

St. Croix, U.S. Virgin Islands, Small Scale Fisheries Costs and Earnings Study:
Report on the Design, Implementation, and Descriptive Results

By

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Executive Summary

This report documents the design, implementation, data preparation, and descriptive results for the 2007/08 St. Croix, U.S. Virgin Islands Small Scale Costs and Earnings Study. Based on an in-person and telephone survey of 73 licensed Crucian fishermen, this study provides a socio-economic profile of representative small-scale commercial fisherman. The study provides information on the number of weekly hours worked, vessel and gear values, annual expenditures on fixed costs, and trip-level variable costs for a set of typical St. Croix commercial fishing trips.

On average, a commercial fisherman in St. Croix generates 56% of his household income from fishing and works 41 hours per week in the fishery, of which 26 hours are spent at sea and 10 hours are spent selling the catch. The average fishing vessel and gear are worth \$25 thousand (market value) and would require \$42 thousand to replace it. On average, a St. Croix fisherman spends \$7.5 thousand per year on fixed costs; more than half on vessel maintenance and repair. Forty-three percent of the fishermen in the sample identified themselves as part-time fishermen. Full-time and part-time fishermen differ substantially on most measures. For example, income from fishing only accounts for 22% of household income for part-time fishermen, while it accounts for 80% for full-time fishermen. The average price of fuel in 2007/08 was \$2.88 per gallon.

At the trip-level, this report presents average trip characteristics and variable cost expenditures for four typical types of commercial fishing trips in St. Croix: 1) line fishing trips for pelagic species; 2) line fishing trips for reef species; 3) scuba diving trips for reef fish, conch, or lobster; and 4) trap fishing trips for reef species. The results indicate that line fishing trips for pelagic species represent the largest scale of commercial fishing in St. Croix, while line and trap fishing trips for reef species represent the smallest scale. Diving trips are the most distinct trips with relatively high crew and other supplies costs, relative lower fuel costs, and no expenditures for bait. On average, net revenue per trip (before fixed costs) is around \$100 for line and trap fishing trips for reef species, between \$100 and \$200 for scuba diving trips, and over \$200 for line fishing trips for pelagic species.

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1. Introduction

This report documents the design, implementation, data preparation, and descriptive results for the 2007-2008 U.S. Virgin Islands (USVI) Small Scale Costs and Earnings Study. The data collection was designed by the NOAA Fisheries Southeast Fisheries Science Center to assess the economic status of the commercial fishery on St. Croix in the USVI. From July 2008 through February 2009, researchers from the Southeast Fisheries Science Center conducted in-person and telephone interviews with a total of 73 St. Croix fishermen with commercial licenses.

St. Croix is the largest island of the USVI. It is approximately 20 miles long and has less than 85 square miles in area. The island is geographically diverse, with flatlands on the southern coast, mountains and rainforests in the northwest, and a desert-grassland eco-zone to the east. Christiansted on the northern coast and Fredricksted on the western tip are the only two major city centers. Fishing is an important part of the island's economy and the culture of the people who reside on the island. In 2010, St. Croix, along with the other U.S. Virgin Islands, was designated a NOAA Fishing Community due to the historic and contemporary dependence and reliance on the fishery.

The commercial fishery in USVI is small-scale, multi-gear, and multi-species. It holds great importance to local residents who rely on the daily provision of fresh and low cost seafood and as an income earning opportunity. During the 2007/08 fishing year, 174 Crucians held commercial fishing licenses. St. Croix fishermen land about 1 million pounds valued at about \$ 4.5 million.

Roughly half of the commercial fishing license holders on St. Croix fish full-time, while the rest also engage in other occupations or receive social security in addition to their fishing income. As a result, clear delineation of the "commercial fishery" is difficult, and precise financial records are generally not kept by the fishermen. Nonetheless, this study attempts to roughly characterize--based on respondents' recall--*commercial* fishermen, weekly hours worked, vessel and gear

values, annual expenditures on fixed costs, and trip-level variable costs for a set of typical St. Croix commercial fishing trips.

The purpose of the study is to improve the management of USVI fisheries by contributing to a better understanding of the human and economic elements of the commercial fishery. The economic data are needed to ensure that national goals, objectives, and requirements of the Magnuson-Stevens Fishery Conservation and Management Act and other laws are met. The data are needed when assessing the economic effects of management decisions and regulations on individual fishing enterprises, fishing communities, and the nation as a whole. The results support the management by the Caribbean Fisheries Management Council and NOAA.

2. Design and Implementation

Survey Questionnaire

The survey's goal was to collect economic data, particularly expenditure data, from a representative sample of commercial fishermen in St. Croix, USVI, which will allow us to estimate the average costs of commercial fishing operations. The survey questionnaire was designed by staff in the Social Science Research Group at the Southeast Fisheries Science Center, and was authorized by OMB Control # 0648-0552 (expiration date 12/31/2009). In light of limited resources, we focused exclusively on collecting economic data. Other recent or ongoing data collections and reports provide information on landings and effort; demographic data and vessel characteristics; and further fishery or management context.¹

Most importantly, we wanted to collect the total costs of fishing, without missing major parts or double counting others. This is difficult due to the small scale and informal nature of the USVI commercial fishery. Unlike large businesses which will keep detailed records about their financial activities, many St. Croix fishermen run their fishing “businesses” based on gut-feelings and “wallet accounting” (i.e. focusing on the cash they have in their pocket at any given moment). As a result, many fishermen will likely have problems with recalling past expenditures. The questionnaire design---the type of questions, the resolution (details), and the length of the survey---was guided by this artisanal nature of the St. Croix commercial fishery. The lack of financial records and recall issues led us to develop a simple, three page survey instrument (available in the Appendix) that “keeps the cognitive burden low for the respondent.” Further, interviewers were trained to walk fishermen through the different types of cost they might have had and to troubleshoot question as they arise.

¹ Besides the data regularly collected monthly logbooks/trip report forms, readers are referred to Kojis, B.L. and N.J. Quinn. 2011. Census of the Marine Commercial Fishers of the U.S. Virgin Islands (2011), Technical Report Submitted to the National Marine Fisheries Service. 124 p.; Valdes-Pizzini, M., J. Agar, K. Kitner, C. Garcia-Quijano, M. Tust, and F. Forrestal. 2010. Cruzan Fisheries: A Rapid Assessment of the Historical, Social, Cultural and Economic Processes That Shaped Coastal Communities' Dependence and Engagement in Fishing in the Island of St. Croix, U.S. Virgin Islands. NOAA Technical Memorandum NMFS-SEFSC-597, 144 p.; Stoffle, B., J.R. Waters, S. Abbott-Jamieson, S. Kelley, D. Grasso, J. Freibaum, S. Koestner, N. O'Meara, S. Davis, M. Stekedee, and J. Agar. 2009. Can an Island be a Fishing Community: An Examination of St. Croix and its Fisheries. NOAA Technical Memorandum NMFS-SEFSC-593, 57p.

