

# **Volume I: Summary Report of Methods and Descriptive Statistics for the 1994 Northeast Region Marine Recreational Economics Survey**

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U.S. Department of Commerce  
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## TABLE OF CONTENTS

LIST OF TABLES .....	vi
LIST OF FIGURES .....	viii
CHAPTER I .....	1
INTRODUCTION .....	1
1.1 Objectives .....	4
CHAPTER 2 .....	5
METHODS AND PROCEDURES .....	5
2.1 Add-On Economics Intercept Survey Instrument .....	5
2.2 Economic Telephone Follow-Up to Intercept Survey Instrument .....	6
2.3 Training and Data Collection .....	6
CHAPTER 3 .....	10
SPORTFISHING BY SUBREGION .....	10
3.1 Demographic and Socio-economic Characteristics of Marine Recreational Anglers .....	10
3.1.1 Age .....	10
3.1.2 Education .....	12
3.1.3 Ethnicity .....	12
3.1.4 Household Income .....	13
3.1.5 Years of Experience .....	13
3.1.6 Expenditures .....	14
3.1.7 Boat Ownership .....	15
3.1.8 Trip Length .....	15
3.2 Preferences for Marine Recreational Fishing and Fishing Regulation Methods .....	16
3.2.1 Recreational Anglers' Stated Preferences for Fishing Site Characteristics .....	16
3.2.2 Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities .....	16
3.2.3 Recreational Anglers' Ratings of Reasons for Marine Fishing .....	18
3.2.4 Recreational Anglers' Ratings of Fishing Regulation Methods .....	20
CHAPTER 4 .....	22
SPORTFISHING BY MODE OF FISHING .....	22
4.1 Demographic and Socio-economic Characteristics of Marine Recreational	

Anglers by Mode .....	22
4.1.1 Age .....	22
4.1.2 Education .....	22
4.1.3 Ethnicity .....	23
4.1.4 Household Income .....	23
4.1.5 Years of Experience .....	24
4.1.6 Expenditures .....	25
4.1.7 Trip Length .....	26
4.2 Preferences for Marine Recreational Fishing and Fishing Regulation Methods, by Mode .....	26
4.2.1 Recreational Anglers Stated Preferences for Fishing Site Characteristics ..	26
4.2.2 Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities .....	29
4.2.3 Recreational Anglers' Ratings of Reasons for Marine Fishing .....	29
4.2.4 Recreational Anglers' Ratings of Fishing Regulation Methods .....	31
 CHAPTER 5 .....	 33
SPORTFISHING BY STATE .....	33
5.1 Demographic and Socio-economic Characteristics of Marine Recreational Anglers, by State .....	33
5.1.1 Age .....	33
5.1.2 Education .....	34
5.1.3 Ethnicity .....	34
5.1.4 Household Income .....	35
5.1.5 Years of Experience .....	36
5.1.6 Expenditures .....	36
5.1.7 Boat Ownership .....	37
5.1.8 Trip Length .....	38
5.2 Preferences for Marine Recreational Fishing and Fishing Regulation Methods, by State .....	38
5.2.1 Recreational Anglers Stated Preferences for Fishing Site Characteristics ..	38
5.2.2 Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities .....	41
5.2.3 Recreational Anglers' Ratings of Reasons for Marine Fishing .....	42
5.2.4 Recreational Anglers' Ratings of Fishing Regulation Methods .....	42
 CHAPTER 6 .....	 46
CONCLUSIONS .....	46
6.1 Summary of Major Findings .....	46
6.1.1 Sportfishing by Subregion .....	46
6.1.2 Sportfishing by Mode .....	46

6.1.3 Sportfishing by State .....	47
6.2 Future Research .....	48
REFERENCES .....	51
APPENDIX A .....	53
SPORTFISHING BY STATE AND MODE .....	53
A-1 MAINE .....	55
A-2 NEW HAMPSHIRE .....	60
A-3 MASSACHUSETTS .....	65
A-4 RHODE ISLAND .....	70
A-5 CONNECTICUT .....	75
A-6 NEW YORK .....	80
A-7 NEW JERSEY .....	85
A-8 DELAWARE .....	90
A-9 MARYLAND .....	95
A-10 VIRGINIA .....	100
APPENDIX B .....	105
ADD-ON ECONOMICS INTERCEPT SURVEY INSTRUMENT .....	106
APPENDIX C .....	108
TELEPHONE FOLLOW-UP TO INTERCEPT SURVEY INSTRUMENT .....	109
APPENDIX D .....	120
TELEPHONE SURVEY INSTRUMENT .....	121

## LIST OF TABLES

Table 2-1	Completed MRFSS and Economic Intercepts Obtained by Status and State . . . . .	7
Table 2-2	Summary of Final Results of Economic Telephone Follow-up Survey . . . . .	8
Table 3-1	Bureau of the Census Population and Demographic Estimates . . . . .	11
Table 3-2	Mean Recreational Anglers' Ratings of Reasons for Marine Fishing, by Subregion . . . . .	19
Table 3-3	Mean Recreational Anglers' Ratings* of Fishing Regulation Methods, by Subregion . . . . .	21
Table 4-1	Mean Recreational Anglers' Ratings of Reasons for Marine Fishing, by Mode . .	30
Table 4-2	Mean Recreational Anglers' Opinions* of Fishing Regulation Methods, by Mode . . . . .	32
Table 5-1	Mean Recreational Anglers' Stated Preferences for Fishing Site Characteristics, by State . . . . .	39
Table 5-2	Mean Recreational Anglers' Ratings of Reasons for Marine Fishing, by State . . .	43
Table 5-3	Mean Recreational Anglers' Ratings of Fishing Regulation Methods, by State . .	45
Table A-1	Maine - Recreational Anglers' Demographics . . . . .	55
Table A-1-1	Maine - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	57
Table A-2	New Hampshire - Recreational Anglers' Demographics . . . . .	60
Table A-2-1	New Hampshire - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	62
Table A-3	Massachusetts - Recreational Anglers' Demographics . . . . .	65
Table A-3-1	Massachusetts - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	67
Table A-4	Rhode Island - Recreational Anglers' Demographics . . . . .	70

Table A-4-1	Rhode Island - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	72
Table A-5	Connecticut - Recreational Anglers' Demographics . . . . .	75
Table A-5-1	Connecticut - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	77
Table A-6	New York - Recreational Anglers' Demographics . . . . .	80
Table A-6-1	New York - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	82
Table A-7	New Jersey - Recreational Anglers' Demographics . . . . .	85
Table A-7-1	New Jersey - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	87
Table A-8	Delaware - Recreational Anglers' Demographics . . . . .	90
Table A-8-1	Delaware - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	92
Table A-9	Maryland - Recreational Anglers' Demographics . . . . .	95
Table A-9-1	Maryland - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	97
Table A-10	Virginia - Recreational Anglers' Demographics . . . . .	100
Table A-10-1	Virginia - Preferences for Marine Recreational Fishing and Fishing Regulation Methods . . . . .	102



## LIST OF FIGURES

Figure 1-1	Number of In-State Recreational Participants by Subregion . . . . .	1
Figure 1-2	Number of Fish Caught by Recreational Fishermen by Subregion . . . . .	2
Figure 1-3	Number of Recreational Fishing Trips by Subregion . . . . .	2
Figure 3-1	Distribution of Recreational Anglers' Age . . . . .	10
Figure 3-2	Distribution of Recreational Anglers' Education Levels (Age 25 and Over) . . . . .	12
Figure 3-3	Distribution of Recreational Anglers' Ethnicity . . . . .	12
Figure 3-4	Distribution of Recreational Anglers' Household Incomes . . . . .	13
Figure 3-5	Distribution of Recreational Anglers' Years of Experience . . . . .	14
Figure 3-6	Distribution of Recreational Anglers' Expenditures . . . . .	14
Figure 3-7	Distribution of Recreational Anglers Who Own a Boat and Use it for Marine Fishing . . . . .	15
Figure 3-8	Distribution of Recreational Anglers Taking One-Day and Overnight Trips . . . . .	16
Figure 3-9	New England Anglers' First Stated Preference for Fishing Site Characteristics . . . . .	17
Figure 3-11	New England Anglers' Second Stated Preference for Fishing Site Characteristics . . . . .	17
Figure 3-10	Mid-Atlantic Anglers' First Stated Preference for Fishing Site Characteristics . . . . .	17
Figure 3-12	Mid-Atlantic Anglers' Second Stated Preference for Fishing Site Characteristics . . . . .	17
Figure 3-13	Distribution of Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities . . . . .	18
Figure 4-1	Distribution of Recreational Anglers' Age, by Mode . . . . .	22

