

Recreational Shellfish Gathering in South Carolina 1980-81

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and David Cupka**



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RECREATIONAL SHELLFISH GATHERING
IN SOUTH CAROLINA
1980 - 81

BY

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I. INTRODUCTION

In South Carolina, recreational gathering of oysters and clams is an increasingly popular form of outdoor recreation. Most oysters in South Carolina are intertidal, growing along the water's edge between high and low water marks. Clams are also found throughout this area and are usually buried just a few inches below the surface. The State maintains a number of marked shellfish grounds along the coast where public harvesting of oysters and clams is allowed. At present there are 31 of these beds which are designated as either "Public Oyster Grounds" which are open only to South Carolina residents and where commercial harvesting is prohibited or as "State Shellfish Grounds" which are open to all persons and commercial harvesting is allowed with a permit.

Oyster season opens each year on September 15th and closes on April 30th and clam season opens September 1st and closes May 31st (The South Carolina Wildlife and Marine Resources Department may move up or delay the opening date by 15 days). A total of two bushels of oysters and one-half bushel of clams may be harvested per head-of-household in any one day for not more than two days in any one week from these beds.

Little information has been available concerning public shellfishing for private use in South Carolina. The depletion of natural and planted oysters and the general condition of public oyster beds has indicated a rather high rate of utilization. Some indication of the number of individuals interested in recreational shellfish gathering has been derived in the past by the demand for a publication entitled "A Recreational Guide to Oystering, Clamming, Shrimping and Crabbing in South Carolina (Moore, C. J. 1979). Over 15,000 copies of this guide were purchased during the first six months of its availability (December 1979 - June 1980). An additional 7,000 copies have been purchased during the following 15 months.

The lack of available information concerning recreational shellfishing in South Carolina and the increasing need for such information for the development of state-wide management plans prompted this study. The following describes the recreational oyster and clam fishery in South Carolina and reports the results of a 1981 postal survey of registered South Carolina boat owners (boats 20 feet or less in length) concerning their utilization of public oyster and clam beds.

II. METHODOLOGY

On July 1, 1981, a self-addressed prepaid postal card questionnaire (Appendix 1) was mailed to 15,000 owners of boats, twenty feet or less in length. This represented 8.5% of the 176,674 such boats registered in South Carolina during 1981. One half of these questionnaires (7,500) were mailed to owners of boats registered in one of the six coastal counties (Beaufort, Charleston,

Colleton, Georgetown, Horry and Jasper) and the other half were mailed to owners of boats registered in one of the other 40 counties. Thus, within the six coastal counties 19.1% of 39,077 boats received questionnaires whereas 5.5% of the 137,597 boats registered in the remaining counties were sampled. Boat owners were selected at random and the number selected from each county was proportional to the total number of boats, 20 feet or less, registered in the county (Table 1).

Information requested concerning the 1980-81 shellfish season included: the number of trips made, by boat and by land, to either public oyster or state shellfish grounds; the number of bushels of oysters and clams collected by the immediate family and the numbers collected by other individuals from that boat; which public oyster or state shellfish beds were utilized; the months trips were made; how they rated both the oyster beds and the oysters taken from these beds; the number of previous years that they had gathered shellfish; if they gathered oysters and clams from areas other than public oyster or state shellfish grounds; and whether they would be willing to purchase an annual \$3.00 to \$5.00 shellfish permit if all funds derived would be utilized to plant shell and seed oysters back on the beds.

A brief message on the back of the postal card stated the purpose of the survey and urged cooperation. It explained the importance of returning the card even if the respondent did not visit a public oyster or state shellfish bed during the 1980-81 season. The total number of individual boat owners (20 ft. or less) utilizing public oyster and state shellfish beds and the volumes of oysters and clams harvested from these beds were estimated by simple proportional projections of the numbers compiled from completed questionnaires.

III. RESULTS

Of 15,000 cards mailed, 2,398 (16%) completed questionnaires were returned (Table 1). The return rate of questionnaires from South Carolina coastal counties was slightly lower (14.0%) than from inland counties (18.0%). Of the completed questionnaires returned, 542 (22.5%) indicated that they had made one or more trips to a public oyster or state shellfish ground. Nearly four times as many individuals (38.1%) from the six coastal counties indicated they had made one or more trips as did individuals from one of the other 40 counties (10.3%). A total of 26,600 boats 20 feet or less in length were estimated to have been utilized in gathering oysters and/or clams during the 1980-81 season (Table 1).

