



# A Survey of Recreational Shrimpers in the Northern U.S. Gulf of Mexico

by Alexander Miller, Maryam Tabarestani, and Jack Isaacs



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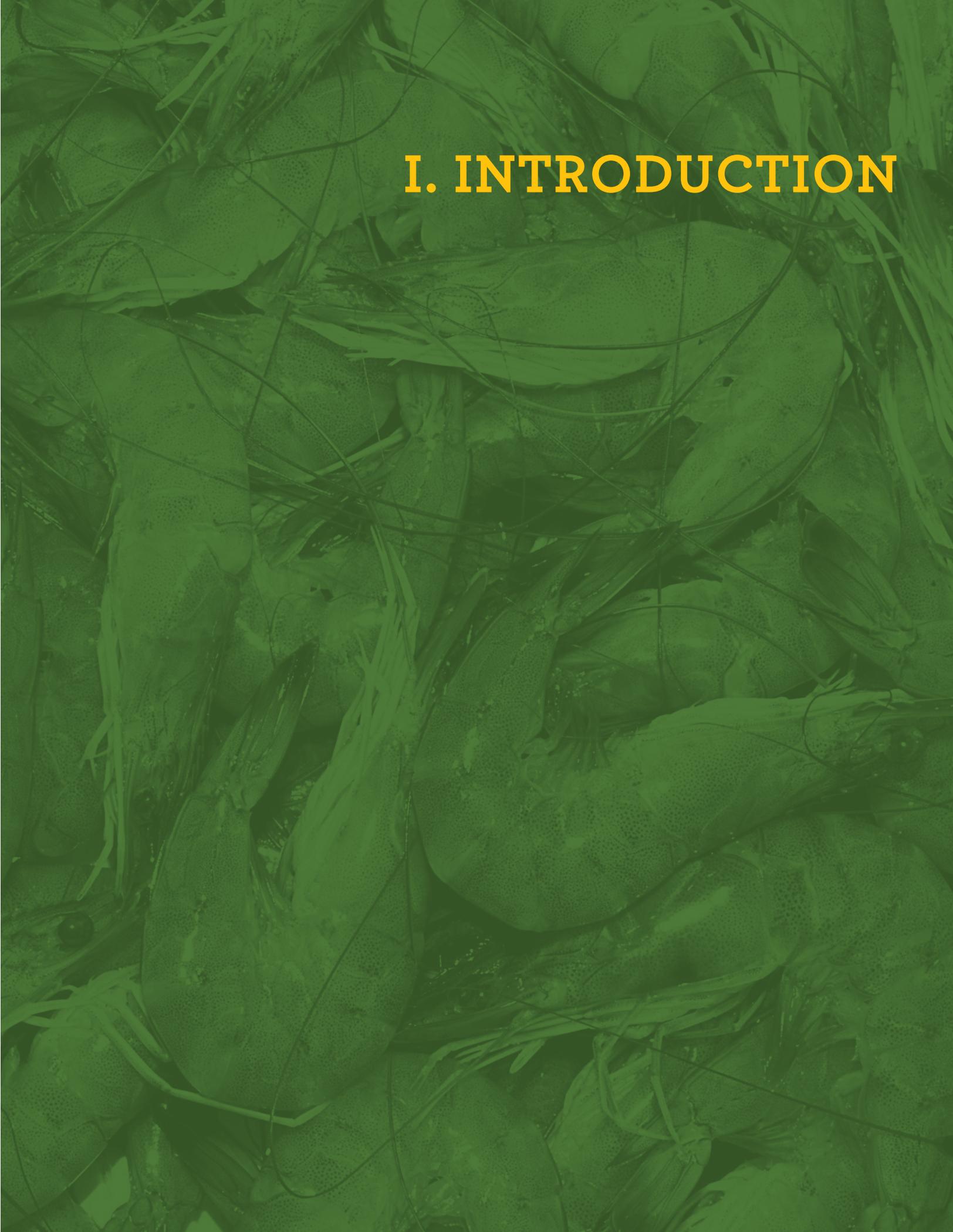
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# I. INTRODUCTION



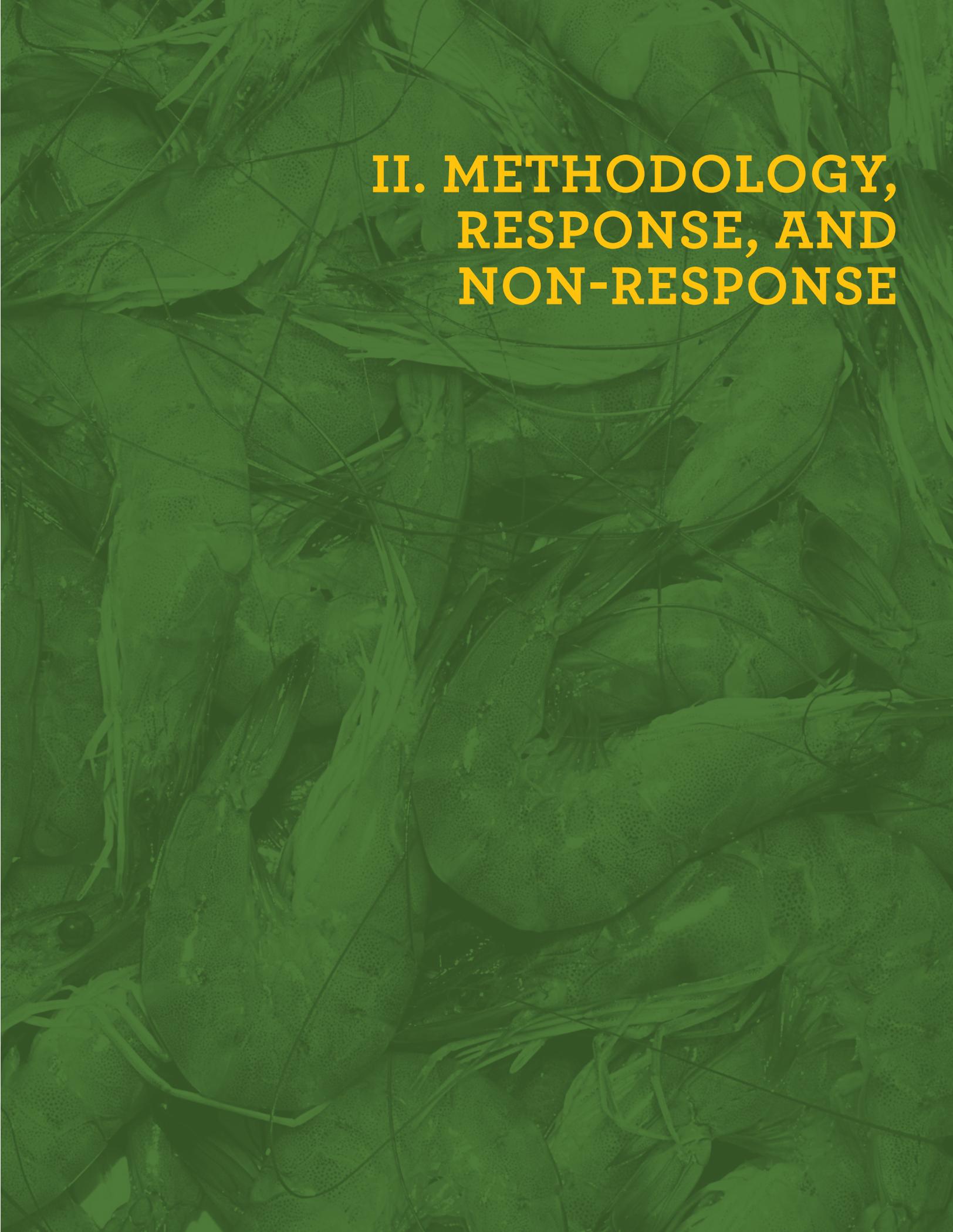
The results presented herein relate to a survey of individuals who held privilege licenses to harvest shrimp recreationally in state waters of the three states that comprise the northern U.S. Gulf of Mexico (northern Gulf states). This includes Alabama, Louisiana, and Mississippi. While the number of recreational shrimp licenses issued in 2013 was in the thousands, relatively little is known about this population. Furthermore, they represent only a small percentage of the hundreds of thousands of marine recreational enthusiasts in the Gulf, and surveys of anglers, such as the Access Point Angler Intercept Survey conducted by the Gulf States Marine Fisheries Commission (GSMFC) and the National Marine Fisheries Service (NMFS), do not gather information related to shellfish or recreational shrimping activities.

