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The Economics of the Recreational For-hire Fishing Industry in the Northeast United States

by Scott Steinback and Ayeisha Brinson

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EXECUTIVE SUMMARY

Nearly 1.6 million passengers fished aboard for-hire recreational fishing vessels during 2011 in the Northeast United States (ME – NC). While the National Marine Fisheries Service (NMFS) regularly collects detailed catch, effort, and expenditure information from anglers fishing aboard for-hire vessels, no data are collected about the business structure and costs of the marine for-hire fishing industry operating in the Northeast. This study is intended to fill that gap.

Voluntary mail, telephone, and in-person surveys were designed to collect information on annual costs, returns, business structure, effort, demographics, and attitudinal data from for-hire vessel owners in the Northeast from January 2011 through July 2011. Surveys were completed by 295 vessel owners who provided data on 332 distinct for-hire vessels in the Northeast.

Survey results show that the overall financial condition of marine recreational for-hire fishing businesses in the Northeast is mixed. Assets exceed liabilities by over four times for the average charter and head boat, and over 90% of charter and head boat owners carry insurance coverage. This implies that a rather strong financial for-hire fishing fleet exists in the Northeast. The results also reveal that the average charter boat produced only a little over $5.1 thousand in net income in 2010 and that over half of the charter boats in the Northeast actually incurred higher expenses than revenues in 2010. In contrast, the average head boat generated over $95.1 thousand in net income in 2010 although median net income per head boat was lower at $50.1 thousand.

In addition to providing a detailed overview of the operating structure of the "average" Northeast for-hire head boat and charter boat, we constructed an input-output model to estimate the economic activity that for-hire businesses contribute to the Northeast's economy as measured by total employment, labor income, and sales. Model results show that in 2010 the for-hire industry earned $140.3 million in revenue, generated $50.4 million in income to owners, hired captains, crew/mates, and office staff, and employed over 3,200 individuals. The multiplier effects of this activity were substantial. An additional $193.7 million in sales, $66.5 million in income, and 1,290 jobs in other businesses in the Northeast were supported by the for-hire industry through indirect and induced transactions. Service businesses (real estate, food services, marinas, repair shops, etc.), wholesale and retail trade businesses (sporting goods stores, bait shops, gas stations, etc.), and manufacturing businesses (fishing gear manufactures, fuel refineries, commercial fishermen [bait], etc.) were the enterprises most reliant on the for-hire fleet. Over 700 service sector jobs, 360 wholesale and retail trade jobs, and 63 manufacturing jobs were dependent upon the for-hire fleet in the Northeast in 2010. In total, an estimated 4,500 jobs, in the overall Northeast regional economy, were supported by the active for-hire fleet in 2010.

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1 INTRODUCTION

The for-hire recreational fishing industry along the northeastern coast of the United States (ME – NC), provides an important outdoor leisure service for many individuals and sustains economic activity in the form of sales, income, and employment throughout the region. In 2011, nearly 1.6 million passengers fished aboard for-hire boats operating in marine waters of the Northeast.[1] While the National Marine Fisheries Service (NMFS) regularly collects detailed catch, effort, and expenditure information from anglers fishing aboard for-hire vessels, no data are collected about the business structure and costs of the marine for-hire fishing industry operating in the Northeast. This study is intended to fill that gap. In addition to providing a detailed overview of the operating structure of the "average" Northeast for-hire head boat and charter boat, we estimate the economic activity that for-hire businesses contribute to the Northeast's economy as measured by total employment, labor income, and sales.

1.1 Motivation/Purpose

Comprehensive economic data on the Northeast's for-hire industry are currently unavailable. We located only two published studies in the last ten years that examined the operating side of the for-hire recreational fishing industry in the Northeast. Dumas et al. (2009) provided detailed economic data on the charter and head boat fleet, but their study was limited to for-hire boats operating only out of North Carolina - the southernmost state included in our study. Holland et al. (2012) also examined the economics of for-hire businesses in North Carolina. As their study also concentrated on for-hire businesses operating in southeastern states, their findings and the findings of Dumas et al. (2009) are not likely to be representative of the entire for-hire industry operating in the Northeast.

The lack of data concerning for-hire operations in the Northeast makes it difficult to determine the importance of the for-hire industry to the Northeast's economy and to adequately address how proposed management actions might affect business operations. Numerous legislative mandates (e.g., Magnuson-Stevens Act, Regulatory Flexibility Act, National Environmental Policy Act, Executive Order 12866 and others) require that the NMFS assess the economic impacts of proposed fisheries policies. Typically, the focus of such assessments is on likely changes in angler behavior, not on how proposed policies will impact for-hire business operations. Although these assessments may contain estimates of how overall gross revenues for the for-hire fleet will be affected, widespread assumptions are generally required to derive these estimates, including the notion that operating costs remain constant. The data collected in this study provide information to alleviate these problems.

The primary goals of the study are to:

1. Provide a comprehensive overview of the economic condition of the for-hire industry in the Northeast;
2. Estimate the contribution of the for-hire industry to the overall economy in the Northeast; and,

[1] Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division July 10, 2012.

3. Collect the data necessary for the development of economic models used to assess how for-hire businesses operations are affected by proposed management policies.

2 METHODOLOGY

A voluntary in-person survey was designed to collect information on annual costs, returns, business structure, effort, demographics, and attitudinal data from for-hire vessel owners. NMFS contracted with QuanTech Inc., a survey research firm with recreational for-hire fishery data collection expertise, and Gentner Consulting Group (GCG), a natural resources economics and public opinion research company, to conduct the Recreational For-Hire Economic Survey (RFHES) from January 2011 through July 2011.

Outreach / Pretests

A press release about the study was prepared and forwarded to for-hire organizations in the Northeast during fall 2010 (see Table 1 for list of organizations). Many organizations published the press release on their websites or emailed it to their members. In addition, GCG attended board meetings hosted by the Rhode Island Party and Charter Association (RIPCA) and the Northeast Charter Boat Captains Association (NCBCA), to provide information about the study and to obtain feedback on draft survey instruments.

During outreach calls to the for-hire associations, board members were asked if they would be willing to have their members participate in the design process. All but three organizations were eager to assist and supplied comments on draft survey instruments via email and telephone. GCG also conducted 15 in-depth interviews with for-hire owners who owned 21 vessels. Substantial feedback was obtained during this synergistic pretesting approach, which significantly improved the final survey instrument. For example, during the pretests, it was apparent that respondents had a difficult time answering trip-level financial questions. If trip level cost information was collected and then aggregated to estimate annual financial information, there was the potential for major digit bias. Therefore, based upon this feedback, the survey was revised and only annual financial information was collected.

2.1 Population and Sampling Frame

The RFHES sampling frame was a subset of the Wave 1 2011 For-Hire Telephone Survey (FHTS) vessel directory maintained by NMFS for the Marine Recreational Information Program (MRIP).[2] The FHTS vessel directory is a comprehensive list of for-hire vessels on the U.S. Atlantic coast from Georgia through Maine. The FHTS is updated on a regular basis and distinguishes vessels by vessel type (charter boat/head boat) and geographic area. The FHTS distinguishes charter boats from head boats by the carrying capacity of passengers. Charter boats are defined as boats that are licensed by the Coast Guard to carry up to six passengers and head boats are licensed by the U.S. Coast Guard to carry more than six passengers.

[2]A wave specifies a two-month period and the RFHES sampling frame was drawn from the list of vessels considered active during January and February of 2011. The bulk of the survey methods explained here were described in the final contractor's report submitted to the National Marine Fisheries Service, and this report is available upon request.

The RFHES sampling frame included charter and head boat vessels with a primary port located in the Northeast (NC, VA, MD, DE, NJ, NY, CT, RI, MA, NH, or ME); however, there were some exclusions. Only vessels with a valid address were included in the sampling frame because the survey methodology utilized a prenotification postcard. This did not disqualify many vessels since almost all of the vessels in the vessel directory had a valid mailing address (only 13 vessels lacked a mailing address in the areas sampled by the RFHES). Second, the vessel directory includes some vessels with Highly Migratory Species (HMS) charter boat/head boat permits that do not charter. These vessels were excluded from the RFHES and were identified by information in the comments field such as "HAS HMS CH/HB PERMIT BUT DOES NOT CHARTER." Third, vessels that were contacted by a North Carolina economic survey in 2010 (for Holland et al. 2012) were not included in the RFHES sampling frame. Finally, duplicate vessels were removed from the RFHES sampling frame. Duplicate vessels exist in the FHTS vessel directory because some vessels operate in more than one state. Some vessel owners move their for-hire business south in the winter to keep their operations running year round. Contact information may be different on the two duplicated vessel records; therefore, instead of just removing duplicates at random, the duplicated record assigned to a state further north was removed from the RFHES sampling frame.

All head boats contained in the Wave 1 FHTS directory frame were selected for the survey. A sample of charter boats was selected by using simple random sampling from the amended RFHES sampling frame. After the sample was drawn, addresses from the vessel records without telephone numbers were sent to a White Pages reverse address search service (http://pro.whitepages.com/). A total of 1,676 vessels with telephone numbers and addresses were selected (1,506 charter boats and 170 head boats) for the RFHES. This represented 42% of the charter boats contained in the amended Wave 1 RFHES sampling frame and 100% of the head boats. The resulting distributions of randomly selected vessels by state and vessel type are shown in Table 2.

2.2 Implementation

QuanTech mailed presurvey notification packages to owners/representatives of the vessels randomly selected from the RFHES sampling frame. The notification package included a cover letter describing the survey (Appendix I), a list of frequently asked questions (FAQs) with answers about the survey (Appendix II), a copy of the survey questionnaire (Appendix III), and a small token of appreciation (a new $5 bill), to encourage participation. The packages were mailed in six "waves." In each wave, packages were mailed to potential respondents located in one or more states as follows:

- Wave 1: MD, DE, and Phase 1 VA – 249 packages mailed January 12, 2011;
- Wave 2: NC and Phase 2 VA – 235 packages mailed January 26, 2011;
- Wave 3: NJ and PA – 282 packages mailed February 9, 2011;
- Wave 4: NY, CT, and RI – 332 packages mailed February 23, 2011;
- Wave 5: MA Phase 1– 297 packages mailed March 9, 2011; and
- Wave 6: MA Phase 2, NH, and ME – 217 packages mailed March 23, 2011.

Approximately 7-10 days after the packages were mailed, trained QuanTech telephone interviewers called the vessel owners/representatives to follow up on the package and screen for

eligibility.[3] Vessel owners were eligible to be surveyed if they were active in 2010 (i.e., took passengers fishing for a fee in 2010) and if no more than 50% of their trips targeted HMS.[4]

The screening calls were also used to encourage survey participation by the owners and to answer any questions they might have prior to scheduling an in-person interview. When an eligible owner agreed to participate, the screening interviewer provided the vessel owner with the name of the person who would be contacting them to schedule a personal interview. Screening data were collected during the recruitment calls whereas RFHES cost and earnings data were collected during the in-person interviews.

