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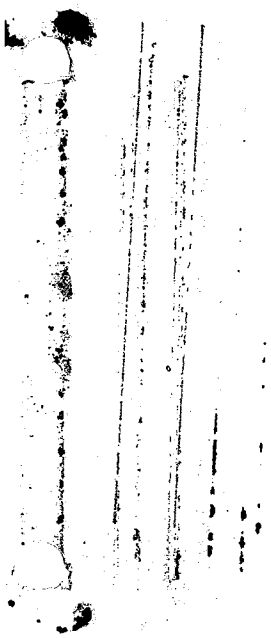
A SURVEY OF RECREATIONAL SHRIMPERS IN THE BAY AND SOUND SYSTEMS OF THE GULF COAST



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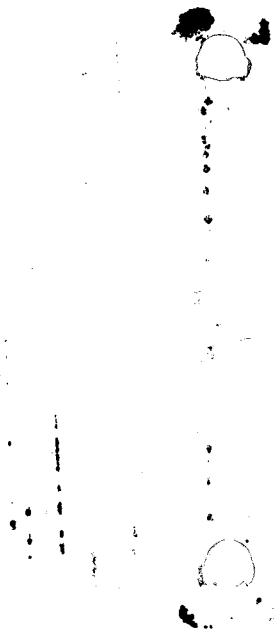

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A SURVEY OF RECREATIONAL SHRIMPERS IN THE BAY AND SOUND SYSTEMS OF THE GULF COAST

I. INTRODUCTION

This is a final report of a survey of recreational shrimping in the bay and sound systems along the Gulf Coast. The survey was conducted by Human Sciences Research, Inc., for the Gulf States Marine Fisheries Commission. The objective of the survey was to collect data on the effort and catch of recreational shrimpers. To meet this objective a total of 3,866 interviews were conducted with recreational shrimpers along the Gulf Coast during the period of May through October, 1979.

The survey of recreational shrimpers was attached to the National Survey of Marine Recreational Fishermen conducted by Human Sciences Research, Inc., for the National Marine Fisheries Service. The NMFS survey incorporated a dual-frame methodology developed by HSR through extensive experimentation and pretest. The dual-frame methodology combines estimates of numbers of participants and numbers of fishing trips obtained through a coastal telephone survey with average catch per trip estimates obtained through an on-site intercept survey. The survey of recreational shrimpers was an add-on to the on-site intercept survey portion of the dual-frame methodology only.

The primary emphasis of the NMFS survey was on data collection from recreational finfishermen. Only limited numbers of interviews were to be conducted with recreational shrimpers and spiny lobsterers. The GSMFC in recognizing the need for better data on the recreational shrimp fishery in the Gulf of Mexico elected to add to the number of interviews in the on-site intercept portion of the dual-frame methodology to increase the reliability of this data. The GSMFC did not contract for telephone interviews although the NMFS and HSR agreed to provide the GSMFC with the results of the dual-frame telephone survey which pertained to recreational shrimping. The results of the telephone survey are described in a separate report.

Because the survey of recreational shrimpers was so closely tied to the NMFS national finfishing survey, a brief description of the development and execution of the

NMFS survey is provided in the background section of this report. The specific objectives of the survey of recreational shrimpers are then provided in Part III. For many reasons described later, the survey of recreational shrimpers was conducted in two distinct phases. The procedures, results, and conclusions of the first phase of the study are presented in Part IV. The procedures, results, and conclusions of the second phase of the study are presented in Part V. Part VII provides a summary of the results of the survey and some conclusions as to the adequacy of the data and the need for future study. Appendices include the data collection instruments and associated materials, the data editing programs, and various tables.

II. BACKGROUND

In 1976 Human Sciences Research, Inc., was awarded a contract by the National Marine Fisheries Service to develop and pretest various methodologies or combination of methodologies for collecting marine recreational fisheries data. A literature search was conducted, data collection instruments were developed, survey methodologies were compared, and various tests were made of fishermens' abilities to recall information, to identify species, and to estimate the weight and length of fish.

There were two overriding issues in the development of the recommended approach to the collection of needed data. The first issue related to the problems encountered in the identification of fish at the species level by the fishermen and in fishermens' poor recall of fishing information over time. Experiments conducted by HSR indicated that fishermen were unable to identify finfish at the species level with consistency and that considerable recall bias existed with respect to the estimation of the weight and length of catch and the time actually spent fishing.

The second issue pertained to the need to develop estimates of total catch and effort. The most logical approach in consideration of issue one is an on-site intercept, or creel survey in which trained scientists can collect accurate data on-site to eliminate recall bias. Unfortunately, a creel survey on a national basis is not easily adaptable to estimating totals. The development of multipliers to advance from averages to totals is generally accomplished through a household survey of some type. HSR therefore tested various methods of conducting household surveys including the door-to-door approach, two different methods of random digit dialing telephone approaches, and a combination telephone/mail questionnaire approach. The results of this test of methods indicated that fishermen could recall information for a two-month period on number and date of trips, location of fishing (ocean, sound, bay, etc.) and mode of fishing (beach bank, private boat, etc.). One of the two random digit dialing telephone methods was found to be the most inexpensive method of obtaining this information.

The survey approach recommended by HSR for an operational survey of marine recreational fishermen therefore incorporated a dual-frame methodology. HSR recommended that estimates of the average catch and effort of fishermen be obtained in an on-site intercept survey and that multipliers to expand this data to totals be obtained through a random digit dialing household telephone survey. The recommended operational methodology took into consideration non-telephone households, fishermen not living near coastal waters, cross-state fishing activity, and recall and estimation biases.

In 1977 the NMFS contracted with HSR to pretest the operational methodology in limited areas along the Atlantic and Gulf Coasts. On-Site intercept and telephone surveys were conducted in Kent and Washington Counties, Rhode Island; in Georgetown County, South Carolina; and in Harris and Galveston Counties; Texas. Although only limited amounts of data were collected on shellfishing activities and no data were collected on recreational shrimping activities, the assumption was made by HSR that the dual-frame methodology was adequate for shellfishing as well as finfishing. The results of the work described above can be found in the following research reports.

Gary L. Brown, *A Review of Literature in Selected Areas Relevant to the Conduct of Marine Recreational Fisheries Surveys,* August 1977.

Gary L. Brown with Robert L. Hiett and Dhirendra N. Ghosh, *Evaluation of the Door-to-Door Personal Interview Method as a Technique for Collecting Marine Recreational Fishing Statistics,* June 1977.

Kathryn A. Chandler, *A Methodological Study of On-Site Intercept Surveys of Marine Recreational Fishermen on the West Coast,* July 1977.

Brenda C. Metz, *Evaluation of the Telephone Interview Method as a Technique for Collecting Marine Recreational Fishing Data,* July 1977.

Robert L. Hiett and Dhirendra N. Ghosh, *A Recommended Approach to the Collection of Marine Recreational Finfishing and Shellfishing Data on the Pacific Coast,* August 1977.

Kathryn A. Chandler and Gary L. Brown, *A Pretest of an Approach to Collection of Marine Recreational Fishing Data on the East and Gulf Coasts,* January 1978.

In 1978 the NMFS awarded a contract to HSR to operationalize the dual-frame methodology along the Atlantic and Gulf Coasts, in Hawaii, Guam and American Samoa. The geographical sampling areas for the survey conform to the areas covered by the Regional Fishery Management Councils. Data collection began November 1, 1978, and was to continue through October 31, 1979.

In recognition of the need for better data on the catch and effort of recreational shrimpers in the bay and sound systems along the Gulf Coast, the Gulf States Marine Fisheries Commission elected to negotiate a contract with HSR to add to the number of interviews to be conducted in the on-site intercept portion of the dual-frame methodology. The GSMFC contracted for up to 4,000 interviews to be conducted on-site with recreational shrimpers in the months of May through October 1979. The objectives of this survey are described in the next section.

III. OBJECTIVES

The principal objective of the survey of recreational shrimpers was to collect information on the effort of recreational shrimpers and on their inshore shrimp catch by species and size composition. This data is needed to help make better decisions regarding management measures for the bay and sound systems in the Gulf.

The specific information requirements in the survey of recreational shrimpers can be divided into seven major categories. These categories included: administrative data on such items as the time, place, and status of interviews; information necessary to expand the data using a dual-frame methodology; socioeconomic data; effort data; catch data; sales data; and quality control data. These seven categories are outlined in more detail below:

- Administrative Survey Data

  interviewer ID code
  year/month/day of interview
  hour of interview
  state and county of intercept site
  language of respondent
  status of interview (completed, refused, etc.)
  method used to determine weight of catch

- Dual-Frame Methodological Data

  mode of fishing (beach/bank, private boat, etc.)
  primary location of fishing (ocean, sound, bay etc.)
  primary gear
  county and state of residence
  home phone ownership
  number of fishing trips in and out of state in past 12 months and past 2 months

- Socio-Economic Data

  age of fishermen
  sex of fishermen
  distance traveled
  dollars expended

- Effort Data

  hours with gear in water
  number of gear used simultaneously

- Catch Data

  intended catch
  actual catch/not kept
    species
    disposition (thrown back, used for bait, etc.)
    weight
    heads on or off
    location
  actual catch/kept
    species
    weight
    count per pound
    heads on or off
    location of catch

- Sales Data

  recreational sales
  commercial sales

- Quality Control

  name and telephone number or address of fishermen for verification of interview

The above information was to be collected in up to 4,000 on-site interviews with recreational shrimpers. The GSMFC provided a plan for allocating these interviews by state (Table 1) and by season within state (Table 2).

TABLE 1

GSMFC Projected Allocation of Interviews by State

State	Number	Percent
Texas	624	15.6
Louisiana	2,596	64.9
Mississippi	208	5.2
Alabama	312	7.8
Florida	260	6.5
Totals	4,000	100.0

TABLE 2

GSMFC Projected Seasonal Allocations Within State

State	Time Period	Number	Percent
Texas	mid-May to mid-June	499	80.0
	mid-August to mid-December	125	20.0
	Texas total	624	100.0
Louisiana	May to July	1,558	60.0
	September to mid-October	1,038	40.0
	Louisiana total	2,596	100.0
Mississippi	mid-July through July	146	70.0
	September through October	62	30.0
	Mississippi total	208	100.0
Alabama	June through August	281	90.0
	September through November	31	10.0
	Alabama total	312	100.0
Florida	Pensacola to Apalachicola		
	June to mid-July	130	50.0
	September through October	26	10.0
	Tampa Bay South		
	Late February through March	104	40.0
	Florida total	206	100.0

Because significant difficulties were encountered in meeting the objectives of the contract using the interviewing procedures and projection of interviewer effort as described in the contract for this survey, substantial modifications to the procedures and allocations were made by HSR in cooperation with the GSMFC midway through the study. In order to document these modifications and highlight their impact on the study, the procedures, results, and conclusions of the first phase of the survey are described in Part IV, while the procedures, results and conclusions of the modified second phase of the survey are described in Part V.

IV. PHASE I OF THE SURVEY OF RECREATIONAL SHRIMPERS

Data collection in Phase I of the survey of recreational shrimpers took place from mid-May to August 1, 1979, during the brown shrimp season. The procedures, results, and conclusions of this phase of the study are described in the sections which follow.

Phase I Procedures

The procedures for interviewing recreational shrimpers in Phase I were patterned after those used in the NMFS finfishing survey. Interviewers were positioned at various access points selected by HSR along the Gulf Coast. Since large differences are found in boat landing and/or docking facilities, on-site procedures for obtaining interviews varied somewhat by site. In every case, however, interviewers were to attempt to interview fishermen at the completion of their trips as they passed the central access point. In some cases time pressures were such that subsampling procedures were needed. For example, interviewers were instructed to approach the shrimpers in every second or third boat.

A central assumption in the negotiation of the survey of recreational shrimpers was that interviewer recruitment and training would be paid for through HSR's survey for the National Marine Fisheries Service. The NMFS contract called for each HSR interviewer along the Gulf Coast to be trained in both shrimping and finfishing interview procedures. The contract for the survey of recreational shrimpers therefore called for only three to five additional interviewers to be trained and equipped specifically for this project.

Because some changes were made to the NMFS screening procedures, questionnaires, and administrative materials (in negotiation with the GSMFC), it was necessary for HSR representatives to retrain the NMFS interviewers along the Gulf Coast. Training sessions lasted approximately seven hours each and included discussions on the need for accurate and reliable data, techniques for developing rapport and obtaining cooperation

from shrimpers, item by item instructions for asking questions and recording responses, and administrative billing procedures. Tape recordings were used and role-playing sessions were conducted.

The GSMFC requested that the NMFS questionnaires on recreational shrimping be modified somewhat to include questions on the sales of recreational shrimp catch. Inadequate data was available for determining the extent to which recreational shrimpers sold their catch, either through formal commercial channels, or through "recreational" sales channels such as to neighbors, friends, restaurants, roadside stands, etc. HSR therefore modified the recreational shrimping questionnaires in collaboration with NMFS and GSMFC representatives to include this data.

Because shrimp catch statistics are obtained by the NMFS when sales are made through formal commercial channels it was agreed to eliminate from the survey any recreational shrimper who planned to sell any or all of his catch through commercial channels. To avoid double counting of recreational shrimp statistics, Phase I of the survey of recreational shrimpers therefore included the following screening question, "Do you plan to sell any or all of your catch to a commercial processing plant or wholesale house?" If the answer to this question was positive, interviewers were instructed to complete a one-page questionnaire which is provided in Appendix A, and then terminate the interview.

In the event that recreational shrimpers could not determine whether or not the place to which they intended to sell their catch was a formal commercial channel, the NMFS provided HSR with a list of the names and addresses of commercial processing plants and wholesale houses along the Gulf Coast. HSR photocopied this information and provided it to all of the Gulf Coast interviewers.

The equipment used in Phase I of the survey of recreational shrimpers to determine the total weight of the shrimp catch included buckets and hanging scales which had been provided to HSR interviewers through the NMFS finfishing survey. The procedures called for an interviewer to fill and weigh a bucket of shrimp, and to then estimate the total number of buckets of shrimp the fishermen possessed. If the shrimper refused to

allow the interviewer to weigh a bucketfull of shrimp, the interviewer was then to make an estimate of the total catch in pounds and record it on the form. In the event that a shrimper would not even allow an interviewer to observe his catch, the interviewer was to solicit the shrimper's best estimate of the total catch in pounds and record this estimate on the form. HSR included a question on the form to obtain data on the frequency with which the various methods of determining total weight of catch were used.

The determination of count per pound of shrimp was made in Phase I using the same equipment as was used for determining the total weight of catch. Interviewers were asked to weigh one pound of shrimp (subtracting the bucket weight) on the hanging scales.

The sampling frame, or list of sites, used in Phase I of the survey of recreational shrimpers was obtained on a state-by-state basis from state fisheries representatives along the Gulf Coast. An HSR representative then contacted a fisheries official in each state to determine the most efficient times for interviewing and the most effective weighting of interviewer effort by date.

For purposes of quality control the name and telephone number of each of the shrimpers who participated in the study was requested at the end of each interview. HSR then randomly selected at least one telephone number per day of interviewer effort and conducted a short interview to verify the occurrence of interviewing on the day and at the place reported by the interviewers. The verification call was stated as follows:

> "One of our interviewers has told us you were kind enough to answer a few questions about your recreational shrimping activities on (date) at (location of site). So that we may give proper credit to our interviewer can you tell me, were you interviewed on that day? Thank you very much for participating in our survey. We hope the results of our study will lead to better recreational shrimping in the future."

The questionnaires and associated reference materials including the introduction, Privacy Act Statement, and commercial sales (short form) questionnaire which were used in Phase I of the survey of recreational shrimpers are presented in Appendix A.

Phase I Results

The results of Phase I of the survey of recreational shrimpers are provided in the following sections. The number of interviews obtained by state in Phase I is provided in Table 3. The number of interviews obtained was dramatically lower than was originally projected in each of the Gulf states. The reasons for this discrepancy are described under, Phase I Conclusions, which follows the results section of this part of the report. The vast majority of the recreational shrimpers who were approached for an interview agreed to participate in the survey. Only 8.1% of the recreational shrimpers refused to be interviewed.

TABLE 3

Phase I, Interviews by State

State	Frequency	Cum Frequency	Percent	Cum Percent
Alabama	201	201	20.730	21.730
Louisiana	651	852	70.378	92.108
Mississippi	66	918	7.135	99.243
Texas	7	925	0.757	100.000

The number of interviews obtained by county of intercept and by intercept site for Phase I are presented in Appendix B on a state-by-state basis.

The focus of the survey of recreational shrimpers was on private boat trawlers. Breakdowns of the Phase I interviews by mode, gear, and area of fishing are presented in Tables 4-6. Private boats were used by all but one of the shrimpers who were intercepted. Trawls were used as the primary gear by 97.4 percent of the shrimpers. The coding categories for gear were those used in the NMFS finfishing survey. Since sometimes fishermen use more than one type of gear on a given fishing trip, the questionnaires used by HSR ask for the type of gear *primarily* used during the fishing trip. This explains why hook and line occurs in this table.

TABLE 4

Phase I, Interviews by Mode

Mode	Frequency	Percent
Boat	924	99.892
Non-Boat	1	0.108

TABLE 5

Phase I, Interviews by Gear

Gear	Frequency	Cum Frequency	Percent	Cum Percent
Hook and line	1	1	0.108	0.108
Cast net	20	21	2.278	2.278
Seine	1	22	0.108	2.386
Trawl	898	920	97.400	99.783
Butterfly net	2	922	0.217	100.000

The coding categories for area fished in were those used in the NMFS finfishing survey and included the Gulf, sounds, rivers, and bays. Almost 300 of the recreational shrimpers reported an area which did not fall into these four categories. All of these recreational shimpers were from the state of Louisiana. The most frequently reported areas of shrimping by these Louisiana shrimpers were lakes and bayous. None of the trips in the "other" category were said to have been taken in the Gulf.

TABLE 6

Phase I, Interviews by Area Shrimped

Area	Frequency	Cum Frequency	Percent	Cum Percent
Sound	113	113	12.431	12.431
River	13	126	1.430	13.861
Bay	292	418	32.123	45.985
Gulf	193	611	21.123	67.217
Other	298	909	32.783	100.000

Breakdowns by age and sex of the Phase I shrimpers are provided in Tables 7 and 8. Due to Office of Management and Budget restrictions age was recorded on the questionnaires in categories such that an individual age could not be identified. Thus no means (averages) or standard deviations were possible to compute for this variable. It is apparent from Table 7, however, that recreational shrimpers cover a wide range of ages. As was expected, the majority of the shrimpers were male.

TABLE 7

Phase I, Age of Shrimpers

Age	Frequency	Cum Frequency	Percent	Cum Percent
Under 5 Yrs.	2	2	0.223	0.223
5 to 13 Yrs.	48	50	5.345	5.568
14 to 17 Yrs.	48	98	5.345	10.913
18 to 24 Yrs.	66	164	7.350	18.263
25 to 34 Yrs.	224	388	24.944	43.207
35 to 44 Yrs.	220	608	24.499	67.706
45 to 54 Yrs.	145	753	16.147	83.853
55 to 64 Yrs.	100	853	11.136	94.989
65+	45	898	5.011	100.000

TABLE 8

Phase I, Sex of Shrimpers

Sex	Frequency	Cum Frequency	Percent	Cum Percent
Male	816	816	88.216	88.216
Female	109	925	11.784	100.000

The dollars expended per trip, miles traveled to fishing sites, and avidity levels (number of trips taken) within and outside the state of intercept for twelve and two month periods are presented for Phase I by state in Table 9.

TABLE 9

Phase I, Averages of Selected Items by State

State/Variable	N	Mean	Standard Deviation	Variance
Alabama				
Dollars/trip	201	9.293	15.489	239.924
Miles/trip	201	26.209	16.285	265.206
In-State 12 mos.	201	6.438	11.400	129.967
In-State 2 mos.	201	1.075	2.015	4.059
Out-of-State 12 mos.	201	0.080	0.744	0.554
Out-of-State 2 mos.	201	0.000	0.000	0.000
Louisiana				
Dollars/trip	633	12.884	13.566	184.048
Miles/trip	651	52.083	45.199	2042.956
In-State 12 mos.	631	10.499	16.635	276.711
In-State 2 mos.	633	3.512	5.609	31.465
Out-of-State 12 mos.	637	0.064	0.970	0.941
Out-of-State 2 mos.	637	0.000	0.000	0.000
Mississippi				
Dollars/trip	65	28.996	29.756	885.438
Miles/trip	65	12.938	18.841	354.996
In-State 12 mos.	65	9.862	18.357	336.996
In-State 2 mos	65	2.862	5.420	29.371
Out-of-State 12 mos.	65	0.600	2.364	5.587
Out-of-State 2 mos.	65	0.231	1.260	1.587
Texas				
Dollars/trip	7	21.786	23.569	555.488
Miles/trip	7	44.286	37.017	1370.238
In-State 12 mos.	7	4.143	7.175	51.476
In-State 2 mos.	7	1.857	2.116	4.476
Out-of-State 12 mos.	7	0.000	0.000	0.000
Out-of-State 2 mos	7	0.000	0.000	0.000

The number of shrimpers with and without home telephones is presented in Table 10 for Phase I of the survey of recreational shrimpers. This data is important in the dual-frame methodology as a telephone survey is used to estimate the total number of shrimpers and shrimping trips taken. As can be seen from the data in Table 10 the majority of shrimpers stated that they possessed a home telephone. In the dual-frame methodology, the total catch and effort estimates must be inflated to reflect the proportion of non-telephone fishing households described below.

TABLE 10

Phase I, Home Telephone Ownership

Home Telephone	Frequency	Cum Frequency	Percent	Cum Percent
Yes	842	842	94.395	94.395
No	50	892	5.605	100.000

Another intercept variable that is important when using a dual-frame methodology is county of residence. The telephone survey in the dual-frame approach is conducted only in counties within a specified distance from the coastline. The telephone survey of shrimpers covering the Gulf Coast during the period in which on-site intercepting occurred included any county whose boundary extended within fifty miles of the Gulf. The percentages of shrimpers intercepted in Phase I who lived within and outside of this telephone zone are presented by state in Table 11. In the dual-frame approach the total effort and catch estimates are expanded to reflect the proportion of trips taken from non-telephone zone households using this data.

TABLE 11

Phase I, Percentage of Shrimpers Residing
Within and Outside of the Telephone Survey Zone by State

	Within Telephone Zone		Outside Telephone Zone	
	N	Percent	N	Percent
Alabama	198	98.507	3	1.493
Louisiana	601	92.320	50	7.680
Mississippi	66	100.000	–	–
Texas	7	100.000	–	–
Total	872	94.270	53	5.730

The remainder of this section presents Phase I catch and effort data on a state-by-state basis. No interviews were conducted in the state of Florida and only seven interviews were conducted in Texas in Phase I although frequent attempts were made to intercept shrimpers there. These attempts are described later in this section.

Louisiana

A total of 651 shrimpers on board 301 boats were intercepted in the state of Louisiana in Phase I. Appendix B contains the number of interviews obtained by date, by county of intercept, and by intercept site. The mean number of hours trawled per shrimping trip was 3.17 (s=2.02). A breakdown of trips by hours trawled appears in Table 12.

TABLE 12

Phase I, Louisiana Shrimping Trips by Hours Shrimped

Hours Trawled	Frequency	Cum Frequency	Percent	Cum Percent
0.5 - 1.0	116	116	18.040	18.040
1.5 - 2.0	138	254	21.146	39.502
2.5 - 3.0	88	342	13.686	53.188
3.5 - 4.0	94	436	14.619	67.807
4.5 - 5.0	97	533	15.086	82.893
5.5 - 6.0	51	584	7.932	90.824
6.5 - 7.0	33	617	5.132	95.956
7.5 - 8.0	19	636	2.955	98.911
8.5 - 9.0	–	–	–	–
9.5 - 10.0	5	641	0.778	99.689
over 10.0	2	643	0.311	100.000

The mean pounds of catch per trip, mean pounds of catch per hour, and mean count per pound of shrimp by species for the Louisiana Phase I survey of recreational shrimpers appears in Table 13a. A breakdown of the catch in pounds by count per pound category appears in Table 13b. A breakdown of the Louisiana shrimping trips by pound per hour of shrimp catch is presented in Table 13c.

TABLE 13a.

Phase I, Louisiana Catch Data by Species

Variable	N	Mean	Standard Deviation	Variance
Brown Lbs/Trip	280	43.047	44.092	1944.071
Brown Lbs/Hr.	280	12.072	14.564	212.109
Brown Cnt/Lb.	185	53.730	18.249	333.014
White Lbs/Trip	73	5.915	14.004	196.122
White Lbs/Hr.	73	1.759	3.417	11.674
White Cnt/Lb.	46	36.261	30.824	950.108
Total Lbs/Trip	301	41.493	43.973	1933.635
Total Lbs/Hr.	301	11.686	14.337	205.559
Hours Shrimped	301	3.748	2.244	5.038

The pounds of catch by count per pound category for Louisiana in Phase I appears in Table 14.

TABLE 13b.

Phase I, Louisiana Pounds of Shrimp
Caught by Count per Pound Category

Count Per Pound	Brown			White			Total	
	Lbs.	Brown %	Phase I %	Lbs.	White %	Phase I %	Lbs.	%
Under 15	4	0.1	0.1	36	13.8	1.0	40	1.1
15 - 20	1	0.03	0.03	5	1.9	0.1	6	0.2
21 - 25	65	1.9	1.7	2	0.8	0.05	67	1.8
26 - 30	329	9.5	8.8	0	–	–	329	8.8
31 - 40	1,083	31.2	29.0	9	3.4	0.2	1,092	29.2
41 - 50	647	18.6	17.3	55	21.1	1.5	702	18.8
51 - 67	1,303	37.5	34.9	55	21.1	1.5	1,358	36.3
68 - 100	42	1.2	1.1	44	16.9	1.2	86	2.3
Over 100	1	0.03	0.03	55	21.1	1.5	56	1.5
Totals	3,475	100.0	93.0	261	100.1	7.05	3,736	100.0

TABLE 13c.

