

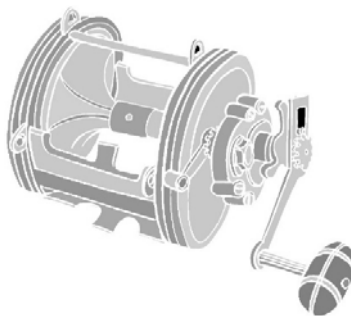


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Economics of the Federal For-Hire Fleet in the Southeast - 2017

By

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Introduction

This report documents and summarizes results for a pilot descriptive study of the economics of the federally-permitted for-hire fishing sector in the Southeast USA (SE) in 2017. A short mail survey was developed and fielded to collect limited information about for-hire vessel operations and revenue, as well as cost information about the vessel's last SE offshore for-hire trip. The pilot study had three objectives: 1. to test a voluntary mail survey approach in this sector; 2. to update trip-level economic data and descriptive results available for the SE for-hire sector; and 3. to compare the for-hire fees provided on the survey with those available on the vessel owner's website. In the SE, the federally-permitted for-hire sector can be further broken down into vessels operating between Cape Hatteras, N.C. and the Florida Keys (throughout called South Atlantic [SAT] waters) under the jurisdiction of the South Atlantic Fishery Management Council and those fishing in Gulf of Mexico (GOM) waters under the jurisdiction of the Gulf of Mexico Fishery Management Council. Further, but more roughly, vessels can be divided into charter vessels and head boats, where the latter are larger and take multiple independent parties fishing on scheduled trips.

The first objective of this study was to test the feasibility of a voluntary economic mail survey covering federally-permitted for-hire fishing operations, including both charter vessels and head boats, in the entire SE. Most past economic surveys in this sector were conducted using in-person or telephone interview surveys (which are complex to administer and expensive), and no recent survey has had the scope to cover both the SAT and GOM together. Mail surveys have the advantage that they are easier and less expensive to administer and can be more convenient and less intrusive for the respondents. On the downside, mail surveys can suffer from low response rates among other disadvantages. It was unknown if the response rate in the SE for-hire sector---the willingness of a regulated industry to participate in a voluntary mail survey---would be good enough to generate valid results. Prior to the survey, we deemed a 20% or lower response rate a failure, while a response rate above 40% would be

acceptable (especially because a significant number of permitted vessels in the sampling frame are not actively used for for-hire fishing). The realized overall response rate was 45%.

The second objective of the study---conditional on a good response rate---was to provide updated descriptive economic information at the trip-level. The last comprehensive survey in the SE for-hire sector collected economic information for the 2009 calendar year. The trip-level economics---trip revenues including for-hire fees and tips and variable costs for fuel, supplies, and labor---have been used to estimate the marginal producer surplus generated by for-hire trips. Empirically, we calculate the net cash flow per angler trip for for-hire trips. These estimates are regularly used in fishery management plan amendments throughout the SE to quantify the economic effects of changes in regulations. This report is intended as a timely source of descriptive economic results and hence provides limited interpretation and discussion of the results.

Finally, the third objective of the study was to compare the for-hire fees provided on the survey (for the vessel's last SE offshore trip) with the for-hire fees listed on the vessel's website (if the vessel has a website and provides fee information there). Other research efforts of the Social Science Research Group have focused on collecting for-hire fee information from websites and using these as placeholders for the actual fee structure in the SE for-hire sector.¹ The question remained, how comparable are these web-site fee data to previous fee data collected from participants directly using surveys. There are a number of theoretical reasons why web-published "suggested retail prices" might differ from what for-hire operations actually receive, including seasonally fluctuating pricing, promotions (e.g., Groupon), and discounts or premiums for walk-ups, paying cash, and extra passengers or services. Also, referral fees or booking services might be a substantial cost that has not previously been collected. Overall, the intent was to determine if there was any systematic discrepancy between actual and web-based prices.

¹ Carter, David W. 2016. The Prices for For-Hire Marine Fishing Trips in the Southeastern U.S. Collected from Websites: 2014 and 2015. NOAA Technical Memorandum NMFS-SEFSC-694. 25 p.

Survey Design, Implementation, and Definitions

This study is focused on for-hire vessels active in federal waters of the SE. The survey was funded, developed, and tested in 2015 and 2016, and fielded in six consecutive 2-month periods (waves) during 2017, with follow-up surveys being mailed through mid-2018. A mail survey was sent to holders of federal for-hire fishing permits in the SE. The survey was implemented in six waves to account for the seasonality of the fishery, with timing compatible with the Marine Recreational Information Program (MRIP).² In each wave, 200 eligible vessels were randomly sampled without replacement. Across 2017, we sampled just over half the eligible population. For the analysis and presentation of results, the overall responses were also subset into three sub-fleets according to the criteria reported in the later Definitions section.

Population and Sampling Design

The population of interest in this study includes all vessels with federal for-hire permits in the SE, including the following permits: South Atlantic Snapper-Grouper Charter/Headboat (SC), South Atlantic Coastal Migratory Pelagics (CHS), Atlantic Dolphin-Wahoo Charter/Headboat (CDW), Gulf of Mexico Charter/Headboat for Reef Fish (RCG), Historical Captain Gulf of Mexico Charter/Headboat for Reef Fish (HRCG), Gulf of Mexico Charter/Headboat for Coastal Migratory Pelagics (CHG), or Historical Captain Gulf of Mexico Charter/Headboat for Coastal Migratory Pelagics (HCHG). The population for the study was determined by the NMFS SE Regional Office federal permit database. This database, along with permit information, contains vessel characteristics, such as length, year built, and hull type, and business contact information provided by the owner.

At the beginning of each survey wave, the raw sampling frame was extracted from the SE permit database and consists of all vessels with one or more of the applicable for-hire permits. The raw frame was then narrowed down based on the following criteria. First, a vessel must have had at least one for-hire permit that was valid for fishing at the time the data was

² MRIP uses a combination of dockside, mail, and phone surveys to collect catch and effort data from recreational fishermen, including both permitted anglers and for-hire operators. MRIP is administered across 6 waves each year, with wave 1 corresponding to January and February; wave 2 is March and April, etc.

extracted. Second, the vessel must have been at least 24 feet in length and be named. This step eliminates recreational vessels and rafts used to “store” permits. A third step was used to eliminate vessels that were permitted to fish SE coastal migratory species (king mackerel, Spanish mackerel, and cobia) or dolphin/wahoo but exclusively operate in Northeast waters (north of North Carolina for our purposes).³ Hence, to be eligible for our survey, a vessel must have had one of the following: 1) a valid SC, RCG, HRCG, CHG, or HCHG permit, or 2) (only) a CDW or CHS permit with a SE mailing address. Vessels that did not meet the criteria listed above were removed from the sampling frame. The remaining vessels are referred to in this report as ‘eligible vessels’.

From the wave 1 eligible vessel list, 200 vessels were randomly selected for inclusion in the first round mail out. For subsequent waves (2-6), a new frame was drawn at the beginning of each wave and a new eligible vessel list constructed. Prior to random sampling of a further 200 vessels, the eligible list was reduced by the previously selected vessels (sampling without replacement over the course of the year). As a result, any vessel could only be sampled once by the 2017 survey, and the results should be representative of the vessels

Survey Instrument Development

Initial exploratory interviews were conducted in the Florida Keys in September 2015 to gain insight into the day-to-day operations, costs, and challenges pertaining to the for-hire fishing industry. The five participants consisted of charter boat owners, captains, and mates. The information provided in the first round of interviews was used to create a pilot survey, which was tested during two subsequent focus groups, the first conducted in Islamorada, Florida, in November 2015, with eleven local participants, and the second conducted later that month in Naples, Florida, with nine local participants. The results from the focus groups were used to gauge the likelihood of participation and to further refine the survey instrument. A pilot survey was sent out to a sample of 100 randomly selected for-hire vessel owners in the summer of 2016. The survey used a mixed-media approach, with two waves of both mail and email

³ While the SC, RCG, HRCG, CHG, and HCHG permits allow fishing only in SE waters, the CDW (dolphinfish and wahoo) and CHS (king mackerel, Spanish mackerel, and cobia) permits cover these species in the Atlantic waters of the U.S. SE and Northeast. Since both species are warm water fish, the vast majority are caught in SE waters.

send-outs. Responses and comments from the pilot survey were used to create the final survey instrument for the 2017 Economic Survey of Southeast For-Hire Fishing Trips. The final survey instrument is attached as Appendix 1.

Implementation - Mail Survey

The total sample of 1200 surveys was implemented across six waves. Each wave of 200 surveys consisted of three rounds of mailings. The first round included a cover letter, a survey instrument, and a prepaid return envelope. Approximately one week later, a second round mailing, in a different color, was sent to all non-responders containing a reminder to complete the survey. One week after that, a third and final round was sent out to the remaining non-responders containing a cover letter, an additional survey, and a second prepaid return envelope. In total, mailings for each wave were completed in 2-3 weeks, with mail out dates for each round contained in Table 1.

