

# Lessons learned from the first socioeconomic survey of shrimp vessel owners in the South Eastern United States

OLEG P. MARTENS  
*MRAG Americas, Inc.*  
10051 5<sup>th</sup> Street N, Suite 105  
Saint Petersburg, FL 33702

## ABSTRACT

The National Marine Fisheries Services (NMFS) contracted with MRAG Americas to conduct voluntary socioeconomic surveys of shrimp vessel owners. A pilot survey project was run in Texas (2002), followed by two full scale surveys in the Gulf of Mexico (2004) and the South Atlantic (2005). The goal was to collect data to use in the assessment of future proposed management changes in the Southeast commercial shrimp fishery. This was the first effort to collect detailed socioeconomic information for all the coastal states from Texas to North Carolina. The survey was conducted in two phases: an outreach phase where vessel owners were informed about the need for the survey; and the surveying phase where field interviewers contacted vessel owners and conducted one-on-one interviews. NMFS is currently analyzing the survey data. In the South Atlantic survey, of the 1,236 vessel owners contacted, 41% refused to complete the survey. Reasons for refusal included: fear that information would be used against them, no perceived benefits from participating, no time availability, fear of change, and lack of support from association and community leaders. MRAG believes future surveys would have higher success if: 1) Stakeholders are informed during the project cycle to ensure transparency on the stated goals of the survey effort; 2) The survey is conducted over a short period of time and highly advertised at stakeholder meetings and with local media services, such as newspapers, radio, and television; and 3) Stakeholders should find it easy to understand and complete the survey

KEYWORDS: socioeconomic survey, shrimp vessel owners, management alternatives

## Lecciones Aprendidas en la Primera Investigación Socioeconómica sobre Dueños de Naves de Gambas en el Sureste de los Estados Unidos

Los Servicios Nacionales de Pesquerías Marinas (National Marine Fisheries Services/NMFS) se contrataron con MRAG Americas, Inc. para dirigir una encuesta socioeconómica, voluntaria entre dueños de naves de gambas. Un estudio piloto tomó lugar en Texas (2002) y fue seguido por dos encuestas completas en el Golfo de México (2004) y en el Sur Atlántico (2005). El objetivo de estos estudios era el coleccionar datos exactos que confirmaran la valorización social y económica de las alternativas propuestas por el Consejo De Directores De las Picificatorias del Golfo de México y del Sur Atlántico. Esta investigación es el primer esfuerzo hecho para coleccionar información socioeconómica detallada sobre la mayoría de los estados costeros, desde Texas hasta Carolina del Norte. La investigación fue completada en dos fases: la primera fase se encargó de distribuir información sobre la encuesta a los dueños de las naves, en la segunda fase investigadores se pusieron en contacto con los dueños y los entrevistaron. NMFS está analizando los resultados de la encuesta. En el Atlántico del Sur, de los 1,236 dueños de naves de gamba con los cuales se hizo contacto, 41% se negaron a completar la encuesta. Entre las razones por negar participación se incluyeron las siguientes: temor de que la información coleccionada fuera usada en su contra, los dueños no percibían beneficios en participar, temor al cambio y escasez de apoyo por líderes de la comunidad y varias asociaciones. En el futuro es pensado que otras encuestas podrían tener más éxito si: 1) el gobierno se hace cargo de envolver a los individuos invertidos en este negocio durante el ciclo del proyecto y mantiene honesto en cuanto a los objetivos de la encuesta; 2) la encuesta es realizada en un periodo de tiempo más corto y fuese anunciada en periódicos y en la radio; y 3) se haga fácil de entender y completar la encuesta.

PALABRAS CLAVES: encuesta socioeconómica, dueños de naves de gambas, alternativas de manejo

## INTRODUCTION

Since 2001, the shrimp fishing industry in the Southern United States has been affected by high fuel costs, low shrimp prices and an increasing number of hurricanes. The combination of these factors has contributed to putting many vessel owners out of business and leaving many more struggling for survival.

