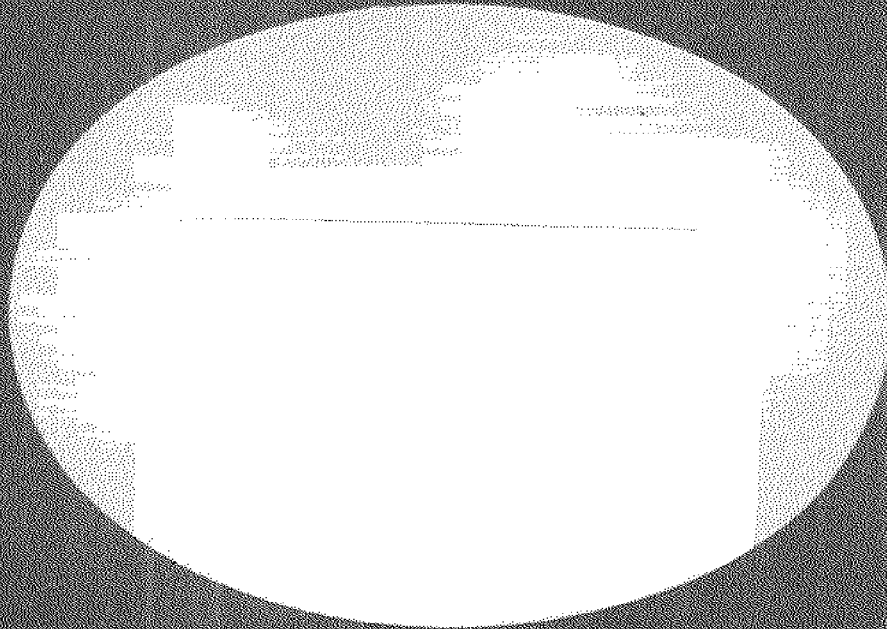


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Technical Report

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1982 HEAD/CHARTER-BOAT FISHING IN DELAWARE:  
AN ANALYSIS OF CUSTOMERS AND THEIR ECONOMIC IMPACT

\$2.00

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## EXECUTIVE SUMMARY

This study examined a sample of fishermen who fished from a select group of head boats and charter vessels (32 passenger minimum capacity) from ports in Kent and Sussex Counties during the summer of 1982. Socio-economic characteristics and attitudes of these fishermen were obtained along with information regarding the economic impacts on local communities as a result of head/charter-boat fishing.

A total of 143 charter-boat customers and 646 head-boat fishermen were mailed survey questionnaires in three phases approximately three weeks apart. A 76% response rate was attained following a postcard reminder and follow-up mailing.

A supplemental survey of boat captains (or owners) of each boat pertinent to the study was conducted to determine the number of trips taken during the 1982 season and the average number of passengers per trip. This information was necessary to calculate county economic impacts and to identify the total number of head/charter-boat trips taken from ports in Kent and Sussex Counties during 1982. Information obtained from the survey of captains and extrapolated to the full population of applicable boats (23 total) indicated a total of 65,392 head/charter-boat fishing trips were made in 1982. Thirty-seven percent (24,120) of these trips were taken from Kent County ports, while the remaining 63% (41,272) were from ports in Sussex County.

Most (86%) of the customers were experienced head/charter-boat fishermen. In addition, they reported an average fishing experience of 24 years. Eighty-seven percent of the Sussex County fishermen were from out-of-state, while 67% of the anglers from Kent County ports were from out-of-state. It is noteworthy that nearly one-half of the fishermen in both counties came from Pennsylvania. Most fishermen selected a particular fishing boat based on success in the past, followed closely by a good reputation of the boat. The third most important reason was recommendations of others. Ten percent of the Kent County fishermen reported they were fishing as part of a longer visit to the Delaware Coast, while 42% of Sussex County passengers reported the same. The average age among head/charter-boat anglers was 42 years. The most common household income of both head-and charter-boat fishermen was between \$20,000 and



\$30,000. Nearly one-third of all fishermen lived in rural areas. Approximately 40% of all anglers were employed in blue-collar occupations.

Fishermen considered getting away from the regular routine as the most important reason for participating in head/charter-boat fishing. Almost as important were reasons such as relaxation and the desire to be outdoors. Participants also ranked the experience of the catch and the challenge or sport of fishing as very important reasons for fishing on head or charter boats. In addition, most fishermen rated being with friends as very or extremely important.

On a six-point scale ranging from poor to perfect, about two-thirds of the fishermen reported relatively low ratings for their fishing trips. Only about one-third of the fishermen rated their trips in the good-to-perfect range. Further analysis of fishing trip quality suggested that the three most common reasons fishermen were dissatisfied with their fishing trips were no fish, bad weather or rough seas, and qualities of the boat captain and crew. Conversely, the most common trip high points reported by fishermen included qualities of the boat captain and crew, being with friends, and being outdoors or on the water.

Two types of spending by head/charter-boat anglers were examined to determine the economic impacts to Kent and Sussex County: daily fishing expenses which were directly related to the fishing trip and extended-trip expenses which related to spending that occurred during a longer stay in a coastal community while on a fishing trip. Total direct spending by out-of-county visitors in Kent County for daily fishing equaled \$583,000 and produced an economic impact on the county of \$677,000. In Sussex County, out-of-county anglers contributed over \$1,354,000 in daily fishing expenditures and created an economic impact of approximately \$1,590,000.

Two alternative approaches are used to calculate extended-trip expenses that can be related to the head/charter-boat fishing trip. The first alternative prorates extended-trip expenses according to the proportion of the total trip devoted to head/charter-boat fishing. The second alternative attributes extended-trip expenses on the basis of

direct questions asking whether respondents would have come to the area if head/charter-boat opportunities were not available there. Values obtained from these two methods provide a range of extended-trip expenses which may be attributed to the head/charter-boat industry.

Total extended-trip expenses amounted to \$144,000 in Kent County and \$1,792,000 in Sussex County. Using the two approaches described above, the total economic impact attributable to extended-visit spending by head/charter-boat fishermen, during 1982, ranges from \$52,000 to \$89,000 in Kent County and from \$741,000 and \$1,181,000 in Sussex County.

The range of total economic impacts for Kent County including daily expenditures and extended-trip expenditures was between \$729,000 and \$766,000. The range of total economic impacts for Sussex County including daily and extended-trip spending was between \$2.3 million and \$2.8 million.

Final study results indicate that per-trip expenditures by head/charter-boat anglers contribute significantly to local economies. Spending that occurs in addition to the per-trip boat fees exceeds the price of the fishing trip. This information suggests that if the number of fishing trips decreases or anglers are fewer in number, the resulting loss of economic impact would not only be felt by boat captains, but also by businesses (e.g. restaurants, campgrounds, service stations) within the surrounding local area. It is important for any local business community to be aware of the important role that the head/charter-boat industry can play in a coastal community's economy.

## ACKNOWLEDGMENTS

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Finally, we wish to thank all the fishermen who took the time to complete our questionnaire. Their cooperation has enabled us to further understand the socio-economic complexities of sportfishing.

## INTRODUCTION

The head/charter-boat fishery is a vital component of Delaware's sportfishing industry. Delaware Department of Natural Resources and Environmental Control officials identified approximately 13 head boats and 137 charter boats in 1981 (Moore, 1981). These vessels provide anglers access to important sports species from spring to early fall. The charter and head boats in the state are located at ports in Delaware City, Bowers Beach, Mispillion Inlet, Lewes, and Indian River Inlet.

This report examines a segment of the Delaware head/charter-boat industry in 1982. More specifically, a sample of head/charter-boat anglers who fished out of Bowers Beach, Lewes, and Indian River Inlet were surveyed to determine their fishing activity, certain sociological characteristics, and their economic impact on local communities.

The focus of this study was limited to those head/charter boats with a minimum capacity of 32 passengers. This is a relatively distinct class of boats used normally as head boats or for large charters.\* It does not include another major segment of smaller sportfishing boats used for charters of six or fewer passengers. A count of boats meeting the passenger capacity criterion identified 23 vessels in Delaware for the 1982 fishing season--12 in Kent County and 11 in Sussex County. Six boats are used exclusively as head boats; nine are used interchangeably as head boats and for large charters; and eight are used exclusively for large charters.

This study was conducted to provide information useful to many groups. The socio-economic characteristics of individual anglers could

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\*Definitions of charter boats and head boats vary somewhat in different parts of the country. Charter boats typically refer to 26-50-foot vessels carrying up to six fishermen on a trip reserved and scheduled in advance (Fraser et al., 1977). Head boats (called party boats in other areas) are often 100 feet or longer and carry as many as 100 passengers without reservations (Fraser et al., 1977). In Delaware, several large boats deviate from these definitions and are used for larger charters rather than as head boats some or all of the time. Since these boats are similar to head boats in terms of size, cost per fisherman, and fishing methods and locations, they were included in this study.

be used by charter-boat and head-boat captains in order to learn more about their passengers. This knowledge would enable them to better market and tailor their services to the needs of their customers. The economic impact information provides an estimate of sportfishing-related expenditures made in both Kent and Sussex Counties. The magnitude of these expenditures and consequent value of marine recreational opportunities, such as charter-boat and head-boat fishing, to the state should be considered if fishery management strategies are proposed.

#### OBJECTIVES

1. To describe the nature and purpose of head/charter-boat fishing trips in Delaware during 1982.
2. To describe head/charter-boat fishermen characteristics, their motivations, and their perceptions of fishing quality.
3. To identify the economic activity attributable to head/charter-boat fishing in Kent and Sussex Counties in 1982.

#### RELATED STUDIES

To date, no known research exists that directly examines the charter-boat and/or head-boat industry in Delaware. Researchers in a number of coastal and Great Lakes states, however, have undertaken such studies.

The majority of the research has focused on either charter boats or head boats and has examined the business aspect of the industry through interviews with the boat operators. Such studies have provided useful information for business investment decisions of operators or potential operators. The results of such studies have also been used to determine the number of clientele served and to estimate the economic impact generated by fishing expenses on coastal economies.

As early as 1973, Ditton et al. (1975) examined the economic impact of Wisconsin's charter fishing industry on Lake Michigan. They estimated an economic impact of approximately \$4 million was attributable to the charter-fishing industry in 1973.

The authors also surveyed a sample of charter fishermen who had fished from Wisconsin ports in 1973. They reported that in terms of customer satisfaction with the fishing experience, two features about the trip were found to be the most important: the expectation of the fish catch and the reputation of the captain, with 72% and 77% of the anglers, respectively, ranking these "important" or "very important."

A year later in Florida, Prochaska and Cato (1975) estimated the economic importance of the Northwest Florida Gulf Coast red snapper-grouper party-boat operations. It was estimated that 322,272 trips were made in 1974, accounting for nearly \$7 million in expenditures for trip tickets alone.

In both of these early studies, the business side of the charter-and party-boat operations was also presented. Operators' costs and returns were calculated to show the profitability of the operations.

Ditton et al. (1977) began examining the business structure of Texas Gulf Coast charter operators during the summer of 1974. In addition to a financial examination of the industry in Texas and the resultant economic impact, a select sample of charter-boat customers were mailed survey questionnaires to further inquire about their charter-fishing experiences. Trip satisfaction was also measured for the 46% of sample members who responded to the survey.

In general, a large proportion of Texas charter fishermen responded that they would be satisfied with their fishing trip even if they did not catch fish. This was contingent on finding other fishing motivations such as enjoying the outdoors, having fun, or facing a challenging experience.

Mertens (1977) further identified and described Texas charter-boat fishermen from the same data set used by Ditton et al. (1977). His socio-demographic characteristics of charter fishermen provided charter operators with information useful in understanding their clientele, marketing their services, and providing a better fishing experience for their customers. Mertens (1977) identified the following reasons, in decreasing order of importance, why people go charter fishing: to have fun, to relax, to be with friends, to find tranquility and peace of nature, and to catch fish.

On the West Coast, Washington researchers (Crutchfield and Schelle, 1977) surveyed 1977 salmon "punchcard holders"\* to identify socio-economic characteristics and to derive a measure of net economic benefits and forecast regional economic impact attributable to the charter-boat salmon-fishing industry. The survey response rate was approximately 36.0%. By using a "willingness to pay"\*\* criterion, Crutchfield and Schelle estimated net economic benefits at \$9,643,025 (1978 dollars).

Waldvogel et al. (1978) interviewed party-boat passengers in Monterey Bay (California) to estimate the economic value of the Monterey Bay party-boat industry. The total economic impact in 1978, based on 48,500 passenger trips, was \$3.5 million.

