

**UNDERSTANDING DEMAND FOR VALUE-ADDED PRODUCTS AND  
SERVICES ASSOCIATED WITH FOR-HIRE BOAT TRIPS ON THE SOUTH  
CAROLINA COAST**

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## Introduction

The presence of for-hire fishing businesses (i.e., recreational charter, head or party, and inshore guide boats; hereafter ‘charter’ for simplicity) on the coast is desirable for multiple reasons. These businesses provide unique opportunities for coastal tourists and recreationists, who do not own a boat, to access marine waters and resources on the United States (U.S.) coast. They also can attract tourists as well as new hotels and restaurants as support businesses in coastal destinations (Amsden, Stedman & Kruger, 2010). In addition, charter vessel operators can be viewed as an important partner in a cooperative resource management that includes public outreach strategies (Wondolleck & Yaffee, 2000).

Nevertheless, charter operators face numerous challenges to business survival, including rising fuel costs, a declining customer base due to economic recession and competition with other coastal venues, services and amenities catering to tourists, and the cumulative effects of fishing regulations (Murray, Johnson, McCay, Martin, Danko, & Takahashi, 2010). In addition, the presence of the charter industry on the coast is often dependent on the extent of coastal gentrification and whether fishing is prioritized in waterfront development plans (Cicin-Sain & Knecht, 1998; Colburn & Jepson, 2012). This challenging business environment is not likely to change soon. Marine charter operators must find viable and entrepreneurial strategies to compete with other coastal tourism services for the value received, while adapting to the fluctuating economic conditions and regulatory environment.

Value-added services can involve tangible (i.e., amenities) or non-tangible (i.e., knowledge) services. Charter businesses could potentially attract new customers (anglers and non-anglers) by adding non-fishing services and focusing on quality (Oh, Lyu, and Holland, 2012; New South Research, 2010). For non-anglers, value-added possibilities might include interpretation of marine ecology or maritime history and culture, marine wildlife viewing, and island visits or sunset cruises. The charter industry may also attract more diverse anglers by adding-value to current fishing experiences, such as providing education on fish ecology, fisheries management, and marine natural history during travel to and from the fishing grounds. Ultimately, the capacity of the industry to provide value-added services depends on the ability of operators to invest in an appropriate vessel, deliver quality services, and capitalize on or build consumer demand. However, little is known about operators’ capacity to add or expand value-added services or consumer demand for these services.

These issues are all relevant to charter operators in the three major regions of the South Carolina (SC) coast (i.e., Myrtle Beach, Charleston, and Hilton Head/Beaufort). Charter operators on the SC coast are trying to remain competitive in coastal destinations with a variety of other attractions and opportunities. Travel to this state is popular among tourists seeking beaches associated with a multitude of amenities for a relatively low cost (Oh, Draper & Dixon, 2010). When the study was initially proposed, some charter operators had started to explore and market alternative trip options, including switching to smaller vessels and/or focusing on providing trips closer to shore as a means to remain profitable and competitive (Holland, Oh, Larkin, & Hodges, 2012).

To address these issues, this study focused on gathering information useful to designing and developing new and/or value-added charter trip offerings on the SC coast. The project involved interviews with charter operators to gather information on current capacity for adding value and a consumer survey with anglers and non-anglers to assess demand for a variety of trip offerings and amenities. Furthermore, interviews with operators included a training needs assessment component, focused on interpretation and marine resource topics related to broadening nature-based tourism and other services. Results of charter operator interviews and the consumer survey were analyzed to identify operator capacity and consumer demand for services and to provide recommendations for investment in value-added offerings.

## Goals & Objectives

This project was designed to meet SC Sea Grant 2012-2014 priorities under Strategic Area II, Goal 1, Objective 1.1. The ultimate goal was to provide the For Hire sector with information about consumer demand for value-added products and services, as a means to promote sustainability of the industry. The project had three objectives:

*Objective 1:* Explore the strengths, weaknesses, opportunities and challenges faced by charter operators in their efforts to provide expanded and non-fishing value-added services and experiences to anglers and non-anglers visiting or recreating on the SC coast.

*Objective 2:* Assess the demand for value-added charter experiences and services among anglers and non-anglers visiting and/or recreating on the SC coast by examining the relative importance of fishing and non-fishing trip attributes.

*Objective 3:* Analyze the gap between the capacity of charter operators and consumer demand for providing quality value-added experiences and services that include outreach and interpretation on marine ecology, fisheries management, history and culture, and offshore energy development.

## Methods

### Charter operator interviews

#### *Interview Sample*

The interview sample of charter operators was drawn from the list of operators who had purchased a 2012 South Carolina Department of Natural Resources (SCDNR) charter vessel permit and were operating out of South Carolina ports. The SCDNR provided the full list of 493 addresses for these license holders via the Freedom of Information Act. This list included V-1: vessels carrying six or fewer passengers (94%), V-2: vessels carrying 7 – 49 passengers (5%) and V-3: vessels carrying 50 or more passengers (1%). Appropriate human subjects protocol was observed to maintain confidentiality of these addresses. Several individuals operated multiple vessels. Since the unit of analysis was the charter operator rather than the vessel, the address list was edited to allow for a single entry per individual owner. Only those currently promoting their business through advertising of some kind (e.g., website or online yellow pages listing) were retained on the final list because this was evidence they had somewhat successfully navigated regulatory and change and economic challenges (Murray et al., 2010).

Prior to random selection, the address list was stratified into three regional subgroups to assure representation across the major coastal destinations (i.e., Myrtle Beach, Charleston, and Hilton Head/Beaufort). Given prior experience with this population, to reach saturation in the range of comments (Creswell, 2007), the desired number of interviews per region was 15. Thirty individuals were randomly selected from each regional subset and were invited to be interviewed. In addition, because there were so few operators with the V-2 or V-3 license, all individuals with these licenses were invited. During the summer of 2012, a total of 97 invitations were emailed to individuals in the final selected sample list— 33 for Myrtle Beach, 33 for Charleston and 31 for Beaufort/Hilton Head. Researchers followed up with non-respondents by phone or email.

Initial response resulted in 19 total scheduled interviews (4 - Myrtle Beach, 10 - Charleston, and 5 - Hilton Head/Beaufort). Researchers contacted the remaining non-respondents while in each port area.

This approach was designed to improve response rate and was similar to the one used for the federal economic census of operators in the U.S. Southeast (Holland et al., 2012). In addition, the researchers also used an “alternates” list (i.e., not selected by the random sampling) based on nearest neighbors (i.e., in same port as those already selected for invitation). The combined approaches resulted in 43 total interviews during the summer of 2012 - Myrtle Beach region – 14, Charleston region – 15; Hilton Head/Beaufort region – 14.

