std Dev	Min	Max	Blanks	Non-response rate
A2	Respondent identification: vessels owned	1.63	1.00	1.75	0.00	10.00	0	0.00
A2	Respondent identification: vessels owned (adjusted)	1.76	1.00	2.78	0.00	31.00	0	0.00
A2	Respondent identification: vessels leased	0.03	0.00	0.17	0.00	1.00	0	0.00
A2	Respondent identification: vessels leased (adjusted)	0.07	0.00	0.77	0.00	10.00	0	0.00
B1	No. of employees: guides/full-time/early shoulder	-1.45	0.00	4.10	-8.00	13.00	40	0.23
B1	No. of employees: guides/full-time/main season	-0.43	0.00	4.61	-8.00	27.00	30	0.17
B1	No. of employees: guides/full-time/late shoulder	-1.25	0.00	4.16	-8.00	10.00	40	0.23
B1	No. of employees: guides/full-time/off season	-2.74	0.00	3.97	-8.00	5.00	59	0.34
B1	No. of employees: guides/part-time/early shoulder	-4.27	-8.00	4.14	-8.00	3.00	93	0.53
B1	No. of employees: guides/part-time/main season	-4.32	-8.00	4.18	-8.00	3.00	94	0.54
B1	No. of employees: guides/part-time/late shoulder	-4.43	-8.00	4.10	-8.00	2.00	96	0.55
B1	No. of employees: guides/part-time/off season	-4.51	-8.00	4.06	-8.00	3.00	97	0.56
B2	No. of employees: other crew/full-time/early shoulder	-1.83	0.00	4.14	-8.00	12.00	45	0.26
B2	No. of employees: other crew/full-time/main season	-1.10	0.00	4.06	-8.00	12.00	35	0.20
B2	No. of employees: other crew/full-time/late shoulder	-1.76	0.00	4.26	-8.00	12.00	46	0.26
B2	No. of employees: other crew/full-time/off season	-3.18	0.00	3.99	-8.00	5.00	67	0.39
B2	No. of employees: other crew/part-time/early shoulder	-4.30	-8.00	4.10	-8.00	2.00	93	0.53
B2	No. of employees: other crew/part-time/main season	-4.11	-8.00	4.20	-8.00	3.00	89	0.51
B2	No. of employees: other crew/part-time/late shoulder	-4.41	-8.00	4.13	-8.00	2.00	96	0.55
B2	No. of employees: other crew/part-time/off season	-4.78	-8.00	3.96	-8.00	1.00	102	0.59
B3	No. of employees: shore/full-time/early shoulder	-2.01	0.00	4.70	-8.00	16.00	53	0.30
B3	No. of employees: shore/full-time/main season	-0.73	0.00	8.69	-8.00	93.00	42	0.24
B3	No. of employees: shore/full-time/late shoulder	-1.90	0.00	4.97	-8.00	16.00	55	0.32
B3	No. of employees: shore/full-time/off season	-3.14	0.00	4.20	-9.00	12.00	66	0.38
B3	No. of employees: shore/part-time/early shoulder	-4.14	-8.00	4.18	-8.00	4.00	89	0.51
B3	No. of employees: shore/part-time/main season	-3.82	-7.00	4.39	-8.00	6.00	83	0.48
B3	No. of employees: shore/part-time/late shoulder	-4.28	-8.00	4.23	-8.00	5.00	93	0.53

Table A17. -- Cont.

B3	No. of employees: shore/part-time/off season	-4.63	-8.00	4.04	-9.00	4.00	96	0.55
B4	Employee pay: guides	15,347.39	0.00	35,921.43	-8.00	227,951	38	0.22
B4	Employee pay: other crew	6,232.52	0.00	25,094.15	-8.00	299,200	40	0.23
B4	Employee pay: shore employees	18,742.33	0.00	109,053.2	-8.00	1,341,711	38	0.22
				2				
B5	Employee pay, wage option: guide	0.14	0.00	0.35	0.00	1.00	0	0.00
B5	Employee pay, salary option: guide	0.13	0.00	0.33	0.00	1.00	0	0.00
B5	Employee pay, share option: guide	0.08	0.00	0.27	0.00	1.00	0	0.00
B5	Employee pay, other option: guide	0.10	0.00	0.31	0.00	1.00	0	0.00
B5	Employee pay, wage option: other crew	0.17	0.00	0.38	0.00	1.00	0	0.00
B5	Employee pay, salary option: other crew	0.10	0.00	0.31	0.00	1.00	0	0.00
B5	Employee pay, share option: other crew	0.05	0.00	0.22	0.00	1.00	0	0.00
B5	Employee pay, other option: other crew	0.07	0.00	0.26	0.00	1.00	0	0.00
B5	Employee pay, wage option: shore employee	0.20	0.00	0.40	0.00	1.00	0	0.00
B5	Employee pay, salary option: shore employee	0.15	0.00	0.36	0.00	1.00	0	0.00
B5	Employee pay, share option: shore employee	0.04	0.00	0.20	0.00	1.00	0	0.00
B5	Employee pay, other option: shore employee	0.06	0.00	0.23	0.00	1.00	0	0.00
C1	Trip offerings, fishing only option	0.78	1.00	0.42	0.00	1.00	0	0.00
C1	Trip offerings, combination fishing and hunting option	0.09	0.00	0.28	0.00	1.00	0	0.00
C1	Trip offerings, combination fishing and tour option	0.48	0.00	0.50	0.00	1.00	0	0.00
C1	Trip offerings, tour only option	0.26	0.00	0.44	0.00	1.00	0	0.00
C1	Trip offerings, outfitting option	0.06	0.00	0.23	0.00	1.00	0	0.00
C1	Trip offerings, game transport option	0.11	0.00	0.32	0.00	1.00	0	0.00
C1	Trip offerings, general transportation option	0.18	0.00	0.38	0.00	1.00	0	0.00
C1	Trip offerings, event hosting option	0.05	0.00	0.22	0.00	1.00	0	0.00
C1	Trip offerings, research or oil spill services option	0.03	0.00	0.17	0.00	1.00	0	0.00
C1	Trip offerings, other services option	0.06	0.00	0.23	0.00	1.00	0	0.00
C2	Trip offerings: 2-species/half-day: not offered option	0.43	0.00	0.50	0.00	1.00	0	0.00
C2	Trip offerings: 2-species/half-day: individual price	35.22	-8.00	79.60	-8.00	325.00	129	0.74
C2	Trip offerings: 2-species/half-day: boat price	185.37	-8.00	417.80	-8.00	2,500	130	0.75

Table A17. -- Cont.

C2	Trip offerings: 2-species/three-quarter day: not offered option	0.34	0.00	0.47	0.00	1.00	0	0.00
C2	Trip offerings: 2-species/three-quarter day: individual price	18.97	-8.00	74.60	-8.00	325.00	150	0.86
C2	Trip offerings: 2-species/three-quarter day: boat price	101.40	-8.00	330.00	-8.00	1,740	151	0.87
C2	Trip offerings: 2-species/full day: not offered option	0.70	1.00	0.46	0.00	1.00	0	0.00
C2	Trip offerings: 2-species/full day: individual price	180.36	225.00	290.59	-8.00	3,400	68	0.39
C2	Trip offerings: 2-species/full day: boat price	845.79	675.00	1,321.36	-8.00	13,780	76	0.44
C2	Trip offerings: 2-species/overnight: not offered option	0.33	0.00	0.47	0.00	1.00	0	0.00
C2	Trip offerings: 2-species/overnight: individual price	32.16	-8.00	140.20	-8.00	895.00	154	0.89
C2	Trip offerings: 2-species/overnight: boat price	227.56	-8.00	1,002.93	-8.00	8,300	157	0.90
C2	Trip offerings: 2-species/multi-day: not offered option	0.48	0.00	0.50	0.00	1.00	0	0.00
C2	Trip offerings: 2-species/multi-day: individual price	212.23	-8.00	638.06	-9.00	4,300	131	0.75
C2	Trip offerings: 2-species/multi-day: boat price	1,008.74	-8.00	3,195.16	-9.00	24,000	130	0.75
C2	Trip offerings: multi-species/half-day: not offered option	0.40	0.00	0.49	0.00	1.00	0	0.00
C2	Trip offerings: multi-species/half-day: individual price	17.80	-8.00	67.50	-8.00	325.00	148	0.85
C2	Trip offerings: multi-species/half-day: boat price	107.20	-8.00	332.72	-8.00	2,500	148	0.85
C2	Trip offerings: multi-species/three-quarter day: not offered option	0.34	0.00	0.47	0.00	1.00	0	0.00
C2	Trip offerings: multi-species/three-quarter day: individual price	6.44	-8.00	56.91	-8.00	325.00	161	0.93
C2	Trip offerings: multi-species/three-quarter day: boat price	54.24	-8.00	255.24	-8.00	1,700	161	0.93
C2	Trip offerings: multi-species/full day: not offered option	0.64	1.00	0.48	0.00	1.00	0	0.00
C2	Trip offerings: multi-species/full day: individual price	185.90	-4.50	376.04	-8.00	3,400	87	0.50
C2	Trip offerings: multi-species/full day: boat price	879.59	-8.00	1,576.57	-8.00	13,780	89	0.51
C2	Trip offerings: multi-species/overnight: not offered option	0.33	0.00	0.47	0.00	1.00	0	0.00
C2	Trip offerings: multi-species/overnight: individual price	21.05	-8.00	127.17	-8.00	750.00	161	0.93
C2	Trip offerings: multi-species/overnight: boat price	151.76	-8.00	766.78	-8.00	6,750	161	0.93
C2	Trip offerings: multi-species/multi-day: not offered option	0.52	1.00	0.50	0.00	1.00	0	0.00
C2	Trip offerings: multi-species/multi-day: individual price	489.06	-8.00	1,207.72	-9.00	6,000	126	0.72
C2	Trip offerings: multi-species/multi-day: boat price	2,232.71	-8.00	10,193.97	-9.00	116,000	132	0.76
C3	Trip offerings: halibut/half-day: not offered option	0.43	0.00	0.50	0.00	1.00	0	0.00
C3	Trip offerings: halibut/half-day: individual price	31.42	-8.00	78.46	-8.00	325.00	136	0.78

Table A17. -- Cont.

C3	Trip offerings: halibut/half-day: boat price	173.18	-8.00	423.01	-8.00	2,500	140	0.80
C3	Trip offerings: halibut/three-quarter day: not offered option	0.31	0.00	0.46	0.00	1.00	0	0.00
C3	Trip offerings: halibut/three-quarter day: individual price	14.44	-8.00	67.25	-8.00	262.00	155	0.89
C3	Trip offerings: halibut/three-quarter day: boat price	84.07	-8.00	304.65	-8.00	1,500	156	0.90
C3	Trip offerings: halibut/full day: not offered option	0.67	1.00	0.47	0.00	1.00	0	0.00
C3	Trip offerings: halibut/full day: individual price	169.11	200.00	332.06	-8.00	3,400	80	0.46
C3	Trip offerings: halibut/full day: boat price	835.65	-7.00	1,447.34	-8.00	13,780	85	0.49
C3	Trip offerings: halibut/overnight: not offered option	0.27	0.00	0.45	0.00	1.00	0	0.00
C3	Trip offerings: halibut/overnight: individual price	43.71	-8.00	426.20	-8.00	5,500	162	0.93
C3	Trip offerings: halibut/overnight: boat price	155.23	-8.00	838.02	-8.00	8,300	162	0.93
C3	Trip offerings: halibut/multi-day: not offered option	0.40	0.00	0.49	0.00	1.00	0	0.00
C3	Trip offerings: halibut/multi-day: individual price	207.03	-8.00	706.65	-9.00	4,300	142	0.82
C3	Trip offerings: halibut/multi-day: boat price	681.41	-8.00	2,563.14	-9.00	18,000	143	0.82
C3	Trip offerings: salmon/half-day: not offered option	0.48	0.00	0.50	0.00	1.00	0	0.00
C3	Trip offerings: salmon/half-day: individual price	36.17	-8.00	76.70	-8.00	250.00	129	0.74
C3	Trip offerings: salmon/half-day: boat price	172.87	-8.00	369.46	-8.00	2,400	132	0.76
C3	Trip offerings: salmon/three-quarter day: not offered option	0.37	0.00	0.48	0.00	1.00	0	0.00
C3	Trip offerings: salmon/three-quarter day: individual price	16.37	-8.00	68.68	-8.00	250.00	153	0.88
C3	Trip offerings: salmon/three-quarter day: boat price	92.79	-8.00	310.58	-8.00	1,500	154	0.89
C3	Trip offerings: salmon/full day: not offered option	0.65	1.00	0.48	0.00	1.00	0	0.00
C3	Trip offerings: salmon/full day: individual price	153.49	-8.00	332.64	-8.00	3,400	89	0.51
C3	Trip offerings: salmon/full day: boat price	766.83	-8.00	1,729.70	-8.00	14,440	93	0.53
C3	Trip offerings: salmon/overnight: not offered option	0.29	0.00	0.46	0.00	1.00	0	0.00
C3	Trip offerings: salmon/overnight: individual price	14.48	-8.00	121.49	-8.00	1,200	164	0.94
C3	Trip offerings: salmon/overnight: boat price	62.28	-8.00	363.71	-8.00	2,800	165	0.95
C3	Trip offerings: salmon/multi-day: not offered option	0.43	0.00	0.50	0.00	1.00	0	0.00
C3	Trip offerings: salmon/multi-day: individual price	164.73	-8.00	612.61	-9.00	3,695	144	0.83
C3	Trip offerings: salmon/multi-day: boat price	573.30	-8.00	2,280.13	-9.00	18,000	147	0.84
C3	Trip offerings: other species/half-day: not offered option	0.37	0.00	0.49	0.00	1.00	0	0.00
C3	Trip offerings: other species/half-day: individual price	11.13	-8.00	55.86	-8.00	250.00	154	0.89

Table A17. -- Cont.