A total of 542 recreational fishermen reported making 2,644 trips and harvesting 3,793 bushels of oysters and 704 bushels of clams (Table 2) for their personal consumption during the 1980-81 season. An additional 1,872 bushels of oysters and 407 bushels of clams were reported as being harvested by other individuals from these boats. One hundred and fifteen (21.3%) of those going shellfishing reported making at least some

of these shellfish trips by land instead of by boat. A total of 410 of the 2,644 trips reported (15.5%) were made by land to collect oysters and/or clams. Completed questionnaires indicated that those individuals who went shellfishing during 1980-81 had been collecting oysters and clams for an average of 12 years. During the 1980-81 season, respondents averaged 5 trips to a public oyster bed and harvested approximately 1.5 bushels of oysters and 0.3 bushel of clams for their personal consumption on each occasion. An additional 0.7 bushels of oysters and 0.2 bushels of clams were harvested on an average by other individuals on each of these trips.

The 26,660 boats estimated to have participated in recreational shellfishing made an estimated 106,649 trips and harvested approximately 216,928 bushels of oysters and 27,070 bushels of clams (Table 3). Most trips to harvest shellfish were made between November and February (Figure 1). Fifty three percent of the respondents indicated that they harvested oysters and clams from areas other than state shellfish and public oyster grounds; 40.7% occasionally, 7.5% frequently and 5% always.

The frequency of public oyster and state shellfish grounds listed as most often used by respondents is given in Table 4. Coastal county residents indicated they utilized primarily those beds near their residence. Public beds in the Charleston area and northward to North Murrells Inlet and Cherry Grove were most frequently listed by both coastal county and inland county residents. Most shellfish gatherers rated both the condition of the public beds (Figure 2) and the quality and size of oysters present (Figure 3) low on a scale of 1 (poor) to 10 (excellent).

Of the 542 respondents who had made one or more shellfishing trips, 48.4% (262) indicated that they would be willing to purchase an annual \$3.00 to \$5.00 shellfish permit if all funds derived would be utilized to plant shell and seed oysters on public shellfish grounds, 18.7% (101) would not be willing to purchase such a permit, 24.2% (131) needed more information and 8.5% (46) "did not know" (Table 5). Respondents who did not go shellfishing during the 1980-81 season (1858) indicated they were less likely to purchase such a permit; 40% (742) would not be willing, 18.3% (340) would be willing, 16.8% (313) needed more information, 9.8% (182) did not know and 15.1% (281) did not answer the question.

IV. DISCUSSION

The gathering of oysters and clams for personal consumption is an important form of outdoor recreation in South Carolina. South Carolina is unique in that substantial inter-tidal oyster and clam beds occur throughout the coastal area. Tidal fluctuations of five to six feet, with spring tides approaching eight feet, expose these beds at low tide making shellfish gathering a relatively easy task.

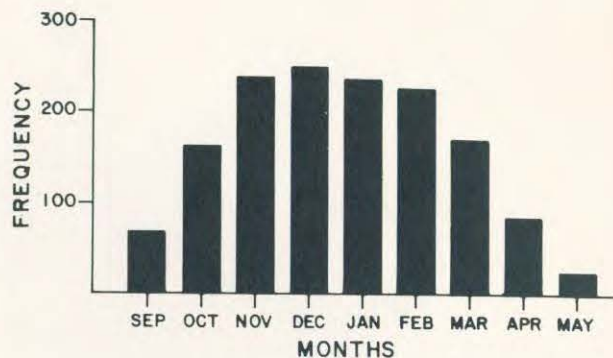


Figure 1. Frequency of recreational shellfishing trips made monthly by registered South Carolina boat owners.

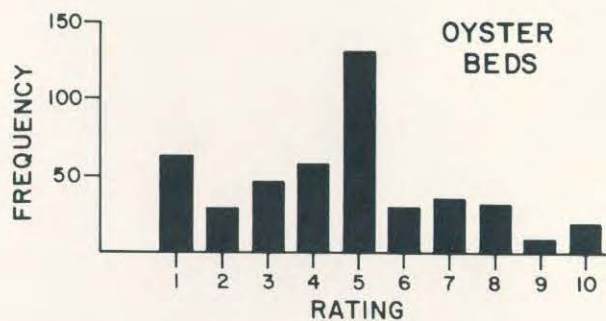


Figure 2. Frequency of ratings (1 poor - 10 excellent) recreational shellfish gatherers gave their most often used public shellfish bed.



Figure 3. Frequency of ratings given oysters (1 being oysters small and of poor quality-10 being oysters large and of excellent quality) by recreational shellfish gatherers for oysters taken from public oyster beds.

An estimated 26,660 boat owners made approximately 107,000 trips to gather oysters and clams between September 1980, and May 1981. An estimated 216,928 bushels of oysters and 27,070 bushels of clams were harvested. It is interesting to note that, based on the assumption that these figures are reasonably accurate in terms of U.S. bushels, this represents about 55% of reported commercial clam production for 1980-81. Using a very minimum estimate of \$3 a bu. for oysters and \$20 a bu. for clams, this represents a value of approximately 1.2 million dollars. Of the 2,399 boat owners returning questionnaires, 22.5% (542) had gone shellfishing during the previous season. As expected, a greater percentage of coastal county boat owners (38.1%) had gone shellfishing than non-coastal county boat owners (10.3%).