Phase I, Louisiana Shrimping Trips by Pounds of Shrimp Caught per Hour

Pounds Per Hr.	Brown		White		Total	
	N	%	N	%	N	%
Zero	97	27.8	279	79.9	31	8.9
Under 1 lb.	13	3.7	42	12.0	54	15.5
1 - 2 lbs.	20	5.7	17	4.9	33	9.5
3 - 5 lbs.	49	14.0	5	1.4	56	16.0
6 - 10 lbs.	68	19.5	4	1.1	70	20.1
11 - 15 lbs.	37	10.6	2	0.6	40	11.5
16 - 20 lbs.	29	8.3	0	–	29	8.3
21 - 25 lbs.	11	3.2	0	–	11	3.2
26 - 30 lbs.	5	1.4	0	–	5	1.4
Over 30 lbs.	20	5.7	0	–	20	5.7
Total	349	99.9	349	99.9	349	100.1

Alabama

A total of 201 shrimpers on board 85 boats were intercepted in the state of Alabama in Phase I. Appendix B contains the number of interviews obtained by date, by county of intercept, and by intercept site. The mean number of hours shrimped per trip in Alabama was 4.682 (s=2.06). A breakdown of trips by hours shrimped appears in Table 14.

TABLE 14

Phase I, Alabama Shrimping Trips by Hours Shrimped

Hours Trawled	Frequency	Cum Frequency	Percent	Cum Percent
0.5 - 1.0	16	16	7.960	7.960
1.5 - 2.0	18	24	8.955	16.915
2.5 - 3.0	21	55	10.448	27.363
3.5 - 4.0	39	94	19.403	46.766
4.5 - 5.0	47	141	23.383	70.149
5.5 - 6.0	36	177	17.910	88.060
6.5 - 7.0	15	192	7.463	95.522
7.5 - 8.0	2	194	0.995	96.517
8.5 - 9.0	–	–	–	–
9.5 - 10.0	3	197	1.493	98.010
over 10.0	4	201	1.990	100.000

The pounds of catch per trip, pounds of catch per hour, and count per pound by species for Alabama in Phase I of the survey of recreational shrimpers appears in Table 15a. A breakdown of the catch in pounds by count per pound category appears in Table 15b. A breakdown of the Alabama shrimping trips by pounds of shrimp caught per hour is presented in Table 15c.

TABLE 15a.

Phase I, Alabama Catch by Species

Variable	N	Mean	Standard Deviation	Variance
Brown Lbs/Trip	32	53.375	67.103	4502.806
Brown Lbs/Hr.	32	10.252	10.282	105.714
Brown Cnt/Lb.	16	44.188	8.856	78.429
White Lbs/Trip	55	33.9000	27.208	740.291
White Lbs/Hr.	55	7.796	5.971	35.657[
White Cnt/Lb.	39	43.769	8.539	72.919
Total Lbs/Trip	85	42.029	46.824	2192.514
Total Lbs/Hr.	85	8.904	7.854	61.684
Hours Shrimped	85	4.682	2.061	4.249

TABLE 15b.

Phase I, Alabama Pounds of Shrimp Caught
by Count per Pound Category

Count Per Pound	Brown			White			Total	
	Lbs.	Brown %	Phase I %	Lbs.	White %	Phase I %	Lbs.	%
Under 15	0	–	–	0	–	–	0	–
15 - 20	0	–	–	0	–	–	0	–
21 - 25	0	–	–	43	3.7	2.5	43	2.5
26 - 30	0	–	–	0	–	–	0	–
31 - 40	295	52.9	17.0	430	36.6	24.8	725	41.8
41 - 50	218	39.1	12.6	503	42.8	29.0	720	41.5
51 - 67	45	8.1	2.6	150	12.8	8.7	195	11.3
68 - 100	0	–	–	50	4.3	2.9	50	2.9
Over 100	0	–	–	0	–	–	0	–
Totals	558	100.1	32.2	1,175	100.2	67.9	1,733	100.0

TABLE 15c.

Phase I, Alabama Shrimping Trips by Pounds of Shrimp Caught per Hour

Pounds Per Hr.	Brown		White		Total	
	N	%	N	%	N	%
Zero	60	64.5	39	41.9	8	8.6
Under 1 lb.	3	3.2	3	3.2	4	4.3
1 - 2 lbs.	5	5.4	6	6.5	11	11.8
3 - 5 lbs.	6	6.5	14	15.1	20	21.5
6 - 10 lbs.	7	7.5	19	20.4	26	28.0
11 - 15 lbs.	5	5.4	6	6.5	11	11.8
16 - 20 lbs.	4	4.3	5	5.4	9	9.7
21 - 25 lbs.	1	1.1	0	–	1	1.1
26 - 30 lbs.	1	1.1	1	1.1	2	2.2
Over 30 lbs.	1	1.1	0	–	1	1.1
Total	93	100.1	93	100.1	93	100.1

Mississippi

A total of 66 shrimpers on board 60 boats were intercepted in the state of Mississippi in Phase I. Appendix B contains the number of interviews obtained by date, by county of intercept, and by intercept site. The mean number of hours shrimped in Mississippi was 4.28 (s=3.41). A breakdown of trips by hours shrimped appears in Table 16.

TABLE 16

Phase I, Mississippi Shrimping Trips by Hours Trawled

Hours Trawled	Frequency	Cum Frequency	Percent	Cum Percent
0.5 - 1.0	2	2	3.077	3.077
1.5 - 2.0	13	15	20.000	23.077
2.5 - 3.0	16	31	24.615	47.692
3.5 - 4.0	12	43	18.462	66.154
4.5 - 5.0	11	54	16.923	83.077
5.5 - 6.0	2	56	3.077	86.154
6.5 - 7.0	4	60	6.154	92.308
7.5 - 8.0	3	63	4.615	96.923
8.5 - 9.0	–	–	–	–
9.5 - 10.0	–	–	–	–
over 10.0	2	65	3.077	100.000

The pounds of catch per trip, pounds of catch per hour, and count per pound by species for Mississippi in Phase I of the survey of recreational shrimping appears in Table 17.

TABLE 17a.

Phase I, Mississippi Catch by Species

Variable	N	Mean	Standard Deviation	Variance
Brown Lbs/Trip	38	43.332	75.137	5645.511
Brown Lbs/Hr.	38	8.934	8.597	73.902
Brown Cnt/Lb.	30	49.067	14.365	206.240
Other Lbs/Trip	22	90.636	125.624	15781.361
Other Lbs/Hr	22	18.064	22.085	487.768
Other Cnt/Lb.	20	51.450	12.271	150.576
Total Lbs/Trip	60	60.677	98.417	9685.961
Total Lbs/Hr.	60	12.282	15.481	239.646
Hours Shrimped	60	4.275	3.414	11.656

TABLE 17b.

Phase I, Mississippi Pounds of Shrimp Caught
by Count per Pound Category

Count Per Pound	Brown			Mixed			Total	
	Lbs.	Brown %	Phase I %	Lbs.	Mixed %	Phase I %	Lbs.	%
Under 15	0	–	–	0	–	–	0	–
15 - 20	0	–	–	0	–	–	0	–
21 - 25	0	–	–	0	–	–	0	–
26 - 30	0	–	–	0	–	–	0	–
31 - 40	146	11.4	4.5	501	25.7	15.5	647	20.0
41 - 50	297	23.2	9.2	562	28.8	17.4	859	26.6
51 - 67	704	55.1	21.8	887	45.4	27.5	1,591	49.3
68 - 100	131	10.3	4.1	2	0.1	0.06	133	4.1
Over 100	0	–	–	0		–	0	–
Totals	1,278	100.0	39.6	1,952	100.0	60.5	3,230	100.0

TABLE 17c.

Phase I, Mississippi Shrimping Trips
by Pounds of Shrimp Caught per Hour

Pounds Per Hr.	Brown		Total	
	N	%	N	%
Zero	20	31.7	20	31.7
Under 1 lb.	6	9.5	6	9.5
1 - 2 lbs.	7	11.1	7	11.1
3 - 5 lbs.	4	6.3	4	6.3
6 - 10 lbs.	15	23.8	15	23.8
11 - 15 lbs.	4	6.3	4	6.3
16 - 20 lbs.	3	4.8	3	4.8
21 - 25 lbs.	1	1.6	1	1.6
26 - 30 lbs.	1	1.6	1	1.6
Over 30 lbs.	2	3.2	2	3.2
Total	63	99.9	63	99.9

Texas and Florida

Only seven interviews were obtained in Texas and no interviews were obtained in Florida in Phase I of the survey. In Texas the limited number of interviews appears to have been a result of a combination of factors including a low level of shrimping activity, an inadequate list of sites, and an inadequate assignment schedule of interviewing effort by date. Although the originally projected interviewer days were initiated in Texas, the majority of these days resulted in no interviews, and were thus cut short to save precious interviewing funds. In these cases, interviewers devoted an average of two to three hours per day in searches for recreational shrimpers at the sites which were listed on the Texas sampling frame. The interviewing hours which were saved by cutting short the activity on these days were transferred to Phase II of the survey when a more appropriate list of sites and assignment schedule by date could be developed.

The sites and dates of coverage in the state of Florida were developed from reports received by HSR from various Florida Marine Patrol Offices along the Gulf Coast of Florida. Night shrimping was reported to occur in the Appalachicola Bay area of Florida in early May. Since this period was in advance of the shrimping activity in other states, HSR researchers visited the Apalachicola Bay in early May to supervise data collection efforts, and evaluate interviewing techniques and procedures. Unfortunately, however, an extensive search of the sites in the area uncovered no recreational shrimping activity. As was the case in Texas, many of the interviewing days which were initiated in Phase I were cut short because no recreational shrimpers were located. Since shrimping activity was reported to occur, however, at the times and places to which HSR interviewers were being assigned it was decided to expend the number of interviewer hours initially projected for Florida in Phase I of the survey rather than redirect these hours to the second phase.

Phase I Conclusions

The on-site procedures for intercepting recreational shrimpers which were used in Phase I had not gone through the rigorous pretesting which HSR had undertaken for its finfishing procedures. Largely because of this a number of methodological issues were raised in Phase I. These included a significant deficiency in interviewer productivity, a high refusal rate to count per pound measurements, difficulties in obtaining access to the catch in order to determine total weight and species composition, and inadequate documentation of area fished in. In addition, it was believed that more accurate measuring devices could be obtained for determining the count per pound of shrimp caught.

The most serious methodological issue raised in Phase I of the survey of recreational shrimpers was that of interviewer productivity. All of the interviewers along the Gulf Coast who were employed in HSR's survey for the NMFS were retrained and sent out into the field to collect data on recreational shrimping. Their numbers did not prove to be adequate, however. A total of 20 interviewers were sent repeatedly to randomly selected sites during those time periods in which the heaviest shrimping activity was believed to take place. Assignments were made in accordance with the initially projected number of interviews by state. The total number of interviews obtained was much lower than desired, however.

The high degree of shrimping activity upon the opening of the brown shrimping season resulted in a high interview rate per day in Louisiana, Mississippi, and Alabama for the first few days of the shrimping season. Within a very short period of time, however, the recreational shrimping activity had reduced substantially and only limited numbers of interviews were obtained by interviewers on a given day of assignment. In Texas and Florida difficulties were encountered in locating shrimpers at the randomly selected sites to which they were sent.

The number of recreational shrimpers who refused to allow count per pound measurements to be taken in Phase I was unsatisfactory. The field interviewers reported that these refusals were in large part related to the initial screening question in the survey

which concerned sales of shrimp. Apparently many shrimpers were skeptical of the purpose of the survey and were wary of Internal Revenue Service checks. The survey was voluntary and was conducted in accordance with the Privacy Act of 1974. Thus each recreational shrimper was informed at the beginning of the interview that he was not required to participate in the study, that nothing would happen to him if he decided not to participate, and that he could refuse to answer any question which he considered to be an invasion of his privacy. Although the survey was not intended to serve as an enforcement mechanism of any kind and each shrimper was informed of this and told the data he provided would be used only for statistical purposes, introducing the survey with a question relating to sales appeared to the shrimpers to contradict these statements.

Determining the species composition and the total weight of the catch proved to be difficult tasks in Phase I of the survey due to the manner in which shrimp are packed upon capture. Shrimpers frequently place their catch in layers of ice in containers on-board their boats. It was very difficult for interviewers to obtain access to the catch in these cases since the shrimpers simply did not wish to disturb their carefully layered shrimp. In these cases, estimates of the total catch were obtained from the shrimpers.

The categories regarding area fished in represented somewhat of a problem for shrimpers in the state of Louisiana. The categories used were those which had been used in the national finfishing survey. The categories were ocean (Gulf), sound, river and bay. Almost 50% of the shrimpers who were intercepted in Louisiana reported they did not consider the area they had shrimped in to fall within these four categories. The areas of shrimping reported by these Louisiana shrimpers fell into such categories as lakes and bayous.

The equipment used to determine count per pound in Phase I was considered to be adequate. It was believed, however, that more accurate estimates might be obtained if alternative equipment was purchased and supplied to the interviewers. The hanging scales were measured in kilograms and pounds. Although it was possible to weigh one pound of shrimp using these scales it was believed that a platform scale measured in ounces might prove to be a more accurate measuring device.

V. PHASE II OF THE SURVEY OF RECREATIONAL SHRIMPERS

Data collection in Phase II of the survey of recreational shrimpers took place from mid-August to November 1, 1979, during the white shrimp season. The procedures, results, and conclusions of this phase of the study are described in the sections which follow.

Phase II Procedures

The procedures used in Phase II of the survey were changed significantly from those used in Phase I. The screening question regarding sales of catch appeared to have influenced shrimpers in a negative manner during Phase I of the survey and was moved to the back of the questionnaire. Since only a very small percentage of shrimpers reported that they would be selling their catch this change seemed warranted. Since the count per pound and total weight data represented the most important information in the interview this data was moved to the front of the questionnaire.

Determining total weight of the catch proved to be a difficult task during Phase I of the survey. A large number of shrimpers layered their shrimp in ice chests and did not want their catch to be disturbed. An NMFS representative suggested a possible means of overcoming this problem by using a standardized table of weights. It was believed that the majority of shrimpers used only one or two major brands of containers in which to pack their catch. Thus it was recommended that HSR purchase these brands of containers, layer shrimp in ice within them to various levels of fullness, and determine the weight of the containers at each of these levels. To determine the weight of the shrimp, the weight of the ice and the weight of the container would be subtracted from the total weight of the container.

To develop the standardized table of shrimp weights an HSR consultant-coordinator visited a commercial shrimp house in Louisiana to determine which brands of containers were in common usage and which sizes of these brands should be included in the table. Three brands of containers were believed to account for the majority of containers in usage. These brands of containers were therefore layered with white shrimp and ice to one-quarter, one-half, three-quarters, and completely filled levels. The Standardized Table of Shrimp Weights which was developed in this manner and used by interviewers in Phase II of the survey of recreational shrimpers is presented in the appendices.

In reviewing the results of Phase I the GSMFC and the NMFS expressed a desire to more closely pinpoint the location of shrimp catch. The basic categories used in Phase I for location of catch paralleled those used in the NMFS finfishing survey. The categories used were ocean, sound, river and bay. In Phase II the names of specific bays and sounds along the Gulf Coast were requested. The NMFS provided HSR with a comprehensive list of locations to supply to all of the interviewers. A copy of this list is presented in the appendices.

The number of interviewers used in Phase II of the survey of recreational shrimpers represented a significant increase over the number used in Phase I. HSR recruited, hired, and trained more than twice as many interviewers for this survey as had been working along the Gulf Coast on the NMFS finfishing survey. In fact, the number of additional interviewers trained for Phase II was more than ten times the number originally projected in the contract for this study. The nature of the Gulf shrimping season made it necessary for HSR to employ large numbers of interviewers for very short periods of time. The changes in procedures and questionnaires made in Phase II of the survey necessitated the retraining of all of HSR's experienced interviewers as well as the complete training of over 30 new recruits.

The equipment used to determine count per pound in Phase I of the survey was adequate, but not as accurate as HSR desired. The hanging scales used in Phase I were ideal for a study of finfishing, but were not as accurate at the one-pound level as are some other alternative types of scales. HSR located two-pound capacity postage platform scales

that were much more accurate and much less expensive than the hanging scales used previously. These postage scales are extremely accurate at the one ounce level. Thus they were distributed to as many interviewers as possible in Phase II of the survey. Lack of time and bulk ordering made it impossible to equip all of the interviewers with these kinds of scales. Eight interviewers in Mississippi and Alabama, where projected interviewer effort was minimal and hurricane damage was extensive, were thus instructed to continue using the hanging scales during the second phase of the study.

The GSMFC recommended that HSR interviewers take more than one measurement of count per pound as had been done in Phase I of the survey. A standard procedure in biological studies which was overlooked in Phase I is to take three independent count per pound measurements and record an average of the three. Interviewers were thus instructed to institute this procedure in the second phase of the study.

The revised questionnaire, table of standardized shrimp weights, and location of catch codes used in Phase II of the survey of recreational shrimpers are presented in the appendices.

Phase II Results

The results of Phase II of the survey of recreational shrimpers are provided in the following sections. The number of interviews obtained by state in Phase II is provided in Table 18. The number of interviews obtained was dramatically higher than was originally projected. Revised interviewing and site selection procedures, and a large increase in the number of interviewers employed were the principal reasons for the increased numbers of interviews that were obtained in Phase II.

TABLE 18

Phase II, Interviews by State

State	Frequency	Cum Frequency	Percent	Cum Percent
Alabama	45	45	1.462	1.462
Louisiana	2,515	2,560	81.709	83.171
Mississippi	24	2,584	0.780	83.951
Texas	494	3,078	16.049	100.000

The number of interviews obtained by date, by county of intercept, and by intercept site in Phase II of the survey are presented in Appendix F on a state-by-state basis. The intercept site codes and the county codes used in the survey of recreational shrimpers are provided in Appendix C and D, respectively.

The outcome of interviews by interview attempt in Phase II is presented in Table 19. A very high percentage of shrimpers (95.6%) agreed to complete the entire interview. Two percent of these shrimpers reported that they were going to sell their catch commercially and are therefore excluded from catch and effort analyses.

TABLE 19

Phase II Interview Outcome by Interview Attempt

Outcome	Frequency	Cum Frequency	Percent	Cum Percent
Completed Interview	2,880	2,880	93.567	93.567
Refused	129	3,009	4.191	97.758
Language/Age Barrier	8	3,017	0.260	98.018
Commercial Sales	61	3,078	1.982	100.000

The focus of the survey of recreational shrimpers was on private boat trawlers. A breakdown of the Phase II interviews by mode and gear is presented in Table 20. Private boats were used by 99.6% of the shrimpers who were intercepted. Trawls were used as the primary gear by 98.8% of the shrimpers. The question on gear type and the coding categories used in this survey were those used in the NMFS finfishing survey. Since fishermen sometimes use more than one type of gear on a given fishing trip the question asked by HSR refers to the type of gear primarily used during the fishing trip. Thus, if a boat hook-and-line fisherman decided to catch some bait shrimp using a dip net, the category of gear primarily used would be hook-and-line. The effort and catch data presented later in this section refer only to those boat trips on which trawls were used as the primary gear.

TABLE 20
Phase II, Interviews by Mode and by Gear

Variable	Frequency	Cum Frequency	Percent	Cum Percent
Mode:				
Boat	3,066	3,066	99.643	99.643
Non-Boat	11	3,077	0.357	100.000
Gear:				
Hook and line	17	21	0.552	0.682
Cast net	8	29	0.260	0.942
Trawl	3,040	3,069	98.765	99.708
Spear	1	3,070	0.032	99.740
Butterfly net	4	3,074	0.130	99.870
Hands	1	3,075	0.032	99.903
Other	3	3,078	0.097	100.000
Missing Data	4	4	0.130	0.130

The breakdowns by age and sex of the recreational shrimpers in Phase II are provided in Table 21. Once again, age was coded on the questionnaires such that an individual age could not be identified, and no means or standard deviations could be computed for this data.

TABLE 21

Phase II, Shrimpers by Age and Sex

Variable	Frequency	Cum Frequency	Percent	Cum Percent
Age:				
Under 5 Yrs.	5	8	0.169	0.271
5 to 13 Yrs.	158	166	5.343	5.614
14 to 17 Yrs.	157	323	5.309	10.923
18 to 24 Yrs.	269	592	9.097	20.020
25 to 34 Yrs	619	1,211	20.933	40.954
35 to 44 Yrs.	655	1,866	22.151	63.104
45 to 54 Yrs.	542	2,408	18.329	81.434
55 to 64 Yrs.	295	2,703	9.976	91.410
65+ Yrs.	116	2,819	3.923	95.333
Refusal	138	2,957	4.667	100.000
Sex:				
Male	2,683	2,683	87.337	87.337
Female	388	3,071	12.630	99.967
Unknown	1	3,072	0.033	100.000

The dollars expended per trip, miles traveled to fishing sites, and avidity levels (number of shrimping trips taken) within and outside the state of intercept for twelve and two month periods for Phase II are presented by state in Table 22.

TABLE 22

Phase II, Averages of Selected Items by State

State/Variable	N	Mean	Standard Deviation	Variance	Sum
Alabama					
Dollars/trip	44	13.625	44.839	2010.560	599.500
Miles/trip	45	36.044	60.055	3606.634	1622.000
In-State 12 mos.	45	13.844	17.395	302.589	623.000
In-State 2 mos.	45	5.222	6.862	47.086	235.000
Out-of-State 12 mos.	45	0.089	0.596	0.356	4.000
Out-of-State 2 mos.	45	0.089	0.596	0.356	4.000
Louisiana					
Dollars/trip	2,274	19.358	23.486	551.610	44019.790
Miles/trip	2,299	36.820	36.283	1316.483	84649.000
In-State 12 mos.	2,304	7.454	16.064	258.065	17175.000
In-State 2 mos.	2,325	1.457	2.748	7.554	3388.000
Out-of-State 12 mos.	2,318	0.168	2.216	4.909	389.000
Out-of-State 2 mos.	2,317	0.051	0.694	0.482	119.000
Mississippi					
Dollars/trip	24	14.802	8.905	79.299	355.250
Miles/trip	24	7.500	11.045	122.000	180.000
In-State 12 mos.	24	22.250	24.087	580.196	534.000
In-State 2 mos.	24	6.750	8.056	64.891	162.000
Out-of-State 12 mos.	24	0.000	0.000	0.000	0.000
Out-of-State 2 mos.	24	0.000	0.000	0.000	0.000
Texas					
Dollars/trip	463	16.683	28.040	786.254	7724.250
Miles/trip	463	27.438	36.140	1306.087	12704.000
In-State 12 mos.	462	14.890	29.769	886.177	6879.000
In-State 2 mos.	464	4.269	8.821	77.804	1981.000
Out-of-State 12 mos.	463	0.546	3.507	12.300	253.000
Out-of-State 2 mos.	464	0.142	1.265	1.600	66.000

The number of shrimpers with and without home telephones is presented in Table 23 for Phase II of the survey of recreational shrimpers. This data is important in the dual-frame methodology as a telephone survey is used to estimate the total number of shrimpers and shrimping trips taken. As can be seen from Table 23 the vast majority of shrimpers who responded stated that they possessed a home telephone. In the dual-frame methodology the total effort and catch estimates must be inflated to reflect the proportion of non-telephone fishing households.

TABLE 23

Phase II, Shrimpers by Home Telephone Ownership

Home Telephone	Frequency	Cum Frequency	Percent	Cum Percent
Yes	2,550	2,550	96.811	96.811
No	84	2,634	3.189	100.000

Refusals = 313

Another intercept variable that is important when using a dual-frame methodology is county of residence. The telephone survey in the dual-frame approach is conducted only in counties within a specified distance from the coast. The telephone survey of shrimpers covering the Gulf Coast during the period in which on-site interviewing occurred included any county whose boundary extended within 50 miles of the Gulf. The percentages of shrimpers intercepted in Phase II who lived within and outside of this telephone zone are presented in Table 24. In the dual-frame approach the total effort and catch estimates are expanded to reflect the proportion of trips taken from non-telephone zone households using this data.

TABLE 24

Phase II, County of Residence of Shrimpers by Telephone Zone by State

	Within Telephone Zone		Outside Telephone Zone	
	N	Percent	N	Percent
Alabama	41	91.111	4	8.888
Louisiana	2,138	94.019	136	5.981
Mississippi	24	100.000	–	–
Texas	438	93.991	28	6.009
Total	2,641	94.019	168	5.981

The remainder of this section presents the results of Phase II catch and effort data on a state-by-state basis. No interviews were conducted in Phase II in the state of Florida even though the initially projected interviewer effort was expended in total.

Louisiana

A total of 2,438 shrimpers on board 1,198 boats were intercepted in Louisiana in Phase II of the survey. Appendix F contains the number of interviews obtained by date, by county of intercept, and by intercept site.

Sales/Louisiana

Only two percent of the shrimpers who were interviewed in Louisiana Phase II of the survey reported that they were going to sell their catch to a commercial wholesale house or processing plant. Since data from these shrimpers would be included in the NMFS commerical statistics program they were excluded from the catch and effort analyses. The minimum number of pounds to be sold commercially was 15, the maximum was 170, and the mean was 69.25 pounds. An additional 64 shrimpers, or 2.7 percent, reported that they were not certain whether or not they planned to sell commercially. Many additional

recreational shrimpers reported that they would have sold their catch commercially had their catch been larger.

Three percent of the shrimpers reported that they planned to sell their catch to friends, restaurants, roadside sale stands, etc. Since the commercial shrimp statistics programs do not include "recreational sales," the catch and effort analyses include this data. The minimum number of pounds to be sold recreationally was one, the maximum was 12, and the mean was four pounds.

The mean number of hours trawled in Louisiana was 3.91 hours (s= 2.15). A A breakdown of trips by hours trawled appears in Table 25.

TABLE 25

Phase II, Louisiana Shrimping Trips by Hours Trawled

Hours Trawled	Frequency	Cum Frequency	Percent	Cum Percent
0.5 - 1.0	194	194	8.090	8.090
1.5 - 2.0	342	536	14.262	22.352
2.5 - 3.0	450	986	18.766	41.112
3.5 - 4.0	462	1,488	19.266	60.378
4.5 - 5.0	305	1,753	12.719	73.097
5.5 - 6.0	292	2,045	12.177	85.274
6.5 - 7.0	130	2,348	5.421	90.695
7.5 - 8.0	173	2,348	7.214	97.909
8.5 - 9.0	–	–	–	–
9.5 -10.0	39	2,387	1.626	99.535
over 10.0	11	2,398	0.459	99.994

The pounds of catch per trip, pounds of catch per hour, and count per pound of shrimp by species for Louisiana in Phase II of the survey of recreational shimpers are presented in Table 26a. Since in some cases the interviewers were unable to examine the catch to determine the proportion of catch by species, a "mixed" category is included in the table to reflect these cases. A breakdown of the catch in pounds by count per pound category appears in Table 26b. A breakdown of the shrimping trips by pound per hour of shrimp catch is presented in Table 26c.