C3	Trip offerings: other species/half-day: boat price	65.84	-8.00	226.96	-8.00	1,000	156	0.90
C3	Trip offerings: other species/three-quarter day: not offered option	0.30	0.00	0.46	0.00	1.00	0	0.00
C3	Trip offerings: other species/three-quarter day: individual price	-1.16	-8.00	36.74	-8.00	250.00	166	0.95
C3	Trip offerings: other species/three-quarter day: boat price	14.02	-8.00	135.81	-8.00	1,200	168	0.97
C3	Trip offerings: other species/full day: not offered option	0.48	0.00	0.50	0.00	1.00	0	0.00
C3	Trip offerings: other species/full day: individual price	81.36	-8.00	219.36	-8.00	2,400	125	0.72
C3	Trip offerings: other species/full day: boat price	411.25	-8.00	933.09	-8.00	8,800	125	0.72
C3	Trip offerings: other species/overnight: not offered option	0.29	0.00	0.45	0.00	1.00	0	0.00
C3	Trip offerings: other species/overnight: individual price	3.71	-8.00	72.93	-8.00	700.00	167	0.96
C3	Trip offerings: other species/overnight: boat price	38.33	-8.00	290.53	-8.00	2,800	168	0.97
C3	Trip offerings: other species/multi-day: not offered option	0.38	0.00	0.49	0.00	1.00	0	0.00
C3	Trip offerings: other species/multi-day: individual price	138.61	-8.00	550.57	-9.00	3,695	149	0.86
C3	Trip offerings: other species/multi-day: boat price	492.49	-8.00	2,164.25	-9.00	18,000	153	0.88
C4	Fishing-related services: long-distance fishing: not offered option	0.48	0.00	0.50	0.00	1.00	0	0.00
C4	Fishing-related services: long-distance fishing: included in trip package option	0.32	0.00	0.47	0.00	1.00	0	0.00
C4	Fishing-related services: long-distance fishing: added fee option	0.10	0.00	0.30	0.00	1.00	0	0.00
C4	Fishing-related services: long-distance fishing: added fee amount	22.68	-8.00	234.26	-8.00	3,000	150	0.86
C4	Fishing-related services: long-distance fishing: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: fish cleaning (h/g): not offered option	0.23	0.00	0.42	0.00	1.00	0	0.00
C4	Fishing-related services: fish cleaning (h/g): included in trip package option	0.64	1.00	0.48	0.00	1.00	0	0.00
C4	Fishing-related services: fish cleaning (h/g): added fee option	0.02	0.00	0.15	0.00	1.00	0	0.00
C4	Fishing-related services: fish cleaning (h/g): added fee amount	23.32	-8.00	282.10	-8.00	3,000	158	0.91
C4	Fishing-related services: fish cleaning (h/g): other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: fish cleaning (skinning, etc.): not offered option	0.21	0.00	0.41	0.00	1.00	0	0.00
C4	Fishing-related services: fish cleaning (skinning, etc.): included in trip package option	0.64	1.00	0.48	0.00	1.00	0	0.00
C4	Fishing-related services: fish cleaning (skinning, etc.): added fee option	0.06	0.00	0.24	0.00	1.00	0	0.00

Table A17. -- Cont.

C4	Fishing-related services: fish cleaning (skinning, etc.): added fee amount	11.61	-8.00	228.18	-8.00	3,000	155	0.89
C4	Fishing-related services: fish cleaning (skinning, etc.): other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: packing and shipping: not offered option	0.53	1.00	0.50	0.00	1.00	0	0.00
C4	Fishing-related services: packing and shipping: included in trip package option	0.26	0.00	0.44	0.00	1.00	0	0.00
C4	Fishing-related services: packing and shipping: added fee option	0.11	0.00	0.32	0.00	1.00	0	0.00
C4	Fishing-related services: packing and shipping: added fee amount	11.86	-8.00	228.24	-8.00	3,000	157	0.90
C4	Fishing-related services: packing and shipping: other basis indicator	0.01	0.00	0.08	0.00	1.00	0	0.00
C4	Fishing-related services: transport to/from vessel: not offered option	0.48	0.00	0.50	0.00	1.00	0	0.00
C4	Fishing-related services: transport to/from vessel: included in trip package option	0.41	0.00	0.49	0.00	1.00	0	0.00
C4	Fishing-related services: transport to/from vessel: added fee option	0.01	0.00	0.08	0.00	1.00	0	0.00
C4	Fishing-related services: transport to/from vessel: added fee amount	-2.22	-8.00	43.33	-8.00	350.00	167	0.96
C4	Fishing-related services: transport to/from vessel: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: onshore lodging: not offered option	0.46	0.00	0.50	0.00	1.00	0	0.00
C4	Fishing-related services: onshore lodging: included in trip package option	0.31	0.00	0.46	0.00	1.00	0	0.00
C4	Fishing-related services: onshore lodging: added fee option	0.15	0.00	0.36	0.00	1.00	0	0.00
C4	Fishing-related services: onshore lodging: added fee amount	30.63	-8.00	234.46	-8.00	3,000	143	0.82
C4	Fishing-related services: onshore lodging: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: on-vessel lodging: not offered option	0.71	1.00	0.45	0.00	1.00	0	0.00
C4	Fishing-related services: on-vessel lodging: included in trip package option	0.13	0.00	0.34	0.00	1.00	0	0.00
C4	Fishing-related services: on-vessel lodging: added fee option	0.01	0.00	0.11	0.00	1.00	0	0.00
C4	Fishing-related services: on-vessel lodging: added fee amount	-6.41	-8.00	16.35	-8.00	200.00	168	0.97
C4	Fishing-related services: on-vessel lodging: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: cooked meals: not offered option	0.52	1.00	0.50	0.00	1.00	0	0.00

Table A17. -- Cont.

C4	Fishing-related services: cooked meals: included in trip package option	0.36	0.00	0.48	0.00	1.00	0	0.00
C4	Fishing-related services: cooked meals: added fee option	0.03	0.00	0.17	0.00	1.00	0	0.00
C4	Fishing-related services: cooked meals: added fee amount	11.57	-8.00	228.19	-8.00	3,000	161	0.93
C4	Fishing-related services: cooked meals: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: beverages/snacks: not offered option	0.32	0.00	0.47	0.00	1.00	0	0.00
C4	Fishing-related services: beverages/snacks: included in trip package option	0.59	1.00	0.49	0.00	1.00	0	0.00
C4	Fishing-related services: beverages/snacks: added fee option	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: beverages/snacks: added fee amount	10.02	-8.00	228.03	-8.00	3,000	162	0.93
C4	Fishing-related services: beverages/snacks: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: bait: not offered option	0.07	0.00	0.25	0.00	1.00	0	0.00
C4	Fishing-related services: bait: included in trip package option	0.84	1.00	0.37	0.00	1.00	0	0.00
C4	Fishing-related services: bait: added fee option	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: bait: added fee amount	11.99	-8.00	229.24	-9.00	3,000	156	0.90
C4	Fishing-related services: bait: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: ice: not offered option	0.28	0.00	0.45	0.00	1.00	0	0.00
C4	Fishing-related services: ice: included in trip package option	0.59	1.00	0.49	0.00	1.00	0	0.00
C4	Fishing-related services: ice: added fee option	0.01	0.00	0.11	0.00	1.00	0	0.00
C4	Fishing-related services: ice: added fee amount	9.90	-8.00	228.01	-8.00	3,000	160	0.92
C4	Fishing-related services: ice: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: fishing gear: not offered option	0.05	0.00	0.22	0.00	1.00	0	0.00
C4	Fishing-related services: fishing gear: included in trip package option	0.86	1.00	0.35	0.00	1.00	0	0.00
C4	Fishing-related services: fishing gear: added fee option	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: fishing gear: added fee amount	10.09	-8.00	228.01	-8.00	3,000	158	0.91
C4	Fishing-related services: fishing gear: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: other gear: not offered option	0.21	0.00	0.41	0.00	1.00	0	0.00
C4	Fishing-related services: other gear: included in trip package option	0.64	1.00	0.48	0.00	1.00	0	0.00
C4	Fishing-related services: other gear: added fee option	0.01	0.00	0.08	0.00	1.00	0	0.00
C4	Fishing-related services: other gear: added fee amount	9.91	-8.00	228.03	-8.00	3,000	163	0.94

Table A17. -- Cont.

C4	Fishing-related services: other gear: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: souvenirs: not offered option	0.59	1.00	0.49	0.00	1.00	0	0.00
C4	Fishing-related services: souvenirs: included in trip package option	0.11	0.00	0.32	0.00	1.00	0	0.00
C4	Fishing-related services: souvenirs: added fee option	0.14	0.00	0.35	0.00	1.00	0	0.00
C4	Fishing-related services: souvenirs: added fee amount	-4.30	-8.00	14.82	-8.00	150.00	153	0.88
C4	Fishing-related services: souvenirs: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C4	Fishing-related services: other: not offered option	0.28	0.00	0.45	0.00	1.00	0	0.00
C4	Fishing-related services: other: included in trip package option	0.06	0.00	0.23	0.00	1.00	0	0.00
C4	Fishing-related services: other: added fee option	0.05	0.00	0.21	0.00	1.00	0	0.00
C4	Fishing-related services: other: added fee amount	-4.76	-8.00	25.07	-8.00	300.00	163	0.94
C4	Fishing-related services: other: other basis indicator	0.00	0.00	0.00	0.00	0.00	0	0.00
C5	Fishing-related services: paid lodging offered option	0.18	0.00	0.39	0.00	1.00	0	0.00
C6	Revenue: charter trips, direct client payment: seats sold	161.04	41.50	366.68	-9.00	3,500	51	0.29
C6	Revenue: charter trips, direct client payment: total trips	79.51	14.00	410.41	-9.00	5,141	53	0.30
C6	Revenue: charter trips, direct client payment: revenue	124,285.19	27,325.00	503,526.01	-9.00	5,691,792	39	0.22
C6	Revenue: charter trips, agent payment: seats sold	37.65	-8.00	131.59	-8.00	1,050	95	0.55
C6	Revenue: charter trips, agent payment: total trips	5.93	-8.00	30.60	-8.00	150.00	108	0.62
C6	Revenue: charter trips, agent payment: revenue	10,817.28	-8.00	27,426.32	-8.00	200,000	88	0.51
C6	Revenue: non-fishing charter trips: seats sold	34.06	-8.00	292.23	-8.00	3,800	89	0.51
C6	Revenue: non-fishing charter trips: total trips	4.14	-8.00	43.44	-8.00	470.00	103	0.59
C6	Revenue: non-fishing charter trips: revenue	12,636.75	-7.00	49,007.94	-8.00	370,000	86	0.49
C6	Revenue: referrals: total referrals	415.27	-8.00	4,008.59	-9.00	50,000	108	0.62
C6	Revenue: referrals: revenue	2,727.98	-8.00	14,982.27	-8.00	122,988	103	0.59
C6	Revenue: CHP sales: endorsements sold	4,305.60	-8.00	56,857.72	-8.00	750,000	107	0.61
C6	Revenue: CHP sales: revenue	5,508.59	-8.00	57,395.72	-8.00	750,000	105	0.60
C6	Revenue: CHP leases: endorsements leased	-5.10	-8.00	4.62	-8.00	23.00	111	0.64
C6	Revenue: CHP leases: revenue	107.09	-8.00	794.02	-8.00	8,000	106	0.61
D1	Costs: vessel fuel	18,283.01	8,000.00	31,828.71	-8.00	233,500	27	0.16
D1	Costs: fish handling, processing, packaging, shipping	2,635.96	0.00	12,460.14	-8.00	141,140	64	0.37

Table A17. -- Cont.

D1	Costs: broker or agent referral/commission fees	2,627.80	0.00	9,854.79	-8.00	93,642	70	0.40
D1	Costs: vessel cleaning	8,537.93	0.00	84,650.88	-8.00	1,058,379	59	0.34
D1	Costs: supplies	10,481.52	2,000.00	67,328.82	-9.00	884,629	32	0.18
D1	Costs: other vessel or trip operating expenses	3,434.26	-7.00	13,428.95	-8.00	165,005	83	0.48
D1	Costs: non-wage payroll costs	5,510.49	0.00	33,240.62	-8.00	352,949	69	0.40
D1	Costs: utilities	3,323.48	1,000.00	6,063.74	-8.00	42,000	39	0.22
D1	Costs: repair and maintenance	9,125.34	3,441.00	21,449.85	-8.00	225,000	34	0.20
D1	Costs: insurance	6,684.01	2,500.00	14,511.42	-8.00	135,249	28	0.16
D1	Costs: travel, meals, entertainment	3,531.61	0.00	10,788.57	-9.00	120,000	54	0.31
D1	Costs: office and general supplies	1,810.05	301.50	5,043.40	-9.00	41,428	44	0.25
D1	Costs: legal and professional services	4,323.56	500.00	19,466.52	-8.00	239,245	43	0.25
D1	Costs: financial services	9,672.06	134.00	37,600.78	-9.00	388,628	56	0.32
D1	Costs: taxes and licensing fees	2,842.89	664.00	5,482.50	-8.00	45,000	36	0.21
D1	Costs: vehicle fuel costs	2,127.68	521.53	7,210.18	-9.00	80,429	52	0.30
D1	Costs: other general overhead expenses	10,949.17	0.00	46,775.98	-8.00	500,000	77	0.44
D2	Capital expenses: vessels and related equipment: cash payment	12,077.59	0.00	44,440.38	-8.00	385,000	79	0.45
D2	Capital expenses: vessels and related equipment: new investment	6,667.48	-8.00	24,407.42	-8.00	180,000	115	0.66
D2	Capital expenses: vehicles: cash payment	933.97	-8.00	4,180.99	-8.00	41,000	100	0.57
D2	Capital expenses: vehicles: new investment	365.91	-8.00	2,542.59	-8.00	29,000	122	0.70
D2	Capital expenses: fishing gear, tackle, safety equipment: cash payment	1,817.97	200.00	4,616.58	-8.00	40,000	71	0.41
D2	Capital expenses: fishing gear, tackle, safety equipment: new investment	371.33	-8.00	1,491.28	-8.00	12,000	117	0.67
D2	Capital expenses: other machinery and equipment: cash payment	794.28	-8.00	3,077.18	-8.00	30,000	97	0.56
D2	Capital expenses: other machinery and equipment: new investment	355.06	-8.00	2,295.64	-8.00	20,000	127	0.73
D2	Capital expenses: moorage/slip, boatyard and storage space: cash payment	1,892.27	519.00	3,710.70	-8.00	24,058	57	0.33
D2	Capital expenses: moorage/slip, boatyard and storage space: new investment	281.75	-8.00	2,009.64	-8.00	25,000	127	0.73
D2	Capital expenses: office space, lodging, shore-side facilities: cash payment	5,443.76	-8.00	31,835.89	-8.00	383,172	93	0.53

Table A17. -- Cont.

