

**WHAT ARE THE FACTORS AFFECTING TRIP SATISFACTION FOR THE
FOR-HIRE INDUSTRY IN SOUTH CAROLINA IN RELATION TO THE
BLACK SEA BASS BAG LIMIT?**

A thesis submitted in partial fulfillment of the requirements for the degree

MASTER OF SCIENCE

in

ENVIRONMENTAL STUDIES

by

**STACEY ANN WEINSTOCK
APRIL 2018**

at

**THE GRADUATE SCHOOL OF THE UNIVERSITY OF CHARLESTON,
SOUTH CAROLINA AT THE COLLEGE OF CHARLESTON**

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ABSTRACT

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The for-hire industry is an economically important recreational activity that thrives in tourist destinations in coastal areas. While there has been much research on factors contributing to trip satisfaction for freshwater anglers little has been done on charter and head boat anglers. In South Carolina, black sea bass (*Centropristes striata*) are an important recreational species that are targeted by the for-hire industry. In 2016, SAFMC implemented new policies increasing recreational bag limits for this species. Utilizing this change in regulation, I sought to determine the factors that drive trip satisfaction amongst customers and captains/crew of South Carolina charter/head boat industry. The results of my research found that overall catch rate and fight with fish affect trip satisfaction in the for-hire industry. Bag limits were found to not affect attitudes, but this result may be unique to black sea bass since size restricts filling bag limits. The results of this study are informative to managers as it is important to consider the potential impacts regulations have on trip satisfaction in the for-hire industry. If management is too restrictive, this can negatively impact trip satisfaction.

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TABLE OF CONTENTS

ABSTRACT	i
ACKNOWLEDGEMENTS.....	iii
TABLE OF CONTENTS.....	iv
LIST OF ACRONYMS AND ABBREVIATIONS.....	vi
LIST OF FIGURES.....	vii
LIST OF TABLES.....	viii
1.INTRODUCTION.....	1
1.1. <u>Overview of Black Sea Bass in the South Atlantic</u>	6
1.1.1. <i>Species Description</i>	6
1.1.2. <i>History of BSB (<i>Centropristes striata</i>) management in the South Carolina recreational fishery</i>	7
1.2. <u>Literature Review</u>	9
2. MATERIALS AND METHODS.....	15
2.1. <u>Hypotheses</u>	15
2.2. <u>Study Area</u>	17
2.3. <u>Research Design</u>	18
2.3.1. <i>Participant-Observation</i>	19
2.3.2. <i>Semi-structured interviews</i>	21
2.3.3. <i>Questionnaire Survey</i>	22
2.4. <u>Data Analysis</u>	25
2.4.1. <i>Qualitative Analysis – Coding</i>	25
2.4.2. <i>Quantitative Analysis – Survey Data</i>	28

3. RESULTS.....	29
3.1. <u>Hypothesis 1</u>	35
3.2. <u>Hypothesis 2</u>	39
3.3. <u>Hypothesis 3</u>	41
3.4. <u>Additional Factors</u>	46
3.4.1. <i>The Fight and the Shark</i>	46
3.4.2. <i>Customer Service and Non-Catch Dependent Factors</i>	48
3.4.3. <i>Length of Trip</i>	50
3.4.4. <i>Changing Attitudes</i>	52
4. DISCUSSION.....	54
4.1. <u>“Catch fish, have a good time, enjoy”</u>	54
4.2. <u>Catch-orientation of For-Hire Customers and Catch-Dependent Factors</u>	54
4.3. <u>BSB and Current Management</u>	56
4.4. <u>Non-Catch Dependent Factors</u>	58
5. SUMMARY, CONCLUSION, AND RECOMMENDATIONS.....	59
LITERATURE CITED.....	63
APPENDICES.....	67
Appendix A: Interview Questions for Captain and Crew.....	67
Appendix B: Questionnaire Survey for Customers.....	68
Appendix C: Codebook.....	73

LIST OF ACRONYMS AND ABBREVIATIONS

BSB	Black Sea Bass (<i>Centropsis striata</i>)
EEZ	Exclusive Economic Zone
FMP	Fishery Management Plan
MSA	Magnuson-Stevens Fishery Management and Conservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
SEDAR	Southeast Data and Assessment Review
SAFMC	South Atlantic Fishery Management Council
TL	Total Length

LIST OF FIGURES

Figure 1. – Black Sea Bass (<i>Centropsis striata</i>)	6
Figure 2. - South Atlantic Fishery Management Council jurisdictional boundaries	7
Figure 3. – Map of study area.....	17
Figure 4. – Picture of customers fishing on board a headboat trip	19
Figure 5. – Conducting in-person surveys of for-hire customers	22
Figure 6. – Catch-dependent factor table from survey.....	23
Figure 7. – Questions from survey	24
Figure 8. – Distribution of U.S. zip codes from survey respondents	32
Figure 9. – Customers fishing onboard a private charter	36
Figure 10. – Atlantic Sharpnose Shark	46
Figure 11. – Posing with my catch of BSB.....	48
Figure 12. – Customers on board a headboat trip.....	50
Figure 13. – Catch from a private charter	52

LIST OF TABLES

Table 1. – Overview of hypothesis results	29
Table 2. – Distribution of age of survey respondents	30
Table 3. – Distribution of education of survey respondents	30
Table 4. - Distribution of income of survey respondents	31
Table 5. - Count of survey responses to catch-dependent factors	33
Table 6. – Ranking of means of catch-dependent factors table	34, 46
Table 7. – Survey respondents answers ranking "I catch a fish".....	37
Table 8. – Survey responses ranking "I take home fish".....	40
Table 9. – Survey responses to question 14.....	42
Table 10. – Survey responses to question 17.....	42
Table 11. – Survey responses to question 18.....	43
Table 12. – Survey responses to question 19.....	43
Table 13. – Overall number of ‘satisfaction’ and ‘dissatisfaction’ code co-occurrences with catch-dependent factors.....	45

1. INTRODUCTION

Fisheries are classically seen as the ‘tragedy of the commons’ and managers have historically regulated fisheries stakeholders via a top-down approach (Hardin, 1968, St. Martin 2001). This occurs as regulations are driven from a biological standpoint using fisheries models and assessments, and typically do not include social perspectives (St. Martin, 2001). Yet, fisheries policy and management are moving away from this approach, seeking to engage stakeholders to work in a system of collaboration. As Chilvers (2009) states, substantive rationales claim that participation leads to better ends, in both the quality of environmental science and environmental decisions.

One area of fisheries that has received focus on the social perceptions of its stakeholders is that of the recreational fishing industry. This is partly due to the large economic impact that recreational fishing has on regional and local economies, particularly the marine recreational industry (also known as saltwater anglers). In the United States, saltwater anglers greatly contribute to local and regional economies. In the 2014 report on Fisheries Economics in the United States (FEUS), from the National Marine Fisheries Service (NMFS) which is nested within the federal agency National Oceanic and Atmospheric Administration (NOAA), approximately 11 million saltwater anglers reside in the U.S. In 2013, these saltwater anglers took 68 million saltwater fishing trips; contributing \$60.6 billion in sales impacts to the U.S. economy, generating \$35.5 billion in value-added impacts, and supporting approximately 439,000 jobs. Considering the value of this industry, it is important to understand what drives satisfaction in these users to inform management as it regulates fishing activity.

While this user group is large, there has been little research on angler or trip satisfaction of saltwater anglers; however, there are numerous studies concerning trip satisfaction with individual freshwater anglers (Arlinghaus 2006, Beardmore et. al., 2015, Ditton et al. 1981, Holland & Ditton 1992). Most literature on trip satisfaction focuses on private freshwater anglers, e.g. anglers that own personal gear or vessels and fish on freshwater rivers, lakes, or ponds. (Arlinghaus 2006, Beardmore et. al., 2015, Ditton et al. 1981, Holland & Ditton 1992). In these studies, researchers sought to understand what motivates anglers; however, it is important to note that motivation and satisfaction are not the same. Motivations are the psychological outcomes one desires from a fishing experience, while satisfaction is determined by the difference between the outcome of desires or thinks that should be received (motivations) and the perceived fulfillment of those outcomes (Lawler 1973, Peterson 1974, Ditton et al. 1981). These distinctions are important when managing recreational anglers, as identifying factors that drive trip satisfaction will aid decision makers to improve overall angler satisfaction, particularly if these factors are impacted by regulations. Improving angler satisfaction is important as it aids industry and, in turn, the livelihoods of those who rely on it.

For marine recreational fishing, however, there is limited data on user satisfaction. One particular area that is data poor is the marine for-hire industry, also known as charter or headboat fishing. The for-hire sector is part of the tourism industry, where customers hire, or charter, a fishing boat with captain and crew to go fishing. The marine for-hire industry operates as two types of businesses; private charters or head boats (also known as party boats). The difference between private charters and head boats is that charters are paid by the trip (for example, a flat rate for the trip, e.g. \$500, regardless of party size)

and head boats are paid per person (or per head, such as \$50 per head). Private charters typically take small parties and are considered a more expensive, intimate fishing experience. While head boats are suited to take out larger parties, or large numbers of individual anglers, for a more affordable price. For-hire fishing occurs inshore and offshore, in freshwater and the ocean. When referring to the marine for-hire industry, it is important to clarify what type of fishing activity you are discussing as there is both inshore and offshore fishing. Inshore refers to fishing in creeks or backwaters of bays, targeting both brackish water and saltwater species, while offshore fishing takes you out to sea, anywhere from five to forty plus miles offshore, targeting saltwater species.

The recreational for-hire industry in the United States has boomed in the last decade and the economic impact of this industry is immense. In a 2013 report from the Northeast Fisheries Science Center (NEFSC), on the economics of the recreational for-hire fishing industry in the northeast United States, yielded that in 2010 the for-hire industry in the northeast earned \$140.3 million in revenue, generated \$50.4 million in income to owners, captains, crew/mates, and office staff, and employed over 6,200 individuals. Furthermore, the multiplied effects supported by this industry to the surrounding businesses in the area supplied an additional \$193.7 million in sales, \$66.5 million in income, and 1,290 jobs. With this large economic impact, it is important for fisheries managers to understand the drivers of trip satisfaction of the marine for-hire angler. Knowing this information will inform regulations that will sustain industry and not weaken it.

In South Carolina, there is a booming for-hire marine recreational industry as tourism continues to grow in the state. These offshore for-hire businesses rely heavily on certain

species to satisfy customers, one particular species of importance is black sea bass (*Centropsis striata*). This fishery has a significant economic impact in the state, supporting 4,095 jobs and having a value added of \$228, 682 (SAFMC, 2016). Therefore, this species is a valuable commodity to the for-hire sector.

Black sea bass (BSB) are managed within the snapper grouper fishery by the South Atlantic Fishery Management Council (SAFMC). The SAFMC manages all species within the snapper grouper complex that are harvested in the exclusive economic zone (EEZ) (three miles to 200 miles) in the area off south of Cape Hatteras, NC, to the Florida Keys. The state of South Carolina manages black sea bass in state waters (shore to three miles). Most species within the snapper-grouper fishery, such as black sea bass, have recreational bag and size limits for harvest in the EEZ. A bag limit is the number of fish an angler can harvest and/or keep, while in the South Atlantic some species have a minimum harvest size limit. For example, in 2017, BSB had a minimum harvest size of 13-inches, meaning you can only harvest (or take) BSB that are 13-inches or larger ($x \geq 13$ inches).

Between 2006 and 2013, BSB became a contentious fishery due to management changes (SEDAR, 2006; SEDAR, 2011; SEDAR, 2013; SAFMC, 2011; SAFMC, 2013). Prior to 2006, recreational BSB anglers had a bag limit of 20 fish per angler per day with an 8-inch minimum size limit (SEDAR, 2006). In 2006, the stock was deemed overfished and a stock rebuilding plan was implemented as dictated by the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The recreational bag limit was reduced from 20 to 5 fish per angler per day as recommended by NMFS. This drastic reduction created concern among fishermen as BSB are an important recreational and

commercial fish. In 2013, following pressure from the fishing industry, fisheries scientists reassessed the stock and determined the population had stabilized and overfishing was no longer occurring (SEDAR, 2013).

At the start of this project, the bag limit for BSB was 5 fish per angler per day with a 13-inch minimum size limit. Through anecdotal reports, size limits were preventing anglers from reaching the 5-fish bag limit. In other words, anglers were not catching 13-inch BSB. With this information, and the stock status deemed improved with no more overfishing occurring, NMFS proposed to increase the allowable bag limit of BSB from 5-fish per angler to 7-fish per angler (SAFMC, 2016). This proposed amendment, Regulatory Amendment 25 (SAFMC, 2016), was submitted, accepted, and implemented in August 2016.

This bag limit change provided an opportunity to address the data gap on users and further research trip satisfaction in the marine for-hire industry. Using qualitative and quantitative methods I sought to answer a two-fold research question: i.) do black sea bass bag limits affect trip satisfaction? and ii.) what factors drive trip satisfaction in the South Carolina for-hire industry? The purpose of the study was to assess if bag limits affect trip satisfaction and employ social science to identify the factors that affect trip satisfaction to inform fisheries management. The study population included for-hire anglers (captains and crew) and for-hire customers along the South Carolina coast who target BSB. By being able to define the parameters that affect trip satisfaction in the for-hire industry, fishery managers such as SAFMC and NMFS can continue to revise and adapt regulations to increase angler satisfaction and sustain both the fishery and the industry. In the following review of regulations and literature, I will further explore the

history of BSB management and the different factors that drive trip, or angler, satisfaction.

1.1. Overview of Black Sea Bass in the South Atlantic

1.1.1. Species description



*Figure 1. - Black Sea Bass (*Centropristes striata*)*

Black sea bass (*Centropristes striata*), known as pinbass or rock bass, are a recreational and commercial fish that is a member of the Serranidae family. They are a temperate marine species that inhabit irregular hard-bottom areas, such as wrecks or reefs (Fabrizio et. al. 2014, Miller et. al., 2016). Spawning occurs during February through October, reaching a peak progressively later in the year in areas further north. In Florida peak spawning is February through March while in South Carolina it is March through April and in North Carolina April through May (SAFMC, 2013). Individual fish can live

up to twenty years and the largest reported black sea bass south of Cape Hatteras had a total length of 26 inches and a weight of 8 pounds (McGovern et. al., 2002). BSB are typically found inshore but Miller et. al. (2016) discovered that during the winter juveniles and adults prefer to live offshore. They are sought after for their firm, lean mild tasting meat.

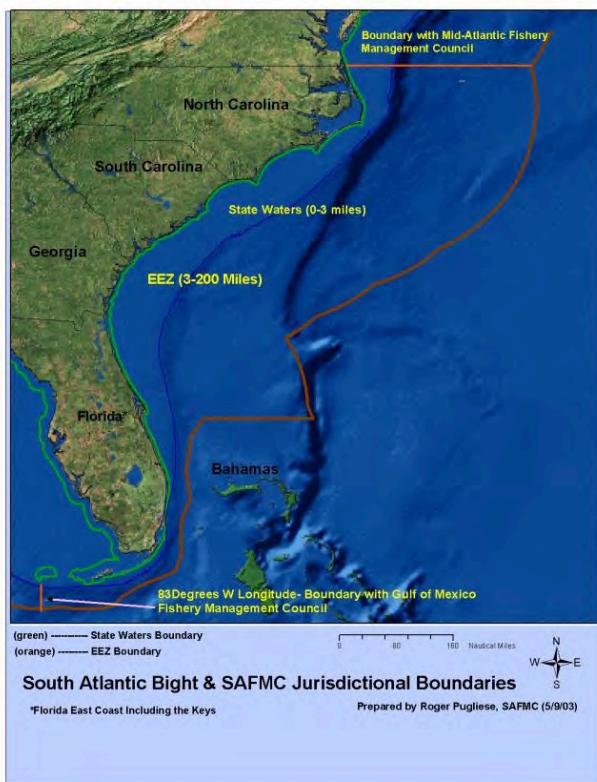


Figure 2. - South Atlantic Fishery Management Council jurisdictional boundaries

*1.1.2. History of BSB management (*Centropristes striata*) in the South Carolina recreational fishery*

BSB are considered part of the snapper-grouper fishery which is managed by the South Atlantic Fishery Management Council (SAFMC). SAFMC is one of eight regional fishery councils created by the Magnuson-Stevens Fishery Conservation and

Management Act (MSA) and the boundaries can be seen above in Figure 2. BSB caught in federal waters are managed by the SAFMC, while fish caught in state waters are managed by each state. South Carolina's regulations reflect that of the federal government, as stated in Sec. 50-5-2730, which dictates that it automatically adopts the federal law or regulation (SEDAR, 2011). Other states may have different regulations for BSB caught in state waters. Prior to 1999, there were no recreational harvest limits on the species. This changed, however, after Vaughan et. al. (1995) analyzed trip report data from the 1970s through the 1990s and concluded that overfishing was occurring in the 1980s. Subsequently, with data through 1995, Vaughan et. al. (1996) estimated that the rate of overfishing had increased during the 1990s (SEDAR, 2011). Regulations were implemented in 1999, limiting recreational harvest to 20 fish per day with a minimum size limit of 10-inches total length (TL).