In addition to providing information related to the characteristics and activities of recreational shrimpers, the results from this survey also provide information concerning the volume of shrimp harvested by this population. This data collection effort complements similar data regarding the volume of other marine species obtained through recreational dockside intercept surveys and commercial dockside trip ticket programs.

The origins of the survey effort lie, in part, in an interest expressed by one of the Gulf states. The GSMFC, which shared the interest, inquired among the other member states, and found that the three states that issued recreational shrimping licenses, or recreational shrimp gear licenses, were interested in participating in the recreational shrimp survey. Texas and Florida opted not to participate in the survey as they do not issue licenses specifically for recreational shrimping and could not identify a potential population of recreational shrimpers.

The GSMFC obtained the names and addresses of all individuals who held resident recreational shrimp licenses from the Alabama Marine Resources Division (AMRD), resident recreational shrimp licenses from the Mississippi Department of Marine Resources (MDMR), and resident recreational shrimp gear licenses from the Louisiana Department of Wildlife and Fisheries (LDWF). So that a clear population of resident recreational shrimpers could be defined, all individuals with addresses outside the state issuing the license were removed. Duplicate licenses at a single address were also removed so that multiple surveys would not be sent to the same household. Consequently, the population consisted of 3,122 resident recreational shrimp license holders from the following states: 441 in Alabama, 2,460 in Louisiana, and 221 in Mississippi.

The selection process potentially did not include all recreational shrimpers in the northern Gulf states. As previously stated, the survey effort was unable to include recreational shrimpers in Florida and Texas as they do not issue licenses of the type used to define the population in Alabama, Louisiana, and Mississippi. Further, the survey effort did not include individuals who held commercial shrimping licenses but who, in practice, harvested shrimp for recreational and not commercial purposes.



## II. METHODOLOGY, RESPONSE, AND NON-RESPONSE

## SAMPLE SELECTION

With the assistance of the LDWF’s Socioeconomic Research and Development Section, a sample of 1,200 resident recreational shrimp license holders was selected from the recreational shrimp, or equivalent, license databases provided by the marine resource agencies of the northern Gulf states. This included 200 from Alabama, 900 from Louisiana, and 100 from Mississippi (Table 1).

Table 1. **SAMPLE SIZE AND RESPONSE RATE BY STATE**

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Sample	1,200	200	900	100
Non-Deliverable	53	3	50	0
Adjusted Sample	1,147	197	850	100
Returned	561	105	406	50
Response Rate	48.9%	53.3%	47.8%	50.0%

## SURVEY DEVELOPMENT AND IMPLEMENTATION

A two-page, nine-question questionnaire was created through the collaboration of staff of the GSMFC, AMRD, LDWF, and MDMR. The questionnaire solicited information regarding shrimping gear, effort, harvest, trip-related expenditures, maintenance expenditures for gear, reasons for recreational shrimping, and the respondents’ age and ZIP code (Appendix 1).

The self-administered mail survey was distributed in January 2014. Survey subjects were informed that the first 600 respondents would receive \$25.00 in compensation for their time and effort spent to complete the questionnaire.

## RESPONSE RATE

With the omission of 53 non-deliverable questionnaires, the adjusted sample size was reduced to 1,147. The survey received 561 responses, 105 from Alabama, 406 from Louisiana, and 50 from Mississippi. The raw response rate across the northern Gulf states was 48.9 percent. Within the individual states, the response rates were 47.8 percent in Louisiana, 50.0 percent in Mississippi, and 53.3 percent in Alabama (Table 1).

## NON-RESPONSE SURVEY

In April 2014, a one-page, four-question questionnaire was sent to 290 individuals in the original sample who had not yet responded to the questionnaire. As of May 2014, 61 individuals had returned a non-response survey questionnaire, for a response rate of 21 percent. Sixty-two percent of the non-response survey participants met the definition of an active recreational shrimper, having taken a recreational shrimping trip in the 12 months prior to the survey. Among those who had taken a recreational shrimping trip in the previous 12 months, the average number of trips was five, and the average catch per trip was 41.1 pounds of shrimp. Average trip-related expenditures per trip were \$274.90 per trip. Statistical analysis found no significant difference between the sample averages from the non-response survey and the original sample for two variables: volume of shrimp per trip and trip-related expenses per trip. The average number of trips reported by those in the non-response survey, however, was significantly different than the average number of trips in the original sample.



### **III. CHARACTERISTICS OF ALL RESPONDENTS**

The results presented in this section relate to responses from all respondents who completed the recreational shrimp survey.

## RESIDENCY

Approximately 19 percent of survey respondents were from Alabama, 72 percent from Louisiana, and nine percent from Mississippi. The distribution of the responses was similar to the sample from which it was drawn.

Based on ZIP codes provided by respondents on the questionnaire, the city, county, or parish was identified for 556 survey respondents. Five provided illegible, improper, or blank responses that could not be included. Each respondent who provided a proper ZIP code was classified as residing in a coastal or a non-coastal county or parish. A coastal county or parish was defined as any county in Alabama (Baldwin or Mobile) or Mississippi (Hancock, Harrison, or Jackson) directly located on the Gulf or any parish in Louisiana directly located on the Gulf or Lake Pontchartrain (Cameron, Iberia, Jefferson, Lafourche, Orleans, Plaquemines, Saint Bernard, Saint Charles, Saint John the Baptist, Saint Mary, Saint Tammany, Tangipahoa, Terrebonne, or Vermillion).

Over three-quarters (78.6 percent) of all survey respondents across the northern Gulf states resided in a coastal county or parish (Table 2). The percentage of survey respondents living in a coastal county or parish was 75.6 percent in Louisiana, 84.0 percent in Mississippi, and 87.6 percent in Alabama.

*Table 2. PERCENTAGE OF RESPONDENTS RESIDING IN A COASTAL COUNTY OR PARISH*

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	561	105	406	50
Coastal	78.6%	87.6%	75.6%	84.0%
Not Coastal	20.5%	11.4%	23.4%	16.0%
Undetermined	0.9%	1.0%	1.0%	0.0%

## AGE

Age was the only personal characteristic solicited from survey respondents. Most recreational shrimp license holders who responded to the survey were 50 years old or older. The average age was 53.9 across the northern Gulf states, 54 in Alabama and Louisiana, and approximately 50 in Mississippi (Table 3). The median age was 55 for respondents across the northern Gulf states, 58 in Alabama, 55 in Louisiana, and 52 in Mississippi.

Table 3. AGE OF SURVEY RESPONDENTS

	Northern Gulf	Alabama	Louisiana	Mississippi
Observations	561	105	406	50
Average	53.9	54.0	54.4	49.6
Median	55	58	55	52

## STATUS OF RESPONDENTS: ACTIVE OR INACTIVE

In addition to the questions that solicited age and ZIP code, all survey respondents were asked to indicate whether or not they had taken a recreational shrimping trip sometime during the 12 months preceding the survey. Those who reported taking a trip in the previous 12 months were labeled as “active recreational shrimpers,” and those who claimed not to have taken any trips were labeled as “inactive recreational shrimpers.” Among the respondents across the northern Gulf states, about 76 percent were active, and 24 percent were inactive (Figure 1). Similar percentages were evident within each northern Gulf state.