D2	Capital expenses: office space, lodging, shore-side facilities: new investment	462.48	-8.00	3,198.19	-8.00	30,000	130	0.75
D2	Capital expenses: transferable fishing permits and licenses: cash payment	1,380.50	-8.00	8,370.61	-8.00	90,000	93	0.53
D2	Capital expenses: transferable fishing permits and licenses: new investment	1,574.33	-8.00	9,600.02	-8.00	80,000	128	0.74
D2	Capital expenses: other business-related property and assets: cash payment	11,357.45	-8.00	85,583.97	-8.00	800,000	101	0.58
D2	Capital expenses: other business-related property and assets: new investment	2,137.39	-8.00	26,552.39	-8.00	350,000	129	0.74
E1	Clients: percentage of clients that were return customers or referrals from previous customers	3.06	4.00	3.14	-8.00	6.00	11	0.06
E2	Clients: percentage of clients booking 1 month or more in advance	3.59	5.00	3.28	-8.00	6.00	11	0.06
E3	Clients: percentage of clients booking less than 48 hours in advance	1.12	2.00	2.68	-8.00	6.00	12	0.07
E4	Clients: percentage of clients booked independent	2.83	4.00	3.81	-8.00	6.00	15	0.09
E4	Clients: percentage of clients booked through cruise ship	-0.20	1.00	3.59	-8.00	6.00	29	0.17
E4	Clients: percentage of clients booked through charter booking service	0.14	1.00	3.80	-8.00	6.00	29	0.17
E4	Clients: percentage of clients booked through general travel agent	-0.40	1.00	3.66	-8.00	5.00	32	0.18
E4	Business and household: C corporation option	0.06	0.00	0.24	0.00	1.00	0	0.00
F2	Business and household: business structure type	0.21	1.00	3.25	-8.00	3.00	23	0.13
F3	Business and household: percentage share of business by household	79.03	100.00	39.56	-8.00	100.00	24	0.14
F4	Business and household: household members working as guides	-0.79	1.00	3.69	-8.00	6.00	33	0.19
F4	Business and household: household members working as other crew	-3.95	-8.00	4.48	-8.00	6.00	93	0.53
F4	Business and household: household members working on shore	-2.38	1.00	4.59	-8.00	7.00	65	0.37
F5	Business and household: percentage of income from business	1.99	3.00	4.17	-8.00	6.00	23	0.13
F6	Business and household: work related to charter business option	0.41	0.00	0.49	0.00	1.00	0	0.00
F6	Business and household: worked in AK, fishing not related to charter business	0.06	0.00	0.23	0.00	1.00	0	0.00
F6	Business and household: worked in AK, non-fishing job	0.34	0.00	0.47	0.00	1.00	0	0.00
F6	Business and household: lived in AK, did not work	0.14	0.00	0.35	0.00	1.00	0	0.00

Table A17. -- Cont.

F6	Business and household: worked outside AK, fishing not related to charter business	0.02	0.00	0.13	0.00	1.00	0	0.00
F6	Business and household: worked outside AK, non-fishing job	0.09	0.00	0.28	0.00	1.00	0	0.00
F6	Business and household: lived outside AK, did not work	0.07	0.00	0.25	0.00	1.00	0	0.00

Table A18. -- 2012 survey variable descriptions, summary statistics of survey questions, and item non-response.

Variable	Description	Mean	Median	Std Dev	Min	Max	Blanks	Non-response rate
A2	Respondent identification: vessels owned	1.49	1	1.38	0	8	0	0.00
A2	Respondent identification: vessels owned (adjusted)	1.49	1	1.38	0	8	0	0.00
A2	Respondent identification: vessels leased	0.00	0	0.00	0	0	0	0.00
A2	Respondent identification: vessels leased (adjusted)	0.17	0	0.63	0	6	0	0.00
B1	No. of employees: guides/full-time/early shoulder	-1.25	0	4.33	-9	10	32	0.23
B1	No. of employees: guides/full-time/main season	-0.08	0	4.03	-9	14	18	0.13
B1	No. of employees: guides/full-time/late shoulder	-1.04	0	4.47	-9	12	31	0.22
B1	No. of employees: guides/full-time/off season	-2.72	0	3.94	-8	2	48	0.35
B1	No. of employees: guides/part-time/early shoulder	-3.62	0	4.16	-8	2	64	0.46
B1	No. of employees: guides/part-time/main season	-3.93	-7.5	4.15	-8	3	69	0.50
B1	No. of employees: guides/part-time/late shoulder	-4.02	-8	4.11	-8	1	70	0.51
B1	No. of employees: guides/part-time/off season	-4.27	-8	4.02	-8	1	73	0.53
B2	No. of employees: other crew/full-time/early shoulder	-1.80	0	4.22	-9	12	35	0.25
B2	No. of employees: other crew/full-time/main season	-0.66	0	3.93	-8	12	23	0.17
B2	No. of employees: other crew/full-time/late shoulder	-1.54	0	4.30	-8	12	34	0.25
B2	No. of employees: other crew/full-time/off season	-3.06	0	3.90	-8	1	48	0.35
B2	No. of employees: other crew/part-time/early shoulder	-3.80	-3.5	4.19	-8	5	65	0.47
B2	No. of employees: other crew/part-time/main season	-4.17	-8	4.17	-8	7	70	0.51
B2	No. of employees: other crew/part-time/late shoulder	-4.15	-8	4.21	-8	7	71	0.51
B2	No. of employees: other crew/part-time/off season	-4.61	-8	3.94	-8	0	76	0.55
B3	No. of employees: shore/full-time/early shoulder	-1.75	0	4.34	-9	11	36	0.26
B3	No. of employees: shore/full-time/main season	-1.16	0	5.14	-8	30	34	0.25
B3	No. of employees: shore/full-time/late shoulder	-1.51	0	5.30	-8	30	39	0.28
B3	No. of employees: shore/full-time/off season	-3.01	0	4.06	-8	6	51	0.37
B3	No. of employees: shore/part-time/early shoulder	-3.48	0	4.19	-8	4	59	0.43
B3	No. of employees: shore/part-time/main season	-3.49	0	4.26	-8	5	60	0.43

Table A18. -- Cont.

B3	No. of employees: shore/part-time/late shoulder	-3.53	0	4.20	-8	4	60	0.43
B3	No. of employees: shore/part-time/off season	-4.29	-8	4.00	-8	1	70	0.51
B4	Employee pay: guides	18,101.11	0	37,347.99	-8	220,000	27	0.20
B4	Employee pay: other crew	7,469.16	0	27,618.29	-9	299,200	31	0.22
B4	Employee pay: shore employees	11,989.38	0	48,499.88	-8	448,800	39	0.28
B5	Employee pay, wage option: guide	0.18	0	0.39	0	1	0	0.00
B5	Employee pay, salary option: guide	0.15	0	0.36	0	1	0	0.00
B5	Employee pay, share option: guide	0.05	0	0.22	0	1	0	0.00
B5	Employee pay, other option: guide	0.09	0	0.28	0	1	0	0.00
B5	Employee pay, wage option: other crew	0.28	0	0.45	0	1	0	0.00
B5	Employee pay, salary option: other crew	0.13	0	0.34	0	1	0	0.00
B5	Employee pay, share option: other crew	0.04	0	0.19	0	1	0	0.00
B5	Employee pay, other option: other crew	0.07	0	0.25	0	1	0	0.00
B5	Employee pay, wage option: shore employee	0.22	0	0.42	0	1	0	0.00
B5	Employee pay, salary option: shore employee	0.13	0	0.34	0	1	0	0.00
B5	Employee pay, share option: shore employee	0.01	0	0.12	0	1	0	0.00
B5	Employee pay, other option: shore employee	0.08	0	0.27	0	1	0	0.00
C1	Trip offerings, fishing only option	0.82	1	0.39	0	1	0	0.00
C1	Trip offerings, combination fishing and hunting option	0.06	0	0.23	0	1	0	0.00
C1	Trip offerings, combination fishing and tour option	0.42	0	0.50	0	1	0	0.00
C1	Trip offerings, tour only option	0.32	0	0.47	0	1	0	0.00
C1	Trip offerings, outfitting option	0.02	0	0.15	0	1	0	0.00
C1	Trip offerings, game transport option	0.05	0	0.22	0	1	0	0.00
C1	Trip offerings, general transportation option	0.15	0	0.36	0	1	0	0.00
C1	Trip offerings, event hosting option	0.06	0	0.23	0	1	0	0.00
C1	Trip offerings, research or oil spill services option	0.06	0	0.23	0	1	0	0.00
C1	Trip offerings, other services option	0.04	0	0.19	0	1	0	0.00
C2	Trip offerings: 2-species/half-day: not offered option	0.41	0	0.49	0	1	0	0.00
C2	Trip offerings: 2-species/half-day: individual price	36.66	-8	87.03	-8	450	98	0.71
C2	Trip offerings: 2-species/half-day: boat price	155.52	-8	423.94	-8	3,600	103	0.75

Table A18. -- Cont.

C2	Trip offerings: 2-species/three-quarter day: not offered option	0.36	0	0.48	0	1	0	0.00
C2	Trip offerings: 2-species/three-quarter day: individual price	24.39	-8	80.42	-8	300	112	0.81
C2	Trip offerings: 2-species/three-quarter day: boat price	135.86	-8	439.67	-8	3,600	113	0.82
C2	Trip offerings: 2-species/full day: not offered option	0.72	1	0.45	0	1	0	0.00
C2	Trip offerings: 2-species/full day: individual price	180.68	242.5	166.76	-8	1,000	47	0.34
C2	Trip offerings: 2-species/full day: boat price	874.13	950	1,005.89	-8	6,000	54	0.39
C2	Trip offerings: 2-species/overnight: not offered option	0.30	0	0.46	0	1	0	0.00
C2	Trip offerings: 2-species/overnight: individual price	35.01	-8	208.30	-8	2,000	124	0.90
C2	Trip offerings: 2-species/overnight: boat price	295.09	-8	1,391.67	-8	12,000	124	0.90
C2	Trip offerings: 2-species/multi-day: not offered option	0.41	0	0.49	0	1	0	0.00
C2	Trip offerings: 2-species/multi-day: individual price	310.67	-8	955.29	-8	5,500	105	0.76
C2	Trip offerings: 2-species/multi-day: boat price	1,281.49	-8	5,514.21	-8	44,000	112	0.81
C2	Trip offerings: multi-species/half-day: not offered option	0.38	0	0.49	0	1	0	0.00
C2	Trip offerings: multi-species/half-day: individual price	20.07	-8	71.36	-8	400	111	0.80
C2	Trip offerings: multi-species/half-day: boat price	101.41	-8	389.20	-8	3,600	114	0.83
C2	Trip offerings: multi-species/three-quarter day: not offered option	0.33	0	0.47	0	1	0	0.00
C2	Trip offerings: multi-species/three-quarter day: individual price	13.78	-8	69.58	-8	325	119	0.86
C2	Trip offerings: multi-species/three-quarter day: boat price	93.88	-8	406.28	-8	3,600	119	0.86
C2	Trip offerings: multi-species/full day: not offered option	0.64	1	0.48	0	1	0	0.00
C2	Trip offerings: multi-species/full day: individual price	160.58	99.5	199.80	-8	1,200	65	0.47
C2	Trip offerings: multi-species/full day: boat price	682.13	-8	970.68	-9	6,000	72	0.52
C2	Trip offerings: multi-species/overnight: not offered option	0.36	0	0.48	0	1	0	0.00
C2	Trip offerings: multi-species/overnight: individual price	26.74	-8	197.40	-8	2,000	126	0.91
C2	Trip offerings: multi-species/overnight: boat price	213.46	-8	1,227.44	-8	12,000	126	0.91
C2	Trip offerings: multi-species/multi-day: not offered option	0.50	0.5	0.50	0	1	0	0.00
C2	Trip offerings: multi-species/multi-day: individual price	477.28	-8	1,188.45	-8	5,800	99	0.72
C2	Trip offerings: multi-species/multi-day: boat price	2,579.46	-8	11,546.22	-8	116,000	107	0.78
C3	Trip offerings: halibut/half-day: not offered option	0.27	0	0.44	0	1	0	0.00
C3	Trip offerings: halibut/half-day: individual price	21.28	-8	70.63	-8	400	110	0.80
C3	Trip offerings: halibut/half-day: boat price	132.59	-8	453.40	-8	3,600	115	0.83

Table A18. -- Cont.