Table 1: Mail-out Dates and Timing of each Wave of the Survey

Wave #	1st Round	2nd Round	3rd Round	Total # Days
1	March 3 rd , 2017	March 10 th , 2017	March 24 th , 2017	21
2	April 14 th , 2017	April 21 st , 2017	April 28 th , 2017	14
3	June 2 nd , 2017	June 9 th , 2017	June 16 th , 2017	14
4	July 21 st , 2017	July 28 th , 2017	August 4 th , 2017	14
5	September 22 nd , 2017	September 29 th , 2017	October 6 th , 2017	14
6	November 24 th , 2017	December 1 st , 2017	December 8 th , 2017	14

In an effort to gather more trip-level economic data and allow for more seasonal comparisons, a second, one-page “follow-up” survey was mailed to each active SE for-hire vessel owner that responded to the initial survey, approximately half a year after they completed the initial survey. This “follow-up” survey asked vessel owners about the most

recent offshore trip taken by the vessel, using the same format as the second page of the initial survey (Appendix 1). Follow-up surveys were sent a single time, with the package containing a cover letter, the survey instrument, and a prepaid return envelope. Mail-out dates and timing are shown in Table 2.

Incoming surveys were inspected to ensure data quality and completeness. The surveys were manually entered into an Excel spreadsheet containing data from all six waves of the study. The data were iteratively cleaned, during which time staff identified and corrected data entry errors and validated or corrected minor errors or inconsistencies. In instances where inconsistencies or extreme outliers could not be fixed or validated, or were deemed too irregular, the survey was determined to be incomplete and removed from data analysis. Once cleaned, data collected from the surveys were linked to the available permit information and vessel characteristics.

Table 2: Mail-out Dates and Timing of each Wave of the Follow-up Survey

Wave #	Initial 1st Round Mail-out Date	'Follow-up' Mail-out Date	Time Between
1	March 3 rd , 2017	August 4 th , 2017	5 months, 1 day
2	April 14 th , 2017	October 9 th , 2017	5 months, 25 days
3	June 2 nd , 2017	December 8 th , 2017	6 months, 6 days
4	July 21 st , 2017	January 29 th , 2018	6 months, 8 days
5	September 22 nd , 2017	February 8 th , 2018	5 months, 6 days
6	November 24 th , 2017	April 23 rd , 2018	4 months, 30 days

Response Rates

Response rates for vessels sampled during waves 1 through 6 are provided in Table 3. The table provides counts of permitted vessels extracted from the permits database (Raw

Frame), eligible vessels, eligible vessels without replacement, the fixed sample size, the number of responses, the response rate, and the number of responses used in the analysis (“complete surveys”). The response rate by wave ranged from 37% to 53%, with an overall response rate of 45%. We deem this a good response rate for a voluntary mail survey of a regulated population by the regulating agency.

Table 3: Frame and Sample Sizes, and Response Rates by Wave

	Raw Frame	Eligible Vessels	Eligible Vessels – Previously Sampled	Sample	Responses	Response Rate	Useable Responses
Wave 1	2747	2177	2177	200	73	36.5%	70
Wave 2	2709	2148	1966	200	101	50.5%	97
Wave 3	2841	2247	1870	200	83	41.5%	71
Wave 4	2854	2266	1715	200	89	44.5%	86
Wave 5	2888	2294	1574	200	105	52.5%	98
Wave 6	2847	2272	1382	200	83	41.5%	77

To help us understand the possible bias introduced by non-response, especially concerning the activity status, we conducted a short, informal non-response survey following the first two waves. Phone calls were made to non-respondents two weeks after the initial mail out to gain insight into their activity status. During the phone call, the respondent was asked the following questions: First, did you receive the 2017 Economic Survey of Southeast For-Hire Fishing Trips in the mail? Second, did the vessel take a for-hire fishing trip in the last 12 months? When talking to them on the phone, some captains or owners (depending on the level of aggravation or cooperation) were asked further questions about why they had not participated in the mail survey and any changes that would increase the likelihood of their participation in future surveys. Of the 102 non-respondents we attempted to call (repeatedly),

we managed to reach 37 persons familiar with operations of the specific for-hire vessel (captains, owners, wives, girlfriends, etc.). Of the 37 completed phone calls, 26 persons (70%) confirmed they had received the survey in the mail while 11 persons (30%) did not receive it or did not know if it was received or not. Of the 37 completed phone calls, 26 persons (70%) confirmed the specific vessel was active in the for-hire fishing industry during the last 12 months. Eleven persons (30%) stated the vessel was not active during the last year. The most common reason noted for non-participation was that the owner was too busy. Other reasons included hesitancy to participate in voluntary NMFS surveys, the survey being “too invasive,” and feeling that the survey was redundant. Owners that claimed the survey was redundant spoke about their participation in trip level phone surveys conducted by MRIP---though that survey collects no economic data. We did not find a major bias in activity status between respondents, 75% active/25% inactive (Table 6), and non-respondents, 70% active/30% inactive.

Definitions

Charter Vessels and Head Boats

In the SE, charter vessels and head boats fishing in the EEZ for federally managed species must have the same permit(s). Generally, charter vessels are sport fishing vessels that are hired by a single person to take up to six anglers fishing and charge on a per-trip basis. Head boats, sometimes called party boats, usually operate on a schedule (in some cases taking multiple trips a day) and charge on a per person basis, taking many different parties fishing at the same time. Head boats are usually larger and are able and permitted to accommodate a much larger number of anglers than charter vessels. Head boats usually engage in bottom fishing, while charter vessels often troll in addition to bottom fishing. Most for-hire vessels can be easily identified as either charter vessels or head boats, but some exhibit characteristics of both. The federal for-hire permit does not differentiate between these vessels⁴ and prior research efforts have used many different definitions and cut-offs over the years.

⁴ The GOM permits are limited entry and a maximum vessel passenger capacity is now associated with each individual permit.

The survey sampled among all federally permitted for-hire vessels, and thereby included both charter vessels and head boats. Head boats are a small fraction of the total, less than one tenth. For this study, charter vessels and head boats were delineated using the following protocol. Head boats were defined as vessels with a passenger capacity ≥ 18 individuals that self-identified as a head boat, or were included in the Beaufort head boat survey.⁵ All other vessels were defined as charter vessels. These definitions were the authors best attempts to sort vessels into consistent bins, so the economics results are meaningful and comparable to past studies.

State and Region

It is not always obvious in what waters a permitted vessel operates. The field, State2, was created and added to the data set to separate Florida vessels into Florida East (FL-E) and Florida West (FL-W) and to assign a state of operation to vessels with mailing addresses outside of the SE. For vessels with mailing addresses in Florida, FL-E was assigned to vessels with addresses closer to the eastern coast, and FL-W was assigned to those closer to the western coast. In cases where the Florida mailing address was in central Florida or the Florida Keys, the homeport field was used to determine whether the vessel was assigned a State 2 value of FL-E or FL-W. If the homeport was also unclear, types of permits was used to assign State2 values. If a Florida vessel had more permits for S. Atlantic fishing, it was deemed FL-E, while a vessel with more Gulf permits was deemed FL-W. For vessels with mailing addresses outside of the SE, the homeport was used to determine State2. If the homeport address was also outside of the SE, the State2 field was populated with Other. If the homeport was in Florida, the State2 selection process followed the same protocol mentioned previously (Figure 1).

⁵ The Beaufort head boat survey is a long running data collection involving head boats in the SE, primarily geared toward collecting biological indices (e.g., catch per unit effort measures as proxies for abundance).

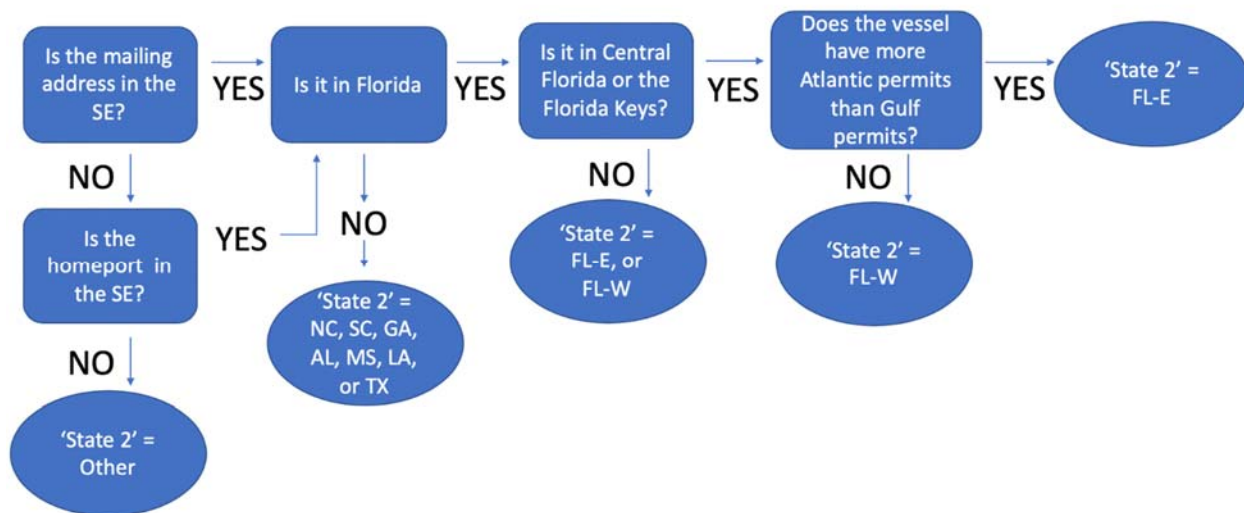


Figure 1: Flow Chart for the Protocol to Uniquely Assign Vessels to one State

The State2 field was then used to sort vessels into mutually exclusive Gulf of Mexico and S. Atlantic datasets. Vessels associated with FL-W, Alabama, Mississippi, Louisiana, and Texas were deemed primarily GOM fishing vessels, while those associated with North Carolina, South Carolina, and FL-E were considered SAT fishing vessels. Vessels with State2 of Georgia, which have access to both the Gulf and Atlantic (Southwest Georgia via the Florida panhandle) were sorted into Gulf and SAT bins based on the location of their homeport.