TABLE 26a.

Phase II, Louisiana Catch Data by Species

Variable	N	Mean	Standard Deviation	Variance
Brown Lbs/Trip	314	16.77	25.39	644.78
Brown Lbs/Hr.	314	4.98	8.30	68.92
Brown Cnt/Lb.	205	46.76	14.38	206.85
White Lbs/Trip	757	34.41	43.14	1861.19
White Lbs/Hr.	757	8.02	9.74	94.91
White Cnt/Lb.	626	46.89	18.37	337.37
Mixed Lbs/Trip	370	20.89	31.95	1020.89
Mixed Lbs/Hr.	370	5.90	9.75	94.98
Mixed Cnt/Lb.	260	53.70	19.13	365.77
Total Lbs/Trip	1162	48.95	18.25	333.19
Total Lbs/Hr.	1162	8.45	10.39	107.95
Hours Shrimped	1198	3.91	2.15	4.63

Because large numbers of interviews were conducted in Louisiana Phase II, it has been possible to further break down the catch and effort data in several ways. Louisiana Phase II catch and effort data is presented in Appendix H by date of interview; by location of catch; and by zone of intercept. The location of catch codes are provided in Appendix G.

TABLE 26b.

Phase II, Louisiana Pounds of Shrimp
Caught by Count per Pound Category

Count Per Pound	Brown			White			Total	
	Lbs.	Brown %	Phase II %	Lbs.	White %	Phase II %	Lbs.	%
Under 15	0	–	–	6	0.02	0.02	6	0.02
15 - 20	0	–	–	0	–	–	0	–
21 - 25	57	1.0	0.2	1,027	3.8	3.2	1,084	3.3
26 - 30	572	9.9	1.8	3,041	11.4	9.4	3,613	11.1
31 - 40	1,756	30.3	5.4	9,535	35.7	29.3	11,291	34.7
41 - 50	1,873	32.3	5.8	6,810	25.5	20.9	8,683	26.7
51 - 67	1,192	20.6	3.7	4,167	15.6	12.8	5,359	16.5
68 - 100	324	5.6	1.0	2,123	7.9	6.5	2,447	7.5
Over 100	18	0.3	0.06	22	0.08	0.07	40	0.1
Totals	5,792	100.0	18.0	26,731	100.0	82.0	32,523	100.0

TABLE 26c.

Phase II, Louisiana Shrimping Trips by Pounds of Shrimp Caught per Hour

Pounds Per Hr.	Brown		White		Total	
	N	%	N	%	N	%
Zero	910	76.0	494	41.2	104	8.7
Under 1 lb.	72	6.0	62	5.2	82	6.8
1 - 2 lbs.	52	4.3	108	9.0	162	13.5
3 - 5 lbs.	55	4.6	123	10.3	205	17.1
6 - 10 lbs.	57	4.8	195	16.3	287	24.0
11 - 15 lbs.	20	1.7	89	7.4	145	12.1
16 - 20 lbs.	17	1.4	55	4.6	94	7.8
21 - 25 lbs.	5	0.4	34	2.8	45	3.8
26 - 30 lbs.	6	0.5	21	1.8	37	3.1
Over 30 lbs.	3	0.3	17	1.4	37	3.1
Total	1,197	100.0	1,198	100.0	1,198	100.0

The zone of intercept categories are defined by counties in which the on-site interviews were conducted. They are intended to reflect geographical areas of study used by the State of Louisiana Department of Wildlife and Fisheries.

Zone one includes intercept sites in Orleans and St. Tammany counties; zone two includes sites in Plaquemines and St. Bernard counties; zone three includes sites in Jefferson and Lafourche counties; zone four includes sites in Terrebonne County; zone five includes sites in Iberia, St. Mary, and Vermilion counties; and zone six includes sites in Calcasieu and Cameron counties.

Texas

A total of 494 shrimpers on board 283 boats were intercepted in Texas in Phase II of the survey. Appendix F contains the number of interviews obtained by date, by county of intercept, and by intercept site.

Sales/Texas

Only slightly more than three percent (3.38%) of the shrimpers who were interviewed in Texas in Phase II reported that they were going to sell their catch to a commercial wholesale house or processing plant. The minimum number of pounds to be sold commercially was seven, the maximum was 321, and the mean was 85.5 pounds. About five percent (4.8%) of the Texas shrimpers reported that they planned to sell their catch to friends, restaurants, roadside sale stands, etc. The mimimum number of pounds to be sold recreationally was one, the maximum was six, and the mean was 2.58 pounds.

The mean number of hours trawled in Texas was 3.72 hours ($s = 2.05$). A breakdown of trips by hours trawled appears in Table 27.

TABLE 27

Phase II, Texas Shrimping Trips
by Hours Trawled

Hours Trawled	Frequency	Cum Frequency	Percent	Cum Percent
0.5 - 1.0	55	55	11.603	11.603
1.5 - 2.0	90	135	16.878	28.481
2.5 - 3.0	71	206	14.979	43.460
3.5 - 4.0	115	321	24.262	67.722
4.5 - 5.0	55	376	11.603	79.325
5.5 - 6.0	49	425	10.338	89.662
6.5 - 7.0	20	445	4.219	93.882
7.5 - 8.0	25	470	5.274	99.156
8.5 - 9.0	–	–	–	–
9.5 - 10.0	4	474	0.844	100.000

The pounds of catch per trip, pounds of catch per hour, and count per pound of shrimp by species for the Texas Phase II survey of recreational shrimpers are presented in Table 28a. Table 28b and Table 28c present pounds of catch by count per pound category and trips by pounds per hour of catch respectively.

TABLE 28a.

Phase II, Texas Catch Data by Species

Variable	N	Mean	Standard Deviation	Variance
Brown Lbs/Trip	33	5.39	11.50	132.25
Brown Lbs/Hr.	33	1.52	2.57	6.60
Brown Cnt/Lb.	22	32.14	10.90	118.70
White Lbs/Trip	236	14.38	17.82	317.49
White Lbs/Hr.	236	3.74	4.38	19.16
White Cnt/Lb.	198	31.73	13.17	173.31
Combined Lbs/Trip	18	5.11	10.64	113.28
Combined Lbs/Hr.	18	1.29	2.57	6.58
Combined Cnt/Lb.	8	36.63	6.32	39.98
Total Lbs/Trip	256	14.31	17.61	310.14
Total Lbs/Hr.	256	3.74	4.30	18.49
Hours Shrimped	283	3.72	2.05	4.20

TABLE 28b.

Phase II, Texas Pounds of Shrimp Caught
by Count per Pound Categories

Count Per Pound	Brown			White			Total	
	Lbs.	Brown %	Phase II %	Lbs.	White %	Phase II %	Lbs.	%
Under 15	0	–	–	158	3.9	3.8	158	3.8
15 - 20	20	17.1	0.5	665	16.3	15.8	685	16.3
21 - 25	18	15.4	0.4	464	11.4	11.1	482	11.5
26 - 30	7	6.0	0.2	403	9.9	9.6	410	9.8
31 - 40	61	52.1	1.5	1,645	40.3	39.2	1,706	40.6
41 - 50	10	8.5	0.2	593	14.5	14.1	603	14.4
51 - 67	1	0.9	0.02	0	–	–	1	0.02
68 - 100	0	–	–	153	3.7	3.6	153	3.6
Over 100	0	–	–	0	–	–	0	–
Totals	117	100.8	2.82	4,081	100.0	97.2	4,198	100.0

TABLE 28c.

Phase II, Texas Shrimping Trips by Pounds of Shrimp Caught per Hour

Pounds Per Hr.	Brown		White		Total	
	N	%	N	%	N	%
Zero	227	80.2	29	10.2	9	3.2
Under 1 lb.	25	8.8	42	14.8	41	14.5
1 - 2 lbs.	20	7.1	79	27.9	86	30.4
3 - 5 lbs.	6	2.1	76	26.9	74	26.1
6 - 10 lbs.	2	0.7	32	11.3	44	15.5
11 - 15 lbs.	2	0.7	15	5.3	16	5.7
16 - 20 lbs.	0	–	4	1.4	6	2.1
21 - 25 lbs.	0	–	0	–	1	0.4
26 - 30 lbs.	0	–	2	0.7	2	0.7
Over 30 lbs.	1	0.4	4	1.4	4	1.4
Total	283	100.0	283	99.9	283	100.0

Mississippi

A total of 24 shrimpers on board 24 boats were intercept in Mississippi in Phase II. Appendix F contains the number of interviews obtained by date, by county of intercept, and by intercept site. The mean number of hours shrimped in Mississippi was 4.02 (s=2.80). A breakdown of trips by hours trawled appears in Table 29.

Table 29

Phase II, Mississippi Shrimping Trips
by Hours Trawled

Hours Trawled	Frequency	Cum Frequency	Percent	Cum Percent
0.5 - 1.0	2	2	8.333	8.333
1.5 - 2.0	4	6	16.667	25.000
2.5 - 3.0	5	11	20.833	45.833
3.5 - 4.0	5	16	20.833	66.667
4.5 - 5.0	4	20	16.667	83.333
5.5 - 6.0	1	21	4.167	87.500
6.5 - 7.0	0	–	–	–
7.5 - 8.0	2	23	8.333	95.833
8.5 - 9.0	0	–	–	–
9.5 - 10.0	0	–	–	–
over 10.0	1	24	4.167	100.000

The pounds of catch per trip, pounds of catch per hour, and count per pound of shrimp by species for the Mississippi Phase II survey are presented in Table 30a.

Table 30a.

Phase II, Mississippi Catch Data by Species

Variable	N	Mean	Standard Deviation	Variance
Brown Lbs/Trip	3	1.00	1.00	1.00
Brown Lbs/Hr.	3	0.61	0.67	0.45
Brown Cnt/Lb.	0	–	–	–
White Lbs/Trip	18	21.72	21.56	464.80
White Lbs/Hr.	18	5.60	5.34	28.50
White Cnt/Lb.	7	34.43	10.28	105.62
Mixed Lbs/Trip	6	17.00	26.48	701.20
Mixed Lbs/Hr.	6	4.25	6.56	43.08
Mixed Cnt/Lb.	1	13.00	0.00	0.00
Total Lbs/Trip	23	21.57	22.42	502.44
Total Lbs/Hr.	23	5.57	5.67	32.18
Hours Shrimped	24	4.02	2.80	7.84

Table 30b.

Phase II, Mississippi Pounds of Shrimp
Caught by Count per Pound Category

Count Per Pound	Brown			White			Total	
	Lbs.	Brown %	Phase II %	Lbs.	White %	Phase II %	Lbs.	%
Under 15	0	–	–	0	–	–	0	–
15 - 20	0	–	–	0	–	–	0	–
21 - 25	0	–	–	55	29.9	28.9	55	28.9
26 - 30	0	–	–	18	9.5	9.5	18	9.5
31 - 40	0	–	–	0	–	–	0	–
41 - 50	0	–	–	117	61.6	61.6	117	61.6
51 - 67	0	–	–	0	–	–	0	–
68 - 100	0	–	–	0	–	–	0	–
Over 100	0	–	–	0	–	–	0	–
Totals	0	–	–	190	100.0	100.0	190	100.0

Table 30c.

Phase II, Mississippi Shrimping Trips
by Pounds of Shrimp Caught per Hour

Pounds Per Hr.	Brown		White		Total	
	N	%	N	%	N	%
Zero	19	79.2	6	25.0	1	4.2
Under 1 lb.	3	12.5	3	12.5	3	12.5
1 - 2 lbs.	2	8.3	5	20.8	7	29.2
3 - 5 lbs.	0	–	2	8.3	3	12.5
6 - 10 lbs.	0	–	6	25.0	7	29.2
11 - 15 lbs.	0	–	0	–	0	–
16 - 20 lbs.	0	–	2	8.3	3	12.5
21 - 25 lbs.	0	–	0	–	0	–
26 - 30 lbs.	0	–	0	–	0	–
Over 30 lbs.	0	–	0	–	0	–
Total	24	100.0	24	99.9	24	100.1

Alabama

A total of 45 shrimpers on board 18 boats were intercepted in Alabama in Phase II. Appendix F contains the number of interviews obtained by date, by county of intercept, and by intercept site. The mean number of hours shrimped in Alabama was 2.17 (s=1.49). A breakdown of trips by hours trawled appears in Table 31.

Table 31

Phase II, Alabama Shrimping Trips
by Hours Trawled

Hours Trawled	Frequency	Cum Frequency	Percent	Cum Percent
0.5 - 1.0	16	16	37.2	37.2
1.5 - 2.0	6	22	14.0	51.2
2.5 - 3.0	7	29	16.3	67.5
3.5 - 4.0	4	33	9.3	76.8
4.5 - 5.0	6	39	14.0	90.8
5.5 - 6.0	1	40	2.3	93.1
6.5 - 7.0	–	–	–	–
7.5 - 8.0	–	–	–	–
8.5 - 9.0	–	–	–	–
9.5 - 10.0	–	–	–	–
over 10.0	3	43	7.0	100.1

The pounds of catch per trip, pounds of catch per hour, and count per pound of shrimp by species for Alabama in Phase II are presented in Table 32a.

Table 32a.

Phase II, Alabama Catch Data by Species

Variable	N	Mean	Standard Deviation	Variance
Brown Lbs/Trip	7	2.143	3.625	13.143
Brown Lbs/Hr.	7	1.119	1.449	2.099
Brown Cnt/Lb.	2	47.000	7.071	50.000
White Lbs/Trip	14	10.364	13.260	175.827
White Lbs/Hr.	14	3.451	3.532	12.473
White Cnt/Lb.	11	45.636	14.968	224.055
Total Lbs/Trip	18	8.894	12.070	145.683
Total Lbs/Hr.	18	3.119	3.209	10.300
Hours Shrimped	18	2.167	1.485	2.206

Table 32b.

Phase II, Alabama Pounds of Shrimp
by Count per Pound Category

Count Per Pound	Brown			White			Total	
	Lbs.	Brown %	Phase II %	Lbs.	White %	Phase II %	Lbs.	%
Under 15	0	–	–	0	–	–	0	–
15 - 20	0	–	–	0	–	–	0	–
21 - 25	0	–	–	0	–	–	0	–
26 - 30	0	–	–	18	13.2	12.1	18	12.1
31 - 40	0	–	–	118	86.8	79.2	118	79.2
41 - 50	10	76.9	6.7	0	–	–	10	6.7
51 - 67	3	23.1	2.0	0	–	–	3	2.0
68 - 100	0	–	–	0	–	–	0	–
Over 100	0	–	–	0	–	–	0	–
Totals	13	100.0	8.7	136	100.0	91.3	149	100.0

Table 32c.

Phase II, Alabama Shrimping Trips
by Pounds of Shrimp Caught per Hour

Pounds Per Hr.	Brown		White		Total	
	N	%	N	%	N	%
Zero	13	72.2	7	38.9	3	16.7
Under 1 lb.	2	11.1	2	11.1	3	16.7
1 - 2 lbs.	1	5.6	1	5.6	2	11.1
3 - 5 lbs.	0	–	5	27.8	5	27.8
6 - 10 lbs.	2	11.1	2	11.1	4	22.2
11 - 15 lbs.	0	–	1	5.6	1	5.6
16 - 20 lbs.	0	–	0	–	0	–
21 - 25 lbs.	0	–	0	–	0	–
26 - 30 lbs.	0	–	0	–	0	–
Over 30 lbs.	0	–	0	–	0	–
Total	18	100.0	18	100.1	18	100.1

Phase II Conclusions

The changes made in the Phase I procedures which were incorporated in Phase II of the survey of recreational shrimpers contributed to substantial increases in both quantity and quality of data. A total of 2,941 interviews were conducted in Phase II during the white shrimp season even though the number of active participants was undoubtedly less than during the earlier brown shrimp season. The revised procedures thus contributed significantly to interviewing efficiency.

The vast majority of interviews obtained in Phase II were conducted in Louisiana and Texas. This was essentially by design although interviewing in the other Gulf states was not as productive as had been hoped. Extended searches were initiated, once again, in Florida, but no recreational shrimpers were intercepted there. Furthermore, severe coastal hurricane damage in Alabama and Mississippi limited the number of interviews which could be obtained in these states.

The increase in the number of interviews in Phase II over Phase I was mostly attributable to an increase in interviewing efficiency, not interviewing effort. Although more than twice as many interviewers were in the field during the second phase of the survey as had been out during Phase I, only a limited increase in interviewer effort was expended. The much larger number of interviewers used in Phase II allowed HSR to concentrate interviewing activity on the opening days of the white shrimping season when participation is at a peak and when interviewing efficiency is maximized. The costs of interviewer labor were not significantly higher during the second phase of the study than during the first, but substantial increases in cost were encountered in recruiting, hiring, and training the new interviewers.

The change in equipment from hanging scales to postage platform scales, and the taking of three independent count per pound measurements should have increased the accuracy of these measurements in the second phase of the study. At least there were no administrative or procedural problems associated with the usage of them, and, in theory, they should have provided more accurate measurements.

Moving the commercial sales of catch question to the very end of the interview appeared to decrease a great deal the rate of refusal to the count per pound question. Only 14 percent of the shrimpers interviewed in Phase II refused to allow counts per pound to be taken. This percentage was down from 33 percent who refused in Phase I. It is likely also that placing the sales question at the end of the interview resulted in a more accurate estimate of the number of shrimpers who planned to sell commercially. Many survey research studies have shown that more accurate information is obtained for sensitive questions if they are placed at the end of an interview. This appears to occur because of a rapport which builds up between interviewer and respondent during the earlier stages of the interview.

The standardized table of shrimp weights was not as heavily used in the field as had been expected. The table was developed and introduced just before the August white shrimp seasons began in Louisiana and Texas. A number of factors have been forwarded as partial explanation for the underutilization of the table. According to HSR field interviewers a substantial proportion of containers in use by shrimpers were not included in the table. Containers manufactured by Gott made up a significant proportion of the containers in use, but this brand of container was not included in the table. In many cases, buckets and garbage pails were used to hold the catch. These types of non-standardized containers were used for the most part by casual recreational shrimpers whose avidity levels are very low. In other cases, the shrimper's catch had yet to be packed in ice during the time of the interview. In a small number of cases the shrimpers refused to allow the catch or even the containers to be observed by interviewers. Clearly in each of these instances the standardized table of shrimp weights was inapplicable. The breakdown of interviews by method of estimating total weight appears in Table 33.

Table 33

Phase II, Interviews by Method of Estimating Total Weight of the Catch

Method	Frequency	Cum Frequency	Percent	Cum Percent
Standardized table	458	458	28.1	28.1
Shrimper's estimate	744	1,202	45.6	73.7
Interviewer's estimate	306	1,508	18.8	92.5
Total catch weighed	120	1,628	7.4	99.9
Other	2	1,630	0.1	100.0

The "shrimper's estimate" was the method used most frequently in Phase II to determine the total weight of the catch. Since the accuracy with which shrimpers estimate the total weight of their catch is unknown, the standardized table of shrimp weights was developed to reduce the number of cases in which estimates of total weight of catch were obtained from shrimpers. Thus the usage of the table would, at first, appear to have been unsuccessful. In actual field practice, however, it was almost always possible for the HSR interviewers to verify the accuracy of the shrimpers' estimates. During the count per pound procedure it was possible for the interviewers to inspect the catch and accept the shrimper's estimate of total pounds or modify it based upon their personal knowledge. The standardized table of shrimp weights represented a very reliable source of data by which the interviewers could evaluate the shrimpers' estimates. Thus the standardized table of shrimp weights served a very useful purpose in the study.

The number of cases in which "shrimpers' estimates" were recorded as the method of determining total weight of the catch actually represents the number of cases in which shrimpers' estimates were verified by experienced interviewers. The majority of those cases in which "interviewer's estimate" was recorded as the method of determining total weight of the catch actually represents the number of cases in which interviewers modified what they believed were inaccurate shrimpers' estimates of the total weight of the catch.

The location of catch codes used in Phase II of the survey of recreational shrimpers proved to be an adequate method of determining the specific area in which the shrimp were captured. The majority of recreational shrimpers could identify the specific bay or sound in which they shrimped. In some cases the shrimpers used local names for bay or sound systems that were not included in the NMFS list of locations but this did not prove to be an insurmountable obstacle. The interviewers used in the survey by HSR were able to identify the specific area in which the shrimping took place because they were familiar with the local names used by the shrimpers for the local bay and sound systems.

VI. SUMMARY

A total of 3,866 interviews were conducted in the survey of recreational shrimpers along the Gulf Coast. In Phase I, which covered the brown shrimp season, 925 interviews were conducted. In Phase II, which covered the white shrimp season, 2,941 interviews were conducted. These data were collected and analyzed to describe the effort and catch of recreational shrimpers. Various tables have been developed to present frequencies, means, and/or standard deviations on many variables. The major variables of interest include pounds of shrimp per shrimping trip by species, pounds of shrimp per hour by species, and count per pound of shrimp by species for each state. In some cases, large sample sizes have allowed breakdowns of these data beyond the state level. For example, appendices provide catch data by site of intercept, by date of interview, and by location of catch for the state of Louisiana in Phase II of the survey.

The survey of recreational shrimpers in the bay and sound systems of the Gulf Coast was thus first and foremost a data collection project. Beyond this, however, it also represented in many ways a pretest of a data collection methodology. The survey represented the first time in which the dual-frame methodology was tested in a study of recreational shrimping. It therefore served as a learning experience as well as a data collection project.

The survey of recreational shrimpers also represented an excellent example of the cost-benefits which can be received from cooperative efforts at the national, regional, and state levels. Attaching the GSMFC regional data collection project to the NMFS National Survey of Marine Recreational Fishermen resulted in tremendous cost savings for all parties. The cooperative effort made it possible for reductions in cost in all stages of the intercept survey from set-up tasks such as questionnaire design and interviewer recruitment and training, on through data collection, data processing, and data analysis. Should the same on-site survey of recreational shrimpers have been attempted by the

GSMFC as an independent project the required funds for the project would undoubtedly have been at least three to four times that actually expended. In addition, the GSMFC profited substantially by obtaining at no cost the results of the NMFS-sponsored telephone survey, while the NMFS profited substantially from the knowledge of recreational shrimping brought to the project by GSMFC members and state representatives.

The survey of recreational shrimpers also represented an unusual survey research challenge. The tremendous peaks and valleys of shrimping participation, the almost cryptic manner in which shrimp are stored upon catch, the sensitive nature of shrimp sales information, and the rare population aspects of recreational shrimping all represented challenging research issues. Many of these issues are not uncommon to survey research. The occurence of all these issues in one survey research project is uncommon, however.

Finally, the survey of recreational shrimpers represented an excellent planning tool for conducting similar data collection efforts in the future. Both the data obtained and the methodological experience gained in the first year of the survey can be used to improve the efforts in future studies. For example, it is clear from the experience gained in the survey that location of catch coding systems, standardized tables of weights, and platform scales are useful, if not required, in the conduct of such surveys.

Based upon the experience gained in the conduct of the first year of the survey it is possible to make a number of research recommendations should similar efforts be undertaken in the future. First, a standardized table of shrimp weights should be developed for brown shrimp, as well as white shrimp. Both of these tables should include containers manufactured by Gott, as well as those manufactured by Igloo, Coleman, and Family. The containers should be filled to various proportions and weighed with shrimp at various counts per pound. Interviewer training sessions should include a complete description of how the tables were developed, and what limitations may be imposed upon their usage.

Location of catch codes should be used to pinpoint the location of shrimp catch. These codes should include additional categories, however, beyond those used in the first

year to further break down the category of unknown location. Separate categories should be used to code unknown bay, unknown sound, etc.

The question relating to type of gear used should be reworded. This question should refer specifically to shrimping trips. This will eliminate such responses as hook-and-line when hook and line gear are the gear used primarily on fishing trips.

Procedures for interviewing shrimpers should to the extent possible maximize data on a boat basis rather than on a shrimper basis. In the first year of the survey as many shrimpers per boat as was possible were interviewed. In future efforts it would be desirable to redirect the survey somewhat to obtain data from as many boats as possible even though the number of interviews per boat will be reduced. In both cases the number of contributors to a catch is determined and catch per shrimper can be derived. In concentrating on boats rather than shrimpers, however, the effective sample size for catch per trip and catch per hour will increase.

Finally, communication should be increased with state fisheries representatives to better document variations in shrimping activity by state. Of special concern should be night shrimping activity and distribution of interviewer effort beyond the initial peak periods of shrimping participation at the start of each new shrimping season. Instituting these procedures should insure the collection of quality data in future surveys of recreational shrimpers.

APPENDIX A

Phase I Interviewing Materials

INTRODUCTION

Hello, my name is _____ . I'm conducting a survey of marine recreational fishermen for the National Marine Fisheries Service, U. S. Department of Commerce. We are interviewing people, like yourself, who participate in saltwater recreational fishing. I'd like to ask you a few questions about your trip . . .

Have you completed your fishing here at this site today?

IF NO, terminate interview, or use incomplete trip item on intercept form if so instructed.

IF YES, ask: Will you be doing any (specify mode) fishing somewhere else today?

IF YES, terminate interview or ask incomplete trip item on intercept form if so instructed.

IF NO, continue.

Have you been fishing for finfish? IF YES, complete finfish intercept form.

Have you been shrimping?

IF YES, ask: Do you plan to sell any or part of your catch to a commercial processing plant or wholesale house?

Show shrimper the list of shrimp dealers/fish houses in his or her area.

IF YES, complete Form A.

IF NO, or if no shrimp catch, complete regular shrimp interview form.

Have you been fishing for spiny lobsters? IF YES, complete spiny lobster intercept form.

SHRIMP FORM A

1. Interviewer code 1
2. Year/month/day . . 7 9
3. Interviewer number . . . . . .
4. Hour . . . . . .
5. State . . . . . .
6. County . . . . . .
7. Site Code . . . . . .

A1. Do you plan to sell *all* of your catch to a commercial shrimp dealer or fish house?

IF YES, check here ☐ and terminate interview.