C3	Trip offerings: halibut/three-quarter day: not offered option	0.25	0	0.43	0	1	0	0.00
C3	Trip offerings: halibut/three-quarter day: individual price	18.01	-8	73.41	-8	300	119	0.86
C3	Trip offerings: halibut/three-quarter day: boat price	98.66	-8	404.26	-8	3,600	121	0.88
C3	Trip offerings: halibut/full day: not offered option	0.60	1	0.49	0	1	0	0.00
C3	Trip offerings: halibut/full day: individual price	155.99	200	166.05	-8	1,000	59	0.43
C3	Trip offerings: halibut/full day: boat price	774.01	-4	983.15	-8	6,000	67	0.49
C3	Trip offerings: halibut/overnight: not offered option	0.22	0	0.42	0	1	0	0.00
C3	Trip offerings: halibut/overnight: individual price	46.77	-8	283.00	-8	2,400	124	0.90
C3	Trip offerings: halibut/overnight: boat price	351.66	-8	1,579.21	-8	12,000	125	0.91
C3	Trip offerings: halibut/multi-day: not offered option	0.30	0	0.46	0	1	0	0.00
C3	Trip offerings: halibut/multi-day: individual price	221.50	-8	814.50	-8	5,000	115	0.83
C3	Trip offerings: halibut/multi-day: boat price	730.04	-8	3,839.07	-8	30,000	120	0.87
C3	Trip offerings: salmon/half-day: not offered option	0.38	0	0.49	0	1	0	0.00
C3	Trip offerings: salmon/half-day: individual price	37.64	-8	81.71	-8	400	100	0.72
C3	Trip offerings: salmon/half-day: boat price	177.46	-8	406.49	-8	2,640	104	0.75
C3	Trip offerings: salmon/three-quarter day: not offered option	0.30	0	0.46	0	1	0	0.00
C3	Trip offerings: salmon/three-quarter day: individual price	22.58	-8	77.57	-8	300	116	0.84
C3	Trip offerings: salmon/three-quarter day: boat price	125.54	-8	359.72	-8	1,500	116	0.84
C3	Trip offerings: salmon/full day: not offered option	0.56	1	0.50	0	1	0	0.00
C3	Trip offerings: salmon/full day: individual price	147.83	-8	295.39	-8	3,000	73	0.53
C3	Trip offerings: salmon/full day: boat price	579.99	-8	776.57	-8	3,600	78	0.57
C3	Trip offerings: salmon/overnight: not offered option	0.23	0	0.42	0	1	0	0.00
C3	Trip offerings: salmon/overnight: individual price	14.17	-8	178.07	-8	2,000	132	0.96
C3	Trip offerings: salmon/overnight: boat price	20.75	-8	280.14	-8	3,200	134	0.97
C3	Trip offerings: salmon/multi-day: not offered option	0.33	0	0.47	0	1	0	0.00
C3	Trip offerings: salmon/multi-day: individual price	282.06	-8	903.61	-8	5,000	115	0.83
C3	Trip offerings: salmon/multi-day: boat price	746.70	-8	3,347.39	-8	30,000	121	0.88
C3	Trip offerings: other species/half-day: not offered option	0.26	0	0.44	0	1	0	0.00
C3	Trip offerings: other species/half-day: individual price	14.67	-8	62.25	-8	300	119	0.86
C3	Trip offerings: other species/half-day: boat price	91.75	-8	384.84	-8	3,600	120	0.87

Table A18. -- Cont.

C3	Trip offerings: other species/three-quarter day: not offered option	0.22	0	0.42	0	1	0	0.00
C3	Trip offerings: other species/three-quarter day: individual price	3.77	-8	52.24	-8	300	128	0.93
C3	Trip offerings: other species/three-quarter day: boat price	48.22	-8	345.32	-8	3,600	128	0.93
C3	Trip offerings: other species/full day: not offered option	0.38	0	0.49	0	1	0	0.00
C3	Trip offerings: other species/full day: individual price	80.20	-8	155.30	-8	1,000	98	0.71
C3	Trip offerings: other species/full day: boat price	396.90	-8	864.39	-8	6,000	101	0.73
C3	Trip offerings: other species/overnight: not offered option	0.21	0	0.41	0	1	0	0.00
C3	Trip offerings: other species/overnight: individual price	14.17	-8	178.07	-8	2,000	131	0.95
C3	Trip offerings: other species/overnight: boat price	107.78	-8	1,057.50	-8	12,000	132	0.96
C3	Trip offerings: other species/multi-day: not offered option	0.28	0	0.45	0	1	0	0.00
C3	Trip offerings: other species/multi-day: individual price	190.04	-8	793.86	-8	5,000	121	0.88
C3	Trip offerings: other species/multi-day: boat price	629.69	-8	3,811.79	-8	30,000	127	0.92
C4	Fishing-related services: long-distance fishing: not offered option	0.52	1	0.50	0	1	0	0.00
C4	Fishing-related services: long-distance fishing: included in trip package option	0.39	0	0.49	0	1	0	0.00
C4	Fishing-related services: long-distance fishing: added fee option	0.11	0	0.31	0	1	0	0.00
C4	Fishing-related services: long-distance fishing: added fee amount	4.76	-8	52.98	-8	450	120	0.87
C4	Fishing-related services: long-distance fishing: other basis indicator	0.04	0	0.19	0	1	0	0.00
C4	Fishing-related services: fish cleaning (h/g): not offered option	0.78	1	0.42	0	1	0	0.00
C4	Fishing-related services: fish cleaning (h/g): included in trip package option	0.70	1	0.46	0	1	0	0.00
C4	Fishing-related services: fish cleaning (h/g): added fee option	0.01	0	0.09	0	1	0	0.00
C4	Fishing-related services: fish cleaning (h/g): added fee amount	-7.53	-8	1.88	-8	0	129	0.93
C4	Fishing-related services: fish cleaning (h/g): other basis indicator	0.01	0	0.09	0	1	0	0.00
C4	Fishing-related services: fish cleaning (skinning, etc.): not offered option	0.80	1	0.40	0	1	0	0.00
C4	Fishing-related services: fish cleaning (skinning, etc.): included in trip package option	0.70	1	0.46	0	1	0	0.00
C4	Fishing-related services: fish cleaning (skinning, etc.): added fee option	0.04	0	0.20	0	1	0	0.00
C4	Fishing-related services: fish cleaning (skinning, etc.): added fee amount	-5.29	-8	14.82	-8	150	122	0.88

Table A18. -- Cont.

C4	Fishing-related services: fish cleaning (skinning, etc.): other basis indicator	0.06	0	0.23	0	1	0	0.00
C4	Fishing-related services: packing and shipping: not offered option	0.45	0	0.50	0	1	0	0.00
C4	Fishing-related services: packing and shipping: included in trip package option	0.29	0	0.46	0	1	0	0.00
C4	Fishing-related services: packing and shipping: added fee option	0.09	0	0.29	0	1	0	0.00
C4	Fishing-related services: packing and shipping: added fee amount	-6.38	-8	8.04	-8	75	125	0.91
C4	Fishing-related services: packing and shipping: other basis indicator	0.09	0	0.28	0	1	0	0.00
C4	Fishing-related services: transport to/from vessel: not offered option	0.56	1	0.50	0	1	0	0.00
C4	Fishing-related services: transport to/from vessel: included in trip package option	0.45	0	0.50	0	1	0	0.00
C4	Fishing-related services: transport to/from vessel: added fee option	0.00	0	0.00	0	0	0	0.00
C4	Fishing-related services: transport to/from vessel: added fee amount	-3.96	-8	43.24	-8	500	130	0.94
C4	Fishing-related services: transport to/from vessel: other basis indicator	0.01	0	0.12	0	1	0	0.00
C4	Fishing-related services: onshore lodging: not offered option	0.51	1	0.50	0	1	0	0.00
C4	Fishing-related services: onshore lodging: included in trip package option	0.28	0	0.45	0	1	0	0.00
C4	Fishing-related services: onshore lodging: added fee option	0.16	0	0.37	0	1	0	0.00
C4	Fishing-related services: onshore lodging: added fee amount	10.67	-8	57.55	-8	400	113	0.82
C4	Fishing-related services: onshore lodging: other basis indicator	0.04	0	0.19	0	1	0	0.00
C4	Fishing-related services: on-vessel lodging: not offered option	0.27	0	0.44	0	1	0	0.00
C4	Fishing-related services: on-vessel lodging: included in trip package option	0.16	0	0.37	0	1	0	0.00
C4	Fishing-related services: on-vessel lodging: added fee option	0.01	0	0.12	0	1	0	0.00
C4	Fishing-related services: on-vessel lodging: added fee amount	-6.20	-8	17.74	-8	200	131	0.95
C4	Fishing-related services: on-vessel lodging: other basis indicator	0.01	0	0.12	0	1	0	0.00
C4	Fishing-related services: cooked meals: not offered option	0.46	0	0.50	0	1	0	0.00
C4	Fishing-related services: cooked meals: included in trip package option	0.36	0	0.48	0	1	0	0.00
C4	Fishing-related services: cooked meals: added fee option	0.02	0	0.15	0	1	0	0.00

Table A18. -- Cont.

C4	Fishing-related services: cooked meals: added fee amount	-6.12	-8	11.89	-8	100	131	0.95
C4	Fishing-related services: cooked meals: other basis indicator	0.01	0	0.09	0	1	0	0.00
C4	Fishing-related services: beverages/snacks: not offered option	0.62	1	0.49	0	1	0	0.00
C4	Fishing-related services: beverages/snacks: included in trip package option	0.56	1	0.50	0	1	0	0.00
C4	Fishing-related services: beverages/snacks: added fee option	0.01	0	0.09	0	1	0	0.00
C4	Fishing-related services: beverages/snacks: added fee amount	-7.57	-8	2.13	-8	10	131	0.95
C4	Fishing-related services: beverages/snacks: other basis indicator	0.01	0	0.09	0	1	0	0.00
C4	Fishing-related services: bait: not offered option	0.93	1	0.26	0	1	0	0.00
C4	Fishing-related services: bait: included in trip package option	0.87	1	0.34	0	1	0	0.00
C4	Fishing-related services: bait: added fee option	0.01	0	0.09	0	1	0	0.00
C4	Fishing-related services: bait: added fee amount	-7.38	-8	2.25	-8	5	127	0.92
C4	Fishing-related services: bait: other basis indicator	0.01	0	0.09	0	1	0	0.00
C4	Fishing-related services: ice: not offered option	0.68	1	0.47	0	1	0	0.00
C4	Fishing-related services: ice: included in trip package option	0.58	1	0.50	0	1	0	0.00
C4	Fishing-related services: ice: added fee option	0.02	0	0.15	0	1	0	0.00
C4	Fishing-related services: ice: added fee amount	-7.35	-8	2.35	-8	5	127	0.92
C4	Fishing-related services: ice: other basis indicator	0.02	0	0.15	0	1	0	0.00
C4	Fishing-related services: fishing gear: not offered option	0.94	1	0.23	0	1	0	0.00
C4	Fishing-related services: fishing gear: included in trip package option	0.88	1	0.33	0	1	0	0.00
C4	Fishing-related services: fishing gear: added fee option	0.00	0	0.00	0	0	0	0.00
C4	Fishing-related services: fishing gear: added fee amount	-7.40	-8	2.40	-8	10	128	0.93
C4	Fishing-related services: fishing gear: other basis indicator	0.01	0	0.09	0	1	0	0.00
C4	Fishing-related services: other gear: not offered option	0.67	1	0.47	0	1	0	0.00
C4	Fishing-related services: other gear: included in trip package option	0.54	1	0.50	0	1	0	0.00
C4	Fishing-related services: other gear: added fee option	0.00	0	0.00	0	0	0	0.00
C4	Fishing-related services: other gear: added fee amount	-7.57	-8	2.13	-8	10	131	0.95
C4	Fishing-related services: other gear: other basis indicator	0.01	0	0.09	0	1	0	0.00
C4	Fishing-related services: souvenirs: not offered option	0.36	0	0.48	0	1	0	0.00
C4	Fishing-related services: souvenirs: included in trip package option	0.12	0	0.33	0	1	0	0.00

Table A18. -- Cont.