The BSB fishery continued to experience overfishing and, in 2006, the SAFMC implemented a ten-year rebuilding plan for the overfished stock as required by the Magnuson-Stevens Act (SEDAR, 2003). Amendment 13C was added to the Snapper Grouper fishery management plan (FMP) implementing management measures to reduce harvest by 35% (SAFMC, 2011). This caused great concern within the fishing community as BSB are an important economic and social resource for many fishermen. As part of the stock rebuilding plan, Total Allowable Catch (TAC) limits were imposed for both the recreational and commercial fishery limiting the annual total weight of BSB harvested in the South Atlantic (SEDAR, 2006). Moreover, in 2006 recreational harvest bag limits were decreased from 20 fish per day to 5 fish per day.

In 2013, the stock was reassessed after recommendations from the fishing community and SEDAR determined that the BSB population had stabilized and overfishing was no longer occurring (SEDAR, 2013). Following this statement, however, fisheries managers heeded a warning concerning the uncertainties of the assessment. SEDAR cautioned that the population may experience a cyclical nature. Therefore, while the recruitment, or new offspring, in 2010 may be abundant, there may not be another abundant year class for five to ten years. This suggests that the population is susceptible to overfishing in future years. As SAFMC noted in their 2016 amendment, analysis results showed that a higher bag limit would have a negligible impact on the recreational landings of BSB, because almost 95% of discarded BSB are below the minimum size of 13-inches TL. Moreover, the biological impacts are null and the increased bag limits were suspected to have social and economic effects.

1.2. Literature Review

Angling is an economically important industry and offshore fishing itself can draw large numbers of tourists, which greatly contributes to local economies (Savolainen, 2014). Locations such as Florida, Alaska, and Mexico are destinations for many tourists specifically seeking offshore fishing excursions (Ditton & Gill 1991). In the eyes of fisheries managers, customers aboard for-hire vessels are separate stakeholders than freshwater anglers. Yet, while customers are managed as separate stakeholders there has been little research concerning trip satisfaction of participants in the marine for-hire industry. Coincidentally, there have been studies on satisfaction for the private recreational angler who fishes along shorelines of lakes, rivers, and streams or saltwater

anglers that fish from their own vessels (Arlinghaus, 2006, Beardmore et. al., 2015, Ditton & Fedler 1983, Holland and Ditton, 1992).

Understanding the angler experience for catch and non-catch related aspects is important when evaluating trip satisfaction. In Holland & Ditton's (1992) study on fishing trip satisfaction based on the typology of anglers, they sought to determine the non-catch aspects for the individual angler experience. While surveying 166 recreational anglers in Texas they included a literature review on papers studying fishing trip satisfaction. They created a table of factors as a starting point in understanding the multidimensional aspects of fishing trip satisfaction. These factors included: *nature, escape, sociability, relaxation, catching fish, equipment, nostalgia, exercise, eating fish, achievement, challenge, learning, exploration, privacy, and catching trophy fish*. Some of these factors are applicable to the for-hire fishery but factors such as privacy, are not. Unlike personal vessels, for-hire boats are not an individual experience as captain and crew are present.

While there is limited research on motivation and satisfaction in charter and head boat customers one study was found that sought to evaluate angler satisfaction and motivation concerning customers of the for-hire industry. Ditton & Gill (1991) compiled a literature review on studies that surveyed the motivations and satisfactions of charter and head boat customers. The papers they examined varied in methods and data collection, but they identified eleven variables (subjective and situational) that they believe contributed to customer satisfaction. These variables were: 1) *safety*, 2) *expected catch*, 3) *captain's skills*, 4) *job performance*, 5) *presence of family and friends*, 6) *safe navigation*, 7) *boat condition*, 8) *price*, 9) *weather*, 10) *services provided*, and 11)

location or scenery. Two subjective variables were most frequently evaluated as important to angler satisfaction: skills and performance of the captain and crew, and the safety precautions provided for anglers. In contrast to Holland's findings it seems there are different factors that contribute to trip satisfaction in the for-hire fishery. Yet, most of the papers they examined had employed mail out surveys to old fishing customers, receiving low response rates. They suggested that further research involving different collection methods was necessary to evaluate fishing satisfaction upon these vessels.

As many authors suggest, before you can identify the factors driving satisfaction in the for-hire industry it is helpful to understand the fish species and factors that drive satisfaction in anglers (Arlinghaus, 2006, Graefe, 1980, Fedler & Ditton, 1986, Holland and Ditton, 1992). In Beardmore et. al. (2015) they sought to examine the relationships between angler specialization, trip outcomes, and catch satisfaction across six freshwater species in northern Germany. They recruited participants from a random sample of resident and nonresident anglers and asked them to record their fishing trips over a year. Respondents were grouped by low, moderate, and highly specialized anglers. They found a diminishing marginal return for increasing catch rate, but increased catch satisfaction with increasing size of the largest retained fish across all species. More simply, satisfaction increased with the size of the fish.

Moreover, for avid anglers, the results suggested that catch rates, size of fish, and encounter rates among anglers are universally important components of satisfying catch experiences. They advised that managers wishing to maximize angler satisfaction should focus overall on high catch rates and a supply of large fish. In their study, non-catch outcomes such as crowding had a negative influence on catch satisfaction, but were

equally important in establishing expectations and catch outcomes. This factor is not relevant to the for-hire fishery as either experience will inevitably involve other anglers.

To evaluate the angler experience you must first define the angler. In Fedler and Ditton's (1986) publication, they provided a framework for understanding the consumptive orientation of recreational fishermen. The choice to study consumptive orientation versus catch orientation was because most fishermen showed diversity in catch-related aspects of experience across the different levels of participation. For example, Graefe's (1980) paper, which provided a framework for classifying fishermen based on their frequency of fishing participation, found that fishermen in the low participation category (i.e., less frequent fishing effort) placed greater importance on catching fish to eat, catching at least something, and catching a greater number of fish than fishermen in the high participation category. It is also important to note that management policies must be tailored for specific fisheries and thus there is a need to examine the fishing preferences of subgroups of anglers to appropriately manage for satisfaction.

Additionally, Fedler and Ditton (1986) focused on saltwater boat fishermen in Texas and conducted telephone interviews to categorize their consumptive orientation. Through their survey they categorized anglers into three different groups: low consumptive orientation, mid consumptive orientation, and high consumptive orientation. These three groups were used as the basis for testing for differences in attitudes toward the keeping of fish, number of fish caught, and trophy/challenge aspect. Their results yielded that the importance of these variables are directly related to the consumptive orientation of fishermen, but one consistent factor is that the possibility of catching one or more is a

necessary component of any fishing trip. They also found that fishermen with a high consumptive orientation fished less frequency than those with a low consumptive orientation. Additionally, those who had a low consumptive orientation were found to be more satisfied overall. In the literature, there is little to no research on the consumptive orientation of customers of the marine for-hire industry. If their consumptive orientation is low, bag limits may have no effect on their trip satisfaction. Yet, the anglers interviewed in this study are saltwater boat owners, suggesting that they already have a vested interest in fishing due to their boat purchase. For-hire customers may or may not be vested anglers.

Furthering the research on angler satisfaction and catch orientation was Arlinghaus' (2006) study on the striking disconnect between motivation and satisfaction in recreational fishing and the case of catch orientation. He notes Ditton & Fedler's (1986) work on catch orientation that catching fish and the associated catch-related dimensions (pursuing specific species, size, or harvesting fish) may be most important for some anglers, whereas for others satisfaction may derive from other non-catch aspects (e.g., nature, scenery). Arlinghaus focused on German freshwater anglers and interviewed active anglers (anglers that had been fishing in the past 12 months) via a nationwide telephone survey. He categorized anglers as low, medium, and high catch oriented. His results showed that across all three angler segments satisfaction is still mainly catch-dependent regardless of catch-orientation. This echoed Fedler & Ditton's (1986) framework and provided implications for fisheries management and research on angler satisfaction; stressing that angler satisfaction is predominantly constrained by activity specific, catch-dependent aspects and thus managers should regulate accordingly.

Arlinghaus suggested stocking or creating size limits to continue to provide quality sized fish for anglers. Yet, while stocking may be possible for freshwater fisheries it is not applicable to the marine realm. Marine fisheries managers will have to determine if these factors are also evident in angler satisfaction as well.

Overall, the literature provides research on angler satisfaction in freshwater anglers (Arlinghaus, 2006, Beardmore et. al., 2015) and private saltwater anglers (Fedler & Ditton, 1986, Holland & Ditton, 1992). From the literature it is evident that there are certain catch-dependent factors that contribute to angler, or trip, satisfaction. These factors are: catching fish to eat, catching at least something, catching rate, and catching a trophy or quality fish. While these aspects are found in freshwater anglers and saltwater anglers there is little to no data, besides Ditton & Gill's (1991) literature review, on what factors drive trip satisfaction in customers of the for-hire industry. This data gap provides an opportunity to further explore factors that provide trip satisfaction in the for-hire industry.

2. MATERIALS AND METHODS

2.1. Hypotheses

As is evident from the literature (Arlinghaus, 2006, Beardmore et. al, 2015, Fedler & Ditton, 1986) the catch-dependent factors contributing to angler or trip satisfaction in private and freshwater anglers are: i.) catch rate, ii.) take home fish, iii.) fight with fish, and iv.) trophy fish. I desired to know if these catch-dependent factors also drive satisfaction in the marine for-hire industry. The study population included for-hire anglers (captains and crew) and for-hire customers along the South Carolina coast who target black sea bass (BSB). Separating the two user groups is important as captains/crew and customers have different experiences and perceptions while aboard a for-hire fishing trip. The following are my hypotheses for evaluating trip satisfaction in the for-hire industry:

- ***H₁**: If catch rate is high, trip satisfaction will be high.*
- ***H₂**: The more fish taken home, the higher the satisfaction.*
- ***H₃**: The lower bag limit, the lower the satisfaction.*

As the literature suggests, the rate of catch is an important factor in driving angler satisfaction (Arlinghaus, 2006; Beardmore et. al., 2015; Holland & Ditton, 1992). This has been true in both freshwater and saltwater angling, but there have been little to no studies on the for-hire industry. Thus, this lead me to my first hypothesis, **H₁**: *If catch rate is high, trip satisfaction will be high.* Determining if catch rate is an important driving factor will inform management decisions.

Secondly, one prominent possibility is that marine for-hire customers will have a high consumptive orientation, which is discussed in Fedler & Ditton's (1986) framework. Based on their framework, they found that anglers that had a high consumptive orientation fish less frequently. Since for-hire trips are costly this suggests that for-hire customers fish less frequently and wish to have a guide to aid them in their fishing efforts. Their driving factor of satisfaction may be the quantity of consumable fish. In Arlinghaus' (2006) paper on freshwater anglers his results indicated that the quantity of consumable fish is low for highly catch-oriented anglers, i.e., high participation anglers, but higher in minimally and intermediate catch-oriented anglers, i.e., low participation anglers. I sought to evaluate if this is also true in the marine for-hire industry. If customers are low participation anglers, as defined by Graefe (1980), then they will have a higher consumptive orientation and angler satisfaction will derive from the greater number of consumable fish. Thus, this leads me to my second hypothesis, ***H₂: The more fish taken home, the higher the satisfaction.***

Moreover, continuing off Fedler & Ditton's framework, anglers that have a low consumptive orientation are satisfied if other non-catch aspects are experienced. This suggests that the satisfaction of these anglers would not be affected by bag limits. Their research predominantly focuses on private anglers, but I sought to determine if this is true for for-hire customers. This led me to my third hypothesis, ***H₃: The lower bag limit, the lower the satisfaction.*** Determining this would aid fisheries managers in whether they should focus regulation or other non-catch aspects, such as scenery or amenities. In a fishery as contentious as BSB, the perceptions of for-hire customers is important to understand for fisheries managers.

2.2. Study Area

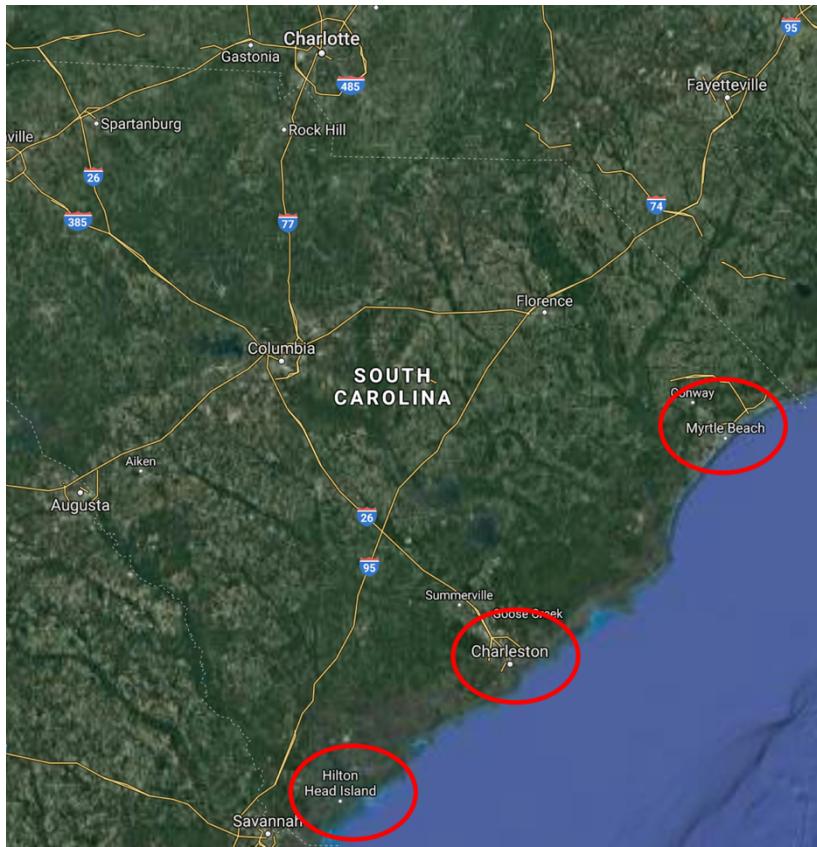


Figure 3. - Map of study area

The study area encompassed coastal South Carolina specifically targeting Charleston, Hilton Head, and Myrtle Beach (See Figure 2). These cities were selected because they are tourist destinations along the coast. According to Miskelly (2018) tourism is South Carolina's biggest industry bringing in over \$15 billion to the state. The following is USA Today's travel tips for the South Carolina coast:

“The South Carolina coast has three main tourist destinations. Myrtle Beach anchors a stretch of beach known as "The Grand Strand." The area has over 400 hotels and more than 100 golf courses. To the south, Charleston is home to many historic sites. Visit Fort Sumter, where the first shots of the Civil War were fired. Antebellum homes line The Battery, a street that faces Charleston Harbor. Hilton Head Island lies at the southern end of South Carolina's coast. Visitors come here for a relaxed, resort-like atmosphere.”

Moreover, these cities contain federal snapper grouper for-hire permits. Permits are given to for-hire boats targeting federally managed species in the snapper grouper complex. The target population of offshore for-hire vessels was identified by looking through the for-hire permits issued by NMFS. In addition to the permits, I used the SAFMC's relationships with charter and head boat captains to employ a snowball method to gather participants for this study. A snowball method is using one contact to help you recruit another contact, who in turn can put you in touch with someone else (Valentine, 2005).