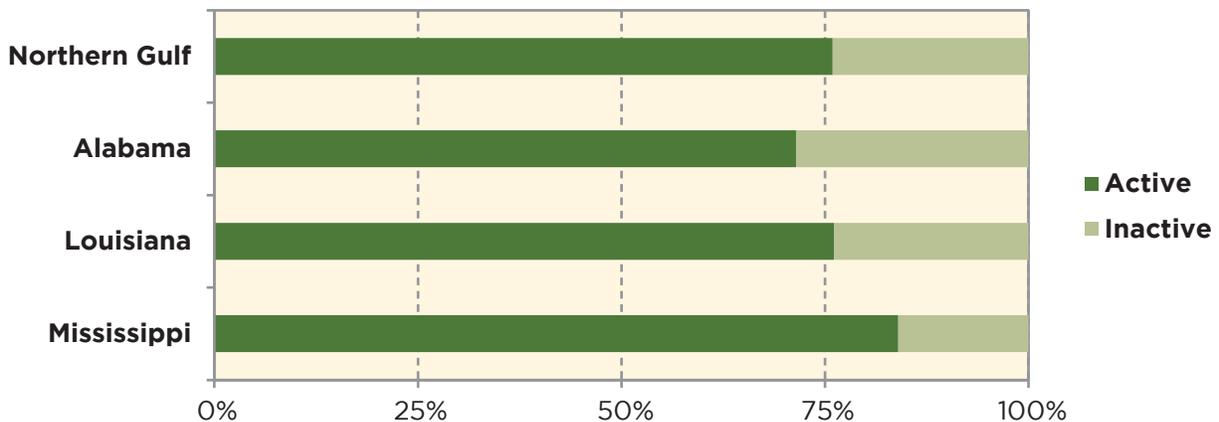


Figure 1. PERCENTAGE OF ACTIVE AND INACTIVE SHRIMPERS IN THE NORTHERN GULF, BY STATE

The status of a respondent as an inactive recreational shrimper was determined solely by his or her behavior—not taking a shrimping trip—for the particular period in question. Whether a particular respondent was an active recreational shrimper outside of the defined timeframe could not be determined through this survey effort.

## RESIDENCY AND AGE BY INACTIVE OR ACTIVE STATUS

Because the intent of the research was to study the activities of active recreational shrimpers, the survey solicited no information from inactive shrimpers other than age and ZIP code. Large majorities, 75 percent or more, of inactive recreational shrimp license holders in each state lived in coastal counties or parishes (Table 4). Large majorities of active recreational shrimpers in each state lived in communities that were relatively close to the Gulf as well. Eighty-five percent of active recreational shrimpers in Alabama, 75.7 percent in Louisiana, and 83.3 percent in Mississippi resided in a coastal county or parish.

*Table 4. PERCENTAGE OF RESPONDENTS RESIDING IN A COASTAL COUNTY OR PARISH, BY INACTIVE OR ACTIVE STATUS*

	INACTIVE RECREATIONAL SHRIMPERS				ACTIVE RECREATIONAL SHRIMPERS			
	Northern Gulf	AL	LA	MS	Northern Gulf	AL	LA	MS
Observations	135	30	97	8	426	75	309	42
Coastal	80.0%	93.3%	75.3%	87.5%	78.2%	85.3%	75.7%	83.3%
Not Coastal	19.3%	6.7%	23.7%	12.5%	20.9%	13.3%	23.3%	16.7%
Undetermined	0.7%	0.0%	1.0%	0.0%	0.9%	1.3%	1.0%	0.0%

The average age of inactive shrimpers was 59.3 in Alabama, 58.1 in Louisiana, and 51.4 in Mississippi (Table 5). The average age of active recreational shrimpers was approximately 52 in Alabama, 53 in Louisiana, and just under 50 in Mississippi. In every state, the average and median ages for active recreational shrimpers were lower than the average and median for inactive recreational shrimp license holders.

Table 5. AGE, BY ACTIVE OR INACTIVE STATUS

	INACTIVE RECREATIONAL SHRIMPERS				ACTIVE RECREATIONAL SHRIMPERS			
	Northern Gulf	AL	LA	MS	Northern Gulf	AL	LA	MS
Observations	135	30	97	8	426	75	309	42
Average	58.0	59.3	58.1	51.4	52.6	51.9	53.2	49.2
Median	59	59	59.5	56	54	52.5	54	51.5

The pattern of state residence for active recreational shrimpers (Figure 2) was similar to the distribution of the original mailing sample. Louisiana was the state of residence for 73 percent of active recreational shrimpers, and Alabama and Mississippi were the states of residence for about 18 percent and 10 percent, respectively.

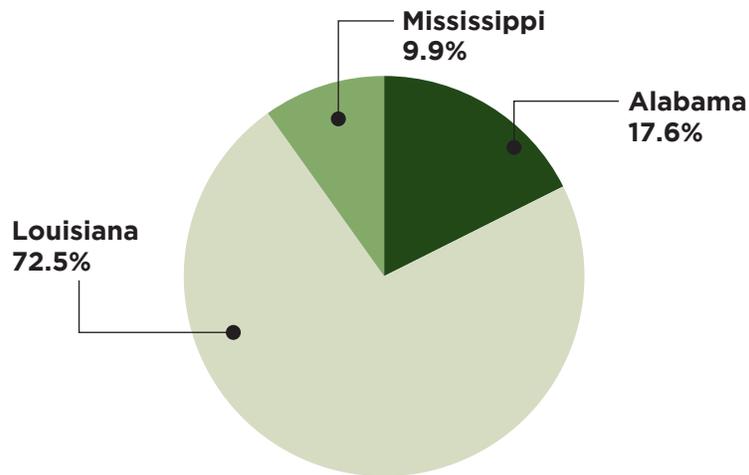


Figure 2. STATE OF RESIDENCE FOR ACTIVE RECREATIONAL SHRIMPERS

## **IV. CHARACTERISTICS OF ACTIVE RESPONDENTS**

The remaining questions included in the survey were only presented to active recreational shrimpers. Survey respondents classified as inactive recreational shrimp license holders were asked to disregard all items on the questionnaire related to gear, shrimping effort and harvest, reasons for recreationally shrimping, and shrimping expenditures. Therefore, the results presented hereafter pertain to survey responses provided by 402 active recreational shrimpers who provided a complete set of usable answers for all survey items.

## RECREATIONAL SHRIMP LICENSES ACQUIRED IN THE PAST FIVE YEARS

Active respondents were asked to estimate how many times in the past five years they acquired a recreational shrimp license. By several measures, recreational shrimpers obtained licenses frequently. Approximately 87 percent of active recreational shrimpers across the northern Gulf states, (80.6 percent of those in Alabama, 89.6 percent of those in Louisiana, and 80.5 percent in Mississippi) reported buying such licenses at least twice in the previous five years. Respondents acquired recreational shrimp licenses an average of 3.6 times across the three northern Gulf states, 3.3 times in Alabama, 3.7 times in Louisiana, and 3.4 times in Mississippi over the last five years (Table 6).

*Table 6. NUMBER OF TIMES ACTIVE RECREATIONAL SHRIMPERS ACQUIRED RECREATIONAL SHRIMP LICENSES OVER THE PAST FIVE YEARS*

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average	3.6	3.3	3.7	3.4
Median	4	3	4	3

Approximately two-fifths (41.8 percent) of active respondents throughout the northern Gulf states reported buying recreational shrimp licenses in each of the last five years (Figure 3). This percentage was similar to the responses for the individual northern Gulf states, as 34.7 percent in Alabama, 43.6 percent in Louisiana, and 41.5 percent in Mississippi reported buying a recreational shrimp license in each of the last five years.