Most individuals utilized public oyster beds nearest their homes. The general poor condition of many South Carolina public and state shellfish grounds was reflected in the low ratings given both beds and the oysters harvested by respondents. These responses were quite mixed however, with a 5 or "average" rating being the mode. Numerous comments and attached letters to survey questionnaires also indicated that most shellfish gatherers feel that public oyster and clam beds should be better managed and expanded. Nearly 50% of all individuals surveyed, that had made one or more shellfishing trips during the previous season, indicated they would be willing to purchase a \$3.00 to \$5.00 permit for this purpose. Another 27% said either that they hadn't made up their minds or that they needed more information about such a permit.

The use of questionnaire surveys in forming fishery management policies and the types of biases found in postal surveys have been discussed by several authors (Robinson and Agisio 1951; Carline 1972; Duttweiler 1976). Boat owners who utilized public oyster beds may have been more likely to complete and mail the questionnaires than boat owners who had no interest in shellfishing. However, the return rate of questionnaires was relatively uniform throughout the state both from coastal counties which had a considerably higher rate of returns from individuals who had gone shellfishing and from inland counties with few or no returns by individuals who had gone shellfishing.

Although individuals sampled in this survey had a boat registered in 1981, 21.3% of all questionnaires returned by individuals who had gone shellfishing indicated that at least one or more shellfishing trips had been made by land. Trips made by land accounted for 15.5% of all shellfish trips reported. This is somewhat surprising in that there are only two of the 31 public oyster grounds which have relatively easy access by land. Past observations, however, have indicated that both of these oyster beds, one in Folly River and the other in Mackays Creek, are two of the most utilized in South Carolina. The rather high number of trips by land may also be partially explained in that 53% of those individuals returning questionnaires who went shellfishing indicated that at least occasionally they harvest oysters and clams from areas other than public or

state beds. Harvesting oysters and clams from leased areas, without the lessee's written permission, is illegal in South Carolina but is a fairly common practice.

ACKNOWLEDGEMENTS

The authors wish to express their sincere appreciation to the individuals who responded to this survey making it a worthwhile exercise. Thanks are also extended to Charles Bearden for reviewing the manuscript, Hope Mixson for typing the manuscript and Karen Swanson who prepared the graphics.

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Table 1. Number of South Carolina boats, twenty feet or less in length, registered in 1981, receiving shellfish questionnaires, returning questionnaires and the estimated number of boats, by county, involved in recreational shellfishing during the 1980-81 season.