Figure 4-2	Distribution of Recreational Anglers' Education Levels, by Mode (Age 25 and Over) . . . . .	23
Figure 4-3	Distribution of Recreational Anglers' Ethnicity, by Mode . . . . .	23
Figure 4-4	Distribution of Recreational Anglers' Household Incomes, by Mode . . . . .	24
Figure 4-5	Distribution of Recreational Anglers' Years of Experience, by Mode . . . . .	24
Figure 4-6	Distribution of Recreational Anglers' Expenditures, by Mode . . . . .	25
Figure 4-7	Distribution of Recreational Anglers' Taking One-Day and Overnight Trips, by Mode . . . . .	26
Figure 4-8	Party/Charter Anglers' First Stated Preference for Fishing Site Characteristics . . . . .	27
Figure 4-9	Private/Rental Anglers' First Stated Preference for Fishing Site Characteristics . . . . .	27
Figure 4-10	Shore Anglers' First Stated Preference for Fishing Site Characteristics . . . . .	27
Figure 4-11	Party/Charter Anglers' Second Stated Preference for Fishing Site Characteristics . . . . .	28
Figure 4-12	Private/Rental Anglers' Second Stated Preference for Fishing Site Characteristics . . . . .	28
Figure 4-13	Shore Anglers' Second Stated Preference for Fishing Site Characteristics . . . . .	28
Figure 4-14	Distribution of Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities, by Mode . . . . .	29
Figure 5-1	Distribution of Recreational Anglers' Age, by State . . . . .	33
Figure 5-2	Distribution of Recreational Anglers' Education Levels, by state (Age 25 and Over) . . . . .	34
Figure 5-3	Distribution of Recreational Anglers' Ethnicity, by State . . . . .	34
Figure 5-4	Distribution of Recreational Anglers' Household Income, by State . . . . .	35

Figure 5-5	Distribution of Recreational Anglers' Years of Experience, by State . . . . .	36
Figure 5-6	Distribution of Recreational Anglers' Expenditures, by State . . . . .	37
Figure 5-7	Distribution of Recreational Anglers who Own a Boat and Use it for Recreational Fishing, by State . . . . .	37
Figure 5-8	Distribution of Recreational Anglers Taking One-Day and Overnight Trips, by State . . . . .	38
Figure 5-9	Distributional Ranking of Recreational Fishing Compared to Other Outdoor Activities, by State . . . . .	41

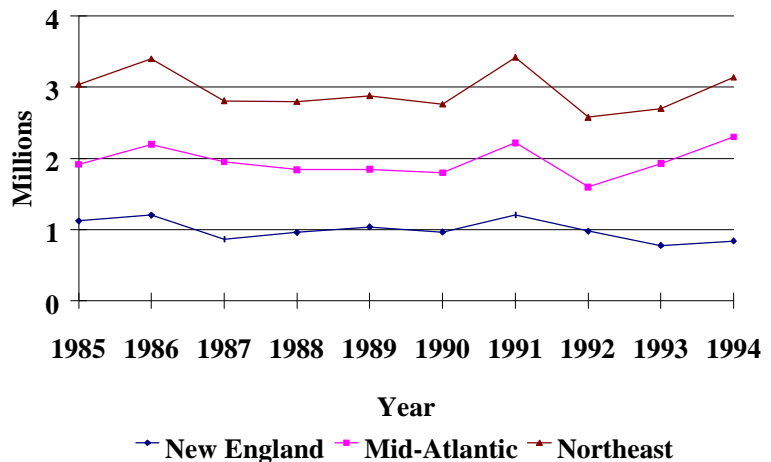
## CHAPTER I INTRODUCTION

Two sportfishing surveys were conducted during 1994 in the Northeast Region (Maine to Virginia) for the National Marine Fisheries Service (NMFS). Data from the surveys provided demographic and economic information on marine recreational fishing participants from Maine to Virginia. The purpose of this report is to document the socio-economic characteristics of these participants and to identify their marine recreational fishing preferences and their perceptions of current and prospective fishery management regulations. This information will be used to estimate statistical models of the demand for marine recreational fishing for eight important recreational species in a subsequent phase of the research.

This chapter presents a brief summary of trends in catch, participation, and effort; describes the need for more comprehensive economic information on marine recreational anglers; and lists the objectives of the research. Chapter 2 presents the survey methodology, describes interviewer training procedures, and reports on response rates and sample sizes for different components of the survey. Chapter 3 presents the demographic and economic survey data by subregion, Chapter 4 presents the data by mode, and Chapter 5 by state. Chapter 6 summarizes the major findings and illustrates future work to be performed, and Appendix A provides statistical summary tables of the survey by state and mode.

Marine recreational fishing is one of the most popular outdoor recreational activities in America.<sup>1</sup> In 1992, the lowest level of participation during the last ten years, approximately 2.57 million residents of coastal states in the Northeast Region participated in marine recreational fishing in their own state (Figure 1-1).<sup>2</sup> Participation increased approximately five percent in 1993 (2.7 million) and increased another 14 percent in 1994 (3.1 million), exceeding the ten-year average of 2.9 million. Although the total number of finfish caught in the Northeast Region has declined over the past ten years (Figure 1-2), effort (trips) has remained relatively

**Figure 1-1 Number of In-State Recreational Participants by Subregion**



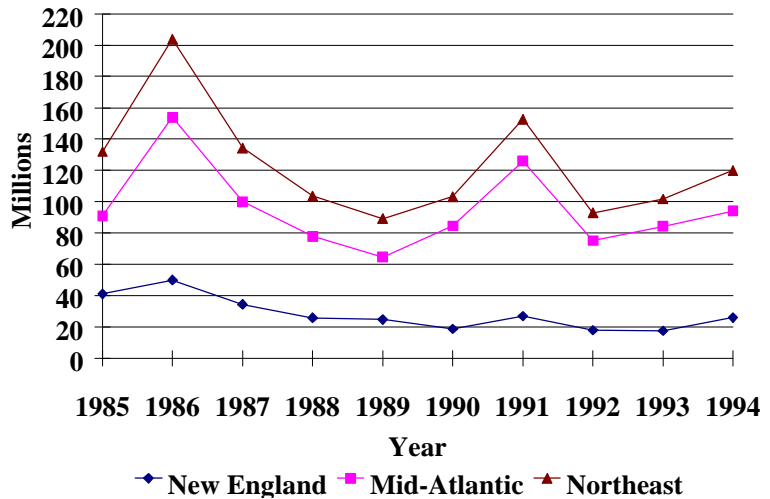
<sup>1</sup> NSFHW 1991

<sup>2</sup> Figures were generated with data obtained from NMFS' Marine Recreational Fisheries Statistics Surveys (1985-1994).