IF NO:

A2. Can you tell me what kind of shrimp you caught today?

_____

_____

_____

A3. How many pounds of (kind) shrimp did you catch today?

A4. Is that the heads on or heads off weight?

Heads on = 1 Heads off = 2 Heads on and off (mixture) = 3

A5. How many pounds of (kind) shrimp do you plan to sell to a commercial shrimp dealer or fish house?

Repeat Items A3, A4, and A5 for each kind of shrimp caught.

		Species Code	Estimated wt. in pounds	Heads	Estimated wt. to be sold	
1.	_____					(1-1
2.	_____					(1-1
3.	_____					(1-

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Washington, D.C. 20235

TO WHOM IT MAY CONCERN:

The National Marine Fisheries Service, Department of Commerce, in Washington, D. C., is given responsibility under the Fisheries Conservation and Management Act of 1976 for managing the nation's marine resources. This responsibility requires that information be gathered from U. S. recreational fishermen pertinent to their fishing activities.

Interviewers are being assigned to selected fishing locations along coastal areas of the country in order to talk with fishermen. Information collected by the interviewers will be analyzed and used to help improve the quality of fishing by all fishermen.

You are encouraged to cooperate with the interviewer at your location. Participation in the study is voluntary, however. Questions regarding the survey or the activities of the interviewer may be addressed to:

Mr. David Deuel
Program Manager
U. S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Resource Statistics Division
Washington, D. C. 20235
(202) 634-7366

Please include the amount of money you have spent or think you will spend for this fishing trip. Include money spent on the following kinds of items:

- fishing equipment–purchase or rental (rods, reels, lines, lures, rigs, nets, traps, spearguns, knives, scalers, rod holders, tackleboxes, bait containers, etc.)
- bait
- ice and ice chests
- clothing or wearing apparel (hats, sunglasses, raingear, etc.)
- sundries (motion sickness preparations, suntan lotions, insect repellant, etc.)
- food and beverages
- lodging (one night, if from out of town)
- road and bridge tolls
- parking fees
- license fees
- entrance, access or rental fees
- gas or oil for a boat

Do *not* include cost of automobile gasoline for travel, cost of boat or engine, cost of repairs to boat or engine, cost of insurance or cost of annual or monthly boat slip rental.

PRIVACY ACT STATEMENT

The collection of information in the Marine Recreational Fishery Statistics Survey is authorized by the Fish and Wildlife Act of 1956, the Migratory Marine Fish Act of 1959, and by the Fisheries Conservation Management Act of 1976 (Public Law 94-265.) Your participation in this survey is strictly voluntary, and there are no penalties for not providing any or all of the requested information. Should you choose to participate in this survey, any identifying information you do provide will be held in strictest confidence. All of your information will be combined with the information obtained from others who are fishing recreationally in such a way that only large-scale data are reported. The information collected in this survey will be used by the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration of the U. S. Department of Commerce to help conserve fish and to determine recreational fishing needs. Your cooperation in obtaining this much needed information is extremely important in order to ensure the completeness and accuracy of the statistical results.

OMB No. 41-R2999
August 9, 1978
Expires December 1983

SHRIMP INTERCEPT FORM

		1 3	(1-2)
1.	Interviewer code	1	(3-6)
2.	Year/month/day	7 9	(7-12)
3.	Interview number		(13-15)
4.	Hour		(16-19)
5.	State		(20-21)
6.	County		(22-24)
7.	Site code		(25-27)

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This study is being conducted in accordance with the Privacy Act of 1974. You are not required to answer any question that you consider to be an invasion of your privacy. I have a copy of the Privacy Act Statement which you may look at if you like.

8. Language of respondent . . . . . (28-29)

English = 01 Filipino = 07
Spanish = 02 Korean = 08
French = 03 American Indian = 09
Italian = 04 Native Alaskan (Eskimo, Aleut) = 10
Japanese = 05 Other (specify: _____) = 11
Chinese = 06 Unknown = 12

9. Sex of respondent . . . . . (30)

Male = 1 Unknown = 3
Female = 2

10. Interview status . . . . . (31)

Agrees to interview = 1
Refuses interview initially = 2
Nonresponse due to language barrier, age, or other = 3
Refuses interview after start—questionnaire not usable = 4

10b. Mode of fishing . . . . . (32)

Boat = 1
Non-boat = 2

11. Were you fishing for any particular kind of shrimp today? _____ (33-42)

IF NO, Code 0 in all blocks.

IF YES, ask: What kind–brown, pink, white? _____ (43-52)

_____ (53-62)

12. Would you say that most of your shrimping effort today was in the Gulf, a sound, a river or bay? . . . . . (63)

Ocean = 1 Bay = 4 Gulf = 7
Sound = 2 Other (specify:_____) = 5 Refusal = 9
River = 3 Don't know = 6

13. If sound, river, bay or other, Code 0. If Gulf, or ocean, ask:

Was that more than three miles or three miles or less from shore? . . . . . (64)

More than three miles = 1 Don't know = 3
Three miles or less = 2 Refusal = 9

14. In what state's waters was most of your shrimping effort? . . . . . (65-66)

Don't know = 98 Refusal = 99

15. What gear have you primarily been using to catch your shrimp? . . . . . (67-68)

Hook and line = 01 Seine = 05 Butterfly net = 09
Dip net = 02 Trawl = 06 Hands = 10
Cast net = 03 Trap = 07 Other (specify:_____) = 11
Gill net = 04 Spear = 08 Refusal = 99

16. How many (specify gear) have you been using? . . . . . (69-70)

17. To the nearest half hour, how many hours have you spent shrimping today with your (specify gear) in the water? . . . . . (71-74)

18. Not counting today, within the past 12 months how many days have you gone recreational shrimping from this state? . . . . . (75-77)

19. Not counting today, how about within the past 2 months? . . . . . (78-79)

20. How many days have you gone recreational shrimping in the past 12 months from other states? . . . . . (80-82)

21. How about in the past 2 months from other states? . . . . . (83-84)

22. To the nearest mile, how many miles did you travel to get here from where you stayed last night? Don't count any side trips you may have taken. . . . . (85-88)

23. Not counting gas for your car, how much would you estimate it has cost *you* to fish here today? Here is a list of expenses fishermen often have. [Hand respondent expense card.] . . . (89-95)

24. May I have your age? . . . . . (96-97)

Under 5 years = 01	25 to 34 = 05	65 and over = 09
5 to 13 = 02	35 to 44 = 06	Refusal = 99
14 to 17 = 03	45 to 54 = 07	
18 to 24 = 04	55 to 64 = 08	

(25.) What is your county and state of residence? . . . . . _____ County (98-100)

_____ State (101-102)

[If county is unknown, ask:] What city or town do you live in? _____ _____

26. Yes or no, do you have a home telephone? . . . . . (103)

Yes = 1
No = 2
Refusal = 9

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In the event that my supervisor wishes to verify that I have been conducting interviews here today . . .

If the person has an available phone: Would you be willing to give me your name and phone number so that he might contact you?

Name: _____

Phone Number _____ (If not home telephone, specify: _____)
Area Code

If the person does not have a phone or refuses to answer Question 26, or refuses to give phone number:

Would you be willing to give me your name and address so that he might contact you?

Name _____

Address _____

_____
ZIP Code

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(27.) Did you catch any shrimp today? . . . . . ☐ *(104)*

Yes = 1 No = 2

IF YES, ask: (27a.) How many people on board your boat contributed to the catch of shrimp you have here today? . . . . . ☐☐ *(105-10*

If no shrimp were caught or if this person's catch has already been described on someone else's form, Code 00.

28. Number of Type 2 records on Page 5 . . . . . ☐ *(107)*

29. Number of Type 3 records on Page 6, or, if this person's available catch is on someone else's form, Code 000. . . ☐ *(108)*

30. Is there a Type 4 record, that is, is this person's available catch on someone else's form? If No, Code 0. If Yes, Code 1. . . ☐ *(109)*

31. Repeat code number for Item 37 here. . . . . ☐ *(110)*

32. Repeat code numbers for Item 37a here. . . . . ☐☐☐ *(111-11*

(33.) Before I start looking at your available shrimp, I'd like to ask you about any shrimp you might have had that are *not* here with you. Did you catch any shrimp today that you threw back, gave away, used for bait and so forth?

If No, skip to Item 34. If Yes, complete the Type 2 records below by asking the following:

33a. Can you tell me what kinds of shrimp you caught that are *not* here with you (brown, white, pink)?

_____

_____

33b. What did you do with the (specify species) that you caught?

Thrown back alive = 1	Used for bait = 4	Filleted and cleaned = 7
Thrown back dead = 2	Sold = 5	Other (specify:_____) = 8
Given away = 3	Not in vicinity of interview site = 6	Refusal = 9

33c. About how much did the shrimp you (disposition) weigh?

33d. Was that the heads on weight or the heads off weight?

Heads on = 1 Mixture of heads on and heads off = 3
Heads off = 2

Repeat 33b, 33c and 33d until all unavailable species are accounted for.

	Species		Species Code	Disposition	Estimated Weight of Shrimp (lbs.)	Heads	
1.	_____	2					(1-17)
2.	_____	2					(1-17)
3.	_____	2					(1-17)
4.	_____	2					(1-17)
5.	_____	2					(1-17)
6.	_____	2					(1-17)

Enter number of Type 2 Records in Item 28, Page 4.

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(34.) If the available catch for this fisherman has already been recorded on someone else's form, complete the Type 4 Record below–enter the interview code number, year/month/day, and interview number (Items 1, 2, and 3) of that person's form.

4 ☐☐☐☐ ☐☐ ☐☐ ☐☐ ☐☐☐ *(1-14)*

If the available shrimp for this fisherman has *not* been recorded on someone else's form, ask:

	Species Name		Species Code	Count per lb.	Heads	Weight*	Method Used	
1.	_____	3	☐☐☐☐☐☐☐☐☐☐	☐☐☐	☐	☐☐☐☐☐.☐	☐	(1
2.	_____	3	☐☐☐☐☐☐☐☐☐☐	☐☐☐	☐	☐☐☐☐☐.☐	☐	(1
3.	_____	3	☐☐☐☐☐☐☐☐☐☐	☐☐☐	☐	☐☐☐☐☐.☐	☐	(1
4.	_____	3	☐☐☐☐☐☐☐☐☐☐	☐☐☐	☐	☐☐☐☐☐.☐	☐	(1
5.	_____	3	☐☐☐☐☐☐☐☐☐☐	☐☐☐	☐	☐☐☐☐☐.☐	☐	(1
6.	_____	3	☐☐☐☐☐☐☐☐☐☐	☐☐☐	☐	☐☐☐☐☐.☐	☐	(1

NOTE: For the column labeled heads, heads on = 1, heads off = 2, mixture of heads on and heads off = 3

Enter number of Type 3 Records in Item 29, and complete Item 30, Page 4.

* _____ (pounds per bucketful) x _____ (number of bucketsful) = _____ (total weight)

35. We need to obtain estimates of the number of shrimp per pound and the weight of a bucketful of shrimp. May I quickly weigh some of your shrimp?

IF NO (refusal) code 999 in count per pound, and ask:

35a. Could you give me an estimate of the total weight of your shrimp?

IF NO, code 9 in heads column, code 9999.9 in weight column, and code 9 in method used column and ask question 37.

IF YES, record weight of shrimp estimated by shrimper, code 1 in method of estimation column, and ask:

35b. Is that the heads on or the heads off weight?

IF YES, determine species, heads on or off, number per pound, and weight of one bucketful and ask:

36. I don't need to weigh each bucketful, but may I find out how many bucketsful there are?

IF NO, and you can estimate the number of bucketsful, do so to determine total weight, then complete heads column and code 2 in method used column.

IF NO, and you *cannot* estimate the number of bucketsful, ask the shrimper:

36a. Could you give me an estimate of the total weight of your shrimp?

IF NO, code 9 in heads column, code 9999.9 in weight column and code 9 in methods column.

IF YES, record total weight using this estimate and code a 3 in method used column.

IF YES, determine number of bucketsful to determine weight, and code 4 in method used column.

37. Do you think you will be selling any of the shrimp you caught today to such outlets as restaurants, roadside sale stands, friends, etc.?

Yes = 1 No = 2 Don't know = 3 Refusal = 9

37a. IF YES, ask: What percentage of your shrimp will you be selling to these outlets?

Return to Items 31 and 32 to repeat above responses.

APPENDIX B

Phase I Frequency of Interviews
by State: Date of Interview; County of Interview; and
Intercept Site

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 1

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=ALABAMA

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790618	82	82	40.796	40.796
790619	46	128	22.886	63.682
790620	10	138	4.975	68.657
790621	15	153	7.463	76.119
790623	23	176	11.443	87.562
790624	2	178	0.995	88.557
790627	9	187	4.478	93.035
790703	4	191	1.990	95.025
790714	2	193	0.995	96.020
790721	2	195	0.995	97.015
790727	6	201	2.985	100.000

COUNTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
003	3	3	1.493	1.493
097	198	201	98.507	100.000

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
036	148	148	73.632	73.632
053	2	150	0.995	74.627
061	51	201	25.373	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 1

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=MISSISSIPPI

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
001	1	1	1.515	1.515
005	1	2	1.515	3.030
033	13	15	19.697	22.727
048	13	28	19.697	42.424
049	2	30	3.030	45.455
051	26	56	39.394	84.848
059	9	65	13.636	98.485
064	1	66	1.515	100.000

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790615	13	13	19.697	19.697
790616	17	30	25.758	45.455
790622	6	36	9.091	54.545
790623	9	45	13.636	68.182
790704	4	49	6.061	74.242
790705	1	50	1.515	75.758
790706	3	53	4.545	80.303
790708	2	55	3.030	83.333
790715	1	56	1.515	84.848
790721	9	65	13.636	98.485
790728	1	66	1.515	100.000

COUNTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
045	1	1	1.515	1.515
047	41	42	62.121	63.636
059	24	66	36.364	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 1

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=LOUISIANA

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790525	47	47	7.220	7.220
790527	23	70	3.533	10.753
790602	1	71	0.154	10.906
790603	15	86	2.304	13.210
790604	12	98	1.843	15.054
790605	30	128	4.608	19.662
790606	5	134	0.922	20.584
790607	8	142	1.229	21.813
790608	3	145	0.461	22.273
790610	24	169	3.687	25.960
790616	21	190	3.226	29.186
790617	11	201	1.690	30.876
790618	11	212	1.690	32.565
790623	22	234	3.379	35.945
790624	14	248	2.151	38.095
790629	4	252	0.614	38.710
790630	18	270	2.765	41.475
790701	14	284	2.151	43.625
790703	1	285	0.154	43.779
790704	2	287	0.307	44.086
790705	2	289	0.307	44.393
790707	49	338	7.527	51.920
790708	23	361	3.533	55.453
790712	3	364	0.461	55.914
790713	13	377	1.997	57.911
790714	25	402	3.840	61.751
790715	58	460	8.909	70.661
790716	7	467	1.075	71.736
790717	5	472	0.768	72.504
790718	29	501	4.455	76.959
790719	7	508	1.075	78.034
790720	12	520	1.843	79.877
790721	58	578	8.909	88.786
790722	13	591	1.997	90.783
790723	1	592	0.154	90.937
790725	2	594	0.307	91.244
790728	20	614	3.072	94.316
790729	37	651	5.684	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 1

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=LOUISIANA

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
007	101	101	15.515	15.515
018	13	114	1.997	17.512
021	4	118	0.614	18.126
026	12	130	1.843	19.969
031	24	154	3.687	23.656
035	18	172	2.765	26.421
036	9	181	1.382	27.803
037	14	195	2.151	29.954
044	20	215	3.072	33.026
048	4	219	0.614	33.641
056	11	230	1.690	35.330
057	7	237	1.075	36.406
058	1	238	0.154	36.559
063	9	247	1.382	37.942
066	21	268	3.226	41.167
070	16	284	2.458	43.625
071	16	300	2.458	46.083
074	53	353	8.141	54.224
075	1	354	0.154	54.378
081	1	355	0.154	54.531
082	7	362	1.075	55.607
083	4	366	0.614	56.221
085	98	464	15.054	71.275
086	6	470	0.922	72.197
088	2	472	0.307	72.504
089	19	491	2.919	75.422
090	52	543	7.988	83.410
091	14	557	2.151	85.561
092	23	580	3.533	89.094
093	57	637	8.756	97.849
094	14	651	2.151	100.000

COUNTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
019	14	14	2.151	2.151
023	225	239	34.562	36.713
045	7	246	1.075	37.788
051	16	262	2.458	40.246
071	14	276	2.151	42.396
075	168	444	25.806	68.203
087	116	560	17.819	86.022
101	4	564	0.614	86.636
103	16	580	2.458	89.094
113	71	651	10.906	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 1

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=TEXAS

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
152	1	1	14.286	14.286
188	1	2	14.286	28.571
191	5	7	71.429	100.000

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790522	1	1	14.286	14.286
790609	1	2	14.286	28.571
790714	5	7	71.429	100.000

COUNTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
071	5	5	71.429	71.429
167	1	6	14.286	85.714
355	1	7	14.286	100.000

APPENDIX C

Intercept Site Codes

Louisiana Site Codes

001	Grand Isle Boat Launch
006	Venice Boat Ramp
007	Empire Ramp
008	Leeville Ramp
012	Saltpoint/Northpoint
020	Golden Meadow Ramp
021	Intracoastal City on Hwy. 333
024	Holly Beach
031	Martin's Marina
034	Gaguon's Marina
035	Le Bouef Molero's Marina
036	Pips Place
037	Selacroixs
041	Herbert's Landing
042	Crab Lady Landing
044	Rockefellar Refuge Launch
048	Oak Grove Launch
052	Cameron Ferry Landing
055	Dugas Landing
056	Hackberry Launch
057	Prien Lake Park
062	Ellender Bridge Boat Launch
066	Martin's Marina (duplicate)
069	Gilbert's Place
070	Harbor Inn Ramp, St. Tammany
071	Bonnabel Boulevard Launch
073	Hermitage Boat Ramp
074	Point-a-la-Hache Boat Ramp

075	SW Grand Isle Ramp
076	Bayou Petit Caillow (at Hwy 56)
077	Bayou Petit Caillow (15 mil. So. of Chavin Town)
078	Bayou Petit Caillow (at Cocodre, Hwy 56)
079	Bayou Grand Caillow (So. of Dulac)
080	Bayou Du Large (Hwy 315)
081	Hentey - Don's Boat Launch (on Hwy 330)
083	Bayou Cypremount Point Launch
088	Ernest Melerine Launch
089	Mack Melerine Launch
090	Broussard's Landing
091	Acadiana Marina
092	Creole Draining Canal
093	Calcasieu Pass and Ferry Dock
094	Sea Brook Bridge Boat Launch

Alabama Site Codes

026	Shell Bank Fish Camp
036	Dauphin Island Public Ramp
043	Beachcomber Docks
053	Fort Morgan Point
061	Beachcomber Docks (duplicate)
062	Battleship Parkway Ramps
075	Dauphin Island Parkway

Mississippi Site Codes

033	Ocean Springs Harbor
045	Liveoak Fishing Camp
047	Pass Christian Harbor
059	Old Naval Base Launch
063	Oak Street Ramp

Texas Site Codes

044	Lazy Palms
072	Matagorda County Public Boat Ramp
075	Bulkhead Bait Camp
191	Smith Point Public Boat Ramp
201	Texas City Dike
230	Crawley's Tri-City Beach
232	San Leon Shorline
233	Bill Rehm's, Galveston Causeway
234	Thompson's, Baytown
235	Pleasure Island
236	Eagle Point Camp
237	Robin's Marina, Bolivar Peninsula
239	Sylvan Beach
240	Sabine Pass
241	Canal Shrimp Company
242	Matagocda County Public Boat Ramp
152	Galveston County Boat Ramp
188	Galveston County Boat Ramp

APPENDIX D

State and County Codes

STATE AND COUNTY CODES

ALABAMA (01)

Autauga	001	Elmore	051	Montgomery	101
Baldwin	003	Escambia	053	Morgan	103
Barbour	005	Etowah	055	Perry	105
Bibb	007	Fayette	057	Pickens	107
Blount	009	Franklin	059	Pike	109
Bullock	011	Geneva	061	Randolph	111
Butler	013	Greene	063	Russell	113
Calhoun	015	Hale	065	St. Clair	115
Chambers	017	Henry	067	Shelby	117
Cherokee	019	Houston	069	Sumter	119
Chilton	021	Jackson	071	Talladega	121
Choctaw	023	Jefferson	073	Tallapoosa	123
Clarke	025	Lamar	075	Tuscaloosa	125
Clay	027	Lauderdale	077	Walker	127
Cleburne	029	Lawrence	079	Washington	129
Coffee	031	Lee	081	Wilcox	131
Colbert	033	Limestone	083	Winston	133
Conecuh	035	Lowndes	085		
Coosa	037	Macon	087		
Covington	039	Madison	089		
Crenshaw	041	Marengo	091		
Cullman	043	Marion	093		
Dale	045	Marshall	095		
Dallas	047	Mobile	097		
De Kalb	049	Monroe	099		

CONNECTICUT (08)

Fairfield	001	New London	011
Hartford	003	Tolland	013
Litchfield	005	Windham	015
Middlesex	007		
New Haven	009		

DELAWARE (09)

Kent	001
New Castle	003
Sussex	005

DISTRICT OF COLUMBIA (10)

Washington	001

FLORIDA (11)

Alachua	001	Hendry	051	Pasco	101
Baker	003	Hernando	053	Pinellas	103
Bay	005	Highlands	055	Polk	105
Bradford	007	Hillsborough	057	Putnam	107
Brevard	009	Holmes	059	St. Johns	109
Broward	011	Indian River	061	St. Lucie	111
Calhoun	013	Jackson	063	Santa Rosa	113
Charlotte	015	Jefferson	065	Sarasota	115
Citrus	017	Lafayette	067	Seminole	117
Clay	109	Lake	069	Sumter	119
Collier	021	Lee	071	Suwannee	121
Columbia	023	Leon	073	Taylor	123
Dade	025	Levy	075	Union	125
De Soto	027	Liberty	077	Volusia	127
Dixie	029	Madison	079	Wakulla	129
Duval	031	Manatee	081	Walton	131
Escambia	033	Marion	083	Washington	133
Flagler	035	Martin	085		
Franklin	037	Monroe	087		
Gadsden	039	Nassau	089		
Gilchrist	041	Okaloosa	091		
Glades	043	Okeechobee	093		
Gulf	045	Orange	095		
Hamilton	047	Osceola	097		
Hardee	049	Palm Beach	099		

GEORGIA (12)

Appling	001	Columbia	073	Haralson	143
Atkinson	003	Cook	075	Harris	145
Bacon	005	Coweta	077	Hart	147
Baker	007	Crawford	079	Heard	149
Baldwin	009	Crisp	081	Henry	151
Banks	011	Dade	083	Houston	153
Barrow	013	Dawson	085	Irwin	155
Bartow	015	Decatur	087	Jackson	157
Ben Hill	017	De Kalb	089	Jasper	159
Berrien	019	Dodge	091	Jeff Davis	161
Bibb	021	Dooly	093	Jefferson	163
Bleckley	012	Dougherty	095	Jenkins	165
Brantley	025	Douglas	097	Johnson	167
Brooks	027	Early	099	Jones	169
Bryan	029	Echols	101	Lamar	171
Bulloch	031	Effingham	103	Lanier	173
Burke	033	Elbert	105	Laurens	175
Butts	035	Emanuel	107	Lee	177
Calhoun	037	Evans	109	Liberty	179
Camden	039	Fannin	111	Lincoln	181
Candler	043	Fayette	113	Long	183
Carroll	045	Floyd	115	Lowndes	185
Catoosa	047	Forsyth	117	Lumpkin	187
Charlton	049	Franklin	119	McDuffie	189
Chatham	051	Fulton	121	McIntosh	191
Chattahoochee	053	Gilmer	123	Macon	193
Cattooga	055	Glascock	125	Madison	195
Cherokee	057	Glynn	127	Marion	197
Clarke	059	Gordon	129	Meriwether	199
Clay	061	Grady	131	Miller	201
Clayton	063	Greene	133	Mitchell	205
Clinch	065	Gwinnett	135	Monroe	207
Cobb	067	Habersham	137	Montgomery	209
Coffee	069	Hall	139	Morgan	211
Colquitt	071	Hancock	141	Murray	213

Georgia (Continued)

Newton	217	Spalding	255	Walker	295
Oconee	219	Stephens	257	Walton	297
Oglethorpe	221	Stewart	259	Ware	299
Paulding	223	Sumter	261	Warren	301
		Talbot	263	Washington	303
Peach	225	Taliaferro	265	Wayne	305
Pickens	227	Tattnall	267	Webster	307
Pierce	229	Taylor	269	Wheeler	309
Pike	231	Telfair	271	White	311
Polk	233	Terrell	273	Whitfield	313
Pulaski	235	Thomas	275	Wilcox	315
Putnam	237	Tift	277	Wilkes	317
Quitman	239	Toombs	279	Wilkinson	319
Rabun	241	Towns	281	Worth	321
Randolph	243	Treutlen	283		
Richmond	245	Troup	285		
Rockdale	247	Turner	287		
Schley	249	Twiggs	289		
Screven	251	Union	291		
Seminole	253	Upson	293		

LOUISIANA (21)

Acadia	001	De Soto	031	Lincoln	061
Allen	003	East Baton Rouge	033	Livingston	063
Ascension	005	East Carroll	035	Madison	065
Assumption	007	East Feliciana	037	Morehouse	067
Avoyelles	009	Evangeline	039	Natchitoches	069
Beauregard	011	Franklin	041	Orleans	071
Bienville	013	Grant	043	Ouachita	073
Bossier	015	Iberia	045	Plaquemines	075
Caddo	017	Iberville	047	Pointe Coupee	077
Calcasieu	019	Jackson	049	Rapides	079
Caldwell	021	Jefferson	051	Red River	081
Cameron	023	Jefferson Davis	053	Richland	083
Catahoula	025	Lafayette	055	Sabine	085
Claiborne	027	LaFourche	057	St. Bernard	087
Concordia	029	La Salle	059	St. Charles	089

Louisiana (Continued)