Table 3 shows the results of RFHES screening calls. QuanTech called the 1,676 vessel records with a telephone number to completion. That is, owners of 1,676 vessels agreed to participate in the survey, refused to participate in the study, were ineligible for the survey, did not own the vessel (or any other for-hire vessel nor could they provide contact information for the current owner), or were called 10 times without being contacted, or the phone number was bad (disconnected) or incorrect. Many vessel records required additional call attempts or in some cases, QuanTech reached someone but was told to call back. Additional call attempts were made when asked to call back. The percent of respondents that QuanTech attempted to contact who agreed to participate in the survey during the screening calls ranged from 12.5% in NH to 52% in ME. Refusals were highest in MD (25.7%) and DE (25.6%) and lowest in CT and ME (8.0%). Owners that could not be reached after 10 calls and owners that were ineligible to participate accounted for approximately 54% of the total screening calls. The most common reason for ineligibility was that the vessel was inactive during all of 2010 (79% of ineligibles). Approximately 2% of the owners QuanTech attempted to contact indicated that they no longer owned the for-hire vessel, and about 8% of the owners could not be reached because the telephone number was incorrect.

During the initial calls to for-hire owners to screen for eligibility to participate in the RFHES in-person survey, it became evident that, although the RFHES was designed as an in-person survey, some respondents indicated a preference to participate by mail, email, or telephone. To maximize the potential pool of respondents, the data collection procedure was modified to accommodate a respondent's preferred method for participating in the survey. QuanTech used a CAPI (Computer Assisted Personal Interviewing) system to capture electronic data in the field. When necessary, data were captured on the phone with the same system operated as a CATI (Computer Assisted Telephone Interviewing) system. Data from mailed or emailed responses, which usually required a telephone follow-up, were entered into the CAPI system by office staff.

Following a procedure modified from Dillman (2000), QuanTech sent follow-up letters explaining the importance of participating in the survey, including a stamped return envelope and a copy of the questionnaire. Follow-up mailings were sent to those who indicated that they would

[3]The training sessions for the screening calls and the telephone and in-person interviews included a description of the goals and objectives of the study, detailed explanations of all questions contained in the questionnaires, an emphasis on the "confidential and proprietary" nature of the data collected, and proper procedures for coding and editing responses.

[4]The operating characteristics of for-hire boats in the Northeast that mainly target offshore HMS (e.g., billfish, swordfish, tunas, sharks, wahoo, dolphin, and amberjack) are fundamentally different from for-hire boats that primarily fish inshore for bottom fish, flatfish, and small game species. Some vessels participate in both inshore and offshore fishing, but most vessels primarily specialize in one or the other. Because of sampling constraints, it was determined that it would not be possible to survey a sufficient number of vessel owners that primarily target HMS so these vessels were excluded from this study.

participate by mail but had not returned a completed questionnaire and to those who agreed to participate in person but subsequently could not be contacted to schedule an interview. A second follow-up letter was sent one month later to vessel owners who had recently indicated that they would mail-in their survey. A final round of follow-up packages was sent six weeks later by priority mail to those who had not responded and whose packages had not been returned undeliverable. The final follow-up package contained a copy of the questionnaire and a letter explaining that the survey was drawing to a close so time to participate was running out.

QuanTech finished RFHES data collection efforts on July 31, 2011. Table 4 shows the RFHES final survey results for the vessel owners that were contacted. Of the 367 vessel owners who agreed to participate in the survey during screening, 38% (141) participated in person, 7% (24) participated by phone, 35% (130) participated by mail/email, and 20% (72) never completed the survey.

The 295 vessel owners with whom interviews were conducted provided data on 332 distinct for-hire vessels in the Northeast. Some vessel owners owned more than one vessel, and owners of multiple vessels were asked about all their vessels whenever one was selected from the RFHES.

2.3 Data Cleaning

Survey responses were tested in Statistical Analysis Software (SAS) for internal consistency. To maximize the useable responses, outliers and inconsistent observations were eliminated without removing the entire record.[5] Although it would have been preferable to use only data from respondents who completed every relevant survey question, the amount of data available did not allow for this more restrictive interpretation of a response. Thus, incomplete records were included in the financial assessments under the assumption that the sample responses reflect the true population parameters. Reasonable sample sizes exist for all reported results, so the sample responses are considered representative of the entire for-hire fleet in the Northeast. Additionally, missing income and cost values were converted to zero values when appropriate, and because of difficulty assigning financial data to a particular vessel, cost and earnings information from vessel owners who owned both charter and head boats were excluded from the financial analyses.

3 RESULTS

Our survey results are generally reported as arithmetic means (i.e., averages) for both the nonfinancial and financial data. Confidence intervals, standard deviations, and median values are provided for all of the financial data. Of the for-hire owners that were successfully contacted and eligible to complete the survey (615 owners), 295 completed the survey for an effective response rate of 48%. Overall, we were satisfied with the response rate, given the type of information being requested from for-hire owners (i.e., personal and financial information about their business activities). We report only region-wide values because of sample size constraints at the

[5]Although QuanTech conducted call-backs when necessary to fill in missing data or confirm questionable responses from owners who completed the survey by mail/email, they were unable to recontact all individuals so not all missing values and questionable responses were clarified. All surveys completed during in-person interviews and by telephone were complete.

state level. In addition, the reader is reminded that there is variation in operations across head boats and charter boats in the Northeast so “average” values may not appropriately characterize every vessel in the fleet.

3.1 Vessel Characteristics

The average charter boat vessel in the Northeast was 30ft in length, with a 360 horsepower engine and could accommodate 9 passengers. Approximately 41% of respondents purchased “new” charter boats with a mean sale price of $80,000. The average charter boat was built 16 years ago and purchased about 8 years ago. Charter boat vessels employed (on average) 0.2 full-time crew members and 0.5 part-time crew members; that is, for approximately three months of the year an average charter boat may employ one full-time crew member and one part-time crew member for six months of the year. Most (88%) charter boats were made of fiberglass, and two-thirds of respondents docked or moored their vessels (Table 5).

The average head boat in the Northeast was 63 ft in length, with an 876 horsepower engine that accommodated about 91 passengers. The typical head boat vessel was built about 32 years ago; however, on average respondents purchased their head boats 14 years ago. One-third of head boat vessels were purchased new for a price of approximately $230,000. Head boat vessels employed approximately two full-time employees and one and one-half part-time employees. One-half of head boats were made of wood, while the other half were made of fiberglass (27%) and aluminum (18%;Table 5).

3.2 Vessel Operations

Nearly all (97%) of charter boat vessels were run by owner-operators. Two-thirds of charter boat businesses were established as sole proprietorships, while 21% were Limited Liability Corporations (LLCs) and 14% were corporations. Approximately two-thirds of head boat vessels were run by owner-operators. Twenty-four percent of head boat respondents were owners who employed either a corporate captain (9%) or a private captain (2%). In contrast to charter boats, three-quarters of head boat businesses were established as corporations, while 17% were Limited Liability Corporations (LLCs) and 5% were sole proprietorships (Table 6).

Many respondents took trips without patrons. For example, forty-six percent of charter boat respondents took trips without passengers to collect bait. On average, charter boat vessels took nine trips that lasted under three hours to catch bait in 2010. Approximately two-thirds of charter boat respondents took trips to scout new locations without any passengers. On average, these scouting trips lasted under five hours, and charter boat respondents took approximately ten per year in 2010. Approximately one-half of charter boat respondents took nonfishing trips for whale watching or sightseeing; respondents took fewer than five of these types of trips in 2010. Less than 10% of head boats took trips to catch bait and, on average, these vessels took eight trips that lasted less than three hours. One-third of head boats went on scouting trips that lasted under five hours and totaled about three trips in 2010. Sixty percent of head boats took nonfishing trips, such as whale watching or sightseeing, totaling about 24 trips in 2010 (Table 6).

3.3 Owner Characteristics

On average, charter boat and head boat owners were in their 50s. Head boat owners tended to have more experience as an owner or captain (25 years) than charter boat owners (14 years). Less than one-quarter of the total 2010 income of charter boat owners was earned from their for-hire activities, while the 2010 income of head boat owners' was predominately (70%) from for-hire activities (Table 7).

3.4 Fishing Trip Types

For-hire operations offered a variety of trip types to their patrons, including half-day, full-day, or overnight trips. Most (85%) charter boat owners offered half-day trips. In 2010, charter boat owners took on average 26 trips that lasted under five hours with approximately four passengers. On average, one of the half-day trips was a charitable donation. More than half (14 trips) of the half-day trips occurred in the summer months (July – September); about seven trips were taken in the spring (April – June). The fewest half-day trips occurred during October – March. About 14% of these trips were taken in federal fishing waters. On average, charter boat owners earned about $450 for each of these trips in 2010 (Table 8).

Two-thirds of head boat owners offered half-day trips in 2010. The average head boat took 203 half-day trips with approximately 27 passengers that lasted 4.4 hours. On average, fewer than three of these half-day trips were provided as a charitable donation. More than half of the half-day trips were in the summer and one-quarter occurred in the spring. Approximately 15% of the half-day trips were taken in federal fishing waters. On average, head boat owners charged $32 per person for each of these trips in 2010.

Nearly all charter (90%) and head boat (72%) owners offered full-day fishing trips. In 2010, each charter boat offered an average of 19 full-day trips and each head boat offered 69 full-day trips. Charter boat trips accommodated fewer than five passengers, while head boat trips had 21 passengers on average. Full-day trips lasted eight and one-half hours for charter boat or eight hours for head boat trips. The majority of the full day trips occurred in the summer for charter boat vessels (10 trips). For head boat vessels the peak season was longer, including the spring (28 trips) and summer (26 trips). The average fee for full-day trips was $700 for charter boat and $91 per person for head boat trips. About one-third of these full-day trips occurred in federal waters for both types of trips in the for-hire sector.

About thirteen percent of for-hire owners offered overnight trips. Charter boat owners took two overnight trips, on average, in 2010, while head boat owners took 11 trips. Most overnight trips occurred in the summer and lasted about 24 hours. Charter boat trips accommodated five anglers, on average, while head boat trips accommodated 19 passengers. The vast majority of the overnight trips were in federal waters for charter boats (63%) and head boats (100%). Charter boat owners charged on average $1,900 for overnight trips (all passengers), while head boat owners charged $290 per person.

One-quarter of for-hire owners offered nonfishing trips on their vessels. The purpose of these trips tended to be for sightseeing, whale watching, or bird watching. In 2010, charter boat owners took approximately 10 nonfishing trips, while head boat owners took 34 nonfishing trips. Nonfishing trips on charter boats accommodated five passengers and lasted 7.5 hours, on average. Nonfishing trips on head boats accommodated 32 passengers and lasted 9.5 hours. Charter boats spent 32% of these nonfishing trips in federal waters, while head boats spent 54%

of these nonfishing trips in federal waters. On average, the fee charged to rent a charter boat was $520, and the per person fee to fish aboard a head boat was $73.

3.5 Cost and Earnings

3.5.1 Balance Sheet

Information on assets and liabilities of for-hire businesses was used to generate a balance sheet for the average for-hire vessel. A balance sheet provides a financial snapshot of a vessel's activity. The balance sheet approach used here compares average assets to liabilities and was modeled after Liese and Travis (2010) and Savolainen et al. (2012). Assets are measured as the market value of the vessel at the end of 2010, whereas liabilities include the investment required to acquire those assets, and are calculated from the value of outstanding vessel and operating loans. Owner's equity is the difference between assets and liabilities.

In 2010, the average charter boat vessel's equity was $48.4 thousand (Table 9). Average assets were $65.0 thousand, the average outstanding vessel loan was $16.0 thousand, and the average outstanding short-term operating loan was $762. The average market value of the vessel (asset value) was approximately $9.0 thousand lower than the average vessel purchase price of $74.3 thousand. Thirty percent of charter boat owners had outstanding vessel loans and only six percent had short-term operating loans.