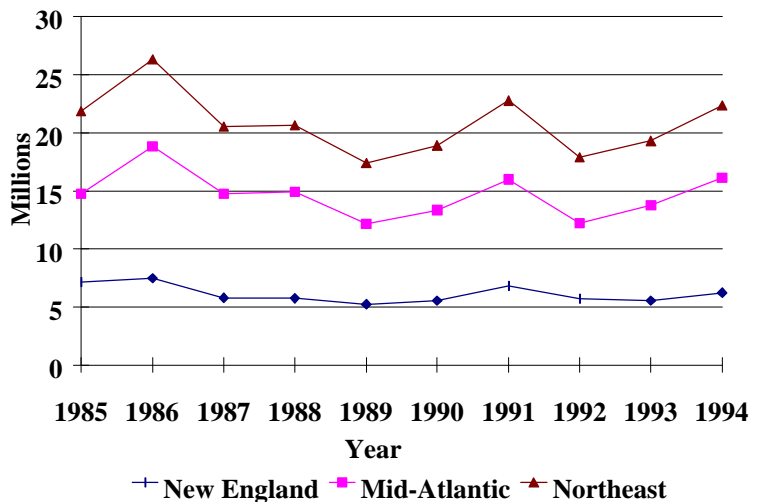
stable. An estimated 22.4 million fishing trips were taken in 1994, up from 19.3 million in 1993 (Figure 1-3).

Historically, many Northeast fishery management plans (FMPs) that involve recreational fisheries have imposed harvesting restrictions that do not appear to have had a significant impact on recreational catch, participation or effort. Typically, liberal size and bag limits have been implemented which likely affected the harvest of relatively few anglers and hence had little impact on the overall quantity and frequency of trips. For example, the FMP for the Bluefish Fishery adopted in 1990 restricts recreational fishermen to a possession limit of ten bluefish. According to the analysis of the recreational fishery contained within the FMP<sup>3</sup>, it was estimated that less than 7 percent of the anglers catching bluefish would be affected by the ten fish possession limit. Additionally, in the FMP for the summer flounder fishery, it was estimated that only 26 percent of anglers catching summer flounder would be affected by the proposed minimum size and bag limits.<sup>4</sup> It is likely that the effects of these management measures on catch, participation, and effort have been quite small. However, since the abundance of bluefish, summer flounder, and other marine fish species in the Northeast Region are at or near historic

**Figure 1-2 Number of Fish Caught by Recreational Fishermen by Subregion**



**Figure 1-3 Number of Recreational Fishing Trips by Subregion**



<sup>3</sup> See FMP for the Bluefish Fishery section 9.2.2.2 Recreational fishery.

<sup>4</sup> See Amendment 2 to the FMP for the Summer Flounder Fishery section 9.2.2.2.1 Possession limits, minimum size limits, and seasonal closures.

lows, more restrictive measures on the current harvest and future expansion of recreational fishing can be anticipated.

Currently, in New England, amendments have been developed or are proposed for four Atlantic States Marine Fisheries Commission (ASMFC) FMP's which directly regulate recreational fisheries (summer flounder, winter flounder, bluefish, and striped bass). Additional possession limits, size limits, quotas, and seasonal and area closures have been recommended to further reduce the take of these species. The Mid-Atlantic states will be required to come into compliance with an additional six ASMFC FMP's that regulate recreational fisheries (red drum, spotted seatrout, weakfish, spot, croaker, and Spanish mackerel) in the near future. Amendments are also proposed for many of the existing Federal FMP's that affect recreational fisheries in the Northeast Region's exclusive economic zone (EEZ). Additional possession limits, size limits, and quotas are proposed for Atlantic bluefish, mackerel, squid, butterfish, summer flounder, cod, and haddock.

Development of recreational management measures to achieve conservation goals requires a fair amount of social and economic information. While descriptive economics data are included in most ASMFC and Federal FMP's, analyses are often constrained by a lack of appropriate economic data. Few economic valuation studies evaluate the management changes managers are concerned about. Most recreational fishing analyses have focused on the entire recreation "good" measured in units such as "days fished" or "number of angling trips".<sup>5</sup> While this information is appropriate for understanding the behavior of marine sport fishermen in the aggregate, it is not appropriate for situations where these values influence the management of recreational fisheries. Rather, marginal value estimates of sport-caught fish (i.e., marginal consumers' surplus)<sup>6</sup> are needed for individual species to analyze how user groups react to more or less fish.<sup>7</sup> In other words, value estimates should be measured in units such as "fish caught per trip," rather than "days fished." Information of this kind allows economists to analyze how changes in possession limits, size limits, quotas, and area closures affect the value anglers obtain from marine resources.

Currently, two public sector surveys collect information on marine recreational fishing in the Northeast Region: (1) the Marine Recreational Fishery Statistics Survey (MRFSS); and (2) the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (NSFHW). The information obtained from these surveys allows resource managers to track trends in catch rates, participation, and expenditures on marine recreational fishing, but does not provide the necessary data for economic value assessments.

Recently in the Northeast, NMFS increased efforts to collect economic data needed to evaluate the effects of fishery management regulations on marine recreational anglers. A

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<sup>5</sup> See Kahn, 1991; Norton, Smith and Strand, 1983; and Rockland, 1983.

<sup>6</sup> Economists generally refer to consumers' surplus as the maximum willingness-to-pay for a good in excess of what was sacrificed to obtain the good. In other words, consumer surplus would be the difference between the maximum an angler would be willing to pay to catch a fish and the amount actually sacrificed to catch the fish.

<sup>7</sup> See Bockstael, McConnell and Strand, 1987; Agnello, 1987; and Samples and Bishop, 1985.

comprehensive economic survey was designed to help fill the economic data and research gap in NMFS' knowledge of marine recreational fishing. The research is motivated by the idea that since more restrictive measures on the current harvest and future expansion of recreational fishing can be expected, a foundation needs to be developed from which future recreational policies can be evaluated.

### **1.1 Objectives**

Objectives of the economic study were to: (1) collect demographic and economic data on marine recreational fishing participants, and (2) estimate statistical models of the demand for marine recreational fishing for eight important recreational species that are either currently managed or are expected to be managed in the near future. The data illustrated in this report will be used by economists, policy analysts, and other staff at NMFS to evaluate proposed management decisions affecting recreational fisheries.

## **CHAPTER 2 METHODS AND PROCEDURES**

The economic survey was designed as an add-on to the existing MRFSS to take advantage of sampling, survey design, and quality control procedures already in place. The MRFSS is a long-term, monitoring program that provides estimates of effort, participation, and finfish catch by recreational anglers. The MRFSS consists of two independent, but complementary, surveys: (1) a random digit-dial telephone survey of households, and (2) an intercept survey of anglers at fishing access sites. Economic questions were added onto each survey and a follow-up survey conducted over the telephone was designed to elicit additional socio-economic information from anglers who completed the add-on economic intercept survey. This document presents findings of the economic intercept survey and the subsequent economic follow-up telephone survey. Since results of the random digit-dial telephone survey questions will be used in the second phase of the research, these findings are not presented here.

Several non-periodic surveys have been conducted as add-ons to the standard MRFSS in California (1985-1986), along the coast from New York to Florida (1987-1988), and in the Gulf of Mexico (1990). The design of the 1994 economic survey is based upon results of the 1987-1988 New York-Florida study, conducted by the University of Maryland and the EPA, which tested the validity and efficacy of alternative survey questions and demand models.<sup>8</sup>

The sample area was the Northeast Region, which consists of two subregions: (1) New England (Maine-Connecticut), and (2) Mid-Atlantic (New York-Virginia). Data were collected from May through December in 1994 (MRFSS waves 3 through 6).<sup>9</sup> Allocation of sampling effort corresponded to the usual MRFSS sampling procedures; i.e, wave, state, and mode, as well as type of day (weekend or weekday), and months within a wave.

### **2.1 Add-On Economics Intercept Survey Instrument**

The economics intercept survey of anglers was designed to follow the usual MRFSS intercept survey as an on-site add-on. The questionnaire solicited data about trip duration, travel costs, distance traveled, and on-site expenditures associated with the intercepted trip (Appendix B); these data will be used to develop angler or trip profiles and in the development of statistical models to estimate saltwater fishing values.

The economic survey was conducted by a private consulting firm<sup>10</sup> and administered to all marine recreational anglers intercepted in the field who were at least 16 years of age or older. Data were collected using the field sample procedures specified in the MRFSS Procedures

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<sup>8</sup> See Strand, I.E., K.E. McConnell, N.E. Bockstael, and D.G. Swartz 1991.