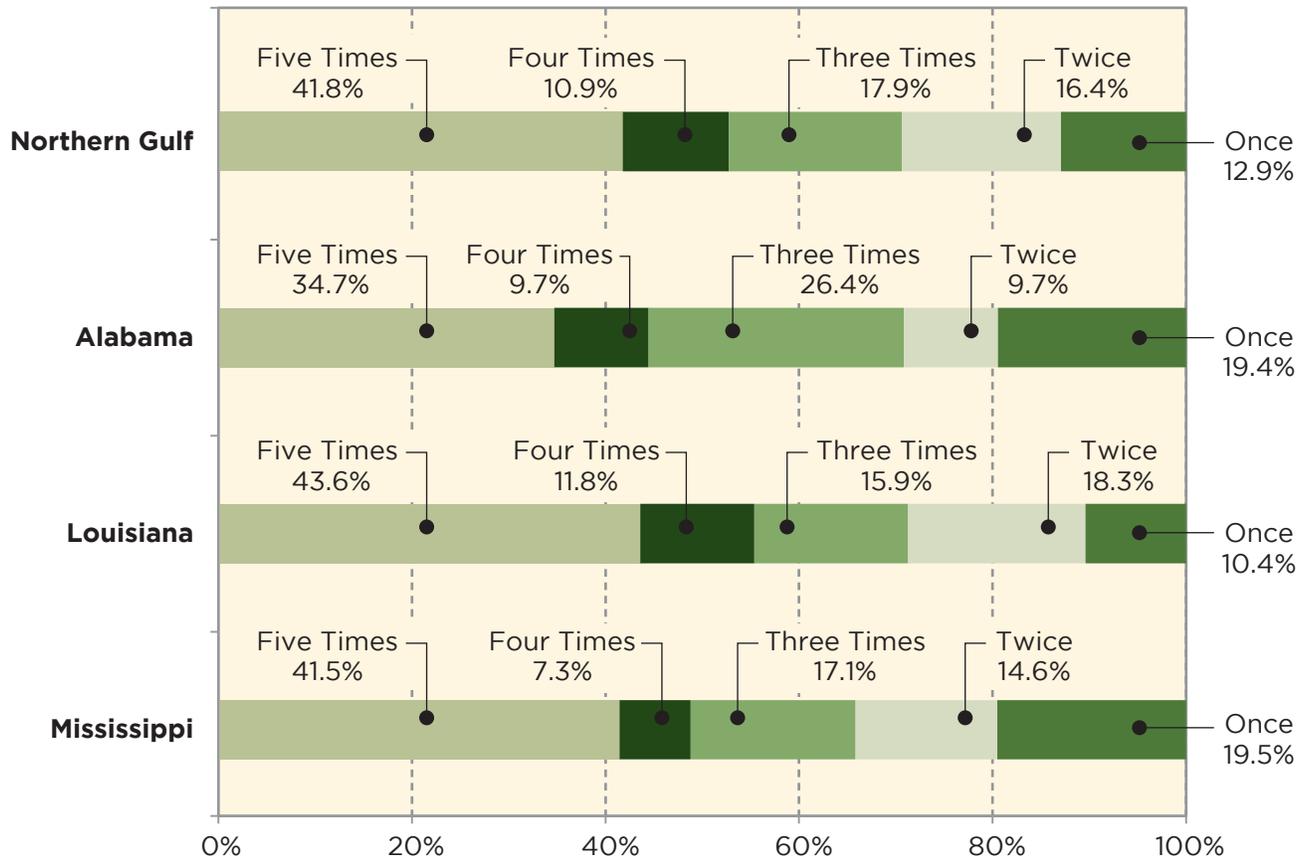


Figure 3. NUMBER OF TIMES IN THE LAST FIVE YEARS THAT ACTIVE RECREATIONAL SHRIMPERS ACQUIRED A RECREATIONAL SHRIMP LICENSE, BY STATE

## REASONS FOR RECREATIONAL SHRIMPING

Respondents were asked to indicate their reasons for recreational shrimping from a list of different options. The list included three specified reasons: “to catch food for myself or my immediate family” (personal consumption), “to catch bait for other fishing activities” (bait), and “for recreation and relaxation” (recreation and relaxation). Respondents were also given an option of “other” in which they could specify reasons not presented within the list.

The majority of active recreational shrimpers, across and within the three northern Gulf states, reported shrimping for personal consumption (Figure 4). Respondents in Alabama (50 percent) and Louisiana (66.4 percent) reported shrimping for personal consumption more than any other single reason. In Mississippi, the percentage of respondents who shrimped for personal consumption (56.1 percent) was equal to the percentage who shrimped for bait.