First, the survey collects information to help characterize *commercial* fishermen, their labor activities, and the asset values of their vessel and gear. On the survey, fishing expenditures are collected in two separate categories: fixed costs and variable costs. In economics and accounting fixed costs are expenses that do not change in proportion to the activity of a business (within the relevant period or scale of production). For example the expense of buying a fishing boat is the same, i.e., fixed, regardless of the amount fishing actually conducted. Variable costs by contrast change in relation to the activity of a business, such as sales or production volume. An example in the fishing context is the expenditure on fuel. As more trips are taken, more fuel is used and will need to be bought, i.e., fuel expenses will rise with the level of fish production. Usually, these costs rise proportional to the amount produced, e.g., if fishing trips increase three fold, expenses for fuel will roughly triple.²

On the survey, a limited number of annual fixed cost expenditures are asked at a highly aggregate level. Variable costs are elicited in slightly more detail by using the “representative trip” approach rather than being asked at as “annual expenditures.” Besides the previously mentioned issues associated with respondents’ recall, fishing trips using different gear catch different quantities and qualities of seafood (baitfish vs. lobster) and have very different cost structures. Using historic data, all reported St. Croix commercial fishing trips were studied and grouped to identify a comprehensive set of discrete trip types. Prior to the survey, eight fishing trip types were defined based on the predominant gear used (lines, traps, scuba diving, free diving, or nets) and the species complex targeted (reef fish, pelagic fish, conch, or lobster); plus an “other” group. The final nine trip types are listed on page 3 of the survey questionnaire (in the Appendix). In the variable cost section, respondents were asked to provide “typical or average” characteristics and dollar values for the “most common”, “second most common”, and “third most common” type of trip taken in the previous year.

² In microeconomics and business, the difference between fixed costs and variable costs (and the related terms average cost and marginal cost) is crucial, as each will influence production decisions for profit maximization differently. In the most simple cases, fixed costs do not affect production decisions, because they cannot be changed, and management will choose to produce if sales prices are above the variable cost of each additional unit (marginal cost).

Population

The population of interest for this study is all individuals who “commercially fish” in St. Croix, USVI. The database of licensed commercial fishermen, maintained by the USVI Department of Planning and Natural Resources, Division of Fisheries and Wildlife, for the fishing year 2007/08 served as the sampling frame. The license allows the holder to commercially catch, land, and sell seafood in the USVI. In the 2007/08 fishing year, a total of 174 persons held commercial fishing licenses on St. Croix, USVI (the number of commercial fishing licenses is fixed since there is a license moratorium in place since 2001).

Also, for cross-reference purposes, based on the monthly logbook/trip report form, we generated a list of fishermen active in the 2006/07 fishing year (number and type of trips). At the time of survey implementation, the logbook/trip report data for the 2007/08 fishing year was not yet available. This list provided interviewers with a general impression on the type and amount of fishing conducted by most of the fishermen in the sampling frame.

Some major caveats should be noted concerning the sampling frame (license database) and its relationship to “commercial fishing” in St. Croix. First, not all license holders actually engage in commercial fishing. The commercial license enables the use of certain gear (e.g., traps and nets) that are prohibited for recreational fishermen. Hence some license holders are really recreational or “subsistence” fishermen who hold the license without any intention of catching and selling seafood. Clearly, the cost structure and economics of this type of license holder is unrelated to commercial fishing. Others might hold the license simply to preserve the option to commercially fish in the future.

A further complication is the large number of part-time commercial fishermen for whom fishing only supplements their primary source income. Among part-time fishermen there are those who are engaged in other occupations (e.g., construction worker, fireman) and those that are retired and receive social security or other income without active employment. Again, cost structures and economics of fishing will differ substantially for full-time commercial fishermen, part-time commercial fishermen with other jobs, and part-time commercial fishermen who are retired.

Finally, fishing operations in St. Croix are often *not* clearly associated with a single fishing license or fisherman. Ownership structures of vessels and gears, as well owner-operator and hired crew relationships, are embedded in complex family, friendship, and community relationships, and many transactions are based on (later) reciprocity or in-kind payments. As to be expected in an artisanal fishery, many of these relationships are neither explicit nor documented, and hence cannot be deciphered by a simple economic survey. As a result, for some respondents, some of the costs as well as some benefits of commercial fishing are “informal” and not accounted for by the numbers collected by this study.

Interviewer Training and Implementation

At the onset, the survey was planned as in-person interviews on-site in the USVI. An interviewer training manual was prepared, and five interviewers were trained on two days in July 2008 at the Southeast Fisheries Science Center in Miami, Florida. Interviewers were trained in basic social science survey methods and interview techniques (including practice roll playing), as well as instructed on the basic economic concepts underlying the survey design. The goal of this project was to collect total costs (variable and fixed) of fishing without missing major parts elements or double counting others.

In July 2008, the interviewers traveled to St. Croix and, working in teams of two, conducted eleven in-person interviews with licensed commercial fishermen at various locations on the island. The sampling design basically amounted to an intercept survey at fish landing locations. Additionally, 28 “impromptu” interviews were conducted over the phone, as many fishermen seemed to prefer this to meeting up in person. Respondents were clearly informed that participation in the survey was voluntary and that all information would be treated confidential and would be combined with information from other fishermen before being made public.

The number of interviews was less than expected and deemed too low for statistical analysis and an additional phase was added to the study. Using a USVI Department of Natural Resources database of licensed commercial fishers, telephone calls were made from Miami to those fishermen who had not been contacted for an in-person interview. The interview process was

adapted to the telephone setting, and an additional interviewer was trained in the appropriate method. A total of 34 telephone interviews were conducted between November 2008 and February 2009. We attempted to contact all fishermen on the list (“census”).

The information supplied by the respondent during the interview was written by the interviewer onto a survey form. Later, in Miami, the data was entered into an Excel database.

Response Rate and Data Cleaning

In total, 73 fishermen were interviewed, 11 in-person and 62 over the phone. This represents 42% of total licensed commercial fishers in St. Croix. If fishermen were reluctant to answer questions, interviewers asked them to respond to their best ability before item non-response was accepted. Due to the small sample size, incomplete surveys (surveys with item non-response) were used when possible. Of these 73 interviews, 66 records were deemed to be complete enough and of enough quality to be usable in analyses.