<sup>9</sup> The MRFSS considers each two month block to be a “wave” in the survey. Wave 3 corresponds to May and June, wave 4 to July and August, etc.

<sup>10</sup> Quantech Marine Sciences Group, 1911 North Fort Myer Drive, Suite 1000, Rosslyn, Virginia 22209.



Manual. The economic questionnaire was administered either at the completion of the MRFSS questions (before inspection of fish), or after all available fish were identified and biological measurement had been obtained. As in the MRFSS, all survey participants, with the exception of beach-bank shore anglers, must have completed their fishing for the day. Table 2-1 contains a breakdown of the number of MRFSS interviews obtained by state and the subsequent number of associated economic interviews. A total of 33,117 economic intercepts were attempted in the Northeast Region. Of these 22,594 economic intercepts were fully completed. Approximately 10 percent of the surveys (3,364) were terminated because of initial refusals or because interviewees under the age of 16. The remaining 7,151 surveys were not completed because individuals refused to answer certain key questions.<sup>11</sup>

## **2.2 Economic Telephone Follow-Up to Intercept Survey Instrument**

The economics telephone follow-up was designed to elicit additional socio-economic information from anglers who completed the add-on economics survey. The questionnaire targeted two distinct groups of anglers: (1) anglers who targeted--not merely caught--bluefish, striped bass, black sea bass, summer flounder, Atlantic cod, tautog, scup or weakfish and (2) anglers that targeted other species and happened to catch any of these eight species (Appendix C). The questionnaires solicited data and information about recreational fishing avidity, attitudes, and experience.

Anglers were screened for willingness to participate in the telephone follow-up survey at the time of field intercept. The name and telephone number of individuals willing to participate in the follow-up were obtained at the time of the initial interview. If an angler agreed to participate in the follow-up phone survey, telephone interviewers contacted the angler within three weeks of the date of the intercept survey. Four attempts were made to contact an eligible angler intercepted in the field. Two versions (long and short) of the telephone follow-up survey were administered to participants. The entire version (long) was administered to first time participants. If an angler was intercepted in the field more than once and had previously completed the long telephone follow-up, the angler was asked a shorter version of the follow-up on subsequent calls. Final results of the telephone follow-up survey are summarized in Table 2-2. A total of 14,868 follow-up surveys were attempted in the Northeast Region, of which 8,226 ( 55%) interviews were completed. Refusals, wrong numbers and households that could not be reached in four calls comprised the remaining 45 percent of the interviews.

## **2.3 Training and Data Collection**

The interviewing staff at QuanTech consisted of regular MRFSS interviewers and thus were experienced in general field and telephone interviewing techniques. Prior to conducting the economic surveys, all staff received economic survey training and were evaluated by experienced

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<sup>11</sup> Key questions are designated with an asterisk in Appendix B.

**Table 2-1 Completed MRFSS and Economic Intercepts Obtained by Status and State**

Total All Waves	MRFSS Completed	Economic Intercepts Obtained by Status				
		Economic Intercepts Completed	Refused Non-Key Item	Initial Refusal	Less than 16 Years	Refused Key Item
Maine	1047	751	0	27	118	148
New Hampshire	666	494	1	16	47	108
Massachusetts	6851	4344	15	426	491	1531
Connecticut	1378	603	3	32	36	701
Rhode Island	3440	2582	3	84	195	553
New England	13382	8774	22	585	887	3041
New York	6316	3719	2	270	508	1792
New Jersey	3465	2425	7	22	220	782
Delaware	2650	1997	3	68	160	419
Maryland	2195	1662	0	23	210	280
Virginia	5271	4017	2	233	178	801
Mid-Atlantic	19897	13820	14	616	1276	4074
Total	33279	22594	36	1201	2163	7115

**Table 2-2 Summary of Final Results of Economic Telephone Follow-up Survey**

State Name	Out of Scope*	Not Reached in Four Calls	Refusals		Completed	Total
			Initial	Mid-Interview		
Maine	63	194	10	10	462	739
New Hampshire	65	119	10	3	289	486
Massachusetts	226	440	28	16	832	1542
Connecticut	68	172	13	5	339	597
Rhode Island	100	251	14	5	495	865
New England	522	1176	75	39	2417	4229
New York	425	546	52	12	903	1938
New Jersey	320	713	53	22	1282	2390
Delaware	60	187	13	8	435	703
Maryland	214	460	55	17	899	1645
Virginia	501	1061	84	27	2290	3963
Mid-Atlantic	1520	2967	257	86	5809	10639
Total	2042	4143	332	125	8226	14868

\* Out of Scope includes:

- Non-working number
- Business - no one has ever been there by that name
- Business - person no longer works there and no forwarding number
- Household - no one has ever lived there by that name
- Household - person no longer lives there
- Communication barrier
- Respondent not interviewed in the field

supervisors based on their performance during training sessions. Those interviewers who passed certain evaluation criteria were kept on staff.<sup>12</sup>

Computerized logic checks were developed as part of the data entry system to alert the data entry staff to any obvious coding errors. Manual and computer based edit checks were performed weekly and interviewers were informed of errors and retrained as necessary to avoid repeated errors. Additional computer based edit checks were performed by NMFS' Headquarters and NEFSC staff upon attainment of the data.

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<sup>12</sup> Final Report of the Add-On MRFSS Economic Survey 1995.

## CHAPTER 3 SPORTFISHING BY SUBREGION

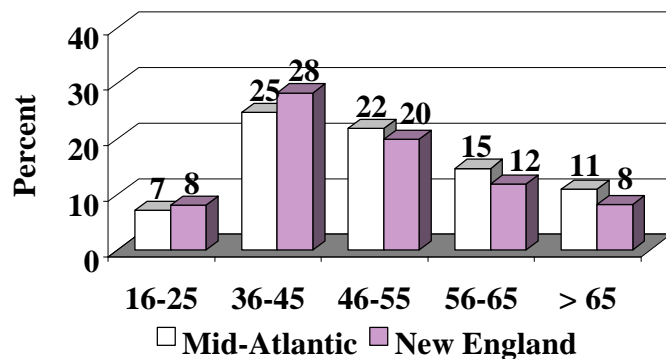
Dwindling stocks of some recreational species are creating the need for improved fisheries resource protection. Toward this end, many management agencies have developed, or are presently developing, restrictive recreational management measures with little or no knowledge of anglers' demographic and socio-economic characteristics. To assess the economic and social effects of recreational restrictions it is necessary to understand the demographic characteristics of anglers, as well as their preferences, attitudes, and opinions toward recreational fishing activities and regulations. This chapter presents profiles of marine anglers from New England (NE) and the Mid-Atlantic (MA) subregions.<sup>13</sup>

### 3.1 Demographic and Socio-economic Characteristics of Marine Recreational Anglers

#### 3.1.1 Age

Figure 3-1 presents a distribution of recreational anglers' age by subregion<sup>14</sup>. Only slight differences in mean age existed across subregions. The largest proportion of anglers in both subregions were 36-45 years old (NE = 28%, MA = 25%). However, New England anglers were, comparatively, younger than Mid-Atlantic anglers. Results show that participation in marine recreational fishing increased with age, peaked between the ages of 36 to 45, and subsequently declined thereafter.

Figure 3-1 Distribution of Recreational Anglers' Age



The resultant age distribution is similar to the findings of other marine recreational fishing studies.<sup>15</sup> However, the distribution is not reflective of the general population in these subregions. Bureau of the Census estimates indicate population peaks between the ages of 25 to 34 in both subregions, declines until the age of 64 and then increases substantially (Table 3-1).

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<sup>13</sup> Since the purpose of this report is to simply present the findings of the survey on marine recreational fishing participants in the Northeast Region, statistical analyses were not used to test for significant differences among subregions, modes or states.