### *Interview Approach and Questions*

The in-person, on-site interviews were conducted in private and generally where each operator’s boat was docked. Each interview began with a short written survey, consisting of demographic and descriptive questions, designed to profile the charter operator’s level of experience. The survey also included self-assessment section with two sets of knowledge “competencies” relevant to 1) saltwater fishing (e.g., fishing regulations, boat safety, fish cleaning and cooking) and 2) non-fishing services (e.g., wildlife identification, marine and fish ecology, maritime culture and history). These knowledge competencies were developed through consensus among two lead marine fisheries managers in the SCDNR and another expert in marine resource management on the South Carolina coast. The self-assessment also included a set of interpretive skill competencies adapted from best practices defined by Powell, Skibins and Stern (2010). Respondents ranked each competency using two five-point rating scales: 1) importance to responding to customer demands (1=Not important to 5= Very important) and 2) personal preparation (1=Not prepared to 5=Very prepared). Following, the written survey, charter operators participated orally in a semi-structured interview. Interview questions were open-ended and designed to identify perceptions about the the strengths, opportunities, weaknesses and threats to providing value-added products and services.

### *Data Analysis*

Responses to competency items were evaluated using a paired samples t-test to allow for comparison of non-independent means from the importance and preparation rankings. The semi-structured interviews were analyzed to identify emergent themes and topics (Ryan & Bernard, 2009). Two researchers, with knowledge of the project and of fishing and recreation resource management, independently coded the data by assigning each statement to a theme and topic. After initial coding was complete, inter-rater reliability was 89% (Holsti, 1969). After discussing disagreements, the two researchers reached near perfect agreement on this coding.

## **Consumer survey**

### *Survey Sample*

The consumer survey targeted anglers and non-anglers. For anglers, the SC Department of Natural Resources provided the 2013 SC Saltwater License addresses via the Freedom of Information Act. There was a total of 114,219 resident and 11,632 non-resident license addresses. A sample of 1500 (1.2%) anglers was drawn at random from this database, including 750 resident and 750 non-resident licenses. Although the resident and non-resident licenses were not in 1:1 proportion in the database, the researchers decided to bias the sample towards non-resident licenses as these anglers were more likely to hire a charter due to the difficulty associated with transporting a personal boat to the coast. To assure that non-anglers were included in the survey sample, tourists were intercepted on the SC coast, during summer of 2013. Intercepts occurred at various coastal venues (parks, beaches, downtown areas, attractions) in the three major tourist regions (Myrtle Beach, Charleston, and Beaufort/Hilton Head). During the intercepts,

tourists were asked if they were interested in providing an address to receive a mail survey on coastal tourism. The intercept approach did not involve discriminating between anglers and non-anglers because previous research in 2008 with tourists intercepted in similar venues on the SC coast suggested that less than 3.3% engaged in saltwater charter fishing during their trip to the coast. The intercepts resulted in 977 individuals agreeing to provide their mailing address for the survey.

### *Study Instrument*

The research team used a literature review paired with on-site interviews with for-hire operators to develop the consumer survey. The survey targeted two different groups: anglers and non-anglers. The survey consisted of questions related to the following (asked to both anglers and non-anglers unless designated otherwise):

- General trip experience on the South Carolina coast
- General fishing trip behavior and for-hire boat fishing experience (anglers only)
- General opinions about charter fishing trips
- Preferences for charter fishing trips
- Likelihood of taking a charter fishing trip during future visits
- Attachment to the primary coastal destination
- Socio-demographic questions

The survey focused on applying the choice modeling (CM) method toward understanding coastal tourist and angler preferences for the different trip attributes. The CM method is a popular research tool in recreation and tourism based on its advantage of assessing individuals' trade-off preferences. This objective was accomplished by creating pairs of hypothetical for-hire boat fishing trips with varying levels of trip attributes. The attributes and levels for the choice modeling as well as other important issues (what is already possible, what could be possible) were identified based on interviews conducted with charter operators on the SC coast, during phase one of the study (i.e., the value-added services and products that charter operators said they were providing or considering).

Seven non-fishing (added value) general attributes were identified for for-hire boat trips:

- Availability of onboard amenities (Onboard Amenities)
- Availability of other recreational services at or near your destination for individuals accompanying family or friends (Onshore Activities)
- Captain and crew interaction with customers (Quality of Captain)
- An opportunity to experience various marine nature-based tourism activities (Onboard Nature-based Tourism)
- An opportunity to learn about local maritime history and marine industries such as commercial fishing and offshore energy (Onboard Culture-based Tourism)
- An amount of trip time directly spent receiving interpretation and education services from captain or crew during a boat trip (Interpretation and Education Services)
- Charter fee per hour per person (Boat Fee)

The trip attributes and levels used in this study are detailed in Table 1 in Appendix A.

In order to reflect the different nature of for-hire boat trips between coastal tourists and anglers, respondents were asked to read the instructions before answering the CM questions as follows:

For the choice modeling questions, assume that you are taking a four hour coastal boat trip, which can accommodate up to six people and goes out no further than 3 miles offshore. If you are an angler, assume the items below are for a trip that includes fishing but has some other added features. If you are not an angler, assume these are items that make up a non-fishing trip.

The choice to use a four hour trip was a result of the interviews with charter operators. This was the most common length of trip. Additionally, since the vast majority of respondents (and charter trips) were V-1 vessels, a trip accommodating up to six people was chosen.

To ensure that each respondent faced a small number of choice sets, a fractional factorial design suggested by Kuhfeld (2005) was employed and generated a total of 36 choice sets in the study. A blocking tool further assisted the research team to divide the choice sets into six different versions. As a result, each version of the questionnaire contained six choice sets (i.e., two trips to choose between). One example of the choice sets, with a follow-up questions, is represented in Figure 1 in Appendix A.

### *Data Analysis*

Survey responses were analyzed to examine differences between anglers and non-anglers. Aside from the CM questions, the remaining survey questions were statistically analyzed to allow for a summary of frequencies and to evaluate differences in means between the two subgroups. Analysis for the CM questions is summarized in the Appendix B. Two approaches were used to evaluate gaps between the capacity of charter operators to provide value-added services and products and consumer demand for these types of services and products. The first approach compared the responses of charter operators on questions about potential for value-added opportunities relative to consumer demand. The second approach examined how charter operators rated their own competencies for provision of interpretation and outreach on fisheries ecology and other marine natural history and history topics. This competency self-assessment was used to provide understanding of whether training might be a good strategy, from the operator perspective, for improving capacity to offer value-added services and strengthening sustainability of the for-hire charter industry.

## Results & Discussion

### **Charter operator interviews**

The 43 charter operators who participated in the interviews represented 11.3% of the licensed saltwater operators (N=379) in the state in 2012. By region, at least 8.1% of operators considered active in each of the three major regions on the coast were represented in the data (Appendix A, Table 2). Interviewees were primarily male and operated as a charter captain full-time (i.e. at least 50 percent of income from charter operations) (Appendix A, Table 3). The mean age of respondents was 46.8 years. The youngest was 21 and the oldest was 75 years of age. Most operators had some college education, with nearly half of respondents having earned at least a college degree. Three (7.0%) respondents had participated in an SCDNR or other related educational or training seminar. One third (32.6%) of respondents had one to four years of experience as a charter captain. The average experience was 9.8 years. Sixty-three percent fished more than 50 percent of their trips inshore (within 3 miles), and 37.2 percent fished offshore (more than 3 miles) more than 50 percent of the time. Of the 37.2 percent of offshore operators, only 62 percent fished exclusively offshore.