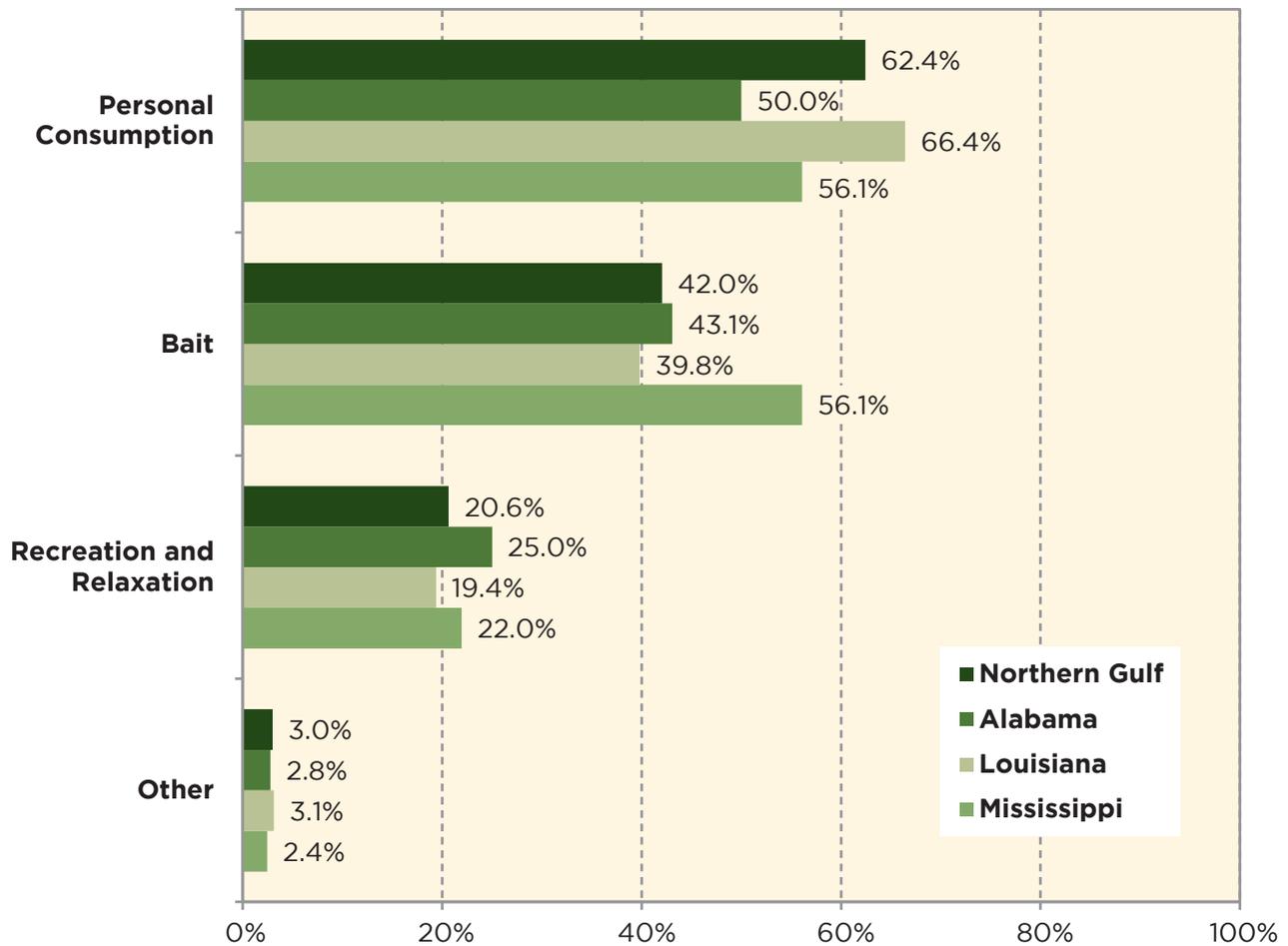


Figure 4. **PERCENTAGE OF ACTIVE RECREATIONAL SHRIMPERS CITING SPECIFIC REASONS FOR RECREATIONAL SHRIMPING, BY STATE**

More than two-fifths of active respondents in Alabama (43.1 percent) and nearly two-fifths of active respondents in Louisiana (39.8 percent) claimed to shrimp recreationally for bait. Shrimping for bait was not as prevalent in Alabama and Louisiana as it was in Mississippi, where 56.1 percent reported shrimping recreationally for bait. About 20 to 25 percent of the respondents in each state went shrimping for recreation and relaxation.

The majority of respondents selected only one reason for this question, but others indicated more than one reason. Among all respondents across the northern Gulf states, 78 percent selected a single reason for recreational shrimping, such as personal consumption alone, bait alone, or recreation alone. Among the 22 percent who cited multiple reasons, most indicated some combination of reasons that included personal consumption.

Compared to active recreational shrimpers in other states, a larger portion of Louisiana respondents cited personal consumption alone (46.0 percent) as a reason for shrimping, and a smaller portion of Louisiana respondents cited bait alone (22.8

percent). In Alabama and Mississippi, 35 to 37 percent reported shrimping for personal consumption alone, and 29 percent, for bait alone. One-sixth of the Alabama respondents and seven to eight percent of the Louisiana and Mississippi respondents indicated relaxation alone as their reason for recreational shrimping. Twenty percent of Alabama respondents, 23 percent of Louisiana respondents, and 27 percent of Mississippi respondents cited multiple reasons for recreational shrimping.

## GEAR

Active recreational shrimpers were asked to indicate the type of gear they used to harvest shrimp in the 12 months prior to the survey. The questionnaire listed four options (trawls, dip net, cast net, and butterfly net) plus one “other” option that could be specified by the respondent.

Trawls were by far the most commonly used gear by active recreational shrimpers. Approximately 95 percent of respondents across the northern Gulf states reported using trawls in the 12 months prior to the survey (Figure 5). Approximately 93 percent of those in Louisiana and 98 percent of those in Alabama and Mississippi used this type of gear.

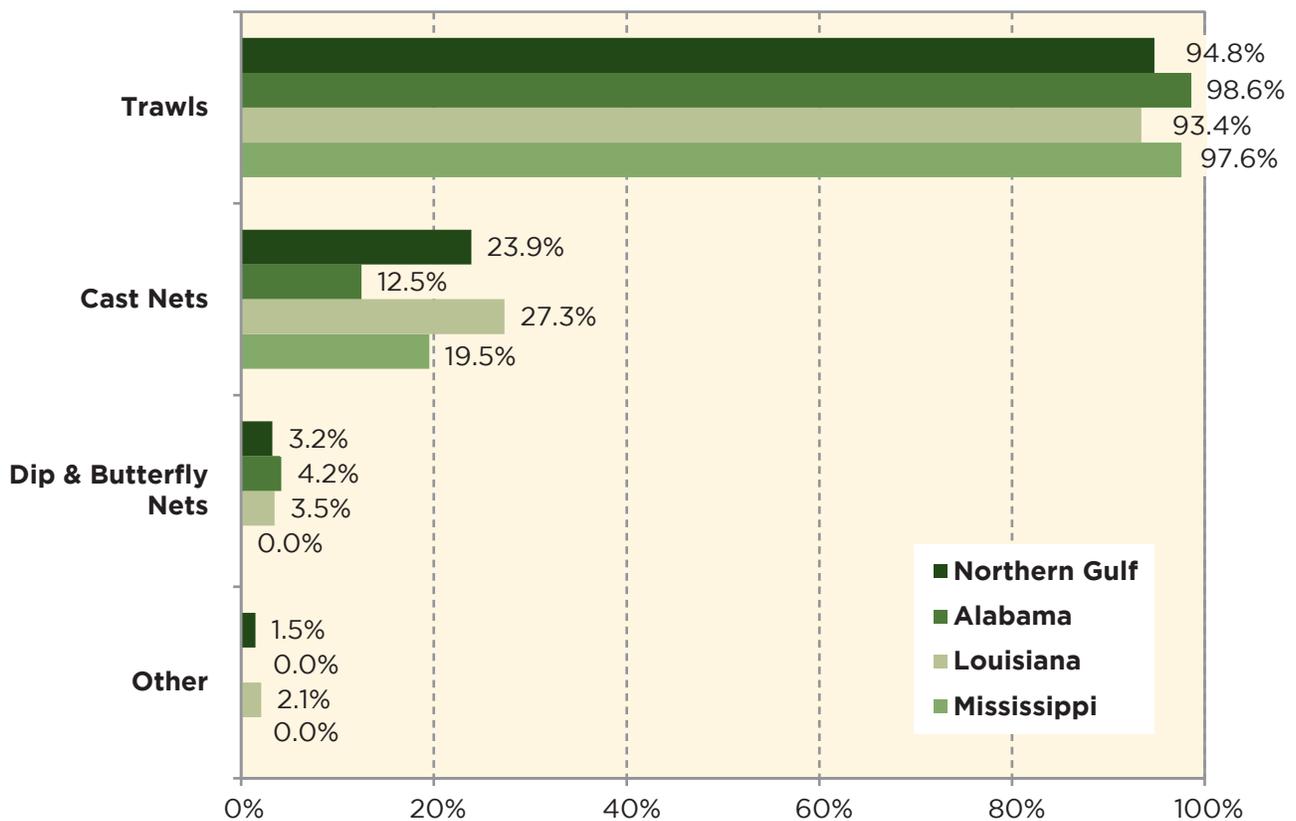


Figure 5. **PERCENTAGE OF ACTIVE RECREATIONAL SHRIMPERS CITING SPECIFIC TYPES OF GEAR USED FOR RECREATIONAL SHRIMPING, BY STATE**

Cast nets were the second most commonly used type of gear and were most widely used in Louisiana, where 27.3 percent of active recreational shrimpers utilized them. One eighth of the respondents in Alabama and one fifth of those in Mississippi indicated using cast nets during the 12 months before the survey.

Though dip and butterfly nets were separate options on the questionnaire, the numbers of responses for each gear type were very low in some states and were combined into a single alternative for reporting purposes to comply with confidentiality standards. Only 4.2 percent of Alabama active recreational shrimpers and 3.5 percent of active Louisiana recreational shrimpers reported using dip nets or butterfly nets. No respondents from Mississippi reported using these gear types.

The options presented on the questionnaire for specific types of gear use were not mutually exclusive. Respondents could mark as many different gear types as they used to harvest shrimp in the 12 months prior to the survey. Among all respondents across the northern Gulf states, 72.9 percent used only trawls, and 2.7 percent used only cast nets (Figure 6). The majority of active recreational shrimpers in Alabama (86.1 percent), Louisiana (68.5 percent), and Mississippi (80.5 percent) only used trawls to harvest shrimp recreationally. Relatively small portions used cast nets alone.