In 2010, the average head boat owner's equity was $160.8 thousand (Table 10). Average assets were $241.8 thousand, the average outstanding vessel loan was $59.4 thousand, and the average outstanding short-term operating loan was $3.6 thousand. The average asset value (market value) was approximately $24.1 thousand lower than the vessel purchase price of $265.9 thousand. Forty-five percent of head boat owners had outstanding vessel loans, and approximately 20% had short-term operating loans.

3.5.2 Cash Flow

In contrast to a balance sheet, cash flow is a financial statement of a vessel owner's flow of money over time. In this case, the cash flow is the revenue generated through charter or head boat trips. Inflows are the revenues accruing to a vessel owner through trip sales. Outflows or expenditures represent the costs of owning and operating a for-hire vessel. Outflows in the for-hire industry include the costs of fuel and oil, bait, ice, food and drink, tackle and supplies, vessel repair and maintenance, insurance, overhead, costs for captain and crew, investment payments, and loan payments (Table 11). The difference between inflows and outflows represents an owner's liquidity or solvency and is described as net cash flow. Net cash flow is a measure of short-term viability for a vessel owner (Liese and Travis 2010). Appendix IV contains a statistical summary of the individual survey questions used in the cash flow statements.

In 2010, the average charter boat owner's net cash flow was $5.2 thousand (Table 12).[6] Inflows totaled $27.7 thousand for an average vessel. The largest expenditure for the average charter boat vessel was for overhead ($4.9 thousand), followed by fuel and oil ($4.7 thousand), vessel repair and maintenance ($3.0 thousand), loan payments ($2.9 thousand), tackle and supply

[6]An explanation for this seemingly low estimate of annual net earnings for the average charter vessel is provided below in Section 4.2 Economic Status of the For-Hire Industry.

expenses ($1.8 thousand), and expenses for a hired captain ($1.2 thousand). Other expenses included crew payments ($920), bait ($833), investments ($596), ice ($172), and groceries ($135).

In 2010, the average head-boat owner's net cash flow was $95.2 thousand (Table 13). Inflows totaled $213.5 thousand for an average vessel. The largest expenditure for the average head-boat vessel was fuel and oil ($24.8 thousand), followed by crew ($18.2 thousand) and hired captain ($17.0 thousand) expenses, overhead ($16.0 thousand), loan payments ($14.4 thousand), vessel repair and maintenance ($8.8 thousand), insurance ($6.7 thousand), bait ($5.5 thousand), and tackle and supply expenses ($3.9 thousand). Average investment expenditures were $1.3 thousand and other expenses included groceries ($289) and ice ($195).

3.5.3 Total Cash Flow in Northeast

Survey results and MRIP data were used to quantify the total costs and earnings of all Northeast charter and head boat businesses in 2010. First, survey data were used to calculate revenues, expenses, and net returns for the "average" charter and the "average" head boat in 2010 (Tables 12 and 13). Average cash flow values, by type of vessel, were then multiplied separately by the total number of unique active charter (3,698) and head boats (178) estimated to have taken passengers for-hire in 2010 across all of the Northeast coastal states. The MRIP For-Hire Vessel Directory provided the data necessary to determine the number of unique charter and head boats active during some portion of 2010.[7] The product of the average values and the number of unique charter and head boats provides an estimate of the total cash flow for the Northeast for-hire fleet in 2010 (Table 14). In 2010, the total for-hire fleet in the Northeast obtained over $140 million in gross revenue (i.e., sales receipts). Operating expenses exceeded $104 million (including wages and salaries paid to employees), and net returns to owners (i.e., net profits) were approximately $36 million.

3.6 Economic Contribution

The economic contribution of the for-hire fleet to the overall economy in the Northeast extends well beyond simply measuring the direct employment, income, and gross revenues of the for-hire businesses. For-hire businesses purchase products and services to maintain and operate their vessels, and businesses supplying products and services must pay employees and buy products and services from their suppliers. These secondary suppliers, in turn, purchase products and services from their own suppliers, triggering further indirect multiplier effects that are dependent upon the initial demands of the for-hire fleet. This cascading series of industry-to-industry multiplier effects and the cycle of consumption spending induced by all the incomes generated in these economic activities contribute to the economy's employment and income base and continues until all of the goods and services are sourced from outside the Northeast.

[7]Vessels in the For-Hire Vessel Directory that mainly fished for highly migratory species in 2010 were excluded, and considerable effort was exerted to remove duplicate vessels that operated in more than one Northeast coastal state.

3.6.1 Regional Input-output Assessment

An analytical framework known as regional input-output analysis can be used to measure indirect and induced multiplier effects and thus estimate the total contribution of a particular industry sector to the overall regional economy. The input-output modeling approach provides a snapshot of the universe of linkages between the economic sectors of an economy and is generally described as a static general equilibrium approach to quantitative economic analysis. For a comprehensive description of the input-output modeling technique, see Miller and Blair (1985).

In the assessment provided here, a ready-made regional input-output system called IMPLAN (Minnesota IMPLAN Group, Inc) was used to estimate the amount that for-hire businesses contribute to the Northeast's economy as measured by total employment, labor income, and sales. Employment represents the estimated number of total wage and salary employees (both full and part-time), as well as self-employed workers in the region and is expressed as total jobs. Labor income represents all forms of employment income, including employee compensation (wages and benefits) and self-employed income earned in the region. Sales reflect the estimated annual dollar value of production in the region summed across all industries and is a measure of total economic activity.

Regionwide "indirect" multiplier effects were estimated by multiplying the value of each of the individual expense items that was spent by the for-hire fleet within the region by the corresponding IMPLAN-generated multiplier. IMPLAN multipliers measure the total sales, income, and employment in each economic sector within the region caused by $1 in sales in any particular sector. Therefore, the product of the expenditure values that are spent within the region with their matching IMPLAN-generated multiplier provides an estimate of the contribution of each particular expenditure item to the regional economy.

Income earned by vessel owners, captains, crew/mates, and office personnel contributes additional economic effects to the Northeast's economy through the mix of products and services purchased from businesses located in the region. IMPLAN multipliers were also used to calculate these "induced" contributions. The full contribution of the for-hire fleet to the overall regional economy in the Northeast was then measured by adding the fleet expenditure contributions (indirect effects) and the personal consumption expenditure contributions (induced effects) to the estimated sales, income, and employment of the for-hire fleet in 2010 (direct effects). A detailed account of the IMPLAN modeling approach is provided in Appendix V.

3.6.2 Contribution Assessment Results

The economic contribution of the charter and head boat fleet to the overall regional economy in the Northeast is summarized in Table 15. In 2010, charter and head boat activities contributed an estimated $334.0 million in total sales to Northeast businesses, $116.9 million in total income to individuals working in the Northeast and supported 4,500 Northeast jobs (full and part-time).

The economic contribution of charter boats was higher than the contribution of head boats across all three economic measures. The multiplier relationships between the operation of charter and head boat businesses and the supporting regional economy were similar but, because of the large difference in the estimated number of active vessels in the two fleets (178 head boats

vs. 3,698 charter boats) overall charter boat expenditures and net returns were considerably higher.

The total contribution of the for-hire fleet by industry type is shown in Table 16. In 2010, the for-hire fleet grossed $140.3 million in sales, provided $50.4 million in income to owners, hired captains, crew/mates, and office staff, and employed over 3,200 individuals in the Northeast. The multiplier effects of this activity were substantial. The for-hire industry supported an additional $193.7 million in sales, $66.5 million in income, and 1,290 jobs in other industries in the Northeast. Service businesses (real estate, food services, marinas, repair shops, etc.), wholesale and retail trade businesses (sporting goods stores, bait shops, gas stations, etc.), and manufacturing businesses (fishing gear manufactures, fuel refineries, commercial fishermen [bait], etc.) were the enterprises most dependent on the for-hire fleet. Over 700 service sector jobs, 360 wholesale and retail trade jobs, and 63 manufacturing jobs were supported by the for-hire fleet in the Northeast in 2010.

In terms of employment, the top ten industries supported by the for-hire fleet are shown in Table 17. Following employment in the for-hire industry itself, the highest number of jobs were in wholesale trade (74), recreation services (marinas; 72), marine supply stores (69), food services (69), sporting goods (57), commercial fishing (bait; 54), real estate (46), gasoline stations (41), and private hospitals (37).

4 DISCUSSION

4.1 Study Design

The study design was stratified across two types of for-hire vessels: charter and head boats. However, based on comments received during the pretesting stage, the survey asked respondents to indicate whether a particular vessel was a charter boat, a head boat, or a guide boat. A guide boat was defined as a for-hire fishing boat that carries four or fewer individuals and mostly fishes in near shore and inshore waters, including bays and inlets. The operator must also have, at a minimum, a USCG operator license to carry six or fewer passengers. Because of sampling issues, we included guide boats within the charter boat category, but based on the percentage of vessels classified as guide boats from our survey, we recommend that future for-hire studies should distinguish between operations classified as “charter” and those classified as “guide.” Twenty-four percent (n=67) of the vessels in our charter boat group were self-identified as guide boats.

Three methods were used to collect data from for-hire owners: personal interviews, mail surveys, and telephone surveys. Analysis of Variance (ANOVA) tests were conducted to evaluate differences in means for statistical significance across the three data collection vehicles. Tests were conducted using the GLM procedure in SAS, which can be used to perform analysis of variance tests on unbalanced data sets. There were unequal numbers of observations in each survey treatment group because the number of telephone-completed surveys was considerably lower than those completed through personal interviews or by mail. ANOVA tests were only performed on financial data collected from for-hire owners.

No significant differences in means were found across any of the financial variables except for outstanding loan payments (i.e., liabilities) by charter boat owners (Table 18). This result reflected a few relatively high liability payments by charter boat owners reporting over the phone. Removal of these records from the data set had little effect on estimated mean liability

payments by charter boat owners, and therefore these records were left in the data set. Overall, no significant differences were found across the three survey approaches employed in this study.

4.2 Economic Status of the For-Hire Industry

The survey results show that the overall financial condition of marine recreational for-hire fishing businesses in the Northeast is mixed. Assets exceed liabilities by over four times for the average charter and head boat, and over 90% of charter and head boat owners carry insurance coverage. This implies that a rather strong financial for-hire fishing fleet exists in the Northeast. The results also reveal that the average charter boat produced only a little over $5.1 thousand in net income in 2010, and over half of the charter boats in the Northeast actually incurred higher expenses than revenues in 2010. However, the margin of error in our estimate of average charter boat net income is large. The confidence intervals indicate that we can only be 95% certain that the true average charter boat net income is between -$2.9 thousand to $13.6 thousand. In contrast to the average charter boat, the average head boat generated over $95.1 thousand in net income in 2010 although median net income per head boat was lower at $50.1 thousand.

The estimated low level of earnings for the average charter vessel in 2010 is likely due to a variety of reasons. First, Northeast for-hire businesses are highly seasonal, so overall earnings are somewhat limited by a short fishing season. The short fishing season probably explains why charter boat owners, on average, earned only about 17% of their total 2010 income from their charter boat business. The survey data further indicate that only 5% of charter boat owners earned 100% of their annual income in 2010 from their charter activities. Some for-hire owners indicated that passenger levels were lower in 2010 because of the economy, and many owners (particularly charter boat owners) indicated that they operated the business mainly for lifestyle benefits; that is, charter employment has more to do with lifestyle choices than financial considerations. The idea that owners operate charter boats for the lifestyle has also been noted in other studies of charter boat owners (Liese and Carter, 2011).