SE Sub-Fleets

For the results presented in this report, the SE federally-permitted for-hire fleet was subset into three sub-fleets: South Atlantic charters (SAT Charter), Gulf of Mexico charters (GOM Charter), and Southeast head boats (SE Head Boat). Vessels were sorted into these sub-fleets using the definitions established above. When the sample size permitted (among charter vessels), the sub-fleets were formed to reflect the jurisdictions of the different fishery management councils in the SAT and GOM. Not unexpected, the sample size available for head boats is limited (n=30) and, hence, the results are presented at an overall SE aggregation.

Survey Results

This section presents the overall survey results---labeled 'SE For-Hire' for the overall SE for-hire fleet, as well as results by the three sub-fleets, including SAT Charter, GOM Charter, and SE Head Boat. The results are presented in a standardized, systematic way across five tables in each sub-section. Before presenting the survey results for the fleet and sub-fleets, the data available for the population---vessel characteristics, state, and permits---are summarized by sub-fleet for context.

Population Data

The population data originate from the permit application and includes vessel characteristics, state, and federal permits. The for-hire population fluctuates throughout the calendar year, as permits expire and are renewed. As a result, this survey used six different---but mostly overlapping---sampling frames. The composite overall frame represents all vessels that had a valid permit for any period of time in 2017. The overall frame is larger than the fishery at any point in time. Alternatively, we present the population data for a single point in time, specifically, the wave 5 frame. The sampling frame for wave 5 (September-October) contained both the highest number of total permitted vessels and the highest percentage of overall sampled vessels (wave 1-6). Table 4 provides the wave 5 population data for eligible SE federally-permitted for-hire vessels, overall and by sub-fleet. The major difference between charter vessels and head boats is apparent.

Besides the wave 5 population counts by sub-fleet, Table 5 shows the overall number of selected vessels (waves 1-6) and respondents (waves 1-6) amongst eligible vessels within the wave 5 sample frame. The columns of percentages in the table represent counts divided by Population in Wave 5 counts for each sub-fleet, i.e., percentage of column. The response rate is the response, across all of 2017, among vessels in the wave 5 frame. Note that 100 selected vessels, selected in waves 1-4 or 6, were not part of the wave 5 frame. This perspective represents one moment in time.

Table 4: Counts, Vessel Characteristics, State, and Permits of SE For-Hire Vessels by Sub-Fleet (Wave 5 Population Data)

	SE For-Hire	SAT Charter	GOM Charter	SE Head Boat
Count	2,294	1,166	956	172
Average Vessel Characteristics				
Length	37.9	36.0	36.2	60.0
Year Built	1994	1994	1994	1988
Passenger Capacity	11.7	6.3	8.1	64.9
Horse Power	701	681	665	1,043
Fuel Capacity (Gallons)	459	383	432	1,136
Fuel - Diesel	61%	61%	55%	98%
Fuel - Gasoline	39%	39%	45%	2%
Hull - Fiberglass	88%	88%	93%	56%
Hull - Aluminum	4%	0%	3%	30%
Hull - Wood or Other	9%	12%	4%	14%
Percentage of Vessels by State				
North Carolina	13%	24%	0%	10%
South Carolina	7%	12%	0%	6%
Georgia	3%	4%	2%	2%
Florida - East	30%	55%	0%	21%
Florida - West	26%	0%	57%	30%
Alabama	5%	0%	11%	8%
Mississippi	1%	0%	3%	3%
Louisiana	4%	0%	9%	2%
Texas	8%	0%	18%	11%
Other	3%	5%	0%	7%
Percentage of Vessels with For-Hire Permits				
SC - SAT Snapper-Grouper	62%	95%	23%	57%
CHS - SAT Coastal Migratory Pelagic	62%	94%	23%	58%
CDW - Atlantic Dolphin-Wahoo	61%	94%	22%	56%
RCG - GOM Reef Fish	45%	7%	91%	53%
HRCG - Historical Captain RCG	1%	0%	2%	1%
CHG - GOM Coastal Migratory Pelagic	46%	8%	89%	55%
HCHG - Historical Captain CHG	1%	0%	2%	1%

Table 5: Population Size (Wave 5) and Approximate Sample Size and Response Rate by Sub-Fleet

	SE For-Hire		SAT Charter		GOM Charter		SE Head Boat	
	Count	%	Count	%	Count	%	Count	%
Population in Wave 5	2294	100%	1166	100%	956	100%	172	100%
Selected Vessels (Waves 1-6) in Wave 5	1100	48%	577	49%	447	47%	76	44%
Respondents (Waves 1-6) in Wave 5	474	21%	237	20%	200	21%	37	22%
Response Rate	43%	-	41%	-	45%	-	49%	-

Explanations of Standardized Results

Each of the following four sub-sections---SE For-Hire (full survey results), SAT Charter, GOM Charter, and SE Head Boat---presents the survey results in a standardized, systematic way across five tables. Most of the results are self-explanatory or best understood by referring to the questions on the survey instrument itself (Appendix 1). For each sub-section, explanations, notes, or caveats are only discussed once in this section to avoid repetition.

The first table in each sub-section is the ‘Activity Status’ table (Table 6, Table 10, Table 15, and Table 20). These tables contain response rates of the sub-section’s vessels broken down by the activity status of the participating vessels. The ‘% of Responses’ column was calculated by dividing counts by the total number of responses, while the ‘% of Active’ column was calculated by dividing counts by the number of active respondents. ‘Not Active’ vessels reported no for-hire trips in the previous year. No further questions were asked of these respondents. These for-hire permits might be deemed “latent” permits. ‘Active’ vessels reported a for-hire trip in the last year and provided vessel-level survey responses (page 1 of the survey). Active vessels were then asked if they had taken an offshore trip in the SE within the last year. If yes, they were asked to provide information on their last offshore SE for-hire trip (page 2 of the survey). Vessels that did not report a SE offshore trip might be inshore for-hire operations or active in waters outside of the SE. In both cases their SE for-hire permits are effectively unused and could also be considered “latent.”

The second table in each sub-section is the ‘Vessel Operations’ table (Table 7, Table 11, Table 16, and Table 21). The summary statistics in these tables correspond to the questions on

the first page of the mail survey for active vessels that completed a SE offshore for-hire trip in the last year. 'Trips' and 'Days At Sea' might vary due to multiple trips on one day or trips lasting multiple days. 'Offshore Trips' and 'Repeat Customers' are averages of a percentage value, i.e., individual vessels reported a percentage between 0 and 100. 'Charge Per Angler' and 'Captain is Owner' is the proportion of active vessels with the corresponding characteristics, i.e., these were yes or no questions. Without an actual market transaction, the 'Vessel Market Value' is a rough estimate by the respondents and should be treated as such. In the first sub-section (SE For-Hire) means are provided for the sub-fleets instead of summary statistics (standard deviation, minimum, maximum, and median).

The third table in each sub-section is the 'Trip Characteristics and Economics *with summary statistics*' table (Table 12, Table 17, and Table 22). This table is not provided in the first sub-section (SE For-Hire) as the variation across charter and head boat trips was too great to be very meaningful. The third table reports summary statistics for the trip characteristics and economics of the last SE offshore trip by representative (active) vessels. All dollar values are as reported on the survey, i.e., nominal 2017 dollars. The results in the table correspond to questions on the second page of the survey (Appendix 1). Most variables in the table are self-explanatory. To calculate average 'Length of Trip', we substituted 2, 14, and 36 hours for length of trip survey answer categories <4, 12+, and multi-day, respectively. Also, the fuel price is the price paid averaged *by vessel*. If average fuel costs are divided by average gallons used, the resulting average represents the average fuel price *per gallon*, and is usually somewhat lower than the average price per vessel (as large vessels typically use more gallons but pay lower prices). We count tips as part of total revenue. When the tip was missing for a trip, we estimated by using the global average % tip (i.e., tip as a percentage of the total trip fees). In practice, different operations allocate the tip very differently. Sometimes all of it goes to the mate(s), while other times the captain and mate(s) split it. There are also differences between hired captain and owner-operator vessels. To estimate the share of the tip going to hired crew, we split the tip evenly across all crew members, including owner-operators and captains.