C4	Fishing-related services: souvenirs: added fee option	0.09	0	0.29	0	1	0	0.00
C4	Fishing-related services: souvenirs: added fee amount	-5.91	-8	7.39	-8	40	124	0.90
C4	Fishing-related services: souvenirs: other basis indicator	0.06	0	0.23	0	1	0	0.00
C4	Fishing-related services: other: not offered option	0.75	1	0.43	0	1	0	0.00
C4	Fishing-related services: other: included in trip package option	0.03	0	0.17	0	1	0	0.00
C4	Fishing-related services: other: added fee option	0.04	0	0.19	0	1	0	0.00
C4	Fishing-related services: other: added fee amount	9.84	-8	188.10	-8	2,200	130	0.94
C4	Fishing-related services: other: other basis indicator	0.03	0	0.17	0	1	0	0.00
C5	Fishing-related services: paid lodging offered option	0.23	0	0.42	0	1	0	0.00
C6	Revenue: charter trips, direct client payment: seats sold	169.91	44.5	325.21	-9	2,217	32	0.23
C6	Revenue: charter trips, direct client payment: total trips	50.69	14	154.90	-8	1,625	31	0.22
		100,182.3		312,579.4				
C6	Revenue: charter trips, direct client payment: revenue	0	24500	2	-9	3,200,000	28	0.20
C6	Revenue: charter trips, agent payment: seats sold	159.47	-7	914.71	-9	10,000	63	0.46
C6	Revenue: charter trips, agent payment: total trips	83.98	-8	771.05	-8	9,000	78	0.57
C6	Revenue: charter trips, agent payment: revenue	21,536.36	-8	69,479.13	-9	624,004	69	0.50
C6	Revenue: non-fishing charter trips: seats sold	62.13	-7	416.96	-8	4,000	63	0.46
C6	Revenue: non-fishing charter trips: total trips	2.37	-8	28.51	-8	250	76	0.55
C6	Revenue: non-fishing charter trips: revenue	11,128.39	-8	62,523.68	-8	679,000	79	0.57
C6	Revenue: referrals: total referrals	6.20	-8	97.13	-8	1,105	93	0.67
C6	Revenue: referrals: revenue	4,684.16	-8	34,156.90	-9	390,150	90	0.65
C6	Revenue: CHP sales: endorsements sold	5.77	-8	115.73	-9	1,328	93	0.67
C6	Revenue: CHP sales: revenue	5,679.17	-8	45,355.88	-9	396,000	97	0.70
C6	Revenue: CHP leases: endorsements leased	-5.49	-8	3.75	-9	2	90	0.65
C6	Revenue: CHP leases: revenue	116.63	-8	763.61	-8	7,000	96	0.70
D1	Costs: vessel fuel	17,539.76	8000	31,611.68	-8	290,000	18	0.13
D1	Costs: fish handling, processing, packaging, shipping	2,558.80	0	14,432.31	-9	164,000	53	0.38
D1	Costs: broker or agent referral/commission fees	3,739.74	0	12,998.81	-8	93,100	47	0.34
D1	Costs: vessel cleaning	474.62	-0.5	1,666.08	-9	13,450	57	0.41
D1	Costs: supplies	6,108.53	2000	11,644.43	-8	77,747	27	0.20

Table A18. -- Cont.

				102,707.2				
D1	Costs: other vessel or trip operating expenses	11,705.09	-7	7	-8	1,200,000	67	0.49
D1	Costs: non-wage payroll costs	2,310.67	-3.5	6,334.77	-8	37,000	59	0.43
D1	Costs: utilities	2,877.93	1244	4,985.87	-9	35,500	30	0.22
D1	Costs: repair and maintenance	8,146.32	3599.635	16,061.08	-8	150,000	24	0.17
D1	Costs: insurance	5,617.76	2811	9,337.56	-9	66,000	21	0.15
D1	Costs: travel, meals, entertainment	3,074.39	500	6,630.13	-8	42,828	36	0.26
D1	Costs: office and general supplies	1,628.53	496	3,277.64	-8	20,000	34	0.25
D1	Costs: legal and professional services	2,964.38	675	7,574.79	-8	65,000	35	0.25
D1	Costs: financial services	5,004.05	166.5	18,381.25	-8	200,000	39	0.28
D1	Costs: taxes and licensing fees	2,680.26	660	6,769.94	-9	54,000	32	0.23
D1	Costs: vehicle fuel costs	1,467.11	300	3,588.01	-8	34,000	43	0.31
D1	Costs: other general overhead expenses	6,136.76	0	17,619.85	-8	110,000	61	0.44
D2	Capital expenses: vessels and related equipment: cash payment	9,308.50	0	24,251.44	-9	200,000	59	0.43
D2	Capital expenses: vessels and related equipment: new investment	10,553.63	-8	36,929.71	-9	300,000	88	0.64
D2	Capital expenses: vehicles: cash payment	1,129.62	-8	3,506.93	-8	28,000	76	0.55
D2	Capital expenses: vehicles: new investment	2,567.61	-8	19,532.43	-8	220,000	107	0.78
D2	Capital expenses: fishing gear, tackle, safety equipment: cash payment	1,420.43	0	3,216.38	-8	29,404	61	0.44
D2	Capital expenses: fishing gear, tackle, safety equipment: new investment	761.86	-8	3,036.36	-8	29,404	98	0.71
D2	Capital expenses: other machinery and equipment: cash payment	933.34	-8	4,217.76	-8	38,000	89	0.64
D2	Capital expenses: other machinery and equipment: new investment	1,426.37	-8	8,449.28	-9	85,000	107	0.78
D2	Capital expenses: moorage/slip, boatyard and storage space: cash payment	1,495.79	0	2,767.36	-8	15,801	61	0.44
D2	Capital expenses: moorage/slip, boatyard and storage space: new investment	361.43	-8	1,562.66	-8	10,000	106	0.77
D2	Capital expenses: office space, lodging, shore-side facilities: cash payment	4,054.75	-8	18,057.70	-8	180,000	76	0.55
D2	Capital expenses: office space, lodging, shore-side facilities: new investment	775.52	-8	6,287.89	-8	70,000	109	0.79
D2	Capital expenses: transferable fishing permits and licenses: cash payment	676.28	-8	4,167.39	-8	47,000	89	0.64
D2	Capital expenses: transferable fishing permits and licenses: new investment	1,448.20	-8	10,773.27	-8	110,000	108	0.78

Table A18. -- Cont.

D2	Capital expenses: other business-related property and assets: cash payment	270.44	-8	1,581.57	-8	15,000	94	0.68
D2	Capital expenses: other business-related property and assets: new investment	569.56	-8	6,391.42	-8	75,000	110	0.80
E1	Clients: percentage of clients that were return customers or referrals from previous customers	3.55	4	2.14	-8	6	3	0.02
E2	Clients: percentage of clients booking 1 month or more in advance	3.99	4	2.24	-8	6	3	0.02
E3	Clients: percentage of clients booking less than 48 hours in advance	1.50	2	1.87	-8	6	4	0.03
E4	Clients: percentage of clients booked independent	3.28	4	3.17	-8	6	7	0.05
E4	Clients: percentage of clients booked through cruise ship	-0.32	1	3.61	-8	6	24	0.17
E4	Clients: percentage of clients booked through charter booking service	0.82	1	3.70	-8	6	18	0.13
E4	Clients: percentage of clients booked through general travel agent	-0.01	1	3.34	-8	3	20	0.14
E4	Business and household: C corporation option	0.09	0	0.28	0	1	0	0.00
F2	Business and household: business structure type	0.41	1	2.98	-8	2	15	0.11
F3	Business and household: percentage share of business by household	82.43	100	36.84	-8	100	15	0.11
F4	Business and household: household members working as guides	-0.59	1	3.58	-8	4	24	0.17
F4	Business and household: household members working as other crew	-4.51	-8	4.31	-8	2	82	0.59
F4	Business and household: household members working on shore	-2.67	0	4.58	-8	3	57	0.41
F5	Business and household: percentage of income from business	2.10	3	3.92	-8	6	16	0.12
F6	Business and household: work related to charter business option	0.43	0	0.50	0	1	0	0.00
F6	Business and household: worked in AK, fishing not related to charter business	0.08	0	0.27	0	1	0	0.00
F6	Business and household: worked in AK, non-fishing job	0.35	0	0.48	0	1	0	0.00
F6	Business and household: lived in AK, did not work	0.15	0	0.36	0	1	0	0.00
F6	Business and household: worked outside AK, fishing not related to charter business	0.04	0	0.20	0	1	0	0.00
F6	Business and household: worked outside AK, non-fishing job	0.09	0	0.28	0	1	0	0.00
F6	Business and household: lived outside AK, did not work	0.07	0	0.25	0	1	0	0.00

Table A19. -- 2013 survey variable descriptions, summary statistics of survey questions, and item non-response.

Variable	Description	Mean	Median	Std Dev	Min	Max	Blanks	Non-response rate
A2	Respondent identification: vessels owned	1.60	1	1.83	0	10	0	0.00
A2	Respondent identification: vessels owned (adjusted)	1.60	1	1.83	0	10	0	0.00
A2	Respondent identification: vessels leased	0.10	0	0.46	0	4	0	0.00
A2	Respondent identification: vessels leased (adjusted)	0.08	0	0.27	0	1	0	0.00
B1	No. of employees: guides/full-time/early shoulder	-1.67	0	4.62	-8	11	39	0.31
B1	No. of employees: guides/full-time/main season	0.43	1	5.99	-8	40	22	0.17
B1	No. of employees: guides/full-time/late shoulder	-1.26	0	4.72	-8	12	36	0.29
B1	No. of employees: guides/full-time/off season	-2.45	0	3.99	-8	5	42	0.33
B1	No. of employees: guides/part-time/early shoulder	-3.63	0	4.37	-8	6	61	0.48
B1	No. of employees: guides/part-time/main season	-3.55	0	4.29	-8	4	59	0.47
B1	No. of employees: guides/part-time/late shoulder	-3.71	-3.5	4.35	-8	6	62	0.49
B1	No. of employees: guides/part-time/off season	-4.25	-8	4.07	-8	2	67	0.53
B2	No. of employees: other crew/full-time/early shoulder	-1.94	0	4.79	-8	20	39	0.31
B2	No. of employees: other crew/full-time/main season	-0.31	0	6.76	-8	60	24	0.19
B2	No. of employees: other crew/full-time/late shoulder	-1.68	0	4.54	-8	15	37	0.29
B2	No. of employees: other crew/full-time/off season	-3.25	0	3.99	-8	2	51	0.40
B2	No. of employees: other crew/part-time/early shoulder	-3.93	-8	4.24	-8	4	64	0.51
B2	No. of employees: other crew/part-time/main season	-4.04	-8	4.18	-8	4	65	0.52
B2	No. of employees: other crew/part-time/late shoulder	-4.13	-8	4.22	-8	4	67	0.53
B2	No. of employees: other crew/part-time/off season	-4.53	-8	4.01	-8	1	71	0.56
B3	No. of employees: shore/full-time/early shoulder	-1.87	0	5.14	-8	17	41	0.33
B3	No. of employees: shore/full-time/main season	0.17	0	10.49	-8	95	31	0.25
B3	No. of employees: shore/full-time/late shoulder	-1.44	0	5.70	-8	22	39	0.31
B3	No. of employees: shore/full-time/off season	-2.79	0	4.52	-8	15	47	0.37
B3	No. of employees: shore/part-time/early shoulder	-3.86	-7.5	4.32	-8	4	63	0.50
B3	No. of employees: shore/part-time/main season	-3.79	-7	4.31	-8	3	62	0.49

Table A19. -- Cont.

B3	No. of employees: shore/part-time/late shoulder	-3.80	-7	4.30	-8	4	62	0.49
B3	No. of employees: shore/part-time/off season	-4.17	-8	4.17	-8	5	66	0.52
B4	Employee pay: guides	19,727.32	0	47,623.73	-8	300,000	28	0.22
B4	Employee pay: other crew	8,229.94	0	34,830.68	-8	380,000	28	0.22
				101,312.6				
B4	Employee pay: shore employees	25,225.06	0	1	-8	772,713	33	0.26
B5	Employee pay, wage option: guide	0.23	0	0.42	0	1	0	0.00
B5	Employee pay, salary option: guide	0.17	0	0.38	0	1	0	0.00
B5	Employee pay, share option: guide	0.04	0	0.20	0	1	0	0.00
B5	Employee pay, other option: guide	0.08	0	0.27	0	1	0	0.00
B5	Employee pay, wage option: other crew	0.26	0	0.44	0	1	0	0.00
B5	Employee pay, salary option: other crew	0.16	0	0.37	0	1	0	0.00
B5	Employee pay, share option: other crew	0.02	0	0.13	0	1	0	0.00
B5	Employee pay, other option: other crew	0.07	0	0.26	0	1	0	0.00
B5	Employee pay, wage option: shore employee	0.25	0	0.44	0	1	0	0.00
B5	Employee pay, salary option: shore employee	0.16	0	0.37	0	1	0	0.00
B5	Employee pay, share option: shore employee	0.04	0	0.20	0	1	0	0.00
B5	Employee pay, other option: shore employee	0.06	0	0.24	0	1	0	0.00
C1	Trip offerings, fishing only option	0.77	1	0.87	-8	1	1	0.01
C1	Trip offerings, combination fishing and hunting option	0.04	0	0.78	-8	1	1	0.01
C1	Trip offerings, combination fishing and tour option	0.38	0	0.90	-8	1	1	0.01
C1	Trip offerings, tour only option	0.21	0	0.86	-8	1	1	0.01
C1	Trip offerings, outfitting option	0.00	0	0.76	-8	1	1	0.01
C1	Trip offerings, game transport option	0.02	0	0.77	-8	1	1	0.01
C1	Trip offerings, general transportation option	0.12	0	0.83	-8	1	1	0.01
C1	Trip offerings, event hosting option	-0.02	0	0.75	-8	1	1	0.01
C1	Trip offerings, research or oil spill services option	-0.01	0	0.75	-8	1	1	0.01
C1	Trip offerings, other services option	0.01	0	0.82	-8	4	1	0.01
C2	Trip offerings: 2-species/half-day: not offered option	0.35	0	0.90	-8	1	1	0.01
C2	Trip offerings: 2-species/half-day: individual price	40.90	-8	85.38	-9	250	91	0.72

Table A19. -- Cont.