St. Helena	091	Union	111		
St. James	093	Vermilion	113		
St. John the Baptist	095	Vernon	115		
St. Landry	097	Washington	117		
St. Martin	099	Webster	119		
St. Mary	101	West Baton Rouge	121		
St. Tammany	103	West Carroll	123		
Tangipahoa	105	West Feliciana	125		
Tensas	107	Winn	127		
Terrebonne	109				

MAINE (22)

Androscoggin	001	Kennebec	011	Piscataquis	021
Aroostook	003	Knox	013	Sagadahoc	023
Cumberland	005	Lincoln	015	Somerset	025
Franklin	007	Oxford	017	Waldo	027
Hancock	009	Penobscot	019	Washington	029
				York	031

MARYLAND (23)

Allegany	001	Garrett	023	Washington	043
Anne Arundel	003	Harford	025	Wicomico	045
Baltimore	005	Howard	027	Worcester	047
Baltimore City	005	Kent	029		
Calvert	009	Montgomery	031		
Caroline	011				
Carroll	013	Prince Georges	033		
Cecil	015	Queen Annes	035		
Charles	017	St. Marys	037		
Dorchester	019	Somerset	039		
Frederick	021	Talbot	041		

MASSACHUSETTS (24)

Barnstable	001	Franklin	011	Norfolk	021
Berkshire	003	Hampden	013	Plymouth	023
Bristol	005	Hampshire	015	Suffolk	025
Dukes	007	Middlesex	017	Worcester	027
Essex	009	Nantucket	019		

MISSISSIPPI (27)

Adams	001	Jasper	061	Rankin	121
Alcorn	003	Jefferson	063	Scott	123
Amite	005	Jefferson Davis	065	Sharkey	125
Attala	007	Jones	067	Simpson	127
Benton	009	Kemper	069	Smith	129
Bolivar	011	Lafayette	071	Stone	131
Calhoun	013	Lamar	073	Sunflower	133
Carroll	015	Lauderdale	075	Tallahatchie	135
Chickasaw	017	Lawrence	077	Tate	137
Choctaw	019	Leake	079	Tippah	139
Claiborne	021	Lee	081	Tishomingo	141
Clarke	023	Leflore	083	Tunica	143
Clay	025	Lincoln	085	Union	145
Coahoma	027	Lowndes	087	Walthall	147
Copiah	029	Madison	089	Warren	149
Covington	031	Marion	091	Washington	151
DeSoto	033	Marshall	093	Wayne	153
Forrest	035	Monroe	095	Webster	155
Franklin	037	Montgomery	097	Wilkinson	157
George	039	Neshoba	099	Winston	159
Green	041	Newton	101	Yalobusha	161
Grenada	043	Noxubee	103	Yazoo	163
Hancock	045	Oktibbeha	105		
Harrison	047	Panola	107		
Hinds	049	Pearl River	109		
Holmes	051	Perry	111		
Humphreys	053	Pike	113		
Issaquena	055	Pontotoc	115		
Itawamba	057	Prentiss	117		
Jackson	059	Quitman	119		

NEW HAMPSHIRE (32)

Belknap	001	Hillsborough (or Hillsboro)	011
Carroll	003	Merrimack	013
Cheshire	005	Rockingham	015
Coos	007	Strafford	017
Grafton	009	Sullivan	019

NEW JERSEY (33)

Atlantic	001	Mercer	021	Warren	041
Bergen	003	Middlesex	023		
Burlington	005	Monmouth	025		
Camden	007	Morris	027		
Cape May	009	Ocean	029		
Cumberland	011	Passaic	031		
Essex	013	Salem	033		
Gloucester	015	Somerset	035		
Hudson	017	Sussex	037		
Hunterdon	019	Union	039		

NEW YORK (35)

Albany	001	Essex	031	New York	061
Allegany	003	Franklin	033	Niagara	063
Bronx	005	Fulton	035	Oneida	065
Broome	007	Genesee	027	Onondaga	067
Cattaraugus	009	Greene	039	Ontario	069
Cayuga	011	Hamilton	041	Orange	071
Chautauqua	013	Herkimer	043	Orleans	073
Chemung	015	Jefferson	045	Oswego	075
Chenango	017	Kings	047	Otsego	077
Clinton	019	Lewis	049	Putnam	079
Columbia	021	Livingston	051	Queens	081
Cortland	023	Madison	053	Rensselaer	083
Delaware	025	Monroe	055	Richmond	085
Dutchess	027	Montgomery	057	Rockland	087
Erie	029	Nassau	059	St. Lawrence	089

New York (Continued)

Saratoga	091	Ulster	111
Schenectady	093	Warren	113
Schoharie	095	Washington	115
Schuyler	097	Wayne	117
Seneca	099	Westchester	119
Steuben	101	Wyoming	121
Suffolk	103	Yates	123
Sullivan	105		
Tioga	107		
Tompkins	109		

NORTH CAROLINA (36)

Alamance	001	Cumberland	051	Johnston	101
Alexander	003	Currituck	053	Jones	103
Alleghany	005	Dare	055	Lee	105
Anson	007	Davidson	057	Lenoir	107
Ashe	009	Davie	059	Lincoln	109
Avery	011	Duplin	061	McDowell	111
Beaufort	013	Durham	063	Macon	113
Bertie	015	Edgecombe	065	Madison	115
Bladen	017	Forsyth	067	Martin	117
Brunswick	019	Franklin	069	Mecklenburg	119
Buncombe	021	Gaston	071	Mitchell	121
Burke	023	Gates	073	Montgomery	123
Cabarrus	025	Graham	075	Moore	125
Caldwell	027	Granville	077	Nash	127
Camden	029	Greene	079	New Hanover	129
Carteret	031	Guilford	081	Northampton	131
Caswell	033	Halifax	083	Onslow	133
Catawba	035	Harnett	085	Orange	135
Chatham	037	Haywood	087	Pamlico	137
Cherokee	039	Henderson	089	Pasquotank	139
Chowan	041	Hertford	091	Pender	141
Clay	043	Hoke	093	Perquimans	143
Cleveland	045	Hyde	095	Person	145
Columbus	047	Iredell	097	Pitt	147
Craven	049	Jackson	099	Polk	149

North Carolina (Continued)

Randolph	151	Surry	171	Wayne	191
Richmond	153	Swain	173	Wilkes	193
Robeson	155	Transylvania	175	Wilson	195
Rockingham	157	Tyrrell	177	Yadkin	197
Rowan	159	Union	179	Yancey	199
Rutherford	161	Vance	181		
Sampson	163	Wake	183		
Scotland	165	Warren	185		
Stanly	167	Washington	187		
Stokes	169	Watauga	189		

PENNSYLVANIA (41)

Adams	001	Fayette	051	Philadelphia	101
Allegheny	003	Forest	053	Pike	103
Armstrong	005	Franklin	055	Potter	105
Beaver	007	Fulton	057	Schuylkill	107
Bedford	009	Greene	059	Snyder	109
Berks	011	Huntingdon	061	Somerset	111
Blair	013	Indiana	063	Sullivan	113
Bradford	015	Jefferson	065	Susquehanna	115
Bucks	017	Juniata	067	Tioga	117
Butler	019	Lackawanna	069	Union	119
Cambria	021	Lancaster	071	Venango	121
Cameron	023	Lawrence	073	Warren	123
Carbon	025	Lebanon	075	Washington	125
Centre	027	Lehigh	077	Wayne	127
Chester	029	Luzerne	079	Westmoreland	129
Clarion	031	Lycoming	081	Wyoming	131
Clearfield	033	McKean	083	York	133
Clinton	035	Mercer	085		
Columbia	037	Mifflin	087		
Crawford	039	Monroe	089		
Cumberland	041	Montgomery	091		
Dauphin	043	Montour	093		
Delaware	045	Northampton	095		
Elk	047	Northumberland	097		
Erie	049	Perry	099		

RHODE ISLAND (43)

Bristol	001
Kent	003
Newport	005
Providence	007
Washington 0	009

SOUTH CAROLINA (45)

Abbeville	001	Florence	041	Saluda	081
Aiken	003	Georgetown	043	Spartanburg	083
Allendale	005	Greenville	045	Sumter	085
Anderson	007	Greenwood	047	Union	087
Bamberg	009	Hampton	049	Williamsburg	089
Barnwell	011	Horry	051	York	091
Beaufort	013	Jasper	053		
Berkeley	015	Kershaw	055		
Calhoun	017	Lancaster	057		
Charleston	019	Laurens	059		
Cherokee	021	Lee	061		
Chester	023	Lexington	063		
Chesterfield	025	McCormick	065		
Clarendon	027	Marion	067		
Colleton	029	Marlboro	069		
Darlington	031	Newberry	071		
Dillon	033	Oconee	073		
Dorchester	035	Orangeburg	075		
Edgefield	037	Pickens	077		
Fairfield	039	Richland	079		

TEXAS (48)

Anderson	001	Chambers	071	El Paso	141
Andrews	003	Cherokee	073	Erath	143
Angelina	005	Childress	075	Falls	145
Aransas	007	Clay	077	Fannin	147
Archer	009	Cochran	079	Fayette	149
Armstrong	011	Coke	081	Fisher	151
Atascosa	013	Coleman	083	Floyd	153
Austin	015	Collin	085	Foard	155
Bailey	017	Collingsworth	087	Fort Bend	157
Bandera	019	Colorado	089	Franklin	159
Bastrop	021	Comal	091	Freestone	161
Baylor	023	Comanche	093	Frio	163
Bee	025	Concho	095	Gaines	165
Bell	027	Cooke	097	Galveston	167
Bexar	029	Coryell	099	Garza	169
Blanco	031	Cottle	101	Gillespie	171
Borden	033	Crane	103	Glasscock	173
Bosque	035	Crockett	105	Goliad	175
Bowie	037	Crosby	107	Gonzales	177
Brazoria	039	Culberson	109	Gray	179
Brazos	041	Dallam	111	Grayson	181
Brewster	043	Dallas	113	Gregg	183
Briscoe	045	Dawson	115	Grimes	185
Brooks	047	Deaf Smith	117	Guadalupe	187
Brown	049	Delta	119	Hale	189
Burleson	051	Denton	121	Hall	191
Burnet	053	DeWitt	123	Hamilton	193
Caldwell	055	Dickens	125	Hansford	195
Calhoun	057	Dimmit	127	Hardeman	197
Callahan	059	Donley	129	Hardin	199
Cameron	061	Duval	131	Harris	201
Camp	063	Eastland	133	Harrison	203
Carson	065	Ector	135	Hartley	205
Cass	067	Edwards	137	Haskell	207
Castro	069	Ellis	139	Hays	209

Texas (Continued)

Texas (Continued)

Sherman	421	Upton	461	Williamson	491
Smith	423	Uvalde	463	Wilson	493
Somervell	425	Val Verde	465	Winkler	495
Starr	427	Van Zandt	467	Wise	497
Stephens	429	Victoria	469	Wood	499
Sterling	431	Walker	471	Yoakum	501
Stonewall	433	Waller	473	Young	503
Sutton	435	Ward	475	Zapata	505
Swisher	437	Washington	477	Zavala	507
Tarrant	439	Webb	479		
Taylor	441	Wharton	481		
Terrell	443	Wheeler	483		
Terry	445	Wichita	485		
Throckmorton	447	Wilbarger	487		
Titus	449	Willacy	489		
Tom Green	451	Williamson	491		
Travis	453	Wilson	493		
Trinity	455	Winkler	495		
Tyler	457	Wise	497		
Upshur	459	Wood	499		

VIRGINIA (51)

Alexandria (City)	013	Brunswick	025	Clarke	043
Accomack	001	Buchanan	027	Clifton Forge (City)	560
Albermarle	003	Buckingham	029	Colonial Heights (City)	041
Alleghany	005	Buena Vista (City)	530		
Amelia	007	Campbell	031	Covington (City)	580
Amherst	009	Caroline	033	Craig	045
Appomattox	011	Carroll	035	Culpeper	047
Arlington	013	Charles City	036	Cumberland	049
Augusta	015	Charlotte	037	Danville (City)	590
Bath	017	Charlottesville (City)	540	Dickenson	051
Bedford (City)	515	Chesapeake (City)	129	Dinwiddie	053
Bedford	019	Chesterfield	041	Emporia (City)	595
Bland	021			Essex	057
Botetourt	023			Fairfax (City)	059
Bristol (City)	520				

Virginia (Continued)

Fairfax	059
Falls Church (City)	059
Fauquier	061
Floyd	063
Fluvanna	065
Franklin (City)	620
Franklin	067
Frederick	069
Fredericksburg (City)	177
Galax (City)	640
Giles	071
Gloucester	073
Goochland	075
Grayson	077
Greene	079
Greensville	081
Halifax	083
Hampton (City)	199
Hanover	085
Harrisonburg (City)	660
Henrico	087
Henry	089
Highland	091
Hopewell (City)	149
Isle of Wight	093
James City	095
King and Queen	097
King George	099
King William	101
Lancaster	103
Lee	105
Lexington (City)	678
Loudoun	107
Louisa	109
Lunenburg	111
Lynchburg (City)	680
Madison	113
Manassas (City)	683
Manassas Park (City)	685
Martinsville (City)	690
Mathews	115
Mecklenburg	117
Middlesex	119
Montgomery	121
Nansemond (City)	800
Nelson	125
New Kent	127
Newport News (City)	199
Norfolk (City)	129
Northampton	131
Northumberland	133
Norton (City)	720
Nottoway	135
Orange	137
Page	139
Patrick	141
Petersburg (City)	053
Pittsylvania	143
Poquoson (City)	735
Portsmouth (City)	129
Powhatan	145
Prince Edward	147
Prince George	149
Prince William	153
Pulaski	155
Radford (City)	750
Rappahannock	157
Richmond (City)	087
Richmond	159
Roanoke (City)	770
Roanoke	161
Rockbridge	163
Rockingham	165
Russell	167
Salem (City)	775
Scott	169
Shenandoah	171
Smyth	173
Southampton	175
South Boston (City)	780
Spotsylvania	177
Stafford	179
Staunton (City)	790
Suffolk (City)	123
Surry	181

Virginia (Continued)

Sussex	183
Tazewell	185
Virginia Beach (City)	129
Warren	187
Washington	191
Waynesboro (City)	820
Westmoreland	193
Williamsburg (City)	095
Winchester (City)	840
Wise	195
Wythe	197
York	199

APPENDIX E

Phase II Interviewing Materials

OMB No. 41-R2999
August 9, 1978
Expires December 1983

SHRIMP INTERCEPT FORM

This study is being conducted in accordance with the Privacy Act of 1974. You are not required to answer any question that you consider to be an invasion of your privacy. I have a copy of the Privacy Act Statement which you may look at if you like.

5 3 *(1-2)*

1. Interviewer Code . . . . . 1 [ ] [ ] [ ] *(3-6)*

2. Year/month/day . . . 7 9 [ ] [ ] [ ] [ ] *(7-12)*

3. Interview number . . . . . [ ] [ ] [ ] *(13-15)*

4. Hour . . . . . [ ] [ ] [ ] [ ] *(16-19)*

5. State . . . . . [ ] [ ] *(20-21)*

6. County . . . . . [ ] [ ] [ ] *(22-24)*

7. Site code . . . . . [ ] [ ] [ ] *(25-27)*

8. Language of respondent . . . . . [ ] [ ] *(28-29)*

English	= 01	Filipino	= 07
Spanish	= 02	Korean	= 08
French	= 03	American Indian	= 09
Italian	= 04	Native Alaskan	= 10
Japanese	= 05	Other (Specify:	) = 11
Chinese	= 06	Unknown	= 12

9. Sex of respondent . . . . . [ ] *(30)*

Male = 1 Unknown = 3
Female = 2

10. Mode of fishing . . . . . [ ] *(31)*

Boat = 1
Non-boat = 2

11. Primary gear . . . . . [ ] [ ] *(32-33)*

Hook and line	= 01	Trawl	= 06
Dip net	= 02	Trap	= 07
Cast net	= 03	Spear	= 08
Gill net	= 04	Butterfly net	= 09
Seine	= 05	Hands	= 10
Other (Specify	) = 11		

12. Number of gear used simultaneously . . . . . [ ] *(34)*

13. Interview status . . . . . [ ] *(35)*

Agrees to interview = 1
Refuses interview initially = 2
Nonresponse due to language barrier, age or other = 3
Refuses interview after start—questionnaire not usable = 4

(14.) Did you catch any shrimp today? . . . . . ☐ (36)

Yes = 1 No = 2

IF YES, ask: (14a.) How many people contributed to your shrimp catch today? . . . . . ☐☐ (37-38)

If no shrimp were caught or if this person's catch has already been described in someone else's form, Code 0's in 14a. and in all boxes in 15a - 15 c.

(15.) Did you catch any shrimp today that you threw back, gave away, used for bait or for any other reason do not have here with you now?

IF NO, Code 0's in all boxes in 15a -15c.

IF YES, ask:

I. Can you tell me what kinds of shrimp you caught that are *not* here with you now?

Brown shrimp = 1 Pink shrimp = 3
White shrimp = 2 Other shrimp (Specify_____) = 4

II. What did you do with the *(specify species)* that you caught?

Threw back alive = 1 Used for bait = 4 Filleted and cleaned = 7
Threw back dead = 2 Sold = 5 Other (Specify_____) = 8
Gave away = 3 Not in vicinity = 6 Refusal = 9

III. About how many pounds of the *(species)* did you *(disposition)*?

IV. Was that the heads on weight or the heads off weight?

Heads on = 1 Heads off = 2 Mixture of heads on and off = 3

V. In what particular body of water did you catch this shrimp?

If Gulf or Ocean, ask: Was that more than three miles or three miles or less from shore?

Repeat I - V as needed for each species and disposition.

		I. Species Code	II. Disposition	III. Estimated Weight in Pounds	IV. Heads	V. Location of Catch
(15a)	_____	☐	☐	☐☐☐	☐	☐☐☐
(15b)	_____	☐	☐	☐☐☐	☐	☐☐☐
(15c)	_____	☐	☐	☐☐☐	☐	☐☐☐

If the catch of this shrimper *has* already been recorded on someone else's form, identify that form by completing Item 16 and Code 0's in Items 17a - 17c.

If the catch of this shrimper *has not* been recorded on someone else's form, Code 0's in Item 16 and complete Items 17a - 17c.

16. (Interviewer Number) (Year) (Month) (Day) (Interview Number) *(66-78)*

		I. Species Code	II. Count/Pound	III. Heads	IV. Weight (in lbs.)	V. Method	VI. Location of Catch	
17a	_____							*(79-90)*
17b	_____							*(91-102*
17c	_____							*(103-11*

I. Species Code:

Brown shrimp = 1 Pink shrimp = 3
White shrimp = 2 Other shrimp (Specify _____) = 4

II. Count/pound:

Take three independent count/pound measurements and record average count/pound.

III. Heads:

Heads on = 1 Heads off = 2 Mixture heads on and off = 3

IV. Weight:

Determine total weight using standardized table of weights.

Brand	Size	Proportion Filled		Pounds
_____	_____	_____	=	_____
_____	_____	_____	=	_____
_____	_____	_____	=	_____

V. Method:

Identify method by which weight estimate was obtained–

Standardized table = 1 Interviewer's estimate = 3 Other (Specify _____) = 5
Shrimper's estimate = 2 Total catch weighed = 4

VI. Location: Record location of catch for each species using Location Tables.

18. To the nearest half hour, how many hours have you spent shrimping today with your *(specify gear)* in the water? . [ ][ ].[ ] (115-11

19. What is your county and state of residence?

_____County . . . . . [ ][ ][ ] (119-12
_____State . . . . . [ ][ ] (122-12

If county is unknown, ask: What city or town do you live in? _____

20. Not counting today, within the past 12 months how many days have you gone recreational shrimping from this state? . . . . . [ ][ ][ ] (124-12

21. Not counting today, how about within the past 2 months? . . . . . [ ][ ] (127-12

22. How many days have you gone recreational shrimping in the past 12 months from other states? . . . . . [ ][ ][ ] (129-13

23. How about in the past 2 months from other states? . . . . . [ ][ ] (132-13

24. To the nearest mile, how many miles did you travel to get here from where you stayed last night? Don't count any side trips you may have taken. . . . . [ ][ ][ ] (134-13

25. Not counting gas for your car, how much would you estimate it has cost *you* to fish here today? Here is a list of expenses fishermen often have. Hand respondent expense card. . . . . [ ][ ][ ].[ ][ ] (137-14

26. May I have your age? . . . . . [ ][ ] (143-14

Under 5 years = 01
5 to 13 = 02
14 to 17 = 03
18 to 24 = 04
25 to 34 = 05
35 to 44 = 06
45 to 54 = 07
55 to 64 = 08
65 and over = 09
Refusal = 10

27. Yes or no, do you have a home telephone? . . . . . [ ] (145)

Yes = 1
No = 2
Refusal = 9

28. Do you think you will be selling any of the shrimp you caught today to such outlets as restaurants, roadside sale stands, friends, etc.? . . . . . ☐ (146)

Yes = 1 No = 2 Don't know = 3 Refusal = 9

28a. IF YES, ask: How many pounds of your shrimp will you be selling to these outlets? . . . . . ☐☐☐ (147-1

If other than yes, Code 000.

29. Do you think you will be selling any of the shrimp you caught today to commercial shrimp houses or processing plants? Show lists if necessary. . . . . ☐ (150)

Yes = 1 No = 2 Don't know = 3 Refusal = 9

29a. IF YES, ask: How many pounds of your shrimp will you be selling to commercial houses or processing plants? . . . . . ☐☐☐ (151-1

If other than yes, Code 000.

In the event that my supervisor wishes to verify that I have been conducting interviews here today . . .

If the person has an available phone: Would you be willing to give me your name and phone number so that he might contact you?

Name: _____

Phone Number: _____ (If not home telephone, specify: _____)
Area Code

If the person does not have a phone or refuses to answer Question 27, or refuses to give phone number:

Would you be willing to give me your name and address so that he might contact you?

Name _____

Address _____

_____
ZIP Code

STANDARDIZED TABLE OF SHRIMP WEIGHTS

Ice Chest Size	Make	Proportion Filled			
		¼	½	¾	Full
48 qt.	Igloo	17 lbs.	32 lbs.	47 lbs.	59 lbs.
68 qt.	Igloo	22 lbs.	44 lbs.	66 lbs.	88 lbs.
86 qt.	Igloo	28 lbs.	57 lbs.	89 lbs.	107 lbs.
151 qt.	Igloo	49 lbs.	98 lbs.	147 lbs.	196 lbs.
40 qt.	Coleman	13 lbs.	26 lbs.	39 lbs.	52 lbs.
48 qt.	Coleman	17 lbs.	32 lbs.	47 lbs.	59 lbs.
76 qt.	Coleman	25 lbs.	49 lbs.	74 lbs.	99 lbs.
32 qt.	Family	10 lbs.	21 lbs.	31 lbs.	42 lbs.
50 qt.	Family	16 lbs.	33 lbs.	49 lbs.	65 lbs.
101 qt.	Family	33 lbs.	66 lbs.	99 lbs.	131 lbs.