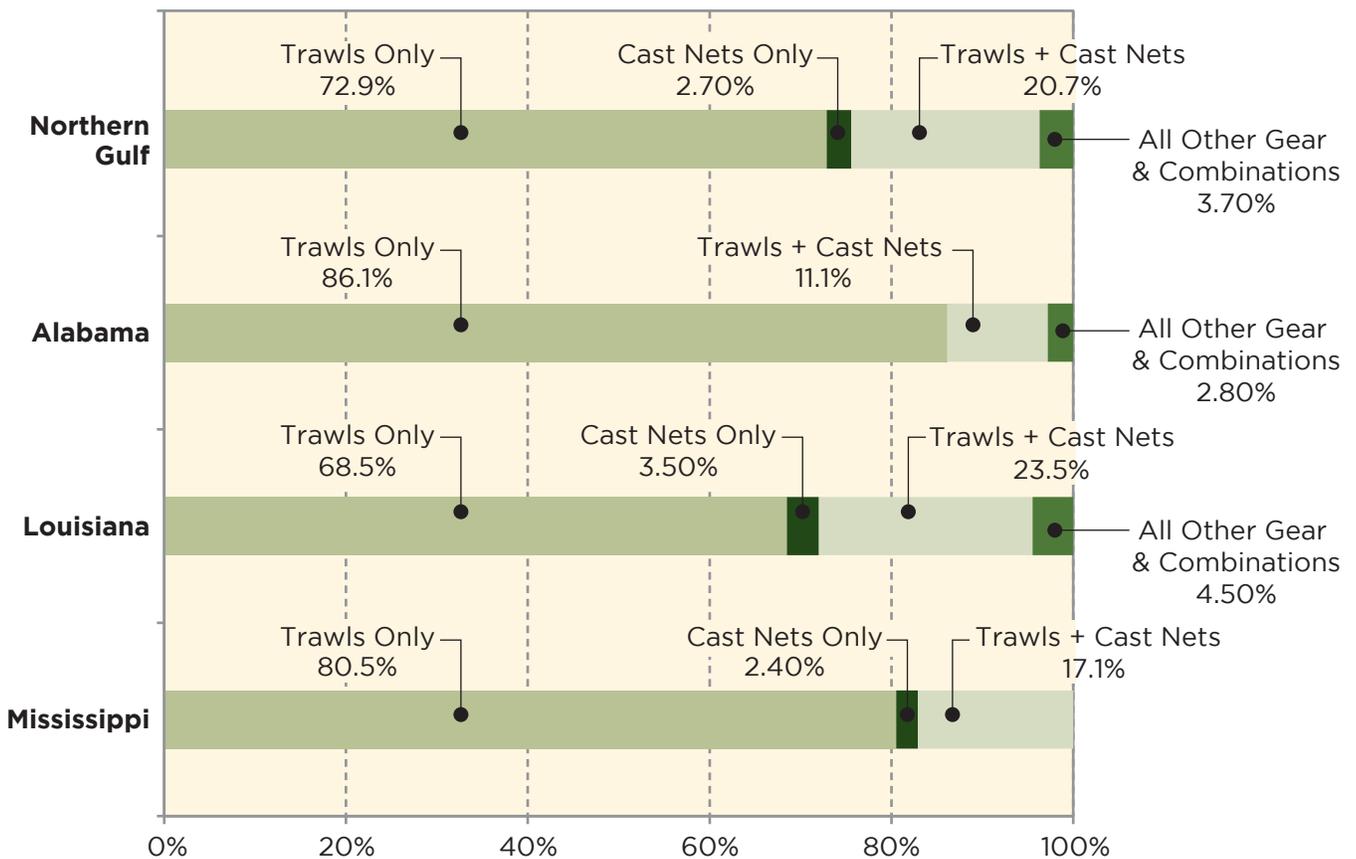


Figure 6. **DISTRIBUTION OF THE SHRIMPING GEAR USED BY ACTIVE RECREATIONAL SHRIMPERS, BY STATE**

About one-quarter of active recreational shrimpers across the northern Gulf states used more than one type of gear to harvest shrimp. Most of these (20.7 percent of all active recreational shrimpers) used both trawls and cast nets. About 24 percent of Louisiana, 11.1 percent of Alabama, and 17.1 percent of Mississippi respondents used both trawls and cast nets.

## RECREATIONAL SHRIMPING CATCH AND EFFORT

The questionnaire contained two items pertaining to the respondents’ catch and effort: the number of recreational shrimping trips taken in the 12 months prior to the survey and the volume of shrimp caught on a typical trip. These items were used to derive an estimate of annual shrimp harvest per respondent.

Among all active recreational shrimpers, the average number of shrimping trips taken in the 12 months prior to the survey was 8.2 trips with a median of 4 (Table 7). From state to state, the average number of trips ranged from 6.1 in Alabama to 8.6 trips in Louisiana to 9.8 trips in Mississippi. The median was 3.5 in Alabama and 5 in both Louisiana and Mississippi.

*Table 7. NUMBER OF RECREATIONAL SHRIMPING TRIPS TAKEN BY ACTIVE RECREATIONAL SHRIMPERS IN THE PREVIOUS TWELVE MONTHS*

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average	8.2	6.1	8.6	9.8
Median	4	3.5	5	5

In a related question, subjects were asked to estimate the volume of shrimp, in whole weight (head-on) pounds, that they caught and kept on a typical trip. The average volume among all active recreational shrimpers was 29.9 pounds per trip, and the median volume was 15 pounds per trip (Table 8). The average volume per trip was lowest (10.1 pounds) in Alabama, where some respondents anecdotally described 2013 as a bad year. The average harvest was 34.7 pounds in Louisiana and 31.4 pounds in Mississippi.

**Table 8. VOLUME OF SHRIMP (WHOLE WEIGHT POUNDS) KEPT ON A TYPICAL RECREATIONAL SHRIMPING TRIP BY ACTIVE RECREATIONAL SHRIMPERS**

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average	29.9	10.1	34.7	31.4
Median	15	5	22.5	10

Estimates of the total volume of shrimp kept by survey respondents for the period were generated by multiplying the number of trips taken by each respondent in the 12 month period prior to the survey by the volume kept on a typical recreational shrimping trip. The average estimated total volume of shrimp for the period among all respondents was 265.3 pounds per respondent, and the median annual volume was 85 pounds per respondent (Table 9). The average total volume for the period was lowest in Alabama (51.8 pounds per respondent) and highest in Louisiana (319.3 pounds per respondent).

**Table 9. TOTAL VOLUME OF SHRIMP (WHOLE WEIGHT POUNDS) HARVESTED BY ACTIVE RECREATIONAL SHRIMPERS FOR THE PREVIOUS TWELVE MONTH PERIOD<sup>1</sup>**

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average	265.3	51.8	319.3	259.4
Median	85	24.5	120	69

<sup>1</sup> The term “total period volume of shrimp” refers to the estimated cumulative volume of shrimp that respondents caught and kept in the 12 months before the survey.

## EXPENDITURES RELATED TO RECREATIONAL SHRIMPING

As with other forms of recreational harvest, recreational shrimpers incurred a variety of expenditures related to their activities. The questionnaire included a series of questions soliciting expenditures pertaining to trip-related items, such as fuel and ice, and repairs and maintenance related to shrimping gear.

Respondents were asked to estimate the amount of money they spent on a typical recreational shrimping trip in the twelve months prior to the survey. This estimate (called “trip-related expenditures”) averaged \$74.50 among respondents across the northern Gulf states (Table 10). For the individual states, average trip-related expenditures were \$56.90 per trip in Alabama, \$59.90 per trip in Mississippi, and \$81.00 per trip in Louisiana.