The interviews with charter operators provided insight, from the operators' perspective, into the capacity for the saltwater charter fishing industry in South Carolina to provide and expand upon value-added services. In general, charter operators believed there was room to grow the industry by adding value in the form of products and services to existing angling and non-angling trips and also to offer a wider variety and quantity of non-angling trips. However, they viewed their capacity to add these as constrained by several factors, including:

- Their personal business knowledge and abilities – marketing, networking, and growth strategies
- Financial factors – rising operating costs and lack of customer willingness to pay higher rates
- Regulatory factors – primarily fishery regulations
- Support for marketing – information on consumer demand, training on marketing, and help with networking

Overall, there was more focus on rising operating costs than on the limits that regulations place on profitability.

Current and future regulations and rising costs are external market related variables that could either inhibit or motivate operator investment in growing new services or products. The interviews suggest that investment in new services or products will depend on the operator's beliefs about his/her own personal competencies, consumer demand, and networking opportunities. While several charter operators felt they provided excellent customer service, some were not confident in their customer service skills and strategies. Several operators also mentioned problems networking within the tourism industry (i.e. local chamber of commerce, tourism boards, convention and visitor bureaus) and keeping up with an ever-changing tourism market. In the past, fragmented and operation specific marketing has been documented for the charter industry (Gartside, 2001). Importance of word-of-mouth recommendations was mentioned and has also been documented for the charter industry in the past (Ditton, Gill, & MacGregor, 1991). However, it was unclear why operators continue to have a networking problem with the tourism industry. Clemson extension agents facilitated promotional relationships between the local hotels (concierge) and charter operators recently (Jodice, Lacher, Norman & Hughes, 2010), and generally tourism representatives are supportive of the fishing industry.

Charter operators self-assessed their personal knowledge and skills as sufficient or better to meet current customer demands, even for non-fishing experiences (Appendix A, Tables 4 & 5). They rated their preparation as equal to, or better than, importance on most competencies. This indicated they were confident in their skills and abilities with customers. However, they indicated during interviews that they would like training on marine environment topics and marketing. Their most preferred method of training was a field-based course, with internet-based course and mentoring by SCDNR biologist as the next most preferred methods.

### **Consumer Survey**

There were a total of 599 respondents to the consumer survey, including 276 from the population that had purchased a SC saltwater fishing license (149 residents, 127 non-residents) and 323 of the intercepted coastal tourists. Out of the 599 respondents, 41 were dropped due to incomplete responses in the choice sets and other socio-demographic variables. For the purpose of analysis and to better classify anglers and non-anglers based on recent involvement in saltwater fishing, the respondents were grouped based on their response to whether they had gone saltwater fishing in the last 24 months, resulting in 277 anglers and 267 non-anglers (14 additional respondents were dropped due to non-response to this question).

Most respondents (61%) were male, and the average age of respondents was 48 years. More than half (57%) of respondents had college or post-graduate degree, and 45% of respondents reported a household income over \$100,000. The majority (95%) of respondents were Caucasian, and most (83%) of them reported a travel distance of more than 10 miles to the closest SC coast area. In comparison to anglers, non-anglers had a higher proportion of females, percentage of college degree recipients, and proportion of respondents who travelled more than 10 miles to the coast. There were more SC coastal residents in the angler than the non-angler sub-group. Two-thirds of respondents in both the angler and non-angler sub-groups were employed full time.

Although charter boat vessels traditionally cater to anglers who want to go on a fishing trip, the purpose of this study was to explore the potential for value-added services and products that would make charter trips appealing to either anglers or non-anglers. A summary of the results of all analyses comparing the angler and non-angler groups and including the CM method and willingness-to-pay, is provided in Table 7 in Appendix A. More detailed results from the CM method are provided in Appendix B. A more comprehensive report, with detailed results and analyses will be produced at a later date for use in outreach. Notable findings are as follows:

- The majority (93%) of all respondents were repeat visitors to their primary destination; however non-anglers (10.5%) and out-of-staters (10.1%) had the highest percentage of first time visitors. Also, many of the respondents made repeat visits to their primary destination within the same year and over 80% made repeat visits to their primary destination in the last 5 years. However, anglers made more repeat visits than non-anglers within the last 12 months and last 5 years.
- The majority of both anglers and non-anglers visited their primary destination on the SC coast with family (59.8%) or family and friends (24.1%). While there was an average of at least one child per group, almost half of the visitors did not have children accompanying them during their trip. For those respondents who had been on a charter trip, even though they did so with family and friends, very few of their companions were non-anglers or children.
- Both anglers and non-anglers traveling to coastal counties spent an average of six nights on the coast. However, out-of-state visitors stayed an average of 7 nights, which was significantly more than non-coastal, in-state (non-coastal resident) residents (4 nights). Visitors who stay longer may be more flexible about exploring alternate recreation activities (e.g., a non-beach day) depending on the weather.
- Both anglers (83.8%) and non-anglers (73.3) relied on past experience as their primary information source for trip planning. They also utilized friends and family (30.3% anglers, 39.7% non-anglers) and the internet (28.0% anglers, 40.5% non-anglers) as resources. In addition, the majority (one third) of anglers and non-anglers chose the SC coast because of a previous enjoyable experience, as well as driving distance and recreational opportunities.
- The primary reason for anglers (41.6%) and non-anglers (76.2%) visiting the SC coast was beach recreation. While one-quarter of anglers indicated that saltwater fishing was a primary reason for visiting the SC coast, only a few (3.3%) indicated saltwater fishing on a charter boat was the primary reason for visiting the SC coast. This suggests that charter trips are more likely to be add-ons to a beach trip rather than being the primary motivation for travel to SC coastal areas.
- Response to the attachment scale items indicated that all respondents were moderately attached to their primary destination on the SC coast. Anglers were more strongly attached than non-anglers to their primary destination.

- The majority (60%) of anglers took a charter fishing trip previously, but only a third of these did so in the last year. The majority of charter trips taken recently were half day (53%). Also, most of the recent charter trips involved fishing with family and/or friends, very few included kids or non-anglers. Most recent trips were taken with between one to three companions.
- Anglers went on charter trips that were inshore (24%) and nearshore (26%) or offshore (46%) (Note: 4% indicated unknown).
- Most customers are not loyal to a particular charter captain. Although prior experience with the same charter operator was used to choose a charter trip for one-fifth of the respondents who had taken a charter trip, two-thirds of the recent trips were with a charter captain that was different than the previous trip.
- Both anglers and non-anglers indicated that lack of money and inclement weather were the top reasons for not taking a charter boat trip. Non-anglers agreed more strongly than anglers that not having friend or family member to fish with, too far from home, lack of fishing information, lack of fishing skills, lack of transportation, and do not like fishing were constraints to taking a charter, but the level of agreement with these reasons was not high.
- Both anglers and non-anglers rated trip memorabilia as lowest in importance when rating single trip features (i.e., not as part of the CM method).
- The choice modelling provided insight on preferences relative to other attributes included in a charter trip. Trip selection by anglers was significant for only a high level of onboard amenities (i.e., chairs, shade, water & drinks, snacks & meals, full bathroom, air conditioning, satellite TV, internet and full kitchen). Non-anglers were also interested in having a high level of onboard amenities but were also willing to select a trip with a medium level (i.e., chairs, shade, water & drinks, snacks & meals and small bathroom) and were willing to pay more than anglers for this extra value. Anglers were interested in and willing to pay more than non-anglers for both medium (i.e., captain and crew interaction with customers is pleasant and courteous) and high (captain and crew have active interaction with customers that is enjoyable and memorable for customers) levels for the quality of captain and crew. Non-anglers were interested in and willing to pay more for added value in the form of medium (i.e., wildlife viewing, wildlife identification, interpretation of marine and coastal ecology & biology) and high (i.e., medium plus opportunity to participate in biological sampling) levels of nature-based tourism (see Appendix B).
- The choice modeling also demonstrated that the amount of time spent on interpretation and education services was not significant in the trip choice among anglers or non-anglers. Also, the level of onboard culture-based tourism was not important to trip selection for anglers or non-anglers. (see Appendix B)

## Recommendations

### Recommendations from Charter Operator Interviews

- Facilitate opportunities for tourism promotional organizations and agencies to become familiar with local charter fishing businesses and their customers.