APPENDIX F

Phase II Frequency of Interviews by County,
by Site, by Date, and by Location of Catch by State of Intercept

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=ALABAMA

COUNTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
003	13	13	28.889	28.889
019	1	14	2.222	31.111
097	31	45	68.889	100.000

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
026	1	1	2.222	2.222
035	3	4	6.667	8.889
043	14	18	31.111	40.000
061	13	31	28.889	68.889
062	3	34	6.667	75.556
075	11	45	24.444	100.000

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790818	11	11	24.444	24.444
790820	5	16	11.111	35.556
790822	1	17	2.222	37.778
790823	4	21	8.889	46.667
790824	6	27	13.333	60.000
790825	5	32	11.111	71.111
790826	9	41	20.000	91.111
790831	4	45	8.889	100.000

LOCATION	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	27	.	.	.
203	16	16	88.889	88.889
303	1	17	5.556	94.444
424	1	18	5.556	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=TEXAS

LBCOM	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	21	.	.	.
0	455	455	96.195	96.195
7	1	456	0.211	96.406
15	1	457	0.211	96.617
28	1	458	0.211	96.829
30	1	459	0.211	97.040
40	1	460	0.211	97.252
50	1	461	0.211	97.463
60	1	462	0.211	97.674
65	1	463	0.211	97.886
75	1	464	0.211	98.097
250	1	465	0.211	98.309
321	1	466	0.211	98.520
999	7	473	1.480	100.000

COUNTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
	5	.	.	.
039	4	4	0.818	0.818
071	184	188	37.628	38.445
167	159	347	32.515	70.961
201	59	406	12.065	83.027
207	1	407	0.204	83.231
245	59	466	12.065	95.297
248	1	467	0.204	95.501
321	22	489	4.499	100.000

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
	1	.	.	.
044	2	2	0.406	0.406
072	12	14	2.434	2.840
075	6	20	1.217	4.057
191	87	107	17.647	21.704
201	63	170	12.779	34.483
230	63	233	12.779	47.262
232	27	260	5.477	52.738
233	23	283	4.665	57.404
234	41	324	8.316	65.720
235	8	332	1.623	67.343
236	34	366	6.897	74.239
237	20	386	4.057	78.296
239	42	428	8.519	86.815
240	3	431	0.609	87.424
241	4	435	0.811	88.235
242	4	439	0.811	89.047
245	1	440	0.203	89.249
291	53	493	10.751	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=TEXAS

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790717	1	1	0.202	0.202
790815	35	36	7.085	7.287
790816	52	88	10.526	17.814
790817	25	113	5.061	22.874
790818	113	226	22.874	45.749
790819	31	257	6.275	52.024
790825	22	279	4.453	56.478
790826	46	325	9.312	65.789
790901	8	333	1.619	67.409
790902	3	336	0.607	68.016
790908	18	354	3.644	71.660
790909	5	359	1.012	72.672
790915	7	366	1.417	74.089
790916	7	373	1.417	75.506
790918	1	374	0.202	75.709
790922	36	410	7.287	82.996
790925	1	411	0.202	83.198
790929	11	422	2.227	85.425
791006	30	452	6.073	91.498
791013	23	475	4.656	96.154
791014	1	476	0.202	96.356
791021	7	483	1.417	97.773
791027	1	484	0.202	97.976
791028	10	494	2.024	100.000

LOCATION	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	184	.	.	.
400	3	3	0.968	0.968
402	10	13	3.225	4.194
425	8	21	2.581	6.774
500	3	24	0.968	7.742
501	11	35	3.548	11.290
502	15	50	4.839	16.129
503	10	60	3.226	19.355
504	72	132	23.225	42.581
505	43	175	13.871	56.452
506	57	232	18.387	74.839
507	68	300	21.935	96.774
508	9	309	2.903	99.677
607	1	310	0.323	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=MISSISSIPPI

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
033	6	6	25.000	25.000
059	14	20	58.333	83.333
063	4	24	16.667	100.000

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790825	3	3	12.500	12.500
790831	1	4	4.167	16.667
790908	8	12	33.333	50.000
790922	5	17	20.833	70.833
791006	1	18	4.167	75.000
791027	5	24	25.000	100.000

LOCATION	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
303	23	23	100.000	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=LOUISIANA

COUNTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
014	1	1	0.040	0.040
019	109	110	4.334	4.374
023	329	439	13.082	17.455
045	759	1198	30.179	47.634
051	42	1240	1.670	49.304
057	139	1379	5.527	54.831
070	1	1380	0.040	54.871
071	44	1424	1.750	56.620
075	276	1700	10.974	67.594
087	21	1721	0.835	68.429
101	21	1742	0.835	69.264
103	64	1806	2.545	71.809
109	394	2200	15.666	87.475
113	315	2515	12.525	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=LOUISIANA

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
	2	.	.	.
001	16	16	0.637	0.637
006	3	19	0.119	0.756
007	160	179	6.367	7.123
008	75	254	2.984	10.107
012	1	255	0.040	10.147
016	2	257	0.080	10.227
018	1	258	0.040	10.267
020	64	322	2.547	12.813
021	222	544	8.834	21.647
024	1	545	0.040	21.687
026	71	515	2.825	24.513
034	6	622	0.239	24.751
035	7	629	0.279	25.030
041	32	661	1.273	26.303
042	24	685	0.955	27.258
052	232	917	9.232	36.490
055	18	935	0.716	37.207
056	38	973	1.512	38.719
057	1	974	0.040	38.758
062	14	988	0.557	39.316
066	41	1029	1.632	40.947
069	8	1037	0.318	41.265
070	67	1104	2.666	43.932
073	35	1139	1.393	45.324
074	72	1211	2.865	48.189
075	25	1236	0.995	49.184
076	4	1240	0.159	49.343
077	95	1335	3.780	53.124
078	127	1462	5.054	58.177
079	139	1601	5.531	63.709
080	18	1619	0.716	64.425
081	43	1662	1.711	66.136
082	227	1889	9.033	75.169
083	404	2293	16.076	91.246
084	21	2314	0.836	92.081
085	1	2315	0.040	92.121
086	10	2325	0.398	92.519
090	74	2399	2.945	95.464
092	3	2402	0.119	95.583
098	97	2499	3.860	99.443
177	1	2500	0.040	99.483
411	2	2502	0.080	99.562
412	2	2504	0.080	99.642
416	8	2512	0.318	99.960
420	1	2513	0.040	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=LOUISIANA

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790818	77	77	3.062	3.062
790820	702	779	27.913	30.974
790821	332	1111	13.201	44.175
790822	159	1270	6.322	50.497
790823	126	1396	5.010	55.507
790824	102	1498	4.056	59.563
790825	487	1985	19.364	78.926
790826	200	2185	7.952	86.879
790827	30	2215	1.193	88.072
790828	49	2264	1.948	90.020
790829	38	2302	1.511	91.531
790830	22	2324	0.875	92.406
790901	139	2463	5.527	97.932
790903	18	2481	0.716	98.648
790906	1	2482	0.040	98.688
790907	2	2484	0.080	98.767
790908	1	2485	0.040	98.807
790909	1	2486	0.040	98.847
790915	1	2487	0.040	98.887
790916	3	2490	0.119	99.006
790922	2	2492	0.080	99.085
790923	3	2495	0.119	99.205
791007	2	2497	0.080	99.284
791014	2	2499	0.080	99.364
791021	6	2505	0.239	99.602
791027	3	2508	0.119	99.722
791028	1	2509	0.040	99.761
791103	6	2515	0.239	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=LOUISIANA

LOCATION	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1296	.	.	.
8	1	1	0.082	0.082
14	1	2	0.082	0.164
42	22	24	1.805	1.969
52	7	31	0.574	2.543
400	291	322	23.872	26.415
401	5	327	0.410	26.825
402	42	369	3.445	30.271
403	49	418	4.020	34.290
404	9	427	0.738	35.029
405	19	446	1.559	36.587
406	2	448	0.164	36.751
408	55	503	4.512	41.263
410	14	517	1.148	42.412
411	2	519	0.164	42.576
412	28	547	2.297	44.873
413	23	570	1.887	46.760
414	53	623	4.348	51.107
415	4	627	0.328	51.436
416	36	663	2.953	54.389
417	27	690	2.215	56.604
418	1	691	0.082	56.686
419	3	694	0.246	56.932
420	1	695	0.082	57.014
423	381	1076	31.255	88.269
424	143	1219	11.731	100.000

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=MISSISSIPPI

COUNTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
047	4	4	16.667	16.667
059	20	24	83.333	100.000

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
033	6	6	25.000	25.000
059	14	20	58.333	83.333
063	4	24	16.667	100.000

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790825	3	3	12.500	12.500
790831	1	4	4.167	16.667
790908	8	12	33.333	50.000
790922	5	17	20.833	70.833
791006	1	18	4.167	75.000
791027	6	24	25.000	100.000

LOCATION	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
303	23	23	100.000	100.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

FREQUENCIES OF RESPONSES TO SELECTED ITEMS
BY STATE
STATE=ALABAMA

COUNTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
003	13	13	28.889	28.889
019	1	14	2.222	31.111
097	31	45	68.889	100.000

SITE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
026	1	1	2.222	2.222
035	3	4	6.667	8.889
043	14	18	31.111	40.000
061	13	31	28.889	68.889
062	3	34	6.667	75.556
075	11	45	24.444	100.000

DATE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
790818	11	11	24.444	24.444
790820	5	16	11.111	35.556
790822	1	17	2.222	37.778
790823	4	21	8.889	46.667
790824	6	27	13.333	60.000
790825	5	32	11.111	71.111
790826	9	41	20.000	91.111
790831	4	45	8.889	100.000

LOCATION	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	27	.	.	.
203	16	16	88.889	88.889
303	1	17	5.556	94.444
424	1	18	5.556	100.000

APPENDIX G

Location of Catch Codes

SHRIMP LOCATION OF CATCH CODES

Florida	100 Florida - River of Estuary
	101 Florida - Gulf - More than 3 miles from shore
	102 Florida - Gulf - 3 miles or less from shore
	103 Charlotte Harbor
	104 Tampa Bay
	105 Apalachicola Bay
	106 St. George Sound
	107 St. Andrews Bay
	108 St. Joseph Bay
	109 West Bay
	110 Choctawatchee Bay
	111 Escambia Bay
	112 East Bay
	113 Pensacola Bay
Alabama	200 Alabama - River or Estuary
	201 Alabama - Gulf - More than 3 miles from shore
	202 Alabama - Gulf - 3 miles or less from shore
	203 Mobile Bay, AL
	204 Perdigo Bay, AL
	205 Little Lagoon, AL
Mississippi	300 Mississippi - River or Estuary
	301 Mississippi - Gulf- Less than 3 miles from shore
	302 Mississippi - Gulf - 3 miles or less from shore
	303 Mississippi Sound (Mobile Bay to Gulfport Ship Channel)
	304 Mississippi Sound (Gulfport Ship Channel to Lake Borgne)
Louisiana	400 Louisiana - River or Estuary
	401 Louisiana - Gulf - More than 3 miles from shore
	402 Louisiana - Gulf - 3 miles or less from shore
	403 Lake Borgne, LA
	404 Lake Pontchartrain, LA
	405 Breton Sound, LA
	406 Chandeleúr Sound, LA
	407 Garden Island Bay, LA
	408 Bartaria and Caminada Bays, LA
	409 Lake Salvador, LA
	410 Little Lake, LA
	411 East Bay (Between Southwest & South Passes), LA

412 Bay Adam, LA
413 Timbalier Bay, LA
414 Terrebonne Bay, LA
415 Calillow Bay, LA
416 Lake Barre, LA
417 Lake Pelto, LA
418 Lake Decade, LA
419 Lake Mechant, LA
420 Lake Felicity, LA
421 Lost Lake, LA
422 Four League Bay, LA
423 Vermilion and Cote Blanche Bays, LA
424 Calcasieu Lake, LA
425 Sabine Lake, LA

Texas

500 Texas - River or Estuary
501 Texas - Gulf - More than 3 miles from shore
502 Texas - Gulf - 3 miles or less from shore
503 West Bay, TX
504 Trinity Bay, TX
505 Upper Galveston Bay, TX
506 East Bay, TX
507 Lower Galveston Bay, TX
508 Matagorda Bay, TX
509 San Antonio Bay, TX
510 Aransas Bay, TX
511 East Matagorda Bay, TX
512 Lavaca Bay, TX
513 Espirtu Santo Bay, TX
514 Mesquite Bay, TX
515 Copano Bay, TX
516 Corpus Christi Bay, TX
517 Neuces Bay, TX
518 Upper Laguna, TX
519 Baffin Bay, TX
520 Lower Laguna, TX

APPENDIX H

Phase II Louisiana Catch Data

The following pages contain Phase II Louisiana catch and effort data by interview; by zone of interview; and by location of catch. Listed below are the definitions for the various variable names which are used in the tables.

BRMEANW	-	mean pounds of brown shrimp per trip
BRMEANC	-	mean count per pound of brown shrimp
BRMEANH	-	mean pounds of brown shrimp per hour
WTMEANW	-	mean pounds of white shrimp per trip
WTMEANC	-	mean count per pound of white shrimp
WTMEANH	-	mean pounds of brown shrimp per hour
OTMEANW	-	mean pounds of other shrimp per hour (proportion of catch by species could not be determined)
OTMEANC	-	mean count per pound of other shrimp
OTMEANH	-	mean pounds of other shrimp per hour
TOMEANW	-	mean pounds of all shrimp per trip
TOMEANH	-	mean pounds of all shrimp per hour
BROWNWT	-	pounds of brown shrimp per trip
BROWNCP	-	count per pound of brown shrimp
BRPERH	-	pounds of brown shrimp per hour
		(The data on White, Pink, Ohter and Total follow the same format as above)
HRSF	-	hours shrimped per trip

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA ON DAILY BASIS

DATE	BRMEANW	BRMEANC	BRMEANH	WTMEANW	WTMEANC	WTMEANH
790818	3.0000	53.0000	0.74995	21.250	54.947	4.8442
790820	31.1905	44.5238	9.06135	48.276	41.653	11.0350
790821	15.6000	49.6800	4.38276	49.625	47.796	11.4263
790822	10.4878	48.8182	2.88630	12.640	44.067	3.2374
790823	13.5000	60.5000	3.88750	37.853	52.367	11.3612
790824	2.5200	51.0000	0.78578	8.769	41.333	2.7531
790825	9.7436	44.4516	4.20385	25.150	47.058	5.6235
790826	12.4800	40.4667	3.43622	20.600	40.679	4.5305
790827	.	.	.	38.400	55.429	7.6942
790828	2.0000	50.0000	1.00000	29.150	46.789	6.9830
790829	0.0000	.	0.00000	31.591	46.421	7.5327
790830	.	.	.	28.909	45.700	5.6643
790901	4.3529	57.5000	1.07096	32.750	62.833	7.1941
790903	0.0000	.	0.00000	36.500	31.500	12.2500
790907	.	.	.	.	.	.
790908	2.0000	45.0000	0.66667	.	.	.
790909	0.0000	.	0.00000	0.000	.	0.0000
790915	.	.	.	6.000	46.000	6.0000
790916	.	.	.	.	.	.
790922	.	.	.	8.500	26.500	2.0972
790923	0.5000	40.0000	0.11111	41.000	30.000	9.1111
791014	.	.	.	5.000	52.000	10.0000
791021	.	.	.	100.000	82.000	14.2857
791027	12.0000	49.0000	3.00000	.	.	.
791028	.	.	.	.	.	.

DATE	HRMEAN	OTMEANW	OTMEANC	OTMEANH	TOMEANW	TOMEANH
790818	4.64000	28.2000	52.2000	3.7667	23.2400	4.7787
790820	4.17702	32.2262	54.6875	7.3596	47.6594	11.526
790821	4.22378	29.4545	50.6154	6.3574	48.2286	11.
790822	3.16667	1.8095	35.0000	0.3254	16.6667	4.3491
790823	3.21552	16.8636	52.7059	5.4913	33.2037	10.110
790824	3.58621	9.7778	47.7778	2.1602	12.1818	3.378
790825	3.85931	21.8415	51.5541	7.2616	24.4071	6.6696
790826	3.80526	13.5870	46.9714	4.0430	19.5667	5.034
790827	4.85417	37.6250	51.1250	7.9501	38.1304	7.783
790828	3.84091	2.5000	59.0000	1.2500	26.9091	6.5528
790829	4.32609	4.0000	69.0000	1.3333	30.5652	7.321
790830	4.62500	40.0000	38.0000	13.3333	29.8333	6.303
790901	3.82836	8.1500	67.0000	2.9881	31.3788	7.2854
790903	3.06250	29.0833	64.4000	12.7431	35.3571	14.422
790907	4.00000	49.0000	84.0000	12.2500	49.0000	12.250
790908	3.00000	.	.	.	2.0000	0.6667
790909	1.50000	0.0000	.	0.0000	0.0000	0.000
790915	1.00000	.	.	.	6.0000	6.000
790916	2.25000	9.5000	53.5000	4.5000	9.5000	4.5000
790922	4.25000	.	.	.	8.5000	2.097
790923	4.33333	1.0000	32.0000	0.2500	28.3333	6.314
791014	0.50000	.	.	.	5.0000	10.000
791021	2.33333	9.7500	73.7500	7.2500	27.8000	8.657
791027	3.16667	30.0000	58.0000	13.9286	24.0000	10.285
791028	1.50000	40.0000	.	25.6667	40.0000	26.666

TABLE OF DATE BY ZONE

DATE / FREQUENCY	ZONE •	1	2	3	4	5	6	TOTAL
790818	0	0	0	0	0	25	0	25
790820	0	42	68	33	58	68	53	322
790821	0	1	0	20	36	66	20	143
790822	0	0	14	0	23	0	38	75
790823	1	7	3	0	22	25	0	57
790824	0	1	14	0	12	6	25	58
790825	0	11	6	31	59	92	32	231
790826	0	0	10	13	27	20	25	95
790827	0	1	0	0	2	14	7	24
790828	0	0	8	0	2	12	0	22
790829	0	0	0	0	4	19	0	23
790830	0	0	0	0	2	10	0	12
790901	0	0	0	0	12	42	13	67
TOTAL	•	70	127	98	290	399	213	1197

TABLE OF DATE BY ZONE

DATE ZONE

FREQUENCY	•	1	2	3	4	5	6	TOTAL
790903	0	0	0	0	16	0	0	1
790907	0	0	0	0	1	0	0	1
790908	0	0	0	1	0	0	0	1
790909	0	1	0	0	0	0	0	
790915	0	0	1	0	0	0	0	
790916	0	0	0	0	2	0	0	2
790922	0	2	0	0	0	0	0	
790923	0	2	0	0	1	0	0	
791014	0	0	1	0	0	0	0	1
791021	0	0	0	0	5	0	0	
791027	0	2	1	0	0	0	0	
791028	0	0	1	0	0	0	0	
791103	0	0	0	0	5	0	0	
TOTAL	•	70	127	98	290	399	213	119

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY ZONE AND DATE

ZONE=.

VARIABLE	N	MEAN	STANDARD DEVIATION	VARIANCE	SUM
BROWNWT	1	0.000	.	.	0.000
BROWNCP	0	.	.	.	.
BRPERH	1	0.000	.	.	0.000
WHITEWT	1	0.000	.	.	0.000
WHITECP	0	.	.	.	.
WTPERH	1	0.000	.	.	0.000
PINKWT	1	0.000	.	.	0.000
PINKCP	0	.	.	.	.
PKPERH	1	0.000	.	.	0.000
OTHERWT	1	0.000	.	.	0.000
OTHERCP	0	.	.	.	.
OTPERH	1	0.000	.	.	0.000
TOTALWT	1	0.000	.	.	0.000
TOTALCP	0	.	.	.	.
TPERH	1	0.000	.	.	0.000
HRSF	1	3.000	.	.	3.000
ZONE=1					
BROWNWT	33	5.273	8.614	74.205	174.000
BROWNCP	18	41.167	9.642	92.971	741.000
BRPERH	33	1.942	3.567	12.724	64.099
WHITEWT	39	18.846	53.028	2811.976	735.000
WHITECP	22	36.864	8.448	71.361	811.000
WTPERH	39	4.299	8.105	65.697	167.660
PINKWT	15	0.000	0.000	0.000	0.000
PINKCP	0	.	.	.	.
PKPERH	15	0.000	0.000	0.000	0.000
OTHERWT	24	5.167	10.777	116.145	124.000
OTHERCP	8	42.500	6.279	39.429	340.000
OTPERH	24	1.332	2.431	5.912	31.979
TOTALWT	65	15.892	42.046	1767.879	1033.000
TOTALCP	47	39.723	8.619	74.291	1867.000
TPERH	65	4.057	7.310	53.436	263.737
HRSF	70	3.621	1.990	3.960	253.500

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/H
FOR THE STATE OF LOUISIANA BY ZONE AND DATE

ZONE=2

VARIABLE	N	MEAN	STANDARD DEVIATION	VARIANCE	SUM
BROWNWT	19	28.895	17.594	309.544	549.00
BROWNCP	18	41.444	6.401	40.967	746.00
BRPERH	19	9.856	7.114	50.615	187.262
WHITEWT	111	38.658	37.161	1380.936	4291.00
WHITECP	107	36.224	7.511	56.421	3876.00
WTPERH	111	10.751	10.818	117.029	1193.36
PINKWT	1	0.000	.	.	0.00
PINKCP	0	.	.	.	.
PKPERH	1	0.000	.	.	0.000
OTHERWT	6	26.333	18.651	347.867	158.00
OTHERCP	4	50.500	26.451	699.667	202.00
OTPERH	6	12.611	10.821	117.085	75.66
TOTALWT	121	41.306	38.655	1494.231	4998
TOTALCP	116	37.259	8.959	80.437	4322.00
TPERH	121	12.035	11.929	142.308	1456.29
HRSF	127	3.567	1.981	3.926	453.00

ZONE=3

BROWNWT	45	19.378	26.644	709.877	872.00
BROWNCP	35	42.057	11.919	142.055	1472.00
BRPERH	45	5.287	6.410	41.092	237.92
WHITEWT	51	17.784	21.157	447.613	907.00
WHITECP	41	37.756	8.031	64.489	1548.000
WTPERH	51	5.436	5.561	30.930	277.25
PINKWT	8	0.000	0.000	0.000	0.00
PINKCP	0	.	.	.	.
PKPERH	8	0.000	0.000	0.000	0
OTHERWT	31	10.194	13.984	195.561	316.00
OTHERCP	23	36.652	9.618	92.510	843.00
OTPERH	31	3.441	5.342	28.539	106.66
TOTALWT	97	21.598	26.603	707.722	2095.00
TOTALCP	85	39.094	10.233	104.705	3323.00
TPERH	97	6.411	6.795	46.168	621.84
HRSF	98	3.158	1.783	3.178	309.50

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY ZONE AND DATE

ZONE=4

VARIABLE	N	MEAN	STANDARD DEVIATION	VARIANCE	SUM
BROWNWT	96	28.656	31.362	983.596	2751.000
BROWNCP	89	48.022	15.054	226.536	4274.000
BRPERH	96	8.715	11.864	140.751	836.600
WHITEWT	129	40.814	51.207	2622.153	5265.000
WHITECP	119	43.790	16.973	288.083	5211.000
WTPERH	129	10.481	13.299	176.868	1352.064
PINKWT	7	0.143	0.378	0.143	1.000
PINKCP	1	51.000	.	.	51.000
PKPERH	7	0.071	0.189	0.036	0.500
OTHERWT	96	29.063	31.990	1023.343	2790.000
OTHERCP	90	58.456	22.076	487.329	5261.000
OTPERH	96	10.377	14.379	206.757	996.181
TOTALWT	281	38.459	44.018	1937.592	10807.000
TOTALCP	272	49.934	19.410	376.756	13582.000
TPERH	281	11.336	14.030	196.840	3185.346
HRSF	290	3.541	1.952	3.810	1027.000

ZONE=5

VARIABLE	N	MEAN	STANDARD DEVIATION	VARIANCE	SUM
BROWNWT	15	15.267	26.114	681.924	229.000
BROWNCP	12	63.167	20.467	418.879	758.000
BRPERH	15	2.982	4.471	19.987	44.723
WHITEWT	318	43.377	43.638	1904.311	13794.000
WHITECP	301	54.213	20.410	416.588	16318.000
WTPERH	318	8.847	8.548	73.071	2813.376
PINKWT	2	0.000	0.000	0.000	0.000
PINKCP	0	.	.	.	.
PKPERH	2	0.000	0.000	0.000	0.000
OTHERWT	77	38.961	45.013	2026.196	3000.000
OTHERCP	71	61.986	17.580	309.071	4401.000
OTPERH	77	8.121	9.174	84.159	625.319
TOTALWT	395	43.096	43.865	1924.113	17023.000
TOTALCP	374	55.976	20.204	408.190	20935.000
TPERH	395	8.819	8.663	75.043	3483.418
HRSF	399	4.838	2.333	5.444	1930.500

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHAS

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/H
FOR THE STATE OF LOUISIANA BY ZONE AND DATE
ZONE=6

VARIABLE	N	MEAN	STANDARD DEVIATION	VARIANCE	SUM
BROWNWT	105	6.590	16.239	263.706	692.00
BROWNCP	33	48.303	12.800	163.843	1594.0(
BRPERH	105	1.849	3.900	15.207	194.185
WHITEWT	108	9.787	24.370	593.889	1057.00
WHITECP	36	44.056	13.573	184.225	1586.0(
WTPERH	108	2.453	5.219	27.239	264.968
PINKWT	68	0.000	0.000	0.000	0.0(
PINKCP	0	.	.	.	.
PKPERH	68	0.000	0.000	0.000	0.000
OTHERWT	135	9.941	20.695	428.265	1342.0(
OTHERCP	64	45.547	10.098	101.965	2915.0(
OTPERH	135	2.557	4.428	19.608	345.185
TOTALWT	202	15.302	25.515	656.152	3091.
TOTALCP	124	46.790	11.268	126.964	5802.0(
TPERH	202	3.982	5.468	29.895	804.338
HRSF	213	3.324	1.767	3.123	708.0(

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION
LOCATION=52

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SU
BROWNWT	0	.	.	.	.	.	.
BROWNCP	0	.	.	.	.	.	.
BRPERH	0	.	.	.	.	.	.
WHITEWT	0	.	.	.	.	.	.
WHITECP	0	.	.	.	.	.	.
WTPERH	0	.	.	.	.	.	.
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	7	42.28571429	51.79032820	2.00000000	150.00000000	19.57490411	296.000001
OTHERCP	7	51.28571429	6.89720440	44.00000000	63.00000000	2.60689823	359.000001
OTPERH	7	8.94296180	8.22906575	0.66666667	25.00000000	3.11029450	62.600732
TOTALWT	7	42.28571429	51.79032820	2.00000000	150.00000000	19.57490411	296.000001
TOTALCP	7	51.28571429	6.89720440	44.00000000	63.00000000	2.60689823	359.000001
TPERH	7	8.94296180	8.22906575	0.66666667	25.00000000	3.11029450	62.600732
HRSF	7	4.07142857	1.76608256	2.00000000	6.50000000	0.66751647	28.500001
LOCATION=400							
BROWNWT	66	29.22727273	26.50445272	1.00000000	120.00000000	3.26247260	1929.000(
BROWNCP	65	50.29230769	14.38719382	26.00000000	101.00000000	1.78451177	3269.000(
BRPERH	66	10.01242785	12.81027877	0.20000000	93.00000000	1.57683631	660.8202
WHITEWT	137	42.62773723	46.43654863	1.00000000	300.00000000	3.96734209	5840.000(
WHITECP	131	41.48854962	15.57481518	23.00000000	150.00000000	1.36077792	5435.000(
WTPERH	137	11.86462472	13.04251261	0.40000000	104.00000000	1.11429705	1625.4535
PINKWT	1	1.00000000	.	1.00000000	1.00000000	.	1.000(
PINKCP	1	51.00000000	.	51.00000000	51.00000000	.	51.000(
PKPERH	1	0.50000000	.	0.50000000	0.50000000	.	0.5000
OTHERWT	76	26.40789474	27.77729415	2.00000000	125.00000000	3.18627416	2007.0000
OTHERCP	76	57.76315789	22.68442545	28.00000000	142.00000000	2.60208206	4390.0000
OTPERH	76	9.25260073	9.53769263	0.66666667	64.00000000	1.09404838	703.1976
TOTALWT	240	40.73750000	43.56385505	1.00000000	300.00000000	2.81203475	9777.0000
TOTALCP	235	49.16170213	19.47887913	23.00000000	150.00000000	1.27066197	11553.0000
TPERH	240	12.45821450	13.57815868	0.20000000	104.00000000	0.87646637	2989.9714
HRSF	254	3.40748031	1.96166400	0.50000000	16.00000000	0.12308575	865.5000

FOR THE STATE OF LOUISIANA BY LOCATION

LOCATION=401

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM
BROWNWT	0	.	.	.	.	.	.
BROWNCP	0	.	.	.	.	.	.
BRPERH	0	.	.	.	.	.	.
WHITEWT	3	21.33333333	4.04145188	17.00000000	25.00000000	2.33333333	64.0000000
WHITECP	3	44.33333333	21.93931023	27.00000000	69.00000000	12.66666667	133.0000000
WTPERH	3	6.50512821	5.26783436	2.61538462	12.50000000	3.04138559	19.5153846
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	1	40.00000000	.	40.00000000	40.00000000	.	40.0000000
OTHERCP	0	.	.	.	.	.	.
OTPERH	1	26.66666667	.	26.66666667	26.66666667	.	26.6666666
TOTALWT	4	26.00000000	9.89949494	17.00000000	40.00000000	4.94974747	104.0000000
TOTALCP	3	44.33333333	21.93931023	27.00000000	69.00000000	12.66666667	133.0000000
TPERH	4	11.54551282	10.96001646	2.61538462	26.66666667	5.48000823	46.1820512
HRSF	4	3.75000000	2.39791576	1.50000000	6.50000000	1.19895788	15.0000000