Due to the dominance of telephone interviews as the source of this data, the responses may exhibit biases. Telephone surveys are less likely to be accurate in areas where telephone use is low, individuals are not available, and where rapport cannot be established over the phone. Upon contacting the fishermen over the phone, many were skeptical about giving information, and, in some cases, refused to do so. In-person interviews like those conducted at the onset of this project might have overcome such objections.

It is also possible that this survey may be skewed toward users who are able to purchase cell phones. Fishermen with fixed line phones only were more difficult to reach as they were seldom home, and, when reached, did not like to be interrupted (dinner, family time). Weekend calls were slightly more successful, but in some cases fishermen were still working or, on Sundays, did not accept phone calls. Finally, the difficulty reaching respondents on fixed lines might also bias the results toward fishermen who do not spend as much time on the water.

During data entry, if a range of values was given (and noted during the interview) the mid-point was entered into the database. Logical checks were performed on the database to note

inconsistencies, and outliers (extreme numbers) were verified. In some cases respondents were called back and corrections were made. Otherwise, likely errors were converted to missing values. Some problems specific to individual questions will be noted in the next section when the applicable results are discussed.

3. Results

This section provides descriptive summary statistics of the survey questions, including means, standard deviations, and minimum, maximum, and median values for each variable. First, basic information about the commercial fishing operations and respondents' fishing effort (labor hours) is presented; followed by the market and replacement values of fishing vessels and gear. Third, annual fixed costs of commercial fishing are provided. The final sub-section presents variable costs at the trip-level for five important types of commercial fishing trips. Together, the results provide a profile of the costs of owning and operating a commercial fishing vessel in St. Croix, USVI.

Fishing Operations

A total of 66 surveys were deemed complete enough to be usable for an analysis of license holders. Because the purpose of this study was to focus on the *economics of commercial fishing*--six further observations from recreational or subsistence fishermen (who happen to hold a commercial license) were eliminated; leaving 60 observations in the category *All commercial fishermen*. Based on this sample, on average, 14% of commercial fishermen in St. Croix are retired, 56% of household income is derived from fishing, and each fisherman owns an average of 1.2 boats (Table 1).

Table 1: Fishing income, boat ownership and participation status by type of fisherman.

	Survey count	Retired	Household income from fishing	Average # of boats
All license holders (complete surveys)	66	13.8%	50.4%	1.24
Recreational / subsistence fishermen	6	16.7%	3.3%	1.33
Part-time commercial fishermen	26	32.0%	22.1%	1.27
Full-time commercial fishermen	34	0.0%	80.5%	1.21
All commercial fishermen	60	13.6%	55.5%	1.23

The group of *All commercial fishermen* can be further sub-divided into part-time (43%) and full-time (57%) fishermen. As Table 1 shows, these two groups differ substantially. Nearly a third of part-time fishermen is retired, and on average only 22% of their household income is derived from fishing. The nine *reported* non-fishing occupations included charter captains (2), construction workers (2), and cook, gardener, police officer, fireman, and a business owner. In contrast, for full-time fishermen over 80% of household income comes from fishing. With the exception of the trip cost section, all results will be reported for *Part-time commercial fishermen*, *Full-time commercial fishermen*, and *All commercial fishermen*.

Table 2 shows summary statistics of the number of weekly hours spent fishing at sea, preparing, maintaining and repairing the boat and fishing gear for a fishing trip, and selling their catch. The average and median number of hours per week spend working in the St. Croix fishery by commercial fishermen are 41 hours and 40 hours, respectively, of which, on average 26 hours (62%) are spent at sea. For full-time fishermen the numbers are both 55 hours per week; while part-time fishermen average 23 hours, with a median of 16 hours per week.

Table 2: Fisherman labor related to commercial fishing activities (hours per week, averaged across a year).

	Mean	Standard Deviation	Minimum	Maximum	Median
Part-time commercial fishermen (n=26)					
Fishing (time at sea)	13.9	11.0	2.5	50.0	9.0
Preparing, maintaining, repairing	4.0	4.3	0.0	20.0	2.0
Selling catch	4.8	6.1	0.0	24.0	2.5
Total hours per week	22.6	17.9	6.5	81.0	16.3
Full-time commercial fishermen (n=34)					
Fishing (time at sea)	34.3	13.0	9.0	67.5	32.5
Preparing, maintaining, repairing	7.5	6.1	0.0	23.0	5.5
Selling catch	13.3	10.0	0.0	35.0	10.0
Total hours per week	55.1	20.8	22.0	96.0	55.5
All commercial fishermen (n=60)					
Fishing (time at sea)	25.5	15.8	2.5	67.5	24.5
Preparing, maintaining, repairing	6.0	5.6	0.0	23.0	3.8
Selling catch	9.7	9.5	0.0	35.0	6.5
Total hours per week	41.0	25.3	6.5	96.0	39.5

Vessel and Gear Values

The survey asked for the number of fishing vessels owned by each fisherman. The responses ranged from 0 to 3 boats. Yet, as noted before, during the interviews it was often hard to establish clear ownership structures as boats were being shared by family and friends, jointly owned, or “rented” (usually without explicit payment). The fishermen also shared gear or crewed on each other’s boats. As a result, some of the responses to these questions are null (non-response) and the reported number of observations (n) are upper bounds. The questions about the value of the fishing vessel asked specifically for the value of the *primary vessel only*.

Table 3 provides summary statistics for the current (at the time of the survey) market values of the primary vessel, the fishing gear, and both together. *Market value* was communicated to the fishermen as “if you wanted to sell your vessel or gear, how much money do you believe you might receive?” Table 4 provides similar statistics for *replacement value*; defined as “if you lost your entire vessel or gear, how much money would you need to replace them?”

Table 3: Market value of primary vessel and gear in US dollars.

	Mean	Standard Deviation	Minimum	Maximum	Median
Part-time commercial fishermen (n<=26)					
Vessel market value	13,456	15,441	1,000	70,000	8,000
Gear market value	4,006	5,245	1	20,000	2,250
Total market value	17,981	19,228	4,200	90,000	11,250
Full-time commercial fishermen (n<=34)					
Vessel market value	23,938	22,801	1,000	100,000	16,250
Gear market value	6,423	8,151	500	35,000	4,000
Total market value	30,874	29,217	1,500	120,000	22,500
All commercial fishermen (n<=60)					
Vessel market value	19,340	20,433	1,000	100,000	14,500
Gear market value	5,368	7,078	1	35,000	2,500
Total market value	25,248	25,949	1,500	120,000	18,500

The average commercial fishing vessel is worth \$19 thousand and would cost \$34 thousand to replace. For the associated gear the respective values are \$5 thousand and \$7 thousand. The average total value of both vessel and gear---the assets or capital invested in the fishing enterprise by St. Croix commercial fishermen---is \$25 thousand. As would be expected, full-time commercial fishermen have more valuable vessels and more or more valuable gear than part-time fishermen. In both tables, it is apparent that median values are all below---sometime substantially---the mean values. This indicates that the distribution on vessel, gear, and total market or replacement values are skewed toward lower values with a few large outliers. The column of maximum values of each variable reinforces this conclusion.