- Focus collaboration efforts between charter operators and community development and tourism promotion organizations on addressing marketing constraints, building word-of-mouth networks, and promoting value-added services attractive to consumers interested in offshore experiences.
- Offer training and outreach on developing a marketing plan, marketing strategies and customer service skills for charter operators. Clemson Extension has done some initial work in this area already.
- Use the results of the expert review and the self-assessment results from this study as a means to further prioritize training curriculum and outreach materials targeting charter operators (and marine nature-based tourism operators).
- Tailor any training program targeting charter operators to fit preferences for field-based, on the water training (highest preference), an internet-based course, mentoring by an SCDNR biologist or a one-day workshop.

## **Recommendations from Consumer Survey**

### *Value-added*

- Flexibility to offer inshore, nearshore or offshore trips is important for attracting anglers.
- To attract non-anglers to fishing, offer discounts for children under 18 or non-angling participants or offer lower cost, introductory nearshore/shorter trips focused on providing an introduction to fishing.
- Work on increasing customer loyalty by focusing on quality and other consumer preferences highlighted by this study.
- Providing and promoting higher quality of captain or high levels of onboard amenities to anglers may help attract customers to inshore, nearshore and offshore trips in competitive markets or when prices need to increase due to operational costs.
- Providing and promoting medium or high level of onboard amenities or nature-based tourism features to non-anglers may help attract customers to inshore, nearshore and offshore trips in competitive markets or when prices need to increase due to operational costs.
- Consider offering female only trips with a larger focus on non-angling activities or an introduction to fishing.
- Develop trip packages specifically for groups of family and friends who want to include non-anglers and/or kids. For younger kids, this may mean offering options for shorter, nearshore trips that are less expensive.
- For first time customers, consider special discounts for the second charter trip, to entice customers to make a charter trip more of a regular part of what they do at their favorite destination.
- Trip memorabilia was not rated as important by anglers or non-anglers; therefore charter operators should not focus heavily on this form of adding value.

## *Marketing*

- The primary reason for the majority of visitors to go to the SC coast is to go to the beach. Market the charter trip as something different to do than sitting on the beach, but still a great day on the water or a great way to visit the sea islands.
- Most of the respondents were repeat visitors. Repeat visitors in comparison to first time visitors are generally less diverse in their activities than first time visitors to a destination, more likely to give positive word-of-mouth about a destination, less likely to seek out new activities, and more likely to explore the local features of a destination more thoroughly (Oppermann, 1997; Li, Cheng, Kim & Petrick, 2008).
  - Focus on promoting charter trips to repeat visitors as a way of further exploring their favorite destination.
  - Differentiate marketing messages for first time and repeat visitors (e.g., for first time visitors – something else new to do during your beach vacation; for repeat visitors – explore your favorite coast).
  - Partner with resorts, hotels and rental managers on the coast to enhance word-of-mouth advertising or develop package deals, especially for first time visitors.
  - Collaborate with tourism promotion groups targeting first time visitors or repeat visitors to market charter trips.
- Post positive online reviews reflecting a variety of customer types (anglers, non-anglers, families with kids, adult groups) talking about their charter experience.
- Since driving distance influences destination choice for SC visitors, market charter trips using billboards along typical driving routes from inland areas (Note: this is already happening along some routes).

## **Recommendations for Future Research**

- The training needs self-assessment was difficult to interpret because charter operators tended to rate their preparation equal to or higher than importance for each skill or competency, but still indicated an interest in training. Social desirability bias may have influence competency responses. Future research should engage “experts” (e.g., marine resource managers, marine ecologists, master naturalists and academic researchers in natural history interpretation and communications) to observe and rate the veracity and interpretive quality of the “messages” being relayed by operators to charter customers. However, operators may be reluctant to participate in this form of assessment.
- The SC coast is a popular travel destination attracting a large percentage of repeat visitors. The characteristics of repeat and first time visitors to the SC coast should be examined more in depth, to understand better how these different visitor groups interact with their primary destination and to determine marketing and development strategies for strengthening local economic and environmental sustainability.
- We need a better understanding of the role of entrepreneurship and innovation in the charter industry, specifically with regard to the influence of beliefs about competencies, business risk taking behavior, regulatory and market conditions and local networking opportunities on business success. In addition, we need to better understand how successful operators overcome constraints and barriers to networking and utilizing local tourism organizations as promotional partners.

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## Appendix A- Methods and Results Tables and Figures

Table 1. Charter trip attributes and levels used for the choice modeling.

<ul style="list-style-type: none"> <li>♦ <b>Onboard amenities</b> - The availability of onboard amenities <ul style="list-style-type: none"> <li><b>Low:</b> Few onboard amenities available- chair, shade, water &amp;drinks*</li> <li><b>Medium:</b> Some onboard amenities available- chairs, shade, water &amp;drinks, snacks &amp;meals and small bathroom</li> <li><b>High:</b> many onboard amenities available- chairs, shade, water &amp;drinks, snacks &amp;meals, full bathroom, air conditioning, satellite TV, internet and full kitchen</li> </ul> </li> <li>♦ <b>Nearby or onshore tourism activities-</b> The availability of other recreational services at or near your destination for your accompanying family or friends <ul style="list-style-type: none"> <li><b>Low:</b> Few recreation activities - walking/sightseeing, small number of shopping opportunities*</li> <li><b>Medium:</b> Some recreation activities - walking/sightseeing, several shopping sites, historical tours, and nightlife</li> <li><b>High:</b> Many recreation activities - walking/sightseeing, many shopping areas, historical and nature-based tours, lots of nightlife, golfing, play parks and festivals</li> </ul> </li> <li>♦ <b>Quality of captain and crew</b> - Interaction with customers – frequency, quality and courtesy of the captain and the crew. <ul style="list-style-type: none"> <li><b>Low:</b> Captain and crew interaction with customers is minimal*</li> <li><b>Medium:</b>Captain and crew interaction with customers is pleasant and courteous</li> <li><b>High:</b>Captain and crew have active interaction with customers that is enjoyable and memorable for customers</li> </ul> </li> <li>♦ <b>Onboard marine nature-based tourism</b> - An overall opportunity to experience various marine nature-based tourism activities (e.g., marine natural history, marine biology and ecology) <ul style="list-style-type: none"> <li><b>Low:</b> Few marine nature-based tourism activities available - wildlife viewing, wildlife identification*</li> <li><b>Medium:</b> Some marine nature-based tourism activities available - wildlife viewing, wildlife identification, interpretation of marine and coastal ecology &amp; biology</li> <li><b>High:</b> Many marine nature-based tourism activities available - wildlife viewing, wildlife identification, interpretation of marine and coastal ecology &amp; biology, opportunity to participate in biological sampling</li> </ul> </li> <li>♦ <b>Onboard marine history and culture-based tourism</b> - An overall opportunity to learn about local maritime history and marine industries such as commercial fishing and offshore energy <ul style="list-style-type: none"> <li><b>Low:</b> Local maritime history and culture*</li> <li><b>Medium:</b> local maritime history and culture and the local commercial fishing industry</li> <li><b>High:</b> Local maritime history and culture, the local commercial fishing industry and prospects for offshore alternative energy</li> </ul> </li> <li>♦ <b>Interpretation and education services</b> - Total amount of trip time directly spent receiving interpretation and education services from captain or crew during a boat trip <ul style="list-style-type: none"> <li><b>30 minutes</b></li> <li><b>45 minutes</b></li> <li><b>One hour</b></li> </ul> </li> <li>♦ <b>Boat fee-</b> Charter fee per hour per person (based on average fee of \$150 per person for a 4 hour charter boat trip) <ul style="list-style-type: none"> <li><b>\$120 per person</b></li> <li><b>\$150 per person</b></li> <li><b>\$180per person</b></li> </ul> </li> </ul>
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\* used a base level for qualitative attributes.