Second, in addition to taking passengers for-hire, some charter boat owners also use their boats for nonfinancial purposes (pleasure cruising, sightseeing, recreational fishing without paying passengers, etc.). Because the economic survey obtained expenditure information on total annual operating costs in 2010, the operating costs associated with uses of the vessel that do not produce income would have been included in the expense estimates provided by charter boat owners. As a result, estimated operating costs in 2010 are based on total vessel activity, while gross revenues are calculated from only a portion of the total vessel activity of multiple-use vessels.

Third, business tax deductions and depreciation were not considered in the calculation of net earnings. Profits earned by for-hire owners eligible for deductions, credits, and/or depreciation in 2010 would have been higher than indicated by our results. Hence, our estimate of average net returns per charter vessel ($5,175) should likely be considered a lower bound approximation.

As well, there is considerable variation in the financial characteristics of for-hire operations, even after accounting for differences between charter boats and head boats. As is apparent in the balance sheet and cash flow results, owner’s equity and net cash flow have rather large ranges. Furthermore, for some cost categories (particularly for charter boats) $0 is reported as the median result. This is not unusual for cost and earnings surveys of fishing vessels and indicates that at least 50% of the respondents did not have costs in these categories, therefore the median becomes 0.

The overall cost and earnings results for the Northeast for-hire fleet are similar to other recent regional studies of for-hire fleets. Owner's equity averaged $30 – 60 thousand in 2009 for charter boats in the Gulf of Mexico, depending on the Gulf State (Savolainen et al. 2012). In 2010, the average charter boat equity in Northeast was $48 thousand. The average head boat equity in the Gulf of Mexico was $165 – 220 thousand in 2009 (Savolainen et al. 2012), while the average Northeast head boat owner's equity in 2010 was $161 thousand. Cash flow in the Gulf of Mexico charter boat fleet was $15 – 40 thousand in 2009, depending on the state, while head boat cash flow was approximately $70 thousand (Savolainen et al. 2012). In comparison, the average Northeast charter boat owner's cash flow in 2010 was slightly over $5 thousand, and the average head boat owner's cash flow in 2010 was $95 thousand. In another study of the Southeast for-hire fleet, annual net revenue was $2 thousand in 2003, not including crew costs (Liese and Carter, 2011).

Our input-output results show that a substantial number of jobs are directly and indirectly dependent upon the for-hire industry in the Northeast. An estimated 4,500 jobs in the overall Northeast regional economy were supported by the active for-hire fleet in 2010. The actual number of jobs supported by for-hire fishing activity in the Northeast is certainly higher, as the modeling results reported here are conservative in that they only measure the contribution of the for-hire industry itself to the Northeast's economy. Auxiliary expenditures by for-hire passengers, while traveling to and from the for-hire fishing site (e.g., auto fuel, lodging, food, bait, tackle, or equipment not included as part of the passenger fees) also contribute to the economy's employment and income base. The contribution of these auxiliary expenditures by passengers was not included in this assessment. A case could be made that the total contribution of the for-hire industry to the Northeast's economy should also include the multiplier effects of these auxiliary expenditures by for-hire passengers. Additionally, for-hire boats that primarily target offshore HMS (billfish, swordfish, tunas, sharks, wahoo, dolphin, and amberjack) were not included in this study. Although the number of for-hire boats operating in the Northeast that primarily target HMS is unknown, our results would certainly be larger if the multiplier effects of these boats were also measured.

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5 REFERENCES CITED

Dillman DA. 2000. Mail and internet surveys: The tailored design method, Wiley, New York (Second Edition).

Dumas CF, Whitehead JC, Landry CE, Herstine JH. 2009. Economic impacts and recreation value of the North Carolina for-hire fishing fleet. North Carolina Sea Grant, Fishery Resource Grant Report 07-FEG-05.

Holland SM, Oh CO, Larkin SL, Hodges AW. 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 contract report prepared for the National Marine Fisheries Service.

Liese C, Carter DW. 2011. Collecting economic data from the for-hire fishing sector: Lessons from a cost and earnings survey of the southeast U.S. charter boat industry. 14 p. In Beard TD Jr, Loftus AJ, Arlinghaus R (editors). The Angler and the Environment. American Fisheries Society, Bethesda, MD.

Liese C, Travis M. 2010. The annual economic survey of federal gulf shrimp permit holders: Implementation and descriptive results for 2008. NOAA Technical Memorandum NMFS-SEFSC-601.

Savolainen MA, Caffey RH, Kazmierczak RF Jr. 2012. Economic and attitudinal perspectives of the recreational for-hire industry in the U.S. Gulf of Mexico [master's thesis]. Center for Natural Resource Economics & Policy, Department of Agricultural Economics and Agribusiness, Louisiana State University.

Watson P, Wilson J, Thilmany D, Winter S. 2007. Determining economic contributions and impacts: what is the difference and why do we care? Journal of Regional Analysis and Policy, 37(2): 140-146.

Table 1. For-hire organizations contacted during outreach

Organization	Provided survey design assistance
Northeast Charter Boat Captain's Association	✓
Rhode Island Party and Charter Association	✓
Montauk Boatmen's and Captain's Association	✓
Upper Bay (Chesapeake) Charter Captain's Association	✓
Coastal Conservation Association (CCA) of MD	✓
Maryland Charter Boat Association	
Virginia Charter Boat Association	
National Association of Charter Boat Operators	

Table 2. Number of vessels with telephone numbers and addresses selected for the RFHES from the for-hire survey vessel directory, by state and vessel type

	Vessel type		
State	**Charter boat**	**Head boat**	**All**
CT	70	5	75
DE	35	8	43
ME	63	3	66
MD	167	12	179
MA	406	24	430
NH	29	11	40
NJ	233	43	276
NY	135	37	172
NC	232	11	243
RI	92	4	96
VA	44	12	56
All	**1,506**	**170**	**1,676**

Table 3. Results of RFHES screening calls

	Screener Dialing Status												
	Eligible, agreed to participate		**Could not be contacted**		**Ineligible**		**Did not own for-hire vessel**		**Refusal**		**Wrong/bad number**		**All**
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
CT	18	24.00	28	37.33	19	25.33	1	1.33	6	8.00	3	4.00	75
DE	12	27.91	10	23.26	8	18.60	1	2.33	11	25.58	1	2.33	43
ME	34	51.52	13	19.70	13	19.70	0	0.00	5	7.58	1	1.52	66
MD	29	16.20	33	18.44	40	22.35	8	4.47	46	25.70	23	12.85	179
MA	78	18.14	114	26.51	151	35.12	7	1.63	56	13.02	24	5.58	430
NH	5	12.50	18	45.00	9	22.50	0	0.00	5	12.50	3	7.50	40
NJ	55	19.93	94	34.06	49	17.75	6	2.17	41	14.86	31	11.23	276
NY	41	23.84	48	27.91	43	25.00	4	2.33	21	12.21	15	8.72	172
NC	54	22.22	60	24.69	66	27.16	9	3.70	35	14.40	19	7.82	243
RI	24	25.00	26	27.08	22	22.92	2	2.08	13	13.54	9	9.38	96
VA	17	30.36	17	30.36	12	21.43	0	0.00	9	16.07	1	1.79	56
All	367	21.90	461	27.51	432	25.78	38	2.27	248	14.80	130	7.76	1,676

Table 4. Survey results for contacted respondents

	Agreed to do survey								Vessels profiled		
	Completed survey in-person		Completed survey phone		Completed survey mail/email		Never completed Survey		Charter	Head boat	All
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*No.*	*No.*
CT	8	18.60	1	2.33	8	18.60	1	2.33	15	1	16
DE	6	19.35	0	0.00	4	12.90	2	6.45	11	1	12
ME	13	25.00	9	17.31	10	19.23	2	3.85	35	0	35
MD	15	13.04	1	0.87	10	8.70	3	2.61	24	9	33
MA	24	8.42	5	1.75	30	10.53	19	6.67	61	5	66
NH	1	5.26	3	15.79	0	0.00	1	5.26	0	3	3
NJ	20	13.79	2	1.38	21	14.48	12	8.28	39	10	49
NY	15	14.29	1	0.95	14	13.33	11	10.48	23	12	35
NC	24	15.48	0	0.00	16	10.32	14	9.03	43	1	44
RI	8	13.56	2	3.39	10	16.95	4	6.78	19	4	23
VA	7	18.42	0	0.00	7	18.42	3	7.89	9	7	16
All	141	13.47	24	2.29	130	12.42	72	6.88	279	53	332

Table 5. Vessel characteristics by operating class

	Charter	Head boat
Vessel characteristics	**Mean**	
Length (ft)	29.40	63.38
Horsepower	363.2	875.56
Passenger capacity	8.94	90.65
Year built	1995	1979
Year vessel purchased	2003	1997
Purchased new *(% yes)*	40.94%	30.43%
Purchase price ($'s)	79,305	228,454
Number of crew (in season)		
Full-time	0.18	1.95
Part-time	0.52	1.54
Hull material		
Wood	6%	56%
Fiberglass	88%	27%
Aluminum	4%	18%
Steel	1%	0%
Other	1%	0%
Location		
Docked/moored	76%	100%
Trailered	24%	0%

Table 6. Vessel operations by operating class

	Charter	Head boat
Vessel operation	**Percent**	
Ownership type		
Owner/operator	97.07%	64.44%
Owner/nonoperator	1.83%	24.44%
Paid captain, private	0.37%	2.22%
Paid captain, corporate	0.73%	8.88%
Business structure		
Sole proprietorship	63.00%	5%
Partnership	1.10%	0%
Corporation	13.55%	76%
LLC	20.88%	17%
Other	1.47%	2%
Nonfishing trips		
Bait catching trips (without patrons)	46.01%	6.52%
Number of trips *(mean)*	*8.92*	*8.33*
Length of bait trips *(mean hours)*	*2.91*	*3*
Trips to scout locations (without patrons)	68.48%	34.88%
Number of trips *(mean)*	*9.96*	*2.67*
Length of scout trips *(mean hours)*	4.80	*5*
Other nonfishing trips - sightseeing, whale watching, etc.	49.28%	60.47%
Number of trips *(mean)*	*4*	*24*

Table 7. Owner characteristics by operating class

	Charter	Head boat
Owner characteristics	**Mean**	
Age of owner	52.2	56.7
Years of experience as owner/captain	14.2	24.8
Percent of total annual gross income earned from for-hire fishing activities	17%	70%

Table 8. Vessel trip types by operating class

	Charter	Head boat
% Offering half day trips	85%	74%
Number of half day trips	26	203
January – March	0.4	0.0
April – June	7.4	58.3
July – September	15.1	129.8
October – December	3.4	15.0
Number of trips donated to charity	1.2	2.7
Typical length of trip (hrs)	4.7	4.4
Average number of passengers	4.3	26.6
Percent of trips in Federal waters	14%	15%
Revenue earned on a typical trip	$450.15[a]	$31.92[b]
% Offering full day trips	90%	72%
Number of full day trips	19	69
January – March	0.5	1.5
April – June	5.7	28.1
July – September	9.7	26.4
October – December	3.3	13.4
Number of trips donated to charity	0.4	1.7
Typical length of trip (hrs)	8.5	8.3
Average number of passengers	4.8	20.6
Percent of trips in Federal waters	34%	39%
Revenue earned on a typical trip	$707.36[a]	$91.36[b]
% Offering overnight trips	13%	12%
Number of overnight trips	2	11
January – March	0.0	0.0
April – June	0.3	1.8
July – September	1.4	6.8
October – December	0.1	2.8
Number of trips donated to charity	0.0	0.0
Typical length of trip (hrs)	23.3	24.4
Average number of passengers	5.4	19.2
Percent of trips in Federal waters	63%	100%
Revenue earned on a typical trip	$1,914.25[a]	$287.80[b]

[a]This refers to the fee charged for the entire boat on a charter boat trip.
[b]This refers to the fee charged per person on a head boat trip.