C2	Trip offerings: 2-species/half-day: boat price	197.37	-8	433.65	-8	2,000	98	0.78
C2	Trip offerings: 2-species/three-quarter day: not offered option	0.21	0	0.86	-8	1	1	0.01
C2	Trip offerings: 2-species/three-quarter day: individual price	15.87	-8	68.54	-9	260	110	0.87
C2	Trip offerings: 2-species/three-quarter day: boat price	97.21	-8	332.52	-8	1,350	114	0.90
C2	Trip offerings: 2-species/full day: not offered option	0.64	1	0.90	-8	1	1	0.01
C2	Trip offerings: 2-species/full day: individual price	181.16	250	159.03	-9	695	46	0.37
C2	Trip offerings: 2-species/full day: boat price	786.30	300	966.35	-8	4,900	59	0.47
C2	Trip offerings: 2-species/overnight: not offered option	0.23	0	0.87	-8	1	1	0.01
C2	Trip offerings: 2-species/overnight: individual price	35.67	-8	174.12	-8	1,150	116	0.92
C2	Trip offerings: 2-species/overnight: boat price	264.74	-8	1,128.68	-8	9,125	116	0.92
C2	Trip offerings: 2-species/multi-day: not offered option	0.37	0	0.90	-8	1	1	0.01
C2	Trip offerings: 2-species/multi-day: individual price	287.42	-8	781.36	-8	4,300	101	0.80
C2	Trip offerings: 2-species/multi-day: boat price	867.45	-8	3,101.39	-8	21,500	106	0.84
C2	Trip offerings: multi-species/half-day: not offered option	0.29	0	0.89	-8	1	1	0.01
C2	Trip offerings: multi-species/half-day: individual price	18.24	-8	67.53	-8	225	108	0.86
C2	Trip offerings: multi-species/half-day: boat price	89.75	-8	297.30	-8	1,350	112	0.89
C2	Trip offerings: multi-species/three-quarter day: not offered option	0.22	0	0.87	-8	1	1	0.01
C2	Trip offerings: multi-species/three-quarter day: individual price	-0.60	-8	41.74	-8	300	121	0.96
C2	Trip offerings: multi-species/three-quarter day: boat price	31.94	-8	230.47	-8	1,800	122	0.97
C2	Trip offerings: multi-species/full day: not offered option	0.60	1	0.90	-8	1	1	0.01
C2	Trip offerings: multi-species/full day: individual price	150.21	-4	169.47	-8	695	62	0.49
C2	Trip offerings: multi-species/full day: boat price	642.91	-8	922.86	-8	4,900	74	0.59
C2	Trip offerings: multi-species/overnight: not offered option	0.25	0	0.87	-8	1	1	0.01
C2	Trip offerings: multi-species/overnight: individual price	40.19	-8	208.37	-8	1,445	117	0.93
C2	Trip offerings: multi-species/overnight: boat price	187.42	-8	1,046.77	-8	9,125	120	0.95
C2	Trip offerings: multi-species/multi-day: not offered option	0.40	0	0.90	-8	1	1	0.01
C2	Trip offerings: multi-species/multi-day: individual price	490.45	-8	1,192.12	-8	7,200	94	0.75
C2	Trip offerings: multi-species/multi-day: boat price	2,718.75	-8	13,365.39	-8	138,000	102	0.81
C3	Trip offerings: halibut/half-day: not offered option	0.27	0	0.88	-8	1	1	0.01
C3	Trip offerings: halibut/half-day: individual price	24.57	-8	73.14	-9	250	103	0.82

Table A19. – Cont.

C3	Trip offerings: halibut/half-day: boat price	142.45	-8	391.68	-8	1,800	106	0.84
C3	Trip offerings: halibut/three-quarter day: not offered option	0.19	0	0.86	-8	1	1	0.01
C3	Trip offerings: halibut/three-quarter day: individual price	11.86	-8	65.17	-9	275	114	0.90
C3	Trip offerings: halibut/three-quarter day: boat price	80.25	-8	314.10	-8	1,650	116	0.92
C3	Trip offerings: halibut/full day: not offered option	0.60	1	0.90	-8	1	1	0.01
C3	Trip offerings: halibut/full day: individual price	156.15	220	157.04	-9	695	54	0.43
C3	Trip offerings: halibut/full day: boat price	709.59	-8	923.58	-8	4,320	66	0.52
C3	Trip offerings: halibut/overnight: not offered option	0.21	0	0.86	-8	1	1	0.01
C3	Trip offerings: halibut/overnight: individual price	40.12	-8	190.81	-8	1,445	116	0.92
C3	Trip offerings: halibut/overnight: boat price	251.43	-8	916.24	-8	5,700	115	0.91
C3	Trip offerings: halibut/multi-day: not offered option	0.25	0	0.87	-8	1	1	0.01
C3	Trip offerings: halibut/multi-day: individual price	177.96	-8	653.14	-8	4,300	110	0.87
C3	Trip offerings: halibut/multi-day: boat price	646.33	-8	2,914.68	-8	21,500	114	0.90
C3	Trip offerings: salmon/half-day: not offered option	0.39	0	0.90	-8	1	1	0.01
C3	Trip offerings: salmon/half-day: individual price	44.57	-8	85.12	-9	250	89	0.71
C3	Trip offerings: salmon/half-day: boat price	240.25	-8	484.53	-8	2,800	94	0.75
C3	Trip offerings: salmon/three-quarter day: not offered option	0.22	0	0.87	-8	1	1	0.01
C3	Trip offerings: salmon/three-quarter day: individual price	15.12	-8	68.89	-9	250	112	0.89
C3	Trip offerings: salmon/three-quarter day: boat price	117.11	-8	377.13	-8	1,600	113	0.90
C3	Trip offerings: salmon/full day: not offered option	0.54	1	0.91	-8	1	1	0.01
C3	Trip offerings: salmon/full day: individual price	125.40	-8	154.20	-9	695	66	0.52
C3	Trip offerings: salmon/full day: boat price	571.45	-8	872.27	-8	4,200	74	0.59
C3	Trip offerings: salmon/overnight: not offered option	0.14	0	0.84	-8	1	1	0.01
C3	Trip offerings: salmon/overnight: individual price	13.38	-8	156.24	-8	1,445	123	0.98
C3	Trip offerings: salmon/overnight: boat price	50.46	-8	528.39	-8	5,700	124	0.98
C3	Trip offerings: salmon/multi-day: not offered option	0.21	0	0.86	-8	1	1	0.01
C3	Trip offerings: salmon/multi-day: individual price	140.31	-8	538.07	-8	3,100	112	0.89
C3	Trip offerings: salmon/multi-day: boat price	461.70	-8	2,233.07	-8	18,000	117	0.93
C3	Trip offerings: other species/half-day: not offered option	0.25	0	0.87	-8	1	1	0.01
C3	Trip offerings: other species/half-day: individual price	13.62	-8	60.22	-9	250	110	0.87

Table A19. -- Cont.

C3	Trip offerings: other species/half-day: boat price	92.79	-8	290.08	-8	1,350	111	0.88
C3	Trip offerings: other species/three-quarter day: not offered option	0.18	0	0.85	-8	1	1	0.01
C3	Trip offerings: other species/three-quarter day: individual price	1.04	-8	45.51	-9	300	120	0.95
C3	Trip offerings: other species/three-quarter day: boat price	37.56	-8	235.97	-8	1,800	121	0.96
C3	Trip offerings: other species/full day: not offered option	0.38	0	0.90	-8	1	1	0.01
C3	Trip offerings: other species/full day: individual price	76.63	-8	138.29	-9	500	88	0.70
C3	Trip offerings: other species/full day: boat price	371.20	-8	752.12	-8	3,600	94	0.75
C3	Trip offerings: other species/overnight: not offered option	0.17	0	0.85	-8	1	1	0.01
C3	Trip offerings: other species/overnight: individual price	11.13	-8	154.48	-8	1,445	124	0.98
C3	Trip offerings: other species/overnight: boat price	37.30	-8	508.51	-8	5,700	125	0.99
C3	Trip offerings: other species/multi-day: not offered option	0.25	0	0.87	-8	1	1	0.01
C3	Trip offerings: other species/multi-day: individual price	137.72	-8	543.24	-8	3,100	114	0.90
C3	Trip offerings: other species/multi-day: boat price	406.73	-8	2,186.68	-8	18,000	119	0.94
C4	Fishing-related services: long-distance fishing: not offered option	0.44	0.5	0.91	-8	1	1	0.01
C4	Fishing-related services: long-distance fishing: included in trip package option	0.25	0	0.88	-8	1	1	0.01
C4	Fishing-related services: long-distance fishing: added fee option	-0.01	0	0.75	-8	1	1	0.01
C4	Fishing-related services: long-distance fishing: added fee amount	1.57	-8	60.15	-8	600	119	0.94
C4	Fishing-related services: long-distance fishing: other basis indicator	0.93	1	0.26	0	1	0	0.00
C4	Fishing-related services: fish cleaning (h/g): not offered option	0.12	0	0.83	-8	1	1	0.01
C4	Fishing-related services: fish cleaning (h/g): included in trip package option	0.63	1	0.90	-8	1	1	0.01
C4	Fishing-related services: fish cleaning (h/g): added fee option	-0.06	0	0.72	-8	1	1	0.01
C4	Fishing-related services: fish cleaning (h/g): added fee amount	-7.32	-8	3.76	-8	30	119	0.94
C4	Fishing-related services: fish cleaning (h/g): other basis indicator	0.90	1	0.29	0	1	0	0.00
C4	Fishing-related services: fish cleaning (skinning, etc.): not offered option	0.10	0	0.82	-8	1	1	0.01
C4	Fishing-related services: fish cleaning (skinning, etc.): included in trip package option	0.63	1	0.90	-8	1	1	0.01
C4	Fishing-related services: fish cleaning (skinning, etc.): added fee option	-0.05	0	0.73	-8	1	1	0.01
C4	Fishing-related services: fish cleaning (skinning, etc.): added fee amount	-6.58	-8	6.58	-8	50	115	0.91

Table A19. -- Cont.

C4	Fishing-related services: fish cleaning (skinning, etc.): other basis indicator	0.87	1	0.33	0	1	0	0.00
C4	Fishing-related services: packing and shipping: not offered option	0.40	0	0.90	-8	1	1	0.01
C4	Fishing-related services: packing and shipping: included in trip package option	0.20	0	0.86	-8	1	1	0.01
C4	Fishing-related services: packing and shipping: added fee option	0.07	0	0.80	-8	1	1	0.01
C4	Fishing-related services: packing and shipping: added fee amount	-4.41	-8	21.25	-8	200	115	0.91
C4	Fishing-related services: packing and shipping: other basis indicator	0.84	1	0.37	0	1	0	0.00
C4	Fishing-related services: transport to/from vessel: not offered option	0.34	0	0.90	-8	1	1	0.01
C4	Fishing-related services: transport to/from vessel: included in trip package option	0.37	0	0.90	-8	1	1	0.01
C4	Fishing-related services: transport to/from vessel: added fee option	-0.05	0	0.73	-8	1	1	0.01
C4	Fishing-related services: transport to/from vessel: added fee amount	-0.33	-8	58.68	-8	500	122	0.97
C4	Fishing-related services: transport to/from vessel: other basis indicator	0.94	1	0.24	0	1	0	0.00
C4	Fishing-related services: onshore lodging: not offered option	0.37	0	0.90	-8	1	1	0.01
C4	Fishing-related services: onshore lodging: included in trip package option	0.29	0	0.89	-8	1	1	0.01
C4	Fishing-related services: onshore lodging: added fee option	0.02	0	0.77	-8	1	1	0.01
C4	Fishing-related services: onshore lodging: added fee amount	1.52	-8	40.86	-8	300	115	0.91
C4	Fishing-related services: onshore lodging: other basis indicator	0.90	1	0.31	0	1	0	0.00
C4	Fishing-related services: on-vessel lodging: not offered option	0.63	1	0.90	-8	1	1	0.01
C4	Fishing-related services: on-vessel lodging: included in trip package option	0.12	0	0.83	-8	1	1	0.01
C4	Fishing-related services: on-vessel lodging: added fee option	-0.06	0	0.72	-8	1	1	0.01
C4	Fishing-related services: on-vessel lodging: added fee amount	-6.68	-8	14.09	-8	150	124	0.98
C4	Fishing-related services: on-vessel lodging: other basis indicator	0.93	1	0.26	0	1	0	0.00
C4	Fishing-related services: cooked meals: not offered option	0.40	0	0.90	-8	1	1	0.01
C4	Fishing-related services: cooked meals: included in trip package option	0.33	0	0.89	-8	1	1	0.01
C4	Fishing-related services: cooked meals: added fee option	-0.03	0	0.74	-8	1	1	0.01
C4	Fishing-related services: cooked meals: added fee amount	-5.44	-8	14.02	-8	100	120	0.95
C4	Fishing-related services: cooked meals: other basis indicator	0.90	1	0.29	0	1	0	0.00
C4	Fishing-related services: beverages/snacks: not offered option	0.22	0	0.87	-8	1	1	0.01

Table A19. -- Cont.