The time owners spend working as captains on their vessels must be accounted for when comparing or aggregating with vessels with hired captains. We calculate the opportunity

cost (OC) of owner time as captain as equal to the total payments (payment plus share of tip) received by one crew member on the trip. If this was not possible (owner operated trips without crew), we substituted the sample average payment.

Trip Net Revenue (TNR) calculates the margin between variable costs and revenue. ‘TNR Excl. Labor’ does not account for labor costs, i.e., treating labor costs as a benefit, qualitatively different from fuel costs. It is calculated by subtracting the supply costs and transaction fees from total revenue. ‘TNR Incl. Labor’ treats labor like any other variable cost, i.e., a loss of value. It is calculated by subtracting the supply costs, transaction fees (credit card charges and commissions), and labor costs, including the owner’s opportunity cost, from the total revenue.

The fourth table in each sub-section is the ‘Trip Characteristics and Economics *with means for subsets of observations*’ table (Table 8, Table 13, Table 18, and Table 23). In the first sub-section (SE For-Hire), the means are by sub-fleet for easy comparison. For the SAT and GOM Charter sub-sections, these tables break the last trip observations of the sample of vessels into categories by trip length: Half Day, Full Day, Extended Day, and Multi-day. In the final sub-section (SE Head Boat), the table breaks the observations by region into SAT and GOM. Otherwise, the structure of these tables are equivalent to the previous set of tables (the third in each section) and the fields are the same. Caution is warranted when interpreting averages in categories with small sample sizes.

The fifth table in each sub-section is the ‘Trip Economics *in Percent of Revenue Terms*’ table (Table 9, Table 14, Table 19, and Table 24). These tables are based on the values provided in the previous set of tables (the fourth in each section) and show summarized trip-level economics in percent of revenue terms. ‘TNR Excl. Labor’ and ‘TNR Incl. Labor’ are hence trip-level margins (“cash flows”). ‘TNR Excl. Labor’ and ‘TNR Incl. Labor’ values were calculated as the ratio of the averages, giving more weight to larger trips. These percentages were, for the most part, slightly higher than when calculated at the observation level and then averaged. The trip margin is available to the owner to cover the fixed costs of for-hire vessel and operation. Fixed costs were not collected by this survey.

SE For-Hire Vessels (Full Survey)

This section presents the results for all complete responses to the 2017 Economic Survey of Southeast For-Hire Fishing Trips (labeled ‘SE For-Hire’), including SAT Charter, GOM Charter, and SE Head Boat vessels. These numbers should be generally representative of a federally-permitted SE for-hire fishing vessel.

Vessel Results

Table 6 contains response rates of SE For-Hire fishing vessels broken down by the activity status of the participating vessels.

Table 6: Activity Status of SE For-Hire Vessels

	Count	% of Responses	% of Active
Responses	500	100%	
- Not Active (no trip last year)	127	25%	
- Active	373	75%	100%
- No SE offshore trips	36	7%	10%
- SE offshore trips	337	67%	90%

For the remainder of this section, we report on active SE For-Hire vessels that completed an SE offshore for-hire trip in the last year. Table 7 presents the averages for the questions on the first page of the survey, overall and by the three sub-fleet for comparison.

Table 7: Vessel Operations of Active SE For-Hire Vessels with Offshore Trips by Sub-Fleet

	SE For-Hire	SAT Charter	GOM Charter	SE Head Boat
Count	337	169	138	30
Average Vessel Operations				
Trips	100	89	90	210
Days At Sea	92	84	88	161
Offshore Trips	82%	79%	87%	83%
Charge Per Angler	26%	21%	22%	82%
Repeat Customers	58%	58%	62%	46%
Captain is Owner	73%	79%	70%	47%
Vessel Market Value	\$172,971	\$160,003	\$147,373	\$359,500

Trip Results

Table 8 reports averages for the trip characteristics and economics of the last SE offshore trip by representative (active) SE For-Hire vessels and for the sub-fleets for easy comparison.

Table 8: Trip Characteristics and Economics of SE Offshore Trips by SE For-Hire Vessels by Sub-Fleet

	SE For-Hire	SAT Charter	GOM Charter	SE Head Boat
Count	337	169	138	30
Average Trip Characteristics				
Length of Trip (Hours)	9.3	8.7	10.0	9.6
Passengers	7.1	4.7	5.5	28.2
Crew	1.9	1.8	1.8	3.2
Into EEZ Waters	88%	86%	91%	90%
Fuel Used (Gallons)	109	92	122	141
Fuel Price	\$3.01	\$3.11	\$3.00	\$2.55
Average Revenue (\$)				
Total	1,676	1,323	1,775	3,203
Passenger Fees	1,496	1,187	1,579	2,858
Tip	179	137	195	345
Average Transaction Fees (\$)				
Processing Fees	24	17	21	74
Commission Paid	33	23	30	105
Average Supply Costs (\$)				
Fuel	318	282	355	347
Ice	25	19	27	47
Bait	58	46	56	134
Tackle	44	36	50	65
Average Labor Costs (\$)				
Hired Crew	160	120	180	291
Tip Going to Hired Crew	117	78	124	303
OC Owner Time as Captain	169	170	184	96
Average Trip Net Revenue (\$)				
TNR Excl. Labor	1,174	901	1,236	2,430
TNR Incl. Labor	728	531	749	1,740

Based on the average values provided in Table 8, Table 9 shows summarized trip-level economics in percent of revenue terms for the overall fleet and the sub-fleets.

Table 9: Trip Economics in Percent of Revenue Terms of SE Offshore Trips by SE For-Hire Vessels by Sub-Fleet

	SE For-Hire	SAT Charter	GOM Charter	SE Head Boat
Count	337	169	138	30
Average Trip Economics (% of Revenue)				
Revenue	100%	100%	100%	100%
Transaction Fees	3%	3%	3%	6%
Supply Costs	27%	29%	27%	19%
Labor Costs	27%	28%	27%	22%
TNR Excl. Labor	70%	68%	70%	76%
TNR Incl. Labor	43%	40%	42%	54%

SAT Charter Vessels

This section presents the survey results for the SAT Charter sub-fleet based on the definitions and criteria outlined in the Definitions sections of the paper.

Vessel Results

Table 10 contains response rates of SAT Charter fishing vessels broken down by the activity status of the participating vessels.

Table 10: Activity Status of SAT Charter Vessels

	Count	% of Responses	% of Active
Responses	252	100%	
- Not Active (no trip last year)	73	29%	
- Active	179	71%	100%
- No SE offshore trips	10	4%	6%
- SE offshore trips	169	67%	94%

For the remainder of this section, we report on active SAT Charter vessels that completed an SE offshore for-hire trip in the last year. The summary statistics in Table 11 correspond to the questions on the first page of the mail survey, related to vessel operations.

Table 11: Vessel Operations of Active SAT Charter Vessels with Offshore Trips

	Mean	St. Dev.	Min.	Max.	Median
Count	169	-	-	-	-
Vessel Operations					
Trips	89	88	1	600	75.0
Days At Sea	84	69	1	350	78.0
Offshore Trips	79%	28%	10%	100%	90%
Charge Per Angler	21%	-	-	-	-
Repeat Customers	58%	23%	0%	100%	60%
Captain is Owner	79%	-	-	-	-
Vessel Market Value	\$160,003	\$209,117	\$15,000	\$1,500,000	\$89,500

Trip Results

Table 12 reports summary statistics for the trip characteristics and economics of the last SE offshore trip by representative (active) SAT Charter vessels.

Table 12: Trip Characteristics and Economics of SE Offshore Trips by SAT Charter Vessels

	Mean	St. Dev.	Min.	Max.	Median
Count	169	-	-	-	-
Trip Characteristics					
Length of Trip (Hours)	8.7	5.5	2.0	36.0	8.0
Passengers	4.7	1.4	1.0	10.0	5.0
Crew	1.8	0.5	1.0	3.0	1.0
Into EEZ Waters	86%	-	-	-	-
Fuel Used (Gallons)	92	137	8	1600	60
Fuel Price	\$3.11	\$0.71	\$1.80	\$5.00	\$3.00
Revenue (\$)					
Total	1,323	1,426	240	16,745	1,050
Passenger Fees	1,187	1,284	210	15,000	950
Tip	137	164	0	1,745	100
Transaction Fees (\$)					
Processing Fees	17	24	0	138	0
Commission Paid	23	58	0	400	0
Supply Costs (\$)					
Fuel	282	528	20	6,600	180
Ice	19	20	0	140	15
Bait	46	53	0	370	30
Tackle	36	50	0	500	25
Labor Costs (\$)					
Hired Crew	120	166	0	1,300	100
Tip Going to Hired Crew	78	114	0	872	54
OC Owner Time as Captain	170	187	0	1,872	189
Trip Net Revenue (\$)					
TNR Excl. Labor	901	862	65	9,345	729
TNR Incl. Labor	531	608	-255	5,600	409

Table 13 breaks the last trip observations of the sample of SAT Charter vessels into categories by trip length: Half Day, Full Day, Extended Day, and Multi-day. The table reports the mean values for each category. Otherwise, the structure of Table 13 is equivalent to Table 12 and the fields are the same. Caution is warranted when interpreting averages in categories with small sample sizes, e.g., multi-day trips (n=5).