Table 4: Replacement value of primary vessel and gear in US dollars.

	Mean	Standard Deviation	Minimum	Maximum	Median
Part-time commercial fishermen (n<=26)					
Vessel replacement value	22,761	16,989	5,500	70,000	20,000
Gear replacement value	5,324	6,775	0	26,000	2,750
Total replacement value	27,853	20,248	5,500	90,000	26,000
Full-time commercial fishermen (n<=34)					
Vessel replacement value	43,417	46,434	1,000	250,000	33,750
Gear replacement value	8,758	10,151	400	40,000	6,000
Total replacement value	52,133	50,587	3,000	252,000	39,500
All commercial fishermen (n<=60)					
Vessel replacement value	34,453	37,834	1,000	250,000	30,000
Gear replacement value	7,192	8,869	0	40,000	4,000
Total replacement value	41,597	41,812	3,000	252,000	34,500

Fixed Costs – Annual Expenditures

Table 5 provides summary statistics of the average annual expenditures for: 1) maintenance, repair and replacement related to the primary vessel, motor(s), trailer, and electronics; 2) maintenance, repair and replacement related to fishing gear; 3) overhead, e.g., permits and licenses, dockage, truck/office expenses, professional services, insurance; and 4) the previous three annual expenditures combined. Median values are once again much lower than mean values. In this case, this reflects zeros among the responses, especially on overhead. Large repair bills are irregular occurrences that skew the means upward. The average total annual fixed cost for a commercial fisherman in St. Croix is \$7.5 thousand, though over half the respondents paid only \$2.6 thousand or less. Unsurprising, full-time fishermen incur substantially higher fixed costs than part-time fishermen, and more than half spend over \$5,750 annually. It should be noted that quite a few respondents claimed to fix their own vessel and gear and spend no money in the respective category of fixed costs.

Table 5: Fixed costs – Annual expenditures for primary vessel and gear maintenance, repair, and replacement and other overhead in US dollars.

	Mean	Standard Deviation	Minimum	Maximum	Median
Part-time commercial fishermen (n<=26)					
Vessel maintenance and repair	2,854	4,792	0	17,000	800
Gear repair and replacement	744	822	0	3,000	450
Overhead	896	2,398	0	10,185	33
Total fixed costs	4,494	7,074	0	21,900	1,450
Full-time commercial fishermen (n<=34)					
Vessel maintenance and repair	5,253	7,757	0	30,000	2,500
Gear repair and replacement	2,946	6,452	0	35,000	1,100
Overhead	1,857	3,690	0	13,945	45
Total fixed costs	10,020	14,077	66	65,000	5,750
All commercial fishermen (n<=60)					
Vessel maintenance and repair	4,159	6,629	0	30,000	1,200
Gear repair and replacement	1,924	4,846	0	35,000	650
Overhead	1,426	3,187	0	13,945	43
Total fixed costs	7,499	11,671	0	65,000	2,600

Variable Costs – Trip Expenditures by Trip Type

In this sub-section, “typical or average” trip-level characteristics and variable cost expenditures for five types of commercial fishing trips common in St. Croix are presented. From a variable cost perspective, commercial fishing trips using different gear and targeting different species groups are simply too diverse to treat as a single unit. But subdividing these various trips into different types compounds the small sample size problem further. To increase the number of fishing trips in the data set, respondents were prompted to provide trip data for up to three common types of trips taken in the previous year. As a result, of the 60 commercial fishermen, 25 reported a second most common trip type and 9 reported a third---for a total of 94 records on commercial fishing trips.

Results are reported below for five types of trips: 1) line fishing for pelagic species, usually trolling or drifting further offshore (22 observations); 2) line fishing for reef species, usually bottom fishing closer to shore near reefs (20); 3) scuba diving for reef fish (spear or spear gun), conch, or lobster (31); 4) trap fishing for reef species (17); and 5) gill or trammel net fishing (very small sample size of only four!). Originally, the survey questionnaire offered nine categories of trips but no data was collected for free diving for conch or *Other* trips, and all scuba trips were combined in the interest of a larger sample size and due to similar cost structures (see Table 11). The mean catches for each trip type based on the survey correspond roughly to the mean catches for these trip types derived from the historic data.

Summary statistics for trip characteristics, variable costs, and “profits” are reported for the five trip types in Table 6 through Table 10. Note that, due to the small sample size and the inherent variation even within each trip type, ranges and standard deviations are very large. While median values often are more meaningful for an individual value, we strongly caution against adding up median values! For convenience, Table 11 provides a side-by-side comparison of the mean values for the different type of commercial fishing trips in St. Croix.

By collecting up to 16 data points for each trip, with some implicit redundancy, we can conduct some logical checks for internal consistency in the responses.³ As can be expected with this type of data, much minor inconsistency is present and must be tolerated. But truly egregious cases of inconsistency usually indicate an error in data entry, in the interview process, or in question understanding by the respondent. In these cases, we set the implausible value(s) to null or, if possible, we calculated a more consistent number. As a result, the number of observations for each variable will vary depending on the number of nulls. Also note, that the question on typical fishing depth was imprecise, hence understood differently by different respondents (depth of water vs. depth of fishing gear), and is not reported.

Trip revenue was not asked on the survey and is calculated by multiplying the reported average price of fish in 2007 by the reported “typical/average” catch. By subtracting all reported trip expenditures from the calculated trip revenue, the trip-level net cash flow---called “profit” for simplicity---can be calculated. In addition, for each trip, the survey also asked the respondent to estimate “typical/average trip profit.” Conceptually, these amounts include compensation for the owner-operator’s labor contribution; compensation for the fixed costs of the operation; and whatever remains would represent the return to the capital invested. In strict accounting terms, only the latter element is “profit” (net revenue before taxes). Further, it should be noted that income to hired labor, i.e., crew cost, is also a net benefit derived from commercial fishing. For economic applications directed toward estimating the “value” of commercial fishing, focusing on both (owner) “profit” and crew cost should be considered. The dominance of labor in the fishery and the difficulty of many fishermen to separately accounting for crew compensation (see below) also argue for similar considerations.