| COUNTY | TOTAL NUMBER OF REGISTERED BOATS | NUMBER OF BOATS 20' OR LESS | NUMBER SELECTED FOR MAILOUT | NUMBER OF CARDS RETURNED | PERCENT OF CARDS RETURNED | NUMBER OF BOAT OWNERS THAT WENT SHELLFISHING | PERCENT OF BOAT OWNERS GOING SHELLFISHING | ESTIMATED BOATS 20' OR LESS GOING SHELLFISHING |
|----------------|----------------------------------|-----------------------------|-----------------------------|--------------------------|---------------------------|--|---|--|
| Abbeville | 1,306 | 1,289 | 70 | 9 | 12.9 | --- | 0.0 | --- |
| Aiken | 8,116 | 7,875 | 428 | 53 | 12.3 | 1 | 1.9 | 150 |
| Allendale | 656 | 642 | 35 | 4 | 11.4 | 1 | 25.0 | 160 |
| Anderson | 7,614 | 7,203 | 393 | 55 | 14.0 | --- | 0.0 | --- |
| Bamberg | 842 | 822 | 45 | 6 | 13.3 | --- | 0.0 | --- |
| Barnwell | 1,446 | 1,422 | 78 | 12 | 15.4 | 1 | 6.5 | 92 |
| Beaufort | 5,112 | 4,520 | 869 | 147 | 16.9 | 63 | 42.9 | 1,939 |
| Berkeley | 7,950 | 7,693 | 420 | 64 | 15.2 | 10 | 15.6 | 1,200 |
| Calhoun | 845 | 812 | 44 | 3 | 6.8 | 1 | 33.0 | 268 |
| Charleston | 19,620 | 18,129 | 3,424 | 537 | 15.5 | 208 | 38.7 | 7,016 |
| Cherokee | 1,382 | 1,351 | 74 | 3 | 4.1 | --- | 0.0 | --- |
| Chester | 1,211 | 1,168 | 64 | 6 | 9.3 | 1 | 16.7 | 226 |
| Chesterfield | 1,086 | 1,065 | 58 | 4 | 6.9 | --- | 0.0 | --- |
| Clarendon | 2,289 | 2,202 | 120 | 23 | 19.2 | --- | 0.0 | --- |
| Colleton | 2,555 | 2,488 | 478 | 67 | 14.0 | 11 | 16.4 | 408 |
| Darlington | 3,401 | 3,293 | 180 | 17 | 9.4 | 1 | 5.9 | 194 |
| Dillon | 1,225 | 1,205 | 66 | 10 | 15.2 | --- | 0.0 | --- |
| Dorchester | 4,599 | 4,459 | 243 | 35 | 14.4 | 9 | 25.7 | 1,146 |
| Edgefield | 729 | 708 | 39 | 8 | 20.5 | --- | 0.0 | --- |
| Fairfield | 976 | 911 | 50 | 4 | 8.0 | --- | 0.0 | --- |
| Florence | 8,833 | 8,608 | 469 | 65 | 13.9 | 11 | 16.9 | 1,455 |
| Georgetown | 4,834 | 4,661 | 895 | 110 | 12.3 | 39 | 35.5 | 1,655 |
| Greenville | 11,666 | 11,068 | 604 | 83 | 13.7 | 1 | 1.2 | 133 |
| Greenwood | 2,863 | 2,774 | 151 | 15 | 9.9 | 1 | 6.7 | 186 |
| Hampton | 1,619 | 1,591 | 87 | 10 | 11.5 | 2 | 20.0 | 318 |
| Horry | 8,506 | 8,147 | 1,566 | 157 | 10.0 | 63 | 40.1 | 3,267 |
| Jasper | 1,185 | 1,132 | 218 | 34 | 15.6 | 17 | 50.0 | 566 |
| Kershaw | 2,210 | 2,058 | 112 | 16 | 14.3 | 3 | 18.8 | 387 |
| Lancaster | 1,760 | 1,704 | 93 | 8 | 8.6 | --- | 0.0 | --- |
| Laurens | 2,814 | 2,703 | 147 | 20 | 13.6 | 5 | 25.0 | 676 |
| Lee | 661 | 642 | 35 | 6 | 17.1 | --- | 0.0 | --- |
| Lexington | 13,238 | 12,222 | 664 | 83 | 12.5 | 6 | 7.2 | 880 |
| McCormick | 486 | 452 | 25 | 4 | 16.0 | --- | 0.0 | --- |
| Marion | 2,275 | 2,250 | 123 | 3 | 2.4 | --- | 0.0 | --- |
| Marlboro | 932 | 917 | 50 | 11 | 22.0 | 1 | 9.1 | 83 |
| Newberry | 2,371 | 2,260 | 123 | 24 | 19.5 | 1 | 4.2 | 95 |
| Oconee | 3,065 | 2,899 | 158 | 21 | 13.3 | --- | 0.0 | --- |
| Orangeburg | 5,017 | 4,871 | 265 | 39 | 14.7 | 4 | 10.3 | 502 |
| Pickens | 3,959 | 3,789 | 206 | 42 | 20.4 | --- | 0.0 | --- |
| Richland | 12,502 | 11,653 | 635 | 82 | 12.9 | 13 | 15.9 | 1,853 |
| Saluda | 1,009 | 980 | 54 | 7 | 13.0 | 2 | 28.6 | 280 |
| Spartanburg | 7,176 | 6,946 | 378 | 51 | 13.5 | 2 | 3.9 | 271 |
| Sumter | 5,381 | 5,184 | 283 | 39 | 13.8 | 3 | 7.7 | 399 |
| Union | 1,145 | 1,120 | 61 | 15 | 24.6 | 1 | 6.7 | 75 |
| Williamsburg | 2,618 | 2,583 | 141 | 16 | 11.3 | 4 | 25.0 | 646 |
| York | 4,614 | 4,203 | 229 | 31 | 13.5 | 1 | 3.2 | 134 |
| County Unknown | 12 | | | 339 | | 54 | 15.9 | |
| Total | 185,711 | 173,674 | 15,000 | 2,398 | 16% | 542 | 22.5 | 26,660 |

Table 2. The number of trips made and the harvest of oysters and clams reported by South Carolina recreational shellfish gatherers.