2.3. Research Design

To evaluate the catch-dependent factors that determine trip satisfaction and assess how BSB bag limits affect trip satisfaction, I employed a multi-method research design known as triangulation (Cresswell, 2009). Triangulation comes from surveying, where it describes using different bearings to give the correct position (Valentine, 2005). For my research, I gathered both qualitative and quantitative data. My qualitative research methods included participant observation and semi-structured interviews, while my quantitative method was a questionnaire survey. Using this mixed method approach the qualitative data, such as participant observation, informed my quantitative data. I targeted three stakeholder groups: captains, crews, and customers. Data collection occurred between the months of April and September of 2017, which is the high season for for-hire fishing in South Carolina.

2.3.1. Participant-Observation



Figure 4. - Picture of customers fishing on board a headboat trip

For all target groups, I employed participant-observation, a method that seeks to understand the unconscious norms and beliefs of a study population (Watson & Till 2009, Laurier 2009). As Laurier (2009) defines, it is a method based on participating and observing in which field-notes, sketches, photographs, or video recordings are used as a method of data collection. I observed six for-hire trips, where I took field notes in an

organized and detailed manner with a patient, attentive description of activity to gather appropriate data for analysis (Laurier, 2009). Due to the nature of being on a fishing boat where it is loud and unstable I engaged in informal conversation with customers, captains, and crews asking about their on-board fishing experience. I asked many participants where they were from and the purpose of their trip. Through our conversations I asked their name, who they were fishing with, as well as how often they fish. Additionally, I would ask if they knew what fish they were catching or if they had any desired outcomes for the conclusion of their fishing trip.

Furthermore, I employed direct behavior observation to discern the interactions of the customers, captains, and crews to identify what factors contribute to their satisfaction. Through direct observation I employed instantaneous sampling to quantify behaviors in my field notes. As defined by Hames (2010), instantaneous sampling simply records the behavior of the individual the instant he or she is observed. Instantaneous recording is a dimensionless measure since it has no duration and allows for the collection of behavior frequency and intensity by counting the number of times that behavior occurs. The behaviors I recorded were the reactions of customers and crew regarding catch rate (i.e., the number of bites they receive on their fishing line), excitement regarding “fight” with a fish (i.e., difficulty reeling fish in), and quantity of consumable caught (if they are disappointed or excited about number of fish harvested). I noted each time I observed one of these behaviors and quantified the number of times they occur. These field notes helped to inform the results of my questionnaire survey and the drivers of trip satisfaction in all stakeholder groups.

2.3.2. Semi-structured interviews

My second method involved conducting semi-structured interviews with captains and crew to collect further information on what factors contribute to trip satisfaction. This form of interviewing has some degree of pre-determined “structure” of questions, but still ensures flexibility in how the informant wants to represent what they know (Dunn, 2005). This allowed me to have open responses in the participants’ own words versus a ‘yes’ or ‘no’ type answer (Longhurst, 2009). Since captain and crew have direct experience working with BSB regulations a conversational approach was particularly important to engender trust. Moreover, interviewing captains and crew is a more efficient way of obtaining information as it is common to receive low response rates to surveys from this constituency.

Unlike customers, captains and crew are economically dependent upon trip satisfaction. Determining what leads to a satisfied trip for them is greatly different than that of the customers. An example of the questions asked were “What is your outlook for today’s trip?”, “What do you consider a good trip?” and so on. For a full list of interview questions please refer to Appendix A. Questions were asked in the order listed, but I allowed the discussion to unfold in an informal manner offering participants the chance to explore issues they felt were important (Longhurst 2009). The purpose of the semi-structured interviews was to provide insight of these stakeholders and is not a representative sample of the population. I conducted 14 interviews with 3 private charter captains, 3 head boat captains, 1 charter business owner, 5 head boat crew members, and 2 private charter crew members. Interviews were recorded and then transcribed using the Express Scribe Transcription Software Pro v. 582. These transcripts were then coded using Atlas.ti, version 8.1.2., software.

2.3.3. Questionnaire Survey



Figure 5. – Conducting in-person surveys of for-hire customers

The third method employed was a deductive questionnaire survey for customers. Questionnaire survey research is a method for gathering information about the characteristics, behaviors and/or attitudes of a population by administering a standardized set of questions, or questionnaire, to a sample of individuals with the standardized nature of the questions allowing for quantitative analysis (McLafferty 2009). This survey was designed to evaluate the factors for catch-dependent trip satisfaction for customers and was not intended to gain customer satisfaction information on individual charter or head boats. This lent to cooperation with the captains and business owners alike. I utilized

Ditton & Fedler's (1983) survey for private anglers in Texas as a guideline to target customers aboard the for-hire vessels.

11. A FISHING TRIP IS NOT A SUCCESS UNLESS:							
	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat disagree	Disagree	Strongly Disagree
I catch a fish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take home fish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have an exciting fight with a fish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I catch a trophy fish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 6.- Catch-dependent factor table from survey

Some questions developed from this example included a Likert scale approach to obtain further quantitative data. The Likert scale presents a range of responses anchored by two extreme, opposing positions (McLafferty, 2009). For example, I asked respondents to rate questions on what defines a successful fishing trip using the scale of “strongly agree” to “strongly disagree”. Below is the question from the survey that used the Likert scale to rate how catch-dependent factors drive trip satisfaction.

1. How often do you fish?

- Multiple times a week Multiple times a month Multiple times a year Rarely ever

2. How do you compare your fishing ability to other fishermen in general?

Less skilled Equally skilled More skilled

3. On a scale of 1 to 5 how strongly do you trust fisheries managers?

With "1" meaning you greatly distrust and "5" meaning you greatly trust.

1- Greatly distrust 2 – Distrust 3 – Neutral 4 – Trust
 5 - Greatly trust

Figure 7.- Questions from survey

Other questions on the survey asked about fishing ability and trust in management, as you can see above in Figure 4. Additionally, demographic questions were asked to obtain information from the respondents. Demographic questions were pulled from the U.S. census to compare demographic data. To see the full questionnaire survey please refer to Appendix B.

To recruit survey participants, multiple methods were used. Surveys were conducted both in-person and online. The online survey was hosted on the website Qualtrics via the College of Charleston. To incentivize survey takers, I advertised a raffle to win a \$100 Bass Pro gift card for participants. The survey was advertised on multiple fishing forums in the area, including charlestonfishing.com and on the SAFMC website and Facebook page. I posted the survey to multiple local and regional fishing groups on Facebook and created a classified ad for the online magazine, Carolina Sportsman. Carolina Sportsman picked up the ad and advertised it on the front page of their website, which generated a large number of survey takers.

In addition to the online platform in-person dock surveys were also conducted. In-person surveys were conducted from June 2017 to September 2017. With permission from the captains and/or business owner, I was able to approach customers upon the completion of their fishing trip to ask if they'd take the survey. I also surveyed customers during my observation trips. For the Hilton Head and Myrtle Beach areas, I did two trips where in-person dock surveys were conducted. Additionally, I was able to leave physical copies of surveys on-board along with an advertisement with the link to the online survey. Captains and crewmembers administered the physical copies of the survey to their customers and I provided stamped envelopes. Upon request, captains mailed completed surveys to me. For the Charleston area, I worked with three local captains and surveyed as much as possible. The survey data was organized using Microsoft Excel and in-person dock surveys were assigned dates, groups, boat names, and location codes. Since most respondents surveyed were fishing together they were assigned unique codes to denote their relationship. For example, if a family of three was fishing onboard a headboat they were assigned the code "Family of three". The survey data itself was not a stratified random sample and cannot be used as a representative sample of the for-hire customer population in South Carolina.

2.4. Data Analysis

2.4.1. Qualitative Analysis - Coding

After transcripts and field notes were produced they were then analyzed with a codebook aimed to evaluate factors in trip satisfaction of private and head boat charters to determine themes. As defined by Wutich and Gravlee (2010), the codebook provides a

conceptual and operational definition of each theme to indicate what it means and when it should be applied to segments of text. The full codebook also specifies what units of analysis will be coded, whether codes can overlap or not, and whether to code for presence or degree.

Coding was used as it is often the case that text materials can fill gaps in information that otherwise could not be known (Cope, 2009). To code the qualitative materials I utilized two methods, defined by Strauss' (1987), selective coding and open coding. Selective coding is a systematic approach to coding that is done when a central or 'core' category is identified and followed. For the coding process, the core categories for trip satisfaction were "satisfied and "dissatisfied" derived from hypotheses **H₁**, **H₂**, and **H₃**, in evaluating how satisfied or dissatisfied, customers, captains, and crew members were with catch-dependent factors. In addition to selective coding, an open coding process was used to scrutinize the field notes and interviews, producing concepts that seem to 'fit the data' (Strauss, 1987). There were different stages of coding with the first level as 'descriptive' and the next level as 'analytic'. Descriptive codes contain mainly what are called in vivo codes – that, appear in the text and where respondents own words are used as codes. Analytic codes emerge from a second level of coding that comes after much reflection on descriptive codes and a return to the theoretical literature.

Reaching the analytic stage of coding a codebook was produced, aimed at answering **H₂** and **H₃**, providing insight as to what drives trip satisfaction in customers, captains, and crew members. Catch-dependent factors were coded as 'catch rate', 'catch number' (i.e. bag limit), 'catch size' (i.e., size limit), and 'catch fight'. Trip satisfaction was coded as 'satisfied' or 'dissatisfied'. Type of boat trips were coded as 'headboat' and 'private

charter' for any interview, observation, or mention in relation to the type of boat captains, crew members, and customers were on or trip they were taking.

The codebook's effectiveness was evaluated through two rounds of inter-rater reliability tests. Inter-rater reliability (IRR) is a measure of the level of agreement between the independent coding choices of two (or more) coders (Hallgren, 2012). Using a two-page sample from the interview transcripts and a paragraph from the field notes, the codebook was tested. Following the first round of IRR, both coders yielded a score of .54 and .48. This led to a collapsing of codes within the codebook to simplify and clarify, as well as to revise the "decision rules" of the codebook itself. Following this revision two more tests were done yielding two IRR scores of .75 and .80, indicating that the coding scheme was effective and could be applied with consistency from researcher to researcher. The full codebook is attached as Appendix C. While field notes were also coded they were not quantified as I was unable to reliably test codes with the IRR test. Thus, field notes were used to inform my qualitative data.

To further analyze interview transcripts and field notes smart codes were created in Atlas.ti to evaluate code co-occurrences, i.e., when codes occur in the same quotation. Code co-occurrences were used to identify the number of times satisfaction/dissatisfaction occurred within the same quotation with catch-dependent factors (catch rate, catch fight, catch number, and catch size). Code co-occurrences allowed for the quantification of the qualitative data (interviews only). Smart codes are a feature of Atlas.ti that allows for stored queries.

2.4.2. Quantitative Analysis - Survey Data

Using the results of the survey I was able to test ***H₃***: *The lower bag limit, the lower the satisfaction.*. I employed R software to run statistical analysis on survey results. T-tests were run to determine if bag limits affected trip satisfaction in for-hire customers. I tested if quantity of consumable fish is important based on responses by performing a Two Sample Welch t-test on “If increased bag limits of black sea bass would improve satisfaction” to determine if relationships were statistically significant. Determining the statistical significance of the relations of these hypotheses identified the factors that drive trip satisfaction in the for-hire BSB industry.

3. RESULTS

Table 1.- Overview of hypothesis results

HYPOTHESES	METHODS	RESULT
<i>H₁:</i> If catch rate is high, trip satisfaction will be high.	Coding, Field Notes, Survey data	SUPPORTED
<i>H₂:</i> The more fish taken home, the higher the satisfaction.	Coding, Field Notes, Interviews, Survey data, Welch Two Sample t-test	NOT SUPPORTED
<i>H₃:</i> The lower the bag limit, the lower the satisfaction.	Field notes, Interview data, Coding	NOT SUPPORTED

I collected data using mixed-methods of participant-observation, interviews, and surveys. I observed six fishing trips, interviewed 14 captains and crew members, and surveyed 287 for-hire customers. For the survey, I received N=285 completed responses to the survey. N=166 respondents were surveyed in-person, N=31 were mailed in via captains, and N=88 were received online. In-person surveys were conducted at the docks and while on-board observing for-hire trips in Myrtle Beach, Murrell's Inlet, Charleston, and Hilton Head.