Many respondents had difficulty answering the trip “profit” and crew compensation questions. As a result, item non-response is larger on these questions. It was often claimed by respondents that both measures varied too much to be estimated. While some fishermen were able to identify the crew costs, other fishermen explained that crew costs were typically paid as a percentage of

³ Consistency checks include: a) range of typical catch vs. average catch, b) calculated fuel expenditures (fuel price times gallons of fuel used) vs. reported fuel expenditures, c) calculated trip revenue (fish price times average catch) vs. reported trip profit, i.e., *net* revenue, d) calculated trip profit (calculated revenue minus sum of all expenditures) vs. reported trip profit, and e) various reported expenditures, e.g., crew costs, vs. calculated revenue.

the catch (in kind), percentage of the revenue, percentage of the profits, or complex combinations thereof. To the extent possible, we attempted to translate (“monetize”) reported share systems into an average crew payment in dollar terms. Further, as mentioned before, the relationships between “owners” and “crew” are far from straightforward. Many fishermen fish with family members or friends and partner up with other fishermen to take one instead of two boats out. To what extent compensation for such transactions was “monetized” and reported by respondents is impossible to know. Finally, the number of crew and hours of each trip were not collected by this survey, thereby limiting the amount of troubleshooting that could be done. The fuel price in 2007, as reported by the respondents, averaged \$2.88 per gallon; the standard deviation was \$0.61 and the median \$2.80.

Table 6 presents summary statistics for line fishing trips for pelagic species. Common target species include dolphinfish, wahoo, and tunas, with various snapper species collectively in fourth place. Generally, these trips are the “largest” scale of commercial fishing among the regular fishing trip types occurring in St. Croix (excluding gill net trips). Line fishing trips for pelagic species are the only trip type that usually take place in federal waters (55%). On average, at nearly 50 gallons per trip, fuel use is more than double that of any other trip type. This is likely due to the long distances that these fishers travel in pursuit of their catch, one of the methods of fishing (trolling), and the size of the vessels used (as will be noted later, pelagic fishermen typically have more expensive boats and gear).

Table 6: Variable trip costs – Line fishing for pelagic species

	Number of Observations	Mean	Standard Deviation	Minimum	Maximum	Median
Trip characteristics						
Usually in federal waters (%)	22	55%	-	-	-	-
Fuel used (gallons)	22	48	41	10	200	40
Maximum catch (lbs)	18	289	296	40	1,200	200
Typical/average catch (lbs)	19	124	118	30	500	70
Average fish price in 2007 (per lb)	22	\$5.73	\$0.69	\$4.00	\$7.00	\$6.00
Calculated revenue per trip	19	\$737	\$724	\$150	\$3,000	\$420
Trip expenditures						
Fuel and oil	22	\$174	\$133	\$33	\$578	\$135
Bait	22	\$40	\$64	\$0	\$200	\$5
Other supplies (food, air, ice,...)	22	\$41	\$64	\$0	\$280	\$19
Crew compensation	18	\$119	\$137	\$0	\$500	\$88
Trip profit						
Reported profit	14	\$265	\$261	\$50	\$1,000	\$175
Calculated profit	15	\$271	\$459	-\$318	\$1,540	\$73

Line trips for pelagic species average the largest catch (again excluding gill net trips) and receive the highest average price per pound (\$5.73) for finfish (shellfish species such as lobster and conch command higher prices). As a result, they generate the highest revenue at over \$700 per trip. They also generate the highest expenditures among all the trip types in each individual cost category. On a line trip for pelagic species, the highest variable cost is fuel (on average \$174), followed by labor (\$119) and substantial expenditures for bait (\$40) and other supplies (\$41). The average reported and calculated trip profits closely match at about \$270 per trip---the highest among all trip types (excluding gill net trips).

Table 7 presents summary statistics for line fishing trips for reef species. These trips commonly target a large number of shallow water and deep water reef fish and other reef associated fish. Collectively, various snapper species are the most common catch, followed in no particular order by groupers, jacks, barracudas, hinds, butterfish, triggerfish, and many more. Together with trap trips for reef fish, these trips represent the “smallest” scale of commercial fishing among the regular fishing trip types occurring in St. Croix. On measures of fuel use, catch, revenue, costs, and profit, line fishing trips for reef species take values between a third and half of those by line fishing trips for pelagic species. Line trips for reef species stay closer to shore and might be

shorter than line trips for pelagic species. As will be discussed later, they are conducted much more frequently by part-time fishermen.

Table 7: Variable trip costs – Line fishing for reef species.

	Number of Observations	Mean	Standard Deviation	Minimum	Maximum	Median
Trip characteristics						
Usually in federal waters (%)	20	10%	-	-	-	-
Fuel used (gallons)	19	16	16	3	70	12
Maximum catch (lbs)	19	78	84	20	400	50
Typical/average catch (lbs)	18	49	54	14	250	30
Average fish price in 2007 (per lb)	20	\$4.73	\$0.91	\$3.00	\$6.00	\$5.00
Calculated revenue per trip	18	\$239	\$275	\$70	\$1,250	\$163
Trip expenditures						
Fuel and oil	20	\$62	\$68	\$10	\$300	\$43
Bait	20	\$14	\$16	\$0	\$65	\$11
Other supplies (food, air, ice,...)	20	\$15	\$13	\$0	\$50	\$11
Crew compensation	17	\$52	\$63	\$0	\$240	\$35
Trip profit						
Reported profit	17	\$116	\$83	\$30	\$250	\$90
Calculated profit	15	\$102	\$160	\$12	\$650	\$47

On average, line trips for reef species use only 16 gallons of fuel; catch less than 50 pounds per trip; receive a medium price for finfish (\$4.73); and generate close to the lowest revenue of all fishing trip types (\$239). For these trips, on average, fuel cost per trip (\$62) is slightly larger than expenditures for crew (\$52); while minor amounts are spent on bait (\$14) and other supplies (\$15). The average reported and calculated trip profits are similar at \$116 and \$102 per trip, respectively; as is the median reported profit (\$90).

Table 8 presents summary statistics for all fishing trips using scuba diving equipment. These diving trips can be further delineated by their primary target---collecting lobster, collecting conch, or spearing reef fish (primarily shallow water reef species including parrot fish, grunts, triggerfish, snappers, etc.). As can be seen in Table 11, the quantity of catch in pounds is lowest for lobster trips, higher for conch trips, and highest for reef fish trips; yet the reverse relationship applies to the price per pound, with lobster trips leading the way. On average, scuba diving

fishing trips use 19 gallons of fuel; catch 64 pounds of seafood; sell this for \$6.02 per pound; and generate \$390 of revenue (\$470 for reef fish, \$393 for conch, and \$330 lobster).

Table 8: Variable trip costs – Diving with scuba equipment for reef species, conch, or lobster.