<sup>14</sup> Anglers under the age of 16 were not interviewed and hence, are not included in the analysis.

<sup>15</sup> See Milon and Thunberg 1993, Johnson et al. 1986, and NSFHW 1991.

**Table 3-1 Bureau of the Census Population and Demographic Estimates**

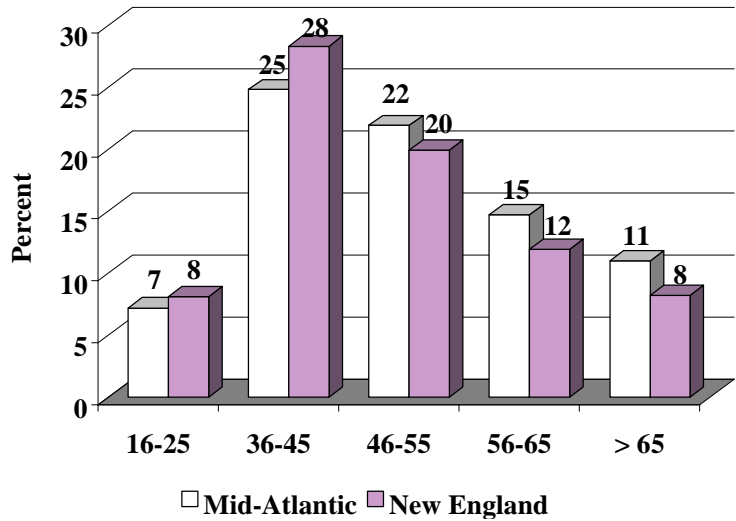
	<b>New England</b>	<b>Mid-Atlantic</b>
	Percent	Percent
<b>Age (1993)</b>		
Less than 18	25.2	25.6
18-24	9.8	9.7
25-34	16.4	17.0
35-44	16.3	16.2
45-54	11.5	11.8
55-64	8.2	8.4
Greater than 65	12.6	11.3
<b>Education Level (1989)</b>		
Less than High School	21.6	23.5
High School	31.5	29.6
Associate	7.0	5.8
Some College	16.2	17.0
Bachelors	15.1	14.8
Advanced	8.7	9.3
<b>Ethnicity* (1993)</b>	W = 94.0 B = 3.9 A = 1.7 H = 3.9	W = 77.4 B = 19.0 A = 3.3 H = 6.4
<b>Household Income (1989)</b>		
Less than 15,000	19.9	18.6
15,001-30,000	22.8	22.8
30,001-45,000	21.6	21.6
45,001-60,000	15.1	15.1
60,001-75,000	8.8	9.2
75,001-100,000	6.4	6.9
100,001-150,000	3.5	3.8
Greater than 150,000	1.8	1.8
<b>Gender (1989)</b>	M = 48.4 F = 51.6	M = 48.5 F = 51.5
* - W=White A=Asian B=Black H=Hispanic Totals do not add to 100% because persons of Hispanic origin may be of any race.		

Source: 1990 and 1993 U.S. Bureau of the Census Data

### 3.1.2 Education

Figure 3-2 shows that at least 88 percent of the anglers (age 25 and over) in both subregions had obtained at least a high school degree (NE = 91%, MA = 88%). While the educational breakdown is similar across subregions, a greater portion of anglers in New England earned college or post graduate/professional degrees (NE = 29%, MA = 23%). The shape of the educational distribution essentially mirrored the general population in both subregions (Table 3-1). However, the average number of anglers without a high school degree was considerably lower than Bureau of the Census estimates (age 25 and over) for the general population. On the other hand, it appears that anglers in New England and the Mid-Atlantic earned fewer post graduate/professional degrees than Bureau of Census estimates.

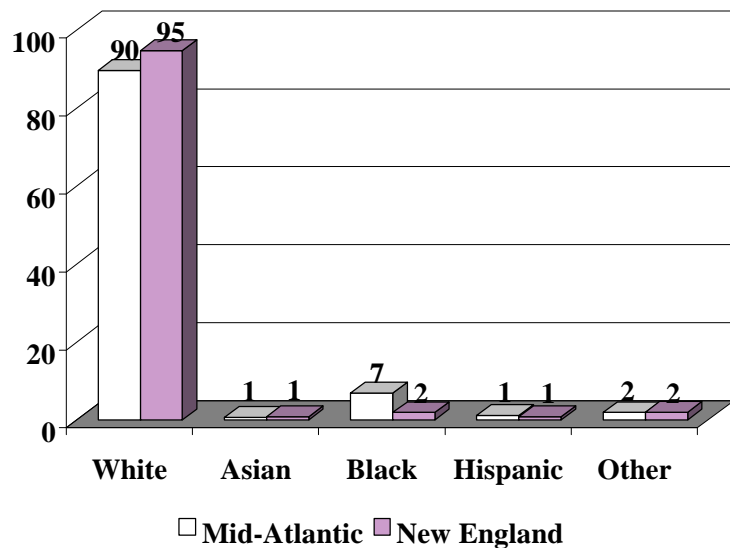
**Figure 3-2 Distribution of Recreational Anglers' Education Levels (Age 25 and Over)**



### 3.1.3 Ethnicity

Anglers were asked to describe their racial or ethnic origin. Figure 3-3 shows that almost all of the anglers interviewed in both subregions considered themselves to be white (NE = 95%, MA = 90%). In the Mid-Atlantic, most of the remaining individuals were black (7%), leaving 3 percent to be of other ethnic origins. In New England, the remaining anglers were evenly distributed across other ethnic origins.

**Figure 3-3 Distribution of Recreational Anglers' Ethnicity**



The high occurrence of white fishermen is representative of the general population of the coastal states in New England. Approximately 94 percent of the population in 1993 was estimated to be white (Table 3-1). However, in the Mid-Atlantic, the

percentage of white anglers was considerably higher than Bureau of the Census population estimates, and the percentage of black fishermen was 12 percent lower.

### 3.1.4 Household Income

Anglers were asked to indicate from a range of categories what their total annual household income was. Figure 3-4 shows only minor differences existed between subregions. The largest percentage of household incomes fell between \$30,001 and \$45,000 for both subregions (NE = 27%, MA = 26%).

In comparison to the general population, anglers' annual household incomes are relatively higher in both subregions.

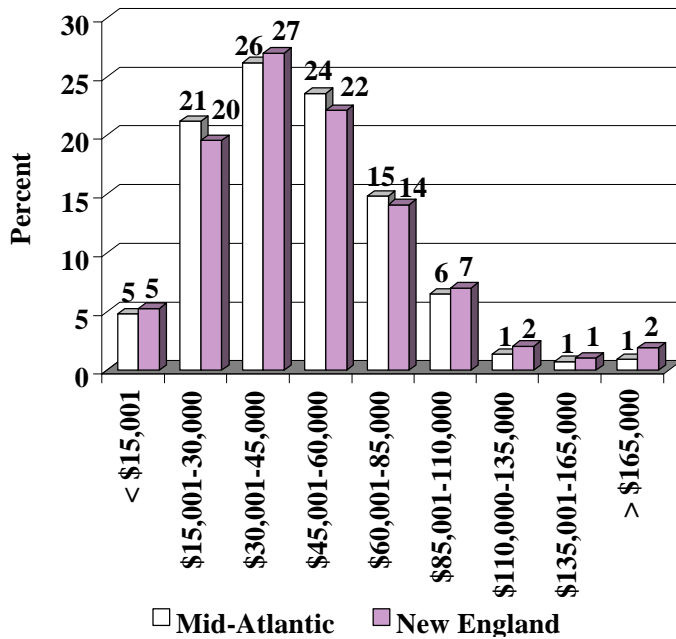
Although the shape of the distributions are similar according to Bureau of the Census estimates, considerably more households in the general population earned less than \$30,000 in both subregions (Table 3-1). Additionally, the largest share of angler households in both New England and the Mid-Atlantic indicated higher annual household incomes than the general population. Further inspection of the distribution also revealed a greater percentage of angler households indicated annual incomes of over \$60,000 in both New England and the Mid-Atlantic.