Table 13: Trip Characteristics and Economics by Trip Length of SE Offshore Trips by SAT Charter Vessels

	SAT Charter	Half Day (2-6 hours)	Full Day (7-10 hours)	Extended Day (11-14 hours)	Multi-day (>24 hours)
Count	169	67	72	25	5
Average Trip Characteristics					
Length of Trip (Hours)	8.7	5.1	8.8	12.4	-
Passengers	4.7	4.2	4.8	5.4	5.6
Crew	1.8	1.7	1.8	1.9	2.0
Into EEZ Waters	86%	76%	93%	92%	80%
Fuel Used (Gallons)	92	36	91	165	499
Fuel Price	\$3.11	\$3.18	\$3.20	\$2.58	\$3.41
Average Revenue (\$)					
Total	1,323	721	1,315	1,811	7,077
Passenger Fees	1,187	650	1,174	1,610	6,450
Tip	137	71	141	201	627
Average Transaction Fees (\$)					
Processing Fees	17	13	17	19	49
Commission Paid	23	28	18	17	80
Average Supply Costs (\$)					
Fuel	282	110	284	421	1,872
Ice	19	12	20	26	57
Bait	46	35	38	55	262
Tackle	36	24	36	44	172
Average Labor Costs (\$)					
Hired Crew	120	71	117	165	620
Tip Going to Hired Crew	78	32	78	155	317
OC Owner Time as Captain	170	134	165	153	828
Average Trip Net Revenue (\$)					
TNR Excl. Labor	901	501	902	1,230	4,585
TNR Incl. Labor	531	264	543	757	2,820

Based on the average values provided in Table 13, Table 14 shows summarized trip-level economics in percent of revenue terms.

Table 14: Trip Economics in Percentage of Revenue Terms by Trip Length of Offshore Trips by SAT Charter Vessels

	SAT Charter	Half Day (2-6 hours)	Full Day (7-10 hours)	Extended Day (11-14 hours)	Multi-day (>24 hours)
Count	169	67	72	25	5
Average Trip Economics (% of Revenue)					
Revenue	100%	100%	100%	100%	100%
Transaction Fees	3%	6%	3%	2%	2%
Supply Costs	29%	25%	29%	30%	33%
Labor Costs	28%	33%	27%	26%	25%
TNR Excl. Labor	68%	69%	69%	68%	65%
TNR Incl. Labor	40%	37%	41%	42%	40%

GOM Charter Vessels

This section presents the survey results for the GOM Charter sub-fleet based on the definitions and criteria outlined in the Definitions sections of the paper.

Vessel Results

Table 15 contains response rates of GOM Charter fishing vessels broken down by the activity status of the participating vessels.

Table 15: Activity Status of GOM Charter Vessels

	Count	% of Responses	% of Active
Responses	209	100%	
- Not Active (no trip last year)	50	24%	
- Active	159	76%	100%
- No SE offshore trips	21	10%	13%
- SE offshore trips	138	66%	87%

For the remainder of this section, we report on active GOM Charter vessels that completed an SE offshore for-hire trip in the last year. The summary statistics in Table 16 correspond to the questions on the first page of the mail survey, related to vessel operations.

Table 16: Vessel Operations of Active GOM Charter Vessels with Offshore Trips

	Mean	St. Dev.	Min.	Max.	Median
Count	138	-	-	-	-
Vessel Operations					
Trips	90	72	1	325	75.0
Days At Sea	88	69	1	280	75.0
Offshore Trips	87%	25%	0%	100%	100%
Charge Per Angler	22%	-	-	-	-
Repeat Customers	62%	21%	0%	100%	60%
Captain is Owner	70%	-	-	-	-
Vessel Market Value	\$147,373	\$202,010	\$10,000	\$1,800,000	\$92,500

Trip Results

Table 17 reports summary statistics for the trip characteristics and economics of the last SE offshore trip by representative (active) GOM Charter vessels.

Table 17: Trip Characteristics and Economics of SE Offshore Trips by GOM Charter Vessels

	Mean	St. Dev.	Min.	Max.	Median
Count	138	-	-	-	-
Trip Characteristics					
Length of Trip (Hours)	10.0	6.8	2.0	36.0	8.0
Passengers	5.5	2.3	2.0	24.0	6.0
Crew	1.8	0.6	1.0	4.0	2.0
Into EEZ Waters	91%	-	-	-	-
Fuel Used (Gallons)	122	110	10	625	95
Fuel Price	\$3.00	\$0.71	\$1.40	\$5.00	\$2.96
Revenue (\$)					
Total	1,775	1,469	300	9,600	1,345
Passenger Fees	1,579	1,289	280	8,600	1,200
Tip	195	221	0	1,625	140
Transaction Fees (\$)					
Processing Fees	21	34	0	195	0
Commission Paid	30	77	0	500	0
Supply Costs (\$)					
Fuel	355	315	35	1,815	276
Ice	27	26	0	200	20
Bait	56	51	0	300	40
Tackle	50	58	0	300	28
Labor Costs (\$)					
Hired Crew	180	224	0	1,200	100
Tip Going to Hired Crew	124	177	0	1,219	75
OC Owner Time as Captain	184	201	0	1,100	172
Trip Net Revenue (\$)					
TNR Excl. Labor	1,236	1,165	147	8,316	972
TNR Incl. Labor	749	850	-68	5,500	553

Table 18 breaks the last trip observations of the sample of GOM Charter vessels into categories by trip length: Half Day, Full Day, Extended Day, and Multi-day. The table reports the mean values for each category. Otherwise, the structure of Table 18 is equivalent to Table 17 and the fields are the same. Caution is warranted when interpreting averages in categories with small sample sizes, e.g., multi-day trips (n=7).

Table 18: Trip Characteristics and Economics by Trip Length of SE Offshore Trips by GOM Charter Vessels

	GOM Charter	Half Day (2-6 hours)	Full Day (7-10 hours)	Extended Day (11-14 hours)	Multi-day (>24 hours)
Count	138	43	59	29	7
Average Trip Characteristics					
Length of Trip (Hours)	10.0	5.3	8.6	13.5	-
Passengers	5.5	5.2	5.6	6.1	5.1
Crew	1.8	1.7	1.7	2.1	2.7
Into EEZ Waters	91%	81%	95%	100%	86%
Fuel Used (Gallons)	122	56	96	208	397
Fuel Price	\$3.00	\$3.19	\$2.89	\$2.96	\$2.88
Average Revenue (\$)					
Total	1,775	931	1,486	2,671	5,682
Passenger Fees	1,579	836	1,322	2,395	4,929
Tip	195	94	164	275	753
Average Transaction Fees (\$)					
Processing Fees	21	15	20	28	42
Commission Paid	30	24	29	48	0
Average Supply Costs (\$)					
Fuel	355	166	278	604	1,123
Ice	27	18	20	46	61
Bait	56	32	43	87	176
Tackle	50	25	41	79	154
Average Labor Costs (\$)					
Hired Crew	180	88	142	289	614
Tip Going to Hired Crew	124	55	94	179	578
OC Owner Time as Captain	184	124	162	261	414
Average Trip Net Revenue (\$)					
TNR Excl. Labor	1,236	651	1,054	1,778	4,126
TNR Incl. Labor	749	384	656	1,049	2,521

Based on the average values provided in Table 18, Table 19 shows summarized trip-level economics in percent of revenue terms.

Table 19: Trip Economics in Percentage of Revenue Terms by Trip Length of Offshore Trips by GOM Charter Vessels

	GOM Charter	Half Day (2-6 hours)	Full Day (7-10 hours)	Extended Day (11-14 hours)	Multi-day (>24 hours)
Count	138	43	59	29	7
Average Trip Economics (% of Revenue)					
Revenue	100%	100%	100%	100%	100%
Transaction Fees	3%	4%	3%	3%	1%
Supply Costs	27%	26%	26%	31%	27%
Labor Costs	27%	29%	27%	27%	28%
TNR Excl. Labor	70%	70%	71%	67%	73%
TNR Incl. Labor	42%	41%	44%	39%	44%

SE Head Boats

This section presents the survey results for the SE Head Boat sub-fleet based on the definitions and criteria outlined in the Definitions sections of the paper.

Vessel Results

Table 20 contains response rates of SE Head Boat fishing vessels broken down by the activity status of the participating vessels.

Table 20: Activity Status of SE Head Boats

	Count	% of Responses	% of Active
Responses	39	100%	
- Not Active (no trip last year)	4	10%	
- Active	35	90%	100%
- No SE offshore trips	5	13%	14%
- SE offshore trips	30	77%	86%

For the remainder of this section, we report on active SE Head Boat vessels that completed an SE offshore for-hire trip in the last year. The summary statistics in Table 21 correspond to the questions on the first page of the mail survey, related to vessel operations.