In 2002, the National Marine Fisheries Services

(NMFS) contracted with MRAG Americas to conduct a voluntary socioeconomic survey of shrimp vessel owners in the SE United States (Fig. 1). A pilot project was run in Texas (2002), followed by a full scale survey in that state in 2003 with two others in the Gulf of Mexico (2004) and the South Atlantic (2005). NMFS was concerned that without appropriate data, the social and economic assessments of alternative management scenarios would be inaccurate,

thereby potentially leading Fishery Management Councils to make poor management decisions. Such assessments are mandated under Executive Order 12866, the Regulatory Flexibility Act, Magnuson-Stevens Sustainable Fisheries Acts and others.

Prior to 2003, costs and returns data for the entire South East shrimp fishery had never been collected by NMFS. A few attempts had been made by other agencies and academic researchers to collect such data in the past decade, but they only covered a certain sector of the fishery (e.g., a particular species, such as rock shrimp, or a particular state, such as South Carolina)

## SURVEY METHODS

### Outreach

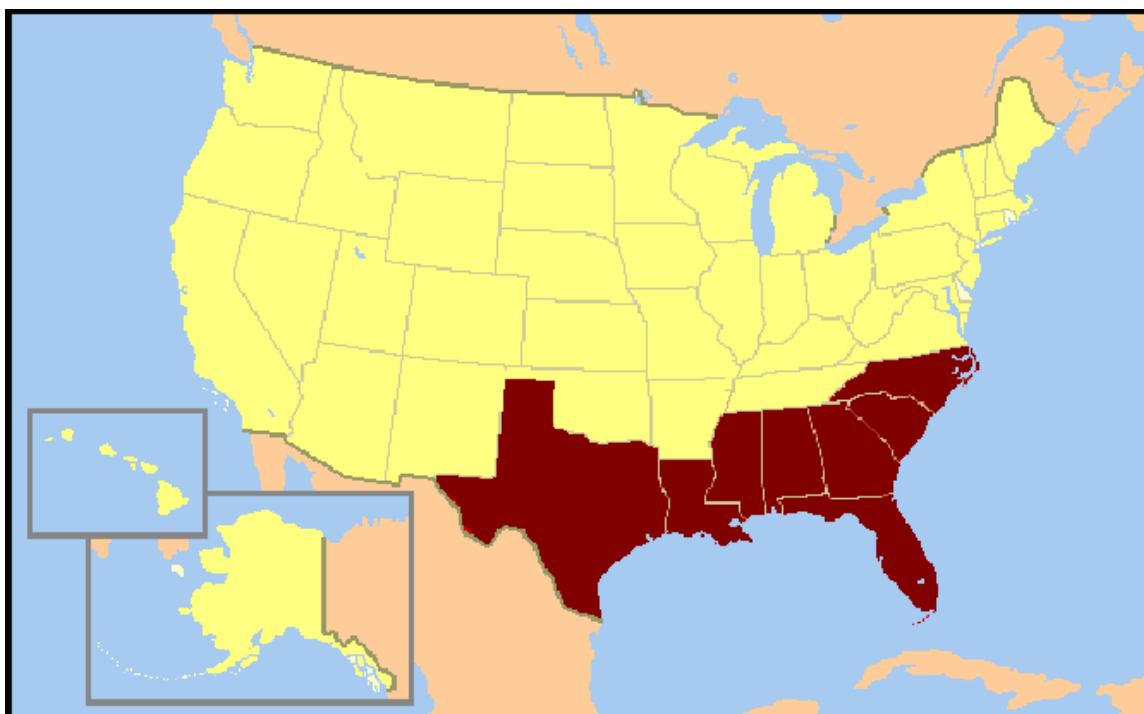
An intense, high quality outreach and education program for fishers is necessary prior to implementing any social and economic data collection effort (NMFS 2004). Therefore, MRAG and NMFS started each survey effort with the outreach component. NMFS conducted the outreach for Texas and the Gulf projects prior to contracting with MRAG, while the South Atlantic project was a joint effort between NMFS and MRAG staff. In the latter, the program consisted of informal one-on-one or small stakeholder group meetings in ports/communities deemed to be of importance to the fishery. Meeting locations and times were chosen after consulting with industry leaders in order to ascertain that a majority of the representatives would be