Results are consistent with previous studies which showed that angler household incomes are generally higher than population estimates.<sup>16</sup>

### 3.1.5 Years of Experience

Figure 3-5 indicates the number of years anglers have been saltwater fishing by subregion. Assuming "years fished" is a proxy for "experience," the survey data revealed anglers in New England are relatively less experienced than anglers in the Mid-Atlantic. In New England, 22 percent of the anglers had zero-five years of experience. In contrast, 16 percent of the anglers in the Mid-Atlantic had zero-five years of experience. Additionally, a greater percentage of anglers

**Figure 3-4 Distribution of Recreational Anglers' Household Incomes**



<sup>16</sup> See Hiatt et al., 1983; NSFHW, 1991; and Milon and Thunberg, 1993.



in the Mid-Atlantic indicated they had saltwater fished more than 30 years (NE = 21%, MA = 26%).

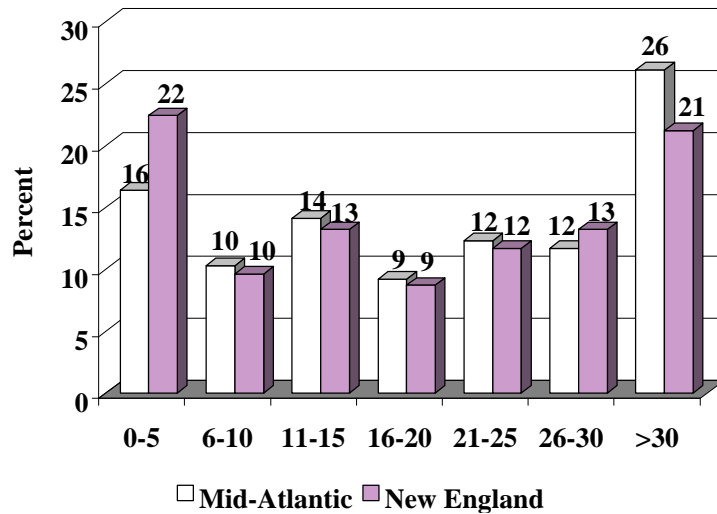
Results are consistent with past MRFSS estimates of participation by subregion.<sup>17</sup> Anglers in the Mid-Atlantic may have more opportunities to continue marine recreational fishing as they age because of warmer weather and longer fishing seasons.

### 3.1.6 Expenditures

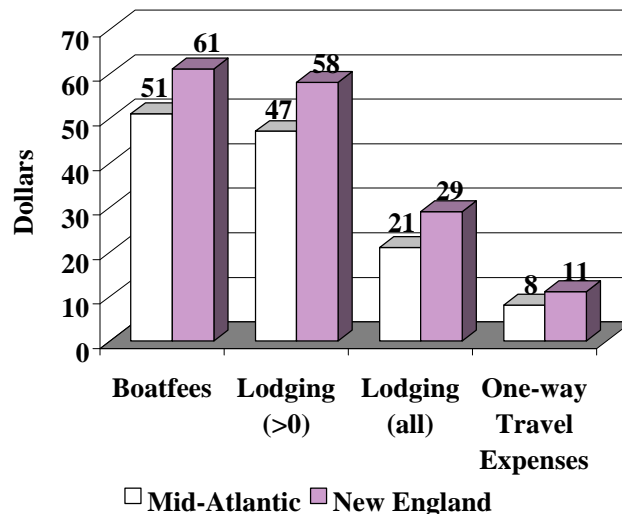
A breakdown of mean fishing trip expenditures is presented by subregion in Figure 3-6. The figure shows that, on average, New England anglers spent more on boat fees, lodging, and travel expenses.<sup>18</sup> During the follow-up telephone portion of the survey, anglers that fished from a party/charter boat or a private/rental boat were asked how much they personally spent on boat fees for the trip in which they were interviewed. Boat fees averaged \$61.00 per trip in New England and \$51.00 in the Mid-Atlantic. Chapter 4 provides a breakdown of these costs by mode.

Two categories of lodging expenses are illustrated in Figure 3-6. The first category (Lodging (>0)) is an estimate of the mean lodging expense per night for those anglers who indicated they spent at least one night away from their residence and personally incurred a lodging cost. Subsequently, the second category (Lodging (all)) is an estimate of mean lodging expenses across all overnight

**Figure 3-5 Distribution of Recreational Anglers' Years of Experience**



**Figure 3-6 Distribution of Recreational Anglers' Expenditures**



<sup>17</sup> See NMFS' MRFSS 1990-1991.

<sup>18</sup> Due to budget and interview time constraints, we were unable to collect expenditure information pertaining to bait, tackle, ice, or meals. General information of this kind is available in the 1991 NSFHW.

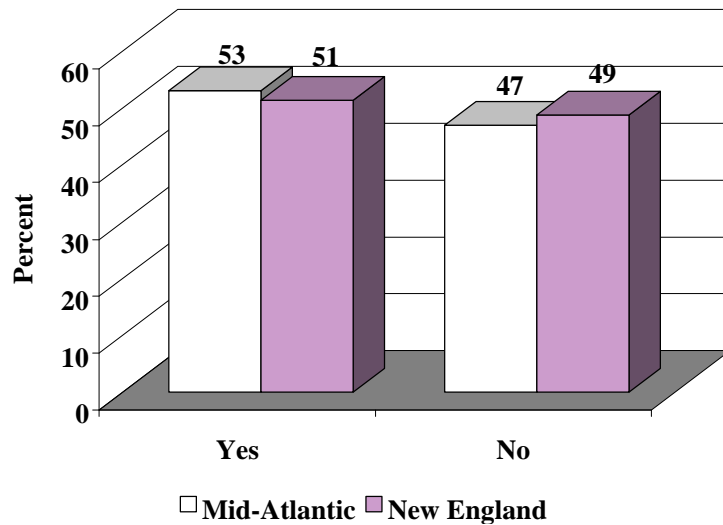
anglers, regardless of whether an angler incurred a lodging expense. Per night lodging costs were estimated by dividing total lodging costs for the trip (Question 3, economic intercept survey) by the number of days the angler was away from his/her residence on the trip (Question 2, economic intercept survey). As can be seen in Figure 3-6, anglers that personally incurred lodging expenses spent \$58.00 on average per night in New England and \$47.00 dollars per night in the Mid-Atlantic. Across all overnight anglers, per night lodging expenses in New England averaged \$29.00 and in the Mid-Atlantic, \$21.00.

Anglers' expenditures also include money spent on gas, travel fares, tolls, and ferry and parking fees. These expenditures are travel expenses and are shown in Figure 3-6. One-way travel expenditures averaged \$11.00 in New England and \$8.00 in the Mid-Atlantic per trip. Therefore, if arrival costs are tantamount to departure costs, average round-trip travel expenses would approximate \$22.00 in New England and \$16.00 in the Mid-Atlantic.<sup>19</sup>

### 3.1.7 Boat Ownership

Anglers were asked if anyone living in their household owns a boat that is used for recreational saltwater fishing. Figure 3-7 illustrates that over 50 percent of the anglers in both subregions indicated boat ownership (NE=51%, MA=53%). The percentage of anglers owning boats is identical to estimated boat ownership distributions in Texas reported by Riechers, et al. (1991). Fifty-one percent of Texas anglers who fished in saltwater indicated boat ownership. However, CIC Research Inc. (1987) and Milon and Thunberg (1993) reported boat ownership statistics were less than 35 percent in California and Florida, respectively.

**Figure 3-7 Distribution of Recreational Anglers Who Own a Boat and Use it for Marine Fishing**



### 3.1.8 Trip Length

Figure 3-8 shows the duration of the interviewed trips. At least 80 percent of the anglers in both subregions indicated they had been on a one-day fishing trip (NE=80%, MA=84%). One-day fishing trips were defined to be trips in which an angler departs and returns on the same day. Less

<sup>19</sup> Certain expenditures such as parking, tolls, and other travel fares may be incurred only once. Therefore, the estimated round-trip travel expenditures should be considered an upper bound estimate.

than one fourth of the respondents indicated the day of fishing was part of a longer trip in which they spent at least one night away from their residence (NE=20%, MA=16%).