Several studies have examined charter- or head-boat fishing in nearby Mid-Atlantic states, including Virginia. Marshall and Lucy (1981) collected data from a random stratified sample of charter-boat and head-boat captains fishing the Chesapeake Bay and Atlantic Ocean. In terms of number of trips, fish landed, and gross business revenues, they determined charter-boat and head-boat businesses generated an estimated \$7 million in direct and indirect expenditures during 1978.

Williams et al. (1982) reported on saltwater anglers in Maryland tidal waters during the 1979 fishing season. Of 2,600,000 total person-trips, 7% (182,000) were made on party or charter boats. In addition, these anglers spent approximately \$18.6 million during the fishing season from May to December.

In 1976, Murray et al. identified the major problems faced by charter-boat captains in New York State. They reported that high operating costs, unhealthy economic conditions, and overfishing by commercial fishermen were the primary constraints to improving their businesses.

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\*In 1977, the state of Washington required sport salmon fishermen to purchase a salmon fishing license referred to as a punchcard.

\*\*Willingness to pay is a hypothetical concept that attempts to determine the value of a resource to an individual without requiring that the individual actually pay that amount to use the resource (Milon and Johns, 1982).

Finally, some regional studies contain information which provides some perspective on head/charter-boat fishing in Delaware. According to the National Marine Fisheries Service (1980), a total of 1,790,000 party (head)/charter trips took place in the Mid-Atlantic region (New York, New Jersey, Delaware, Maryland, and Virginia) during 1979. However, the survey methodology does not allow for individual state totals. Development Sciences, Inc. (1980) conducted a census of Mid-Atlantic charter- and party-boat captains during 1980 for the Mid-Atlantic Fisheries Management Council. Results were analyzed primarily for the Mid-Atlantic region as a whole; however, raw data are provided for each state. In addition, it provides the average numerical responses to items such as "number of days fishing per week," "number of anglers per trip," and "trip price per customer" for each state. Statewide totals are impossible to estimate from this study because no attempt was made to identify the entire population of boats from which the sample of 19 charter and two party boats was selected.

#### METHODS

Information for this study was collected through a mail survey of head/charter-boat anglers who fished out of Delaware ports during the summer of 1982. In addition, a supplemental survey of boat captains was conducted to determine the number of passengers they carried during the 1982 season.

The type of boat represented in the study is typically 50 feet or longer with a minimum capacity of 32 fishermen. While such boats are usually thought of as headboats, many of them operate as both charter boats and head boats. In some instances, several of the larger vessels in the study were used exclusively for charters. Consequently, this report refers to these boats as head/charter boats and defines them according to their licensed capacity. As a result, smaller charter boats (i.e. six-man charters), which are prevalent throughout the state, are not discussed in this report.

According to the study's definition, 23 boats are included in Delaware's total population. This was confirmed with current advertising material, past records, and personal observations of marine advisory



service specialists. Of these, 12 boats are located within Kent County and 11 within Sussex County. A sample of recent fishing customers was generated from names and addresses provided by boat captains. The sample was drawn from 11 of the 23 boats in the state (six in Kent County, five in Sussex County), which operate out of Bowers Beach (Kent County), Lewes (Sussex County), and Indian River Inlet (Sussex County).\*

A total of 143 charter fishermen and 646 head-boat fishermen were mailed survey questionnaires. The questionnaire solicited information to identify the economic activity attributable to the head/charter-boat industry in the state, to characterize head/charter-boat anglers, and to describe the nature and purpose of the head/charter-boat fishing trip experience. Along with the questionnaire and a postage-paid return envelope, a cover letter was included describing the intent of the survey (see Appendix).

The survey was conducted in three phases as the mailing list was compiled over the summer. That is, three separate groups of fishermen were sent questionnaires throughout the course of the season. The staggered mailings were planned to ensure a short recall period\*\* (three to four weeks or less) and to allow examination of seasonal differences in fishing participation, experience, or expenditures. The exact dates when anglers went fishing were not always available, however, so a complete analysis of seasonality was not possible. Ten days after the initial survey mailings, postcard reminders were sent to those anglers who had not returned the initial questionnaire; and about 12 days later, a second complete questionnaire and cover letter were mailed to those who still had not responded. All survey materials were mailed first class.

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\*These three ports were identified as representative of the charter- and head-boat fishing ports throughout the state. Mispillion Inlet and Bowers Beach are relatively similar in geographic location and similar in fishing operation structure. Bowers Beach was arbitrarily selected over Mispillion Inlet as a survey port.

\*\*There is better assurance that respondents' answers are accurate and reliable when a survey is conducted shortly after an experience has taken place. As described by Deuel (1978), Human Sciences Research, Inc. determined that the longest period over which fishermen displayed accurate memory recall was two months.

Of the 789 questionnaires sent, 76% were returned in usable form (Table 1). This response rate eliminated the need for a detailed follow-up to check non-response bias because it is unlikely that overall study findings would change as a result of adding information on non-respondents.

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Table 1. Questionnaire response

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	Number	Percent
Original sample size	789	100.0%
Nondeliverable	17	
Duplicate names	<u>2</u>	
Effective sample size	770	
Received	590	76.6
Late	3	0.4
Incomplete	<u>4</u>	<u>0.5</u>
Usable	583	75.7%

---

To determine economic impacts, it was necessary to identify the total number of head/charter-boat trips taken from ports in each county during 1982. Since no current use figures were available from existing sources, a supplemental survey was implemented to obtain this information directly from the boat captains. The captain (or owner) of each boat pertinent to the study was mailed a short form asking the number of trips taken during the 1982 season and the average number of passengers per trip. The forms were mailed in September, toward the end of the fishing season, and captains were requested to include in their estimates the trips they expected to take before they closed operations for the year. Follow-up telephone calls were made to those captains who did not

respond by mail. While not all captains were willing to provide this personal information, data were obtained for 11 of the 23 boats in the state.

To estimate the total number of head/charter-boat trips taken during the 1982 season, responses for the 11 boats with reported use levels were extrapolated to the population of 23 boats in the following manner. The average number of trips and number of passengers per trip were calculated across the sample of 11 boats. The number of passengers per trip was converted to percentage occupancy (based on licensed capacity). These average figures were then applied to each boat whose captain had provided no figures. The total number of person-trips made in each county was estimated by combining the estimates provided by the captains and the estimates calculated through extrapolation to represent all 23 boats.

The results of these calculations should be considered estimates using the best data available at the time of the study. The accuracy of these estimates was examined by comparing them against unpublished fishing effort statistics collected by the Delaware Department of Natural Resources and Environmental Control, Division of Fish and Wildlife, for the same time period. While an exact comparison between these data sources was not possible due to confidentiality of individual records, the estimates of the total number of fishing trips were consistent between the two surveys.

To further understand the accuracy of frequency distributions and population estimates in this report, it is necessary to consider the number of cases on which the particular findings are based. As a general rule, the larger the sample, the more likely that the results are a true representation of the population from which the sample was selected. A rule of thumb for interpreting results based on the number of respondents in this study would be to accept with 95% confidence that the results for the sample are within about five percent above or below the true population values.

Because the sample strategy in this study did not ensure proportional representation of the various fishing ports in the state, analyses were conducted to examine differences between ports. For analytic purposes,

ports were grouped and compared according to county. Where differences between port counties were found, the comparative analyses are presented in this report. For variables that did not differ by port county, other comparisons are presented. For example, while no differences in the socio-economic characteristics of customers were found between ports, some interesting differences in characteristics were observed when head-boat fishermen were compared to anglers on chartered boats. Similarly, motivations of fishermen were consistent between ports, but varied across age groups and income categories. All statistical comparisons were made using conventional statistical tests (chi square for categorical variables, one-way analysis of variance for continuous data).

## RESULTS

### Head/Charter-Boat Fishing Participation

This section reveals descriptive information relative to fishermen taking part in a head/charter-boat fishing experience. Respondents answered survey questions that ranged from asking their geographic origin to why they selected a particular fishing boat.

Information obtained from the survey of captains and extrapolated to the full population of applicable boats indicated a total of 65,392 head/charter-boat fishing trips were made in 1982. Thirty-seven percent (24,120) of these trips were from Kent County ports, while the remaining 63% (41,272) were from Sussex County ports.

### Origin of Fishermen

Most head/charter-boat fishermen were visitors to the port county where they fished (Table 2). Only 7% of Kent County fishermen and 3% of Sussex County fishermen were residents of the county in which they fished. Kent County ports showed a higher proportion of Delaware residents, with 25% of their anglers coming from neighboring New Castle County. Sussex County attracted more out-of-state visitors, 87% compared to 67% for Kent County, and from a wider variety of states. It is noteworthy that nearly half of the fishermen in both counties came from Pennsylvania. Maryland contributed another 14% and 24% of the

head/charter-boat fishermen at Kent and Sussex ports, respectively. Fishermen in the sample came from 18 states, from Maine to Florida and as far west as Arkansas.

Table 2. Geographic origin of head/charter-boat fishermen  
(chi square = 62.1, degrees of freedom = 5, p <.01)

Origin of Fishermen	Port County	
	Kent (n = 339)	Sussex (n = 237)
Kent County, Delaware	7.4%	1.3%
Sussex County, Delaware	0.6	3.0
New Castle County, Delaware	25.3	8.4
Maryland	13.6	24.1
Pennsylvania	48.7	48.9
Other states	4.4	14.3
	100.0%	100.0%

Differences between ports were further reflected in the distances fishermen traveled between their home and the county fishing ports (Table 3). A majority (62%) of anglers in Kent County and 19% of anglers in Sussex County traveled less than 100 miles. Fishermen at Kent County ports traveled an average of 103 miles; fishermen at Sussex County ports traveled an average of 179 miles.

Table 3. Distance traveled from home to fishing port  
(chi square = 110.9, degrees of freedom = 3,  $p < .01$ )

Distance Traveled	Port County	
	Kent (n = 327)	Sussex (n = 223)
Less than 100 miles	62.4%	18.8%
100-199 miles	30.9	53.8
200-299 miles	3.0	13.0
300 or more miles	3.7	14.4
	100.0%	100.0%

#### Fishing Group Composition

Few individuals fished alone, most fished in groups of from 2 to 41 people. Most customers in both counties came in groups of four or less (Table 4). However, a greater proportion of Kent County fishermen came in relatively large parties of seven or more. The average party size was seven for Kent County ports and four for Sussex County ports.

Table 4. Size of groups participating in head/charter-boat fishing trips (chi square = 30.0, degrees of freedom = 3,  $p < .01$ )

Size of Group	Port County	
	Kent (n = 332)	Sussex (n = 236)
1-2 people	31.9%	38.1%
3-4 people	25.6	35.6
5-6 people	10.0	13.6
7 or more people	32.5	12.7
	100.0%	100.0%

The two port counties also varied in the type of group they attracted (Table 5). Family groups and groups of friends accounted for most fishing parties at both ports, but groups of friends made up a larger portion of the clientele at Sussex ports while business associates fishing together were slightly more common in Kent County.

Table 5. Type of groups participating in head/charter-boat fishing trips (chi square = 13.8, degrees of freedom = 5,  $p < .05$ )

Type of Group	Port County	
	Kent (n = 332)	Sussex (n = 236)
Family	25.1%	24.2%
Friends	34.6	43.6
Alone	6.5	7.6
Family and friends	20.7	19.9
Business associates	8.0	3.4
Combinations of group types	5.1	1.3
	100.0%	100.0%

#### Reasons for Boat Selection

Fishing customers reported a variety of reasons for selecting the particular boats they used. Table 6 shows the percentage of fishermen who indicated each of five possible responses provided on the questionnaire as well as those who wrote in other reasons. Since most (86%) of the customers were experienced head/charter-boat fishermen, it is not surprising that the most important reasons for boat selection were related to the previous performance and reputation of the boat. Past success was the most frequently mentioned reason, followed closely by the good reputation of the boat. More than one-third of the fishermen said they selected a boat on the recommendation of others. Relatively few fishermen indicated that their selection resulted from advertising in newspapers or from exhibits at outdoor shows.

Table 6. Reasons for selection of boats used for head/charter-boat fishing trips

Reason for Boat Selection	Port County	
	Kent (n = 338)	Sussex (n = 237)
Recommendation of others	34.3%	36.3%
Success in past	55.3	50.2
Good reputation	47.3	42.6
Newspaper advertisement	3.6	6.3
Reserved at outdoor show	1.2	0.8
Other	25.7	23.6

These responses suggest that the head/charter-boat clientele respond mainly to informal and word-of-mouth communications, with no significant variation between port counties.

About one-fourth of the fishermen in each county wrote in additional reasons for boat selection. The most common responses given were the qualities of the boat captain and crew (12.8%) and the convenience and availability of the boat (6.8%).