Table 2. - Distribution of age of survey respondents

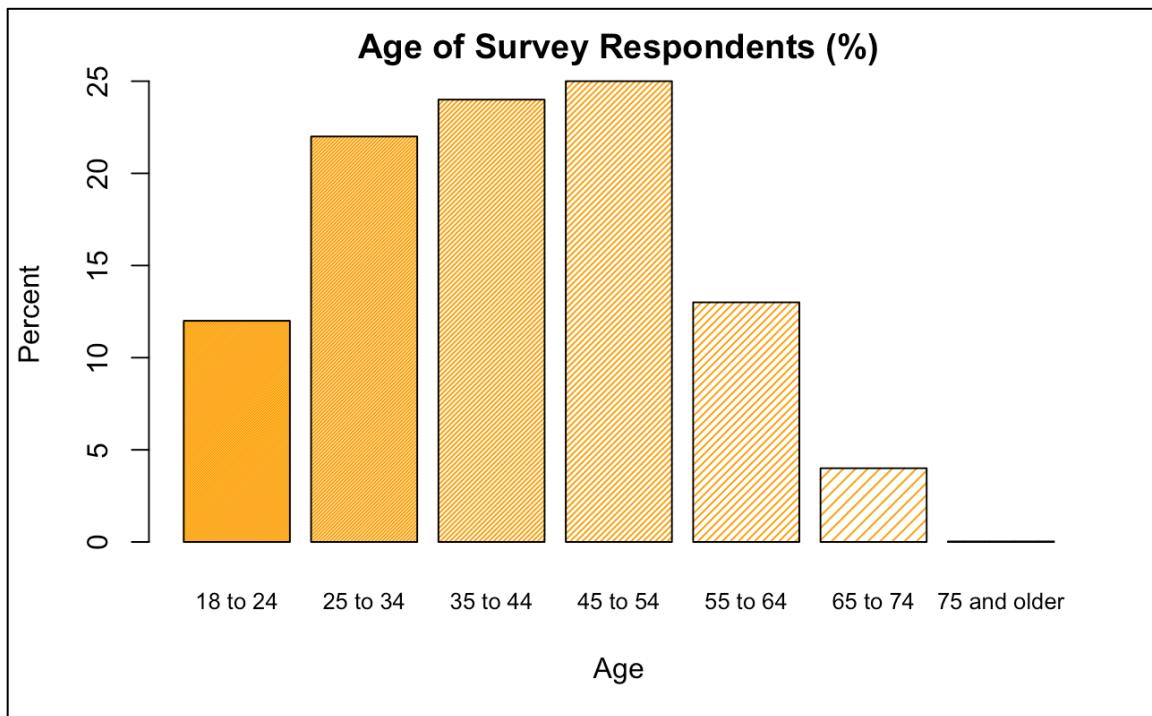


Table 3. - Distribution of education of survey respondents

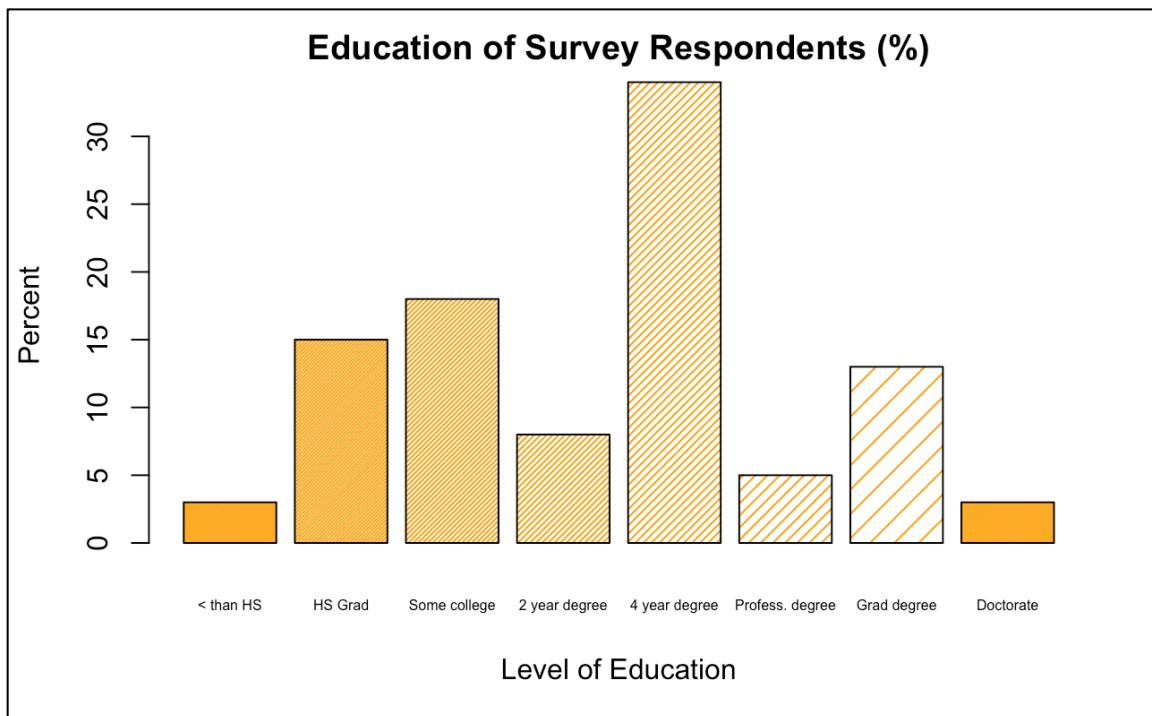
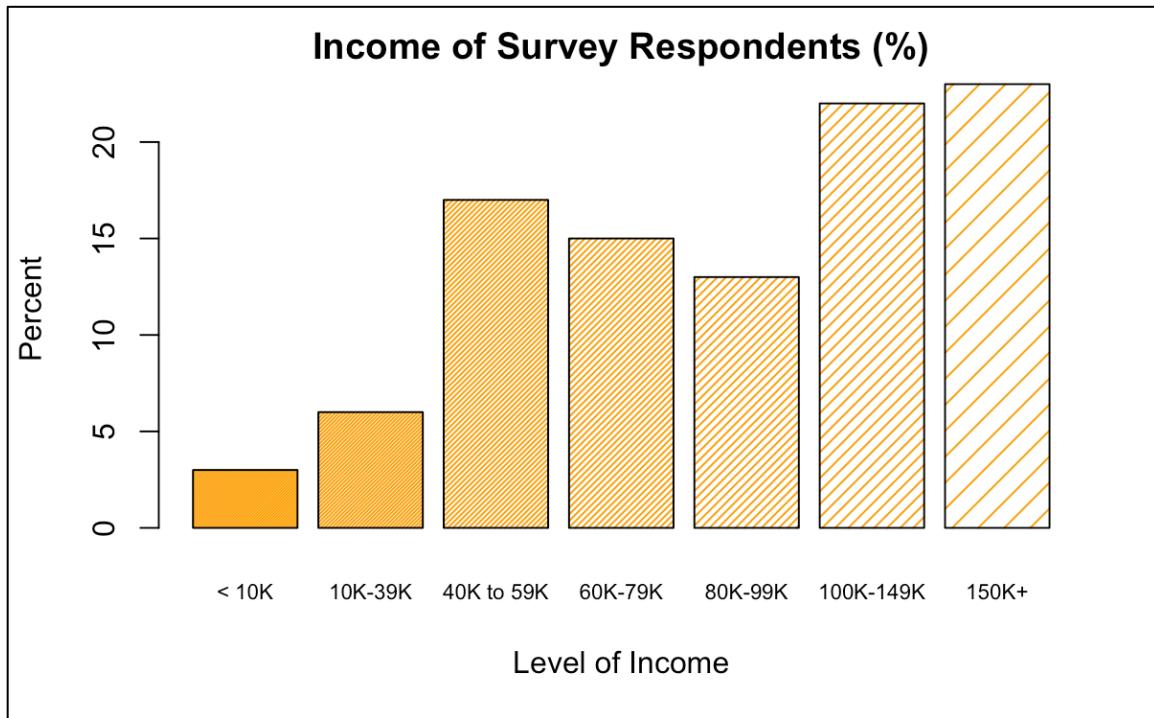


Table 4. - Distribution of income of survey respondents



Of the survey respondents, 86% were white/Caucasian and 83% were men. This demographic is found in most of the literature (Arlinghaus, 2006; Beardmore, et. al. 2015, Ditton & Fedler, 1986; Ditton & Gill, 1991, Fedler & Ditton, 1983, Holland & Ditton, 1992; Petering et. al., 2011). Moreover, 22% of respondents were aged 25-43, 24% were aged 35-44, 25% were aged 45-54, as shown in Table 2. While, as seen in Table 3, 34% of respondents had 4-year degrees. Lastly, 45% of survey respondents had a higher level of income (\$100,000 +) as seen in Table 4.

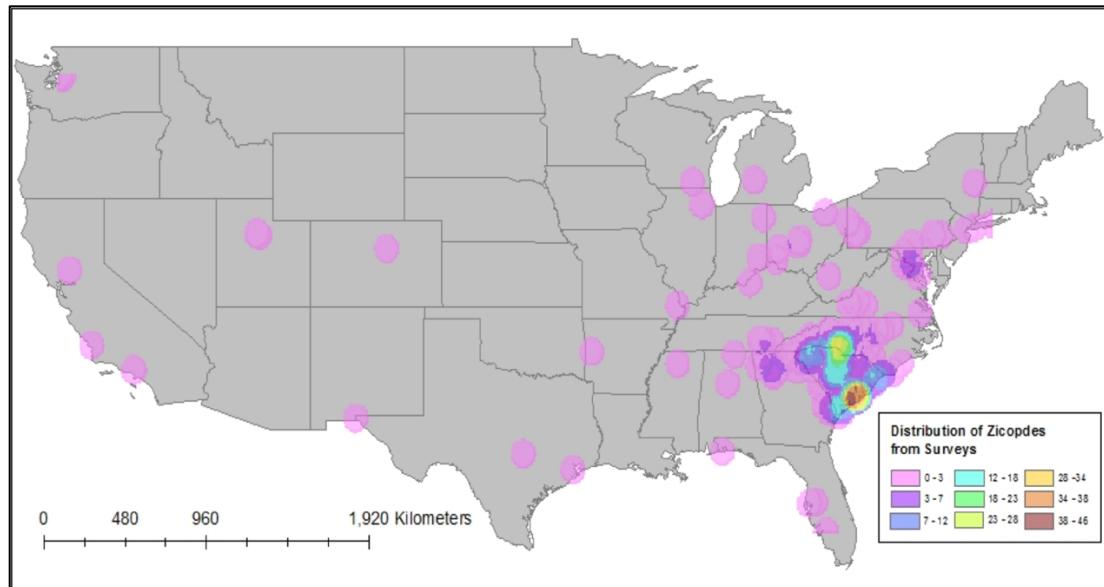


Figure 8.- Distribution of U.S. zip codes from survey respondents

A density map of residential zip codes, above in Figure 8, shows a spatial representation of where survey respondents traveled from to South Carolina. As the map shows, customers come from all over the continental U.S., however, there are hotspots from the surrounding region. It should be noted that this survey was picked up by a regional online fishing magazine, Carolina Sportsman, which potentially biases the map and survey data and exhibits hotspots in the local area.

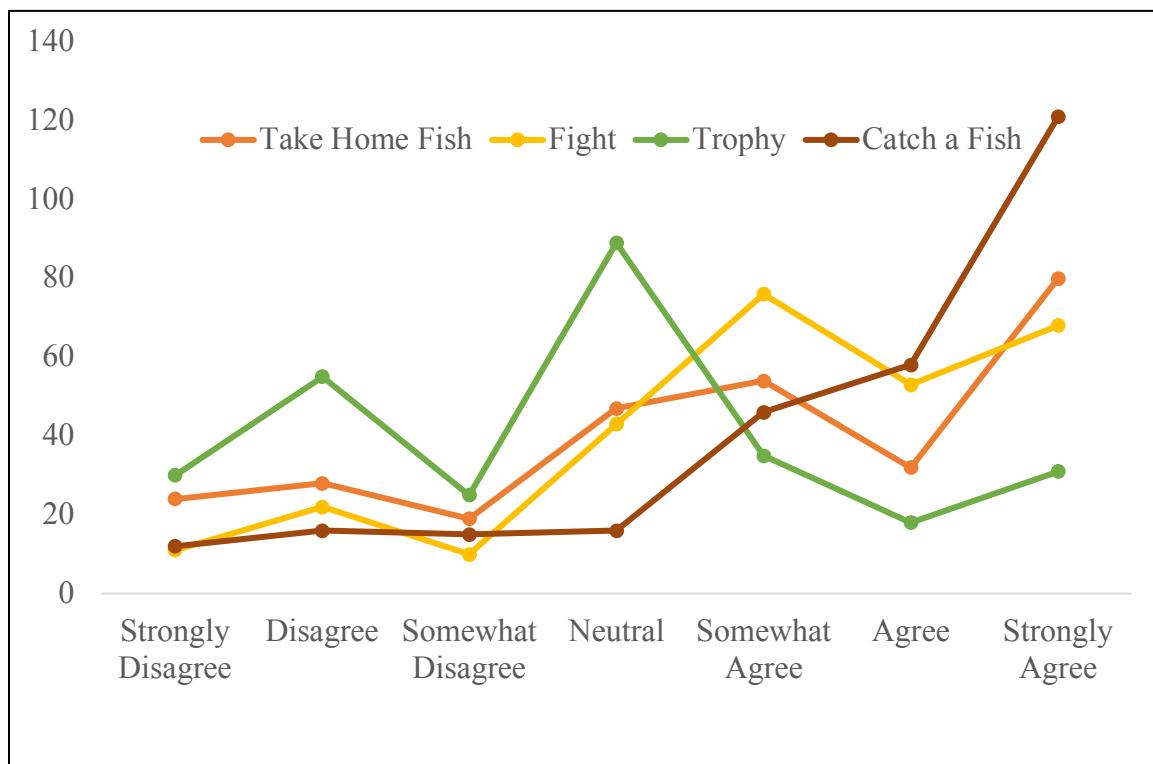
Yet, while onboard these trips I met many people from all over the country with the majority coming from the southeast region. Seemingly most people aboard these for-hire trips were vacationers and/or out-of-towners. This is supported by my observations and interviews with captains and crew members. A majority of customers were families or friends out fishing together. This was true on both headboat and private charters. For instance, while aboard one private charter in Hilton Head there was a father and two sons from Virginia:

“I asked if they had ever been offshore fishing before and the son said ‘No.’ I asked why they decided to take this trip today and he said it was mostly to spend time with his brother and father. That they didn’t get to see each other very often anymore or get to spend time together and that this trip was so that they could.” - Field notes, HH-PC, 4.17.2017

Many of the captains and crewmembers who I interviewed reiterated this statement. That customers were typically families that were out looking to spend quality time on the water. As one headboat crewmember described:

“[Customers] just want to have a good time. It’s like a family thing” – Interviews, HH-HB, 4.18.2017

Table 5. – Count of survey responses to catch-dependent factors



Above, in Table 5, shows the responses to the catch-dependent factors table in the questionnaire survey. This shows that catch a fish was ranked as the highest driver in

making a fishing trip successful, followed by taking home fish, and fight with fish.

Catching a trophy fish was ranked the least important.

Table 6.- Ranking of means of catch-dependent factors table

11. A FISHING TRIP IS NOT A SUCCESS UNLESS:

	<u>MEAN</u>
I catch a fish	5.56
I have an exciting fight with a fish	5.06
I take home fish	4.74
I catch a trophy fish	3.78

Above, in Table 6, shows the mean of survey responses on the Likert scale rating of catch-dependent factors. Survey responses were quantified and assigned numbers 1-7, with 1 = strongly disagree (SD), 2 = disagree (D), 3 = somewhat disagree (SWD), 4 = neutral (N), 5 = somewhat agree (SA), 6 = agree (A), and 7 = strongly agree (SA). As shown in Table 3, catching a fish (5.56) has the highest mean for what makes a successful fishing trip, while fight with fish (5.06), and taking home fish (4.74) closely followed. Catching a trophy fish contributes the least out of the catch-dependent factors to having a successful fishing trip with a mean of 3.78, suggesting the BSB fishery is not a trophy fishery.

3.1. Hypothesis 1

H₁: *If catch rate is high, trip satisfaction will be high*

This hypothesis was supported through observations, interviews, and survey data; catch rate had a positive relationship with satisfaction. This held true for both customers and captains/crew alike. Observations greatly supported this finding and allowed witness to the difference of a fishing trip with a high vs. low catch rate. A satisfied group of customers experiencing a high catch rate was seen on a private charter trip in Hilton Head:

“While none of the fish were very big all of them seemed entertained and content that they kept catching fish. They were not a boisterous group, but seemed content quietly fishing.” – Field notes, HH-PC1, 4.17.2017

With more evidence occurring on a head boat trip in Myrtle Beach:

“The second spot was a flurry of activity. People were pulling up black sea bass left and right. The crowd seemed much more happy and excited.” - Field notes, MB-HB1, 5.17.2017



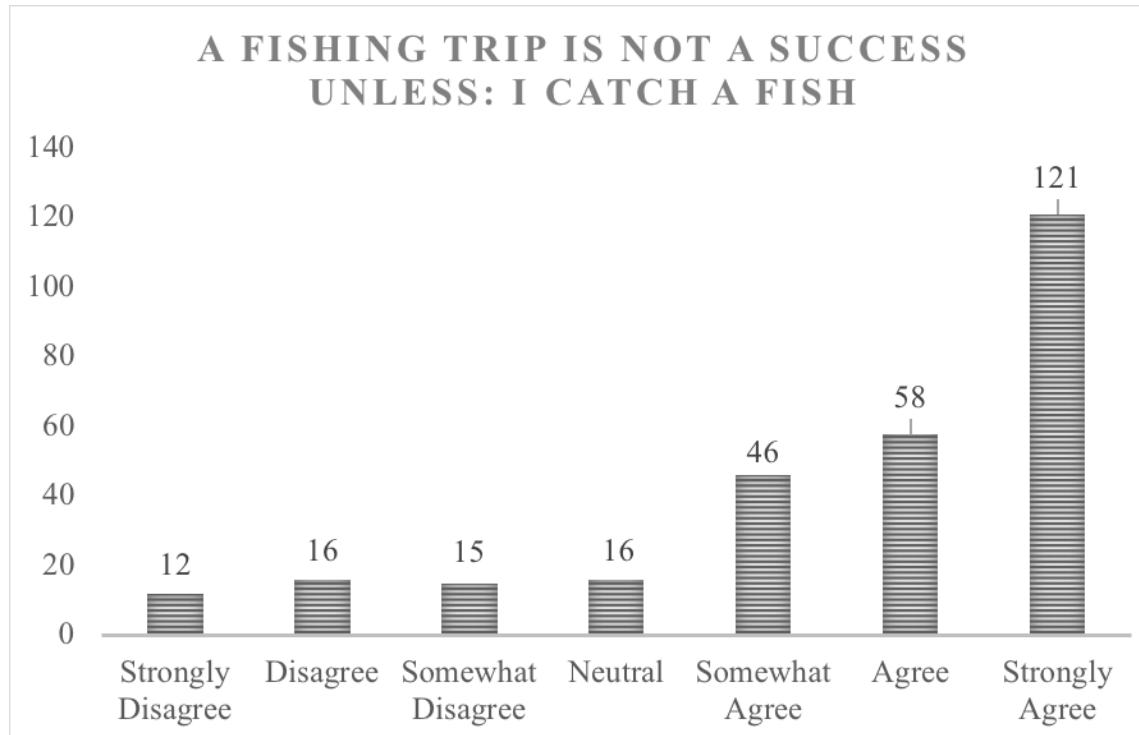
Figure 9. - Customers fishing onboard a private charter

Meanwhile, onboard this same trip customers experienced a low catch rate overall and their feelings towards the experience were evident:

“The first stop they were very few bites and you could see people’s disappointment... Then again the lines were pulled up and we were set on another drift which had even less fish. People seemed to be trying to fish less and less. Then we dropped lines at another spot at 1143 and then again at another spot at 1201. This last stop had even fewer fishing biting and people seemed to be losing steam and excitement. The oldest son from Missouri had been trying all this time, but also seemed to be losing interest. Finally, at 12:04 the captain announced that we were heading back in and to pull all lines up. Everyone, minus a few, seemed ready to leave. It was a mixture of relief of being done with fishing on the boat and others being disappointed that they weren’t taking anything home.” – Field notes, MB-HB, 5.17.2017

Thus, customers enjoy a high catch rate which fits the profile of the type of angler onboard these for-hire trips, i.e. low participation anglers who wish to catch fish.