Table 8, continued. Vessel trip types by operating class

% Offering other trips	26%	23%
Number of other trips	10	34
January – March	0.2	0.0
April – June	2.0	6.4
July – September	6.4	20.4
October – December	1.1	7.5
Number of trips donated to charity	0.3	0.1
Typical length of trip (hrs)	7.5	9.5
Average number of passengers	4.6	32.4
Percent of trips in Federal waters	32%	54%
Revenue earned on a typical trip	$520.38[a]	$72.94[b]

Table 9. Cost and earnings of an average charter vessel in 2010

	Mean	**Standard deviation**	**Population mean 95% confidence interval**		**Median**
			Lower	**Upper**	
Balance sheet (end of 2010)					
Assets - Market value of vessel	65,009	82,024	55,170	74,848	40,000
Purchase price	74,256	92,480	63,385	85,127	42,000
Liabilities - Outstanding loans					
Loan on vessel	16,008	35,564	11,509	20,507	0
Short term operating loan	762	4,303	219	1,305	0
Outstanding vessel loans (%)	*(30%)*				
Operating loans (%)	*(6%)*				
Equity - Owner's equity in vessel	48,423[a]	81,062	38,588	58,258	25,000
Insurance coverage (%)	*(91%)*				

[a]The subtraction of mean liabilities from mean assets provides a slightly different estimate of mean equity because of differences in the number of observations used in the calculations.

Table 10. Cost and earnings of an average head boat in 2010

	Mean	Standard deviation	Population mean 95% confidence interval		Median
			Lower	Upper	
Balance Sheet (end of 2010)					
Assets - Market value of vessel	241,750	196,383	145,046	338,454	165,000
Purchase price	265,949	312,045	170,432	361,466	170,000
Liabilities - Outstanding loans					
Loan on vessel	59,420	118,683	18,926	99,914	0
Short term operating loan	3,641	8,977	531	6,751	0
Outstanding vessel loans (%)	*(45%)*				
Operating loans (%)	*(19%)*				
Equity - Owner's equity in vessel	160,828[a]	186,441	96,229	225,427	100,000
Insurance coverage (%)	*(90%)*				

[a]The subtraction of mean liabilities from mean assets provides a slightly different estimate of mean equity because of differences in the number of observations used in the calculations.

Table 11. Annual cash flow description of revenues, expenses and net returns

Cash flow category	Description
Inflow (gross revenue)	Income from passenger fees, tips / fish cleaning, sale of food and beverages, souvenirs, sale of fish, secondary income from commercial fishing, other nonfishing activities such as whale watching trips, bird watching, sunset cruises, burials at sea, etc.
Outflow (expenses)	
Fuel and oil	Fuel and oil
Bait	Bait
Ice	Ice
Food & drink	Food and drink
Tackle & supplies	Fishing gear and tackle, other supplies (soap, detergent, mops, brooms, bags, uniforms/clothes, trash bags, other plastic bags)
Repair & maintenance	By boatyard, by staff
Insurance	Insurance
Overhead	Office staff, state fishing permits, federal fishing permits, fishing association dues, professional certifications, accounting / bookkeeping, bank fees, legal fees, advertising and promotion, booking agent fees, dock slip fees, telephone and internet, electric electric and other utilities, weather service subscriptions, company vehicle lease, company vehicle maintenance
Hired captain	Wages / salaries paid to hired captains
Crew / mates	Wages / salaries paid to crew
Investments	Investments in new electronics
Loan Payments	Principal and interest
Owner net returns	Inflow (gross revenue) - outflow (expenditures)

Table 12. Annual cash flow of an average charter vessel

	Mean	Standard deviation	Population mean 95% confidence interval		Median
			Lower	Upper	
Annual cash flow					
Inflow - Gross revenue	27,650	65,846	19,159	36,141	13,450
Outflow - Expenditures					
Fuel and oil	4,661	5,636	3,928	5,394	3,000
Bait	833	1,688	616	1,050	250
Ice	172	292	135	209	50
Food & drink	135	364	89	181	0
Tackle & supplies	1,798	2,214	1,516	2,080	1,000
Repair and maintenance	2,978	4,701	2,378	3,578	1,500
Insurance	1,500	1,203	1,347	1,653	1,200
Overhead	4,887	3,955	4,348	5,426	4,255
Hired Captain	1,169	4,451	589	1,749	0
Per paid captain	*[8,258]*				
Crew/mate	920	2,818	560	1,280	0
Per paid crew/mate	*[1,094]*				
Investments	596	1,394	418	774	0
Loan payments	2,906	4,973	2,278	3,534	0
Net cash flow	5,175[a]	62,336	-2,916	13,266	-595

[a]The subtraction of mean outflows from mean inflows provides a slightly different estimate of mean net cash flow because of differences in the number of observations used in the calculations.

Table 13. Annual cash flow of an average head boat vessel

	Mean	Standard deviation	Population mean 95% confidence interval Lower	Upper	Median
Annual Cash Flow					
Inflow - Gross revenue	213,549	131,080	163,163	263,935	192,420
Outflow - Expenditures					
Fuel and oil	24,775	16,669	17,809	31,741	24,000
Bait	5,498	4,148	3,872	7,124	5,000
Ice	195	370	53	337	0
Food & drink	289	675	34	544	0
Tackle & supplies	3,926	3,597	2,639	5,213	2,750
Repair and maintenance	8,832	9,203	5,482	12,182	6,000
Insurance	6,709	4,247	5,044	8,374	8,000
Overhead	16,042	11,299	12,064	20,020	16,780
Hired Captain	17,014	18,031	10,083	23,945	15,000
Per paid captain	*[27,648]*				
Crew/mate	18,239	21,168	10,254	26,224	12,000
Per paid crew/mate	*[5,042]*				
Investments	1,339	1,996	625	2,053	317
Loan payments	14,352	18,941	7,889	20,815	6,000
Net cash flow	95,183[a]	122,968	47,916	142,450	50,106

[a]The subtraction of mean outflows from mean inflows provides a slightly different estimate of mean net cash flow because of differences in the number of observations used in the calculations.

Table 14. Total 2010 cash flow for charter and head boats in the Northeast ($1,000)

	Charter	Head boat	Total
Inflow (gross revenue)	102,250	38,012	140,261
Outflow (expenses)			
Fuel and oil	17,236	4,410	21,646
Bait	3,080	979	4,059
Ice	636	35	671
Food & drink	499	51	551
Tackle & supplies	6,649	699	7,348
Repair & maintenance	11,013	1,572	12,585
Insurance	5,547	1,194	6,741
Overhead	18,072	2,855	20,928
Hired captain	4,323	3,028	7,351
Crew / mates	3,402	3,247	6,649
Investments	2,204	238	2,442
Loan Payments	10,746	2,555	13,301
Owner net returns	19,034[a]	16,943	35,976

[a]The subtraction of mean outflows from mean inflows provides a slightly different estimate of mean net cash flow because of differences in the number of observations used in the calculations.

Table 15. Total sales, labor income, and employment contributions of the for-hire fishing fleet to the Northeast's economy (Maine - North Carolina)

	Economic Contribution		
	Sales ($1,000)	**Income ($1,000)**	**Jobs (full & part-time)**
Charter	247,914	76,925	3,559
Head boat	86,085	39,966	941
Total	333,999	116,891	4,500

Table 16. Total economic contribution by industry type (charter and head boats combined)

Industry Type	Sales ($1,000)	Income ($1,000)	Jobs (full & part-time)
For-hire fleet (charter & head boats)	140,261	50,350	3,210
Agriculture	3,177	1,004	59
Mining	576	132	1
Construction	1,012	498	9
Manufacturing	25,444	4,799	63
Transportation, communications, and public utilities	20,088	5,317	62
Retail and wholesale trade	35,291	16,059	360
Services	104,576	36,664	708
Government	3,573	2,068	28
Total	333,999	116,891	4,500

Table 17. Employment Supported by For-Hire Activity in the Northeast: Top Ten Industries

Rank	Industry	Jobs (full & part-time)
1)	For-hire fleet	3,210
2)	Wholesale trade businesses	74
3)	Amusement parks, arcades, and gambling industries (marinas)	72
4)	Retail stores - motor vehicle and parts (boat parts)	69
5)	Food services and drinking places	69
6)	Retail stores - sporting goods (bait retail, tackle & gear)	57
7)	Commercial fishing (bait suppliers)	54
8)	Real estate establishments	46
9)	Retail stores - gasoline stations	41
10)	Private hospitals	37

Table 18. Analysis of variance tests for differences in means among survey types (GLM manova procedure in SAS

	Charter boats		Head boats	
	F Value	**Pr > F**	**F Value**	**Pr > F**
Balance sheet (end of 2010)				
Assets – Market value of vessel	0.670	0.511	0.221	0.804
Liabilities - Outstanding loans	3.501	0.032[a]	1.480	0.233
Equity - Owner's equity in vessel	0.710	0.494	0.643	0.429
Annual cash flow				
Inflow - Gross revenue	1.021	0.361	0.752	0.396
Outflow - Expenditures	0.530	0.588	0.694	0.513
Net cash flow	0.640	0.528	0.152	0.701

[a]Significance at the 95% level

6 APPENDICES

6.1 Appendix I: Advance Letter to Survey Respondents

Name
Street address
City, State, Zip

Month Day, Year

Dear Name,

Now is the time to demonstrate the economic importance of charter boats and head boats. The National Marine Fisheries Service (NMFS) currently has no data on the economic performance of your industry. Lack of data makes it impossible to show the New England and Mid-Atlantic Fishery Management Councils just how important you are to the economic health of your coastal community, or to accurately assess the economic impact fisheries policies have on your industry and community. The 2011 Recreational For-Hire Economic Survey (RFHES) aims to change that and we need your help. Please join us in this critical effort to establish your industry's economic importance by participating in the survey.

The enclosed RFHES questionnaire and FAQs were developed and tested with the assistance of for-hire boat captains and owners like you. Our interviewers will be calling you in the next two weeks to determine your eligibility for the survey and to request an in-person interview. We understand the confidential nature of the information sought and will take all appropriate steps to protect your privacy. We know your time is valuable, but hope you will agree to participate. A small token of appreciation is enclosed as a way of saying thanks for your help.

QuanTech is conducting the RFHES under a contract with NOAA's Northeast Fisheries Science Center, the research arm of NOAA Fisheries in the region. For more information, please contact:

Scott Steinback
Economist, Social Sciences Branch
Northeast Fisheries Science Center
Office: 508-495-2371
Email: scott.steinback@noaa.gov

Daemian Schreiber
Program Manager, Fisheries Research Group
QuanTech, Inc., Arlington, Virginia
Office: 703-312-7831
Email: dschreiber@quantech.com

Sincerely,

Dr. David C. Cox
President, QuanTech

QuanTech
Quantitative Technologies for Research and Analysis

6.2 Appendix II: Frequently Asked Questions and Answers for Respondents

Recreational For-Hire Economic Survey

FREQUENTLY ASKED QUESTIONS (FAQS) AND ANSWERS

Why is this survey being conducted?
The recreational for-hire industry is economically important up and down the East Coast. However, NMFS currently lacks the data to adequately estimate the economic impacts of changes in fishery regulations on this industry. The Recreational For-Hire Economic Survey (RFHES) is necessary to demonstrate the overall economic importance of the industry and to gauge how policies impact the economic health of head boat and charter fishing operations in New England and the Mid Atlantic (all coastal states from North Carolina north to Maine). This survey will collect financial data including trip and annual costs and revenue. The data will be used to create an economic impact model of the head boat and charter fishing industry. This economic impact model will be used to estimate the overall economic importance of the entire for-hire industry. Additionally, the model will be used to examine how changes in policy positively or negatively impact this important industry.