Reasons for boat selection varied between charter-boat fishermen and head-boat fishermen. Charter-boat fishermen were more likely than head-boat fishermen to base their selection on success in the past (67.0% vs. 49.9%) and good reputation (56.9% vs. 42.6%). Head-boat fishermen rated newspaper ads (5.2% vs. 2.8%) and availability/convenience (7.3% vs. 3.6%) as more important reasons for boat selection than did charter-boat anglers.

#### Fishing Trip Characteristics

Most head/charter-boat fishing trips involved visitors making a day trip to the area for the purpose of fishing. A substantial minority of the fishermen, however, were participating in head/charter-boat trips as part of a longer overnight visit to the coastal area. Ten percent of the Kent County fishermen and 42% from Sussex County reported that fishing was only part of a longer visit to the Delaware coast.



Among those who made extended visits, most stayed in the area less than eight nights (Table 7). The average length of stay was about four nights. Overnight visitors used a variety of accommodations (Table 8). Visitors to Kent County, while fewer in number, were likely to stay in hotels or motels or with friends and relatives. Sussex County visitors used a wider variety of accommodations, with larger proportions using homes or apartments that they own or rent seasonally. About one-fifth of the visitors to both counties used campgrounds, while 25% to 30% used hotel/motel facilities.

Table 7. Number of nights spent in coastal area by head/charter-boat fishermen (chi square = 75.3, degrees of freedom = 4,  $p < .01$ )

Number of Nights	Port County	
	Kent (n = 332)	Sussex (n = 233)
0	90.1%	57.5%
1-2	4.3	16.7
3-4	3.0	9.9
5-7	1.9	10.7
8 or more	0.7	5.2
	100.0%	100.0%

Table 8. Type of lodging accommodations used by head/charter-boat fishermen (chi square = 6.0, degrees of freedom = 5, p = n.s.)

Type of Accommodations	Port County	
	Kent (n = 33)	Sussex (n = 95)
Own home	0.0%	7.4%
Hotel/motel	30.3	25.3
Campground	18.2	20.0
Friends/relatives	33.3	18.9
Seasonally rented home/apartment	9.1	15.8
Other and combinations	9.1	12.6
	100.0%	100.0%

Several questions were asked to identify how head/charter-boat fishing fits into longer visits to the coast. About one-third of the visiting parties spent more than one day of their trip on head/charter boats (Table 9). Nearly 20% of those on extended visits in Sussex County spent three or more days head/charter-boat fishing.

Table 9. Number of days spent head/charter-boat fishing during extended visits to the coastal area (chi square = 6.9, degrees of freedom = 3, p < .10)

Number of Days	Port County	
	Kent (n = 33)	Sussex (n = 96)
1	63.6%	66.7%
2	30.3	14.6
3-4	6.1	8.3
5 or more	0.0	10.4
	100.0%	100.0%

To further clarify the role of head/charter-boat fishing during extended visits, the number of days spent fishing on these boats was compared to the total number of days spent in the area. Fishermen in both port counties reported spending an average of 41% of their visiting days in the area on head/charter boats.

Similarly, the proportion of actual anglers within the visiting groups was calculated. Of the group members on extended visits 89% and 75%, in Kent and Sussex County, respectively, participated in the fishing trips. These two comparisons suggest that head/charter-boat fishing is an important element of these extended visits to the Delaware coastal area.

In order to place head/charter-boat fishing into an overall trip perspective, respondents were also asked if this mode of fishing was the main reason for their visit to the area, and how their trip plans would have changed if there were no head/charter boats in this area. Responses reaffirmed the important role of fishing during the longer visits. Two-thirds of the fishermen indicated head/charter-boat fishing was the main reason for their visit to the area and only 32% said they would have come to the same coastal area if there were no available boats there.

#### Head/Charter-Boat Fishermen Characteristics

A series of questions sought to identify distinguishing traits, qualities, or habits of head/charter-boat anglers. The following analysis discusses socio-economic variables, general fishing practices, and specific motives for head/charter-boat fishing.

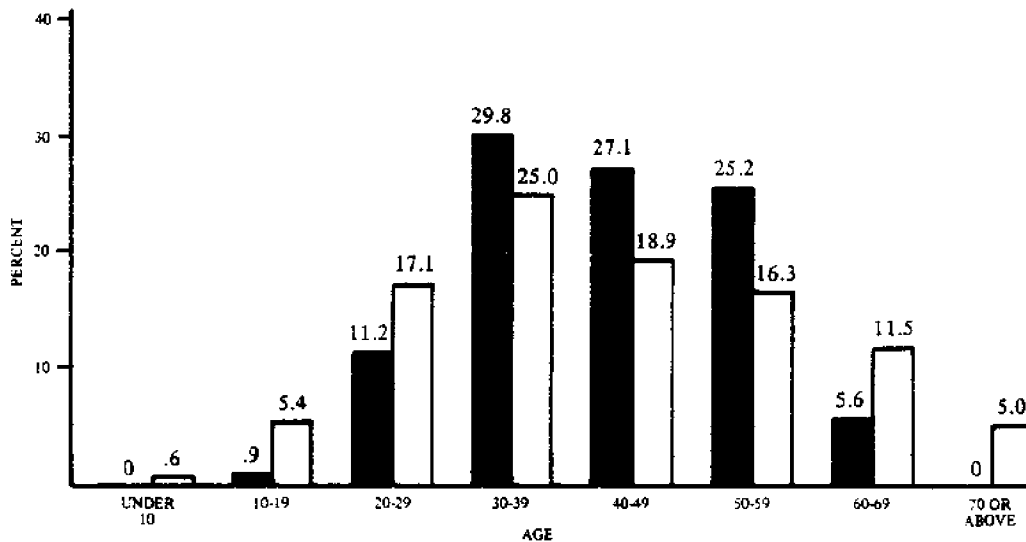
#### Socio-Economic Characteristics

Socio-economic characteristics of head/charter-boat anglers were analyzed by port and by type of trip (charter or head). There were no significant differences between the fishermen when fishing port selection was the criterion for comparison. However, significant differences were evident when comparisons were made between charter-boat anglers and head-boat anglers.

Respondents ranged in age from 8 to 86 years old with the largest percentage of fishermen (26%) between 30 and 39 years of age (Figure 1). The average age among the responding fishermen was 42 years. When age comparisons were made between charter-boat anglers and head-boat anglers, few significant differences were identified. Charter fishermen were more typically between the ages of 30 and 59 (82% to 60%), whereas head-boat anglers were more likely to be under 30 and over 60 years (40% to 18%).

Figure 1. Age comparison between charter- and head-boat fishermen (chi square = 25.8, degrees of freedom = 7,  $p < .05$ )

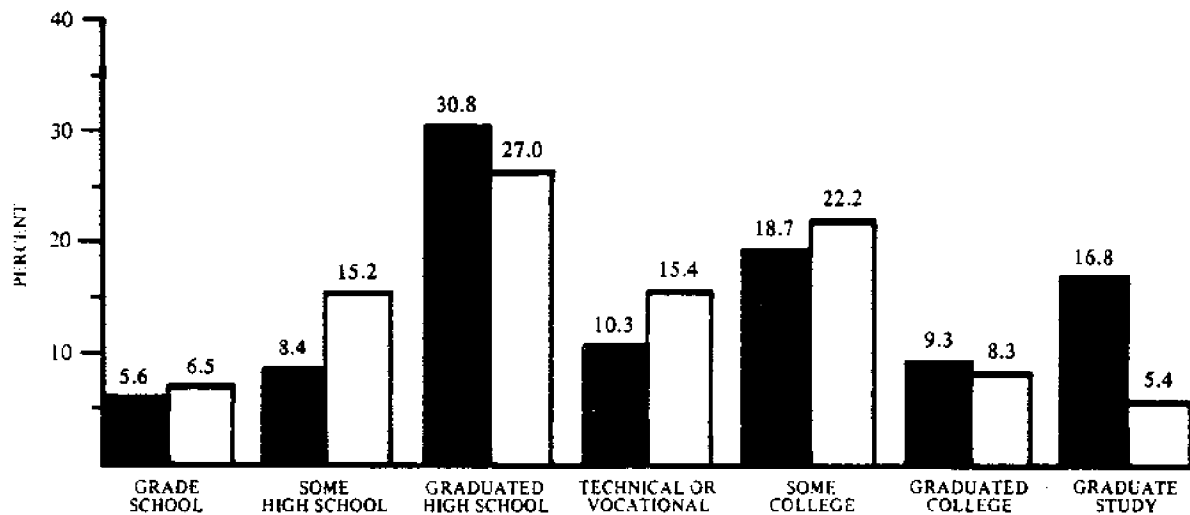
- - Charter-boat fishermen (n = 107)
- - Head-boat fishermen (n = 459)



A comparison of education level shows that, overall, charter-boat fishermen have more college education than head-boat fishermen (Figure 2). Approximately 45% of charter fishermen responded that they had attended some college, graduated college, or engaged in graduate study. Among the head-boat respondents, 36% reported that they had similar education. More than 50% of both groups, however, reported advanced educational training beyond the high school level. The most noteworthy difference occurred among fishermen who had attended graduate school; 17.0% of the charter-boat fishermen and slightly more than 5% of the head-boat fishermen reported attaining this level.

Figure 2. Education level comparisons between charter-boat fishermen and head-boat fishermen (chi square = 18.6, degrees of freedom = 6,  $p < .01$ )

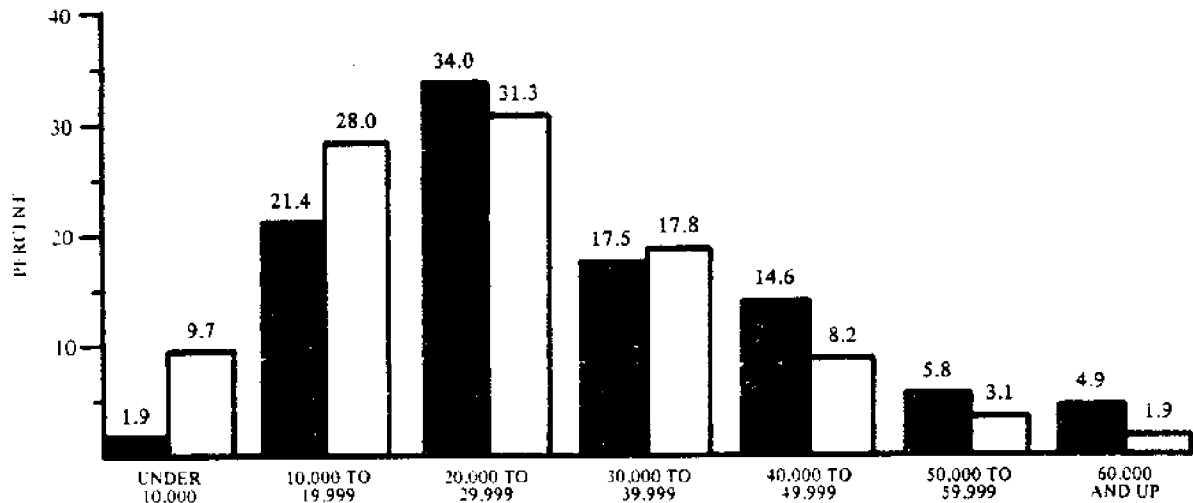
- - Charter-boat fishermen (n = 107)
- - Head-boat fishermen (n = 460)



Annual household income before taxes was most often between \$20,000 and \$30,000 for both charter-boat fishermen and head-boat fishermen (Figure 3). Thirty-four percent of the charter-boat fishermen and 31% of the head-boat fishermen reported incomes in this range. Approximately 42% of the charter-boat anglers listed incomes higher than \$30,000, and approximately 31% of the head-boat anglers reported the same. More than 37% of those fishermen using head boats reported incomes below \$20,000 whereas about 23% of those anglers fishing on charter boats reported the same income level.