| COUNTY | NO. BOATS REPORTING SHELLFISHING | TOTAL NUMBER OF TRIPS MADE | AVERAGE NUMBER OF TRIPS MADE | TOTAL NO. BUSHELLS OYSTERS BY HOUSEHOLD | TOTAL NO. BUSHELLS CLAMS BY HOUSEHOLD | NUMBER BUSHELLS OYSTERS BY OTHERS | NUMBER BUSHELLS CLAMS BY OTHERS | AVERAGE NO. OF YEARS PREVIOUSLY BEEN SHELLFISHING |
|----------------|--|----------------------------------|------------------------------------|---|---|--|--|---|
| Abbeville | --- | --- | --- | --- | --- | --- | --- | 10 |
| Aiken | 1 | 5 | 5 | 7 | --- | --- | --- | 2 |
| Allendale | 1 | 5 | 5 | 12 | --- | --- | --- | -- |
| Anderson | --- | --- | --- | --- | --- | --- | --- | -- |
| Bamberg | --- | --- | --- | --- | --- | --- | --- | -- |
| Barnwell | 1 | 2 | 2 | 12 | 2 | 2 | 1 | 25 |
| Beaufort | 63 | 228 | 4 | 264.7 | 35 | 64.2 | 26 | 12 |
| Berkeley | 10 | 65 | 7 | 211 | 10.5 | 96 | 11 | 9 |
| Calhoun | 1 | 1 | 1 | 0.5 | --- | --- | --- | 2 |
| Charleston | 208 | 992 | 5 | 1,380.75 | 147 | 653 | 74.25 | 13 |
| Cherokee | --- | --- | --- | --- | --- | --- | --- | -- |
| Chester | 1 | 2 | 2 | 4 | 1 | --- | --- | 20 |
| Chesterfield | --- | --- | --- | --- | --- | --- | --- | -- |
| Clarendon | --- | --- | --- | --- | --- | --- | --- | -- |
| Colleton | 11 | 29 | 3 | 44 | 2 | 25 | 0.5 | 13 |
| Darlington | 1 | 2 | 2 | 3 | 0.75 | --- | --- | 30 |
| Dillon | --- | --- | --- | --- | --- | --- | --- | -- |
| Dorchester | 9 | 56 | 6 | 83 | 12.5 | 60 | 14 | 5 |
| Edgefield | --- | --- | --- | --- | --- | --- | --- | -- |
| Fairfield | --- | --- | --- | --- | --- | --- | --- | -- |
| Florence | 11 | 18 | 2 | 29 | 1.5 | 3 | --- | 10 |
| Georgetown | 39 | 223 | 6 | 279.5 | 65 | 170 | 30 | 14 |
| Greenville | 1 | 1 | 1 | 4 | --- | 16 | 0.5 | 5 |
| Greenwood | 1 | 1 | 1 | 1 | 0.5 | 1 | 0.5 | 3 |
| Hampton | 2 | 5 | 3 | 5 | --- | 5 | --- | 8 |
| Horry | 63 | 309 | 5 | 399.5 | 74.25 | 155 | 27 | 12 |
| Jasper | 17 | 68 | 4 | 101 | 3 | 31 | --- | 15 |
| Kershaw | 3 | 8 | 3 | --- | --- | --- | --- | -- |
| Lancaster | --- | --- | --- | --- | --- | --- | --- | -- |
| Laurens | 5 | 14 | 3 | 16 | 5.5 | 7 | 7.5 | 5 |
| Lee | --- | --- | --- | --- | --- | --- | --- | -- |
| Lexington | 6 | 11 | 2 | 26 | 2 | 15 | 1 | 10 |
| McCormick | --- | --- | --- | --- | --- | --- | --- | -- |
| Marion | 1 | 1 | 1 | --- | 0.5 | --- | 0.5 | 40 |
| Newberry | 1 | 2 | 2 | --- | --- | --- | --- | -- |
| Oconee | --- | --- | --- | --- | --- | --- | --- | -- |
| Orangeburg | 4 | 11 | 3 | 17 | 1 | 17 | 1 | 20 |
| Pickens | --- | --- | --- | --- | --- | --- | --- | -- |
| Richland | 13 | 18 | 1 | 28.5 | 2.75 | 19 | 2.25 | 10 |
| Saluda | 2 | 7 | 3 | 2 | --- | --- | --- | -- |
| Spartanburg | 2 | 8 | 4 | 11 | 0.75 | 12 | 1.5 | 16 |
| Sumter | 3 | 4 | 1 | 3.5 | 0.50 | 2 | 1 | 18 |
| Union | 1 | 1 | 1 | 30 | --- | --- | --- | 2 |
| Williamsburg | 4 | 5 | 1 | 8 | --- | 23 | 2 | 12 |
| York | 1 | 1 | 1 | --- | 1 | --- | --- | -- |
| County Unknown | 54 | 541 | 10 | 809.8 | 334.7 | 496 | 305.25 | 12 |
| TOTAL | 542 | 2644 | 5 | 3793 | 703.7 | 1872.2 | 506.75 | 12. |

Table 3. The estimated effort and harvest of oysters and clams by South Carolina recreational shellfish gatherers during the 1980-81 oyster and clam season.