	Number of Observations	Mean	Standard Deviation	Minimum	Maximum	Median
Trip characteristics						
Usually in federal waters (%)	28	7%	-	-	-	-
Fuel used (gallons)	30	19	10	3	40	19
Maximum catch (lbs)	28	85	65	20	300	62
Typical/average catch (lbs)	28	64	44	15	200	53
Average fish price in 2007 (per lb)	31	\$6.02	\$1.47	\$3.00	\$8.00	\$6.50
Calculated revenue per trip	28	\$390	\$284	\$75	\$1,400	\$300
Trip expenditures						
Fuel and oil	31	\$76	\$47	\$15	\$200	\$70
Bait	30	\$1	\$4	\$0	\$20	\$0
Other supplies (food, air, ice,...)	29	\$34	\$30	\$0	\$110	\$23
Crew compensation	29	\$93	\$67	\$0	\$270	\$70
Trip profit						
Reported profit	23	\$169	\$144	\$19	\$525	\$100
Calculated profit	26	\$209	\$209	-\$25	\$910	\$126

Unsurprising, scuba diving fishing trips for lobster, conch, or reef fish exhibit very similar variable costs which is why they are reported together here. Average crew costs (\$93) are large and higher than fuel costs (\$76). These trips are likely to employ more crew to alternate time under the water, since divers are unable to stay underwater for extended periods of time, and to help tend the boat while others are submerged. Due to depth limits of diving, the trips probably operate nearer to shore, explaining the lower fuel use and expenditures. Expenditures for other supplies, i.e., diving supplies, are substantial (\$34), while bait cost are zero or negligible as bait is not needed. The average reported profit per trip (\$169) is somewhat lower than the average calculated profit (\$209). Trips for lobster were somewhat less profitable than those for conch or reef fish (Table 11), but given the small sample size this difference is unlikely to be statistically significant.

Table 9 presents summary statistics for fishing trips using traps or “pots” for reef species. These trips commonly target a large number of shallow water reef and reef associated species, including grunts, triggerfish, surgeon fish, yellowtail snapper, doctor fish, sergeant, parrotfish,

(in no particular order). Together with line fishing trips for reef species, these trips represent the “smallest” scale of commercial fishing among the regular fishing trip types occurring in St. Croix. Surprisingly, there is much similarity in scale (fuel use, catch) and the economics (revenue, costs, and profit) between trap fishing trips and line fishing trips for reef species. This is somewhat odd given the very different gear and fishing method (traps are soaked for days and “tended”). As will be discussed later, ideally (if sample size allowed) trap trips would be further differentiated between those by full-time and those by part-time fishermen as these seem to be fundamentally different types of trips.

Table 9: Variable trip costs – Trap fishing for reef species.

	Number of Observations	Mean	Standard Deviation	Minimum	Maximum	Median
Trip characteristics						
Usually in federal waters (%)	17	12%	-	-	-	-
Fuel used (gallons)	17	15	13	5	50	10
Maximum catch (lbs)	13	84	71	10	300	80
Typical/average catch (lbs)	13	56	55	8	225	45
Average fish price in 2007 (per lb)	16	\$4.03	\$0.59	\$3.00	\$5.00	\$4.00
Calculated revenue per trip	13	\$224	\$194	\$24	\$788	\$180
Trip expenditures						
Fuel and oil	16	\$65	\$56	\$20	\$224	\$40
Bait	17	\$11	\$16	\$0	\$65	\$6
Other supplies (food, air, ice,...)	17	\$22	\$33	\$0	\$100	\$10
Crew compensation	15	\$59	\$63	\$0	\$200	\$40
Trip profit						
Reported profit	12	\$147	\$185	\$25	\$700	\$95
Calculated profit	11	\$95	\$77	\$28	\$291	\$70

On average, trap fishing trips for reef species use the least fuel (15 gallons); catch 56 pounds; receive the lowest price per pound of seafood (\$4.03; excluding gill net trips); and generate the lowest revenue per trip (\$224) compared to other trip types. For trap trips, average fuel cost per trip (\$65) is slightly larger than expenditures for crew (\$59); with \$11 and \$22 being spent on average on bait and other supplies, respectively. The average reported and calculated trip profits diverge somewhat at \$147 and \$95 per trip, respectively; the median reported profit is \$95.

Table 10 shows summary statistics for fishing trips using gill or trammel nets. These gear target shallow water reef fish, parrotfish, jacks, and some coastal pelagic fish. Given that the numbers are based on only four observations (at the time of the survey gill and trammel netting were being phased out of the fishery), the quantitative results may not be representative. Only the prudent inference to be made given the small sample is that net fishing trips are substantially different and of a much larger scale than the other type of commercial fishing trips. Net trips seem to catch many 100s of pounds of fish and generate thousands of dollars of revenue. High crew payments and profits might be possible. The major mismatch between average reported and calculated trip profits reinforces that extreme caution must be used when making inferences about the economics of this fishing trip type.

Table 10: Variable trip costs – Gill or trammel net fishing.

	Number of Observations	Mean	Standard Deviation	Minimum	Maximum	Median
Trip characteristics						
Usually in federal waters (%)	4	25%	-	-	-	-
Fuel used (gallons)	4	25	17	14	50	18
Maximum catch (lbs)	3	850	626	250	1,500	800
Typical/average catch (lbs)	4	500	356	200	1,000	400
Average fish price in 2007 (per lb)	4	\$3.63	\$0.60	\$2.75	\$4.00	\$3.88
Calculated revenue per trip	4	\$1,919	\$1,510	\$550	\$4,000	\$1,563
Trip expenditures						
Fuel and oil	4	\$111	\$66	\$25	\$182	\$118
Bait	4	\$0	\$0	\$0	\$0	\$0
Other supplies (food, air, ice,...)	4	\$51	\$40	\$8	\$100	\$48
Crew compensation	4	\$281	\$184	\$50	\$500	\$288
Trip profit						
Reported profit	4	\$689	\$442	\$125	\$1,080	\$775
Calculated profit	4	\$1,476	\$1,416	\$300	\$3,467	\$1,069

For convenience, Table 11 provides a side-by-side comparison of the mean values for the different type of commercial fishing trips. It further sub-divides the scuba diving trips by primary target species. The sample of trips is not large enough to further subdivide each type of fishing trip into those taken by full-time and those taken by part-time fishermen and report quantitative statistics. But we will mention some qualitative results here nonetheless. More than the majority of line fishing trips for pelagic species, scuba diving trips, and net trips are undertaken by full-

time fishermen; trap trips for reef species are roughly evenly distributed between full-time and part-time fishermen; while part-time fishermen dominate the line fishing trips for reef species.

Table 11: Variable trip costs comparison across trip types (means).