Table 21: Vessel Operations of Active SE Head Boats with Offshore Trips

	Mean	St. Dev.	Min.	Max.	Median
Count	30	-	-	-	-
Vessel Operations					
Trips	210	193	25	1,000	159.5
Days At Sea	161	91	25	335	144.5
Offshore Trips	83%	31%	10%	100%	100%
Charge Per Angler	82%	-	-	-	-
Repeat Customers	46%	19%	10%	90%	43%
Captain is Owner	47%	-	-	-	-
Vessel Market Value	\$359,500	\$267,283	\$50,000	\$1,000,000	\$325,000

Trip Results

Table 22 reports summary statistics for the trip characteristics and economics of the last SE offshore trip by representative (active) SE Head Boat vessels.

Table 22: Trip Characteristics and Economics of SE Offshore Trips by SE Head Boats

	Mean	St. Dev.	Min.	Max.	Median
Count	30	-	-	-	-
Trip Characteristics					
Length of Trip (Hours)	9.6	7.7	4.0	36.0	7.5
Passengers	28.2	17.6	6.0	80.0	26.5
Crew	3.2	1.0	2.0	5.0	3.0
Into EEZ Waters	90%	-	-	-	-
Fuel Used (Gallons)	141	111	12	450	110
Fuel Price	\$2.55	\$0.44	\$1.88	\$3.40	\$2.50
Revenue (\$)					
Total	3,203	2,934	560	16,100	2,417
Passenger Fees	2,858	2,562	560	14,000	2,165
Tip	345	375	0	2,100	276
Transaction Fees (\$)					
Processing Fees	74	107	0	414	40
Commission Paid	105	190	0	800	0
Supply Costs (\$)					
Fuel	347	268	35	1,012	283
Ice	47	82	0	450	23
Bait	134	144	0	750	95
Tackle	65	76	0	300	50
Labor Costs (\$)					
Hired Crew	291	263	0	1,200	208
Tip Going to Hired Crew	303	385	0	2,100	214
OC Owner Time as Captain	96	122	0	416	0
Trip Net Revenue (\$)					
TNR Excl. Labor	2,430	2,482	-42	13,410	1,983
TNR Incl. Labor	1,740	1,946	-368	10,110	1,354

Table 23 breaks the last trip observations of the sample of SE Head Boat vessels into categories by region: SAT Head Boat and GOM Head Boat. The table reports the mean values for each category. Otherwise, the structure of Table 23 is equivalent to Table 22 and the fields are the same. Caution is warranted when interpreting averages in categories with small sample sizes, e.g., SAT Head Boat (n=8).

Table 23: Trip Characteristics and Economics by Region of SE Offshore Trips by SE Head Boats

	SE Head Boat	SAT Head Boat	GOM Head Boat
Count	30	8	22
Average Trip Characteristics			
Length of Trip (Hours)	9.6	7.0	10.5
Passengers	28.2	32.8	26.6
Crew	3.2	3.4	3.1
Into EEZ Waters	90%	100%	86%
Fuel Used (Gallons)	141	122	148
Fuel Price	\$2.55	\$2.79	\$2.46
Average Revenue (\$)			
Total	3,203	2,872	3,324
Passenger Fees	2,858	2,573	2,962
Tip	345	299	362
Average Transaction Fees (\$)			
Processing Fees	74	49	84
Commission Paid	105	140	93
Average Supply Costs (\$)			
Fuel	347	330	353
Ice	47	22	56
Bait	134	89	151
Tackle	65	35	76
Average Labor Costs (\$)			
Hired Crew	291	304	287
Tip Going to Hired Crew	303	259	319
OC Owner Time as Captain	96	99	94
Average Trip Net Revenue (\$)			
TNR Excl. Labor	2,430	2,206	2,512
TNR Incl. Labor	1,740	1,543	1,812

Based on the average values provided in Table 23, Table 24 shows summarized trip-level economics in percent of revenue terms.

Table 24: Trip Economics in Percentage of Revenue Terms by Region of Offshore Trips by SE Head Boats

	SE Head Boat	SAT Head Boat	GOM Head Boat
Count	30	8	22
Average Trip Economics (% of Revenue)			
Revenue	100%	100%	100%
Transaction Fees	6%	7%	5%
Supply Costs	19%	17%	19%
Labor Costs	22%	23%	21%
TNR Excl. Labor	76%	77%	76%
TNR Incl. Labor	54%	54%	55%

Estimates of Producer Surplus with Historical Context

It has become standard practice in GOM and SAT fishery management plan amendments concerning the for-hire sector to use trip net cash flow estimates, on a per angler basis, to help quantify changes in producer surplus (brought about by changing regulations). Based on the 2017 survey results, this section provides trip net cash flow per angler (CFpA) numbers generated with a new methodology, as well as ones comparable to those previously produced. In contrast to the old method, the new method takes account of labor costs.⁶

Table 25 provides the new CFpA values for the four sub-fleets. For the purpose of estimating short-term producer surplus, total trip revenue, including the for-hire fee, tips, and other trip related revenues (if applicable), is reduced by trip fuel costs, supply costs and labor costs. The trip net revenue (including labor) calculated in this analysis implies a short-term perspective as fixed costs (e.g., vessel maintenance, depreciation, insurance, loan payments, overhead) are not accounted for. In the short-term, vessel capital is not fungible. Over time, the producer surplus is reduced as more of the inputs become fungible and can be use productively elsewhere. Consequently, the CFpA should – most appropriately – be considered an upper bound for ‘producer surplus.’

Table 25: 2017 Cash Flow per Angler (CFpA) by Sub-Fleet (takes account of labor costs)

For-Hire Mode	Region	Sample Size	Trip Types	TNR incl. Labor	CFpA
Charter	South Atlantic	169	Last off-shore trip of representative vessel	531	113
Head boat	South Atlantic	8	Last off-shore trip of representative vessel	1,543	47
Charter	Gulf of Mexico	138	Last off-shore trip of representative vessel	749	136
Head boat	Gulf of Mexico	22	Last off-shore trip of representative vessel	1,812	68

A typical use of the CFpA numbers is the quantification of the economic effect of a regulation that is expected to lead to a change in the number of angler-trips. A (rough) estimate of the short-term change in producer surplus is the appropriate CFpA value times the expected

⁶ Crew costs have not been consistently available in previous surveys.

change in angler-trips. For example, when trips are lost, for-hire businesses would lose trip revenue, but would also not have to pay for fuel, trip supplies, and labor.

Table 26: Comparison of Cash Flow per Angler (CFpA) Derived from Current and Previous Research Efforts

For-Hire Mode	Region	Source	Data Year	Sample Size	Trip Types	TNR excl. Labor	CFpA (in \$/year of data)	CFpA (in \$2017*)
Charter	South Atlantic	6	2017	169	Last off-shore trip of representative vessel	901	192	192
Charter	South Atlantic	4	2009	148	Typical trip of representative vessel	778	148	169
Charter	- North Carolina	4	2009	47	Typical trip of representative vessel	926	161	184
Charter	- South Carolina	4	2009	26	Typical trip of representative vessel	694	150	172
Charter	- Georgia	4	2009	15	Typical trip of representative vessel	345	105	119
Charter	- east Florida	4	2009	60	Typical trip of representative vessel	674	130	148
Charter	North Carolina	2	2007/08	1-3 trips by 154 ves.	Typical trip of representative vessel	569	125	145
Charter	North Carolina	2	2007/08	0-2 trips by 154 ves.	- Full day and overnight trips only	702	157	182
Charter	east Florida	3	2002/03	278	Representative trip (FHS sample)	405	114	154
Charter	east Florida	3	2002/03	106	- Trips into the EEZ only	524	119	160
Head boat	South Atlantic	6	2017	8	Last off-shore trip of representative vessel	2,206	67	67
Head boat	South Atlantic	4	2009	25	Typical trip of representative vessel	964	40	45
Head boat	- NC, SC, GA	4	2009	10	Typical trip of representative vessel	1,243	51	58
Head boat	- east Florida	4	2009	15	Typical trip of representative vessel	733	30	34
Head boat	North Carolina	2	2007/08	1-3 trips by 8 ves.	Typical trip of representative vessel	2,115	62	72
Head boat	North Carolina	2	2007/08	0-2 trips by 8 ves.	- Full day and overnight trips only	2,460	72	84
Charter	Gulf of Mexico	6	2017	138	Last off-shore trip of representative vessel	1,236	225	225
Charter	Gulf of Mexico	5	2009	87	Typical trip of representative vessel	659	139	159
Charter	- west Florida	5	2009	42	Typical trip of representative vessel	574	122	139
Charter	- AL, MS	5	2009	22	Typical trip of representative vessel	831	164	187
Charter	- Louisiana	5	2009	11	Typical trip of representative vessel	977	192	219
Charter	- Texas	5	2009	12	Typical trip of representative vessel	774	167	190
Charter	LA to east Florida	3	2002/03	1,205	Representative trip (FHS sample)	516	123	166
Head boat	Gulf of Mexico	6	2017	22	Last off-shore trip of representative vessel	2,512	94	94
Head boat	Gulf of Mexico	5	2009	20	Typical trip of representative vessel	1,612	**	**
Head boat	Gulf of Mexico	1	1997	1-3 trips by 73 ves.	Typical trip of representative vessel	?	36	55

* Prices updated to 2017 price level using the Consumer Price Index - All Urban Consumers (Series Id: CUUR0000SA0)

** The definition of head boats in Savolainen et al. (2012) includes large charter vessel and is too different to allow for comparison here.