Figure 3. Income level comparisons between charter-boat fishermen and head-boat fishermen (chi square = 15.2, degrees of freedom = 6,  $p < .05$ )

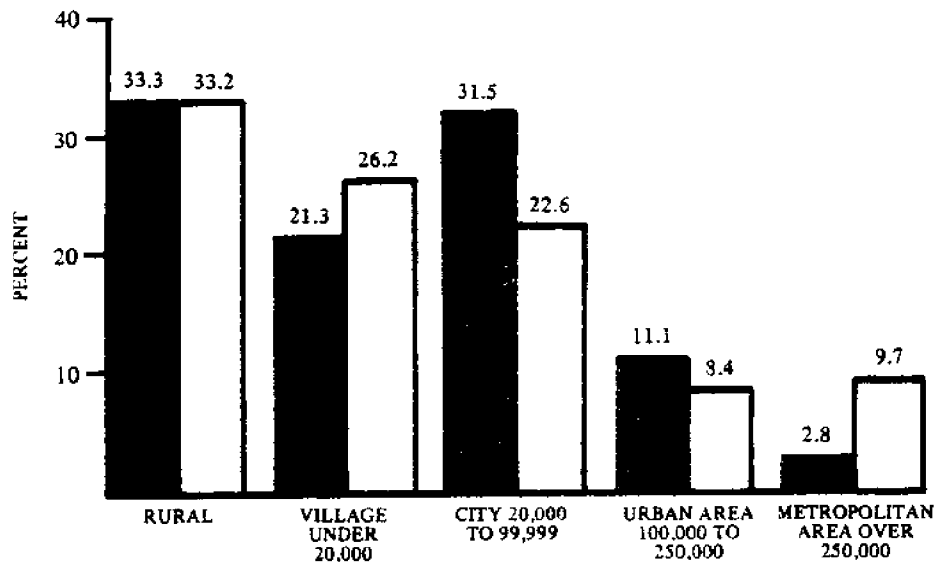
- - Charter-boat fishermen (n = 103)
- - Head-boat fishermen (n = 415)



Very few fishermen lived in urban or metropolitan areas (Figure 4). It is noteworthy that while Kent and Sussex County fishing ports are relatively close to several major urban centers, 86% of the charter-boat fishermen and 82% of the head-boat fishermen lived in towns with populations below 100,000. It is also noteworthy that approximately one-third of all the fishermen lived in rural areas.

Figure 4. Type of residence comparisons between charter-boat fishermen and head-boat fishermen (chi square = 11.0, degrees of freedom = 4,  $p < .05$ )

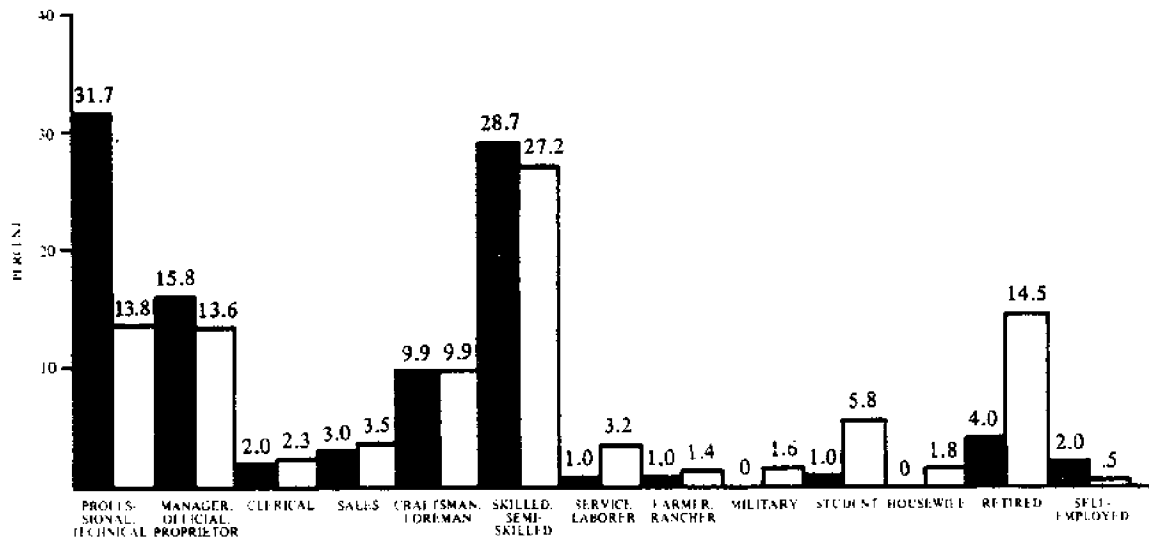
- - Charter-boat fishermen (n = 108)
- - Head-boat fishermen (n = 455)



Blue-collar occupations accounted for 40% of the charter-boat fishermen's professions and slightly more than 40% of the head-boat fishermen's professions. Included here were the categories of "craftsman, foreman," "skilled, semi-skilled," and "service laborer." Professional or white-collar occupations such as business executives or managers and proprietors accounted for 46% of the charter-boat fishermen and 27% of the head-boat fishermen. The difference in the proportion of charter- and head-boat fishermen who reported their occupations as professional or technical are quite significant, 32% versus 14%, respectively. In addition, retired individuals more often reported fishing on head boats (14.5%) than on charter boats (4.0%).

Figure 5. Occupation comparisons between charter-boat fishermen and head-boat fishermen (chi square = 34.0, degrees of freedom = 13,  $p < .01$ )

- - Charter-boat fishermen (n = 101)
- - Head-boat fishermen (n = 434)





### General Fishing Habits

Most of the head/charter-boat fishermen reported an average fishing experience of 24 years. In addition to their charter- and head-boat fishing practices, 45% of the respondents reported that they had fished in saltwater from private boats during the past 12 months. Forty-four percent reported saltwater fishing from piers, shore, or surf; and 52% mentioned that they had fished in freshwater during the past year.

Respondents reported fishing an average of 27 days during the previous year. Of this total, 10 days were devoted to head/charter-boat fishing or private-boat saltwater fishing. Five days were spent saltwater pier, shore, or wade fishing; and 12 days were spent freshwater fishing.

Almost 29% of the respondents owned at least one boat of their own. When comparisons were made between ports, one-third of the fishermen from Sussex County ports owned at least one boat, whereas only one-quarter of the fishermen who fished out of Kent County owned at least one boat. Respondents overall also owned, on the average, six rod-and-reel combinations.

In addition to daily fishing expenses, each head/charter-boat fisherman spent an average of \$233 during the past year for durable fishing equipment. Of this, a typical respondent spent \$63 on reels and \$55 on rods. He also spent \$38 on tackle. Various other accessories and equipment costs totaled \$77 for the year.

Head/charter-boat fishermen were also asked questions regarding other fishing-related activities. Only 11% belonged to a fishing club. Forty-one percent subscribed to at least one outdoor or fishing magazine. Of the magazines mentioned, the top three are all nationally published magazines: Outdoor Life, Field and Stream, and Sports Afield. Fifty-two percent of the fishermen read outdoor columns in the paper regularly; 41% read them occasionally; and only 6% never read outdoor columns.

In addition, 37% of the respondents regularly watched outdoor or fishing programs on television; another 56% occasionally watched them; and 6% never watched outdoor or fishing programs.

### Fishing Motives

Survey participants were asked to indicate how important several motives were for going on a charter- or head-boat fishing trip. The response format ranged from "not at all important" (1) to "extremely important" (5). The results are presented in Table 10 in order of decreasing average importance. Most fishermen considered getting away from the regular routine the most important reason for participating in charter- or head-boat fishing. Almost as important were reasons such as relaxation and the desire to be outdoors. Participants also ranked the experience of the catch and the challenge or sport of fishing as very important reasons for fishing on charter or head boats. Most fishermen rated being with friends as very or extremely important, yet assigned only moderate importance to charter- or head-boat fishing as a means of family recreation. A majority of fishermen noted that head/charter-boat trips were moderately to very important as a convenient way to go fishing. However, they were not certain that this mode of fishing was going to assure them of catching fish. The assurance of a catch was only slightly to moderately important. The lowest ranking variable was that of testing equipment. It is apparent that most fishermen are confident of their equipment and don't use these trips for practice purposes. Overall, it was also only moderately important that the fishermen caught fish for eating.

Head/charter-boat fishermen from different income brackets and age levels tended to fish for different reasons (Tables 11 and 12). For instance, lower-income fishermen tended to fish on charter/head boats to obtain fish for eating more often than did higher-income fishermen. Lower-income fishermen also felt head/charter-boat fishing provided them more assurance of catching fish than did higher-income fishermen.

Age also seems to suggest reasons why anglers participate in head/charter-boat fishing. Fishermen over 70 years of age placed more importance on obtaining fish for eating. The older fishermen were more apt to use a charter- or head-boat fishing trip to test equipment than were younger anglers. Relative to younger fishermen, older fishermen also felt head/charter-boat fishing is a convenient way to fish and felt more assured of catching fish.

Table 10. Average motive response by charter vs. head-boat fishermen

	Not At All Important 1	Slightly Important 2	Moderately Important 3	Very Important 4	Extremely Important 5
Head/Charter-Boat Fishing Motives				Charter-Boat Fishermen (n = 103)	Head-Boat Fishermen (n = 432)
*Get away from regular routine				4.4	4.1
Relaxation				4.2	4.1
To be outdoors				4.2	4.0
*To be with friends				4.1	3.6
Challenge or sport				4.0	3.9
Experience of catch				3.9	3.9
Experience natural surroundings				3.7	3.6
Convenient fishing				3.3	3.4
Fish for eating				3.1	3.2
Develop skills				3.1	3.1
*Family recreation				3.0	3.3
Physical exercise				2.5	2.6
Assurance of catch				2.5	2.6
Obtain trophy fish				2.4	2.5
Test equipment				1.9	2.0

\*Denotes statistically significant difference at .05 level using one-way analysis of variance.

Table 11. Average importance of head/charter-boat fishing motives by income

	Not At All Important	Slightly Important	Moderately Important	Very Important	Extremely Important		
	1	2	3	4	5		
Head/Charter-Boat Fishing Motives	Under \$10,000 (n=34)	\$10,000- \$19,999 (n=129)	\$20,000- \$29,999 (n=163)	\$30,000- \$39,999 (n=89)	\$40,000- \$49,999 (n=48)	\$50,000- \$59,999 (n=18)	\$60,000- & above (n=13)
To be outdoors	4.2	4.0	4.1	4.0	4.0	4.1	3.7
For relaxation	4.3	4.1	4.1	4.1	4.2	4.4	4.2
Get away from regular routine	4.0	4.3	4.2	4.2	4.3	4.4	4.2
Challenge or sport	4.0	4.1	4.0	3.8	3.8	3.8	4.1
*Family recreation	4.0	3.3	3.2	3.3	2.9	2.8	3.4
*Obtain fish for eating	4.0	3.4	3.2	2.1	3.0	2.7	2.5
*Physical exercise	3.3	2.7	2.5	2.4	2.2	2.3	2.5
Be with friends	3.8	3.9	3.7	3.6	3.9	3.7	3.6
Experience of catch	3.9	4.0	3.9	3.8	3.8	3.7	4.0
Obtain trophy fish	3.2	2.6	2.5	2.1	2.5	2.1	2.2
Experience natural surroundings	3.6	3.6	3.6	3.8	3.4	4.0	3.6
Develop skills	3.4	3.2	3.1	3.2	2.8	2.9	2.7
Convenient fishing	3.4	3.6	3.3	3.4	3.5	3.4	3.2
Test equipment	2.4	2.1	1.9	2.0	1.7	1.9	1.7
*Assurance of catch	3.2	2.8	2.5	2.4	2.6	2.5	2.3

\*Denotes statistically significant difference at .05 level using one-way analysis of variance.



### Perceptions of Head/Charter-Boat Fishing Quality

Because fishing quality is difficult to measure and can mean different things to different people, several approaches were taken to characterize the quality of Delaware head/charter-boat trips during 1982. Fishermen were asked to report the number of fish caught individually and by their group, and the type of fish caught. A series of questions obtained fishermen's subjective ratings of the trip in general and particular aspects of the trip. Finally, open-ended questions probed what fishermen liked most and least about their fishing trip.

#### Catch Rates

Table 13 shows the reported number of fish caught by individuals during their head/charter-boat trips. Fishermen at Sussex County ports were significantly more successful, with 71% reporting some catch, than fishermen in Kent County, with 55% reporting some catch. On the average, Sussex County fishermen caught 2.8 fish per trip and Kent County fishermen caught 2.0 fish. The number of fish caught per fishing group was more consistent between counties (Table 14). Eighty-three percent of Kent County parties and 88% of Sussex County parties reported some catch. About 30% of the groups in both counties reported catches of more than 10 fish. The average number of fish caught per fishing group was 13.4 in Kent County and 13.8 in Sussex County.

#### Satisfaction Ratings

Several questions probed fishermen's overall level of satisfaction with their head/charter-boat fishing experience. On a six-point scale ranging from poor to perfect, about two-thirds of the fishermen rated their trips relatively low (Table 15). Only about one-third rated their trips in the good-to-perfect range. In spite of the difference in personal catch rates between Kent and Sussex Counties, there was no significant difference in the overall trip ratings between counties.