	Line - Pelagic	Line - Reef	Scuba - Reef	Scuba - Conch	Scuba - Lobster	Traps - Reef	Gill nets
Number of Observations (<=)	22	20	9	10	12	17	4
Trip characteristics							
Usually in federal waters (%)	55%	10%	13%	0%	9%	12%	25%
Fuel used (gallons)	48	16	18	21	17	15	25
Maximum catch (lbs)	289	78	109	88	65	84	850
Typical/average catch (lbs)	124	49	82	67	48	56	500
Average fish price in 2007 (per lb)	\$5.73	\$4.73	\$4.94	\$6.05	\$6.79	\$4.03	\$3.63
Calculated revenue per trip	\$737	\$239	\$470	\$393	\$330	\$224	\$1,919
Trip expenditures							
Fuel and oil	\$174	\$62	\$86	\$73	\$70	\$65	\$111
Bait	\$40	\$14	\$2	\$0	\$1	\$11	\$0
Other supplies (food, air, ice,...)	\$41	\$15	\$31	\$35	\$36	\$22	\$51
Crew compensation	\$119	\$52	\$99	\$97	\$86	\$59	\$281
Trip profit							
Reported profit	\$265	\$116	\$181	\$192	\$143	\$147	\$689
Calculated profit	\$271	\$102	\$253	\$227	\$159	\$95	\$1,476

The average characteristics, revenue, and costs of line fishing trips for pelagic species and scuba trips do not differ significantly (by a factor or more) between part-time and full-time fishermen. This implies that when part-time fishermen take either of these two trips, they conduct them in a “full-time manner.” In contrast, trap trips for reef species by part-time fishermen are a fraction of the scale of trap trips for reef species by full-time fishermen (a third or less on many variables). Consequently, trap trips by full-time and trap trips part-time fishermen are really two different types of fishing trips and, if sample size allowed, should be analyzed individually.

A qualitative look at fishing assets in relation to trip types shows that fishermen engaged in line fishing for pelagic species have the most expensive vessel and gear---the most capital invested in their business---compared to all other types (gill netters excluded due to minimal sample size). Interestingly, and reinforcing the previous conclusion, vessel and gear values do not differ between full-time and part-time fishermen engaged in line fishing for pelagic species or scuba

trips. Vessel and gear values for line or trap trips for reef species do differ significantly between full-time and part-time participants.

4. Conclusion

This report documents the design, implementation, and data preparation for the 2007/08 St. Croix, USVI, Small Scale Costs and Earnings Study; an interview based survey of commercial fishermen. Descriptive results of the survey questions---basic summary statistics---are provided and discussed. On average, a commercial fisherman in St. Croix generates 56% of his household income from fishing and works 41 hours per week in the fishery, of which 26 hours are spent at sea and 10 hours are spent selling the catch. The average fishing vessel and gear are worth \$25 thousand (market value) and would require \$42 thousand to replace. On average, a St. Croix fisherman spends \$7.5 thousand per year on fixed costs; more than half on vessel maintenance and repair. Median values are much less.

Forty-three percent of the 60 commercial fishermen in the sample identified themselves as part-time fishermen. As demonstrated throughout the report, full-time and part-time fishermen differ substantially on most measures. For example, income from fishing only accounts for 22% of household income for part-time fishermen, while it accounts for 80% for full-time fishermen. If possible, the distinction between full-time and part-time commercial fishermen should be taken into account if these results are reported elsewhere or used in an analysis or model.

At the trip-level, this report presents average trip characteristics and variable cost expenditures for four typical types of commercial fishing trips in St. Croix: 1) line fishing trips for pelagic species; 2) line fishing trips for reef species; 3) scuba diving trips for reef fish, conch, or lobster; and 4) trap fishing trips for reef species. The results indicate that line fishing trips for pelagic species represent the largest scale of commercial fishing in St. Croix, while line and trap fishing trips for reef species represent the smallest scale. Diving trips are the most distinct trips with relatively high crew and other supplies costs, relative lower fuel costs, and no expenditures for bait. On average, “profit” per trip (before fixed costs!) is around \$100 for line and trap fishing trips for reef species, between \$100 and \$200 for scuba diving trips, and over \$200 for line fishing trips for pelagic species.

The results reported here are based on very small sample sizes and, as such, should be treated as tentative or rough indicators of the general magnitude of the true population values. The summary statistics beyond the means are provided primarily to remind the reader of the inherent variation and noise in these data. 95% confidence intervals are not reported but would likely be very large---making small to medium differences insignificant. Any interpretation should focus on large differences only. While the data and results are far from perfect, they represent what is possible in a small-scale, mostly informal, artisanal fishery.

Appendix – Survey Questionnaire

**U.S. VIRGIN ISLANDS SMALL SCALE FISHERIES COSTS AND
EARNINGS STUDY**

Respondent Name: _____

Respondent Telephone #: _____

Location of Interview: _____

Date of Interview: _____

Interviewer Name: _____

Number of unsuccessful attempts to contact: _ _ _ _ _

Comments:

Typical trips: #1 _____ #2 _____ #3 _____

Respondent's commercial fishing ID #: _____ (DO NOT ASK!)

Quality: A+ regular F

Begin Interview:

Thank you for completing this questionnaire. These data will be used to write reports about the economics of commercial fishing activities in the U.S. Virgin Islands and the effects of your expenses on supporting industries in your community. All of your information will be confidential. We will not use people's names in our reports, or write anything that could be used to identify you.

Public reporting burden for this collection of information is estimated to average one hour per response including the time for receiving the instructions and completing the interview. Send comments regarding this burden estimate or any other aspects of this burden to Bob Walker, National Marine Fisheries Service, 75 Virginia Beach Drive, Miami, Florida 33149. This reporting is required under and is authorized under 50 CFR 622.5(a) (1) (v). Information submitted will be treated as confidential in accordance with NOAA Administrative Order 216-100. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection displays a currently valid OMB Control Number. The NMFS requires this information for the conservation and management of marine fishery resources.

Participation in this survey is completely voluntary, and you do not need to answer any questions you do not wish to answer. However, we hope that you will complete the questionnaire so that we do not end up with important gaps in our knowledge of the fishery. The first page asks a few basic questions about you and the importance of commercial fishing to you and your family. The second page asks about average costs per trip for your most important kinds of fishing trips. The third page asks about annual fishing costs to give a complete picture of the costs of owning and operating your boat.

I'd like to start by asking you a few basic questions about you and your fishing operation.