C4	Fishing-related services: beverages/snacks: included in trip package option	0.58	1	0.91	-8	1	1	0.01
C4	Fishing-related services: beverages/snacks: added fee option	-0.06	0	0.71	-8	0	1	0.01
C4	Fishing-related services: beverages/snacks: added fee amount	-7.87	-8	1.00	-8	0	124	0.98
C4	Fishing-related services: beverages/snacks: other basis indicator	0.90	1	0.29	0	1	0	0.00
C4	Fishing-related services: bait: not offered option	0.04	0	0.78	-8	1	1	0.01
C4	Fishing-related services: bait: included in trip package option	0.76	1	0.87	-8	1	1	0.01
C4	Fishing-related services: bait: added fee option	-0.06	0	0.71	-8	0	1	0.01
C4	Fishing-related services: bait: added fee amount	-7.58	-8	1.93	-8	5	120	0.95
C4	Fishing-related services: bait: other basis indicator	0.89	1	0.32	0	1	0	0.00
C4	Fishing-related services: ice: not offered option	0.22	0	0.87	-8	1	1	0.01
C4	Fishing-related services: ice: included in trip package option	0.52	1	0.91	-8	1	1	0.01
C4	Fishing-related services: ice: added fee option	-0.05	0	0.73	-8	1	1	0.01
C4	Fishing-related services: ice: added fee amount	-7.86	-8	1.14	-8	2	124	0.98
C4	Fishing-related services: ice: other basis indicator	0.90	1	0.29	0	1	0	0.00
C4	Fishing-related services: fishing gear: not offered option	0.04	0	0.78	-8	1	1	0.01
C4	Fishing-related services: fishing gear: included in trip package option	0.75	1	0.87	-8	1	1	0.01
C4	Fishing-related services: fishing gear: added fee option	-0.06	0	0.71	-8	0	1	0.01
C4	Fishing-related services: fishing gear: added fee amount	-7.00	-8	5.89	-8	50	119	0.94
C4	Fishing-related services: fishing gear: other basis indicator	0.89	1	0.32	0	1	0	0.00
C4	Fishing-related services: other gear: not offered option	0.24	0	0.87	-8	1	1	0.01
C4	Fishing-related services: other gear: included in trip package option	0.46	1	0.91	-8	1	1	0.01
C4	Fishing-related services: other gear: added fee option	-0.06	0	0.71	-8	0	1	0.01
C4	Fishing-related services: other gear: added fee amount	-7.87	-8	1.00	-8	0	124	0.98
C4	Fishing-related services: other gear: other basis indicator	0.90	1	0.29	0	1	0	0.00
C4	Fishing-related services: souvenirs: not offered option	0.48	1	0.91	-8	1	1	0.01
C4	Fishing-related services: souvenirs: included in trip package option	0.07	0	0.80	-8	1	1	0.01
C4	Fishing-related services: souvenirs: added fee option	0.06	0	0.80	-8	1	1	0.01
C4	Fishing-related services: souvenirs: added fee amount	-6.63	-8	6.28	-8	34	119	0.94
C4	Fishing-related services: souvenirs: other basis indicator	0.88	1	0.33	0	1	0	0.00

Table A19. -- Cont.

C4	Fishing-related services: other: not offered option	0.21	0	0.86	-8	1	1	0.01
C4	Fishing-related services: other: included in trip package option	-0.05	0	0.74	-8	1	1	0.01
C4	Fishing-related services: other: added fee option	-0.02	0	0.75	-8	1	1	0.01
C4	Fishing-related services: other: added fee amount	-5.56	-8	19.11	-8	200	119	0.94
C4	Fishing-related services: other: other basis indicator	0.88	1	0.33	0	1	0	0.00
C5	Fishing-related services: paid lodging offered option	0.19	0	0.39	0	1	0	0.00
C6	Revenue: charter trips, direct client payment: seats sold	247.16	38	571.94	-9	4,731	39	0.31
C6	Revenue: charter trips, direct client payment: total trips	55.46	9.5	145.52	-9	1,352	38	0.30
C6	Revenue: charter trips, direct client payment: revenue	169,679.8	9	617,430.3	-8	4,717,526	33	0.26
C6	Revenue: charter trips, agent payment: seats sold	63.40	-8	350.86	-8	3,779	74	0.59
C6	Revenue: charter trips, agent payment: total trips	18.21	-8	110.37	-8	1,136	74	0.59
C6	Revenue: charter trips, agent payment: revenue	22,436.21	-8	97,390.07	-8	803,677	71	0.56
C6	Revenue: non-fishing charter trips: seats sold	37.58	-8	274.63	-8	3,000	71	0.56
C6	Revenue: non-fishing charter trips: total trips	6.10	-8	50.97	-8	500	72	0.57
C6	Revenue: non-fishing charter trips: revenue	13,663.42	-8	56,395.08	-8	400,000	74	0.59
C6	Revenue: referrals: total referrals	49.51	-8	253.59	-8	1,950	83	0.66
C6	Revenue: referrals: revenue	10,241.29	-8	73,174.77	-8	800,000	95	0.75
C6	Revenue: CHP sales: endorsements sold	10.60	-8	155.22	-8	1,704	85	0.67
C6	Revenue: CHP sales: revenue	7,612.45	-8	59,483.64	-8	586,000	95	0.75
C6	Revenue: CHP leases: endorsements leased	-5.48	-8	3.77	-8	2	83	0.66
C6	Revenue: CHP leases: revenue	192.34	-8	1,017.94	-8	8,000	93	0.74
D1	Costs: vessel fuel	20,624.15	9748	31,938.34	-9	209,268	20	0.16
D1	Costs: fish handling, processing, packaging, shipping	1,965.47	0	6,378.37	-9	53,144	45	0.36
D1	Costs: broker or agent referral/commission fees	4,264.77	0	15,343.34	-9	106,800	47	0.37
D1	Costs: vessel cleaning	1,037.19	0	7,448.51	-9	82,975	48	0.38
D1	Costs: supplies	10,703.61	2380	44,229.53	-9	483,353	22	0.17
D1	Costs: other vessel or trip operating expenses	7,669.07	-7.5	28,030.94	-9	209,268	61	0.48
D1	Costs: non-wage payroll costs	4,780.93	-7	27,155.10	-9	294,981	54	0.43
D1	Costs: utilities	6,047.94	1250	28,429.79	-9	314,904	32	0.25

Table A19. -- Cont.

D1	Costs: repair and maintenance	11,352.61	4580.63	20,427.97	-9	146,391	28	0.22
D1	Costs: insurance	7,037.81	2700	16,637.10	-9	145,591	28	0.22
D1	Costs: travel, meals, entertainment	3,699.74	0	10,460.52	-9	92,539	38	0.30
D1	Costs: office and general supplies	1,693.57	472.5	3,325.87	-9	24,761	33	0.26
D1	Costs: legal and professional services	2,530.71	525	5,727.79	-9	40,000	33	0.26
D1	Costs: financial services	9,655.69	93.5	40,140.81	-9	409,209	41	0.33
D1	Costs: taxes and licensing fees	3,029.27	733	7,450.17	-9	68,221	28	0.22
D1	Costs: vehicle fuel costs	3,149.19	300	13,131.78	-9	130,000	43	0.34
D1	Costs: other general overhead expenses	13,201.92	-7	55,260.72	-9	513,048	60	0.48
D2	Capital expenses: vessels and related equipment: cash payment	16,044.31	0	78,211.10	-9	824,250	44	0.35
D2	Capital expenses: vessels and related equipment: new investment	8,039.38	-8	24,576.58	-9	215,000	77	0.61
D2	Capital expenses: vehicles: cash payment	2,901.97	0	16,067.02	-9	178,260	53	0.42
D2	Capital expenses: vehicles: new investment	1,048.59	-8	5,088.88	-9	45,000	87	0.69
D2	Capital expenses: fishing gear, tackle, safety equipment: cash payment	2,141.79	-4	4,915.36	-9	35,000	58	0.46
D2	Capital expenses: fishing gear, tackle, safety equipment: new investment	954.38	-8	4,023.23	-9	40,000	89	0.71
D2	Capital expenses: other machinery and equipment: cash payment	1,807.16	-8	5,605.65	-9	49,000	66	0.52
D2	Capital expenses: other machinery and equipment: new investment	2,462.02	-8	21,793.84	-9	240,000	96	0.76
D2	Capital expenses: moorage/slip, boatyard and storage space: cash payment	1,662.40	-8	4,411.32	-9	32,000	71	0.56
D2	Capital expenses: moorage/slip, boatyard and storage space: new investment	1,014.52	-8	7,854.01	-9	86,073	100	0.79
D2	Capital expenses: office space, lodging, shore-side facilities: cash payment	3,286.25	-8	16,721.59	-9	170,000	87	0.69
D2	Capital expenses: office space, lodging, shore-side facilities: new investment	60.58	-8	488.22	-9	4,500	102	0.81
D2	Capital expenses: transferable fishing permits and licenses: cash payment	1,427.46	-8	12,013.45	-9	132,000	89	0.71
D2	Capital expenses: transferable fishing permits and licenses: new investment	191.34	-8	2,227.81	-9	25,000	105	0.83
D2	Capital expenses: other business-related property and assets: cash payment	520.35	-8	5,670.06	-9	63,600	97	0.77
D2	Capital expenses: other business-related property and assets: new investment	72.29	-8	891.51	-9	10,000	105	0.83

Table A19. -- Cont.

E1	Clients: percentage of clients that were return customers or referrals from previous customers	2.79	4	3.22	-8	6	9	0.07
E2	Clients: percentage of clients booking 1 month or more in advance	3.37	4	3.46	-8	6	9	0.07
E3	Clients: percentage of clients booking less than 48 hours in advance	1.14	2	2.72	-8	6	9	0.07
E4	Clients: percentage of clients booked independent	2.60	4	4.00	-8	6	13	0.10
E4	Clients: percentage of clients booked through cruise ship	-0.04	1	3.61	-8	6	20	0.16
E4	Clients: percentage of clients booked through charter booking service	0.31	1	3.93	-8	6	21	0.17
E4	Clients: percentage of clients booked through general travel agent	0.06	1	3.35	-8	3	18	0.14
E4	Business and household: C corporation option	-0.73	0	2.49	-8	1	13	0.10
F2	Business and household: business structure type	-4.06	-8	4.49	-8	2	71	0.56
F3	Business and household: percentage share of business by household	76.75	100	42.39	-8	100	21	0.17
F4	Business and household: household members working as guides	-0.83	1	3.73	-9	3	25	0.20
F4	Business and household: household members working as other crew	-4.33	-8	4.33	-9	2	70	0.56
F4	Business and household: household members working on shore	-2.94	0	4.66	-9	3	55	0.44
F5	Business and household: percentage of income from business	1.70	3	4.57	-8	6	21	0.17
F6	Business and household: work related to charter business option	0.42	0	0.50	0	1	0	0.00
F6	Business and household: worked in AK, fishing not related to charter business	0.06	0	0.24	0	1	0	0.00
F6	Business and household: worked in AK, non-fishing job	0.28	0	0.45	0	1	0	0.00
F6	Business and household: lived in AK, did not work	0.06	0	0.24	0	1	0	0.00
F6	Business and household: worked outside AK, fishing not related to charter business	0.02	0	0.15	0	1	0	0.00
F6	Business and household: worked outside AK, non-fishing job	0.10	0	0.29	0	1	0	0.00
F6	Business and household: lived outside AK, did not work	0.06	0	0.23	0	1	0	0.00

Appendix B

Alaska Saltwater Sport Fishing Charter Business Survey

2013 Season



This survey is funded by the National Oceanic and Atmospheric Administration, a U.S. government agency charged with making decisions about halibut management.

Public reporting burden for this collection of information is estimated at 60 minutes, including time for reviewing instructions, reviewing existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

OMB Control #: 0648-0647
Expiration Date: March 31, 2015

SURVEY INSTRUCTIONS

- ◇ Your responses to the survey questions should reflect information about your saltwater sport fishing charter business.
- ◇ If you have questions or anything is unclear, please contact Scott Prose at the Pacific States Marine Fisheries Commission, (888) 421-4251.
- ◇ If you are unable to answer the question, please write why you are unable to answer in the margin (for example, information is unavailable).

RESPONDENT IDENTIFICATION

All questions relate to you and the sport fishing charter business you licensed during 2013.

- A1** What are the business name and license number of your business as listed on the ADF&G Sport Fish Business Owner license?

Sport fish business name

ADF&G sport fish business owner license number

- A2** Please list the DMV-issued Alaska Vessel Number or U.S. Coast Guard Vessel Documentation Number for all (or up to 10) active vessels that this business operated during the 2013 season and indicate if the vessel was owned by the business or if it was leased from another person or business. *Include only saltwater vessels for which your business incurred expenses and/or received revenue.*

Vessel license number	Owned <input type="checkbox"/>	Leased <input type="checkbox"/>
Vessel 1: _____	<input type="checkbox"/>	<input type="checkbox"/>
Vessel 2: _____	<input type="checkbox"/>	<input type="checkbox"/>
Vessel 3: _____	<input type="checkbox"/>	<input type="checkbox"/>
Vessel 4: _____	<input type="checkbox"/>	<input type="checkbox"/>
Vessel 5: _____	<input type="checkbox"/>	<input type="checkbox"/>
Vessel 6: _____	<input type="checkbox"/>	<input type="checkbox"/>
Vessel 7: _____	<input type="checkbox"/>	<input type="checkbox"/>
Vessel 8: _____	<input type="checkbox"/>	<input type="checkbox"/>
Vessel 9: _____	<input type="checkbox"/>	<input type="checkbox"/>
Vessel 10: _____	<input type="checkbox"/>	<input type="checkbox"/>

EMPLOYMENT IN 2013

The next few questions are about employment and compensation of vessel operators and licensed guides, deckhands and other crew members, and other individuals employed by this business in 2013.

For these questions:

- The early shoulder season refers to the period from April 1 to mid-June.
- The main season refers to the period from mid-June to mid-August.
- The late shoulder season is from mid-August to the end of September.
- The off-season is the period from October through March.

B1 How many individuals worked for the business primarily as hired vessel operators and/or licensed sport fishing guides during each period in 2013, *not including owners of this business*? For each period, please report the number of individuals who worked full-time and part-time separately.

	Early shoulder	Main season	Late shoulder	Off-season
Full-time (at least 35 hours per week during most of the period).....	_____	_____	_____	_____
Part-time (less than 35 hours per week during most of the period).....	_____	_____	_____	_____

B2 How many individuals worked for the business primarily as hired deckhands or other on-board crew during each period in 2013, *not including owners of this business*? For each period, please report the number of individuals who worked full-time and part-time separately.