LOCATION=402

BROWNWT	10	16.00000000	28.12274682	0.00000000	91.00000000	8.89319340	160.000000
BROWNCP	9	41.77777778	23.60496652	0.00000000	90.00000000	7.86832217	376.000000
BRPERH	10	4.91783217	9.30595388	0.00000000	30.33333333	2.94280101	49.178321
WHITEWT	30	34.03333333	36.51403446	0.00000000	154.00000000	6.66652011	1021.000000
WHITECP	28	48.39285714	19.80710551	0.00000000	91.00000000	3.74319110	1355.000000
WTPERH	30	7.51068589	6.73414001	0.00000000	34.22222222	1.22948013	225.320576
PINKWT	1	0.00000000	.	0.00000000	0.00000000	.	0.000000
PINKCP	1	0.00000000	.	0.00000000	0.00000000	.	0.000000
PKPERH	1	0.00000000	.	0.00000000	0.00000000	.	0.000000
OTHERWT	7	19.00000000	24.60352278	0.00000000	59.00000000	9.29925752	133.000000
OTHERCP	7	50.57142857	29.86557183	0.00000000	90.00000000	11.28812512	354.000000
OTPERH	7	5.47619048	9.06460394	0.00000000	25.00000000	3.42609825	38.333333
TOTALWT	37	35.51351351	35.21175752	0.00000000	154.00000000	5.78877728	1314.000000
TOTALCP	35	50.05714286	20.07331102	0.00000000	91.00000000	3.39300884	1752.000000
TPERH	37	8.45492518	7.88832803	0.00000000	34.22222222	1.29583314	312.832231
HRSF	39	4.23076923	1.72766253	0.50000000	8.00000000	0.27664741	165.000000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION

LOCATION=403

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	
BROWNWT	15	9.46666667	10.02045527	1.00000000	28.00000000	2.58727043	142.00
BROWNCP	15	39.73333333	6.96385225	25.00000000	49.00000000	1.79805892	596.00
BRPERH	15	3.54177945	4.16532719	0.10526316	12.50000000	1.07546286	53.12
WHITEWT	23	31.73913043	66.57273356	1.00000000	300.00000000	13.88137453	730.00
WHITECP	20	39.30000000	8.07921309	24.00000000	52.00000000	1.80656697	786.00
WTPERH	23	7.52893773	9.53728809	0.20000000	37.50000000	1.98866204	173.15
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	6	13.66666667	17.36279547	1.00000000	47.00000000	7.08833157	82.000
OTHERCP	5	39.40000000	5.45893763	32.00000000	46.00000000	2.44131112	197.00
OTPERH	6	2.86309524	2.52845204	0.25000000	6.71428571	1.03223622	17.178
TOTALWT	43	22.18604651	50.50566013	1.00000000	300.00000000	7.70204096	954.00
TOTALCP	39	39.84615385	6.93024820	24.00000000	52.00000000	1.10972785	1554.000
TPERH	43	5.66211235	8.45298223	0.10526316	37.50000000	1.28906770	243.470
HRSF	46	3.59782609	2.05647910	0.50000000	9.50000000	0.30321130	165.500

LOCATION=404

BROWNWT	7	8.33333333	11.01514109	1.00000000	21.00000000	6.35959468	25.0000
BROWNCP	3	47.00000000	19.92485885	35.00000000	70.00000000	11.50362262	141.0000
BRPERH	3	2.32407407	3.19436393	0.22222222	6.00000000	1.84426687	6.9722
WHITEWT	2	8.50000000	9.19238816	2.00000000	15.00000000	6.50000000	17.0000
WHITECP	2	26.50000000	7.77817459	21.00000000	32.00000000	5.50000000	53.0000
WTPERH	2	2.09722222	2.33738075	0.44444444	3.75000000	1.65277778	4.1944
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	2	16.00000000	8.48528137	10.00000000	22.00000000	6.00000000	32.0000
OTHERCP	2	49.00000000	4.24264069	46.00000000	52.00000000	3.00000000	98.0000
OTPERH	2	6.40000000	3.39411255	4.00000000	8.80000000	2.40000000	12.8000
TOTALWT	7	10.57142857	8.96022959	1.00000000	22.00000000	3.38664845	74.0000
TOTALCP	7	41.71428571	15.94484541	21.00000000	70.00000000	6.02658509	292.0000
TPERH	7	3.42380952	3.22114400	0.22222222	8.80000000	1.21747799	23.9666
HRSF	7	3.64285714	0.85216810	2.50000000	4.50000000	0.32208827	2.2550

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION
LOCATION=405

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SU
BROWNWT	1	20.00000000	.	20.00000000	20.00000000	.	20.0000(
BROWNCP	1	35.00000000	.	35.00000000	35.00000000	.	35.0000(
BRPERH	1	8.00000000	.	8.00000000	8.00000000	.	8.0000(
WHITEWT	16	13.12500000	12.95054696	1.00000000	40.00000000	3.23763674	210.0000(
WHITECP	16	35.06250000	7.74139307	25.00000000	53.00000000	1.93534827	561.0000(
WTPERH	16	4.35694444	3.65323719	0.75000000	15.00000000	0.91330930	69.7111
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	0	.	.	.	.	.	.
OTHERCP	0	.	.	.	.	.	.
OTPERH	0	.	.	.	.	.	.
TOTALWT	17	13.52941176	12.64969193	1.00000000	40.00000000	3.06800094	230.0000(
TOTALCP	17	35.05882353	7.49558694	25.00000000	53.00000000	1.81794686	596.0000(
TPERH	17	4.57124183	3.64591626	0.75000000	15.00000000	0.88426458	77.7111
HRSF	18	2.75000000	1.67375942	0.50000000	5.00000000	0.39450888	49.5000(

LOCATION=406

BROWNWT	0	.	.	.	.	.	.
BROWNCP	0	.	.	.	.	.	.
BRPERH	0	.	.	.	.	.	.
WHITEWT	1	70.00000000	.	70.00000000	70.00000000	.	70.0000(
WHITECP	1	33.00000000	.	33.00000000	33.00000000	.	33.0000(
WTPERH	1	23.33333333	.	23.33333333	23.33333333	.	23.3333
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	0	.	.	.	.	.	.
OTHERCP	0	.	.	.	.	.	.
OTPERH	0	.	.	.	.	.	.
TOTALWT	1	70.00000000	.	70.00000000	70.00000000	.	70.0000
TOTALCP	1	33.00000000	.	33.00000000	33.00000000	.	33.0000
TPERH	1	23.33333333	.	23.33333333	23.33333333	.	23.3333
HRSF	1	3.00000000	.	3.00000000	3.00000000	.	3.0000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION

LOCATION=408

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	
BROWNWT	20	32.85000000	33.15874894	1.00000000	110.00000000	7.41452167	657.00
BROWNCP	18	41.38888889	7.73182034	28.00000000	55.00000000	1.82240753	745.00
BRPERH	20	7.60644522	7.34391849	0.75000000	23.33333333	1.64215010	152.12
WHITEWT	29	26.27586207	25.67085139	1.00000000	120.00000000	4.76695743	762.00
WHITECP	27	40.11111111	7.63258870	25.00000000	56.00000000	1.46889238	1083.00
WTPERH	29	7.48807830	6.46392655	1.42857143	24.50000000	1.20032103	217.15
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	7	13.28571429	15.58540221	3.00000000	47.00000000	5.89072833	93.00
OTHERCP	7	34.42857143	12.94677750	22.00000000	61.00000000	4.89342193	241.00
OTPERH	7	3.71428571	2.48833256	1.00000000	7.83333333	0.94050131	26.00
TOTALWT	47	32.17021277	32.96066110	1.00000000	120.00000000	4.80790655	1512.00
TOTALCP	43	38.88372093	8.82153561	22.00000000	61.00000000	1.34527157	1672.00
TPERH	47	8.41028032	7.60149839	0.75000000	30.00000000	1.10879250	395.28
HRSF	48	3.55208333	1.85150768	0.50000000	8.00000000	0.26724211	170.50

LOCATION=410

BROWNWT	7	16.42857143	10.69044968	10.00000000	40.00000000	4.04061018	115.000
BROWNCP	7	47.00000000	15.04437880	35.00000000	70.00000000	5.68624070	329.000
BRPERH	7	7.21428571	6.13634760	2.50000000	20.00000000	2.31932139	50.500
WHITEWT	5	16.80000000	10.54514106	5.00000000	34.00000000	4.71593045	84.000
WHITECP	5	29.80000000	6.79705819	21.00000000	40.00000000	3.03973683	149.000
WTPERH	5	6.45000000	2.65988722	3.75000000	10.00000000	1.18953773	32.250
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	6	13.16666667	12.20519015	1.00000000	30.00000000	4.98274801	79.000
OTHERCP	6	35.33333333	8.75595036	25.00000000	50.00000000	3.57460176	212.000
OTPERH	6	3.51388889	2.90565381	0.33333333	7.50000000	1.18622820	21.083
TOTALWT	14	19.85714286	15.55564277	1.00000000	50.00000000	4.15742041	278.000
TOTALCP	14	41.21428571	13.22668737	25.00000000	70.00000000	3.53503434	577.000
TPERH	14	7.41666667	5.33233164	0.33333333	20.00000000	1.42512558	103.833
HRSF	14	2.96428571	1.30773271	0.50000000	5.00000000	0.34950627	41.500

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION

LOCATION=411

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	S
BROWNWT	0	.	.	.	.	.	.
BROWNCP	0	.	.	.	.	.	.
BRPERH	0	.	.	.	.	.	.
WHITEWT	0	.	.	.	.	.	.
WHITECP	0	.	.	.	.	.	.
WTPERH	0	.	.	.	.	.	.
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	2	18.00000000	11.31370850	10.00000000	26.00000000	8.00000000	36.000
OTHERCP	2	39.00000000	1.41421356	38.00000000	40.00000000	1.00000000	78.000
OTPERH	2	9.33333333	0.94280904	8.66666667	10.00000000	0.66666667	18.666
TOTALWT	2	18.00000000	11.31370850	10.00000000	26.00000000	8.00000000	36.000
TOTALCP	2	39.00000000	1.41421356	38.00000000	40.00000000	1.00000000	78.000
TPERH	2	9.33333333	0.94280904	8.66666667	10.00000000	0.66666667	18.666
HRSF	2	2.00000000	1.41421356	1.00000000	3.00000000	1.00000000	4.000

LOCATION=412

BROWNWT	1	40.00000000	.	40.00000000	40.00000000	.	40.000
BROWNCP	1	40.00000000	.	40.00000000	40.00000000	.	40.000
BRPERH	1	10.00000000	.	10.00000000	10.00000000	.	10.000
WHITEWT	23	58.73913043	54.56956977	3.00000000	225.00000000	11.37854187	1351.000
WHITECP	23	34.34782609	6.79310276	25.00000000	45.00000000	1.41645984	790.000
WTPERH	23	13.92329193	16.17389911	1.50000000	80.00000000	3.37249110	320.235
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	0	.	.	.	.	.	.
OTHERCP	0	.	.	.	.	.	.
OTPERH	0	.	.	.	.	.	.
TOTALWT	24	57.95833333	53.50699196	3.00000000	225.00000000	10.92206900	1391.000
TOTALCP	24	34.58333333	6.74321989	25.00000000	45.00000000	1.37645400	830.000
TPERH	24	13.75982143	15.83864447	1.50000000	80.00000000	3.23304976	330.235
HRSF	24	4.54166667	1.92758390	1.50000000	8.00000000	0.39346642	109.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION
LOCATION=413

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	
BROWNWT	4	9.75000000	9.22090830	5.00000000	22.00000000	4.11045415	39.000
BROWNCP	4	46.50000000	23.57258294	30.00000000	80.00000000	11.78629147	186.000
BRPERH	4	2.82440476	2.35576709	1.25000000	6.28571429	1.17788355	11.297
WHITEWT	13	14.84615385	15.56088126	1.00000000	55.00000000	4.31581194	193.000
WHITECP	13	34.59230769	5.64778150	25.00000000	45.00000000	1.56641275	451.000
WTPERH	13	4.95604396	4.27956596	0.88888889	15.00000000	1.18693804	64.428
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	1	4.00000000	.	4.00000000	4.00000000	.	4.000
OTHERCP	1	30.00000000	.	30.00000000	30.00000000	.	30.000
OTPERH	1	1.33333333	.	1.33333333	1.33333333	.	1.333
TOTALWT	18	13.11111111	13.88138359	1.00000000	55.00000000	3.27187349	236.000
TOTALCP	18	37.05555556	12.19677982	25.00000000	80.00000000	2.87480857	667.000
TPERH	18	4.28108466	3.90719131	0.88888889	15.00000000	0.92093382	77.059
HRSF	18	3.36111111	1.80526644	0.50000000	7.00000000	0.42550538	60.500
LOCATION=414							
BROWNWT	24	32.29166667	37.73071539	1.00000000	120.00000000	7.70175003	775.000
BROWNCP	24	38.66666667	8.64098760	24.00000000	57.00000000	1.76383421	928.000
BRPERH	24	8.44727183	8.33661473	0.33333333	26.50000000	1.70170436	202.734
WHITEWT	17	34.47058824	34.86423247	1.00000000	140.00000000	8.45581841	586.000
WHITECP	17	47.23529412	17.68307599	28.00000000	80.00000000	4.28877589	803.000
WTPERH	17	9.34743231	11.55135727	0.44444444	47.00000000	2.80161566	158.906
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	7	40.85714286	61.65070579	2.00000000	176.00000000	23.30177652	286.000
OTHERCP	7	45.57142857	11.29686008	32.00000000	65.00000000	4.26981177	319.000
OTPERH	7	22.13571429	42.66100486	0.66666667	117.33333333	16.12434422	154.950
TOTALWT	48	34.31250000	40.05164552	1.00000000	176.00000000	5.78095708	1647.000
TOTALCP	48	42.70833333	13.27605160	24.00000000	80.00000000	1.91623299	2050.000
TPERH	48	10.76230985	18.28924105	0.33333333	117.33333333	2.63982456	516.590
HRSF	48	3.54583333	2.02368511	1.00000000	8.00000000	0.29209379	175.000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION
LOCATION=415

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	S
BROWNWT	0	.	.	.	.	.	.
BROWNCP	0	.	.	.	.	.	.
BRPERH	0	.	.	.	.	.	.
WHITEWT	1	2.00000000	.	2.00000000	2.00000000	.	2.0000
WHITECP	1	36.00000000	.	36.00000000	36.00000000	.	36.0000
WTPERH	1	1.00000000	.	1.00000000	1.00000000	.	1.0000
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	3	52.33333333	40.42688874	28.00000000	99.00000000	23.34047510	157.0000
OTHERCP	3	62.33333333	11.15048579	54.00000000	75.00000000	6.43773597	187.0000
OTPERH	3	19.93333333	8.00083329	12.00000000	28.00000000	4.61928325	59.8000
TOTALWT	4	39.75000000	41.50803135	2.00000000	99.00000000	20.75401568	159.0000
TOTALCP	4	55.75000000	16.00781059	36.00000000	75.00000000	8.00390530	223.0000
TPERH	4	15.20000000	11.50188390	1.00000000	28.00000000	5.75094195	60.8000
HRSF	4	2.62500000	1.70171482	1.00000000	5.00000000	0.85085741	10.5000
LOCATION=416							
BROWNWT	12	22.33333333	15.65731507	5.00000000	57.00000000	4.51987753	268.000
BROWNCP	12	46.58333333	14.85357829	30.00000000	74.00000000	4.28785871	559.000
BRPERH	12	5.54203667	4.07880810	0.76923077	16.28571429	1.17745048	66.504
WHITEWT	12	55.08333333	49.64319661	3.00000000	164.00000000	14.33075646	661.000
WHITECP	12	37.25000000	6.91671230	28.00000000	50.00000000	1.99668286	447.000
WTPERH	12	11.00995370	8.22395964	1.33333333	27.33333333	2.37405266	132.119
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	9	36.88888889	29.83472995	4.00000000	79.00000000	9.94490998	332.000
OTHERCP	9	41.88888889	8.72416822	30.00000000	54.00000000	2.90805607	377.000
OTPERH	9	9.72407407	7.01356380	1.16666667	19.75000000	2.33785460	87.516
TOTALWT	33	38.21212121	36.82030484	3.00000000	164.00000000	6.40959236	1261.000
TOTALCP	33	41.90909091	11.[illegible]812937	28.00000000	74.00000000	1.96675168	1383.000
TPE[illegible]	[illegible]	8.[illegible]92[illegible]	[illegible]	[illegible]	[illegible]33	[illegible]97[illegible]67	28[illegible]140

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION

LOCATION=417

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	S
BROWNWT	7	33.71428571	39.80667568	5.00000000	118.00000000	15.04550920	236.000
BROWNCP	7	43.28571429	16.71041876	25.00000000	69.00000000	6.31594462	303.000
BRPERH	7	10.08299320	11.39731303	2.50000000	33.71428571	4.30777941	70.580
WHITEWT	12	37.33333333	52.26737786	4.00000000	195.00000000	15.08829234	448.000
WHITECP	12	42.08333333	12.39837477	25.00000000	69.00000000	3.57910251	505.000
WTPERH	12	7.46759259	7.69494551	1.00000000	27.85714286	2.22133943	89.611
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	8	28.00000000	17.69584293	4.00000000	49.00000000	6.25642527	224.000
OTHERCP	8	63.12500000	23.96090566	45.00000000	96.00000000	8.47145944	505.000
OTPERH	8	9.91875000	5.32619640	0.80000000	17.00000000	1.88309479	78.550
TOTALWT	25	36.32000000	41.09817514	4.00000000	195.00000000	8.21963503	908.000
TOTALCP	25	47.52000000	19.66409588	25.00000000	96.00000000	3.93281918	1188.000
TPERH	25	9.54968254	8.15726548	0.80000000	33.71428571	1.63145310	238.742
HRSF	25	3.94000000	1.68522995	1.00000000	7.00000000	0.33704599	98.500

LOCATION=418

BROWNWT	1	8.00000000	.	8.00000000	8.00000000	.	8.0000
BROWNCP	1	30.00000000	.	30.00000000	30.00000000	.	30.0000
BRPERH	1	2.66666667	.	2.66666667	2.66666667	.	2.6666
WHITEWT	0	.	.	.	.	.	.
WHITECP	0	.	.	.	.	.	.
WTPERH	0	.	.	.	.	.	.
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	0	.	.	.	.	.	.
OTHERCP	0	.	.	.	.	.	.
OTPERH	0	.	.	.	.	.	.
TOTALWT	1	8.00000000	.	8.00000000	8.00000000	.	8.0000
TOTALCP	1	30.00000000	.	30.00000000	30.00000000	.	30.0000
TPERH	1	2.66666667	.	2.66666667	2.66666667	.	2.6666
HRSF	1	3.00000000	.	3.00000000	3.00000000	.	3.0000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION
LOCATION=419

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	S
BROWNWT	0	.	.	.	.	.	.
BROWNCP	0	.	.	.	.	.	.
BRPERH	0	.	.	.	.	.	.
WHITEWT	2	20.00000000	21.21320344	5.00000000	35.00000000	15.00000000	40.0000
WHITECP	2	56.00000000	19.79898987	42.00000000	70.00000000	14.00000000	112.0000
WTPERH	2	5.20833333	5.00867303	1.66666667	8.75000000	3.54166667	10.4166
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	1	5.00000000	.	5.00000000	5.00000000	.	5.0000
OTHERCP	1	59.00000000	.	59.00000000	59.00000000	.	59.0000
OTPERH	1	2.50000000	.	2.50000000	2.50000000	.	2.5000
TOTALWT	3	15.00000000	17.32050808	5.00000000	35.00000000	10.00000000	45.0000
TOTALCP	3	57.00000000	14.10673598	42.00000000	70.00000000	8.14452782	171.0000
TPERH	3	4.30555556	3.87148885	1.66666667	8.75000000	2.23520513	12.9166
HRSF	3	3.00000000	1.00000000	2.00000000	4.00000000	0.57735027	9.0000
LOCATION=420							
BROWNWT	1	1.00000000	.	1.00000000	1.00000000	.	1.0000
BROWNCP	1	40.00000000	.	40.00000000	40.00000000	.	40.0000
BRPERH	1	0.22222222	.	0.22222222	0.22222222	.	0.2222
WHITEWT	1	82.00000000	.	82.00000000	82.00000000	.	82.0000
WHITECP	1	30.00000000	.	30.00000000	30.00000000	.	30.0000
WTPERH	1	18.22222222	.	18.22222222	18.22222222	.	18.2222
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	0	.	.	.	.	.	.
OTHERCP	0	.	.	.	.	.	.
OTPERH	0	.	.	.	.	.	.
TOTALWT	1	83.00000000	.	83.00000000	83.00000000	.	83.0000
TOTALCP	1	40.00000000	.	40.00000000	40.00000000	.	40.0000
TPERH	1	18.44444444	.	18.44444444	18.44444444	.	18.4444
HRSF	1	4.50000000	.	4.50000000	4.50000000	.	4.5000

SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2

AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR
FOR THE STATE OF LOUISIANA BY LOCATION

LOCATION=423

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	
BROWNWT	8	26.75000000	32.20359341	1.00000000	100.00000000	11.38568964	214.0
BROWNCP	7	70.42857143	17.91514390	48.00000000	98.00000000	6.77128792	493.0
BRPERH	8	5.12168561	5.34944127	0.18181818	12.80000000	1.89131310	40.9
WHITEWT	289	44.26989619	44.24407321	1.00000000	350.00000000	2.60259254	12794.0
WHITECP	275	54.26909091	20.61146369	8.00000000	178.00000000	1.24291803	14924.0
WTPERH	289	9.03369758	8.69001587	0.44444444	76.00000000	0.51117740	2610.7
PINKWT	0	.	.	.	.	.	.
PINKCP	0	.	.	.	.	.	.
PKPERH	0	.	.	.	.	.	.
OTHERWT	71	41.18309859	45.80153143	1.00000000	260.00000000	5.43564174	2924.0
OTHERCP	67	62.25373134	17.74255566	32.00000000	115.00000000	2.16759817	4171.0
OTPERH	71	8.63360176	9.33896116	0.33333333	43.33333333	1.10833078	612.9
TOTALWT	362	44.01104972	44.48616940	1.00000000	350.00000000	2.33814115	15932.0
TOTALCP	344	56.13662791	20.40097883	8.00000000	178.00000000	1.09994706	19311.0
TPERH	362	9.01850224	8.80869841	0.33333333	76.00000000	0.46297491	3264.6
HRSF	363	4.89393939	2.37631421	0.50000000	13.00000000	0.12472415	1776.5

LOCATION=424

BROWNWT	37	17.24324324	23.36118029	0.00000000	118.00000000	3.84055438	638.00
BROWNCP	34	44.55882353	18.61115856	0.00000000	88.00000000	3.19178736	1515.000
BRPERH	37	4.84026169	5.20598237	0.00000000	24.00000000	0.85585823	179.089
WHITEWT	38	26.28947368	35.55878870	0.00000000	147.00000000	5.76839724	999.000
WHITECP	35	39.91428571	18.32929418	0.00000000	71.00000000	3.09821619	1397.000
WTPERH	38	6.35630018	7.07070485	0.00000000	25.00000000	1.14701979	241.539
PINKWT	3	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.000
PINKCP	3	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.000
PKPERH	3	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.000
OTHERWT	38	19.31578947	23.82833342	0.00000000	100.00000000	3.86546611	734.000
OTHERCP	35	40.14285714	16.43909053	0.00000000	80.00000000	2.77871346	1405.000
OTPERH	38	4.89635452	4.88773055	0.00000000	20.00000000	0.79289460	186.061
TOTALWT	100	23.71000000	29.09208473	0.00000000	147.00000000	2.90920847	2371.000
TOTALCP	91	44.96703297	14.67836696	0.00000000	88.00000000	1.53871095	4092.000
TPERH	100	6.06690561	5.87494752	0.00000000	25.00000000	0.58749475	606.690
HRSF	108	3.66666667	1.82018793	0.50000000	8.50000000	0.17514767	396.000

APPENDIX I

Data Processing and Analysis Procedures

Data Processing and Analysis Procedures

In Phase I the coding format for intercept interviews is a hierarchy of records. These are called Type 1, 2, 3, and Type 4 records. They are all keypunched to be the same length (113 characters), although the Type 1 record contains more information than the others. The Type 1 record contains the major information about the shrimpers, e.g., sex, mode, age, days of shrimping, etc. The Type 2 record has information about shrimp that has been thrown back or disposed of in some way. Type 3 records deal with shrimp that has been kept. When a group of shrimpers are interviewed, one interview has the Type 3 records, while the rest have Type 4 records. These indicate which shrimper has the information about the catch.

In Phase II of the study a different questionnaire was used for a variety of reasons discussed elsewhere. There is only one kind of record on the tape and it has a length of 153 characters. However, certain parts of this record serve the same function as the different types of records discussed above.

In both phases the records have been keypunched identically to the column specifications indicated in the enclosed sample questionnaires.

Editing Process

The editing of the data used in the analysis went through many stages from simple corrections made by the interviewer to sophisticated logical checks performed by computer. After each day of interviewing the data collectors would review their forms for completeness. They would fill in all blank spots and complete answers that they could not complete in the field, such as filling in code numbers for state and county of residence.

When the interviews were returned to HSR a hand edit was performed. Each of the forms was examined to determine whether the interviewers followed the directions and whether out-of-range values were included.

Once the data was keypunched onto magnetic tape, the data was then analyzed by a simple SAS program. Simple frequencies of responses were given for a majority of

variables. This enabled us to determine what were reasonable answers for some questions, and also indicated whether the interviewers coded refusals to some questions in the correct manner.

A second SAS program was written to detect errors in the tape. This program accomplished two tasks. First the data was read from the tape and a SAS data set was created and stored on a magnetic disk. This was done so that data corrections could be made, and later the corrected data could be rewritten on tape. The second task of the program was to detect errors in the data. These errors resulted from the interviewer recoding an incorrect answer or from the keypunchers misreading the answers on the questionnaires.