able to easily attend. After a short presentation of the survey material and its purpose, representatives were asked for their feedback about the content of the survey, the timeline, and the projected response of the industry. When meeting with Vietnamese and Hispanic communities, a translator was hired to ensure effective communication.

The outreach component allowed MRAG and NMFS to respond to the shrimp industry's concerns, validate questions in the survey material, select appropriate interviewing start dates per region, and locate field interviewers within each surveyed community.

### Developing the survey material

A draft sample of a gear survey was developed by NMFS prior to the beginning of the initial outreach effort. MRAG developed the economic survey to NMFS' specifications, incorporated the draft gear survey, and conducted pre-tests in Texas. Subsequently, modifications were made prior to the start of the Texas Pilot. Additional minor modifications were made after the outreach effort and prior to the initiation of both the Gulf and South Atlantic surveys, to account for slight inaccuracies (regarding the exact type of gear used per region) and to clarify questions that shrimp fisher representatives found confusing. Final drafts of each survey were submitted to the Office of Management and Budget (OMB) for approval before survey initiation.



**Figure 1.** Map of the United States showing the area covered by the 3 socioeconomic surveys of shrimp vessel owners in the South East from 2003 to 2005.

### **Hire, train, and supervise qualified interviewers**

Interviewers were employed within each region and had to be knowledgeable of the shrimp fishing industry. NMFS and MRAG staff trained interviewers in surveying techniques in order to reduce the incidence of data miss-reporting. Training was conducted through a series of in-state workshops as well as during one-on-one sessions for interviewers operating in remote locations and that could not attend the workshops.

During the outreach program, shrimp representatives in each community were asked about who they would be comfortable with being an interviewer. Some communities stated they would only accept to be interviewed by one of their members, while others specifically stated they did not want to share their information with anyone they knew personally.

Supervising interviewers was a time-consuming, but critical part of the survey effort. It was important to create a sense of structure and accountability, as well as to be able to respond quickly to arising issues. Interviewers needed to be well equipped, well informed, and know that they could reach a project manager at any time for advice, interviewing materials, to help locate a vessel owner, and/or for payroll questions.

### **Select survey sample**

For all three projects, the population to be surveyed was determined by NMFS. To compile the most up-to-date vessel owner lists and contact information NMFS staff relied on the shrimp license data in Texas, the Federal permit data and state license data for the Gulf, and the fishing license database for the South Atlantic. Additionally, in order to collect information on vessel landings, prices, and vessel/gear characteristics NMFS staff used the state trip ticket databases in the South Atlantic, and a combination of state trip ticket databases (for LA and AL) and the NMFS Gulf shrimp dealer landings database (for TX, MS, and FL) in the Gulf.

Thereafter, MRAG developed a stratified random sampling plan for each population (TX, Gulf and South Atlantic). Vessels were stratified based on (I) vessel length, (II) gear usage (South Atlantic only), (III) primary port/county of landing, and (IV) average price per pound for vessels with similar levels of shrimp landed (Gulf only). These four factors were considered to be the most important with respect to ensuring that the fleet and all components thereof were accurately and completely represented within the data collection program.