**Table 10. TRIP-RELATED EXPENDITURES INCURRED ON A TYPICAL RECREATIONAL SHRIMPING TRIP BY ACTIVE RECREATIONAL SHRIMPERS**

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average	\$74.50	\$56.90	\$81.00	\$59.90
Median	\$50.00	\$47.50	\$60.00	\$50.00

For a related item, respondents were asked to estimate what percentage of their trip-related expenditures were spent on five itemized categories: fuel, oil, ice, groceries, and other supplies. The itemized percentages for each respondent were multiplied by the respondent’s trip-related expenditures to generate estimates of expenditures for each specific category. Fuel accounted for a majority of trip-related expenditures in each state, or over two-thirds of the cost of a typical recreational shrimping trip in Alabama and Louisiana and nearly three quarters in Mississippi (Figure 7). Groceries and ice were the second and third largest trip-related expenditure items in each state, respectively.

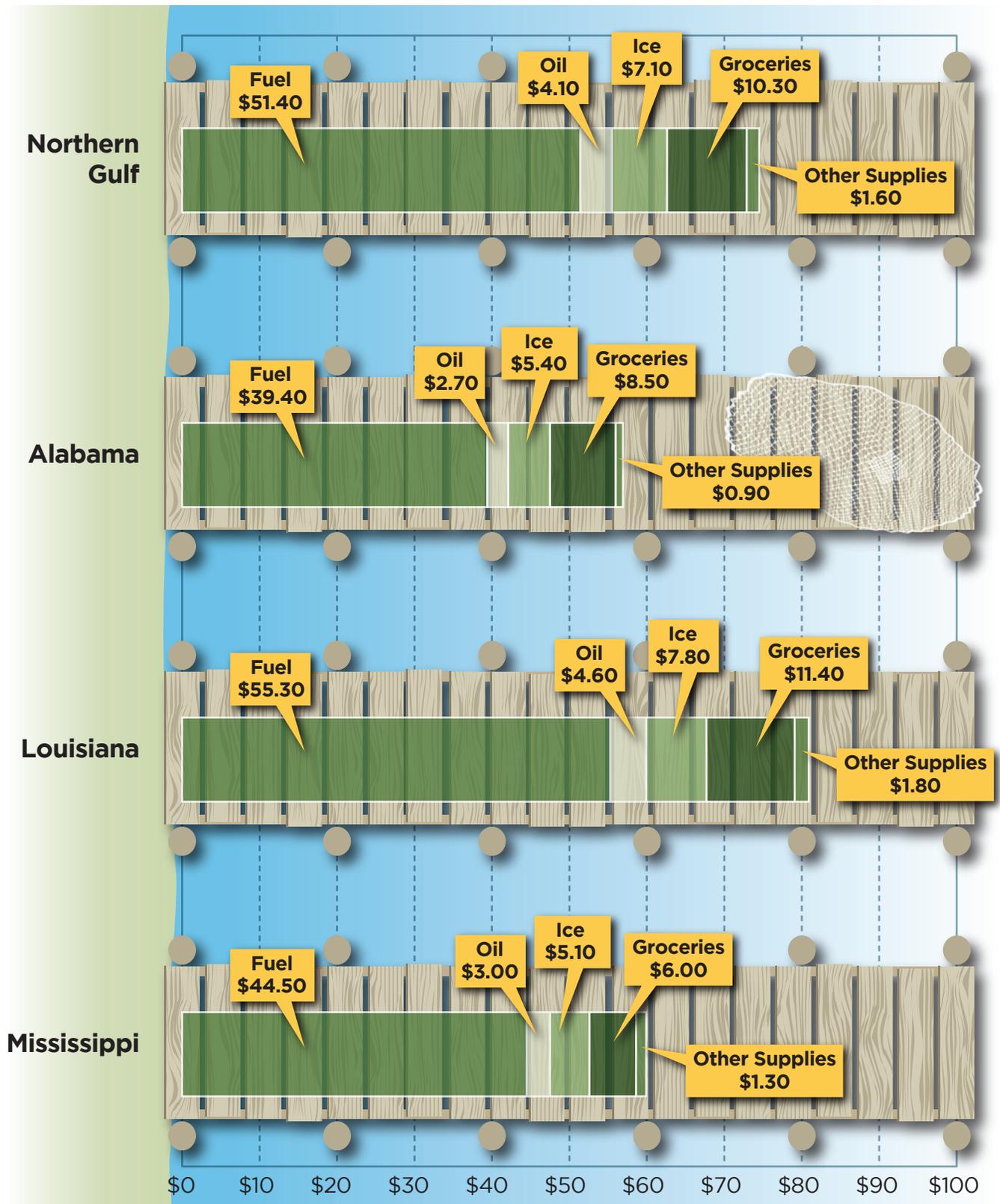


Figure 7. AVERAGE TRIP-RELATED EXPENDITURES FOR ACTIVE RECREATIONAL SHRIMPERS IN THE NORTHERN GULF STATES

The total trip-related recreational shrimp expenditures for the period were estimated by multiplying the number of recreational shrimping trips taken by each respondent, during the twelve-month period prior to the survey, by the amount spent on a typical shrimping trip. For the active recreational shrimpers across the northern Gulf states, average total period trip-related expenditures were \$576.70 per respondent (Table 11). Average total period trip-related expenditures were considerably lower in Alabama (\$320.40) than in Louisiana (\$629.70) and Mississippi (\$653.10). Given the differences between the averages and the medians, a certain degree of skew appears to be evident among respondents. The average is roughly twice the median within every state and across the northern Gulf states.

**Table 11. TOTAL TRIP-RELATED EXPENDITURES INCURRED BY ACTIVE RECREATIONAL SHRIMPERS FOR THE PREVIOUS TWELVE MONTH PERIOD<sup>2</sup>**

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average	\$576.70	\$320.40	\$629.70	\$653.10
Median	\$280.00	\$165.00	\$300.00	\$225.00

The final expenditure item on the survey asked respondents to estimate their expenditures on repairs and maintenance related to recreational shrimping gear and equipment for the 12 months prior to the survey. For the seven individuals who answered all other questions on the survey but did not provide responses for this question, the non-responses were treated as zeros. For respondents across the northern Gulf states, the average repairs and maintenance expenditures were \$134.70, and median repairs and maintenance expenditures were \$40.00 (Table 12). Average repairs and maintenance expenditures were lowest in Alabama (\$87.50) and highest in Mississippi (\$229.00).

**Table 12. GEAR RELATED MAINTENANCE AND REPAIR EXPENDITURES FOR ACTIVE RECREATIONAL SHRIMPERS**

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average	\$134.70	\$87.50	\$133.10	\$229.00
Median	\$40.00	\$30.00	\$48.36	\$25.00

<sup>2</sup> The term “total trip-related expenditures” refers to the estimated cumulative expenditures on trip-related items in the 12 months before the survey.

The frequency of repairs and maintenance expenditures on shrimping gear and equipment was not universal among all respondents. Over one-third of the respondents across the northern Gulf states reported zero expenditures related to repairs and maintenance for the 12 months prior to the survey. Approximately 36 percent of Louisiana respondents and 40 percent of Alabama and Mississippi respondents reported zero expenditures for this category for the 12 months prior to the survey.

Among the 252 respondents who reported paying at least one dollar in repairs and maintenance expenditures across all three states, the average cost for this category was \$214.90 (Table 13). State-level averages among respondents who paid at least one dollar in repairs and maintenance costs were \$146.40 in Alabama, \$207.90 in Louisiana, and \$391.30 in Mississippi.