For context, Table 26 provides previous CFpA numbers and their sources, as well as current numbers calculated according to the old methodology. Previous surveys did not systematically collect crew costs, and hence the cost of labor was not included in the CFpA calculations. The specific definition of head boats and charter boats differs somewhat for each study, as there is no commonly accepted rule. There is no way to correct the reported numbers for these (minor) differences. The numbers in Table 26 were derived from the different research effort (sources) listed below:

1. Holland, S. M., Fedler, A. J., and Milon, J. W. 1999. The Operations and Economics of the Charter and Head Boat Fleets of the Eastern Gulf of Mexico and South Atlantic Coasts. NOAA, MARFIN NA77FF0553, **and**

Sutton, S. G., Ditton, R. B., Stoll, J. R., and Milon, J. W. 1999. A Cross-sectional Study and Longitudinal Perspective on the Social and Economic Characteristics of the Charter and Party Boat Fishing Industry of Alabama, Mississippi, Louisiana, and Texas. Texas A&M University Human Dimensions Lab, Report ID HD-612.

1998 Decennial Longitudinal Study on Social and Economic Characteristics of the Charter and Head Boat Fleets in the Southeast. Interviews with charter and head boat captains and owners conducted in 1997 from North Carolina through Texas. 52 completed head boat interviews from NC through FL. 21 completed head boat interviews from AL through TX.

2. Dumas, C.F., J.C. Whitehead, C.E. Landry, and J.H. Herstine. 2009. Economic Impacts and Recreational Value of the North Carolina For-hire Fishing Fleet. NC Sea Grant, Fishery Resource Grant Report 07-FEG-05.

The data for this study come from two sources, 2007-2008 vessel data from the NC Division of Marine Fisheries, and new survey data collected in 2007-2008 specifically for this study. A field/mail survey of captains produced 158 complete surveys (150 charter boat surveys and 8 head boat surveys) (of about 750 active vessels in NC).

3. Liese, C. and D.W. Carter. 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, T. D., Jr., A. J. Loftus, and R. Arlinghaus (editors). *The Angler and the Environment*. American Fisheries Society, Bethesda, MD.

This analysis relies on data generated by the 2002/3 Gulf of Mexico Charter Boat Economic Survey which was conducted as an add-on to the MRFSS For-Hire Survey (FHS) in the Gulf of Mexico. The FHS's population of interest is the universe of charter boat

owners and operators. Since the FHS is not conducted in Texas, this economic add-on is also restricted to observations from Alabama, Florida (both coasts), Mississippi and Louisiana. The sampling frame consists of a master list of all known charter boats, which is continuously updated by the State agencies, and maintained at the Gulf States Marine Fisheries Commission (GSMFC). The survey is coordinated by the GSMFC and was implemented by the State agencies in 2002 and 2003. The data were collected through a telephone interview and participation was voluntary.

4. Holland, S.M., C-O. Oh, S.L. Larkin, and A.W. Hodges. 2012. The Operations and Economics of the For-Hire Fishing Fleets of the South Atlantic States and the Atlantic Coast of Florida. Final report prepared for the NMFS with funding support from the MARFIN Program, Grant Number NA09NMF4330151. 130 p.

This report summarizes the results of an in-person survey collecting detailed economic, demographic, social, and attitudinal data covering federally-permitted segments of the South Atlantic for-hire industry (charter and head/party boats; North Carolina through east Florida, excluding the Keys). The survey was conducted in 2010 and response rates ranged between 15% and 50%, depending on state and sub-fleet.

5. Savolainen, M.A., R.H. Caffey, and R.F. Kazmierczak. 2012. Economic and Attitudinal Perspectives of the Recreational For-Hire Fishing Industry in the U.S. Gulf of Mexico. Contractor report prepared for NMFS by Center for Natural Resource Economics & Policy, LSU AgCenter and Louisiana Sea Grant College Program, Department of Agricultural Economics and Agribusiness, Louisiana State University, Baton Rouge, LA 70803. 171 p.

This report summarizes the results of a mail survey collecting detailed economic, demographic, social, and attitudinal data covering all segments of the Gulf of Mexico for-hire industry (head/party, charter, and guide boats; Texas through west Florida). The survey was conducted in 2010 and had an effective response rate of 33%.

6. The survey research documented in this report (2017 Economic Survey of Southeast For-Hire Fishing Trips).

Charter Fee Comparison by Data Collection Method

This section compares the for-hire fees collected by the mail survey with the for-hire fees listed on the websites of the SE for-hire vessels with websites. Websites for participating SE for-hire fishing vessels were found with a web search engine using information provided in NOAA permit database, such as vessel name, location, vessel ID and other distinguishing characteristics.

Table 27 contains counts and percentages by activity status of the vessels for the mail survey, for survey-responding vessels that have websites, and website-listed for-hire fees. Overall, we found websites for 61% of the responding vessels. Among active vessels with SE offshore trips we found websites for 75% of vessels, and 78% of these provided one or more for-hire fees on the website. Many websites provide a fee schedule for many different types of trips, e.g., half and full day trips or inshore or offshore trips.

Table 27: Website and For-Hire Fee Availability Among the Survey Respondents (Counts and Percentages by Activity Status)

	SE For-Hire Mail Survey	Found Websites		Fees Listed on Website	
	Count	Count	% of Survey	Count	% of Websites
Responses	500	304	61%	228	75%
- Not Active (no trip last year)	127	23	18%	14	61%
- Active	373	281	75%	214	76%
- No SE offshore trips	36	28	78%	17	61%
- SE offshore trips	337	253	75%	197	78%

Table 28 compares the average for-hire fees from the survey (Survey Fee - Last Trip) with the average fees from the websites (Website Fee - Equivalent Trip, Website Fee - Average Listed Fee) in dollar and percentage terms. The 'Survey Fee - Last Trip' corresponds to the answer to question 20a on page 2 of the survey instrument (Appendix 1) for those vessels that had a website and listed the fee(s). The 'Website Fee - Equivalent Trip' was determined by identifying the website-listed trip that most closely represented the last trip reported on the survey, mostly based on the length of trip and number of passengers. The 'Website Fee - Average Listed Fee' was calculated by dividing the sum of all offshore for-hire trip fees provided

on the vessel’s website by the number of these trips. Multi-day head boat trips were excluded from the analysis due to issues finding equivalent website-listed fees. SAT and GOM Charter values are reported on a per trip basis, while SE Head Boat values are reported as fee per person, which is how most head boat websites present the fee schedule.

Table 28: Comparison of For-Hire Fees Collected from Websites with Fees from the Survey by Sub-Fleet

	SAT Charter	GOM Charter	SE Head Boat
Count	97	75	19
Average For-Hire Fee	\$ per Trip	\$ per Trip	\$ per Person
Survey Fee - Last Trip	1,084	1,447	87
Website Fee - Equivalent Trip	1,109	1,426	92
Website Fee - Average Listed Fee	990	1,181	85
Web Fee as Percentage of Survey Fee			
Website Fee - Equivalent Trip	102.3%	98.6%	106.7%
Website Fee - Average Listed Fee	91.4%	81.6%	98.6%

On average, the fees reported by respondents are very similar to the “retail prices” listed on their websites for an equivalent trip, especially in light of the sample size and known variation. It seems that no systematic discounting is taking place. When comparing the survey reported trip fee with the average fee listed on each website, the reported fee exceeds the fee schedule by 9% and 23% for SAT and GOM Charter vessels, respectively. This may be due to the differences in the frequency distribution of half and full day trips actually taken (and reflected in a measure based on “last trips”) and the type of trips listed on the fee schedule. For head boats, given the small number of observations and small differences between fees, the hypothesis that all fees are the same cannot be rejected.

The averages do hide substantial variation at the individual vessel level. To illustrate, Figure 2 shows the frequency distribution across all charter vessels of the differences between the fee as reported on the survey and the website fee for an equivalent trip. So while, on average, the websites provide a good estimate of current charter fees by trip type, the average website fee---averaged without regard to trip types---does not (closely) reflect the average trip fee actually realized by the industry.