Who is conducting the survey?
The survey is funded by the National Marine Fisheries Service (NMFS) and is being conducted by QuanTech, Inc. of Arlington, Virginia. Survey design and testing was completed by Gentner Consulting. QuanTech's interviewers will conduct the actual in-person interviews.

How was I selected and is my participation voluntary?
You were selected randomly from the 2010 NMFS for-hire telephone survey (FHTS) directory, which is compiled from State and Federal permit lists. Your participation in this survey is voluntary.

How long will it take to complete the survey?
The survey designers aimed for a survey that takes no longer than one hour to complete. If you own a single boat and only offer one type of trip (half day, full day, or overnight), the survey will be quite short, taking only about 20 minutes.

Why am I being asked to provide economic information?
By providing information about your business, you are helping to construct a baseline assessment of the financial health and economic impact of the recreational for-hire industry. Knowing the industry's profitability and economic value is especially important when benefits and costs of new regulations are discussed by policy makers. The information is also important when determining the economic effects of other external forces, such as economic downturns, fuel prices, and natural disasters. Such information is commonly requested by decision makers and media outlets interested in publicizing the industry's economic situation. Currently, it is impossible to answer these questions due to lack of data.

Will the IRS get any of my information?
No. As fisheries economists, we are only interested in collecting appropriate data to provide an accurate snapshot of the recreational for-hire industry as a whole. Individual data is treated as confidential. When you complete your interview, identifying information will be removed from the rest of your answers and will not be submitted to NMFS.

Will my answers remain anonymous?
Yes. All individual information will be treated as strictly confidential. Individual data will be combined with information from other respondents to present an overall view of the economic health of the industry or a particular component of the industry.

6.3 Appendix III: Final Survey Instrument

2011 Recreational For-Hire Economic Survey (RFHES)

Screening Introduction:
May I please speak to [NAME OF CONTACT]?
Hello, this is [INTERVIEWER] calling on behalf of NOAA Fisheries and the For-Hire ECONOMIC Survey.
Are you/ is [NAME OF CONTACT] the owner of [VESSEL NAME]?
IF "YES", CONTINUE TO SURVEY DESCRIPTION 1.

IF "NO", CONTINUE TO SURVEY DESCRIPTION 2.

Survey Description 1:
We recently mailed you a package about an important economic survey. We're surveying owners of charter and head boats to collect economic data needed to evaluate the economic importance of the for-hire fishery. The [VESSEL NAME] has been selected at random from a directory of charter and head boats to be included in this study. I would like to ask a few questions about the vessel to determine its eligibility. If we determine that the vessel is eligible for the study, we will contact you again to schedule an in-person interview. This data will remain confidential and this survey is being conducted in accordance with the Privacy Act of 1974, therefore your participation is voluntary. **[CONTINUE]**

1. Did the [VESSEL NAME] take anyone fishing for a fee in 2010?
    a. Yes **[CONTINUE]**
    b. No [**VESSEL IS NOT ELIGIBLE, TERMINATE]**
2. Did more than 50% of the [VESSEL NAME]'s for-hire trips in 2010 target highly migratory species (tunas, sharks, billfish, or swordfish)?
    a. Yes [**VESSEL IS NOT ELIGIBLE, TERMINATE]**
    b. No [**CONTINUE]**
3. The [VESSEL NAME] meets the eligibility requirements for this study. Are you willing to provide cost and earnings information associated with your for-hire fishing business?
    a. Yes [**CONTINUE]**
    b. No **[TRY TO CONVERT REFUSAL]**
4. One of our in-person interviewers will call you back to schedule an appointment. Our interviewer will meet you at a time and location that you designate. The best way to schedule the appointment is if the interviewer calls you directly. What is the best time for the interviewer to call you back? **[ENTER BEST TIME TO CALL, THEN TERMINATE]**

Survey Description 2:
We recently mailed you a package about an important economic survey. We're surveying owners of charter and head boats to collect economic data needed to evaluate the economic importance of the for-hire fishery. The [VESSEL NAME] has been selected at random from a directory of charter and head boats to be included in this study. Could you provide the name and telephone number of the person who can provide cost and earnings information for the [VESSEL NAME]?

a. Yes **[ENTER NAME AND TELEPHONE NUMBER, THEN TERMINATE]**
b. No **[TERMINATE]**

Questionnaire:
VESSEL CHARACTERISTICS

1. How many boats in each of following categories do you own?
   a._____**guide boats** *(A guide boat is a for-hire fishing boat that carries 4 or less and mostly fishes near shore, inshore, bays, and inlet, operator must have, at a minimum, a USCG operator license to carry 6 or fewer passengers on near shore and inland waters.)*
   b._____**6 pack charter boats** *(6 passenger charter boat is an uninspected for-hire fishing vessel that carries 6 persons or fewer and mostly fishes offshore and inshore waters. The operator must possess ,at a minimum, a USCG license to carry 6 or fewer passengers in offshore waters.)*
   c._____ **overload charter boats** *(Overload or multi-passenger charter boat is a vessel that has a USCG Certificate of Inspection (COI) to carry a specified number of passengers with a specified navigation route. This vessel generally charges a fee for the vessel up to a specified number and may charge an additional fee for each passenger over the specified amount. The operator must possess a USCG license to carry the maximum number of passengers as per the COI and also the gross tonnage of the vessel along with the navigation route. They carry 7+ passengers.)*
   d._____**head boats** *(A head boat is a vessel that has a USCG COI that generally carries a minimum of 50 passengers and charges a fee per passenger, for a specified navigation route. There may be a minimum number of passengers required in order to depart on the trip. The operator must possess a USCG license that specifies at a minimum the number of passengers allowed on the vessel for the gross tonnage and navigation route.)*

***QUESTIONS 2-24 ARE FOR EACH VESSEL OWNED. IF YOU OWN MULTIPLE VESSELS, PLEASE MAKE A COPY OF PAGE 1 AND PAGE 2 BEFORE RECORDING INFORMATION.**

2. Is this vessel kept on the water or trailered? ☐ Docked / ☐ Trailered
3. In what city/town is the vessel docked, moored or launched (if trailered) the majority of the time? (City/Town)_____ (State)_____
4. What percentage of your trips in 2010 originated from this location? _____(%)
5. What percentage of this vessel's trips in 2010 targeted highly migratory species? _____%
6. What is the overall length of the vessel? _____(feet)
7. What is the total horsepower of the vessel? _____(hp)
8. Are the engines a (select one)?: ☐ 4 stroke gas / ☐ 2 stroke gas / ☐ diesel
9. What is the legal passenger capacity of the vessel? _____(number)
10. What year was this vessel's hull built? _____ (YYYY)
11. What hull material was used in this vessel's hull (choose one)?

☐ Wood / ☐ Fiberglass / ☐ Aluminum / ☐ Steel / ☐ Other

12. What year did you purchase or acquire this vessel? _____(YYYY)
13. What was the purchase price of the vessel? $_____
    a. Did you purchase this vessel new? ☐ Yes / ☐ No
14. What is the estimated current market value (used) of the vessel if you were to sell it today? $_____
    See http://www.nadaguides.com/Boats to estimate current market value.
15. What is the number of full-time crewmembers during the season (not including the captain) on the vessel? _____(number of full-time crew)
16. What is the number of part-time crewmembers during the season (not including the captain) on the vessel? _____(number of part-time crew)

FOR EACH TYPE OF TRIP THAT EACH VESSEL TAKES

17. Do you offer half day fishing trips on this vessel? ☐ Yes (go to Q17a) / ☐ No (skip to Q18)
    a. How many ½ day trips did you take in 2010? _____(number of trips)
    b. Please break out the number of ½ day trips you took in each of the following periods.

January – March	April – June	July – September	October - December

    c. How many ½ day trips did you donate to charity in 2010? _____(number of trips)
    d. How long is the typical ½ day trip? _____(hours)
    e. On average, how many passengers do you take on ½ day trips? _____(number of passengers)
    f. What percentage of your ½ day trips took place in Federal waters? _____(%)

If you own multiple vessels, please make a copy of this page before recording any information.

18. Do you offer full day fishing trips on this vessel? ☐ Yes (go to Q18a) / ☐ No (skip to Q19)
    a. If yes, how many full day trips did you take in 2010? _____(number of trips)
    b. Please break out the number of full day trips you took in each of the following periods.

January – March	April – June	July – September	October - December

    c. How many full day trips did you donate to charity in 2010? _____(number of trips)
    d. How long is the typical full day trip? _____(hours)
    e. On average, how many passengers do you take on full day trips? _____(number of passengers)

f. What percentage of your full day trips took place in Federal waters? _____(%)

19. Do you offer overnight fishing trips on this vessel? ☐ Yes (go to Q19a) / ☐ No (skip to Q20)
    a. If yes, how many overnight trips did you take in 2010? _____(number of trips)
    b. Please break out the number of overnight trips you took in each of the following periods.

January – March	April – June	July – September	October - December

    c. How many overnight trips did you donate to charity in 2010? _____(number of trips)
    d. How long is the typical overnight trip? _____(hours)
    e. On average, how many passengers do you take on overnight trips? _____(number of passengers)
    f. What percentage of your overnight trips took place in Federal waters? _____(%)

20. Do you offer any other fishing trip lengths on this vessel? ☐ Yes (go to Q20a) / ☐ No (skip to Q21)
    a. If yes, how long is this type of trip? _____(hours)
    b. What do you call this type of trip?
       _____
    c. How many of this type of trip did you take in 2010? _____(number of trips)
    d. Please break out the number of this type of trip you took in each of the following periods.

January – March	April – June	July – September	October - December

    e. How many of this type of trip did you donate to charity in 2010? _____(number of trips)
    f. On average, how many passengers do you take on this type of trip? _____(number of passengers)
    g. What percentage of these trips took place in Federal waters? _____(%)

21. Do you ever take trips without patrons for the purpose of catching bait for your charter operation?
    ☐ Yes (go to Q21a) / ☐ No (skip to Q22)
    a. How many trips did you take in 2010 exclusively to catch bait? _____(number of trips)
    b. Typically how long are your bait trips? _____(hours)

22. Do you ever take trips without patrons for the purpose of scouting locations and conditions?
    ☐ Yes (go to Q22a) / ☐ No (skip to Q23)
    a. How many trips did you take in 2010 exclusively to scout? _____(number of trips)
    b. Typically how long are your scouting trips? _____(hours)

23. Do you charter the boat for nonfishing trips like sightseeing, whale watching or bird watching?
☐ Yes (go to Q23a) / ☐ No (skip to Q24)
   a. How many nonfishing trips do you take in 2010? _____(number of trips)

24. How much did you earn from fees on a typical trip in 2010?

Fees	**Half day**	**Full day**	**Overnight**
Charter (boat) fees or Head boat (per person) fees	$	$	$

TOTAL ANNUAL REVENUE - QUESTION 25 PERTAINS TO THE BUSINESS AS A WHOLE, INCLUDING ALL VESSELS IF MULTIPLE BOATS ARE OWNED.