**EXAMPLE. Think about your four hour charter boat trip to South Carolina offshore.**

If there is a factor not mentioned, please assume it would be the same in each trip destination.

Please read each pair of charter boat trips carefully because they will differ in at least one

feature. After reading each description, please check or circle the trip you would prefer to take. If you do not like either, please check “I would not choose either trip.”

Suppose that you could only choose from the fishing trips below (Trip A, Trip B, or I would not choose either trip). Which trip would you prefer?

<b>TRIP A</b>	<b>ATTRIBUTES</b>	<b>TRIP B</b>
Medium	<b>Onboard amenities</b>	High
High	<b>Nearby or onshore tourism activities</b>	High
Medium	<b>Quality of captain and crew</b>	Low
Low	<b>Onboard marine nature-based tourism</b>	High
Low	<b>Onboard marine history and culture-based tourism</b>	Medium
45 minutes	<b>Interpretation and education services</b>	45 minutes
\$120 per person	<b>Boat fee</b>	\$150 per person

**Given these choices, I would choose... (Please check only one)**

**TRIP A**

**I WOULD NOT CHOOSE**

**TRIP B**

**EITHER TRIP**

Figure 1. Example of a Paired Choice Set for Charter Boat Trip Participation

Table 2. South Carolina Charter Licenses and Study Sample Size and Proportion.

Region	Total Unique Licenses (N)	Sample Size (n)	Sample Proportion (%)
Myrtle Beach	103	14	13.6%
Charleston	186	15	8.1%
Hilton Head/Beaufort	90	14	15.6%
Total	379	43	11.3%

Table 3. Charter Captain Interview Demographics

Gender		Work Status		Charter Location	
Male	97.7%	Full-Time	60.5%	Inshore	62.8%
Female	2.3%	Part-Time	39.5%	Offshore	37.2%
Age		Education Level		Captain Experience (yrs)	
21-30	13.9%	High School Degree	20.9%	1-4	32.6%
31-40	23.3%	Some College	30.2%	5-8	25.6%
41-50	23.3%	College Degree	44.2%	9-12	14.0%
51-60	11.6%	Post-Grad Degree	4.7%	13-16	11.6%
60+	27.9%			20+	16.3%
Mean	46.8			Mean	9.8
Avg. Charter Trip (hrs)		Avg. Charter Trip (miles)			
1-5	53.5%	Less than 10	18.6%		
6-10	30.2%	10-20	34.9%		
11+	16.3%	21-30	20.9%		
		More than 30	25.6%		

Table 4. Paired samples t-test comparison of charter operator self-assessment on importance to customer (I) and personal preparation (P) for provision of interpretive skills during a saltwater charter trip off the South Carolina coast.

Interpretive Skill	Scale	Mean	SD <sup>3</sup>	P-I	t-Value (df=34)	p-Value
Relate to the experience level of anglers	I <sup>1</sup>	4.06	1.21	0.43	-2.121	.041
	P <sup>2</sup>	4.49	0.66			
Promote the customer's interest in salt-water fishing	I	4.63	0.55	-0.09	1.000	.324
	P	4.54	0.70			
Develop a clear theme throughout the trip	I	4.03	1.01	0.14	-1.221	.230
	P	4.17	1.07			
Provide opportunities for direct involvement of the customer with local marine resources	I	3.60	1.40	0.17	-1.528	.136
	P	3.77	1.24			
Use multiple styles of communication	I	3.57	1.36	-0.03	.274	.786
	P	3.54	1.29			
Demonstrate actions that are beneficial to marine fisheries sustainability	I	3.94	1.35	0.29	-1.240	.223
	P	4.23	1.11			
Discuss the relationship between the customer and the local marine resources	I	3.51	1.29	0.23	-1.349	.186
	P	3.74	1.12			
Tailor messages to different types of user groups	I	3.77	1.03	-0.09	.649	.521
	P	3.69	1.21			
Engage customers on an emotional level	I	3.83	1.22	0.03	-.239	.812
	P	3.86	1.19			

<sup>1</sup> Scale: 1=Not Important, 2=Slightly Important, 3=Moderately important, 4=Important, 5=Very Important; <sup>2</sup> Scale: 1=Not Prepared, 2=Slightly Prepared, 3=Moderately Prepared, 4=Prepared, 5=Very Prepared; <sup>3</sup> SD=Standard Deviation.

Table 5. Paired samples t-test for comparison of charter operator self-assessment on importance to customer (I) and personal preparation (P) for knowledge related to provision of ecotourism and other marine natural and cultural history services during a saltwater charter trip off the South Carolina coast.

Knowledge Area	Scale	Mean	SD	P-I	<i>t</i> -Value ( <i>df</i> =30)	<i>p</i> - Value
a. Reasons for recreational fishing regulations	I <sup>1</sup>	4.06	1.09	0.55	-2.655	.013
	P <sup>2</sup>	4.61	.62			
b. Reasons for reporting catch to DNR	I	3.29	1.44	1.19	-4.745	.000
	P	4.48	.72			
c. Environmental factors affecting the number of fish	I	3.45	1.31	0.97	-3.364	.002
	P	4.42	.92			
d. Best practices for catch and release	I	3.77	1.20	1.00	-4.496	.000
	P	4.77	.50			
e. Fish anatomy	I	3.03	1.28	0.61	-2.906	.007
	P	3.65	1.02			
f. Fish identification	I	4.26	.93	0.26	-1.609	.118
	P	4.52	.57			
g. Fish population biology	I	3.23	1.20	0.90	-3.276	.003
	P	4.13	.88			
h. Fish ecology	I	3.39	1.05	0.74	-3.268	.003
	P	4.13	.96			
i. Fish diseases and parasites	I	2.84	1.29	0.45	-1.916	.065
	P	3.29	1.35			
j. How to clean, prepare and cook fish	I	4.00	1.06	0.65	-3.147	.004
	P	4.65	.66			
k. Marine safety - best practices	I	3.77	1.18	0.97	-4.854	.000
	P	4.74	.58			
l. How science informs management decisions	I	2.74	1.18	0.97	-3.661	.001
	P	3.71	.97			
m. Fisheries management decision-making process (how rules are set, who is involved)	I	2.61	1.26	1.06	-3.884	.001
	P	3.68	1.22			
n. Local commercial fishing industry (boats, gear, target species, by-catch, sustainability)	I	3.16	1.13	0.68	-2.899	.007
	P	3.84	1.07			
o. History of the local fishing community	I	3.55	1.09	0.45	-2.244	.032
	P	4.00	1.13			
p. Local history & culture (e.g., civil war, Gullah, storm events)	I	3.42	.96	0.39	-2.555	.016
	P	3.81	1.14			
q. Identification of other	I	3.74	1.03	0.32	-1.718	.096