Table 7. - Survey respondents answers ranking "I catch a fish"



This finding was additionally supported in the survey data. Survey responses ranking the importance of “I catch a fish” is seen above in Table 2. This reiterates that catching a fish is considered important for a successful fishing trip. This high catch rate, however, is not specific to BSB. Customers were happy catching a diversity of species. Species identified while onboard these trips were: Atlantic sharpnose shark, black drum, cobia, Dusky shark, grunts, pinfish, porgie, oyster toadfish, red snapper, redfish, sandbar

shark, sea robin, spanish mackerel, spinner shark, tomtate, triggerfish, and vermillion snapper. Therefore, catching a lot of any type of fish drives trip satisfaction.

Yet, while customers are highly catch-oriented there is a diminishing marginal rate of satisfaction if catch continues to yield small or undersized fish that are discarded. Examples of this were seen on a private charter trip:

“After lunch I got offered a rod to fish and caught one keeper sea bass. There were mostly small ones that had to be thrown back. At one point they were only about 6 [out of 14] people fishing or so. Most had gone back to drinking and relaxing in the AC in the cabin... Over the next hour most everyone stopped fishing and at around 13:50 there were only 4 people still trying. Most were napping or chatting. They were chartered for an 11-hour trip.” – *Field Notes, CHS-PC1, 8.24.2017*

This diminishing rate of satisfaction was particularly true when concerning BSB. Most BSB caught were undersized (<13-inches) and you could see a decrease in satisfaction in customers while they continued to catch small BSB. This was observed on many trips, but this quote from the field notes while observing a private charter exemplifies this reaction:

“At around 10:46 to 11AM we hit our last drifting bottom fish spot and you could see everyone was getting tired of reeling in small BSB.” – *Field notes, MB-PC1, 5.16.2017*

Thus, when appeasing customers aboard for-hire trips it is necessary for catch rate to maintain high; yet, if catch rate is high and discard is high then satisfaction will decrease with the continued experiencing of catching undersized fish. Additionally, catching of undersized fish (i.e. discard) was mentioned by many captains/crewmembers and its effects on trip satisfaction is discussed further in the additional factors section.

3.2. Hypothesis 2

H₂: The more fish taken home, the higher the satisfaction.

From my research, this hypothesis was not supported. Satisfaction did seem to increase as there were more fish to take home, however, most customers did not wish to take an abundant amount of fish. As stated above, customers were mostly vacationers or out-of-towners and only wanted to bring home enough fish for a meal that night. The number that was most frequently mentioned, by both customers and captains/crew, was three to five fish. Beyond that, more fish was problematic than beneficial. This was observed on many trips where customers vocalized their wish to have *some* fish for dinner. One example of this desire was observed while fishing on a private charter in Hilton Head:

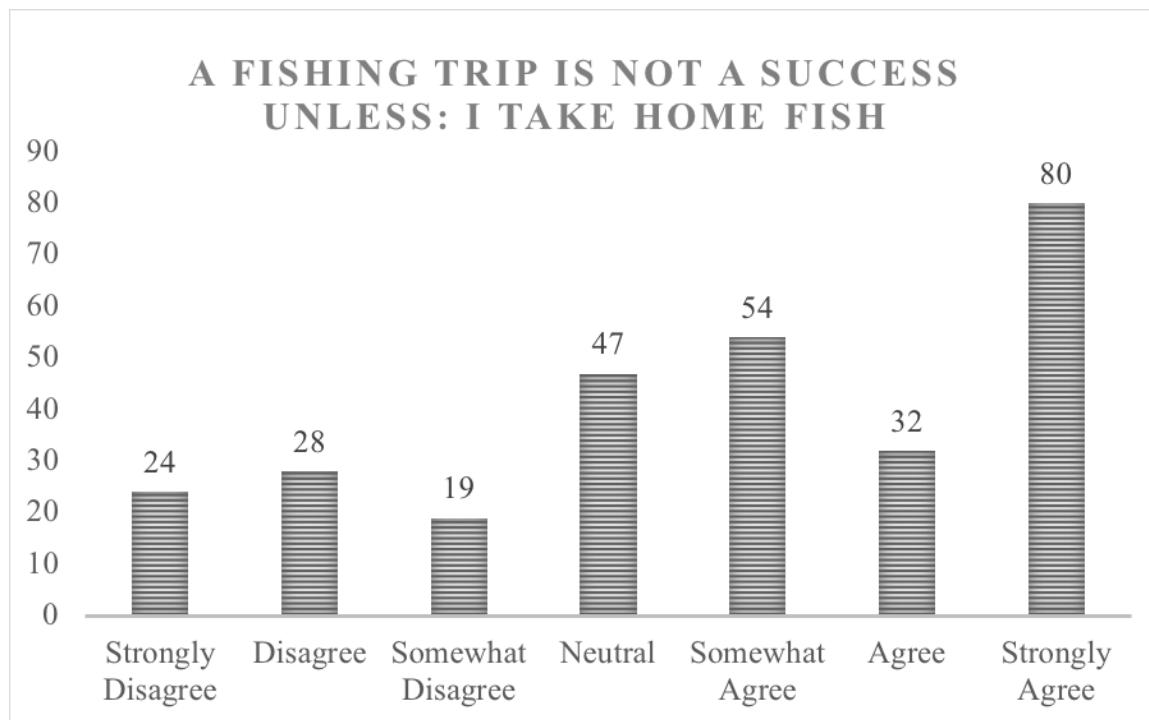
“In the briefing [the captain] asked what the gentlemen wanted to do and what was important to them. He asked if there was any specific fish they were looking to catch and they all agreed they just want to catch fish. He then asked what was important to them, such as bringing home fish for dinner. And they all seemed to perk up and said they would really like to do that.” – Field notes, HH-PC, 4.17.2017

Similar attitudes were observed while onboard head boat trips. An example of this was an interaction I had with a father/son duo onboard a head boat trip in Murrell’s Inlet:

“The son said that his goal for the day was to catch sea bass. I asked him if wanted it for dinner and he said that’d be nice, but he just wanted to catch one.” – *Field notes, MI-HB trip, 6.17.2017*

Thus, from my research the more fish you can take home does not lead to greater trip satisfaction. Instead, as long as you can take some fish home, trip satisfaction will be high.

Table 8. - Survey responses ranking "I take home fish"



Moreover, this desire to take fish home was supported by survey results.

Therefore, taking home fish does contribute to trip satisfaction, but might not be as important as other factors.

This attitude of taking home fish for dinner was also reiterated by captains and crewmembers in interviews as well. Captains mentioned the demographic of their customers and how they wished to satisfy them. As one head boat captain said it is their goal for most trips:

“I...well it depends but the majority are just happy to catch a fish...they’re quite easy to please as long as we can catch them something. Now majority I would say probably do want to make sure that they have something on their dinner plate. And that’s, that’s always our goal. Particularly mine. Yeah, we’re not out there you know to stock the freezer...cause remember they’re on vacation so they just want to catch and eat what they caught. Particularly for the night. We try to promote that for them.” – Interviews, HB-HH, 4.18.2017

Therefore, this does not support my hypothesis that the greater number of consumable fish you can take home, the greater trip satisfaction will be. But instead, that taking home some fish for dinner is a driving factor of trip satisfaction in customers of the for-hire industry.

3.3. Hypothesis 3

H₃: The lower the bag limit, the lower the satisfaction.

My research found this hypothesis was not supported, a lower bag limit would not decrease trip satisfaction. From my observations and conservations with customers most were not aware of bag limits and relied on captains and crew members for reference. This lack of knowledge of bag limits was supported in interviews with captains and crew. For example, the following quotation from the interview data supported this finding:

“Have customers reacted to the change in bag limits?
Not really. They don’t know about it.

They don’t know about it?

Most of them don’t. Some of them do. Our repeat customers that come back you know ‘oh we keep seven now’, they go ‘ok cool’. Ok let’s go get it...that’s all you can do.” - *Interviews, Crewmember, MB-HB, 5.18.2017*

Customers were mostly interested in catching fish and did not seem to be aware of bag limits. As exemplified in a discussion I had with a family onboard a headboat:

“I chatted with an older couple with a kid who looked to be their grandchild but did not ask. They said they were from Ohio and were here for his spring break. I asked if they did much fishing and the man said he usually fished on lakes for walleye and perch and that they had never used bait before, mostly lures...I asked if what they were expecting out of the trip and they said mostly to catch something.” – Field notes, HH-HB1, 4.18.2017

Table 9. - Survey responses to question 14

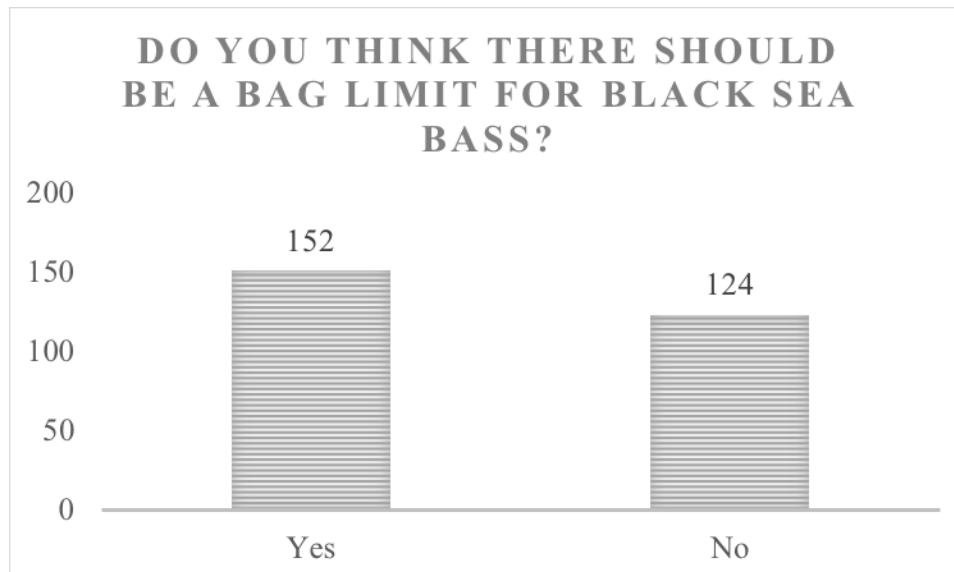
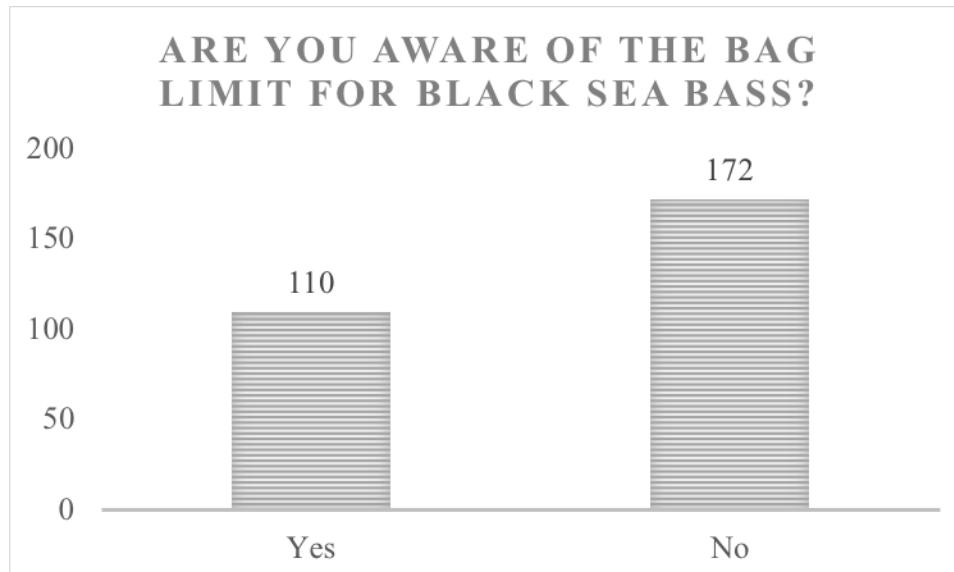


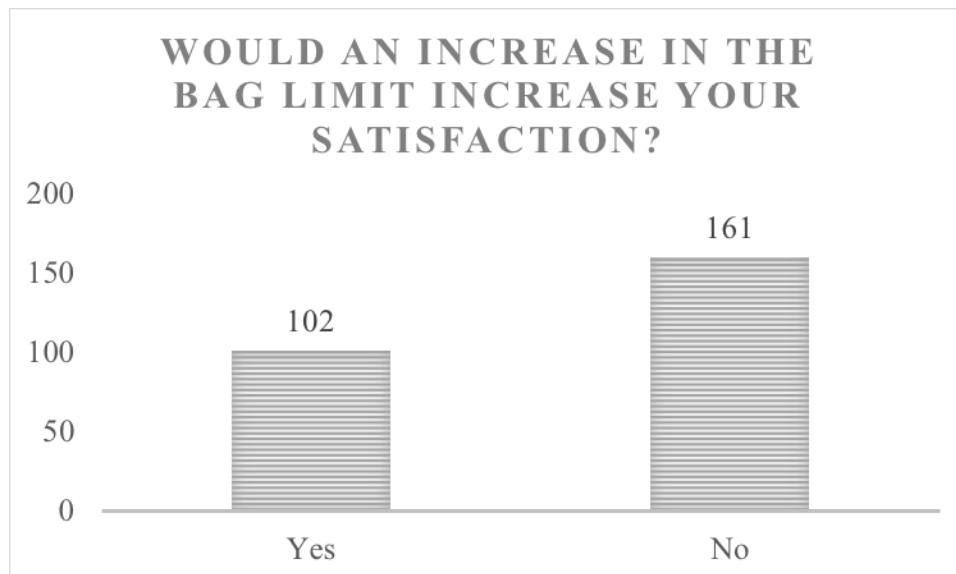
Table 10. - Survey responses to question 17



Moreover, survey data supports the finding that bag limits do not affect trip satisfaction. Table 6 exhibits respondents answers to questions regarding BSB bag limits and while 53% of respondents believe a bag limit for BSB should exist, only 38% were aware of the bag limit which is shown in Table 7. Further, when asked what the current

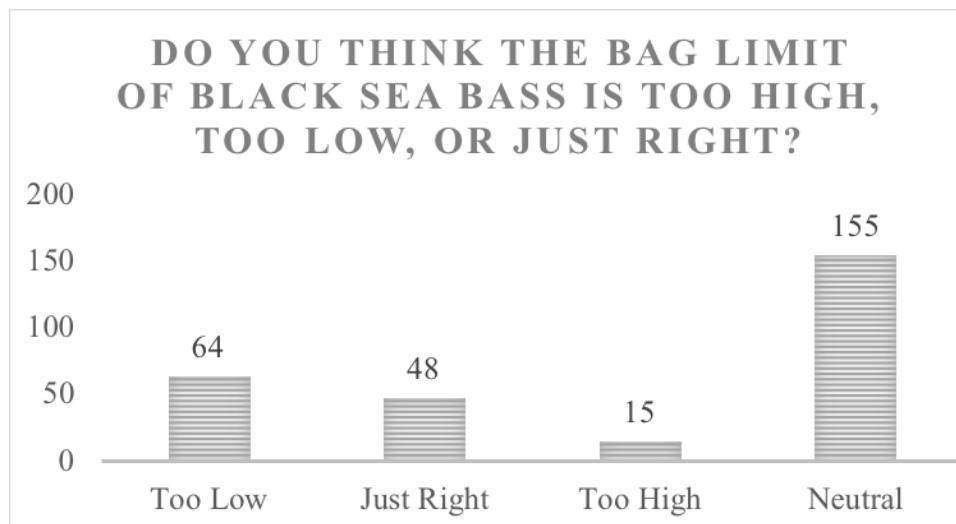
bag limit was only 20% of respondents knew. This lack of bag limit knowledge is most likely due to the customer demographic, i.e. tourists, onboard for-hire trips.