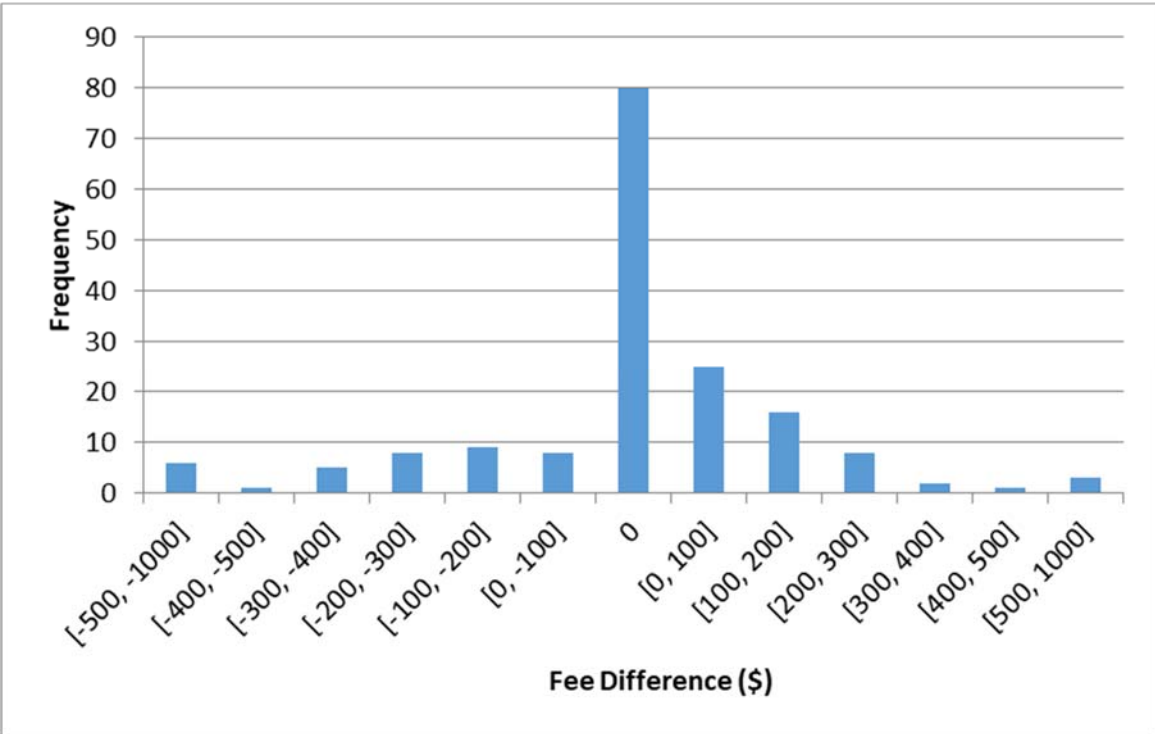


Figure 2: Histogram of Differences between Survey Fee and Website Fee for Equivalent Trip

Summary and Discussion

This report documents and summarizes results for a pilot study of the economics of the federally-permitted for-hire fishing sector in the Southeast USA in 2017. Our first objective---to test the feasibility of a voluntary mail survey in the SE for-hire sector---was successfully completed. Response rates by wave ranged from 37% to 53%, with an overall response rate of 45%. In light of this being a voluntary mail survey of a regulated population, we deem the mail survey a success. Further, a small non-response survey found no substantial bias in activity status between respondents and non-respondents.

The Survey Results section provides descriptive statistics for the full survey---labeled 'SE For-Hire' for the overall SE for-hire fleet---as well as results by the three sub-fleets, including SAT Charter, GOM Charter, and SE Head Boat. The section also provides some data available for the population---vessel characteristics, state, and permits---by sub-fleet. The results are used in the following section, Estimates of Producer Surplus with Historical Context, to update estimated trip-level producer surplus numbers that are regularly used in SE fishery management plan amendments.

A final section, Charter Fee Comparison by Data Collection Method, compares the for-hire fees provided on the survey with those available on the vessel's website. We find that, on average, the fees reported by respondents are very similar to the "retail prices" listed on their websites for an equivalent trip, especially in light of the sample size and known variation. It seems that no systematic discounting is taking place. When comparing the survey reported trip fee with the average fee listed on each website, the reported fee actually exceeds the fee schedule by 9% and 23% for SAT and GOM Charter vessels, respectively. For head boats, given the small number of observations and small differences between fees, the hypothesis that all fees are the same cannot be rejected. The averages do hide substantial variation at the individual vessel level.

Appendix

Cover letter:



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Southeast Fisheries Science Center
75 Virginia Beach Dr.
Miami, Florida 33149

Month dd, yyyy

«Primary Mailing Recipient»
«Street Address»
«City», «State» «Zip Code»

WE NEED YOUR INPUT

Dear For-Hire Permit Owner:

Please help us correctly estimate the economic size and importance of the charter and headboat industries in the Gulf of Mexico and South Atlantic. This important task requires detailed economic information about a representative sample of for-hire fishing trips. Your vessel "**Vessel Name**" has been randomly selected to report on your most recent fishing trip with paying passengers. Most participants can complete the survey in a few minutes.

Your participation in this survey is **voluntary but VITAL** for us to generate meaningful economic measures for your industry. This new survey replaces our old data collection that was conducted once every ten years with a small sample of boats. The new survey will produce more timely and accurate estimates that are comparable to those generated for commercial fisheries based on logbooks and dealer reports. With your help we can improve the economic information on the for-hire sector available to the Fishery Management Councils.

A pre-addressed, postage-paid envelope is enclosed. All information you supply is **confidential** and will be combined with information from other for-hire operators for analysis and use. If you wish to receive the survey results once the data have been analyzed, please make note of this anywhere on the survey. If you have any questions or require help filling out the survey, please contact **Philip Souza** or **Christopher Liese** at (305) 361-4263.

Thank you very much for sharing information about your operation and wishing you tight lines and a good fishing year.

Sincerely yours,

Handwritten signature of Philip Souza in blue ink.

Philip Souza
Research Associate

Handwritten signature of Christopher Liese in blue ink.

Christopher Liese, Ph.D.
Economist

2017 For-Hire Fishing Trip Economics Survey

Vessel name: «Vessel Name»

Vessel ID: «Vessel ID»

Thank you for taking this survey. Please approximate if you don't know the exact number. You can leave any comments on the back of the survey. Let us know if you would like to receive the results of this study.

1: Has this vessel taken any for-hire fishing trips over the last 12 months?

Yes **—————>** **Please continue with Question 2**

No **—————>** **Thank you! Please return the survey in the enclosed prepaid envelope. We ARE very interested in your response!**

2: Total number of all fishing trips and days at sea with for-hire passengers over the last 12 months?

_____ number of trips and _____ number of days at sea

3: What % of trips fished in offshore waters (sea-side of the beach/COLREGS line) (circle one)?

0% 10 20 30 40 50 60 70 80 90 100%

4: Does this vessel offer regularly scheduled fishing trips that charge per angler? Yes No

5: What % of this vessel's passengers are repeat customers or referrals (circle one)?

0% 10 20 30 40 50 60 70 80 90 100%

6: Is this vessel usually operated/captained by the majority owner of the vessel? Yes No

7: Please estimate (or guess) how much this vessel could be sold for today
(the vessel itself without fishing permits; not the for-hire business)? \$ _____ .00

8: Has this vessel taken an offshore for-hire fishing trip during the last 12 months in the Southeast
(off of NC, SC, GA, FL, AL, MS, LA, TX)?

Yes **—————>** **Please continue with Page 2**

No **—————>** **Thank you! Please return the survey in the enclosed prepaid envelope.**

OMB Control # 0648-0730

Expires 03/31/2019

Please answer the questions about the most recent offshore for-hire fishing trip by «Vessel Name» in the Southeast:

9: What month did this trip take place (circle one)?

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

10: What was the length of this trip in hours (circle one)?

<4 4 5 6 7 8 9 10 11 12+ multi-day

11: How many paying passengers were on this trip? _ _ _ _ passengers

12: Did this trip fish in Federal Waters/Exclusive Economic Zone? Yes No
(Exclusive Economic Zone starts 3 miles out (or 9 miles for west FL & TX))

13: How many mates/crew members, EXCLUDING the captain, were on this trip?

0 1 2 more, please write in _____ crew members

14: How many gallons of fuel were used on this trip? _ _ _ _ gallons

15: How much did the fuel and oil used on this trip cost? \$ _ _ _ _ .00

For Questions 16-21, please write the actual dollar amounts for this trip. Enter "0" if you had none. Please do not leave Blanks.

16: Ice expense: \$ _ _ _ _ .00

17: Bait expense: \$ _ _ _ _ .00

18: Tackle expense: \$ _ _ _ _ .00

19: Expenses for all HIRED mates/crew (excluding share of tip): \$ _ _ _ _ .00

20: a) Total for-hire fees collected from all passengers for this trip: \$ _ _ _ _ .00

b) Credit card processing fees or other transaction costs: \$ _ _ _ .00 OR _____%

c) Commission paid (for booking service, referrals, etc.): \$ _ _ _ .00 OR _____%

21: Total tip received on this trip? \$ _ _ _ .00 OR _____% OR Don't know

Thank You! Please return this completed form in the enclosed prepaid envelope!

Comments:

Paperwork Reduction Act Statement: NMFS requires this information for the conservation and management of marine fishery resources. These data will be used to evaluate the economic effects of proposed regulations in the fishery. Public reporting burden for this collection of information is estimated to average 12 minutes per respondent, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Christopher Liese, NOAA NMFS Southeast Fisheries Science Center, 75 Virginia Beach Drive, Miami FL 33149. Personal information will not be disclosed, and will only be accessible to authorized personnel responsible for management and research of fisheries under the authority of NOAA. NMFS will retain control over the information and safeguard it from improper access, modification, and destruction, consistent with NOAA standards for privacy and electronic information. Notwithstanding any other provision of law, no persons is required to respond to, nor shall any person be subject a penalty for failing to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control number.