25. What was your total annual revenue (gross) from the following items in 2010?

Category	**Total Revenue ($)**
a. Income from charter fees	
b. Income from tips and fish cleaning	
c. Income from the sale of food and drink	
d. Income from souvenirs	
e. Income from the sale of fish	
f. Income from commercial fishing	
g. Income from other charter activities like bird watching trips, whale watching trips, sunset cruises, etc.	
h. Other income (list)	
TOTAL	

DEBT AND DEBT SERVICE

26. Was there a loan outstanding on any of your vessels during any part of 2010?
☐ Yes (go to Q26a) / ☐ No (skip to Q27)
   a. What was the monthly payment (principle and interest) during 2010? $_____
   b. What is the outstanding balance on this loan at the end of 2010? $_____
   c. What was the total amount of your original loan? $_____
   d. What is the term of your current loan? _____(years)
   e. What is interest rate on this loan? _____(%)
   f. Was your home used to secure this loan? ☐ Yes (go to Q26g) / ☐ No (skip to Q27)
   g. What percentage of the value was secured with your home? _____(%)

27. In 2010, did you have any outstanding short term operating loans?
☐ Yes (go to Q27a) / ☐ No (skip to Q28)
   a. What was the monthly payment (principle and interest) during 2010? $_____
   b. What is the outstanding balance on this loan at the end of 2010? $_____
   c. What was the total amount of your original loan? $_____

d. What is the term of your current loan? _____(years)
e. What is interest rate on this loan? _____(%)
f. Was (were) your vessel(s) used to secure this loan? ☐ Yes / ☐ No
g. Was your home used to secure this loan? ☐ Yes (go to Q27h) / ☐ No (skip to Q28)
h. What percentage of the value was secured with your home? _____(%)

28. In 2010, did you have an outstanding loan on a company owned vehicle?
☐ Yes (go to Q28a) / ☐ No (skip to Q29)
a. What was the monthly payment (principle and interest) during 2010?
$_____

29. In 2010, did you have an outstanding loan on any company owned buildings and/or land?
☐ Yes (go to Q29a) / ☐ No (skip to Q30)
a. What was the monthly payment (principle and interest) during 2010?
$_____

TOTAL ANNUAL COSTS

30. What were your total annual expenditures on the following items in 2010?

Category	**Total Expenditure ($)**
a. Fuel and Oil	
b. Captain's share	
c. Crew/mate share	
d. Office staff	
e. Bait	
f. Ice	
g. Food and drink	
h. State fishing permits	
i. Federal permits (HMS/tuna permit, USCG registration, etc.)	
j. Fishing gear and tackle	
k. Other supplies (cleaning, etc.)	
l. Electronics purchased in 2010(radio, nav, fish finding, etc.)	
m. Engine repair and boat maintenance by boatyard	
n. Engine repair and boat maintenance by your own staff	
o. Fishing association dues	
p. Professional certifications	
q. Accounting/book keeping	
r. Bank fees	
s. Legal fees	
t. Advertising and promotion	
u. Booking agent fees	

Category	Total Expenditure ($)
v. Dock/slip fees	
w. Insurance payments	
x. Telephone (and Internet, if applicable)	
y. Electric and other utilities	
z. Weather service subscriptions	
aa. Company vehicle lease	
bb. Company vehicle maintenance	
cc. Building lease	
dd. Building maintenance	
ee. Lodging related to providing trips	
ff. Meals related to providing trips	
gg. Trailer maintenance	
hh. Tow vehicle gas	
ii. Tow vehicle maintenance	
jj. Tolls	
kk. Boat launching and parking	
ll. Other (specify)	
TOTAL ANNUAL EXPENDITURES IN 2010	

31. Net revenue = (Q25 TOTAL) - ((Q26a×12) + (Q27a×12) + (Q28a×12) + (Q29a×12) + Q30 TOTAL)
    Does this value seem accurate? ☐ Yes (go to Q32) / ☐ No (go to Q31a)
    a. If no, is it too high or too low? If too high, what expenses have you left out or what revenues have you overestimated? If too low, what revenue have you left out or what costs have you overestimated? Amend above responses if necessary.

32. Is calculated net revenue negative? ☐ Yes (go to Q33) / ☐ No (skip to Q35)

33. Did you operate at a loss in 2010? ☐ Yes (go to Q34) / ☐ No (go back to Q31)

34. Other than in 2010, do you typically earn a profit taking people fishing?
    ☐ Yes (go to Q34b) / ☐ No (go to Q34a)
    a. Why do you take people out fishing?_____
    b. What changed in 2010?_____

RESPONDENT CHARACTERISTICS

35. Are you an:
    ☐ Owner/captain OR ☐ Owner/non-captain (go to Q36);
    ☐ paid captain, private OR ☐ paid captain, corporate (go to Q37).

36. Please indicate your business structure (select one):

☐ sole proprietorship, ☐ partnership, ☐ corporation, ☐ limited liability company ☐ other

37. In what year were you born? _____(YYYY)

38. How many years have you been a charter owner/captain? _____(years)

39. What percentage of your personal annual gross income in 2010 was from charter fishing activities? _____(%)

6.4 Appendix IV: Cash Flow Summary Statistics by Survey Question

Table A19. Charter boat summary statistics by survey question

Survey question	Obs.	Mean	Std. err.	Min.	Max.
Inflow – Gross revenue					
Q25a. Income from charter fees	231	24,547	4,169	200	912,994
Q25b. Income from tips and fish cleaning	207	440	81	0	10,000
Q25c. Income from the sale of food and drink	209	8	6	0	900
Q25d. Income from souvenirs	209	39	25	0	5,000
Q25e. Income from the sale of fish	211	193	107	0	20,000
Q25f. Income from commercial fishing	209	1,997	995	0	200,000
Q25g. Income from other charter activities	214	736	208	0	35,000
Q25h. Other income	205	2	2	0	400
Outflow – Expenditures					
Q26a. Vessel loan principle and interest (monthly)	240	190	24	0	1,800
Q27a. Short term loan principle and interest (monthly)	241	26	8	0	1,250
Q28a. Vehicle loan principle and interest (monthly)	241	17	6	0	684
Q29a. Building/land loan principle and interest (monthly)	241	10	7	0	1,600
Q30a. Fuel and oil	227	4,661	374	100	40,000
Q30b. Captain's share	226	1,169	296	0	40,000
Q30c. Crew/mate share	236	920	183	0	20,000
Q30d. Office staff	236	19	12	0	2,000
Q30e. Bait	233	833	111	0	14,000
Q30f. Ice	233	172	19	0	2,000
Q30g. Food and drink	236	135	24	0	3,000
Q30h. State fishing permits	235	247	20	0	2,000
Q30i. Federal fishing permits	236	69	18	0	4,000
Q30j. Fishing gear and tackle	233	1,336	104	0	10,000
Q30k. Other supplies (cleaning, etc.)	234	483	77	0	10,000
Q30l. Electronics purchased	236	596	91	0	10,000
Q30m. Engine repair and boat maintenance by yard	234	2,001	230	0	25,800
Q30n. Engine repair and boat maintenance by staff	234	1,002	204	0	38,700
Q30o. Fishing association dues	235	98	12	0	1,800
Q30p. Professional certifications	235	75	11	0	1,200
Q30q. Accounting/book keeping	234	172	19	0	1,800
Q30r. Bank fees	227	51	10	0	1,000
Q30s. Legal fees	234	24	6	0	1,000
Q30t. Advertising and promotion	235	832	77	0	6,000
Q30u. Booking agent fees	235	35	12	0	1,700
Q30v. Dock/slip fees	235	2,097	148	0	9,298
Q30w. Insurance payments	237	1,500	78	0	7,000
Q30x. Telephone (and internet)	233	434	41	0	4,000
Q30y. Electric and other utilities	232	58	12	0	1,200
Q30z. Weather service subscriptions	235	21	5	0	500
Q30aa. Company vehicle lease	237	29	18	0	3,600
Q30bb. Company vehicle maintenance	237	115	31	0	4,500
Q30cc. Building lease	237	59	31	0	6,500
Q30dd. Building maintenance	238	21	14	0	3,000

Q30ee. Lodging related to providing trips	238	39	13	0	1,840
Q30ff. Meals related to providing trips	236	45	10	0	1,000
Q30gg. Trailer maintenance	234	86	17	0	1,953
Q30hh. Tow vehicle gas	232	199	34	0	4,000
Q30ii. Tow vehicle maintenance	234	65	15	0	1,904
Q30jj. Tolls	235	18	4	0	410
Q30kk. Boat launching fees	236	71	18	0	3,000
Q30ll. Other	235	0	0	0	0

Table A20. Head boat summary statistics by survey question

Survey question	Obs.	Mean	Std. err.	Min.	Max.
Inflow – Gross revenue					
Q25a. Income from charter fees	26	202,202	25,752	20,000	500,000
Q25b. Income from tips and fish cleaning	23	942	583	0	11,000
Q25c. Income from the sale of food and drink	24	1,334	644	0	12,500
Q25d. Income from souvenirs	23	109	109	0	2,500
Q25e. Income from the sale of fish	24	0	0	0	0
Q25f. Income from commercial fishing	24	0	0	0	0
Q25g. Income from other charter activities	26	8,892	5,026	0	125,000
Q25h. Other income	23	332	289	0	6,626
Outflow – Expenditures					
Q26a. Vessel loan principle and interest (monthly)	33	806	209	0	4,591
Q27a. Short term loan principle and interest (monthly)	32	198	80	0	1,796
Q28a. Vehicle loan principle and interest (monthly)	33	41	22	0	590
Q29a. Building/land loan principle and interest (monthly)	33	156	114	0	3,500
Q30a. Fuel and oil	22	24,775	3,554	1,200	60,000
Q30b. Captain's share	26	17,014	3,536	0	56,400
Q30c. Crew/mate share	27	18,240	4,074	0	80,000
Q30d. Office staff	26	1,704	753	0	13,500
Q30e. Bait	25	5,498	830	0	14,000
Q30f. Ice	26	195	72	0	1,250
Q30g. Food and drink	27	289	130	0	2,500
Q30h. State fishing permits	26	308	59	0	900
Q30i. Federal fishing permits	29	381	115	0	2,800
Q30j. Fishing gear and tackle	28	2,827	536	0	10,000
Q30k. Other supplies (cleaning, etc.)	28	1,380	301	0	6,280
Q30l. Electronics purchased	30	1,339	364	0	7,000
Q30m. Engine repair and boat maintenance by yard	25	4,843	1,180	0	26,000
Q30n. Engine repair and boat maintenance by staff	28	4,823	1,065	0	19,500
Q30o. Fishing association dues	27	2596	80	0	1,500
Q30p. Professional certifications	29	112	50	0	1,400
Q30q. Accounting/book keeping	28	1,419	281	0	5,500
Q30r. Bank fees	28	229	71	0	1,200
Q30s. Legal fees	28	257	97	0	2,000
Q30t. Advertising and promotion	24	6,540	1,185	0	16,500
Q30u. Booking agent fees	29	0	0	0	0
Q30v. Dock/slip fees	29	5,430	990	0	18,000
Q30w. Insurance payments	25	6,709	849	0	16,000
Q30x. Telephone (and internet)	26	1,057	221	0	4,000
Q30y. Electric and other utilities	27	456	163	0	3,400
Q30z. Weather service subscriptions	31	0	0	0	0
Q30aa. Company vehicle lease	30	133	133	0	4,000
Q30bb. Company vehicle maintenance	30	138	61	0	1,250
Q30cc. Building lease	31	183	127	0	3,000
Q30dd. Building maintenance	30	67	67	0	2,000
Q30ee. Lodging related to providing trips	31	0	0	0	0
Q30ff. Meals related to providing trips	31	5	5	0	140
Q30gg. Trailer maintenance	31	0	0	0	0
Q30hh. Tow vehicle gas	31	0	0	0	0

Q30ii. Tow vehicle maintenance	31	0	0	0	0
Q30jj. Tolls	29	3	3	0	84
Q30kk. Boat launching fees	30	4	4	0	120
Q30ll. Other	31	0	0	0	0

6.5 Appendix V: IMPLAN Modeling Approach

The IMPLAN system consists of software and data that may be purchased from the Minnesota IMPLAN Group. The software provides the mathematical algorithms to estimate input-output models, as well as a user-friendly interface for customizing input-output models to an application. Default data sets available for purchase include county-level data on the economic characteristics of 440 distinct business sectors for every county in the U.S. County-level data sets for each coastal state in the Northeast, from Maine to North Carolina, were acquired to construct the input-output model.