Table 11. - Survey responses to question 18



To further determine if there was a relationship between bag limits and trip satisfaction I performed a t-test on survey question 18, survey responses are shown in Table 8. The t-test was found to be statistically significant ($p < 0.001$) that an increase in the bag limit would not affect satisfaction.

Table 12. - Survey responses to question 19



This is further supported by respondents' answers to question 19, which is shown above in Table 9, where 54% of respondents selected neutral in regard to their attitudes toward BSB bag limits. Thus, if bag limits do not affect trip satisfaction then one can surmise that low bag limits would not affect trip satisfaction.

While my data suggests that low bag limits would not decrease satisfaction this finding is most likely specific only to BSB. That is because the size limits of BSB are restricting anglers from filling their bag limits. As mentioned in the introduction, anecdotal data had suggested that anglers were not catching keeper size bass of 13-inches. Most recreational fishermen were reeling in 12-inch fish and not filling the bag limit of 7-fish-per-person. Through my observations these anecdotal stories were supported:

“Once the initial flurry of bites died down you could start to see the disappointment on people’s faces as they continued to hook small Sea Bass.” – *Field notes, HH-HB, 4.18.2017*

“They were two brothers from Bristol, TN. They had never been out fishing in the ocean before and were expecting some big fish. They were disappointed in all the small fish they were catching and weren’t keeping.” – *Field notes, MB-HB1, 5.17.2017*

As one fishing captain put it:

“[the bag limit] doesn’t really affect us because we...we the size limits more of our problem. We can’t get enough big ones to even reach a limit so...so the size is restricting it anyways. So [the bag limit] doesn’t really matter.” – *Interviews, HH-HB1, 4.18.2017*

Table 13.- Overall number of ‘satisfaction’ and ‘dissatisfaction’ code co-occurrences with catch-dependent factors

CATCH-DEPENDENT FACTOR CODES	NUMBER OF CODE CO-OCCURENCES	
	<u>Satisfaction</u>	<u>Dissatisfaction</u>
<i>Catch Fight</i>	7	0
<i>Catch Rate</i>	27	14
<i>Catch Number</i>	46	17
<i>Catch Size</i>	18	28

This dissatisfaction with size also emerged in my analysis of the qualitative data. As seen above in table 10, the highest number of code co-occurrences with dissatisfaction was with catch size, i.e. the 13-inch minimum size limit for BSB. While my research focused on bag limits, size limits seem to have the greatest affect on satisfaction when discussing BSB.

Throughout my interviews, captains and crewmembers mentioned reducing both the size and bag limit. Roughly, 70% of the captains and crewmembers interviewed mentioned taking this action. As one captain stated:

“I think [BSB] are a little overregulated... they need to cut down on the size of the fish and maybe reduce the bag limit by a couple fish to compensate for it. I think the number is fine, but the size limit needs to be cut back down to twelve. But like I said I’m willing, I’d like to see it I mean if you had to...go to three or five fish per person to twelve with...you know would work better for the tours and for the people that’s just want to go fishing.” – *Interviews, MB-PC 1, Captain, 5.16.2017*

According to these fishermen, reducing both the bag and the size limit would compensate to appease customers and the pressure on the fishery. The captain above alludes that people “just want to go fishing”, which through my observations described most of the customers onboard, particularly on half day trips. As stated in H₂, most customers derive satisfaction from keeping a few fish and there was noticeable dissatisfaction when people were unable to keep any. Many of the captains and crewmembers referenced it as well. For example, it was an unpleasant sight to see customers leaving a trip like this:

“Finally at 12:04 the captain announced that we were heading back in and to pull all lines up. Everyone, minus a few, seemed ready to leave. It was a mixture of relief of being done with fishing on the boat and others being disappointed that they weren’t taking anything home. Most fish were thrown back and only five fish out of a group of 19 people were brought home. With probably over 100 bites and with some of those bites having two fish on a line. So roughly 200 fish and out of those only five were taken home.” – field notes, MB-HB, 5.17.2017

Therefore, size limits and discard of BSB have an effect on satisfaction in the for-hire industry in South Carolina.

3.4. Additional Factors

In addition to the hypotheses above, my research found other contributing factors to trip satisfaction. My mixed method approach allowed for the discernment of other driving factors to trip satisfaction that were both relevant and independent of catch-dependent factors. Below are the additional factors I found that contributed to trip satisfaction in the for-hire industry in South Carolina.

3.4.1. The Fight and the Shark



Figure 10. - Atlantic Sharpnose Shark

Another catch-dependent factor that was found to drive trip satisfaction in the for-hire industry is: fight with a fish. While observing, people seemed to grow bored of undersized fish that did not seem to fight indicating that fight was important. This particularly seemed true since satisfaction seemed to decrease with catch rate if there was little to no fight with a fish.

Table 6- Ranking of means of catch-dependent factors table

11. A FISHING TRIP IS NOT A SUCCESS UNLESS:

	<u>MEAN</u>
I catch a fish	5.56
I have an exciting fight with a fish	5.06
I take home fish	4.74
I catch a trophy fish	3.78

The survey data reiterates the importance of fight with a fish, as can be seen again in Table 6. Fight with a fish was in second (5.56), behind catch a fish, as to what makes a successful fishing trip for respondents. This noticeable importance of fight for customers has led many for-hire operations to target sharks. Sharks are abundant in South Carolina waters and were mentioned in interviews with captains and crew members. One headboat captain discussed how sharks have aided their business in the past few years.

“Half a day inshore you lucky if you get a dozen fish on a boat. A keeper bass. Sharks has helped us a lot over the years. We started catching more and more sharks so that’s helped us out a lot. People enjoy that. A lot of people eat ‘em now too.” – Interviews, MB-HB, Captain, 5.18.2017

This penchant for sharks was also observed while aboard two private charters as well. While on one private charter trip, one of the customers continued to experience the

effects of sea sickness so the captain redirected the attention of the group to target sharks in a protected area where the water was calmer. While on another trip, the customers were beginning to become disappointed from the lack of catch rate and fight, so the captain suggested targeting sharks as a way to excite his customers.

“At around 10:46 to 11AM we hit our last drifting bottom fish spot and you could see everyone was getting tired of reeling in small BSB. Around 11:26AM this is when the captain proposed a gamble of going somewhere they could potentially catch a 100lb black tip shark. The customers responded with an eager, yes.” – Field notes, MB-PC1, 5.16.2017

This group of repeat customers had the goal of fight with a fish. After successfully reeling in a 50” Atlantic Sharpnose, one of the customers was quoted saying: “I’m happy, that’s all I wanted. So we’re good now.” Therefore, sharks play an important role in aiding for-hire captains and crews with providing fight with a fish; a key driver in trip satisfaction.

3.4.2. Customer Service and Non-Catch Dependent Factors



Figure 11. – Posing with my catch of BSB

One theme that continued to pop up among captains and crewmembers was the importance of customer service in driving trip satisfaction. Most of the businesses observed prioritized this, especially with the power of the internet and potential backlash of online reviews. This was mentioned by a few fishing crews and from my own observations you could see the difference between those that prioritized customer service and those that prioritized customer volume. As one captain explained:

"If I'm not catching I might go to four or five or six spots even if I don't catch at those four or five or six spots I have shown the customer that I've put in the effort. I've demonstrated "hey man we're driving all over the place I'm burning way more fuel than usual" which is my biggest expense. I'm putting in the hard time and we're trying our butts off here to find you guys fish, it's just not happening today guys I'm really sorry. Nine out of ten customers understand and are ok with it, I'll get that one out of ten that will be upset. And they usually don't express their upsetedness, they're not yelling at us or anything. They're quiet, they may not tip, they'll be cranky and grumpy and mopey and then they'll just leave. And occasionally they'll give us a bad review. Although usually if we try really hard we don't get a bad review even if we don't catch because people appreciate the effort." – *Interviews, Captain, HH-PC, 4.17.2017*

While being onboard a positive attitude can truly go a long way. The above captain alludes to the common fishing adage, "that's why they call it fishing, not catching".

In addition to customer service, there are many non-catch dependent factors that drive trip satisfaction that are out of the hands of captains and crews. One noticeable factor is the issue of weather. Weather can cause adverse conditions such as rough seas or heat. Rough seas was a common problem that negatively affected customers trips, including my own on occasion:

"I talked to the [captain] and mate a bit on the way out. As we got further and further out though I continued to feel worse and worse. I think what I had for breakfast was starting to revolt." – Field notes, MB-PC1, 5.16.2017

While turbulent water can greatly affect trip satisfaction an even greater problem, particularly in South Carolina in the summer, is the heat. Heat plays a significant role

while fishing, especially on a full-day fishing trip. While aboard one full-day trip, the attitude of the fishing mate and customers noticeably decreased throughout the day as the sun continued to rise, causing many to seek comfort in the air-conditioned galley.

“After lunch I got offered a rod to fish and caught one keeper sea bass...Most onboard had gone back to drinking and relaxing in the AC in the cabin. It was an incredibly hot day...Over the next hour most everyone stopped fishing and at around 13:50 there were only 4 people [out of 14] still trying. Most were napping or chatting. They were chartered for an 11-hour trip and at one point the mate quietly said ‘It’s fucking hot, when is this over?’” – Field notes, CHS-PC1, 8.24.2017

Therefore, non-catch dependent factors also contribute to trip satisfaction while onboard. Customers can become tired from the heat, length of trip, and general exhaustion of being on rough seas.

3.4.3. Length of Trip

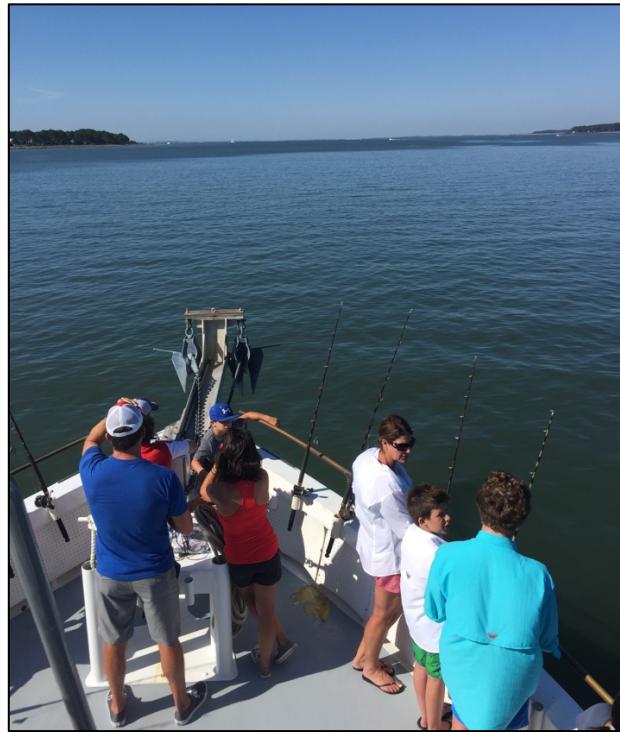


Figure 12. - Customers on board a headboat trip

One important factor I teased from my research is the vastly different demographic these boats take out, not dependent on charter type, but on length of trip. Before this project, I surmised that the demographic of customers that these businesses catered to would greatly differ between charter types, but from my observations, that was not true. Instead the length of trip, i.e. half day, three quarter day, and full day, dictated the type of fisherman on board. Both private charters and head boats offer multiple fishing trip experiences. Half-day charter trips comprised of families and tourists wishing to get on the water for an afternoon or morning, where they mainly engaged in bottom-fishing activities targeting BSB. While full-day or three-quarter charter trips were composed of more serious fishermen seeking to bring home more and bigger fish. As one captain discusses BSB he mentions how offshore or inshore fishing directs your catch:

“A lot of people don’t even know what we are going to catch [laughs]...And probably after the half day’s trips they...that’s something they probably don’t want to do again. If they’re serious fishermen. These half day trips umm catch a lot of fish but as far as quality goes it’s not up to big quality. But quantity, we usually catch a lot. It’s more of a family trip, I feel like a half day trip.” – Interviews, MB-HB, 5.18.2017

Therefore, length of trip is important to consider when discussing bag limits and their affect on trip satisfaction.

3.4.4. Changing attitudes



Figure 13. – Catch from a private charter

Throughout my research, I heard a common theme from captains who had been fishing for generations. Those who had been fishing for 20+ years said they have seen a change in the demographic of their customers, particularly in places like Myrtle Beach and Murrell's Inlet, who are seeing less and less locals onboard. Captains mentioned the days where customers drove from the upstate down to the coast for the day to fill their coolers, however, these days this is a rare occurrence. According to some captains, as tourism rises in South Carolina the attitude of its visitors seems to be changing. Only one area was still dominated by locals (Murrells Inlet), while Myrtle Beach, Charleston, and Hilton Head had a volume of out-of-state visitors.

Murrell's Inlet was the most interesting location that had the largest number of local or regional customers. While surveying a full day, or gulf stream, charter trip off of a headboat most of the fishermen exited with full stringers of fish. After surveying the

customers I spoke with one fisherman in the parking lot who lived locally in Murrell's Inlet. He talked to me about how the tourists have come in volume and how the fish population has decreased over the years. He says the change in the demographic of residents in the area is very noticeable and is reflected in the decreasing fishery. This perception may not be unique to this individual and is important to note.

Although, according to one captain, he believes the overall attitude of fishermen is changing. He discusses this change in the statement below:

"[sighs] You know, some of 'em....today's fishermen are different from what they were twenty years ago in the half day business. They lookin to just to go have a fairly decent time they'd like to have some fish but they don't get as upset as they used to twenty or thirty years ago. The ones that really want fish will go offshore for bigger stuff and even then there's a limit on how many you keep... Because thirty years ago I was hollerin...I was raised for five or ten year by my grandmother you ain't kill nothin' unless you eat it. And I was hollerin' then 'look throw the little ones back. Throw 'em back.' 'Oh no we gonna take 'em home.' They get to the dock then they would throw 'em in the garbage can. I seen six-foot stringers of fish sittin' in the garbage can thirty years ago." —*Captain, MB-HB, 5.18.2017*

This change in mindset is interesting to note, especially since the BSB fishery was experiencing overfishing not too long ago. While customers' attitudes and perceptions are changing, management can learn to adjust. This goes back to the reduction of size limits as well as bag limits, as it seems that many are no longer striving to fill coolers, but instead only trying take a few fish home for dinner.

4. DISCUSSION

4.1. “Catch fish, have a good time, enjoy.”

This quote from a private charter captain sums up most anglers desire from a fishing trip, whether they are a customer, captain, or crew member. Simplistically, this is what most customers seek to find in a for-hire fishing trip. Questionnaire survey, interviews, and observation data support the literature in that catch-dependent factors have the most direct effect on trip satisfaction, specifically catch rate. As long as customers are catching fish, trip satisfaction is high for all. This echoes the findings of the literature and that satisfaction is derived from catch-dependent factors across all catch-orientation classes (Arlinghaus, 2006, Beardmore et. al., 2015, Ditton & Fedler, 1986).

From my research, bag limits do not have much effect on satisfaction which is supported in the limited literature of bag limits affect on trip satisfaction in freshwater species. Through a unique survey method Petering et. al. (2011) found anglers desired to catch fewer fish of a larger average size instead of an abundance of fish. My data supports this finding that anglers of the for-hire industry wish to have fewer, larger fish that they can catch. Moreover, through my research I found that discards and undersized fish appear to have some effect on trip satisfaction. Lastly, the factors that drive trip satisfaction for private charters and headboat charters does not differ.