### **Field surveying**

Various methods can be used to collect cost and earnings data on a continuous basis (Super Survey 2006, THCU 2006). However, research has shown that, in general, personal interviews are more successful in collecting high quality data compared to phone or mail interviews (NMFS 2004). The case for personal interviews is particularly

strong when a new data collection program is being implemented. These allow for direct, face-to-face dialogue, which provides the interviewer and respondent a much better opportunity to establish clear and consistent communication, not only within an interview but also across interviews. Such dialogue not only enhances understanding and comprehension, but also is likely to lead to improvements in program design and the building of a rapport with industry participants over time.

During the pilot survey effort in Texas, MRAG mailed letters and copies of the survey to all vessel owners initially selected through the random sampling design. The letters explained the survey effort and identified the interviewers that would contact them. For the Gulf and South Atlantic, a different strategy was employed. Once they received their stratified vessel lists, field interviewers initiated the first contact with vessel owners over the phone to let them know they had been selected to participate in the survey, to inform them about the project, and to ask them if they would be interested in looking at the survey material. If a vessel owner responded positively, a survey was mailed to them. A week later the interviewer re-contacted them to see if they could schedule an appointment to fill out the survey. All surveys collected were the result of one-on-one in-person interviews between a field interviewer and a vessel owner. If a vessel owner responded negatively, the reason for their refusal was recorded and they were removed from the list.

In total, the surveys intended to sample between 10-15% of the known vessel owner population. The expected response rate was 60%, similar to other socioeconomic surveys and due to the outreach methods that were being employed to maximize response rates for this project. Therefore a select percentage of vessel owners were pre-selected within each stratum. If a selected vessel owner declined to take part in the survey and/or could not be contacted, the field interviewer called for a redraw, which meant that the vessel ID would be removed from the sampling plan, while a new vessel owner would be randomly selected from the list.

### **Data entry & Validation**

Every two weeks during the surveying period, interviewers would mail in their completed survey forms along with a log of the vessel owners they had attempted to contact, those that refused to take part in the survey (and why), and those they were still waiting to hear from. The data was checked by the project manager and the NMFS economist for accuracy and entered into a database. In order to minimize human error, only two MRAG staff entered the data, and random quality checks occurred throughout the data entry period.

The data for non-responses was compiled in a separate database and provided to NMFS. This database contained updated contact information, comments from vessel owners who refused to take the survey, and a log of vessel

owners that went out of business and/or could not be located. This information had never been collected on such a large scale before and will greatly assist NMFS in conducting future surveys.

### LESSON LEARNED

#### Timing and outreach

After full consultation with representatives from the shrimp fishery, it was agreed that the best time to conduct the field interviewing was during the off-shrimping season (typically November to April, but with slight regional variation). However, due to unforeseen administrative delays, none of the survey efforts could start on time. Rather, most interviewers started working the week before the opening of the season and/or several weeks into the season. Naturally, vessel owners were not very responsive or available during that time. This delay created considerable logistical problems due to a lapse of time between the initial outreach effort and the data collection. It not only affected the targeted communities that had now forgotten about the survey, but also the interviewers, who had been promised employment at a specific date.

Furthermore, NMFS and MRAG staff noticed that many fishers were confused between the survey project, trade assistance issues, and new regulations. Informational posters that were created to encourage vessel owners to participate had little effect on the industry. Additionally, many fishing communities are located in remote areas, and individuals from these communities cannot easily travel to informational meeting locations. Efforts were made to get articles into regional or fishing-specific newspapers and newsletters, which did have some success in reaching unaffiliated fishers. MRAG believes that even when industry leaders are properly informed, the latter cannot reach out to every fisher within their region.

Alternative communication pathways should be reviewed before selecting appropriate media to increase awareness of the aims of the survey. For example, it was generally agreed that a majority of fishers listen to a radio show throughout their work day and that many of them communicate regularly through their VHF radio. Therefore, a radio show geared at shrimp fishers may reach a majority of the vessel owners. An initial recorded message should advertise the survey effort and be broadcasted on specific radio stations geared at the industry. This effort should be initiated two weeks prior to several live call-in sessions where a Government representative would answer the questions/concerns of the industry, while the show's host would be the mediator. Thereafter, managers could decide if any supplemental effort is needed through attending specific industry meetings. Other advantages of these shows are that they would most likely be free (show hosts are always in search of new topics) and that they can be broadcast throughout the length of the survey effort, therefore keeping this a hot issue for the industry.