Knowledge Area	Scale	Mean	SD	P-I	t-Value (df=30)	p- Value
marine animals (e.g., sea cucumbers, jellyfish, crabs, clams)	P	4.06	.89			
r. Identification of marine plants & seaweeds	I	3.06	1.18	0.23	-.960	.345
	P	3.29	1.27			
s. General marine ecology	I	3.23	1.09	0.48	-2.468	.020
	P	3.71	1.10			
t. Marine mammal identification & ecology	I	3.65	1.02	0.35	-2.006	.054
	P	4.00	1.13			
u. Marine bird identification & ecology	I	3.32	1.05	0.13	-.611	.546
	P	3.45	1.41			
v. Marine pollution issues	I	3.39	1.20	0.55	-2.241	.033
	P	3.94	1.18			
w. Marine & coastal geology	I	3.06	1.09	0.48	-2.540	.016
	P	3.55	1.15			
x. Physical oceanography (tides, currents, water temperature, wind, waves)	I	3.45	1.31	1.16	-4.999	.000
	P	4.61	.67			
y. Marine aquaculture development in region	I	2.58	1.26	0.71	-2.935	.006
	P	3.29	1.27			
z. Offshore energy development (oil, wind)	I	2.52	1.06	0.32	-1.056	.299
	P	2.84	1.37			
aa. Sea-level rise	I	2.48	1.06	0.48	-2.182	.037
	P	2.97	1.30			
bb. Marine protected area management	I	2.84	1.34	0.65	-2.930	.006
	P	3.48	1.29			

<sup>1</sup> Scale: 1=Not Important, 2=Slightly Important, 3=Moderately important, 4=Important, 5=Very Important; <sup>2</sup>Scale: 1=Not Prepared, 2=Slightly Prepared, 3=Moderately Prepared, 4=Prepared, 5=Very Prepared.

Table 6. SC Charter operators' preferences for training delivery

Training Delivery	N	Mean*	SD
Field-based course (on the water)	42	3.45	1.52
Internet-based course	41	3.17	1.43
Mentoring by SCDNR biologist	41	3.02	1.29
One-day workshop	41	2.98	1.35
Mentoring by university expert	42	2.60	1.33
Classroom-based course	42	2.31	1.41
Multiple sessions, one night per week	41	2.39	1.24
2-3 day workshop	40	2.28	1.40
Week long workshop	41	1.85	1.35

\*Scale: 1=Not Preferred; 2=Slightly Preferred; 3=Moderately Preferred, 4=Preferred, 5=Most Preferred

Table 7. Summary of results for anglers vs. non-anglers.

Result category	Anglers	Non-Anglers
Demographics	81.1% male	60.2% female
	50.8% with higher education	63.1% with higher education
	77.9% traveled more than 10 miles to their SC coastal destination	88.3% traveled more than 10 miles to their SC coastal destination
	25.8% were residents of SC coastal counties	10.5% were residents of SC coastal counties
Primary purpose for trip	Beach recreation (41.6%) was the most popular primary purpose for the SC coast trip; For 25.3% their primary trip purpose was saltwater fishing not on charter boat	Beach recreation (76.2%) was the most popular primary purpose for the SC coast trip
Trip planning	Previous enjoyable experience (30.8%), driving distance (18.1%) and recreational opportunities (21.8%) were the top reasons for choosing the SC coast	Previous enjoyable experience (32.2%), driving distance (26.0%) and recreational opportunities (11.9%) were the top reasons for choosing SC coast
	The most common information sources used by anglers were past experience (83.8%), friends or relatives (30.3%) and the internet (28.0%)	The most common information sources used by non- anglers were past experience (73.3%), the internet (40.5%) and friends or relatives (39.7%)

<b>Result category</b>	<b>Anglers</b>	<b>Non-Anglers</b>
Trip characteristics	Anglers who do not live in SC coastal counties spent an average of 6.39 nights on the coast during their most recent trip. However this is not significantly different than non-anglers.	Non-anglers who do not live in SC coastal counties spent an average of 5.84 nights on the coast during their most recent trip. However this is not significantly different than anglers.
	Charleston was the most common primary destination.	Myrtle Beach was the most common primary destination.
	The majority of anglers (56.1%) were traveling with family.	The majority of non-anglers (64.2%) were traveling with family.
	Anglers had a mean of three adults and one child in their trip group. However, 55.4% had no children with their group.	Non-anglers had a mean of three adults and one child in their trip group. However, 44.9% had no children with their group.
	The majority of anglers (95.9%) were repeat visitors	The majority of non-anglers were repeat visitors, but more non-anglers (10.5%) than anglers (4.1%) were first time visitors.
	Higher proportion of respondents with >10 visits in last 12 months (15.8%) or 5 years (41.6%) than for non-anglers	Lots of repeat visits, but proportion of respondents with >10 visits in last 12 months (4.3%) or 5 years (21.9%) was lower than for anglers
Attachment to primary destination on SC coast	More attached than non-anglers to their primary destination	Strong attachment to their primary destination but not as strong as anglers
	If there was a marine pollution issue at their primary SC coastal destination, anglers would be more likely than non-anglers to come back to the same coastal destination regardless of any reasons.	If there was a marine pollution issue at their primary SC coastal destination, non-anglers would be more likely than anglers to stop visiting that area for a full season or find alternate activities not on the coast and not in SC.
Fishing involvement	60% had previously fished on a charter vessel and of these, 30% fished on a charter vessel in the last year, and 61% fished on a charter vessel in the last 5 years The most common information sources for choosing a charter were internet (27%) and prior experience with the same charter operator (21%).	Not Applicable