4.2. Catch-orientation of for-hire customers and catch-dependent factors

Most of the for-hire customers in this study fit the typology of low-participation angler as defined by Graefe (1980). Survey data, interviews, and observations supported

this finding, and customers were highly catch-oriented. As mentioned in the results, most customers derive satisfaction from keeping a few fish and dissatisfaction was noticeable when people were unable to keep any. This is important for managers to stay aware of, because if management is too restrictive it could reduce trip satisfaction and have economic ramifications for for-hire businesses. This sentiment was also echoed in Beardmore et. al. (2015) work, where they advised that managers wishing to maximize angler satisfaction should focus overall on high catch rates and a supply of large fish. If customers have continued negative experiences while onboard this could negatively impact these regional businesses.

This importance on fight is echoed in the literature (Arlinghaus, 2006, Beardmore et. al., 2017, Ditton and Fedler, 1986, Graefe, 1980) and has some relationship with angler skill. In the literature, high participation anglers value fight more heavily than low participation who value high catch rates. Yet, this was not quite true in the for-hire industry as operators have switched to targeting sharks for fight to excite customers; which is possibly due to the presence of smaller fish closer to shore. This sentiment of importance of fight was echoed among many captains and crewmembers, along with more experienced customers as well. It seems that in the marine for-hire industry fight is an important catch-dependent factor across all catch-orientations.

Lastly, through my survey results and observations, catching a trophy fish seemed to rank very low on driving trip satisfaction. This also supports that for-hire customers fit the typology of low participation angler, as they do not put significance on the catching of a trophy fish (Graefe, 1980). While onboard observing I did not witness the catching

of a trophy fish, however, increased satisfaction was noticeable when people caught a large size fish.

4.3. BSB and Current Management

As Beardmore et. al. (2015) found it is very important to understand the ecological profile of the targeted fish species when managing for trip satisfaction. As mentioned in the introduction, BSB are a prevalent recreational species found in the southeastern Atlantic, however, they are considered an offshore species. Larger, sexually mature BSB reside offshore during the summer months and come inshore to spawn in the winter months (McGovern et. al., 2002). Therefore, BSB caught closer to shore are typically smaller, younger fish, while those farther offshore are larger, keeper sized fish. Although, the fish close to shore may not be large they are an aggressive fish that are easy to catch. Reinforcing this was a common phrase among for-hire captains and crew, “drop a line, you’ll catch a sea bass”. This is what makes BSB such a popular recreational species and why they are so important to these for-hire business that rely on them. Since catching a fish is the main driver of trip satisfaction of customers in the for-hire industry BSB are a reliable source for these operators.

Yet, as exemplified in the discussion of the history of BSB management, fisheries change in a temporal way more quickly than management can react. Prior to current management strategies, the BSB fishery was being overfished as high bag limits and low size limits incurred high fishing pressure, crashing the fishery. Management was only able to act after receiving delayed fisheries data, a classic problem for fisheries management. Fisheries managers have limited tools that rely on fishery-dependent data,

and minimal fishery-independent data, causing most fisheries to become depleted before management can take action. Fish reproduce at a quicker rate than scientists can obtain data with fisheries scientists typically working off of fisheries models to project population numbers. Thus, managers are creating regulation based on data from the previous year class. In other words, federal and regional fisheries managers are creating policy based on outdated data in the management process. This classic problem was exemplified in the BSB fishery, which is now deemed as recovered.

One possible reason the fishery recovering is due to the utilization of minimum size limits. Minimum size limits have become an increasingly popular management tool in recreational fisheries as a way to accomplish the twin goal of limiting overfishing and improving fishing quality through increasing the average size of fish caught (Homans & Rulifson, 1999). SAFMC has enacted this strategy to help the BSB fishery, however, as the fishery is recovered it is now important for managers to consider the effect these minimum size limits have on trip satisfaction. Particularly, as the fishery behaves differently from offshore to inshore. Changing the management strategy for BSB bag or size limits dependent on spatial variation might be a consideration for policy makers.

Furthermore, the issue of fishermen's changing attitudes may also be affecting the pressure on the fishery in the for-hire industry. As tourism grows more vacationers and out-of-towners are coming to coastal South Carolina and are less insistent on filling their coolers as previous generations. Through my research, many of the old fishing captains have seen this change over time and are now adjusting their business strategies to appease these tourists. Essentially, for-hire boats are focusing on high catch rate, fight, and taking some fish home for dinner. This is important for managers to consider when making

policy as those onboard for-hire charters no longer may be aiming to hit their limits; particularly on half-day charter trips.

4.4. Non-catch dependent factors

One fishing mate's response summed up the importance of non-catch dependent factors when I asked him about his outlook for the trip ahead, "make the people happy." While my research mainly focused on catch-dependent factors, we must not rule out the non-catch dependent factors that also drive trip satisfaction. As Ditton & Gill (1991) mentioned, non-catch factors greatly contribute to satisfaction. The variables they identified were: 1) safety, 2) expected catch, 3) captain's skills, 4) job performance, 5) presence of family and friends, 6) safe navigation, 7) boat condition, 8) price, 9) weather, 10) services provided, and 11) location or scenery. With two other subjective variables, that were frequently rated as important to angler satisfaction, which were skills and performance of the captain and crew and the safety precautions provided for anglers. Through my observations and interviews, all or some of these variables were important contributors to trip satisfaction. Particularly, since while fishing offshore you are at the mercy of mother nature. These non-catch dependent factors are particularly true for low participation anglers who are trying to experience a fun trip on the water and don't derive all satisfaction from catch. While managers should consider these factors when enacting fisheries policy, the weight of these drivers may be out of their hands.

5. SUMMARY, CONCLUSION, AND RECOMMENDATION

In summary, catch-dependent factors such as catch rate drive trip satisfaction in all stakeholders of the for-hire industry, yet, catch rate driven satisfaction has a threshold for customers. If too many undersized fish are caught and discarded, this can negatively impact trip satisfaction. Customers desire to catch fish and take some fish home, therefore increased bag limits of BSB do not affect trip satisfaction as they are not currently catching enough keeper sized fish. Additionally, fight with fish is another catch-dependent factor that drives satisfaction. This has caused an increase in the targeting of sharks on for-hire charters. Overall, catch rate, fight with fish, and taking some fish home drive trip satisfaction in the for-hire industry in South Carolina. While bag limits and trophy fish have no discernible effect on trip satisfaction. Thus, it is important for managers to be aware of regulations that are too restrictive potentially causing negative impacts on trip satisfaction. Having a negative trip experience due to restrictive management could reduce return business in the for-hire industry and hurt these important economical businesses for South Carolina.

Some important things to note with my research are the ways in which I could improve my project. Particularly, in regard to survey recruitment strategies which could have been strengthened through more outreach and advertising. It should be noted that this survey was picked up by a regional online fishing magazine, Carolina Sportsman, which potentially biases the map and exhibits hotspots in the local area. Yet, while onboard these trips I met many people from all over the country with the majority coming from the southeast region. Furthermore, upon the realization that customers aboard full-day charter trips are more likely to be affected by BSB bag limits, due to larger fish

residing offshore, more observations of full-day trips could have provided greater insight into bag limit effects on trip satisfaction. That being said, most of my data is supported by the literature and timing and funding limitations restricted an ideal employment of my methods.

Regarding how fisheries policymakers can utilize this research, one recommendation for management was the suggestion by captains and crew to decrease both the size limit and bag limit for BSB. This would reduce dissatisfaction due to discard and appease anglers, with the hope that it would have minimal impact on the fishery. This reiterates Arlinghaus' (2006) paper, that high catch rate and supply of fish are important to trip satisfaction and thus is applicable to the marine for-hire industry as well. Additionally, this echoed Fedler & Ditton's (1986) framework and provided implications for fisheries management and research on angler satisfaction; stressing that angler satisfaction is predominantly constrained by activity specific, catch-dependent aspects and thus managers should regulate accordingly. Arlinghaus suggested stocking or creating size limits to continue to provide quality sized fish for anglers. Since stocking is not an option in marine fisheries, another potential option would be to enact policy based on spatial variation with bag and size limits changing dependent on distance from shore. Enacting such a policy may be difficult to enforce, however, it is important to consider. Therefore, adjusting bag limits and size limits is something that needs further deliberation.

Additionally, looking into research on discard and its impact on trip satisfaction would be advantageous. Studying the effects discards have on customer satisfaction is important to understand for managers. This is especially true as some for-hire businesses

employ catch and release fishing, but mostly due to undersized fish. Catch and release has been advocated by management for years in the recreational fishing industry, particularly among freshwater anglers, however, there is a shift moving towards this practice in the saltwater recreational angling community as well. Research has been done on the mortality rate of catch and release on fish, but not much has been done on the effect of trip satisfaction of customers. Thus, this should be studied further.

Another recommendation is to study the prevalence of targeting sharks in for-hire charters in South Carolina. Evaluating the importance of these species would be beneficial to managers as they continue to manage the for-hire industries impacts. Understanding how sharks affect trip satisfaction would inform managers on their decision-making. Lastly, I would recommend focusing research on looking at the perceptions and attitudes of anglers who take full-day for-hire fishing trips. Targeting this subgroup would provide more information on the effects of bag limits of BSB on saltwater for-hire anglers as these trips consist of more high-participation anglers versus the vacationers out for a fun half-day fishing trip.

In conclusion, as management moves towards more an ecosystem-based approach it is important for managers to incorporate social science into fisheries management. Fisheries are an important resource that involve a large human element and a shift is occurring in fisheries management to provide more studies such as this. Social science research is crucial in providing a more holistic picture of a fishery population that hard fisheries data may be unable to deliver.

The findings of this project supply data on factors affecting trip satisfaction within the for-hire industry for South Carolina and by utilizing a multi method research design to

study the economically and recreationally important black sea bass fishery. I was able to evaluate factors that lead to trip satisfaction among charter and head boat clientele. The results of this project provide steps for further research for trip satisfaction. Generating this kind of data helps guide fisheries managers to improve recreational management for stakeholder groups. Agencies such as SAFMC, NOAA and DNR can utilize this information to engage and appease anglers who fuel this economically important activity. Information supplied by this project could improve relations among stakeholders and management agencies by considering the public's needs.

The information from this study is specific to South Carolina, however, it can be applied in locations where charter and head boat businesses power the local economy. Coastal areas where tourism is a major economic factor include destinations such as Mexico, Florida, or Alaska. This data is substantial, attributable, and advantageous for future fisheries and economic management.

LITERATURE CITED

1. Arlinghaus, R. (2006). "On the Apparently Striking Disconnect between Motivation and Satisfaction in Recreational Fishing: the Case of Catch Orientation in German Anglers". *North American Journal of Fisheries Management* 26, 592-605.
2. Baxter, J. and Eyles, J. (1997). "Evaluating qualitative research in social geography: establishing 'rigour' in interview analysis". *Transactions of the Institute of British Geographers* NS 22, 505–25.
3. Berg, Lawrence. (1995). "Chapter 4: A Dramaturgical Look at Interviewing," in Berg, *Qualitative Methods for the Social Sciences*.
4. Beardmore, B., Arlinghaus, R, and Dorow, M. (2015). "Effectively managing angler satisfaction in recreational fisheries requires understanding the fish species and the anglers". *Canadian Journal of Fisheries Aquatic Science* 72, 500-513.
5. Chilvers, Jason. (2009). "Deliberative and Participatory Approaches in Environmental Geography," in Castree et al., eds., *A Companion to Environmental Geography*, Wiley Blackwell: 400-417.
6. Cooke, Steven J., and Ian G. Cowx. (2006). "Contrasting recreational and commercial fishing: searching for common issues to promote unified conservation of fisheries resources and aquatic environments." *Biological Conservation* 128.1, 93-108
7. Cope, Meghan. (2009). "Coding Transcripts and Diaries," in Clifford et al., eds., *Key Methods in Geography*, London: Sage, 440-452.
8. Cresswell, John. (2009). "Chapter 1: The Selection of a Research Design," in Cresswell *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, London: Sage, pp 3-20.
9. Ditton, R.B. & Fedler, A.J. (1983). "A statewide survey of boatowners in Texas and their saltwater fishing activity". *Texas A&M University*.
<http://texasseagrant.org/assets/uploads/publications/1983/83-205.pdf>
10. Ditton, R. B., & Gill, D. A. (1991). "Understanding the market for charter and headboat fishing". *Marine Fisheries Review*, 53(1), 19.
11. Dunn, K. (2005). 'Interviewing' in I. Hay (ed.) *Qualitative Research Methods in Human Geography* (2nd edn.) Melbourne: Oxford University Press, pp. 79-105.

12. Fabrizio, Mary C., John P. Manderson, and Jeffrey P. Pessutti. (2014). "Home range and seasonal movements of Black sea bass (*Centropristes striata*) during their inshore residency at a reef in the mid-Atlantic Bight". *Fishery Bulletin* 12(1), 82-97.
13. Fedler, A. J., Ditton, R. B. (1986). "A framework for understanding the consumptive orientation of recreational fishermen". *Environmental Management*, 10(2), 221-227.
14. Graefe, A. R. (1981). "The relationship between level of participation and selected aspects of specialization in recreational fishing". *Dissertation Abstracts International*, A, 41(10).
15. Hallgren, K. A. (2012). "Computing Inter-Rater Reliability for Observational Data: An Overview and Tutorial". *Tutorials in Quantitative Methods for Psychology*, 8(1), 23–34.
16. Hames, Raymond. (2010). "Production Decisions and Time Allocation: A Guide to Data Collection," in Vaccaro et al, eds. *Environmental Social Sciences*, pgs 35-56.
17. Hardin, Garrett. (1968). "Tragedy of the Commons". *Science* 162, 1243-1258.
18. Holland, S.M. & Ditton, R.B. (1992). "Fishing Trip Satisfaction: A Typology of Anglers". *North American Journal of Fisheries Management* 12, 28-33.
19. Homans, F.R. & Ruliffson, J.A. (1999). "The Effects of Minimum Size Limits on Recreational Fishing." *Marine Resources Economics*, 14:1-14
20. Laurier, Eric. (2009). "Participant Observation," in Clifford et al, eds. *Key Methods in Geography*, London: Sage, 116-130.
21. Lawler, E.E. (1973). "Motivation in work organizations". *Brooks/Cole*. Monterey, California.
22. Longhurst, Robyn. (2009). "Semi-Structured Interviews and Focus Groups," in Clifford et al, eds. *Key Methods in Geography*, London: Sage: 103-115.e
23. McKendrick, John. (2009). "Statistical Analysis Using PASW (Formerly SPSS)," in Clifford et al, eds., *Key Methods in Geography*, London: Sage, 423-439.
24. McLafferty, Sara. 2009. "Conducting Questionnaire Surveys," in Clifford et al, eds., *Key Methods in Geography*, London: Sage, 77-88.
25. Miller, Alicia S., Gary R. Shepherd, and Paula S. Fratantoni. (2016). "Offshore Habitat Preference of Overwintering Juvenile and Adult Black sea bass,

- Centropristes striata, and the Relationship to Year-Class Success." PloS one11.1 (e0147627.
26. Miskelly, Susan. (n.d.). South Carolina Tourism Information. Travel Tips - USA Today. Retrieved from <http://traveltips.usatoday.com/south-carolina-tourism-information-16887.html>
 27. NMFS (National Marine Fisheries Service). (2016). Fisheries Economics of the United States, 2014. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-163, 237p.
 28. Petering, R.W., Isbell, G.L., & Miller, R.L. (2011). A Survey Method for Determining Angler Preference for Catches of Various Fish Length and Number Combinations". *North American Journal of Fisheries Management*, 15:4, 732-735
 29. Peterson, G.L. (1974). "Evaluating the quality of the wilderness environment: congruence between perception and aspiration". *Environment and Behavior* 6:169-172.
 30. SAFMC (South Atlantic Fishery Management Council). (2011). "Regulatory Amendment 9 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region and Environmental Assessment". Charleston, SC.
 31. SAFMC (South Atlantic Fishery Management Council) (2006). "Snapper Grouper Amendment 13C". *Amendment 13C to the fishery management plan for the snapper grouper fishery of the South Atlantic region*. Charleston, SC.
 32. SAFMC (South Atlantic Fishery Management Council). (2016). "Annual catch limit adjustment and revision of management measures for blueline tilefish, fishing year change for yellowtail snapper, and recreational bag limit adjustment for Black sea bass." Regulatory Amendment 25 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. SAFMC, Charleston, SC
 33. Savolainen, Michelle A. (2014). Economic Impacts of the U.S. Gulf of Mexico Recreational For-Hire Fishing Industry. *Human Dimensions of Wildlife* 19:72-87.
 34. SEDAR (Southeast Data, Assessment and Review). (2011). "SEDAR 25: stock assessment report for South Atlantic Black sea bass". *Southeast Data, Assessment, and Review*, North Charleston, SC
 35. SEDAR (Southeast Data, Assessment and Review). (2013). "SEDAR: stock assessment report for Black sea bass off the Southeastern United States". *Southeast Data, Assessment, and Review*, North Charleston, SC.