Table 16 reports fishermen's responses to six additional measures of satisfaction with the head/charter-boat fishing experience. These measures were included to provide a more reliable and precise measurement

Table 13. Reported number of fish caught by individual head/charter-boat fishermen (chi square = 18.9, degrees of freedom = 4,  $p < .01$ )

Number of Fish	Port County	
	Kent (n = 337)	Sussex (n = 235)
0	44.8%	28.9%
1-2	29.7	33.2
3-4	11.9	18.3
5-6	4.7	9.8
7 or more	8.9	9.8
	100.0%	100.0%

Table 14. Reported total number of fish caught by head/charter-boat fishing groups (chi square = 7.9, degrees of freedom = 6,  $p = n.s.$ )

Number of Fish	Port County	
	Kent (n = 331)	Sussex (n = 230)
0	17.2%	12.2%
1- 2	14.8	16.1
3- 4	11.8	19.1
5- 6	9.4	9.1
7-10	14.2	13.5
11-20	15.1	13.0
21 or more	17.5	17.0
	100.0%	100.0%

Table 15. Overall trip ratings by head/charter-boat fishermen  
(chi square = 4.9, degrees of freedom = 5, p = n.s.)

Overall Trip Rating	Port County	
	Kent (n = 333)	Sussex (n = 236)
Poor	41.8%	38.6%
Fair	24.0	24.1
Good	19.8	21.6
Very good	9.6	8.1
Excellent	3.3	6.8
Perfect	1.5	0.8
	100.0%	100.0%



of fishermen's perceptions of their trips. Each statement asks the respondent to evaluate his or her overall fishing experience from a different perspective. In addition, increased reliability results from wording some statements negatively (i.e. agreement with the statement means lower satisfaction, as in statements 2, 4, and 5).

Responses in Table 16 indicate a higher level of satisfaction than that found in the single, overall trip rating (Table 15). The majority of the fishermen agreed that they thoroughly enjoyed the trip and that the trip was well worth the money they spent on it. Regarding the statement that the trip "was not as enjoyable" as they had expected it to be, most of the fishermen did not believe their trip was the best one they could imagine, but most did indicate that they wanted to go on more fishing trips like it.

Tables 17 and 18 provide some insights into what influences fishermen's perceptions of satisfaction or dissatisfaction. Table 17 reports responses to open-ended questions probing what fishermen liked most and least about their head/charter-boat trips. All factors mentioned by at least 5% of the respondents are included in the table. There was somewhat more diversity in the trip high points as compared to the low points reported by fishermen. More than one-fifth of the respondents indicated that the boat captain and crew were the best aspect of their trip. Social aspects of the experience were the second-most commonly reported high points; and many fishermen identified the opportunity just to be outdoors, in good weather, in a relaxing atmosphere, or just to get away. Catching fish was mentioned as a trip high point by only 11.7% of the fishermen.

Concerning what fishermen liked least about their trips, almost one-half of the respondents indicated the lack of fish. Bad weather and qualities of the captain and crew were the only other factors mentioned by at least 5% of the fishermen. That the three trip low points for some fishermen were the same factors that were reported as high points for other fishermen suggests these variables are important elements of the experience for head/charter-boat fishermen.

Table 16. Head/charter-boat fishermen responses to general satisfaction statements  
(n = 522)

Satisfaction Measures	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean
	1	2	3	4	5	6	7	8	9		
1. I thoroughly enjoyed the fishing trip.	5	8	20	39	28						3.7
2. The fishing trip was not as enjoyable as I expected it to be.	17	28	15	26	14						2.9
3. I cannot imagine a better fishing trip.	32	34	20	10	4						2.2
4. I do not want to go on any more fishing trips like this one.	36	25	14	13	12						2.4
5. I was disappointed with some aspects of the fishing trip.	11	20	17	35	17						3.3
6. The fishing trip was well worth the money I spent to take it.	12	14	21	32	20						3.3

(Values given are percentages.)

Table 17. Open-ended responses on what fishermen liked most and least about their head/charter-boat trips

Trip High Points	Percent of Fishermen (n = 512)
Qualities of boat captain and crew	21.2%
Being with friends	16.6
Being outdoors or on the water	14.9
Catching fish	11.7
Good weather	11.2
Boat ride	8.4
Relaxing	6.6
Just fishing	6.0
Getting away	5.1

Trip Low Points	Percent of Fishermen (n = 512)
No fish	48.5%
Bad weather or rough seas	19.4
Qualities of boat captain and crew	8.7

Table 18. Head/charter-boat trip characteristics by overall trip rating

Trip Characteristics	Overall Trip Rating				
	Poor (n = 230)	Fair (n = 137)	Good (n = 116)	Very Good (n = 50)	Excellent or Perfect (n = 33)
Average number of fish caught personally	1.1	2.7	3.0	3.6	4.8
Average number of fish caught by group	6.4	17.4	18.3	17.3	24.5
Trip high points	(Values given are percentages.)				
Qualities of boat captain and crew	21.0	18.0	23.0	20.0	32.0
Being with friends	16.0	17.0	16.0	18.0	18.0
Being outdoors or on the water	11.0	18.0	19.0	20.0	9.0
Catching fish	3.0	10.0	24.0	26.0	21.0
Good weather	13.0	11.0	11.0	6.0	9.0
Boat ride	12.0	6.0	9.0	6.0	0.0
Relaxing	4.0	11.0	7.0	10.0	3.0
Just fishing	5.0	6.0	8.0	4.0	9.0
Getting away	4.0	7.0	6.0	6.0	3.0
Trip low points	(Values given are percentages.)				
No fish	63.0	48.0	35.0	31.0	24.0
Bad weather or rough seas	21.0	17.0	21.0	24.0	12.0
Qualities of boat captain or crew	10.0	10.0	8.0	6.0	0.0

Comparing how fishermen rate specific trip attributes with how they rate the overall trip helps to understand what factors contribute most to fishermen's overall satisfaction (Table 18). Not surprisingly, the trip ratings seemed to improve steadily as the number of fish caught individually and by the group increased. Those fishermen who rated the overall trip poor or excellent had catch rates that were below or above average, respectively. Those who rated the overall trip fair to very good all reported relatively similar catch rates.

Other aspects of the fishing trip also varied across trip-rating categories, as indicated by the trip high and low points shown in Table 18. Some reported high points, including being with friends, just fishing, and getting away, showed little variation between overall trip-rating categories. Catching fish showed the widest range of response as a trip high point or low point.

Those reporting poor overall trips still indicated that there were high points during the trip. This group was more likely than those reporting higher overall trip ratings to mention good weather or the boat ride as what they liked most about their trip. Thus it seems, as some other studies have suggested, that various personal and social aspects of the trip can lead to a positive experience, even without catching fish.

Those reporting excellent or perfect trips were least likely to mention any low points, though it is noteworthy that 24% of these fishermen reported an excellent or perfect rating even though catching no fish was the feature they liked least about the trip. Fishermen who gave better overall trip ratings were also the most likely to emphasize the qualities of the captain and crew as a trip high point and the least likely to mention bad weather or rough seas as a low point.

### Summary

Fishing quality has been examined in terms of observable trip characteristics and subjective ratings by fishermen. Results suggest that fishermen's overall trip ratings are strongly tied to success in

catching fish, as well as qualities of the boat crew and weather conditions. When asked additional questions about how satisfied they were with their experiences, however, fishermen tended to indicate higher satisfaction and greater willingness to return than their overall trip ratings implied.

### Economic Aspects of Head/Charter-Boat Fishing

This section describes the economic activity related to Delaware head/charter-boat fishing, including an analysis of two major types of expenditures. The first type includes the variety of expenses incurred during a typical fishing day (e.g. boat fees, bait and tackle, food and beverages, transportation). The second type includes expenditures for restaurant meals, lodging, entertainment, and shopping by head/charter-boat fishing groups who fish during a longer visit to the Delaware coast.

Anglers were requested to estimate their individual expenses for the fishing day for boat fees, tips for the boat mates, ice, bait and tackle, snack foods and beverages, restaurant meals, and gasoline and car expenses. They also indicated where each item was purchased, whether in the Delaware coastal area or at home or enroute (prior to arrival).

Fishermen on extended visits to the Delaware coastal area were also asked to estimate expenses incurred by their group during their entire visit, including costs other than those directly associated with the fishing trip. Respondents were asked to estimate additional expenses for restaurants, lodging, entertainment, shopping, and other items. Since most fishermen came in family groups or with friends, they were asked to estimate the amount spent by the entire group.

The following sections document spending patterns for each of these types of expenditures, and the impact on the local coastal counties. The analysis of daily fishing expenditures focuses on what county the money is spent in and where it originated. The section concerning extended-trip expenses includes a discussion of the portion of total spending which should be included in the economic impact of head/charter-boat fishing. The analysis examines two alternative approaches to attributing extended-visit costs to head/charter-boat fishing opportunities.

### Spending Patterns

Daily Fishing Expenses. Table 19 presents the spending patterns of anglers in Kent and Sussex Counties for daily fishing expenses. The table reports the percent of fishermen who purchased various items and the average amount spent for each. In addition to boat fees, which all anglers incurred, a majority of Kent County anglers tipped their mates and purchased ice, snack foods, beverages, and gas for the trip. The majority of anglers in Sussex County bought bait, tackle and equipment, snack foods, beverages, restaurant meals, and gas. It is interesting to note that over two-thirds of the fishermen in Kent County tipped their mates, while barely one-quarter tipped in Sussex County. The average expenditure for these items varied between counties and was higher in Sussex County for every item except snack foods and beverages.

Figure 6 illustrates the distribution of total daily spending by head/charter-boat fishermen in Kent and Sussex Counties. Total fishermen expenditures in Sussex County were more than twice those in Kent County. In both counties, boat fees accounted for the largest proportion of daily expenses; and gasoline and car expenses ranked second. Restaurant meals ranked third in Sussex County; snack foods and beverages ranked third in Kent County. Bait, tackle, and equipment ranked fourth in both counties.

Extended-Trip Expenses. As noted elsewhere in this report, a substantial minority of head/charter-boat customers (10% for Kent County and 42% for Sussex County) indicated they were fishing during a longer visit to the Delaware coast. Table 20 illustrates the spending patterns of these fishermen for a variety of trip expenses in addition to their daily fishing costs. Not all visiting parties purchased items in each category shown in Table 20. The greatest number of visitors in both counties reported restaurant expenditures. Lodging expenses were incurred by fewer fishermen, but the total amount spent for lodging was comparable to that spent in restaurants because of the relatively higher costs of lodging per visiting group. Total extended-trip expenses were many times higher in Sussex County than in Kent County because there were more Sussex County fishermen, a larger proportion of them were on extended visits to the area, and they tended to spend more than their Kent County

Table 19. Spending patterns by county for those anglers who purchased each item\*\*

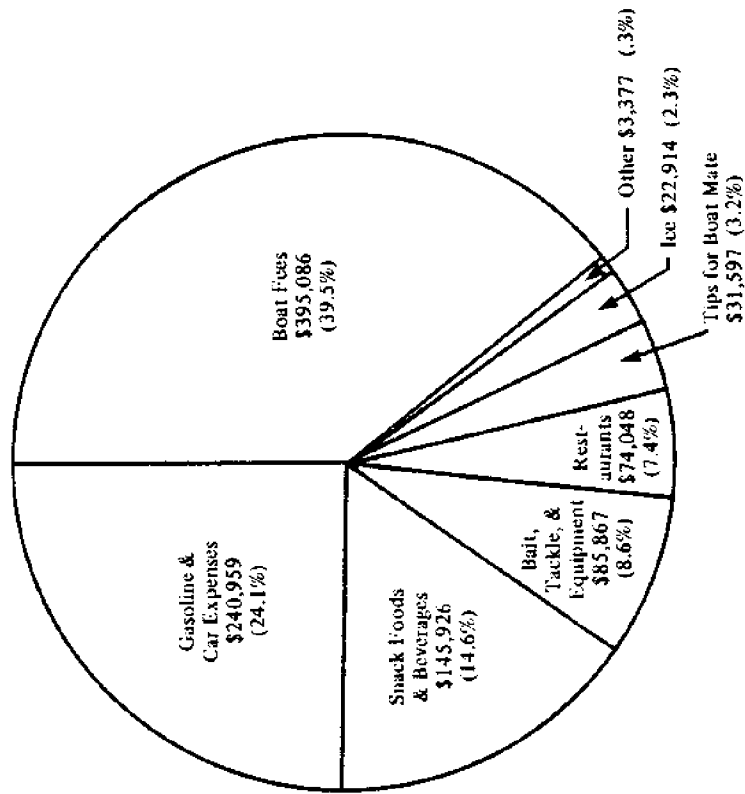
Type of Purchase	K e n t		S u s s e x	
	Percent of Anglers Who Purchased Each Item	Average Amount Spent by Anglers Who Purchased Each Item	Percent of Anglers Who Purchased Each Item	Average Amount Spent by Anglers Who Purchased Each Item
*Boat fees	100.0%	\$16.48	100.0%	\$18.02
*Tips for boat mates	64.3	1.96	24.6	2.45
Ice	56.6	1.61	48.7	1.69
Bait, tackle, and equipment	47.2	7.24	55.1	9.32
Snack foods and beverages	76.7	7.61	71.2	7.08
*Restaurants	49.9	5.93	58.9	9.98
*Gasoline and car expenses	82.6	11.64	76.7	17.31
Other (Dramamine, pool for largest fish, etc.)	4.4	3.13	5.1	6.00

\* Difference between county ports significant at .05 level using one-way analysis of variance.