#### Determining the vessel owner population size

Due to original contact data inaccuracies, much time and effort was spent on cleaning up vessel lists and attempting to contact vessel owners that were no longer active in the fishery or for whom we had incorrect contact details.

#### Trust and rapport

In the South Atlantic survey, of the 1,236 vessel owners contacted, 42% refused to complete the survey. Most vessel owners did not hold any particular grudge against field interviewers conducting the survey or NMFS. However, they did have serious concerns about how the information would be used after completing the survey. Many vessel owners complained that participating in earlier federal government work ended up hurting them rather than helping them. The adage "we are from the government and here to help you" is the subject of many bitter jokes in the southern shrimping communities.

The above issue create a lack of trust that is not conducive to productive work and finding solutions to common problems. The positive response rate from the industry was much lower than what the NMFS anticipated at the beginning of the survey effort. Initial estimates called for the collection of 260 completed surveys (approximately 12% of the original population size), but after contacting the entire population (1,625 vessel owners) only 107 surveys (approximately 7% of the revised population) were completed. Because this was a voluntary survey, and because the total number of vessel owners had been exhausted, the effort ended short of the targeted goal. This may diminish the ability of NMFS to use the data in subsequent impact assessment.

It is, therefore, essential to develop a good rapport and gain trust within the fishing community. Although interviewers could assist in this process, fishers must believe they are more actively involved in the management of the fishery.

#### Involvement and transparency

It is difficult to work with someone that does not trust you, let alone understand the purpose of your work. By involving stakeholders continuously from the conception of the survey material, to the interviewing and report production, it will improve communication and build trust. It appears that the problem with the survey material used for all three surveys was that it was constructed based on a limited number of reviews and not fisher representatives from all states surveyed. As a result, the latter were just faced with the material that had already been finalized and simply told why the survey would be conducted. Therefore, many fishery representatives and their constituents felt that the socioeconomic survey was imposed on them and did not fully understand its purpose.

If the survey material had resulted from more extensive collaboration between managers and fishers, it might

have been better perceived by industry. This is because the representatives that would have helped build it would have had a better understanding of the survey's purpose and could have explained that directly to their constituents. This would also have helped create a survey that fishery representatives were sure their constituents could handle, while still containing the data required for management.

Further, involving representatives throughout the effort makes them feel that the industry is in control of the effort, informs them on what is really happening throughout their region, builds trust, and helps prepare for the conclusions of the official report. This would yield more productive results since there should be better agreement with the impact assessment results of proposed management measures.

Finally, good communication with the industry will also help determine up-to-date lists of active vessels, which managers can use during their cross-reference work. Because of the importance of starting such survey efforts with the most accurate data, managers should also encourage cooperation between the different government entities, such as those issuing vessel licenses and fishing licenses.

### Communication

As previously identified during the outreach stage, many vessel owners were confused about the purpose of the survey project, often linking it to other programs such as state surveys (i.e. government and university studies of the local shrimp industry), the Trade Assistance Program (i.e. Federal government financial support to shrimp communities following several anti-dumping, of foreign shrimp, lawsuits), and upcoming regulations. This created serious delays in contacting/convincing vessel owners to

participate in the survey effort. Many had already completed a state or university survey and did not want to bother with another one, others would not make a decision without first talking to their community leader and some simply did not understand what we wanted from them.

Overall, it seems vessel owners tend to be overwhelmed about the evolving management of their industry and rely on community leaders to keep them informed. Unfortunately, while community leaders are doing their best to stay informed and attend the multiple federal, state, and industry meetings, they are often doing so on a voluntary basis and rarely get compensated for their time or expenses. Therefore it is difficult for them to have access to all of the available information, and pass it on to their constituents.