36. St. Martin, Kevin. 2001. "Making space for community resource management in fisheries," *Annals of the Association of American Geographers* 91 (1): 122–142.
37. Steinback, S, Brinson, A. (2013). The Economics of the Recreational For-hire Fishing Industry in the Northeast United States. *US Dept Commer, Northeast Fish Sci Cent Ref Doc.* 13-03; 49p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://www.nefsc.noaa.gov/nefsc/publications>
38. Strauss, A. (1987). *Qualitative Analysis for Social Scientists*. Cambridge: Cambridge University Press.
39. Valentine, G. (2005). "Tell me about using interviews as a research methodology", in R. Flowerdew and D. Martin (eds) *Methods in Human Geography: A Guide for Students Doing a Research Project* (2nd edn). Edinburgh Gate: Addison Wesley Longman, pp. 110-127.
40. Vaughan, DS, MR Collins, and DJ Schmidt. (1995). "Population characteristics of the Black sea bass *Centropristes striata* from the southeastern U.S". *Bulletin of Marine Science* 56:250–267.
41. Vaughan, DS. (1996). "Population characteristics of the Black sea bass *Centropristes striata* from the U.S. southern Atlantic coast". *Report to South Atlantic Fishery Management Council*, Charleston, SC, 59 p.
42. Watson, A. and K. Till, (2009). "Ethnography and Participant-Observation," in BDeLyser et al, eds. *Handbook of Qualitative Methods in Human Geography*, London: Sage.
43. Wutich, A. and Gravelee, C. (2010). "Water Decision-makers in a Desert City: Text analysis and environmental social science," in Vaccaro, Ismael, et. al. eds, Environmental Social Sciences: Methods and Research Design, Cambridge University Press, 188-211.

APPENDICES

APPENDIX A: Interview Questions for Captain & Crew

Where are you from –

Age –

Name –

Number of years you've been fishing –

How long have you been fishing [insert location] –

Have you captained anywhere else –

What is the average number of trips you have per week –

Average number of customers –

How long have you worked with your current mate/captain –

Do you work together regularly –

When interacting with customers what type of fish do most customers request targeting –

On average, would you say you get knowledgeable or specialized anglers as customers –

How many, if any, request Black Sea Bass –

How likely are you to fulfill your limit of Black Sea Bass –

Do you think the bag limit is appropriate or do you wish you could take more fish –

What is the number one complaint you hear from customers, if any –

How do you feel about today's trip –

APPENDIX B: Questionnaire Survey for Customers

Evaluating Trip Satisfaction in the for-hire industry in South Carolina in regards to Black Sea Bass bag limits

You are invited to participate in this research survey because you were a customer on board a South Carolina charter boat that targets Black Sea Bass. The purpose of this research is to evaluate the factors that affect fishing trip satisfaction in regards to recreational Black Sea Bass bag limits in South Carolina. The results of this study will aid to inform fisheries managers in regards to Black Sea Bass recreational bag limits.

We expect that this survey will take no longer than 5 - 10 minutes to complete. Participation is entirely voluntary, and you may withdraw at any time. Completion of the survey constitutes your consent to participate in this research. All data obtained will be anonymous.

*If you have any questions before completing this survey, please contact the researcher:
Stacey Weinstock, weinstocks@g.cofc.edu.*

6. How often do you fish?

- Multiple times a week Multiple times a month Multiple times a year
Rarely ever

7. How do you compare your fishing ability to other fishermen in general?

- Less skilled Equally skilled More skilled

8. On a scale of 1 to 5 how strongly do you trust fisheries managers? With "1" meaning you greatly distrust and "5" meaning you greatly trust.

- 1- Greatly distrust 2 – Distrust 3 – Neutral 4 – Trust 5 - Greatly trust

9. How frequently do you go on charter fishing trips in a year?

- 1-2 times a year 3-5 times a year 5+ times a year

10. My most recent fishing trip in South Carolina was on a:

- Private Charter Party/Head Boat

Please answer the following questions about your most recent fishing trip on a charter boat:

11. Did you take fish home with you?

- Yes No

12. If yes, how many fish did you take home? _____

13. Did you expect to take fish home with you?

Yes No

14. Did you travel from out-of-state for this charter trip?

Yes No

15. Was charter fishing the sole reason you traveled to South Carolina?

Yes No

Please rate the following statements about your most recent charter fishing trip.

16. A FISHING TRIP IS NOT A SUCCESS UNLESS:

	Strongly Agree	Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat disagree	Disagree	Strongly Disagree
I catch a fish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take home fish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have an exciting fight with a fish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I catch a trophy fish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following questions are regarding Black Sea Bass. Please check the answer you most agree with in regards to the following questions:

12. I like fishing for Black Sea Bass more than most other species Yes No

13. When I go on a charter trip I specifically target Black Sea Bass Yes No

14. Do you think there should be a bag limit for Black Sea Bass? Yes No

15. If yes, what do you think the bag limit should be? _____

16. Are you aware of the bag limit for Black Sea Bass?

Yes No

17. If yes, what is the bag limit for Black Sea Bass? _____

18. Would an increase in the bag limit increase your satisfaction?

Yes No

19. Do you think the bag limit of Black Sea Bass is too high, too low or just right?

Too high
 Too low
 Just right
 Neither agree or disagree

20. Did you know that the bag limit for Black Sea Bass was recently changed from five fish per day per angler to seven fish per day per angler?

Yes No

21. Based on this increased bag limit, how would you rate your trust of fisheries managers? With "1" meaning you greatly distrust and "5" meaning you greatly trust.

1 - Greatly distrust
 2 – Distrust
 3 – Neutral
 4 – Trust
 5 - Greatly trust

The survey is almost complete. Please answer the following questions to tell us a little about yourself.

22. What is the five digit zip code of your primary local residence? _____

23. I am a: Female Male

24. Last year, that is in 2016, what was your total family income from all sources, before taxes?

- Less than \$10,000
- \$10,000 - \$39,999
- \$40,000 - \$59,999
- \$60,000 - \$79,999
- \$80,000 - \$99,999
- \$100,000 - \$149,999
- \$150,000 or more

25. Which of the following best describes your race or ethnic background?

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Something else

26. Age

- 18-24
- 25-34
- 34-44
- 45-54
- 55-64
- 65-74
- 75+

27. Education

- Less than high school
- High school graduate
- Some college
- 2 year degree
- 4 year degree
- Professional degree
- Graduate Degree
- Doctorate

*Thank you for agreeing to participate in this research survey!
As a thank you for participating in this research you have the option to enter to win a
\$100 gift card to Bass Pro Shops! To enter please provide your email address:*

APPENDIX C: Codebook

Code Group	Code	Description	Example
<i>Catch-Dependent Factors</i>		<i>Catch-dependent factors that drive satisfaction</i>	
Catch-Dependent Factors	Catch #	The number of fish customers can take home or harvest or when someone refers to bag limits. In other words, "the max number of 'keepers' they can keep".	<i>"I think right now the [bag] limit's good especially cause you're only catching the keepers in the winter time."</i>
Catch-Dependent Factors	Catch Rate	When someone refers to "bites on a line" or how many fish they are catching. Does not mean fish they are keeping, only refers to the number of times their line receives a bite or they reel in a fish.	<i>"Like today when we were catching how many, but they were only a select few we kept because they were legal size. The other ones were maybe the size of your hand, but they were still having fun like "Wow, I've never caught this many fish before." Like yeah, they're not keeper size, but at the same time they're still having fun."</i>
Catch-Dependent Factors	Catch size	In the South Atlantic there is a minimum harvest size limit for fish. You can harvest, or keep a fish, if it is equal to or greater than size X (i.e. Keeper \geq X). For Black Sea Bass, the minimum harvest size limit = 13 inches. This code is for when fishermen are referring to the size limit or if they mention keepers.	<i>"Ahh, I think the biggest thing right now is the size...the thirteen-inch size limit, I think that's a fairly good size bass. I think that's a little bit...you know if it was twelve inches you'd have a lot more keepers. So the main thing is the size limit, you know. Cause most of the fish we're catching twelve, twelve and half..."</i>
Catch-Dependent Factors	Fight	Whether someone is having a fight with a fish while reeling it in.	<i>"They seemed to enjoy the fight with the shark which took about five to ten minutes to bring up, which was the longest fight they had all day."</i>

Code Group	Code	Description	Example
Associated with Catch Number	Reduce	When someone mentions reducing a size or bag limit, but not when they mention reducing both.	<i>"The bag limit I have no problem with it. Umm actually you can reduce it and I think that would be fine. Three per person is fine."</i>
Associated with Catch Number	Both	When someone mentions reducing BOTH the bag limit and the size limit	<i>"I think [Black Sea Bass] are a little overregulated. That ummm that they need to cut down on the size limit of the fish and maybe reduce the bag limit by a couple fish to compensate for it."</i>
	Excited	When customers get excited about going fishing.	<i>"Then as we anchored there was a rush for everyone to get their rods baited and ready."</i>
	Quality time	When people say fishing is a way to spending quality time with friends or family	<i>"I asked why they decided to take this trip today and he said it was mostly to spend time with his brother and father."</i>
	Customer Service	When the crew or captain talks about the importance of customer service.	<i>"mmm quality trip would be...umm some keepers and ummm basically everybody had fun"</i>
	Discard	Refers to when a fish must be thrown back.	<i>"Like today I threw back, I probably threw back thirty twelve inch sea bass."</i>
	History of Regulations	Whenever one is discussing previous regulations, limits, or the shutdown of the fishery.	<i>"Yeah, not the bag limits, it's all size limits. Cause what was it two years ago? Ten inches? Ten inches and you could actually...that would make a difference. But since then raised it to thirteen inches you just don't really ever get thirteen-inch fish."</i>
	Satisfied	Whether someone says or shows that they are satisfied or content with something, whether nonchalantly or exuberantly	<i>"I'm all about the current bag limits. I think five was a little, a little on the light side. I think fifteen is a little bit on the high side before they changed it. I think seven is right there in the middle and I think it's ideal."</i>

Code Group	Code	Description	Example
	Dissatisfied	Denotes when someone says or shows in their behavior that they are unhappy, dissatisfied, or discontent with an occurrence.	<i>"Size limit I have a problem with. I think it should be back to ten inches again."</i>
<i>Fishermen's Ability</i>	-	<i>Refers to the capability or skill of a fisherman.</i>	
<i>Fishermen's Ability</i>	Experienced	A customer who seems knowledgeable or proficient in fishing.	<i>"I asked if they fished a lot and they said they did out on the Lakes. They were from a small town and did a lot of lake and pond fishing."</i>
<i>Fishermen's Ability</i>	Inexperienced	Someone who doesn't go fishing very often, whether in saltwater or freshwater.	<i>"He said he only went out fishing on this trip every year, otherwise he didn't fish too much."</i>
<i>Fishermen's Ability</i>	Locals	Someone who lives locally.	<i>"I said goodbye and reflected on how that was the largest number of South Carolinans I've met while on one of these boats so far."</i>
<i>Fishing Activity</i>	-	<i>Refers to the activity on a boat while people are fishing</i>	
<i>Fishing Activity</i>	High	Referring to A LOT of activity while fishing, i.e. lots of fishing are biting	<i>"As soon as lines dropped the customers started catching fish"</i>
<i>Fishing Activity</i>	Low	Referring to the LACK of activity while fishing, i.e. not catching anything	<i>"After chatting with them about my project I asked if they had caught anything. They shook their heads saying no, but did not seem to be in poor spirits."</i>
Code Group	Code	Description	Example
<i>Length of Trip</i>		<i>How long of a boat trip they are taking.</i>	
<i>Length of Trip</i>	1/2 day	1/2 day charter trip	<i>"A lot of the times we have to tell people that umm that "no this is a half day fishing trip we're going mainly...ninety nine percent of what your gonna catch is black sea bass and we might catch some dog sharks. So I tell them if you want fish you need to go to a fish house and...get some fish. These half day trips don't usually produce, except for days like today...we did alright."</i>

Length of Trip	3/4 day	3/4 day trip	<i>"No they're not hitting the bag limit unless we're actually targeting those sea bass like on a three quarter day if we're staying a little bit further in shore uhhh most of the time we're getting those bigger bass when we're out on three quarter days."</i>
Length of Trip	Full day	Full day charter, usually means a trip out to the Gulf Stream	<i>"I asked him if people noticed the size limits and he said not on the half day trips because they were mostly tourists but people on the all day trips are happier with bag limits and that they are more knowledgeable of regulations."</i>
Person		To denote who's talking or being talked about. So either the captain, crew, or customer.	
Person	Captain		<i>"If [I] got everybody smiling and say 'Hey cap, we did a good job today' no matter if we let everything go. That's what you want."</i>
Person	Crew		<i>"Ummm quality trip would be...umm some keepers and ummm basically everybody had fun. Everybody had fun...with our service. Essentially."</i>
Code Group	Code	Description	Example
Person	Customer		<i>"The boys seemed happy shark fishing and chatting with their Dad and the mate."</i>
Species		Type of species they are catching or mention they caught	
	Black drum		<i>"Well cause they're comparing that sea bass next to a black drum that we catch."</i>
Species	Black Sea Bass	Species of focus.	<i>"The few that know about the black sea bass are from up north and they can keep a lot. So they're very excited about them, they know how delicious they are."</i>
Species	Cobia		<i>"After the interview we talked about Red Fish and Cobia, it's a favorite</i>

Species	Grunt	<i>"topic among fishermen after the recent shut down of the Cobia fishery"</i> "Some of the BSB, Pinfish and Grunts were big enough to keep and thrown on the ice to take home."
Species	Pinfish	<i>"Some of the BSB, Pinfish and Grunts were big enough to keep and thrown on the ice to take home."</i>
Species	Porgie	<i>"There was 1 large red snapper with many other fish getting reeled in such as vermillion, bsb, red porgie, gray trigger."</i>
Species	Red Snapper	<i>"There was 1 large red snapper with many other fish getting reeled in such as vermillion, bsb, red porgie, gray trigger."</i>
Species	Redfish	<i>"After the interview we talked about Red Fish and Cobia, it's a favorite topic among fishermen after the recent shut down of the Cobia fishery"</i>
Species	Sea Robin	<i>"Someone also caught a sea robin and kept it."</i>
Species	Shark	<i>"Sharks has helped us a lot over the years. We started catching more and more sharks so that's helped us out a lot. People enjoy that."</i>
Species	Spanish Mackerel	<i>"Obviously they want to catch something that tastes good. Sea bass is their best chance and the best flavor fish we've had a few Spanish mackerel show up last week so we started catching them as well as bluefish."</i>
Species	Tomtates	<i>"Today is just a half day trip, four and half hour trip. And uhh we are gonna be targeting black sea bass, mainly we'll catch grunts, tomates, sea bream, spottail pinfish. Hopefully we'll catch some other stuff besides sea bass, but the main focus will be on sea bass"</i>

Code of Group	Code	Description	Quote
<i>Type of Charter Trip</i>		<i>Refers to the type of charter fishing trip, whether they are on a headboat or private charter</i>	

Headboat	Also referred to as party boats. You pay “per head” to go fishing. Takes large numbers of fishermen out at once. More economical to go fishing.	<i>“Anytime the boat is to capacity...that’s a damn good trip.”</i>
Private Charter	Tend to be six passenger boats. Pay for the allotted time you charter the boat. More expensive, but intimate experience.	<i>“Today we have a six-hour charter. It's my intention to go out to the fifteen mile reef where will do a bottom style of fishing.”</i>