Three types of errors were searched for in the data. Codes which were out-of-range represented the main type of error encountered. For example, the year of the interview had to be 1979, the number of days spent shrimping in the last two months had to be less than sixty-two, etc. Almost every variable was checked for out-of-range values. The second type of error made was logical. This usually involved relationships between various variables. If the shrimper was not going to sell commercially then the number of pounds sold commercially must be zero. The third kind of error was a special type of logical mistake. If the species of shrimp was known but the total poundage caught was missing then that record is useless for analysis purposes. This type of error checking is done for specific key variables about the shrimp.

The output from this program consisted of a listing of all the variable names, their values for each record which had an error, and a statement giving the kind of error and/or the correct value for the variable. A copy of the program used in Phase II is provided later. The Phase I program is similar but had to be restructured because of the hierarchical effect of the records.

After the errors are listed, the original interview form was examined to determine how the mistake should be rectified. Sometimes the keypunchers had mistaken a zero for a six, or added extra columns of data. A few times the real age of the shrimper was re-

corded instead of the coded age. The corrections were made to the SAS data sets, and then these data sets were copied onto new magnetic tapes. All analyses were performed after the editing was completed.

SAS

The Statistical Analysis System (SAS) package was used to detect errors in the data, correct the errors, and analyze the data. SAS is a statistical package based in large part on the PL/1 programming language and runs on IBM computers. The package has two kinds of operations; procedures and data statements. Data statements are used to read in data, manipulate the variables, create new variables, delete certain records, partition data sets for some reason, and to join several data sets together. Procedures, or Procs, do the type of analyses that are desired. They can determine means, find frequencies of responses, plot graphs, solve regression and analysis of variance problems, and perform many kinds of multivariate analyses. SAS is a very powerful package and is easy to use. The 1979 version of SAS was used.

SAS is similar to SPSS, the Statistical Package for the Social Sciences. Most of the procedures that can be performed in SAS are also available in SPSS, however, all options are referred to by words in SAS, as opposed to numbers in SPSS. SAS has an editor procedure for making permanent changes to a data set, while SPSS does not. In some respects SAS is a "more powerful" package than SPSS.

The SAS editing program listed in the appendix is actually the fourth version used to edit the Phase II data. After each run through the data the program was modified to look for more kinds of errors than before. The listing given used data stored on disk so it does not show how the data was read in off tape and made into a SAS data set.

The first part of the program is a procedure called PROC FORMAT. The program gives a numerical value to every kind of mistake found. PROC FORMAT creates worded messages for each of these numberical values. Following the PROC is a data statement. (Within the data statement all the edit checking is performed.) Each variable in

the order in which it appears on the questionnaire, is checked. At the end of the data statement is a series of commands which print out a copy of the faulty record and a list of all the errors in that record.

Because of the hierarchical arrangement of the records in Phase I with separate data sets for each type of record, the editing for Phase I is slightly different. Checks for the Type 2 and Type 3 records are moved down and used on data sets containing those kinds of records only.

The program used to analyze the data in Phase II is also provided in the appendix. Again it has a format procedure to give better explanation to the printed results. Because provision is made for three kinds of shrimp caught the weights must be combined for each species. This is handled in the data statements by working inside an "array" based on three "records." After all variables are created, some simple frequencies are listed for some variables; first, for the entire phase and then for each state in the phase. Then averages at the state level are computed for expenditures, hours shrimping, and avidity. Finally we have results for shrimp, those not available for examination (Type 2 records) and those that were examined (Type 3 records). The last part is a special breakdown of Louisiana since there were so many interviews there. Lastly are some charts of average weight of shrimp caught and average count per pound through time. In Phase I similar graphs are presented for Alabama because of the large number of interviews in that state.

Data Listings

Included with this report are several binders giving complete listings of data for Phase I, Phase II, and the telephone surveys. For the intercept interviews the data basically follows the layout of the questionnaire with some numeric codes replaced with more descriptive answers.

For Phase I the data is split into five data sets. The first set lists all Type 1 records with interview status equal to 1, i.e., interviews which were complete enough to work with. ID_CODE is made from columns 2 through 15 of the questionnaire. This includes interviewer number, date of interview, and number of that interview for that day.

The variables prim 1, prim 2, and prim 3 are the primary species for which the person was shrimping. Sellf indicates whether or not the shrimper planned to sell his catch to his friends and/or restuarants, and perf is the percentage of his catch he planned to sell. The other variables should be self-explanatory.

The second part refers to the Type 2 records, i.e., shrimp not available for examination. Here ID_CODE indicates which Type 1 record the observation belongs to. This also pertains to the third and fourth parts; Type 3 and Type 4 records. In the fourt part ID_COD 34 indicates which Type 2s and 3s have information about the shrimp caught. These records are used when a group of shrimpers are interviewed. One shrimper is designated the "leader" and all Type 2 records and 3 records are associated with him. The other shrimpers have Type 4 records which contain the ID_CODE of the "leader."

The fifth part of the Phase I listing contains all Type 1 records with interview status not equal to one. Only the first page of the interview is keypunched so that most of the variables are blank.

The Phase II listing is slightly different. New status codes were defined to designate cases in which catch would be sold commercially, for cases in which hours shrimped was missing, and/or cases in which the weight of the shrimp was missing. The listing is sorted by interview status, within status by state of intecept, and within state not kept and by interviewer number. Since three lines are provided for shrimp kept, these lines are labeled Type 21 through Type 23 and Type 31 through Type 33 respectively. In the Type 2s the first column is species code, the next is disposition, the next three make up weight, the next indicates whether heads were included in the weighing and the last three columns indicate location of catch. This follows the layout indicated in the questionnaire. The variable Type 4 indicates whether or not the shrimp caught is described on another form or not. These groups of numbers play the same role as Type 2, 3, and 4 records in the first phase of the study. The rest of the variables should be self-explanatory.

Also provided are listings of the Wave IV, V, and VI telephone records in which shrimping trips were reported. These are in order by a unique number for each telephone number called. The variable Fshrnum is the number of fishermen in the household who

took the shrimping trip. The variables Num_trps tells how many fishing trips in all were taken and the variable Trip_num is the number of the specific trip which was a shrimping trip. The other variables should be self-explanatory.

```
PROC FORMAT; VALUE MESSAGE
0.1=YEAR IS NOT 1979
1='MONTH IS NOT IN INTERVAL 5-11'
2=DAY IS WRONG
3=TIME OF INTERVIEW IS TOO BIG
4='STATE IS NOT 01,11,21,27,48'
5=LANGUAGE IS OUT OF RANGE
6='SEX IS 1,2,3'
7=MODE IS 1 OR 2
8=GEAR IS OUT OF RANGE
9=NUMBER OF GEAR TYPES IS WRONG
10='STATUS MUST BE 1,2,3,4'
11=WRONG ANSWER FOR CATCH
12=CONTRIB MUST BE ZERO
13=NEED AT LEAST ONE CONTRIB OR A TYPE4 REC
14='TYPE 2 SPECIES 1,2,3,4'
15=TYPE2 WEIGHT TOO LARGE
16='TYPE2 HEADS MUST BE 1,2,3'
17='TYPE3 SPECIES 1,2,3,4'
18=TYPE3 COUNT/LB IS TOO BIG
19='TYPE3 HEADS MUST BE 1,2,3'
20=TYPE3 WEIGHT TOO BIG
21='TYPE3 METHOD MUST BE 1,2,3,4,5'
22=HOURS EXCEEDS 24
23=12 MONTH IN STATE >365
24=2 MONTH IN STATE>61
25=2 MONTH > 12 MONTH IN STATE
26=12 MONTH OTHER STATE>365
27=2 MONTH OTHER STATE > 61
28=2 MONTH > 12 MONTH OTHER STATE
29=AGE IS OUT OF RANGE
30='TELEFON MUST BE 1,2,9'
31='SELLF MUST BE 1,2,3,9'
32=LBF MUST BE ZERO
33='SELLCOM MUST BE 1,2,3,9'
34=LBCOM MUST BE ZERO
35=NO SPECIES IN TYPE 3
36=NO WEIGHT IN TYPE 3
37=NOT ROUNDED TO NEAREST HALF HOUR
38=SELLCOM SHOULD BE 2?
39=STRES CANNOT BE ZERO
40=NO SPECIES IN TYPE2
41=NO WEIGHT IN TYPE2;
DATA ERROS;
SET OUT.PRW2;
ARRAY BSP SPEC1 SPEC2 SPEC3;
ARRAY BWT WEIGH1 WEIGH2 WEIGH3; ARRAY BHEAD HEADS1 HEADS2 HEADS3;
ARRAY GSP SP1 SP2 SP3; ARRAY GCP CP1 CP2 CP3;
ARRAY GHEAD HD1 HD2 HD3; ARRAY GWT WT1 WT2 WT3;
ARRAY GMD MD1 MD2 MD3;
ARRAY ERROR EY EM ED EH ESTATE ELANG ESEX EMODE EGEAR ENUMG
    ESTA ECATCH ECONTRIB EBSP EBWT EBHD EGSP ETYP ETYP2 EGCP
    EGHD EGWT EGMD EHRSF ETYP3 ETYP4
    ESTRES EST12 EST2 EOTH12 EOTH2 EAGE ETEL ESELLF ELBF ESELLC ELBC;
DROP EY EM ED EH ESTATE ELANG ESEX EMODE EGEAR ENUMG ESTA ECATCH
     ECONTRIB EBSP EBWT EBHD EGSP EGCP EGHD EGWT EGMD EHRSF ESTRES EST12
     ETYP3 ETYP4
     EST2 EOTH12 EOTH2 EAGE ETEL ESELLF ELBF ESELLC ELBC ETYP ETYP2 MISTAKE ERT;
```

```
IF DAY>'31' OR DAY='00' THEN EDAY=2;
IF HOUR>'2400' THEN EH=3;
IF ^(STATE='01' OR STATE='11' OR STATE='21' OR STATE='27' OR STATE='48')
     THEN ESTATE=4;
IF '12'<LANG<'99' THEN ELANG=5;
IF SEX > '3' THEN ESEX=6;
IF MODE> '2' OR MODE='0' THEN EMODE=7;
IF '11'<GEAR<'99' OR GEAR='00' THEN EGEAR=8;
IF 4<NUMGEAR<9 OR NUMGEAR=0 THEN ENUMG=9;
IF INSTAT>'4' OR INSTAT='0' THEN ESTA=10;
IF INSTAT^='1' THEN GOTO FINISH;
IF CATCH>3 OR CATCH=0 THEN ECATCH=11;
IF CATCH=2 AND CONTRIB NE 0 THEN ECONTRIB=12;
  ELSE IF CATCH=1 AND  CONTRIB<1 AND (TYPE4 ='000000000000'
          OR TYPE4='999999999999') THEN ECONTRIB=13;
DO OVER BSP;
   IF (BSP=0 OR BSP=9) AND 0<BWT<99 AND INSTAT='1' THEN ETYP3=40;
   IF (BSP=1 OR BSP=2 OR BSP=3 OR BSP=4) AND (BWT=0 OR BWT=999) AND INSTAT='1'
       THEN ETYP4=41;
   IF BSP>4 THEN EBSP=14;
   IF 210<BWT<999 THEN EBWT=15;
   IF 3<BHEAD<9 THEN EBHD=16;
   END;
DO OVER GSP;
   IF 4<GSP<9 THEN EGSP=17;
   IF (GSP=0 OR GSP=9) AND 0<GWT<999 AND INSTAT ='1' THEN ETYP=35;
   IF (GSP=1 OR GSP=2 OR GSP=3 OR GSP=4) AND (GWT=0 OR GWT=999) AND INSTAT='1'
      THEN ETYP2=36;
   IF 150<GCP<999 THEN EGCP=18;
   IF 3<GHEAD<9 THEN EGHD=19;
   IF 400<GWT<999 THEN EGWT=20;
   IF 5<GMD<9 THEN EGMD=21;
   END;
IF 24<HRSF<99 OR HRSF=0 THEN EHRSF=22;
IF STRES=0 THEN ESTRES=39;
IF ^(HRSF-INT(HRSF) = 0 OR HRSF-INT(HRSF) = .5) THEN EHRSF=37;
IF 365<=STATE12<=998 THEN EST12=23;
IF  62<=STATE2 <= 98  THEN EST2=24;
   ELSE IF STATE2>STATE12 THEN EST=25;
IF 365<=OTHER12<=998 THEN EOTH12=26;
IF  62<=OTHER2 <= 98 THEN EOTH2=27;
    ELSE IF OTHER2>OTHER12 THEN EOTH2=28;
IF '10'<AGE<'99' OR AGE='00' THEN EAGE=29;
IF 3<TELEFON<9 OR TELEFON=0 THEN ETEL=30;
IF 3<SELLF<9 THEN ESELLF=31;
IF SELLF=9 AND 0<LBF<99 THEN ELBF=32;
   ELSE IF 1<SELLF<9 AND LBF>0 THEN ELBF=32;
IF 3<SELLCOM<9 THEN ESELLC=33;
   ELSE IF SELLCOM=0 AND LBCOM>0 THEN ESELLC=38;
IF SELLCOM=9 AND  0<LBCOM<999  THEN ELBC=34;
   ELSE IF 1<SELLCOM<9 AND LBCOM>0 THEN ELBC=34;
DO OVER ERROR;
   IF ERROR>0 THEN MISTAKE=1;
   END;
IF MISTAKE=1 THEN PUT _ALL_;
DO OVER ERROR;
   IF ERROR>0 THEN DO;
      ERT=ERROR;
      PUT @ 1 ERT MESSAGE.;
      END;
   END;
FINISH: RETURN;
```

```
%MACRO WRITTEN
  TITLE3 'AVERAGES FOR WEIGHT OF SHRIMP, COUNT/LB, LBS/HR';%
%MACRO SOMETHIN VAR BROWNWT BROWNCP BRPERH WHITEWT WHITECP WTPERH
                    PINKWT  PINKCP  PKPERH OTHERWT OTHERCP OTPERH
                    TOTALWT TOTALCP TPERH HRSF;%
%MACRO WHAT FORMAT SP1 SP2 SP3 SPEC1 SPEC2 SPEC3 KIND.;
   FORMAT STATE STRES $TATE.; FORMAT COST DOLLAR7.2;
   FORMAT GEAR $POLE.; FORMAT MILEAGE DIST.;
   FORMAT DISP1 DISP2 DISP3 USEAGE.;
   FORMAT SEX $EX.; FORMAT AGE $AGE.;
   FORMAT MODE $MODE.; FORMAT HRSF TIMELY.;
   FORMAT CATCH SELLF SELLCOM TELEFON ANSWER.;%
PROC FORMAT;
VALUE $EX 1=MALE 2=FEMALE 3=UNKNOWN;
VALUE $MODE 1=BOAT 2='NON-BOAT';
VALUE ANSWER 1=YES  2=NO
             3='DON''T KNOW'
             9=REFUSAL;
VALUE $AGE 01=UNDER 5
           02='5-13'  03='14-17'
           04='18-24'  05='25-34'
           06='35-44'  07='45-54'
           08='55-64'  09=65 AND OVER
           10=REFUSAL;
VALUE HEADWAY 1=HEADS ON
              2=HEADS OFF
              3=MIXTURE;
VALUE METH 1=TABLE
          2=SHR EST
          3=INT EST
          4=WEIGHED
          5=OTHER;
VALUE KIND 1=BROWN
           2=WHITE
           3=PINK
           4=OTHER;
VALUE USEAGE 1=THREW BACK ALIVE 2=THREW BACK DEAD
             3=GAVE AWAY       4=BAIT
             5=SOLD            6=NOT AROUND
             7=CLEANED         8=OTHER
             9=REFUSAL;
VALUE $TATE   01=ALABAMA
              11=FLORIDA
              21=LOUISIANA
              27=MISSISSIPPI
              48=TEXAS;
VALUE $POLE 01=HOOK AND LINE   02=DIP NET
            03=CAST NET        04=GILL NET
            05=SEINE           06=TRAWL
            07=TRAP            08=SPEAR
            09=BUTTERFLY NET   10=HANDS
            11=OTHER;
VALUE COUNT 1-20='1-20'      21-25='21-25'
           26-30='26-30'     31-35='31-35'
           36-40='36-40'     41-45='41-45'
           46-50='46-50'     51-75='51-75'
          76-100='76-100'  101-998=OVER 100
            999=MISSING;
```

```
            4.5-5=UNDER 5 HRS 5.5-6=UNDER 6 HRS
            6.5-7=UNDER 7 HRS 7.5-8=UNDER 8 HRS
            8.5-9=UNDER 8 HRS 9.5 - 10 = UNDER 10 HRS
             10.5-16=OVER 10 HRS 99.9=MISSING;
VALUE POUNDS 0=NONE          .1-20='1-20'
        21-30='21-30'        31-40='31-40'
        41-50='41-50'        51-75='51-75'
       76-998=OVER 75         999=MISSING;
VALUE DIST  1-9=UNDER 10    10-25='10-25'
         26-50='26-50'      51-100='51-100'
       101-200='101-200'  200-998=OVER 200
           999=MISSING;
DATA SHRIMP; SET OUT.PRW2  END=EOF;
ARRAY GSP SP1 SP2 SP3; ARRAY GWT WT1 WT2 WT3;
ARRAY BSP SPEC1 SPEC2 SPEC3; ARRAY BWT WT1 WT2 WT3;
ARRAY GCP CP1 CP2 CP3;
ARRAY CORRECT BROWNWT WHITEWT PINKWT OTHERWT TOTALWT;
ARRAY CORRECT2 BROWNCP WHITECP PINKCP OTHERCP TOTALCP;
IF STATE12=999 THEN STATE12=.;
IF STATE2=99 THEN STATE2=.;
IF OTHER12=999 THEN OTHER12=.;
IF OTHER2=99 THEN OTHER2=.;
IF MILEAGE=999 THEN MILEAGE=.;
IF COST=999.99 OR COST=999.90 OR COST=999 THEN COST=.;
BROWNWT=0; BROWNCP=0;
WHITEWT=0; WHITECP=0;
PINKWT=0; PINKCP=0;
OTHERWT=0; OTHERCP=0;
TOTALWT=0; TOTALCP=0;
DO OVER GWT;
       IF GWT=999 THEN GWT=.;
       IF GCP=999 OR GCP=0 THEN DO;
              REFUSAL+1;   GCP=.;  END;
              ELSE GOOD+1;
       END;
DO OVER GSP;
      IF GSP=1 THEN DO;
         BROWNWT=BROWNWT+GWT;
         BROWNCP=MAX(BROWNCP,GCP);
         END;
      ELSE IF GSP=2 THEN DO;
         WHITEWT=WHITEWT+GWT;
         WHITECP=MAX(WHITECP,GCP);
         END;
      ELSE IF GSP=3 THEN DO;
         PINKWT=PINKWT+GWT;
         PINKCP=MAX(PINKCP,GCP);
         END;
      ELSE IF GSP=4 THEN DO;
         OTHERWT=OTHERWT+GWT;
         OTHERCP=MAX(OTHERCP,GCP);
         END;
      END;
TOTALWT=SUM(OF BROWNWT,WHITEWT,PINKWT,OTHERWT);
TOTALCP=MAX(OF BROWNCP,WHITECP,PINKCP,OTHERCP);
BRBAD=0; WTBAD=0; PKBAD=0; OTBAD=0;
DO OVER BSP;
   IF BSP=1 THEN BRBAD+BWT;
   ELSE IF BSP=2 THEN WTBAD=WTBAD+BWT;
   ELSE IF BSP=3 THEN PKBAD=PKBAD+BWT;
   ELSE IF BSP=4 THEN OTBAD=OTBAD+BWT;
  END;
```

```
   IF CORRECT2=0 THEN CORRECT2=.;
   END;
IF HRSF ^=0 THEN DO;
    BRPERH=BROWNWT/HRSF;
    WTPERH=WHITEWT/HRSF;
    PKPERH=PINKWT/HRSF;
    OTPERH=OTHERWT/HRSF;
    TPERH=TOTALWT/HRSF;
    END;
IF ^(LOCAT1=0 OR LOCAT1=999) THEN LOCATION=LOCAT1;
   ELSE IF ^(LOC1=0 OR LOC1=999) THEN LOCATION=LOC1;
IF 0<LBCOM<999 THEN INSTAT='6';
IF (MODE^='1' OR GEAR^='06') AND ^(INSTAT='2' OR INSTAT='3' OR INSTAT='4'
   OR INSTAT='6') THEN INSTAT='7';
DO OVER GSP;
   IF (GSP=1 OR GSP=2 OR GSP=3 OR GSP=4) AND (GWT=0 OR GWT=999)
        AND (INSTAT^='6' OR INSTAT^='7') THEN INSTAT='5';
   END;
IF (HRSF=0 OR HRSF=99.9) AND ^(INSTAT='6' OR INSTAT='7' OR INSTAT='2'
    OR INSTAT='3' OR INSTAT='4') THEN INSTAT='5';
IF STATE='21' THEN DO;
   IF COUNTY='071' OR COUNTY='103' THEN ZONE=1;
     ELSE IF COUNTY='075' OR COUNTY='087' THEN ZONE=2;
     ELSE IF COUNTY='051' OR COUNTY='057' THEN ZONE=3;
     ELSE IF COUNTY='109' THEN ZONE=4;
     ELSE IF COUNTY='045' OR COUNTY='101' OR COUNTY='113'
          THEN ZONE=5;
     ELSE IF COUNTY='019' OR COUNTY='023' THEN ZONE=6;
   END;
IF EOF THEN PUT REFUSAL= GOOD=;
RETURN;
PROC SORT DATA=SHRIMP; BY STATE;
PROC FREQ DATA=SHRIMP;
TABLES STATE SEX MODE GEAR NUMGEAR INSTAT CATCH CONTRIB HRSF
       MILEAGE AGE TELEFON;
      TABLES DISP1*SPEC1 DISP2*SPEC2/NOPERCENT;
  WHAT;
    TITLE SOME PRELIMINARY ANALYSIS OF SHRIMP DATA - PHASE 2;
    TITLE3 FREQUENCIES OF RESPONSES TO SELECTED ITEMS;
PROC FREQ DATA=SHRIMP; BY STATE;
  TABLES HRSF MILEAGE COST SELLF LBF SELLCOM LBCOM COUNTY
   SITE DATE LOCATION;
  TITLE4 BY STATE;
   WHAT;
PROC MEANS DATA=SHRIMP MAXDEC=3 N MEAN STD VAR STDERR CV SUM; BY STATE;
  VAR COST MILEAGE STATE12 STATE2 OTHER12 OTHER2;
  WHAT;
   TITLE3 AVERAGES OF SELECTED ITEMS BY STATE;
DATA PHASE1 BADLY LOUIS; SET SHRIMP;
  KEEP STATE DATE BROWNWT BROWNCP BRPERH WHITEWT WHITECP WTPERH
  PINKWT PINKCP PKPERH OTHERWT OTHERCP OTPERH TOTALWT TOTALCP TPERH
   LOCATION ZONE HRSF BRBAD WTBAD PKBAD OTBAD;
IF INSTAT ^= '1' THEN DELETE;
IF MODE='2' THEN DELETE;
IF GEAR^='06' THEN DELETE;
OUTPUT BADLY;
IF SELLCOM=1 THEN DELETE;
IF ^(TYPE4='000000000000' OR TYPE4='999999999999') THEN DELETE;
OUTPUT PHASE1 ;
IF STATE='21' THEN OUTPUT LOUIS;
RETURN;
```

```
PROC SORT DATA=BADLY; BY STATE;
PROC MEANS DATA=BADLY MAXDEC=3 N MEAN STD VAR STDERR CV SUM ;
     BY STATE;
   VAR BRBAD WTBAD PKBAD OTBAD;
       WHAT;
       TITLE3 AVERAGE WEIGHT OF SHRIMP NOT KEPT;
PROC SORT DATA=PHASE1; BY STATE;
PROC MEANS DATA=PHASE1 MAXDEC=3 N MEAN STD VAR STDERR CV SUM; BY STATE;
     SOMETHIN; WHAT;
     TITLE3 AVERAGE WEIGHT OF SHRIMP KEPT;
PROC SORT DATA=LOUIS; BY DATE;
PROC MEANS DATA=LOUIS MAXDEC=3 N MEAN NOPRINT;
       BY DATE;
   SOMETHIN;
     OUTPUT OUT=NEWLOUIS MEAN=BRMEANW BRMEANC BRMEANH
                              WTMEANW WTMEANC WTMEANH
                              PKMEANW PKMEANC PKMEANH
                              OTMEANW OTMEANC OTMEANH
                              TOMEANW TOMEANC TOMEANH HRMEAN;
PROC SORT DATA=NEWLOUIS; BY DATE;
PROC PRINT DATA=NEWLOUIS;
ID DATE;
  WRITTEN;
TITLE4 FOR THE STATE OF LOUISIANA ON DAILY BASIS;
PROC PLOT DATA=NEWLOUIS;
     PLOT BRMEANW*DATE='B' BRMEANC*DATE='C'/OVERLAY;
     PLOT WTMEANW*DATE='W' WTMEANC*DATE='C'/OVERLAY;
     PLOT PKMEANW*DATE='P' PKMEANC*DATE='C'/OVERLAY;
     PLOT OTMEANW*DATE='O' OTMEANC*DATE='C'/OVERLAY;
     PLOT TOMEANW*DATE='T' TOMEANC*DATE='C'/OVERLAY;
   TITLE3 PLOT OF AVERAGE WEIGHT AND COUNT PER POUND;
   TITLE4 ON A DAILY BASIS FOR EACH OF THE SPECIES;
   TITLE5  FOR THE STATE OF LOUISIANA;
PROC FREQ DATA=LOUIS;
     TABLES DATE*ZONE/NOPERCENT NOROW NOCOL;
     TITLE3;
PROC SORT DATA=LOUIS; BY ZONE;
PROC MEANS DATA=LOUIS MAXDEC=3 N MEAN STD VAR STDERR CV SUM ;
     BY ZONE;
   SOMETHIN;
   WRITTEN;
   TITLE4 FOR THE STATE OF LOUISIANA BY ZONE AND DATE;
PROC SORT DATA=LOUIS; BY LOCATION;
PROC MEANS DATA=LOUIS MAXDEC=3 N MEAN STD VAR STDERR CV SUM;
     BY LOCATION; SOMETHIN;
      WRITTEN;
     TITLE4 FOR THE STATE OF LOUISIANA BY LOCATION;
```