### 3.2 Preferences for Marine Recreational Fishing and Fishing Regulation Methods

#### 3.2.1 Recreational Anglers' Stated Preferences for Fishing Site Characteristics

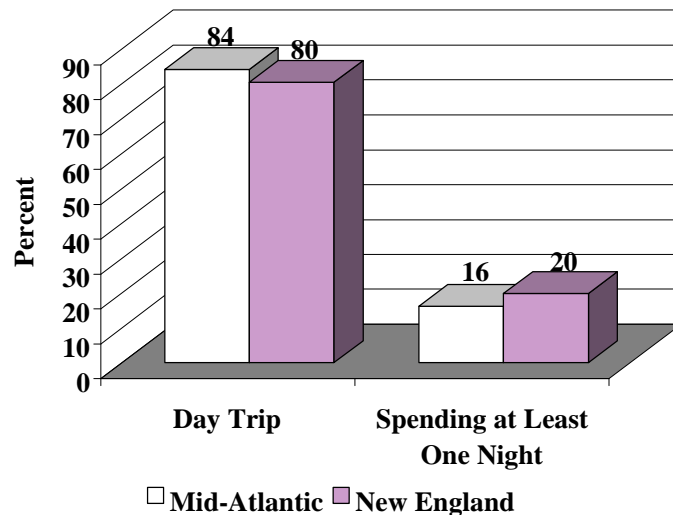
Respondents were asked why they chose to fish at the site where they were interviewed. Up to three stated preferences were coded.<sup>20</sup> Figure's 3-9 through 3-12 illustrate recreational anglers first and second stated preferences for fishing site characteristics in New England and the Mid-Atlantic. "Convenience" and "better catch rates" were the main reasons why anglers chose fishing sites in both subregions. Forty-nine percent of the anglers in New England and 57 percent of the anglers in the Mid-Atlantic indicated "convenience" as either their first or second reason for site choice. "Better catch rates" was the first or second stated reason for site choice by 51 percent of the anglers in New England and 50 percent of the anglers in the Mid-Atlantic. Other notable responses were "always go there," "boat ramp," "access to pier," and "scenic beauty." About 28 percent of the anglers in New England and 24 percent of the anglers in the Mid-Atlantic selected other reasons that were not coded because those responses did not fall under the specified categories (Question 6, telephone follow-up survey).

Results indicate that although anglers chose fishing sites for many different reasons, sites that offered good catch rates and were convenient attracted the most anglers. Unfortunately, previous studies do not provide descriptive information on site choice decisions which would enable broader generalizations.

#### 3.2.2 Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities

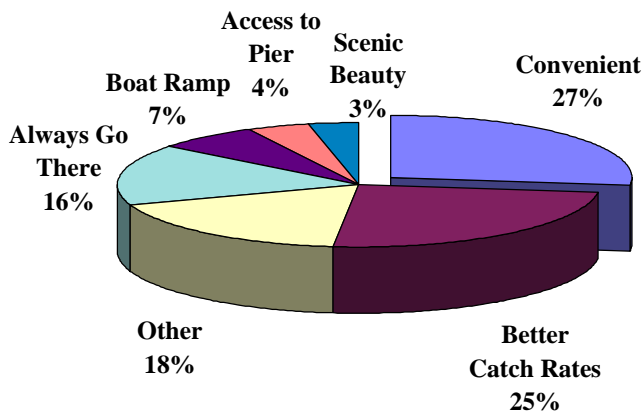
Anglers were asked to rate recreational fishing against their other outdoor activities during the last two months--was fishing their most important outdoor activity, their second most important outdoor activity, or only one of many outdoor activities? Over 60 percent of the respondents in both subregions (NE=61%, MA=68%) reported marine recreational fishing was

**Figure 3-8 Distribution of Recreational Anglers Taking One-Day and Overnight Trips**

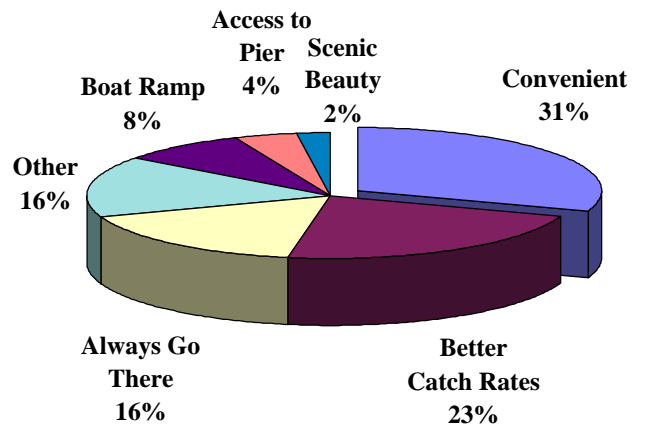


<sup>20</sup> Anglers typically indicated only one or two reasons for site choice. Therefore, only the first and second stated preferences for site choice are presented.

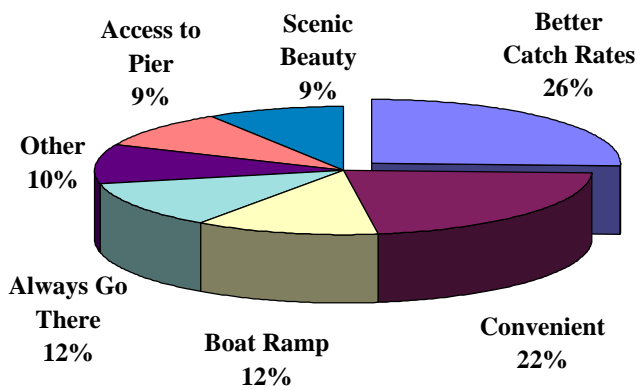
**Figure 3-9 New England Anglers' First Stated Preference for Fishing Site Characteristics**



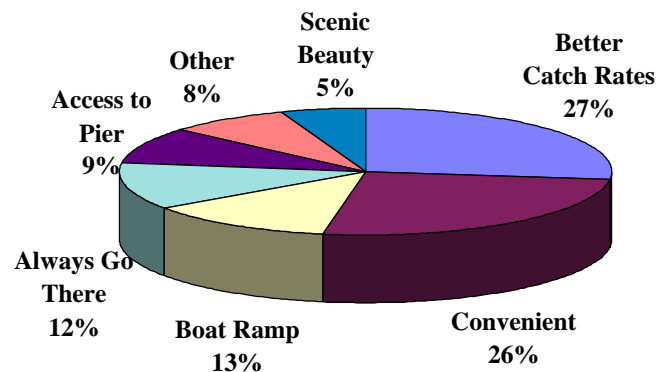
**Figure 3-10 Mid-Atlantic Anglers' First Stated Preference for Fishing Site Characteristics**



**Figure 3-11 New England Anglers' Second Stated Preference for Fishing Site Characteristics**



**Figure 3-12 Mid-Atlantic Anglers' Second Stated Preference for Fishing Site Characteristics**



their most important outdoor activity during the past two months (Figure 3-13). Less than 30 percent in both subregions (NE=27%, MA=20%) said recreational fishing was only one of many outdoor activities. This is consistent with national outdoor recreation surveys carried out over the

past 30 years indicating that fishing is consistently one of the top outdoor recreation activities in terms of number of people who participate.<sup>21</sup>