1. Do you own a USVI commercial fishing license? Yes No (stop interview)
2. What type of fisherman are you?
- Full-time, commercial fisherman (sells catch for \$ as sole or majority of income)
- Part-time, commercial fisherman (sells catch for \$ to supplement income)
- If Part-time**, other income source(s) (check all that apply):
- Vessel charter Fishing guide Diving guide Other source(s)
- Someone who fishes primarily for food (subsistence)
- Other _____
3. In a typical week, averaged across a year, how many hours do you spend on:
- Fishing (all time at sea; incl. time for steaming, catching bait): _____ hours per week
- Preparing, maintaining and repairing your boat and fishing gear: _____ hours per week
- Selling your catch (especially if you sell to consumers): _____ hours per week
4. Do you own **and** operate a fishing vessel? Yes No
- If No**, how would you describe yourself? Captain on someone else's vessel
- Vessel owner, not operator
- Crew
- Other _____
5. How many (operational) fishing vessels do you own? _____ (if 0 skip to question 9)

Continue asking **only about the primary vessel used for fishing**, i.e. the boat most used last year.¹

Idea behind Question 6. and 7.:

"If you wanted to sell your vessel or gear, how much money do you believe you might receive?"

6. Please estimate the current market value of your fishing vessel, motor(s), trailer and electronics (your best guess is fine): \$ _____
7. Please estimate the current market value of all your fishing gear (including gear used on other vessels you own; incl. scuba): \$ _____

Idea behind Question 8. and 9.:

"If you lost your entire vessel or gear, how much money would you need to replace them?"

(Cost if purchased new.)

8. Please estimate the replacement value of your fishing vessel, motor(s), trailer and electronics (your best guess is fine): \$ _____
9. Please estimate the replacement value of all your fishing gear (including gear used on other vessels you own; incl. scuba): \$ _____
10. What was the average price you paid for fuel in 2007: \$ ____ . ____ per gallon

¹ Otherwise, if the respondent can't decide on a primary vessel, make an alphabetically/numerically ordered list of all vessel names and/or registration numbers (a, b, c, ..., 1, 2, 3, ...). Then continue asking only about the first vessel on the list.

Discuss the type of fishing respondent does (the list of fishermen can help you start). Narrow down to most common, second most common (if > 20% of all trip), and third most common (if > 20% of all trips) trips. A type of trip is defined by the gear used and the main target species complex. Preferably, see if these trip types are roughly covered by one of the predefined trip types below. If the fisherman is "all over the place" (regularly uses 3 gears or more on the same trip; always changing trip types; etc.), simply ask him for his average trip per year, regardless of gear, species, season, location, etc. (call it Other).

Predefined types of trips

- LineReef:** Any type of line fishing (vertical, set, drift,...) for primarily reef species
- LineCP:** Any type of line fishing (troll, vertical, set, drift,...) primarily for coastal pelagic species (mackerel, dolphin, wahoo, tuna, bill-fish)
- TrapReef:** Trips primarily collecting reef species (and other bycatch) from fish traps
- ScubaReef:** Any trip using scuba equipment to primarily catch reef fish (incidental lobster/conch)
- ScubaConch:** Any trip using scuba equipment to primarily collect conch
- ScubaLobster:** Any trip using scuba equipment to primarily catch lobster
- FreeConch:** A diving trip, NOT using scuba equipment, to primarily collect conch
- GillTramNet:** All trips using gillnets or trammel nets
- Other:** ALL OTHER TRIPS are defined by **Other**

11. Please describe a typical/average trip (by your primary vessel) of the following type(s):

	Most common trip	Second most common trip	Third most common trip
Type of trip (enter one predefined)			
Primary gear used (enter 'Mixed' if 3+) Only enter 2 nd gear if > 25% of catch			
Species complex targeted ¹			
Usually in Federal waters ²	Yes No	Yes No	Yes No
Typical fishing depth (in feet) ³			
Average fuel used (gallons)			
Most common species caught	1 st :	1 st :	1 st :
	2 nd :	2 nd :	2 nd :
	3 rd :	3 rd :	3 rd :
Range of catch (in lbs) (write max)			
Typical/Average catch (in lbs)			
Average expenditures (dollars per trip, regardless of who pays):			
Fuel and oil			
Bait			
Other supplies (food, air, ice, ...) ⁴			
(net) Crew compensation (not self) ⁵			
Average fish price in 2007 (per lbs)			
Typical/Average trip profit (\$)			

¹ Shallow-water reef fish (SWR), deep water reef fish (DWR), coastal pelagics, lobster, conch, ...
² Check Yes, if most of the catch is caught more than 3 miles off the coast.
³ A range is acceptable; as is no answer (enter "---").
⁴ Do not include maintenance, repair or replacement of vessel or gear (accounted on next page).
⁵ "Helpers"; Translate any 'share of catch' from lbs to \$. Subtract any costs paid by crew.

Idea behind question 12., 13., and 14.:

“What does it cost you to be a commercial fishermen in a typical or average year?”

Estimate to the nearest \$1,000 (or \$100 if less than \$2,000)

12. Average annual expenditures for maintenance, repair and replacement related to your primary vessel, motor(s), trailer, and electronics: \$ _____

Optional (if respondent needs help estimating/calculating Question 12):

Types of Vessel Expenditures	Paid monthly		Paid annually
Vessel maintenance		x 12 =	
Vessel repair (average over lifetime)		x 12 =	
Motor maintenance		x 12 =	
Motor repair (average over lifetime)		x 12 =	
Trailer maintenance and repair		x 12 =	
Electronics repair and replacement		x 12 =	

Total vessel expenditures (enter above): \$ _____

13. Average annual expenditures for maintenance, repair and replacement related to all your **fishing gear** (across all your vessels): \$ _____

Optional (if respondent needs help estimating/calculating Question 13):

Gear Type	Cost to replace all gear	Useful life (in years)	Annual depreciation	Additional annual maintenance	Average annual cost
Trap	/	=	+	=	
H&L	/	=	+	=	
Scuba	/	=	+	=	
Net	/	=	+	=	
	/	=	+	=	
	/	=	+	=	

Total gear expenditures (enter above): \$ _____

14. Average annual expenditures for overhead (permits and licenses, dockage, truck/office expenditures, professional services, insurance, etc.): \$ _____

Optional (if respondent needs help estimating calculating Question 12):

Types of Overhead	Paid monthly		Paid annually
Dockage/mooring		x 12 =	
Permits and licenses (needed for fishing)		x 12 =	
Car or truck expenses (for fishing)		x 12 =	
Insurance payments		x 12 =	
Loan payments (interest payments only)		x 12 =	
Professional services fees (accountant, lawyer)		x 12 =	
Property taxes (NOT income taxes!)		x 12 =	
Office expenses (rent, utilities, supplies)		x 12 =	
		x 12 =	
		x 12 =	

Total overhead expenditures (enter above): \$ _____

15. Roughly estimate what percentage of your total 2007 household income is derived from commercial fishing? (Household income includes your non-fishing income and the incomes of your spouse and other working persons in your household, including payments from the government (social security, unemployment, etc.)): _____ %

In case we need some clarification during data entry, is there a telephone number we could reach you at? _____

Thank the respondent for their time and information!