Furthermore, from the standpoint of fishers MRAG staff talked to, many feel uncomfortable attending the meetings that are generally held in "fancy" hotels in big cities. Not only is it an unfamiliar environment (as opposed to a local town hall), but it is also costly for them to attend these meetings. Further support could be given to local community leaders to reduce their burden during the survey projects.

### Gathering necessary data

Many vessel owners and fishery representatives expressed their unhappiness with having to gather extensive and very detailed information in order to fully complete the survey (the survey material was 33 pages long and the personal interviews lasted an average of 1.5 hours). Others stated that they would have to pay their accountants in order to assemble the requested information. Vessel owners also stated that some of the requested information (with

**Table 1.** Summary Table of the South Atlantic Shrimp Vessel Owner Survey

State	Total Vessel Owner population at the start of the survey effort	Successfully reached Vessel Owners	Completed surveys [C]	Refusals [R]	Invalid vessels	Invalid contact information
East Florida	340	211	19	69	123	51
Georgia	412	342	9	110	223	21
South Carolina	226	166	11	94	61	23
North Carolina	647	517	68	237	212	62
<b>Totals</b>	<b>1625</b>	<b>1236</b>	<b>107</b>	<b>510</b>	<b>619</b>	<b>157</b>
<b>Percentage of reached Vessel Owners</b>			<b>9%</b>	<b>41%</b>		
<b>Percentage of original Vessel Owner Population</b>					<b>38%</b>	<b>10%</b>

regards to landings data and vessel characteristics) was already available through the trip ticket program and state license databases, and that they did not feel like giving it out again. In response, MRAG staff attempted to make the survey process easier for vessel owners by shortening the survey. Vessel owners were also told that in the event they could not provide the exact numbers, good estimates would be accepted. Nonetheless, the response rate did not dramatically improve and shortening the survey instrument, by itself, might not yield better participation from the industry.

Paying vessel owners for completing surveys, in order to compensate them for the time burden, was also considered. However, experience with the Gulf Survey Project showed that the rate of positive response did not dramatically increase with a financial incentive.

MRAG recommends that future survey instruments be designed with increased industry input and that the resulting survey contain fewer questions. Consolidation of questions should be attempted, where possible. The survey questions should focus solely on information that cannot be collected through other means. Many fishers, particularly small operators, do not maintain records of annual and variable expenses to the level of detail that was requested. Thus, more information per vessel could be gathered if some of these questions were consolidated. On the other hand, some vessel owners have to start keeping better financial records if they are to survive in today's competitive market. In the past, this industry was relatively protected from outside markets and "sloppy" accounting was not a major issue, but this is no longer the case and now owners need to watch every dollar that they make/spend if they are to remain in business.

### Efficiency

Interviewer turnover was a consistent issue during the survey project as the nature of the work did not allow for the full time employment of staff in all states. Therefore, most interviewers had other part-time jobs and/or simply held on to the interviewer job until they found something full-time and/or more permanent. Of the 36 interviewers trained during the length of the South Atlantic project, only six worked consistently throughout the project's duration.

Hiring and training new interviewers is costly and time consuming. Further, every time an interviewer drops out, the vessel owners they had been assigned are left unattended and the effort comes to a halt. When a new interviewer is introduced, they need to start the work at square one and slowly begin to gain vessel owners' trust prior to actually getting some owners to complete the survey. In effect, field interviewer turn-over can dramatically affect the timeline for the completion of the project.

Another factor influencing interviewer turnover was their relationship to the community they were going to survey. In some communities fishers declared that they would not share their information with someone they knew personally, while in others it was just the opposite. In some

cases, hired interviewers were pressured into quitting the survey by community members. It was important to consider these factors with regards to initial response rate and great care should be taken in selecting the best-fit interviewers.