| COUNTY | NUMBER OF BOATS SHELLFISHING | AVERAGE NUMBER OF TRIPS MADE | ESTIMATED NUMBER OF TRIPS MADE | AVERAGE NUMBER OF BUSHELLS OF OYSTERS HARVESTED DURING SEASON | ESTIMATED BUSHELLS OF OYSTERS | AVERAGE NUMBER OF BUSHELLS OF CLAMS HARVESTED DURING SEASON | ESTIMATED BUSHELLS OF CLAMS |
|--------------|------------------------------------|------------------------------------|--------------------------------------|--|-------------------------------------|--|-----------------------------------|
| Abbeville | | | | | | | |
| Aiken | 150 | 5 | 750 | 7 | 1,050 | - | - |
| Allendale | 160 | 5 | 800 | 12 | 2,080 | - | - |
| Anderson | - | - | - | - | - | - | - |
| Bamberg | - | - | - | - | - | - | - |
| Barnwell | 92 | 2 | 184 | 14 | 1,288 | 3 | 276 |
| Beaufort | 1,939 | 4 | 7,756 | 5.2 | 10,082 | 1 | 1,939 |
| Berkeley | 1,200 | 7 | 8,400 | 30.7 | 36,840 | 2.2 | 2,640 |
| Calhoun | 268 | 1 | 268 | .5 | 134 | - | - |
| Charleston | 7,016 | 5 | 35,080 | 9.8 | 68,756 | 1.1 | 7,717 |
| Cherokee | - | - | - | - | - | - | - |
| Chester | 226 | 2 | 452 | 4.0 | 904 | 1 | 226 |
| Chesterfield | - | - | - | - | - | - | - |
| Clarendon | - | - | - | - | - | - | - |
| Colleton | 408 | 3 | 1,224 | 6.3 | 2,570 | 0.3 | 122 |
| Darlington | 194 | 2 | 388 | 3 | 582 | 0.8 | 155 |
| Dillon | - | - | - | - | - | - | - |
| Dorchester | 1,146 | 6 | 6,876 | 15.9 | - | 2.9 | - |
| Edgefield | - | - | - | - | - | - | - |
| Fairfield | - | - | - | - | - | - | - |
| Florence | 1,455 | 2 | 2,910 | 2.8 | 4,074 | 0.14 | 203 |
| Georgetown | 1,655 | 6 | 9,930 | 11.5 | 19,032 | 2.4 | 3,972 |
| Greenville | 133 | 1 | 133 | 20 | 2,660 | 0.5 | 66 |
| Greenwood | 186 | 1 | 186 | 2 | 372 | 1.0 | 186 |
| Hampton | 318 | 3 | 954 | 5 | 1,590 | - | - |
| Horry | 3,267 | 5 | 16,335 | 8.8 | 28,749 | 1.6 | 5,227 |
| Jasper | 566 | 4 | 2,264 | 7.8 | 4,415 | 0.2 | 113 |
| Kershaw | 387 | 3 | 1,161 | - | - | - | - |
| Lancaster | - | - | - | - | - | - | - |
| Laurens | 676 | 3 | 2,028 | 4.7 | 3,177 | 2.6 | 1,758 |
| Lee | - | - | - | - | - | - | - |
| Lexington | 880 | 2 | 1,760 | 6.8 | 5,984 | 0.5 | 440 |
| McCormick | - | - | - | - | - | - | - |
| Marion | - | - | - | - | - | - | - |
| Marlboro | 83 | 1 | 83 | - | - | 1 | 83 |
| Newberry | 95 | 2 | 190 | - | - | - | - |
| Oconee | - | - | - | - | - | - | - |
| Orangeburg | 502 | 3 | 1,506 | 8.5 | 4,267 | 0.5 | 251 |
| Pickens | - | - | - | - | - | - | - |
| Richland | 1,853 | 1 | 1,853 | 3.7 | 6,856 | 0.4 | 741 |
| Saluda | 280 | 3 | 840 | 1 | 280 | - | - |
| Spartanburg | 271 | 4 | 1,084 | 11.5 | 3,116 | 1.1 | 298 |
| Sumter | 399 | 1 | 399 | 1.8 | 718 | 0.5 | 200 |
| Union | 75 | 1 | 75 | 30 | 2,250 | - | - |
| Williamsburg | 646 | 1 | 646 | 7.8 | 5,039 | 0.5 | 323 |
| York | 134 | 1 | 134 | - | - | 1.0 | 134 |
| Out of State | - | 10 | - | 24.2 | - | - | - |
| TOTAL | 26,660 | | 106,649 | | 216,928 | | 27,070 |

Table 4. Number of South Carolina shellfish gatherers by county of residence who reported using each of the State Shellfish and Public Oyster Grounds during the 1980-81 season.