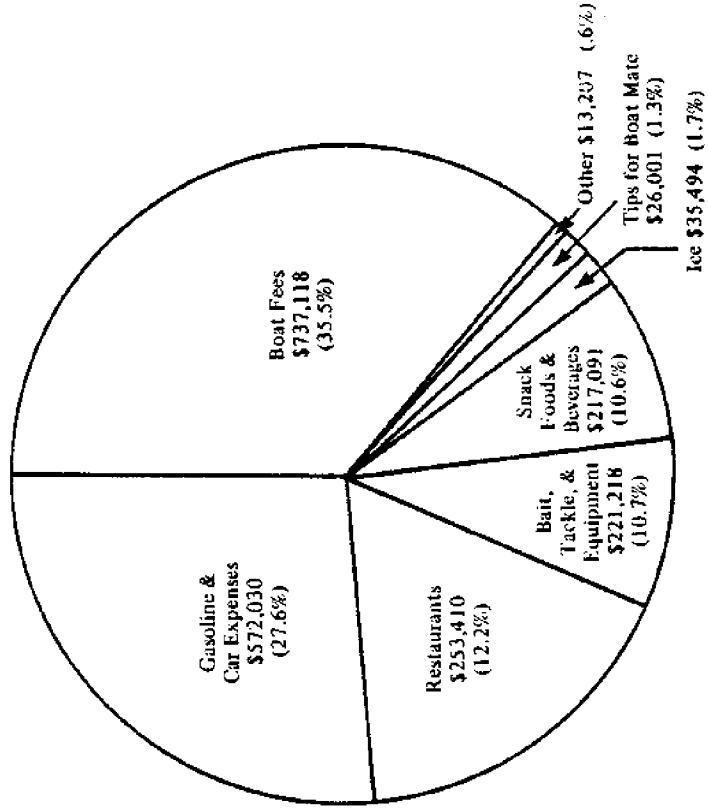
\*\*The amounts for each type of purchase in this table cannot be totaled since they represent the average spending for those who made each type of purchase, and not all fishermen spent money in all categories. The average amount spent per fisherman for all of these daily trip expenditures was \$50.29 for Sussex County fishermen and \$41.45 for Kent County fishermen.



Figure 6. Distribution of total daily head/charter-boat fishermen expenditures from Kent and Sussex County ports



TOTAL EXPENSES \$999,774  
 TOTAL EXPENDITURES OF HEAD/CHARTER-BOAT ANGLERS  
 FROM KENT COUNTY PORTS



TOTAL EXPENSES \$2,075,569  
 TOTAL EXPENDITURES OF HEAD/CHARTER-BOAT ANGLERS  
 FROM SUSSEX COUNTY PORTS

Table 20. Spending patterns for head/charter-boat fishermen for extended visits to the Delaware coastal area

Kent County			
Type of Purchase	Percent of Fishermen Reporting Extended Trip Expenses	Average Amount Spent Per Fisherman Among Those Who Purchased Each Item	Total Amount Spent on Extended Trip Expenses
Restaurants	7.2%	\$27.41	\$ 47,584
Lodging	4.2	34.63	35,080
Entertainment	3.6	27.30	23,696
Shopping	3.9	38.97	36,671
Other	0.6	5.95	<u>863</u>
			\$ 143,894

Sussex County			
Type of Purchase	Percent of Fishermen Reporting Extended Trip Expenses	Average Amount Spent Per Fisherman Among Those Who Purchased Each Item	Total Amount Spent on Extended Trip Expenses
Restaurants	34.4%	\$39.45	\$ 560,111
Lodging	22.4	61.25	566,256
Entertainment	17.2	30.58	217,087
Shopping	25.6	34.21	361,463
Other	9.6	21.86	<u>86,609</u>
			\$1,791,526

counterparts. In Sussex County, the total extended-visit spending of nearly \$1.8 million was almost as high as the total daily fishing expenses of all head/charter-boat fishermen in the county.

#### Economic Impacts of Head/Charter-Boat Fishing

To analyze the economic impacts of head/charter-boat fishing on the regional economy of Kent and Sussex Counties, it is necessary to identify the economic base of the area. The economic base is composed of two segments: (1) firms and individuals serving markets outside the region; and (2) firms and individuals serving markets within the region. Goods and services produced locally and sold outside the region are considered exports (Bell et al., 1982).

It is not necessary for an exported commodity to cross the regional boundaries to be considered an export. This is the case for an activity such as head/charter-boat fishing where fishermen are attracted to a region and consume products or services within the region. If the product or service was not available within the region, it is likely that some individuals would redirect their spending to other regions or states which provide the desired service (Bell et al., 1982).

Purchases made at the local level for goods and services related to head/charter-boat fishing yield money that is in turn respent for further goods and services needed to maintain their businesses. This additional spending represents an indirect or secondary benefit which must be included as part of the economic impact resulting from head/charter-boat fishing. Some of this money is spent outside the local area, while the rest remains within. This cycle continues until the original expenditures are no longer within the local market.

This cyclic impact of money locally spent is represented by a multiplier. For example, a multiplier of 3 means that a \$1 increase in local spending will generate \$3 in economic impact for the region. The smaller the region geographically or economically, the less the multiplier and subsequent economic impact will be.

Since it is not appropriate to include all spending of head/charter-boat fishermen in determining the economic impact on the Delaware coastal counties, this section identifies those portions of expenses which do contribute to local economic impact. To identify the total economic

impact, this section also incorporates appropriate expenditure multipliers to document indirect, as well as direct, spending.

Daily Fishing Expenses. Economic impacts result from daily fishing expenses to the extent that spending occurs in Delaware coastal counties that would not have occurred in the absence of head/charter-boat fishing opportunities. Thus, it is important to document where the dollars are coming from and where they are spent. Most head/charter-boat fishing is done by visitors. But, visitors may make some of their fishing-related expenditures prior to arriving in Delaware. An important first step in establishing economic impact is to determine the portion of visitors' total spending that occurs in the coastal area. Table 21 provides a breakdown of out-of-county visitor spending.

The largest expenditure was for boat fees. Out-of-county fishermen spent \$715,000 for boat fees in Sussex County and over \$350,000 in Kent County. The next largest expenditure was for restaurant meals, \$200,000 in Sussex County and nearly \$50,000 in Kent. Gas and car expenses were the next largest category in both counties, followed by bait, tackle, and equipment and snack foods and beverages. Total direct spending by out-of-county fishermen in Kent County amounted to nearly \$600,000, whereas in Sussex County out-of-county anglers contributed over \$1,350,000.

Table 22 summarizes the total economic impact of daily head/charter-boat fishing expenditures on Kent and Sussex Counties. The total impacts include direct spending and indirect respending effects and are determined by multiplying the total local spending of non-county residents by the appropriate output multipliers.\* There are many alternate ways of estimating multipliers. Based on an examination of the literature, an input/output model developed for Sussex County, Delaware, by Brucker and Cole (1979) was selected. To avoid using a gross multiplier for

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\*Type I output multipliers, selected to calculate county impacts, are used to account for direct and indirect spending. An additional level of respending, known as induced spending, could also be calculated if Type II output multipliers were selected instead (Latham, 1983). This would require using larger multipliers and the total economic impact on the affected counties would be greater. Since the Brucker and Cole (1979) input/output model is based on 1972 industry survey data, a conservative approach to determining county impacts is presented in this study by using Type I output multipliers instead of Type II (Brucker, 1983).

Table 21. Distribution of spending by out-of-county fishermen

Kent County			
Type of Purchase	Total Spending by Out-of-County Fishermen	Percent of Total Spent in Kent County	Total Spending by Out-of-County Fishermen in Kent County
Boat fees	\$365,847	100.0%	\$365,847
Tips for boat mates	29,259	100.0	29,259
Ice	21,218	64.1	13,601
Bait, tackle, and equipment	79,513	54.2	43,096
Snack foods and beverages	135,127	23.9	32,295
Restaurant meals	68,568	72.1	49,438
Gasoline and car expenses	223,127	21.2	47,303
Other	3,127	73.7	2,305
TOTAL	\$925,786	63.0%	\$583,144

Sussex County			
Type of Purchase	Total Spending by Out-of-County Fishermen	Percent of Total Spent in Sussex County	Total Spending by Out-of-County Fishermen in Sussex County
Boat fees	\$ 715,007	100.0%	\$ 715,007
Tips for boat mates	25,221	100.0	25,221
Ice	34,429	68.7	23,653
Bait, tackle, and equipment	214,582	52.1	111,797
Snack foods and beverages	210,579	43.0	90,549
Restaurant meals	245,809	81.5	200,334
Gasoline and car expenses	554,871	31.7	175,894
Other	12,811	91.4	11,709
TOTAL	\$2,013,309	67.3%	\$1,354,164

Table 22. Economic impact to Kent County and Sussex County economies resulting from daily head/charter-boat fishing expenses

		Kent County		Sussex County	
Type of Purchase	Output Multipliers*	Total Direct Spending in Coastal Area by Out-of-County Fishermen	Total Impact: Direct and Indirect Spending	Total Direct Spending in Coastal Area by Out-of-County Fishermen	Total Impact: Direct and Indirect Spending
Boat fees	1.11	\$365,847	\$406,090		
Tips for boat mates	1.24	29,259	36,281		
Ice	1.20	13,601	16,321		
Bait, tackle, and equipment	1.20	43,096	51,715		
Snack foods and beverages	1.24	32,295	40,046		
Restaurant meals	1.26	49,438	62,292		
Gas and car expenses	1.30	47,303	61,494		
Other	1.14	2,305	2,628		
		\$583,144	\$676,867		
		Kent County		Sussex County	
Type of Purchase	Output Multipliers*	Total Direct Spending in Coastal Area by Out-of-County Fishermen	Total Impact: Direct and Indirect Spending	Total Direct Spending in Coastal Area by Out-of-County Fishermen	Total Impact: Direct and Indirect Spending
Boat fees	1.11	\$ 715,007	\$ 793,658		
Tips for boat mates	1.24	25,221	31,274		
Ice	1.20	23,653	28,384		
Bait, tackle, and equipment	1.20	111,797	134,156		
Snack foods and beverages	1.24	90,549	112,281		
Restaurant meals	1.26	200,334	252,421		
Gas and car expenses	1.30	175,894	228,662		
Other	1.14	11,709	13,348		
		\$1,354,164	\$1,594,184		

\*Multipliers taken from Brucker and Cole (1979).

total spending, select multipliers were assigned to each spending category based on industry definitions provided by Brucker and Cole. Taking the multipliers into account increases the total economic impact of daily fishing expenses to almost \$700,000 for Kent County\* and almost \$1.6 million for Sussex County.

Extended-Trip Expenses. While many head/charter-boat fishermen spend a great deal of money during their extended visits or vacations in Delaware's coastal communities, it is difficult to determine what portion, if any, of these overall trip expenses should be included in the economic impact of head/charter-boat fishing. Since this money is not spent for items directly related to the fishing experience, one could argue that extended-trip expenses should not be included. On the other hand, some of these additional expenditures would not have occurred without head/charter-boat fishing opportunities, because people would have vacationed in other areas offering the desired fishing opportunities. It seems appropriate for some or all of this spending to be included in the economic impact of head/charter-boat fishing.

It is impossible to say what would happen if the head/charter-boat fleets in Kent and Sussex Counties were not there. Even when fishermen are asked what they would do in such a hypothetical situation, there is no certainty that they would actually do as they say. Because of these difficulties, Table 23 presents two alternative approaches for attributing extended-visit expenses to head/charter-boat fishing. In the first, extended-visit expenditures for restaurants, entertainment, etc. are prorated according to the proportion of the entire visit devoted to head/charter-boat fishing. Thus, if a fisherman spends one day of a three-day visit on a head/charter boat, one-third of the total expenses for the visit are attributed to head/charter-boat fishing. (These expenses are above and beyond the direct daily fishing expenses examined

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\*Multipliers for Kent County were also taken from Brucker and Cole's input/output study (1979) of Sussex County. Kent County multipliers were assumed to approximate those of Sussex County because both counties are very similar in demographics, number and types of industries, etc. In a personal communication, Cole (1982) also suggested using Sussex multipliers for Kent County.