<b>Result category</b>	<b>Anglers</b>	<b>Non-Anglers</b>
	Charter trips usually involved family and friends who were adults. Very few trips involved kids under 18 years old or non-anglers.	
	The most preferred fish were flounder, grouper, red drum and dolphin.	
Constraints to taking charter trips	Lack of money and inclement weather were the most common reasons for not taking a charter trip	Lack of money and inclement weather were the most common reasons for not taking a charter trip; not having friend or family member to fish with, too far from home, lack of fishing information, lack of fishing skills, lack of transportation, and do not like fishing were more of a barrier for non-anglers than anglers.
Charter trip selection (Choice Modeling - selection of trip with a combination of attributes)	Quality of Captain was significant for trip selection - preferred to have active interaction with captain and crew during a boat trip.	Higher Quality of Captain was not significant for trip choice.
	As boat trip price increased, interest in trip decreased	As boat trip price increased, interest in trip decreased
<i>Anglers were asked to consider a charter trip with fishing, and non-anglers were asked to consider a charter trip without fishing</i>	High levels of onboard amenities improved trip selection	Medium and high levels of onboard amenities improved trip selection
	Nature-based tourism opportunities did not influence trip choice	Non-anglers were interested in medium and high levels of nature-based tourism and were willing to pay more for trips with these features
	Marginal willingness to pay (MWTP) was higher than non-anglers for quality of captain; anglers also have a significant MWTP for a High levels of onboard amenities	Marginal willingness to pay (MWTP) for charter trip attributes is higher than anglers for High level of onboard amenities and non-anglers also have a significant MWTP for Medium levels of onboard amenities; non-anglers also have a significant MWTP for Medium and High levels of onboard nature-based tourism.



<b>Result category</b>	<b>Anglers</b>	<b>Non-Anglers</b>
Importance ratings for single charter trip features	Quality of captain and crew and safety are most important features for anglers.	Quality of captain and crew and safety are most important features for non-anglers.
<i>Opinion on charter boat fishing trips even if you have never been on one</i>	Higher importance rating than non-anglers to all catching fish features, except for opportunities to learn about fish fileting and cooking. Ability of captain to locate fish was the most important catching fish feature to anglers	Higher importance rating than anglers for weather, safety features of the boat, cleanliness and sanitary condition of the boat, convenience features of the boat, and comfortable environment on boat
	Higher importance rating than non-anglers for captain and crew are knowledgeable about fish identification and biology and captain and crew are knowledgeable about fishing regulations;	Higher importance rating than anglers for offers nature-based tourism
	Trip memorabilia was least important	Trip memorabilia was least important
Likelihood of including charter trips during coastal visits in next 2 years	Anglers rated the likelihood of taking coastal visits that included charter boat trips in the next two years significantly higher than non-anglers, but likelihood (mean =1.91) was only 1-2 times.	Non-anglers rated the likelihood of taking coastal visits that included charter boat trips in the next two years lower than non-anglers, and likelihood (mean =1.50) was only 1-2 times or less.
<i>Scale: 1=Not likely, 2= 1-2 times, 3=3-4 times, 4=5-6 times, 5=Over 6 times</i>	Anglers rated the likelihood of taking charter trips during their coastal trips in the next two years significantly higher than non-anglers, if there was improved cleanliness and comfort of the boat, if a fish cleaning service was offered, if the captain offered opportunities to eat your catch, if captain was good at locating fish, and if fishing education was provided.	Non-anglers rated the likelihood of taking charter trips during their coastal trips in the next two years significantly higher than non-anglers if trips included at least one hour of watching and learning about marine wildlife and fish ecology and if non-fishing recreational activities were offered.
	Anglers were most likely (mean=2.49) to take charter trips during their coastal trips in the next two years if the captain was good at locating fish.	Non-anglers were most likely (mean=1.63) to take charter trips during their coastal trips in the next two years if their was improved cleanliness and comfort of boat.

<b>Result category</b>	<b>Anglers</b>	<b>Non-Anglers</b>
	The highest rated charter activity for likelihood was if captain is good at locating fish.	The highest rated charter activity for likelihood was if there is improved cleanliness and comfort of boat

## Appendix B- Choice Modeling Analysis and Results Summary

The CM method has been explained comprehensively in other studies (e.g., Bennett and Adamowicz, 2001; Louviere, Hensher & Swait, 2000). Thus, the theoretical framework of the CM method is only briefly described here. The CM is founded based on random utility theory, which suggests individuals try to maximize utility or satisfaction through choosing better products or services (i.e., making better choices) (Manski, 1977). Given that individuals' utility is acquired from their product (or service) consumption, utility is composed of a measurable section of the utility using the trip attributes included in the choice sets and a random error component due to other attributes not included in the study (i.e., uncertainty factors).

That is, the utility of for hire boat trip  $j$  can be represented as

$$U_j = V_j(X) + \varepsilon_j = X_j\beta + \varepsilon_j$$

where  $V_j$  is the measurable section of utility and  $\varepsilon_j$  is the random error component of utility.

Further,  $X_j$  is the vector of trip attributes that determines the utility derived from each trip choice and  $\beta$  is the coefficient vector to be estimated. Because the random error component is not observable to researchers, a statistical assumption is required for model estimation. Typically, assuming the error terms are independently and identically distributed (so called, IID) and Gumbel-distributed, the condition logit (CL) model can be used to estimate  $U_j$  (Ben-Akiva and Lerman, 1985; McFadden, 1974).

### *Choice Modeling results*

The choice modeling (CM) results tell a deeper story about angler and non-angler preferences than the ratings in the previous section. This is because the CM provides an opportunity to understand preferences for combinations of different levels of attributes available on a trip (i.e., when multiple attributes are included, how much added value for a particular attribute is enough to attract a customer to a charter trip package?).

The estimation results of the conditional logit (CL) model for the two segmented groups, anglers and non-anglers are presented in Table B.1.<sup>1</sup> A significant coefficient (\*) in Table B.1 indicates that the level of the attribute was important to the trip choice. Both groups placed high importance on the attributes of *Quality of Captain* and *Boat Fee*. Individuals preferred to have active interaction with captain and crew during a boat trip (positive coefficient) but did not like an increase in the boat fee (negative coefficient). However, preferences for other trip attributes

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<sup>1</sup> The goodness-of-fit measure using McFadden's  $\rho^2$ , was 0.05 for anglers and 0.04 for non-anglers. Goodness-of-fit provides information on how well the model describes the variability within the sample. Although there are no general guidelines for an acceptable level of McFadden's  $\rho^2$ , these values were relatively low. However, the CL model of anglers explained a greater portion of variation in trip preferences than that of non-anglers. Given that this study focused on value-added to for-hire boat trips, some important trip factors related to a usual charter trip were not included in the attributes used here. For example, the attributes did not include whether the trip was a nearshore or offshore or the number of fish caught. This may account for the low goodness-of-fit. However, anglers were asked to assume the attributes in the choice sets were some features added to a regular for-hire fishing trip. Further, non-anglers were asked to consider a for-hire boat trip as an additional trip option available at a coastal destination.

were also considerably different between the two segmented groups. In the angler group, only one level (High) of *Onboard Amenities* was significant besides the attribute of *Quality of Captain*, and the attribute of *Boat Fee*. In contrast, both of the Medium and High attributes were significant for *Onboard Amenities* and *Onboard Nature-based Tourism* in the non-angler group.