In the South Atlantic, the top interviewers managed to contact and classify 60-70 vessels a month. The survey project was the main source of income for these interviewers, and accordingly, they devoted 30-40 hours/week to it. Future efforts should focus on securing "full-time," highly qualified interviewers as they are also the ones who gave the greatest return of completed surveys. Further, it is much easier to train, assist, and track the work of a select few full-time workers rather than to try to accommodate for the schedules of many part-time workers. While part-time staff had good intentions, their schedules were not as flexible as that of full-time staff, and this sometimes delayed the completion of surveys. Full-time staff deliver a more consistent effort towards reaching vessel owners and are generally more available to set up interviews at a convenient time for the vessel owner, thus building a good rapport and developing trust.

### SUMMARY OF RECOMMENDATIONS

- Prior to the main survey, cross-check the population contact details to eliminate inaccuracies and minimize the risk of wasting time and effort on attempting to contact individuals that are out of the fishery and/or for whom you have incorrect contact information.
- Involve stakeholders from the very beginning in order to improve communication, build trust, and foster collaboration. This involvement needs to be maintained throughout the survey effort to ensure transparency, understanding of the survey effort, and create a sense of ownership for the industry.
- Evaluate a range of communication pathways to maximize outreach efforts. For example this might include the use of radio shows with the ability for live Q&A between managers and fisher representatives.
- Address the concerns of the industry with regards to the duration and specific details of the survey for different sectors of the industry.
- Employ full time interviewers, while taking care to select the best-fit individuals for each community that is to be surveyed.
- Develop strict redraw rules in order not to spend too much time and effort on individuals that are elusive and/or that can not be found.

### ACKNOWLEDGEMENTS

I would like to thank Dr. Mike Travis from the South East Regional Office of the National Marine Fisheries Service. He and I encountered, and solved, many issues throughout these projects and I fully appreciate the fact that he would always put forth his utmost effort. Good coopera-

tion is key when you engage in such large projects and I am thankful that Mike was easy to work with and quick to respond to the project's needs.

Many at MRAG participated in these survey projects and I owe them many thanks: Mrs. Heidi Lovett conducted the Texas pilot project, Texas full-scale survey, and initiated the Gulf full-scale survey. She was instrumental in helping MRAG Americas develop these survey projects and overcome the majority of the issues we encountered; Dr. Bob Trumble encouraged me to present this paper and offered countless advice on the proper course of action; Dr. Mark Kaiser developed the stratified random samples; and Dr. Robert Wakeford who kindly reviewed this paper.

A special thank you should also go out to Chris Nines, who hired me to conduct this work, and to Kathryn Johnson and Beth Weiland who entered the majority of the collected data.

Finally, all this work would not have been possible without the US shrimp industry and all those who welcomed us in their communities. We worked with some wonderful people: fishers, their families, and interviewers who all contributed to gathering the data we needed. Thank you.

#### LITERATURE CITED

- Evaluation Method Questions: What are the relative strengths and weakness of administering surveys one-on-one? [http://www.ed.gov/offices/OUS/PES/efaq\\_evaluation.html](http://www.ed.gov/offices/OUS/PES/efaq_evaluation.html). 2006.
- National Marine Fisheries Service (NMFS). Collection of Socioeconomic Data for the South Atlantic Shrimp Fishery. Request for quotation WC133F-04-RP-0031SKC. 2004.
- Super Survey. Personal Interview Surveys vs. Web Surveys: A Comparison. <http://knowledge-base.supersurvey.com/in-person-vs-web-surveys.htm>. 2006.
- SuperSurvey. Survey Response Rate. <http://knowledge-base.supersurvey.com/survey-response-rate.htm>. 2006.
- THCU's Online Learning Community. Survey Methods: Advantages and Disadvantages. <http://www.thcu.ca/blogs/lc/?p=29>. 2006