| PUBLIC OYSTER AND STATE SHELLFISH GROUNDS | COUNTY OF RESIDENCE | | | | | | |
|---|---------------------|------------|------------|----------|--------|----------|------------|
| | HORRY | GEORGETOWN | CHARLESTON | COLLETON | JASPER | BEAUFORT | ALL OTHERS |
| Cherry Grove | 12 | | 1 | | | | |
| North Murrells Inlet | 36 | 6 | | | | | 7 |
| Allston Creek | 2 | 1 | | | | | 1 |
| Clam Bank Flats | 5 | 9 | | | | | 21 |
| North Inlet | 1 | 22 | | | | | 11 |
| Alligator Creek | | 1 | 5 | | | | 4 |
| Mathews Cut | | | 2 | | | | 2 |
| Sewee Bay | 1 | 2 | 16 | | | | 11 |
| Hamlin Creek | | | 17 | | | | 10 |
| Conch Creek | | | 34 | | | | 11 |
| Folly River (3) | | | 64 | | | | 31 |
| Cole Creek | | | 7 | | | | |
| Toogoodoo Creek | | | 10 | | | | 3 |
| Leadenwah Creek | | | 6 | | | | |
| Kiawah Island | | | 6 | | | | 1 |
| Ashepool River | | | | | | | 2 |
| Ashe Island | | | 1 | 3 | | | 8 |
| Whale Branch | | | | 2 | | | 4 |
| Lucy Point Creek | | | | | | 4 | |
| Distant Island | | | | | | 3 | 2 |
| Old House Creek | | | | | | 7 | 2 |
| Capers Creek | | | | | | 1 | 2 |
| Station Creek | | | | | | | 1 |
| Marsh Island | | | | | | 1 | 1 |
| Habersham Creek | | | | | | | |
| Parris Island | | | | | | 6 | 1 |
| Euhaw Creek | | | | | | 1 | |
| Chechessee River | | | | | 3 | 5 | 1 |
| Last End Point | | | | | | 10 | |
| May River-Bull Creek | | | | | 4 | 9 | 1 |

Table 5. Frequency of responses given by survey respondents concerning the question - Would you be willing to purchase an annual \$3.00 to \$5.00 shellfish permit if all funds derived would be utilized to plant shell and seed oysters and clams on public shellfish grounds?