Table 23. Breakdown of extended-visit expenses attributable to head/charter-boat fishing opportunities

Kent County					
Type of Purchase	Total Extended-Visit Spending	Alternative A: Prorated Trip Costs		Alternative B: Direct Attributable Costs	
		Costs Proportional to Time Spent Head/Charter-Boat Fishing	Costs Proportional to Time Spent on Other Activities during Visit	Costs for Visits Directly Motivated by Head/Charter-Boat Fishing	Costs for Visits That Would Have Occurred without Fishing Fleet
Restaurants	\$ 47,584	\$15,641	\$ 31,943	\$24,173	\$23,411
Lodging	35,080	10,788	24,292	25,433	9,647
Entertainment	23,696	6,484	17,212	8,578	15,118
Shopping	36,671	8,921	27,750	12,211	24,460
Other	863	223	640	328	535
Totals	\$143,894	\$42,057	\$101,837	\$70,723	\$73,171

Sussex County					
Type of Purchase	Total Extended-Visit Spending	Alternative A: Prorated Trip Costs		Alternative B: Direct Attributable Costs	
		Costs Proportional to Time Spent Head/Charter-Boat Fishing	Costs Proportional to Time Spent on Other Activities during Visit	Costs for Visits Directly Motivated by Head/Charter-Boat Fishing	Costs for Visits That Would Have Occurred without Fishing Fleet
Restaurants	\$ 560,111	\$194,797	\$ 365,314	\$310,862	\$249,249
Lodging	566,256	209,584	356,672	318,236	248,020
Entertainment	217,087	46,002	171,085	86,184	130,903
Shopping	361,463	110,309	251,154	188,684	172,779
Other	86,609	25,634	60,975	32,911	53,698
Totals	\$1,791,526	\$586,326	\$1,205,200	\$936,877	\$854,649



in the previous section.) The second alternative attributed extended-visit costs according to fishermen's responses to the question, "If there were no head/charter boats in the coastal area you visited, how would your trip plans have changed?" (See questionnaire in Appendix for response categories.) The extended-trip expenses of those who would have gone elsewhere or stayed at home are attributed to the local head/charter-boat industry. The extended-trip expenses of those who would have come anyway are not included as part of the economic impact of the head/charter-boat fleet.

The cost distributions in Table 23 indicate that the direct question approach (Alternative B) results in greater extended-trip expenditures attributed to head/charter-boat fishing. This is because two-thirds of the fishermen reported they would not have come to the area if the boats were not available. Thus, the majority of fishermen indicated that head/charter-boat fishing was the main reason for the trip, even though the majority of their time was not necessarily spent head/charter-boat fishing. A conservative interpretation of these results would consider the two alternative figures lower and upper bounds for the range of expenditures attributable to the head/charter-boat fleet. Thus, of \$143,894 spent by head/charter boat fishermen on extended visits in Kent County, between \$42,057 and \$70,723 may be attributed to head/charter-boat fishing. Of \$1,791,526 spent on extended visits in Sussex County, between \$586,326 and \$936,877 can be attributed to head/charter-boat fishing there.

Table 24 presents the total economic impact of attributable extended-trip expenses for Kent and Sussex Counties. This table incorporates the applicable total expenses from both methods of attributing extended-trip costs with appropriate output multipliers to account for both initial and respending impacts resulting from extended head/charter-boat fishermen visits. During 1982, the total economic impact attributable to extended-visit expenses by head/charter-boat fishermen was between \$52,428 and \$89,341 in Kent County and between \$741,038 and \$1,180,909 in Sussex County.

Table 24. Economic impact resulting from extended-trip expenses attributable to head/charter-boat fishing

		Kent County			
		Economic Impact			
Type of Purchase	Output Multipliers*	Alternative A: Prorated Trip Costs		Alternative B: Direct Attributable Costs	
		Applicable Direct Spending	Total Impact: Direct and Indirect Spending	Applicable Direct Spending	Total Impact: Direct and Indirect Spending
Restaurants	1.26	\$15,641	\$19,708	\$24,173	\$ 30,458
Lodging	1.35	10,788	14,564	25,433	34,334
Entertainment	1.11	6,484	7,197	8,578	9,522
Shopping	1.20	8,921	10,705	12,211	14,653
Other	1.14	223	254	328	374
Totals		\$42,057	\$52,428	\$70,723	\$89,341

		Sussex County			
		Economic Impact			
Type of Purchase	Output Multipliers*	Alternative A: Prorated Trip Costs		Alternative B: Direct Attributable Costs	
		Applicable Direct Spending	Total Impact: Direct and Indirect Spending	Applicable Direct Spending	Total Impact: Direct and Indirect Spending
Restaurants	1.26	\$194,797	\$245,444	\$310,862	\$ 391,686
Lodging	1.35	209,584	282,938	318,236	429,619
Entertainment	1.11	46,002	51,062	86,184	95,664
Shopping	1.20	110,309	132,371	188,684	226,421
Other	1.14	25,634	29,223	32,911	37,519
Totals		\$586,326	\$741,038	\$936,877	\$1,180,909

\*Multipliers taken from Brucker and Cole (1979).

Summary

To determine the total economic impact to Kent and Sussex Counties resulting from head/charter-boat fishing, the daily expenditures and extended-trip expenditures must be added. Since two alternatives for extended-trip expenditures are calculated, a range of total economic impacts will be presented.

The economic impact due to daily fishing expenditures for Kent County amounted to \$676,867. The total impacts caused by extended-trip expenditures totaled \$52,428 when spending was prorated according to the length of the visit and number of days fishing and it was \$89,341 when head/charter-boat fishing was the primary motivation for the extended trip. Therefore, the range of total economic impact for Kent County was between \$729,295 and \$766,208 (Table 25).

The economic impact of head/charter-boat fishing in Sussex County was somewhat higher. The total impact due to daily fishing expenses was \$1,594,184. The extended-trip prorated expenditure impact amounted to \$741,038 and the primary motivation impact totaled \$1,180,909. The range of total economic impact for Sussex County fell between \$2,335,222 and \$2,775,093 (Table 25).

Table 25. Range of total economic impacts for Kent and Sussex Counties

Kent County			
	Total Economic Impact Direct and Indirect Spending (Extended-Trip Expenditures)		
Total Economic Impact Direct and Indirect Spending (Daily Expenditures)	Alternative A: Prorated Spending	Alternative B: Fishing-Motivated Spending	Range of Total Economic Impact: Including Daily Expenditures and Extended-Trip Expenditures
\$676,867	\$52,428	\$89,341	\$729,295 - \$766,208
Sussex County			
	Total Economic Impact Direct and Indirect Spending (Extended-Trip Expenditures)		
Total Economic Impact Direct and Indirect Spending (Daily Expenditures)	Alternative A: Prorated Spending	Alternative B: Fishing-Motivated Spending	Range of Total Economic Impact: Including Daily Expenditures and Extended-Trip Expenditures
\$1,594,184	\$741,038	\$1,180,909	\$2,335,222 - \$2,775,093

## CONCLUSIONS

The aim of this study was to examine a segment of head/charter-boat fishermen in order to characterize the economic impacts of head/charter-boat fishing on Kent and Sussex Counties. In addition, other questions regarding motivation and satisfaction were asked and analyzed along with demographic characteristics to further describe head/charter-boat fishermen.

Data analysis has revealed that the 23 head/charter boats in the population contributed between \$729,000 and \$766,000 in economic impact to Kent County's economy. The impact to Sussex County was estimated at between \$2.3 million and \$2.8 million. Since this study reported only on those boats with a minimum capacity of 32 passengers, the estimated impacts are considerably lower than for the head/charter-boat industry as a whole. It is conceivable that expenditures of six-man charter-boat groups could equal or exceed the total economic impacts reported by the fishermen in this study.

It should be noted that expenditures by head/charter-boat anglers contribute significantly to local economies. Spending that occurs in addition to the per-trip boat fees exceeds the price of the fishing trip. In Kent County, anglers spend an average of \$16.48 on boat fees for fishing and an average of \$24.97 on other items. In Sussex County, anglers spend an average of \$18.02 average for a head/charter-boat trip and another \$32.27 for other expenses.

This information suggests that if the number of fishing trips or anglers decreases, the resulting loss of economic impact would be felt not only by boat captains and the head/charter-boat industry, but also by businesses (e.g. restaurants, campgrounds, service stations) within the surrounding local area. It is important for any local business community to be aware of the significant role that the head/charter-boat industry can play in its economy.

Additional communication with several boat captains indicated that there were approximately 25% fewer fishing trips in 1982 compared to 1981. If this suggests that the 1982 fishing season was somewhat poorer than in past years, then the total economic impact might be considerably higher for an "average" fishing season.

Overall, charter- and head-boat fishing contributes directly to the summer tourist trade in Kent and Sussex Counties. In addition, the extra spending by visitors who stay longer in the coastal area, either before or after fishing, is also significant. Ten percent of the fishermen in Kent County and 42% in Sussex County reported they were fishing during a longer visit to the Delaware coast. About two-thirds of the respondents reported visiting the Delaware coastal area primarily because they had the opportunity to participate in a charter- or head-boat fishing experience.

Although 66% of the anglers in Kent County and 63% in Sussex County rated their fishing trips either fair or poor, there is evidence to suggest that they were satisfied with their trips just the same. Fishermen agreed wholeheartedly that they would like to have caught more fish. However, they also indicated that just being outdoors and getting away from the usual demands of life, along with enjoying the people they fished with, were elements of the trip that were important to them. This suggests that in lieu of catching fish, other elements of a trip can make it satisfactory, yet not totally fulfilling.

Fishermen's likes and dislikes regarding their fishing experiences were further analyzed to judge trip satisfaction. This analysis should prove useful to boat captains to gauge how they are satisfying their customers. Angler satisfaction in turn should lead to repeat trips. As noted earlier, the most important elements of head/charter-boat fishing from the fishermen's perspective are the fish, weather/sea conditions, and the qualities of the boat captain and mates. Since the availability of fish and weather/sea conditions are often unpredictable and uncontrollable, the only controlled elements are the qualities of the captain and his crew members. Boat captains should sense the need for their crews to be professional and personable at all times, especially when the fish are not biting or when weather/sea conditions are less than ideal. Displaying these qualities might mean the difference in gaining or losing customers in the future. Furthermore, word-of-mouth advertising could lead to additional customers, since the recommendation of others, past fishing success, and a good reputation are the three primary reasons why fishermen select particular head/charter boats.

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APPENDIX  
DATA COLLECTION MATERIALS

Study Questionnaire  
Initial Cover Letter  
Postcard Reminder  
Follow-Up Cover Letter

# DELAWARE CHARTER/HEAD BOAT FISHING STUDY

Fishermen Questionnaire no. \_\_\_\_\_

**PLEASE PLACE YOUR COMPLETED QUESTIONNAIRE IN THE PREPAID, SELF-ADDRESSED ENVELOPE PROVIDED AND DROP IN ANY CONVENIENT MAIL BOX. THANK YOU FOR YOUR HELP.**

Sea Grant Marine Advisory Service  
University of Delaware  
700 Pilottown Road  
Lewes, Delaware 19958

**FOR YOUR TIME AND ASSISTANCE WITH THIS QUESTIONNAIRE, WE WOULD LIKE TO SEND YOU A FREE COPY OF ANY OF THE FOLLOWING SEA GRANT PUBLICATIONS LISTED BELOW. PLEASE CHECK THOSE ITEMS YOU WOULD LIKE TO RECEIVE.**

- Fishhooks Brochure
- Shark
- Flounder - The Ocean's Platter
- Delaware Seafood Recipes

## THE FOLLOWING QUESTIONS DEAL WITH YOUR CHARTER/HEAD BOAT FISHING TRIP ON

Was this your first charter/head boat trip?  Yes  No

Was your trip a half-day trip  or a full-day trip  ?

Were you on a

- Charter boat trip (your group reserved the entire boat).
- Head boat trip (you or your group fished with other people you did not know).

About how many people were on your boat? \_\_\_\_\_

How many people were in your own personal fishing group? \_\_\_\_\_

What type of group were you fishing with?

- Family
- Friends
- By Myself
- Family & Friends
- Business Associates

Were the fish biting that day?  Yes  No

How many fish did you catch personally? \_\_\_\_\_

About how many fish were caught by everyone in your fishing group? \_\_\_\_\_

What type of fish did you fish for? \_\_\_\_\_

What type of fish did you catch? \_\_\_\_\_

Overall, how would you rate your fishing trip?

- Poor
- Fair
- Good
- Very Good
- Excellent
- Perfect

What did you like most about your fishing trip?

\_\_\_\_\_

What did you like least about your fishing trip?

\_\_\_\_\_

Why did you select this particular boat? (Check all that apply.)