Unfortunately, the operation of charter fishing boats is included in an all encompassing Scenic and Sightseeing Transportation sector that includes all land, air, and water-related transportation businesses. Therefore, the underlying economic data contained in IMPLAN characterizes the aggregate activity of many businesses and will not accurately portray the operation of charter fishing boats in the Northeast. To more accurately characterize the actual operation of for-hire businesses, total charter and head boat gross revenues, expenses, and net returns, estimated from the survey data (see Table 14), were used in conjunction with IMPLAN multipliers to calculate the regionwide multiplier effects attributed to the for-hire fleet in the Northeast.

Questions concerning products and services purchased from businesses located in the Northeast versus those purchased from businesses located outside the region were not included on the survey. Purchases from businesses located outside of the Northeast impact the economies of other regions and should be excluded from the contribution assessment. Fortunately, the IMPLAN system contains regional purchase coefficients (RPCs), which can be used to estimate the portion of the total regional demand supplied by regional producers. By incorporating IMPLAN's RPCs for all commodity-based transactions, we were able to estimate the amount of each purchase that was supplied by businesses located in the Northeast.[8]

IMPLAN margins were used to convert retail-level prices paid by for-hire owners into appropriate producer values. Margins ensure that correct values are assigned to products (i.e., commodities) as they move from producers, to wholesalers, through transportation sectors, and finally on to retail establishments.

For-hire revenue obtained from both nonresidents and residents of the Northeast were used in the assessment. However, spending by residents of the Northeast on recreation-related activities is part of household consumption and is endogenous in the input-output model. Therefore, to avoid double-counting in the input-output model, the total value of for-hire gross revenue obtained from residents of the Northeast was subtracted from IMPLAN prior to constructing the input-output model. Using this procedure, the contribution of revenue received from resident for-hire passengers can be considered exogenous and was modeled in the same manner as the revenue received from nonresident passengers.[9]

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[8]IMPLAN's default RPC values associated with the supply of bait (frozen fish, squid, sea worms, clams, live eels, etc.) from local fishermen and wholesalers was increased to one, since virtually all locally purchased bait comes from harvesters and dealers operating in the Northeast.

[9]Inclusion of the passenger fees received from both nonresidents and residents is necessary to show the total contribution of the for-hire industry to the Northeast's economy. Failure to include the revenue received from residents would underestimate the contribution of the for-hire fleet. Contribution-type input-output assessments are often confused with economic impact input-output assessments, where resident expenditures are usually excluded. Further clarification of the differences can be found in Watson et. al. 2007.

6.5.1 For-Hire Fleet Operating Expenditures

The full list of individual expense items that were applied to the IMPLAN-generated multipliers is shown in Table A21. Several of the expense items warrant further clarification. The cost of supplies was apportioned evenly across four IMPLAN sectors that manufacture soaps, brooms, mops, clothes (e.g., uniforms) and plastic bags. These were the items that for-hire owners most commonly listed as "other supplies" on the survey. A detailed breakdown of food and drink expenditures was not requested on the survey instrument, so this cost was assigned to IMPLAN sectors according to the Personal Consumption Expenditure (PCE) activity data base for grocery store purchases created by the Bureau of Economic Analysis. This PCE vector is available in IMPLAN and represents the national average expenditure pattern by households for groceries. The total cost of state fishing permits, as well as the cost of obtaining professional certificates, was assigned to IMPLAN sectors according to the state/local government noneducation institution spending pattern available in IMPLAN. This spending pattern represents the regionwide average expenditure pattern by state/local government institutions, not involved in education-related activities, and includes goods and services purchased as well as wages and salaries paid to government employees. The total cost of federal fishing permits was assigned to the federal government nondefense institution spending pattern contained in IMPLAN.[10]

[10]Three other expenditure categories were adjusted further prior to generating impacts. A large portion of payments for property insurance and interest on loans generate no economic impacts in an input-output model. The sales of most industries in an input-output model are expressed in terms of business receipts, but the insurance carrier and the banking sectors are measured on a net basis. The output of the insurance carrier sector is calculated by subtracting claims and policy dividends paid from premiums earned. The output of the banking sector includes interest payments on loans, but also many other income-generating activities, and takes into account the interest paid by banks on depositors' funds and for bank services where no explicit charges are made. Therefore, if the total estimated value of the property insurance and interest payments made by for-hire vessel owners were applied to the input-output model's multipliers, the impact on the local economy would be overstated. To provide net expenditure estimates that would equate to the values contained within IMPLAN, the insurance expenditure estimate was adjusted by the average net profit margin percentage for property and casualty insurance firms in the Northeast (7.2%), and the average net profit margin percentage for the banking industry in the Northeast was used to adjust expenditures on bank fees and interest payments (15.3%; http://biz.yahoo.com/p/).

Table A21. Charter and head boat IMPLAN sectoring scheme

Expenditure/Income Category	IMPLAN sector(s)	IMPLAN description
Fuel and oil	3115	Refined petroleum products
Bait	3017	Fish (squid, clams, etc.)
Ice	3070	Soft drinks and manufactured ice
Food & drink	PCE , NIPA1111	IMPLAN PCE vector for grocery store purchases
Tackle & supplies		
Fishing gear and tackle	3311	Sporting and athletic goods
Other supplies	3138, 3318, 3086, 3142	Soaps, brooms, mops, knit apparel, plastics
Repair & maintenance		
By boatyard	418	Personal and household goods repair and maintenance
By staff	320	Retail stores - motor vehicle and parts (boat parts)
Insurance	357	Insurance carriers
Overhead		
Office staff	5001	Employee compensation
State fishing permits	State govt	State/local govt noneduction institution spending pattern
Federal fishing permits	Federal govt	Federal govt nondefense institution spending pattern
Fishing association dues	425	Civic, social, professional, and similar organizations
Professional certifications	State govt	State/local govt noneduction institution spending pattern
Accounting / book keeping	368	Accounting, tax preparation, bookkeeping, and payroll
Bank fees	354	Monetary authorities
Legal fees	367	Legal services
Advertising & promotion	377	Advertising and related services
Booking agent fees	383	Travel arrangement and reservation services
Dock/slip fees	409	Amusement parks, arcades, and gambling industries (marinas)
Telephone & internet	351	Telecommunications
Electric & other utilities	31	Electric power generation, transmission, and distribution
Weather service subscriptions	380	Miscellaneous professional, scientific, and technical services
Company vehicle lease	355	Nondepository credit intermediation and related activities
Company vehicle maintenance	414	Automotive repair and maintenance
Hired captain	5001	Employee compensation
Crew / mates	5001	Employee compensation
Investments		
Electronics	3249	Search, detection, and navigation instruments
Loan payments		
Principal	291	Boat building
Interest	354	Monetary authorities
Owner net returns		
Head boat owners	10008	Households 100-150K
Charter boat owners	10003	Households 15-25K

6.5.2 Disposable Income Spending by Owners, Hired Captains, Crew/Mates, and Office Staff

Calculation of "induced" impacts required making assumptions about the goods and services purchased and the levels of disposable income available for spending. The IMPLAN system contains a PCE activity database that represents the national average expenditure pattern for disposable income according to nine different annual household income classes. Each of the nine household income PCE vectors show the average proportion of goods and services that will be purchased from a given IMPLAN sector for each dollar of spending. Spending patterns differ dramatically between income levels. Low-income spending is more heavily weighted toward necessities (i.e., food, clothing, shelter), while higher-income levels provide more disposable income for recreation and luxury spending. In absence of a primary expenditure survey that identifies the specific spending patterns of for-hire vessel owners, hired captains, crew/mates, and office staff, the nine IMPLAN PCE vectors provide a reasonable approximation of the goods and services that are purchased with the income earned from for-hire activities.

The regional contribution of income expenditures to the Northeast's economy were estimated separately for vessel owners, captains, crew/mates, and office staff, to account for differences in spending across income levels. The average net return, per vessel, for head boat owners in 2010, was approximately $95.2 thousand. Many head boat owners earned additional income from other activities though. Survey data indicated that the average head boat owner derived approximately 70% of his/her total income from for-hire activities in 2010. Therefore, it can be assumed that the average head boat owner earned a total of just over $135 thousand (95/0.7=135.7) in 2010 from all income-generating activities. While the contributions of non for-hire earnings to the Northeast's economy are excluded from this study, the additional income earned by head boat owners had an effect on which PCE profile was chosen to best represent the overall spending pattern of head boat owners. Ultimately, head boat owners were assumed to spend their income according to the spending pattern represented by households with earnings of $100-$150 thousand in 2010.[11]

Charter boat net returns were assumed to have been spent according to the spending pattern represented by households with earnings of $25-$35 thousand. Net earnings per charter vessel averaged $5,175, but charter owners indicated that only 17% of their total income, on average, in 2010 was derived from charter activities. Thus, total earnings from all income-generating activities in 2010 was calculated at approximately $30.8 thousand (5,175/0.168=30,804), and it was assumed that charter owners would spend their disposable income according to the spending pattern represented by households with incomes that range from $25-$35 thousand.[12]

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[11] The Household Income Change option was employed in IMPLAN to estimate the multiplier effects of the earnings by head boat owners in 2010. This option correctly removes personal taxes and savings, based on regional average rates, before calculating the contribution of disposable income expenditures to the economy.

[12] Income earned by spouses also contributes to the income base of households and may raise the level of disposable income available for spending. The average level of spousal earnings are unknown, however, so the PCE profile chosen for the analysis is based on personal earnings and not actual household earnings. Additionally, as indicated in Section 4.2, we consider our estimate of average charter net earnings to be a lower bound approximation of earnings. For these reasons, the average household income of charter owners was likely higher than $25-$35 thousand.

Hired captains, crew/mates, and office staff earnings, were assumed to be spent according to the average spending pattern across all Northeast households contained in IMPLAN (IMPLAN sector 5001, employee compensation). Because of the seasonal nature of the for-hire business in the Northeast, a substantial number of individuals employed by head boat and charter boat owners in the Northeast are likely employed in other industries during the offseason. The survey we conducted was administered to for-hire owners, and not hired employees, so we were unable to determine total annual income levels for hired employees. In the absence of this information, the employee compensation vector provides a reasonable approximation of the goods and services purchased by hired captains, crew/mates, and office staff employed by both head boat and charter boat owners in 2010.

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