	Early shoulder	Main season	Late shoulder	Off-season
Full-time (at least 35 hours per week during most of the period).....	_____	_____	_____	_____
Part-time (less than 35 hours per week during most of the period).....	_____	_____	_____	_____

- B3** How many individuals were hired and worked for the business primarily on-shore during each period in 2013 (examples: business manager, guest services, administrative employees, etc)? *Do not include independent contractors that provide the same service to multiple businesses, or owners of this business. For each period, please report the number of individuals who worked full-time and part-time separately.*

	Early shoulder	Main season	Late shoulder	Off-season
Full-time (at least 35 hours per week during most of the period).....	_____	_____	_____	_____
Part-time (less than 35 hours per week during most of the period).....	_____	_____	_____	_____

- B4** For work performed in 2013, how much did you pay in total to hired vessel operators and guides, deckhands and other crew, and on-shore employees? *Include only payment of wages and other monetary compensation; do not include non-wage benefits (for example, health insurance), other payroll expenses (for example, unemployment insurance), or any payments to owners of this business.*

Worker type	Total payments
Vessel operators/guides.....	\$ _____
Deckhands and other on-board crew.....	\$ _____
On-shore employees.....	\$ _____

- B5** What forms of compensation were used for hired vessel operators and guides, deckhands and other crew, and on-shore employees in 2013? *For each worker type, please check the box for each form of compensation that was used to pay one or more individuals, not including owners of this business. Check all that apply.*

Worker type	Daily/ hourly wage <input checked="" type="checkbox"/>	Salary <input checked="" type="checkbox"/>	Revenue share <input checked="" type="checkbox"/>	Other (please describe) <input checked="" type="checkbox"/>
Vessel operators/guides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
Deckhands and other on-board crew.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
On-shore workers.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____

YOUR 2013 FISHING TRIP OFFERINGS AND SERVICES
--

C1 During 2013, which of the following trip types did you offer? *Check all that apply.*

- ☐ Fishing only
- ☐ Combination fishing and hunting
- ☐ Combination fishing and dedicated eco-tour/wildlife-viewing
- ☐ Eco-tour/wildlife viewing only (no fishing)
- ☐ Outfitting (example: saltwater fishing gear rental)
- ☐ Game transport
- ☐ General transportation/water taxi (no outfitting/game transport)
- ☐ Event-hosting services
- ☐ Research or oil spill monitoring and response
- ☐ Other, please describe: _____

C2 Many businesses offer saltwater fishing trips targeting multiple species (“combination fishing trips”). During 2013, what was the average price per person and the full boat price (chartering the whole boat independent of the number of clients) that you charged clients for the following types of combination fishing trips you may have advertised offering? *If you did not advertise or offer, please check the “Not offered” box.*

Type of combination fishing trip	Not offered <input checked="" type="checkbox"/>	Average price per person	Full boat price
<u>Two-species combination fishing trips</u>			
“Half day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Three-quarter day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Full day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Overnight” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Multi-day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
<u>Multiple-species combination fishing trip (more than two species)</u>			
“Half day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Three-quarter day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Full day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Overnight” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Multi-day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____

- C3** During 2013, what was the average price per person and the full boat price (chartering the whole boat independent of the number of clients) that you charged clients for **halibut, king salmon, silver salmon, or other saltwater species** fishing trips targeting a single species that you may have advertised offering? *If you did not advertise or offer, please check the “Not offered” box.*

Type of fishing trip	Not offered <input checked="" type="checkbox"/>	Average price per person	Full boat price
<u>Halibut fishing trips</u>			
“Half day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Three-quarter day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Full day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Overnight” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Multi-day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
<u>King or silver salmon fishing trips</u>			
“Half day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Three-quarter day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Full day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Overnight” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Multi-day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
<u>Other saltwater species fishing trips</u>			
“Half day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Three-quarter day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Full day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Overnight” trip.....	<input type="checkbox"/>	\$ _____	\$ _____
“Multi-day” trip.....	<input type="checkbox"/>	\$ _____	\$ _____

- C4** Of the following fishing-related services, which did you typically include as part of each saltwater fishing package you offered in 2013, which were offered for an added fee, and which were not offered? *For services offered for an additional fee, please indicate how much the fee is per person. If a fee is not charged on a per person basis, please write in the basis for the fee (examples: \$10/trip, \$10/pound) in the margin.*

Fishing-related services	Not offered <input type="checkbox"/>	Included in one or more trip package? <input type="checkbox"/>	Charge an added fee? <input type="checkbox"/>	Amount of added fee per person (indicate if fee is charged on other basis)
Long-distance fishing locations (including fuel surcharge).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Fish cleaning (head/gut).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Fish cleaning (skinning, scaling, filleting, etc).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Packing and shipping.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Transport to/from charter vessel.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
On-shore lodging.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
On-vessel lodging.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Cooked meals (breakfast/lunch/dinner)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Beverages/snacks.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Bait.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Ice.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Fishing gear.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Other gear.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Souvenirs/keepsakes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____
Other (please describe): _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$_____

- C5** During 2013, did you offer paid lodging to visitors that were not customers of the charter business?

- ☐ Yes
☐ No

- C6** What sales and revenue were generated from your charter business in 2013? *For each source of revenue, please indicate the number of units sold and total revenue received.*

Revenue source	Number of units sold	Total revenue
Charter trips reported in charter logbook – payment received directly from client...	_____ total clients (seats sold) _____ total trips	\$ _____
Charter trips reported in charter logbook – payment received from booking agent or other service.....	_____ total clients (seats sold) _____ total trips	\$ _____
Non-fishing charter trips – not reported in charter logbook (examples: transport, hunting-only, eco-tours).....	_____ total clients _____ total trips	\$ _____
Client referrals/booking commission revenue.....	_____ total client referrals/bookings	\$ _____
Federal Charter Halibut Permit (CHP) sales.....	_____ total endorsements sold	\$ _____
Federal Charter Halibut Permit (CHP)leases.....	_____ total endorsements leased	\$ _____

Note: *If you have a printed rate sheet, brochure, or other promotional material for your business that describes saltwater charter services offered and prices, please enclose a copy with your completed survey in the return envelope.*

YOUR COSTS IN 2013

The next two questions ask about the costs associated with operating your business, excluding the wages paid to employees reported in Section B. The questions are organized to make it easy to use federal tax return information and other common financial records to answer them.

- Question D1 requests information on business expenses that are generally deductible for federal tax purposes and may be easiest for you to estimate using your federal tax return, particularly if you itemize business expenses. Expenses that are typically based on individual charter trips are listed separately from those for other goods and services that contribute to general business overhead.
- Question D2 requests estimated costs related to major assets used by your business. These costs may include payments you make that are not deductible for federal tax purposes, so it may be necessary to use mortgage or checking account statements, in addition to your federal tax return, to help you estimate these costs.

D1 How much did your business pay during 2013 for goods and services listed in the table below?

Expense type	Amount paid
<u>Charter trip operating expenses</u>	
Vessel fuel.....	\$ _____
Fish handling, processing, packaging, and shipping.....	\$ _____
Broker or agent referral/commission fees.....	\$ _____
Vessel cleaning.....	\$ _____
Supplies (examples: ice, bait, food and beverage).....	\$ _____
Other vessel or trip operating expenses.....	\$ _____
<u>General overhead expenses</u>	
Non-wage payroll costs, including health insurance and other employee benefits.....	\$ _____
Utilities, including telephone and internet service.....	\$ _____
Repair and maintenance expenses.....	\$ _____
Insurance (vessel, hull, property & indemnity, liability, etc., <u>excluding health insurance</u>).....	\$ _____
Travel, meals, and entertainment (include transportation and per diem costs for employee or crew if paid by business, and trade show/marketing-related travel)...	\$ _____
Office and general supplies.....	\$ _____
Legal and professional services, accounting, and advertising.....	\$ _____
Financial services (merchant and bank fees) and mortgage interest payments.	\$ _____
Taxes and licensing fees.....	\$ _____
Vehicle fuel costs.....	\$ _____
Other general overhead expenses.....	\$ _____

D2 How much did you pay to purchase, improve, or use the items listed below? To help us distinguish annual expenditures from new long-term investments, please estimate separate amounts paid in 2013 for:

- **Cash payments** in 2013: total rental/lease payments, purchases and improvements fully paid for during 2013, and loan payments on purchases and improvements financed during or before 2013
- **New investments** in 2013: total investment costs financed by loans issued during 2013, including loan principal, taxes and fees, and down payment amount

Item	Cash payments	New investments
<u>Vehicles, machinery, and equipment</u>		
Vessel(s) and major vessel-related equipment.....	\$ _____	\$ _____
Vehicles (car/truck).....	\$ _____	\$ _____
Fishing gear, tackle, personal safety equipment.....	\$ _____	\$ _____
Other machinery and equipment.....	\$ _____	\$ _____
<u>Buildings, land and other real estate</u>		
Moorage/slip, boatyard and equipment storage space.....	\$ _____	\$ _____
Office space, lodging, and other shore-side facilities.....	\$ _____	\$ _____
Transferable fishing permits and licenses.....	\$ _____	\$ _____
Other business-related property and assets.....	\$ _____	\$ _____

YOUR CLIENTS IN 2013

E1 During 2013, about what percentage of your clients were return customers or personal referrals from previous customers? Check the box of the best answer.

☐ None ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 75-99% ☐ 100%

E2 During 2013, about what percentage of your clients booked their trips one month or more in advance? Check the box of the best answer.

☐ None ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 75-99% ☐ 100%

E3 During 2013, about what percentage of your clients booked their trips less than 48 hours in advance? Check the box of the best answer.

☐ None ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 75-99% ☐ 100%

- E4** During 2013, about what percentage of your clients were booked independently, through a cruise ship, through a specialty charter booking service, or through a general travel agent? *For each type of booking, check the box of the best answer.*

Independent bookings

☐ None ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 75-99% ☐ 100%

Cruise ship-based booking

☐ None ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 75-99% ☐ 100%

Specialty charter booking service (or charter business)

☐ None ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 75-99% ☐ 100%

General travel agent (or other booking service)

☐ None ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 75-99% ☐ 100%

OTHER BUSINESS AND HOUSEHOLD INFORMATION

- F1** Is your business structured as a C corporation? *A C corporation is taxed separately from its owners.*
- ☐ Yes → **skip** to the end of the survey
- ☐ No → continue to F2
- F2** Which of the following business structures best describes your business? *Check the best answer.*
- ☐ Sole proprietorship
- ☐ Limited liability partnership (LLP), Limited liability company (LLC), or S Corporation
- ☐ Other: _____
- F3** Please indicate the total percentage ownership share of this business held by you and other members of your household during 2013. *Your household includes family members and others who share your residence. Do not include family members that have their own residence outside of yours.*
- My household's ownership share: _____%
- F4** During 2013, how many members of your household, including yourself, worked for the business as vessel operators and guides, deckhands and other crew, and in work based primarily on-shore? *If an individual did more than one job, include them in the count for the job they did the most.*
- _____ Vessel operators/guides
- _____ Deckhands and other on-board crew
- _____ On-shore work

F5 During 2013, about what percentage of your total annual household income was earned from this business? *Check the best answer.*

- ☐ None ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 75-99% ☐ 100%

F6 Which of the following best describes what you did during the 2012-13 off-season? *Check all that apply.*

- ☐ Continued work related to your charter business, including travel outside of Alaska
- ☐ Worked in Alaska in a commercial fishing-related job not related to your charter business
- ☐ Worked in Alaska in a non-fishing related job
- ☐ Lived in Alaska, but did not work
- ☐ Worked outside of Alaska in a recreational or commercial fishing-related job not related to your charter business
- ☐ Worked outside of Alaska in a non-fishing related job
- ☐ Lived outside of Alaska, but did not work

Do you have any comments in general or about how your charter business has been affected in the last 5 years or will likely be impacted in the next five years, either positively or negatively? Please use the space below or attach separate sheets to provide us your comments.

YOUR PARTICIPATION IS GREATLY APPRECIATED!

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- 291 GUYON, J. R., C. M. GUTHRIE III, A. R. MUNRO, J. JASPER, and W. D. TEMPLIN. 2015. Genetic stock composition analysis of the Chinook salmon bycatch in the Gulf of Alaska walleye pollock (*Gadus chalcogrammus*) trawl fisheries, 26 p. NTIS number pending.
- 290 GUTHRIE, C. M. III, HV. T. NGUYEN, and J. R. GUYON. 2015. Genetic stock composition analysis of the Chinook salmon bycatch from the 2013 Bering Sea walleye pollock (*Gadus chalcogrammus*) trawl fishery, 21 p. NTIS number pending.
- 289 GUYON, J. R., HV. T. NGUYEN, C. M. GUTHRIE III, J. BONNEY, K. MCGAULEY, K. HANSEN, and J. GAUVIN. 2015. Genetic stock composition analysis of Chinook salmon bycatch samples from the rockfish and arrowtooth flounder 2013 Gulf of Alaska trawl fisheries and the Gulf of Alaska salmon excluder device test, 19 p. NTIS number pending.
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- 285 GUYON, J. R., C.M. GUTHRIE III, A. R. MUNRO, J. JASPER, and W. D. TEMPLIN. 2014. Extension of genetic stock composition analysis to the Chinook salmon bycatch in the Gulf of Alaska walleye pollock (*Gadus chalcogrammus*) trawl fisheries, 2012, 26 p. NTIS No. PB2015102747.
- 284 HIMES-CORNELL, A., and K. KENT. 2014. Involving fishing communities in data collection: a summary and description of the Alaska Community Survey 2011, 171 p. NTIS No. PB2015100578.