**Table 13. EXPENDITURES FOR ACTIVE RECREATIONAL SHRIMPERS WHO REPORTED REPAIR AND MAINTENANCE EXPENSES DURING THE TWELVE MONTHS PRIOR TO THE SURVEY**

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	252	43	185	24
Average	\$214.90	\$146.40	\$207.90	\$391.30
Median	\$100.00	\$100.00	\$100.00	\$150.00

Combined shrimping expenditure estimates were calculated for each active recreational shrimper as the sum of total period trip-related expenditures and shrimping gear and equipment repairs and maintenance expenditures. Though this reflects money spent specifically for recreational shrimping, it may not reflect the total cost of recreational shrimping, as it does not cover costs for items that may overlap with other recreational activities, such as total boat maintenance, docking fees, and insurance, that were beyond the scope of this survey.

For all active recreational shrimpers across the northern Gulf states, average combined shrimping expenditures were \$711.40, and the median total shrimping expenditures were \$350.00 (Table 14). Average combined shrimping expenditures were \$407.80 in Alabama, \$762.80 in Louisiana, and \$882.20 in Mississippi.

**Table 14. COMBINED EXPENDITURES FOR ACTIVE RECREATIONAL SHRIMPERS**

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average	\$711.40	\$407.80	\$762.80	\$882.20
Median	\$350.00	\$247.50	\$425.00	\$300.00

## PER UNIT COSTS FOR RECREATIONAL SHRIMPING

This research used survey estimates to generate two measures of per unit costs for recreational shrimping: average combined expenditures per trip and average combined expenditures per pound of shrimp harvested. Average combined shrimping expenditures per trip, which combined both trip-related and repair and maintenance expenditures, was estimated for the northern Gulf states and for each state by dividing average combined shrimping expenditures (Table 14) by the corresponding average number of recreational shrimping trips in the previous twelve months (Table 7). For the northern Gulf states, average combined expenditures per trip (Table 15) were approximately \$87. Within the individual states, average combined expenditures per trip varied from approximately \$67 per trip in Alabama to \$88 per trip in Louisiana and \$90 per trip in Mississippi.

*Table 15. AVERAGE COMBINED SHRIMPING EXPENDITURES PER RECREATIONAL SHRIMPING TRIP*

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average per Trip	\$86.76	\$66.85	\$88.70	\$90.02

Average combined shrimping expenditures per pound of shrimp harvested was calculated by dividing average combined shrimping expenditures (Table 14) by the total period volume of shrimp kept (Table 8). This statistic, which approximates the amount of money that recreational shrimpers spent to obtain a pound of shrimp, was \$2.68 for the northern Gulf states (Table 16). Average total expenditures per pound were relatively low in Louisiana (\$2.39 per pound) and Mississippi (\$3.40 per pound). Alabama, which had the lowest average combined shrimping expenditures (\$407.80) and the lowest combined expenditures per trip (\$66.85 per trip), nevertheless had the highest average combined shrimping expenditures per pound of shrimp (\$7.87 per pound). This was probably due to the relatively low harvests in that state which were 10.1 pounds per trip and 51.8 pounds for the 12 months prior to the survey.

*Table 16. AVERAGE COMBINED SHRIMPING EXPENDITURES PER POUND OF SHRIMP HARVESTED BY ACTIVE RECREATIONAL SHRIMPERS*

	<b>Northern Gulf</b>	<b>Alabama</b>	<b>Louisiana</b>	<b>Mississippi</b>
Observations	402	72	289	41
Average per Pound	\$2.68	\$7.87	\$2.39	\$3.40

# V. CONCLUSION

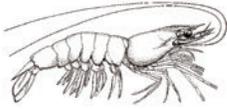
The recreational shrimpers described herein represent a relatively small portion of the total participation related to the collective marine recreational fishing activities in the northern Gulf. Rough extrapolations based on sample averages suggest that the cumulative harvest of shrimp by recreational shrimpers might account for less than a fraction of a percent of the commercial harvest of shrimp in Alabama, Louisiana, and Mississippi. The respondents combined expenditures related to recreational shrimping also represents only a fraction of one percent of the NMFS' and GSMFC's estimates of total saltwater recreational fishing expenditures in the northern Gulf states.

Nevertheless, the information captured through this survey, in an effort to describe the recreational shrimp fishery, may be of interest to fisheries managers, recreational fishermen, and other stakeholders of marine resources. The average recreational shrimper in the Gulf for the year preceding the survey deployment (2013) was a little over 50 years old, resided near the coast, took eight shrimping trips per year, and caught about 30 pounds of shrimp per trip. He or she spent about \$75 per trip, which was mostly used for fuel. Trawls were the most common type of gear utilized, but cast nets were also widely used, especially in Louisiana. The majority of survey respondents engaged in recreational shrimping to obtain food for themselves and their families as well as to catch shrimp for the use as bait.

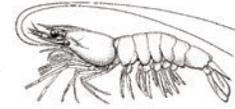
The statistical measures included in this report provide a broad, general depiction of the segment of the recreational shrimp fishery in the northern Gulf states. They do not, however, address the variation within the population. Differences in the average and medians for many variables between respondents residing in one state and respondents residing in another state demonstrate the diversity that may be found within the population of recreational shrimpers. Further information and insight may be gained by exploring the variances between one type of recreational shrimper and another in order to better understand the relationships between the variables.

It is also important to note that there are other recreational fisheries in the Gulf that target species, such as crabs and oysters, which are not typically addressed through standing assessments of recreational fishermen such as the Access Point Angler Intercept Survey. The research conducted herein may suggest that studying specialized segments of recreational fishermen can yield interesting and helpful information for fishery managers and associated stakeholders.

Appendix 1. **RECREATIONAL SHRIMPING SURVEY FOR THE NORTHERN GULF STATES**



Recreational Shrimping Survey



1. Did you take any shrimping trips in [state's name] waters during the last 12 months?
  - A. Yes
  - B. No (If you circled "No" please skip to question 8 below)
  
2. What gear(s) did you use to harvest the shrimp you caught during the last 12 months? (Circle all that apply.)
  - A. Trawl
  - B. Dip Net
  - C. Cast Net
  - D. Butterfly Net
  - E. Other (Please specify: \_\_\_\_\_)
  
3. During the last five years, about how many times did you purchase a license to shrimp *recreationally*?

About \_\_\_\_\_ times
  
4. During the last 12 months how many *recreational* shrimping trips did you take?

About \_\_\_\_\_ trips
  
- 4a. How many pounds did you keep on a typical *recreational* shrimping trip?

About \_\_\_\_\_ pounds of shrimp (whole weight)
  
5. What was your main reason for taking shrimp *recreationally*? (Please circle only one)
  - A. To catch food for myself or my immediate family
  - B. To catch bait for other fishing activities
  - C. For recreation and relaxation
  - D. Other (Please specify: \_\_\_\_\_)

Appendix 1 continued on next page

*Appendix 1 Cont'd.* **RECREATIONAL SHRIMPING SURVEY FOR THE NORTHERN GULF STATES**

6. During the last 12 months, how much money did you usually spend on a typical *recreational* shrimping trip?

About \$ \_\_\_\_\_ per trip

6a. About what percentage of the money you spent during a typical *recreational* shrimping trip over the last 12 months was spent on the following?

(Please make sure that all of the percentages add to 100%)

Fuel .....	_____	%
Oil .....	_____	%
Ice.....	_____	%
Groceries .....	_____	%
Other (Please specify) _____	_____	%
	<b>Total</b>	<b>100%</b>

7. How much money did you spend on repairs and maintenance related to *recreational* shrimping gear or equipment in the last 12 months?

About \$ \_\_\_\_\_

(Please do not include boat or engine repairs unless the boat was used exclusively for shrimping)

8. What is the ZIP code of your residence?

\_\_\_\_\_

9. What is your age?

\_\_\_\_\_ Years

Thank you for your participation!







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