| COUNTY | ANSWERED "YES" | | ANSWERED "NO" | | ANSWERED DON'T KNOW | | ANSWERED "NEED MORE INFO" | | DID NOT MARK QUESTION | | TOTAL | |
|----------------|-------------------|-----------|------------------|-----------|------------------------|-----------|------------------------------|-----------|--------------------------|-----------|-------|-----|
| | WENT | DIDN'T GO | WENT | DIDN'T GO | WENT | DIDN'T GO | WENT | DIDN'T GO | WENT | DIDN'T GO | | |
| Abbeville | - | 2 | - | 4 | - | 1 | - | - | - | 2 | 9 | |
| Aiken | - | 7 | - | 19 | - | 7 | 1 | 10 | 9 | 53 | | |
| Allendale | 1 | - | - | 1 | - | - | - | 1 | 1 | 4 | | |
| Anderson | - | 7 | - | 29 | - | 5 | - | 7 | 7 | 55 | | |
| Bamberg | - | - | - | 4 | - | - | - | 2 | - | 6 | | |
| Barnwell | - | 1 | - | 2 | 1 | 2 | - | 2 | 4 | 12 | | |
| Beaufort | 38 | 22 | 12 | 36 | 2 | 8 | 11 | 15 | 3 | 147 | | |
| Berkeley | 5 | 11 | 1 | 24 | 2 | 6 | 2 | 5 | 8 | 64 | | |
| Calhoun | - | - | 1 | - | - | 1 | - | 1 | - | 3 | | |
| Charleston | 91 | 73 | 41 | 123 | 18 | 34 | 58 | 63 | 36 | 537 | | |
| Cherokee | - | 1 | - | - | - | - | - | - | 2 | 3 | | |
| Chester | - | 1 | - | 1 | - | - | 1 | 2 | 1 | 6 | | |
| Chesterfield | - | - | - | 2 | - | - | - | 2 | - | 4 | | |
| Clarendon | - | 4 | - | 9 | - | 1 | - | 3 | 6 | 23 | | |
| Colleton | 6 | 7 | - | 21 | 1 | 11 | 4 | 9 | 8 | 67 | | |
| Darlington | - | 5 | 1 | 6 | - | - | - | - | 5 | 17 | | |
| Dillon | - | 1 | - | 2 | - | - | - | 5 | 2 | 10 | | |
| Dorchester | 4 | 8 | 2 | 13 | - | 1 | 3 | 1 | 4 | 35 | | |
| Edgefield | - | 2 | - | 2 | - | - | - | 3 | - | 8 | | |
| Fairfield | - | 1 | - | 2 | - | 1 | - | - | 1 | 4 | | |
| Florence | - | 9 | 3 | 23 | - | 5 | 3 | 7 | 10 | 65 | | |
| Georgetown | 5 | 18 | 10 | 21 | 5 | 9 | 14 | 7 | 16 | 110 | | |
| Greenville | 10 | 15 | - | 32 | - | 12 | - | 9 | 14 | 83 | | |
| Greenwood | 1 | 1 | - | 5 | - | 1 | 1 | 4 | 3 | 15 | | |
| Hampton | 1 | 4 | - | 3 | - | - | 1 | - | 1 | 10 | | |
| Horry | 36 | 16 | 11 | 34 | 6 | 7 | 10 | 22 | 15 | 157 | | |
| Jasper | 11 | 2 | 1 | 8 | 2 | 2 | 3 | 3 | 2 | 34 | | |
| Kershaw | 2 | - | - | 6 | - | 2 | 1 | 2 | 3 | 16 | | |
| Lancaster | - | 1 | - | 2 | - | 2 | - | 2 | 1 | 8 | | |
| Laurens | 5 | 3 | - | 6 | - | 1 | - | 2 | 3 | 20 | | |
| Lee | - | 2 | - | 1 | - | 1 | - | 1 | 1 | 6 | | |
| Lexington | 1 | 12 | 1 | 31 | - | 5 | 4 | 18 | 11 | 83 | | |
| McCormick | - | - | - | 2 | - | - | - | - | 2 | 4 | | |
| Marion | - | - | - | 2 | - | - | - | - | 1 | 3 | | |
| Marlboro | - | 4 | 1 | 4 | - | - | - | 1 | 1 | 11 | | |
| Newberry | 1 | 3 | - | 10 | - | 2 | - | 4 | 4 | 24 | | |
| Oconee | - | 1 | - | 11 | - | 1 | - | 4 | 4 | 21 | | |
| Orangeburg | 2 | 3 | 1 | 12 | 1 | 3 | - | 10 | 7 | 39 | | |
| Pickens | - | 5 | - | 21 | - | 1 | - | 7 | 8 | 42 | | |
| Richland | 10 | 13 | 2 | 22 | - | 10 | 1 | 16 | 8 | 82 | | |
| Saluda | - | - | - | 1 | 2 | 2 | - | 1 | 1 | 7 | | |
| Spartanburg | 1 | 7 | - | 19 | - | 5 | 1 | 9 | 9 | 51 | | |
| Sumter | 1 | 3 | - | 11 | - | 1 | 2 | 10 | 11 | 39 | | |
| Union | - | 2 | 1 | 6 | - | 1 | - | - | 5 | 15 | | |
| Williamsburg | - | 4 | 2 | 4 | - | 2 | 2 | - | 2 | 16 | | |
| York | - | 4 | - | 14 | - | 3 | 1 | 5 | 4 | 31 | | |
| County unknown | - | 30 | 55 | 10 | 131 | 6 | 26 | 7 | 38 | 1 | 35 | 339 |
| Total | 262 | 340 | 101 | 742 | 46 | 182 | 131 | 313 | 1 | 281 | 2399 | |
| | 602 | | 843 | | 228 | | 444 | | 282 | | | |

Appendix 1. Recreational Shellfish Questionnaire.

RECREATIONAL OYSTERING & CLAMMING SURVEY

1. How many trips did you make to either a public oyster or state shellfish ground during the 1980-81 season? In your boat _____ trips.
By land _____ trips.
2. How many bushels of oysters and clams did you and/or your immediate family harvest during the 1980-81 season from these beds?
Oysters _____ bushels Clams _____ bushels
3. What is the total number of oysters and clams that were harvested from your boat by other individuals during the 1980-81 season from these beds.
Oysters _____ bushels Clams _____ bushels
4. List which public oyster or state shellfish ground(s) you did most of your oystering and clamming during the 1980-81 season in decreasing order of usage.
(1) _____
(2) _____
(3) _____
5. Circle the months that you went shellfishing during the 1980-81 season. S O N D J F M A M
6. Please rate your most often used public shellfish bed in terms of (1) quantity or number of oysters available _____ (one (1) being very few present and ten (10) being oysters abundant) and (2) quality or size of oysters _____ (one (1) being very small and ten (10) being large).
7. How many previous years have you gathered oysters and clams recreationally in South Carolina for your family's consumption? _____ years.
8. Do you harvest oysters or clams from areas other than marked state shellfish and public oyster grounds?
Never () Occasionally () Frequently () Always ().
9. Are you aware there is a 60 page guide to recreational oystering, clamming, shrimping and crabbing in South Carolina which is available at a cost of \$2.00?
Yes, and have purchased a copy _____
Yes, but have not purchased a copy _____
No, please send information _____
No, not interested _____
10. Would you be willing to purchase an annual \$3.00 to \$5.00 shellfish permit if all funds derived would be utilized to plant shell and seed oysters and clams on public shellfish grounds. Yes () No () Don't know () Need more information ().