Table B.1. Results of Conditional Logit Models (Segmented Models – Anglers vs. Non-Anglers)

Att		Anglers		Non-Anglers	
		Coefficient	Std. err.	Coefficient	Std. err.
ASC <sup>1</sup>		-0.1965	0.530	-0.7385 <sup>**</sup>	0.370
Onboard Amenities	<i>Medium</i>	0.1427	0.093	0.2432 <sup>***</sup>	0.093
	<i>High</i>	0.2128 <sup>**</sup>	0.094	0.3098 <sup>***</sup>	0.094
Onshore Activities	<i>Medium</i>	-0.0089	0.094	0.0256	0.096
	<i>High</i>	-0.6534	0.094	0.0599	0.095
Quality of Captain	<i>Medium</i>	0.3800 <sup>***</sup>	0.099	0.2557 <sup>***</sup>	0.097
	<i>High</i>	0.5928 <sup>***</sup>	0.097	0.3382 <sup>***</sup>	0.095
Onboard Nature-based Tourism	<i>Medium</i>	0.1096	0.095	0.2945 <sup>***</sup>	0.095
	<i>High</i>	0.0957	0.096	0.3377 <sup>***</sup>	0.096
Onboard Culture-based Tourism	<i>Medium</i>	0.1414	0.096	0.0731	0.096
	<i>High</i>	0.0361	0.096	0.0646	0.095
Interpretation and Education Services	45 minutes	-0.0935	0.096	-0.0583	0.097
	1 hour	-0.0390	0.096	0.1185	0.095
Boat Fee		-0.0051 <sup>***</sup>	0.002	-0.0049 <sup>***</sup>	0.002
Age*ASC		0.0103 <sup>***</sup>	0.004	0.0105 <sup>***</sup>	0.004
Gender*ASC		-0.2573 <sup>*</sup>	0.134	0.1963	0.111
Visitsc*ASC		0.1115	0.399	0.2311	0.157
Log Likelihood		-1808.3		-1748.6	
McFadden $\rho^2$		0.049		0.040	

Note: Significance level of .1, .05, and .01 are represented by \*, \*\*, and \*\*\*, respectively.

<sup>1</sup>The alternative specific constant (ASC) is coded 1 for Trip A and Trip B in the choice sets and 0 for No Trip.

To compare the relative importance of each attribute between the two groups, marginal willingness to pay (MWTP) was calculated and is presented in Table B.2. The marginal willingness to pay (MWTP) refers to the dollar value that a person is willing to pay for an *extra* unit of a commodity. MWTPs were calculated by dividing each coefficient by the coefficient of Boat Fee. Larger MWTPs suggest individuals' higher preference for that option compared to the base level. Non-significant coefficients, however, were not included in this calculation process.

Table B.2. Marginal Willingness to Pay (Segmented Models – Anglers vs. Non-Anglers)

Attributes	Levels	Anglers	Non-Anglers
		MWTP (\$)	MWTP (\$)
Onboard Amenities	<i>Medium</i>	N.S.	49.7
	<i>High</i>	41.4	63.3
Onshore Activities	<i>Medium</i>	N.S.	N.S.
	<i>High</i>	N.S.	N.S.
Quality of Captain	<i>Medium</i>	73.9	52.3
	<i>High</i>	115.3	69.2
Onboard Nature-based Tourism	<i>Medium</i>	N.S.	60.2
	<i>High</i>	N.S.	69.1
Onboard Culture-based Tourism	<i>Medium</i>	N.S.	N.S.
	<i>High</i>	N.S.	N.S.
Interpretation and Education Services	<i>45 minutes</i>	N.S.	N.S.
	<i>1 hour</i>	N.S.	N.S.

Note: N.S. indicates that the coefficient is not significant at the 0.05 level in Table 3.

With all other attributes remaining the same, MWTPs of the high level of *Onboard Amenities* were \$41 for anglers and \$63 for non-anglers. Therefore, non-anglers were willing to pay considerably more (difference of \$22) than anglers for a high level of *Onboard Amenities*, indicating that the availability of this option was more important to the former group. Likewise, the MWTP for non-anglers was \$60 and \$69 when the medium and high levels of *Onboard Nature-based Tourism* were added, respectively. Anglers, nonetheless, were willing to pay considerably more for the attribute of *Quality of Captain* than non-anglers. MWTPs of the medium and high levels of this attribute were \$74 and \$116 for anglers but were \$52 and \$69 for non-anglers. Figure 2 displays the visualized comparison of MWTPs between the two groups.

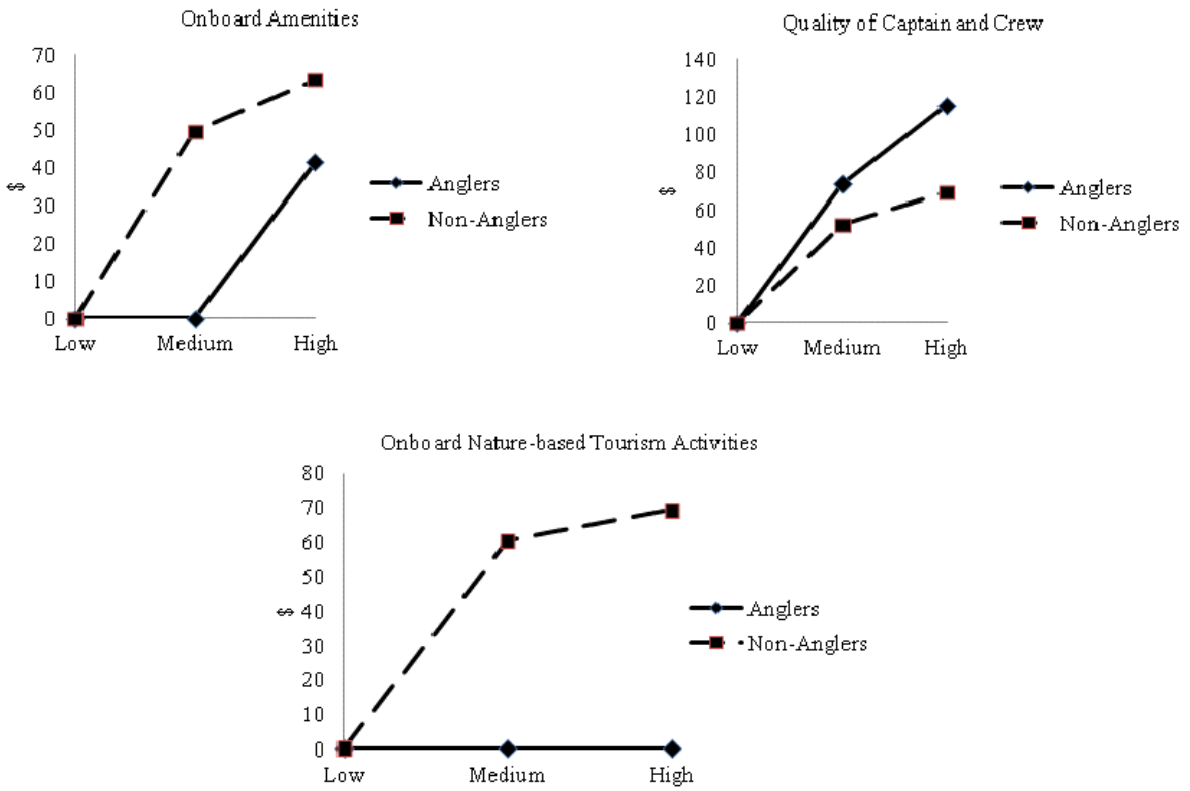


Figure B.1. Marginal willingness to pay of the two segmented groups