- Recommendation of Others
- Success in Past.
- Good Reputation.
- Newspaper Advertisement
- Reserved at Outdoor Show.
- Other \_\_\_\_\_

**BELOW IS A LIST OF TYPICAL EXPENDITURES FISHERMEN MAKE DURING A DAY OF FISHING. FOR EACH TYPE OF EXPENDITURE LISTED BELOW, PLEASE ESTIMATE THE TOTAL AMOUNT OF MONEY YOU SPENT FOR YOUR DAY OF CHARTER/HEAD BOAT FISHING. IF YOUR GROUP SHARED EXPENSES, ESTIMATE ONLY YOUR INDIVIDUAL SHARE. THEN INDICATE WHETHER YOU BOUGHT EACH ITEM AT HOME OR IN THE DELAWARE COASTAL AREA.**

	Daily Amount Spent on Your Share	WHERE ITEM WAS BOUGHT	
		Home or En Route	Delaware Coastal Area
Charter/Head Boat Fees .....	\$ _____	<input type="checkbox"/>	<input type="checkbox"/>
Tips for Boat Mates .....	\$ _____	<input type="checkbox"/>	<input type="checkbox"/>
Ice .....	\$ _____	<input type="checkbox"/>	<input type="checkbox"/>
Bait, Tackle, Equipment (if not included in boat fees) .....	\$ _____	<input type="checkbox"/>	<input type="checkbox"/>
Snack Foods, Beer, Other Beverages .....	\$ _____	<input type="checkbox"/>	<input type="checkbox"/>
Restaurants .....	\$ _____	<input type="checkbox"/>	<input type="checkbox"/>
Gasoline and Car Expenses .....	\$ _____	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify) .....	\$ _____	<input type="checkbox"/>	<input type="checkbox"/>

What is the approximate distance in miles between your home town and the Delaware port where you went charter/head boat fishing? \_\_\_\_\_ Miles

If you traveled more than 25 miles from your home town to go charter/head boat fishing, was your trip part of a longer visit to the Delaware coastal area?

Yes  No  Not applicable, I live within 25 miles of the port.

**IF YES, PLEASE ANSWER THE QUESTIONS BELOW. IF NO OR NOT APPLICABLE, PLEASE SKIP TO THE NEXT PAGE.**

Where did you stay in the area during your visit?

Own Home  Hotel/Motel  Campground  Friends/Relatives  
 Seasonally Rented Home or Apartment  Other

How many nights did you spend in the Delaware coastal area? \_\_\_\_\_ Nights

How many days during this visit did you spend charter/head boat fishing? \_\_\_\_\_ Days

Was charter/head boat fishing the main reason for your visit to the area?  Yes  No

What type of group did you come to the area with?

Family  Friends  Family & Friends  By Myself  Business Associates

How many people were in your group? \_\_\_\_\_

How many people in your group participated in the charter/head boat trip(s)? \_\_\_\_\_

If some members of your group did not participate in the fishing trip, what did they do while you were fishing?

Went to the Beach  Went Shopping  Visited Friends or Relatives  
 Visited Local Attractions  Other, Please Specify \_\_\_\_\_

About how much did your group spend during their entire visit for the following types of purchases? Include expenses of all family members and others included in your group, but do not include charter/head boat fishing expenses already listed above. We realize this information may be hard to remember, but please give us the best estimate you can.

Type of Expense	Total Amount Spent
Restaurants .....	\$ _____
Lodging .....	\$ _____
Entertainment .....	\$ _____
Shopping .....	\$ _____
Other (Specify) .....	\$ _____

If there were no charter/head boats in the coastal area you visited, how would your trip plans have changed?

We would have come to the same coastal area anyway.  
 We would have gone to another Delaware coastal area with charter/head boats.  
 We would have gone to another state.  
 We would have stayed at home.  
 Other (Specify) \_\_\_\_\_

**PLEASE ANSWER THE FOLLOWING QUESTIONS WITH REGARD TO YOUR RECENT CHARTER/HEAD BOAT TRIP. HOW WELL DO EACH OF THE FOLLOWING STATEMENTS DESCRIBE YOUR FEELINGS ABOUT YOUR FISHING EXPERIENCE.**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I thoroughly enjoyed the fishing trip .....	1	2	3	4	5
It was good to be outdoors .....	1	2	3	4	5
I was able to get away from the usual demands of life .....	1	2	3	4	5
The fishing trip was not as enjoyable as I expected it to be .....	1	2	3	4	5
I did not catch the kinds of fish I had hoped to ....	1	2	3	4	5
I cannot imagine a better fishing trip .....	1	2	3	4	5
I enjoyed being with the people I fished with .....	1	2	3	4	5
I wish I had caught more fish .....	1	2	3	4	5
I do not want to go on any more fishing trips like that one .....	1	2	3	4	5
I enjoyed eating the fish I caught .....	1	2	3	4	5
I was disappointed with some aspects of the fishing trip .....	1	2	3	4	5
I enjoyed the challenge and sport .....	1	2	3	4	5
I learned how to become a better fisherman .....	1	2	3	4	5
The fishing trip was well worth the money I spent to take it .....	1	2	3	4	5
I was not able to experience peace and solitude .....	1	2	3	4	5
I would have liked to have caught bigger fish .....	1	2	3	4	5
There were too many people fishing where I was fishing .....	1	2	3	4	5
I had problems with my fishing equipment .....	1	2	3	4	5

**THE NEXT GROUP OF QUESTIONS DEALS WITH ALL TYPES OF FISHING YOU DO.**

About how many days during the past 12 months did you spend doing each of the following types of fishing?

\_\_\_\_\_ Number of days charter/head boat fishing.

\_\_\_\_\_ Number of days saltwater fishing with a private boat.

\_\_\_\_\_ Number of days saltwater, pier, shore, or wade fishing.

\_\_\_\_\_ Number of days freshwater fishing.

Do you own your own boat?  Yes  No

If yes, how many? \_\_\_\_\_

What length(s)? \_\_\_\_\_

What type(s)? (Sailboat or Powerboat) \_\_\_\_\_

How many years have you been fishing? \_\_\_\_\_

Are you a member of a fishing club?  Yes  No

Do you subscribe to any fishing or outdoor magazines  Yes  No

If yes, please list them. \_\_\_\_\_

How often do you read outdoor columns in the newspaper?

Never  Occasionally  Regularly

How often do you watch fishing or outdoor programs on television?

Never  Occasionally  Regularly

How many rod and reel combinations do you own? \_\_\_\_\_

About how much have you spent on the following types of fishing equipment during the past 12 months?

Reels \$ \_\_\_\_\_ Tackle (lures, hooks, lines, etc.) \$ \_\_\_\_\_

Rods \$ \_\_\_\_\_ Other Equipment & Accessories \$ \_\_\_\_\_

How do you compare your fishing ability to other fishermen in general?

I am less skilled.  I am equally skilled.  I am more skilled.

Imagine that you have planned a charter/head boat fishing trip and for some reason you are unable to go. What other activity(s) could you do which would be a good alternative for charter/head boat fishing? (Please be as specific as possible.)

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If you could not have gone charter/head boat fishing in the coastal area you visited, would you have gone charter/head boat fishing somewhere else?  Yes  No

**BELOW IS A LIST OF POSSIBLE REASONS WHY PEOPLE GO CHARTER OR HEAD BOAT FISHING. PLEASE CIRCLE THE NUMBER THAT INDICATES HOW IMPORTANT EACH ITEM IS TO YOU AS A REASON FOR CHARTER/HEAD BOAT FISHING.**

REASON	HOW IMPORTANT				
	Not at all	Slightly	Moderately	Very	Extremely
To be outdoors .....	1	2	3	4	5
For relaxation .....	1	2	3	4	5
To get away from the regular routine ...	1	2	3	4	5
For the challenge or sport .....	1	2	3	4	5
For family recreation .....	1	2	3	4	5
To obtain fish for eating .....	1	2	3	4	5
For physical exercise .....	1	2	3	4	5
To be with my friends .....	1	2	3	4	5
For the experience of the catch .....	1	2	3	4	5
To obtain a trophy fish .....	1	2	3	4	5
To experience natural surroundings ....	1	2	3	4	5
To develop my skills .....	1	2	3	4	5
For a convenient way to go fishing .....	1	2	3	4	5
To test my equipment .....	1	2	3	4	5
For the assurance of the catch .....	1	2	3	4	5

**THE FOLLOWING QUESTIONS ARE ABOUT YOU PERSONALLY AND WILL HELP US TO KNOW MORE ABOUT FISHERMEN. REMEMBER YOU WILL NOT BE IDENTIFIED WITH YOUR ANSWERS, SO PLEASE BE FRANK.**

What is your age? \_\_\_\_\_

Are you  Male  Female

How much formal education have you had?

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Grade School     | <input type="checkbox"/> Graduated High School          | <input type="checkbox"/> Some College      |
| <input type="checkbox"/> Some High School | <input type="checkbox"/> Technical or Vocational School | <input type="checkbox"/> Graduated College |
|   |   | <input type="checkbox"/> Graduate Study    |

What is your occupation? \_\_\_\_\_

What is your approximate annual **household** income before taxes?

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Under \$10,000       | <input type="checkbox"/> \$30,000 to \$39,999 | <input type="checkbox"/> \$60,000 to \$69,000 |
| <input type="checkbox"/> \$10,000 to \$19,999 | <input type="checkbox"/> \$40,000 to \$49,999 | <input type="checkbox"/> \$70,000 and above   |
| <input type="checkbox"/> \$20,000 to \$29,999 | <input type="checkbox"/> \$50,000 to \$59,999 |   |

How many children do you have? \_\_\_\_\_

What are their ages? \_\_\_\_\_

Which of the following best describes the area in which you live?

- |   |   |
|---|---|
| <input type="checkbox"/> Rural                        | <input type="checkbox"/> Urban Area 100,000 to 250,000  |
| <input type="checkbox"/> Village or Town Under 20,000 | <input type="checkbox"/> Metropolitan Area over 250,000 |
| <input type="checkbox"/> City of 20,000 to 99,999     |   |

Please feel free to give any additional comments you desire.

UNIVERSITY OF DELAWARE  
LEWES, DELAWARE  
1998

SEA GRANT COLLEGE PROGRAM  
MARINE ADVISORY SERVICES  
COLLEGE OF MARINE STUDIES  
CANNON BUILDING  
PHONE: 302-845-

6 August 1982

Dear Charter/Head Boat Fisherman:

The University of Delaware Sea Grant Marine Advisory Service is conducting a study of the fishermen who fish on charter/head boats. Your name has been obtained from the vessel captain you recently fished with. The information you provide is important because it will help to identify the economic impacts of charter/head boat fishing throughout the state.

The accuracy of this study depends on the number of questionnaires returned. Would you please take a few minutes to answer the questions on the enclosed questionnaire.

For your time and assistance in completing the enclosed questionnaire, we would like to send you a free copy of any of the publications listed on the front of the questionnaire. We hope these will be of use to you.

Please place your completed questionnaire in the enclosed postage-paid envelope and return it to us as promptly as possible. All responses will be handled in strict confidentiality. Survey data will be summarized, so there will be no way to associate your name or address with any particular set of responses.

Thank you for your interest and cooperation.

Sincerely,

James M. Falk  
Marine Recreation Specialist  
Sea Grant Marine Advisory Service

JMF/ca

Enclosures

Dear Charter/Head Boat Fisherman:

About a week ago, you should have received a questionnaire requesting information on your Charter/Head Boat Fishing Experience. At the time this post card was mailed, we had not yet received your response. Your answers are very important and will be used to represent the responses of many other fishermen with views similar to yours.

We would greatly appreciate it if you would take a few minutes to complete the questionnaire and return it to us in the postage-paid envelope provided. If you have misplaced the questionnaire, or did not receive it, we will send you another one if we do not hear from you.

Thank you for your cooperation.

Sincerely,

James M. Falk  
Marine Recreation Specialist

Note: If you have already completed and returned the questionnaire we sent you, please disregard this reminder. Thank you for your prompt response.

UNIVERSITY OF DELAWARE

LEWES, DELAWARE

19958

COLLEGE OF MARINE STUDIES  
LEWES COMPLEX  
PHONE: 302-645- 4235

August 27, 1982

Dear Charter/Head Boat Fisherman:

About three weeks ago, you were sent a questionnaire which is part of a study of fishermen who fish on charter/head boats. If you have already returned the questionnaire, we thank you for your prompt reply. If you have not completed the questionnaire, would you please take the time to do so today.

The information you provide helps to increase the accuracy of the study. It will also help to identify the economic impacts of charter/head boat fishing throughout the state. Remember, all responses will be summarized and handled in strict confidentiality.

A questionnaire and prepaid return envelope are enclosed in case you did not receive one or no longer have the first one we sent you.

Thank you again for your interest and cooperation.

Sincerely,



James M. Falk  
Marine Recreation Specialist

JMF/ab

Enclosures