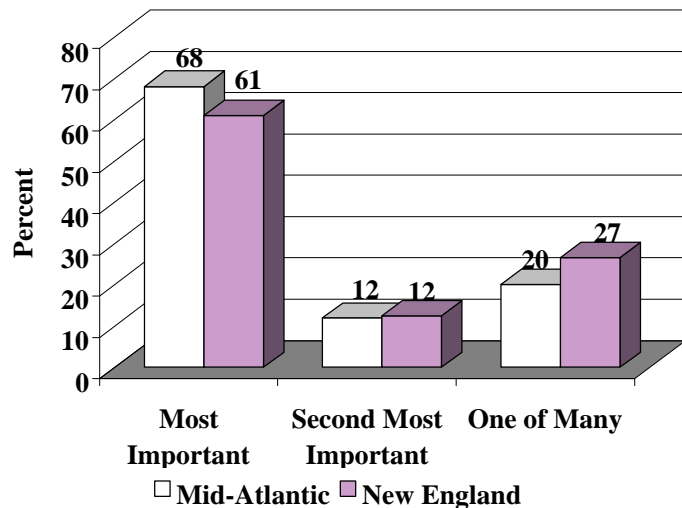
### 3.2.3 Recreational Anglers' Ratings of Reasons for Marine Fishing

Table 3-2 summarizes the ratings respondents assigned to 7 preestablished reasons for fishing. The reasons that more than 65 percent of the anglers in both subregions said were very important were to: spend quality time with friends and family (NE=81.3%, MA=85.0%); enjoy nature and the outdoors (NE=88.5%, MA=87.3%); experience the excitement or challenge of sport fishing (NE=68.8%, MA=65.6%); and relax and “escape from my daily routine” (NE=83.3%, MA=85.5%).

The reasons that were rated as not important by the largest share of anglers consisted of to: catch fish to eat (NE=42.2%), be alone (NE=55.0%, MA=57.7%), and fish in a tournament or when awards were available (NE=78.6%, MA= 73.4%). In the Mid-Atlantic, although to catch fish to eat was rated as being somewhat important by the largest portion of anglers (40.1%), approximately 31 percent felt catching fish to eat was very important. Whereas, in New England, only 20 percent concurred.

It is clear from these responses that marine recreational fishing offers many more tangible benefits than just catching fish to anglers. Over 80 percent of the respondents in both subregions perceived recreational fishing as a time to spend with friends and family, a time to escape from their daily routine, and time to enjoy nature and the outdoors. While catching fish to eat is somewhat important to many anglers, findings of this survey generally concur with previous studies that found non-catch reasons are rated highly by almost all respondents while catch is very important for about a third of anglers and catching fish to eat is moderately important for about another third.

**Figure 3-13 Distribution of Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities**



<sup>21</sup> See Milon and Thunberg 1993.

**Table 3-2 Mean Recreational Anglers' Ratings of Reasons for Marine Fishing, by Subregion**

Statement	New England			Mid-Atlantic		
	Not Important	Somewhat Important	Very Important	Not Important	Somewhat Important	Very Important
To Spend Quality Time with Friends & Family	4.4%	14.3%	81.3%	3.0%	12.0%	85.0%
To Enjoy Nature and the Outdoors	1.4%	10.1%	88.5%	1.1%	11.6%	87.3%
To Catch Fish to Eat	42.2%	37.4%	20.4%	29.3%	40.1%	30.6%
To Experience the Excitement or Challenge of Sport Fishing	6.2%	24.9%	68.8%	8.4%	26.0%	65.6%
To be Alone	55.0%	27.9%	17.1%	57.7%	25.8%	16.4%
To Relax and Escape from my Daily Routine	3.4%	13.3%	83.3%	2.6%	11.9%	85.5%
To Fish in a Tournament or when Citations are Available	78.6%	14.0%	7.4%	73.4%	17.1%	9.5%

### **3.2.4 Recreational Anglers' Ratings of Fishing Regulation Methods**

The economic survey sought to solicit anglers' opinions regarding four widely applied regulatory methods used to restrict total recreational catch of the species for which they typically fish: (1) limits on the minimum size of fish they can keep; (2) limits on the number of fish they can keep; (3) limits on the times of the year when they can keep the fish they catch; and (4) limits on the areas they fish. Anglers were asked whether or not they supported or opposed the regulation methods. Strong support existed for all the regulation methods in both subregions (Table 3-3). Limits on the minimum size of fish anglers could keep generated the highest support (NE=92.5%, MA=93.2%), while limits on the areas anglers can fish, although still high, generated relatively lower support (NE=67.9%, MA= 66.0%).

Results indicate that recreational anglers in the Northeast Region appear to be conservation minded and generally support typical regulation methods used to restrict total catch.

**Table 3-3 Mean Recreational Anglers' Ratings\* of Fishing Regulation Methods, by Subregion**

Type of Regulation	New England		Mid-Atlantic	
	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	92.5%	7.5%	93.2%	6.8%
Limits on the Number of Fish You Can Keep	91.1%	8.9%	88.3%	11.7%
Limits on the Times of the Year When You Can Keep the Fish You Catch	78.8%	21.2%	77.1%	22.9%
Limits on the Areas You Can Fish	67.9%	32.1%	66.0%	34.0%
* 1=Support 2=Oppose				



## CHAPTER 4 SPORTFISHING BY MODE OF FISHING

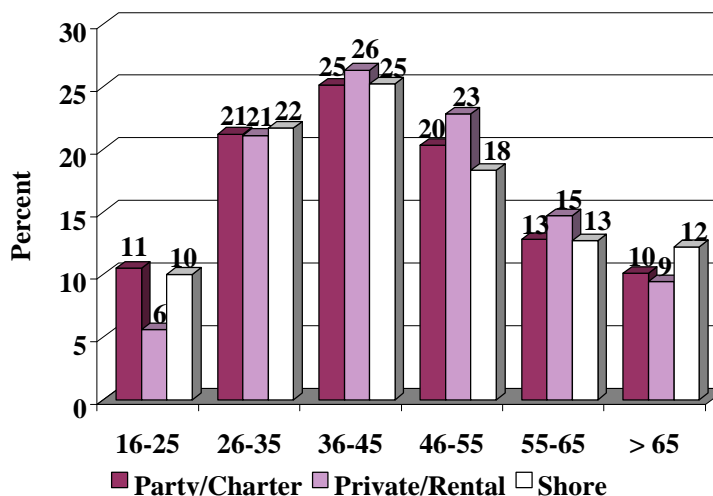
Often fishery management tools target specific groups of anglers for marine conservation. In some cases, anglers are targeted by mode of fishing. For example, Amendment VII to the Groundfish FMP in the Northeast has proposed a combined cod plus haddock ten-fish bag limit for shore and private/rental boat anglers, while anglers fishing from party/charter boats are exempt from the limit. Knowledge of differences in angler social and demographic characteristics by mode may help managers better understand the assorted social and economic effects of management on different groups of anglers. Additionally, by understanding angler preferences and attitudes towards regulations, managers will be able to better predict behavior towards particular regulations and adopt strategies that encourage cooperation. This chapter presents profiles of marine anglers by three distinct modes: (1) shore fishing, (2) private/rental boat fishing, and (3) party/charter boat fishing.<sup>22</sup>

### 4.1 Demographic and Socio-economic Characteristics of Marine Recreational Anglers by Mode

#### 4.1.1 Age

A distribution of mode of fishing in relation to age is presented in Figure 4-1. The largest percentage of anglers from all modes were 36-45 years old (shore=25%, private/rental=27%, party/charter=25%). Anglers age 16-25 fished mostly from party/charter boats, while the oldest anglers (age 66 and over) predominantly fished from shore.

Figure 4-1 Distribution of Recreational Anglers' Age, by Mode



#### 4.1.2 Education

Education may be important in understanding the choices individuals make about the mode of recreational fishing. Figure 4-2 shows the distribution of anglers' education levels by mode. High school graduates comprised the largest majority of anglers from all modes (shore=41%,

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<sup>22</sup> Unfortunately, given the current MRFSS survey design, separation of the party/charter mode into two distinctive categories--a party mode and a charter mode--was not possible. Additionally, although the characteristics and behavior of private and rental boat anglers may differ, the data did not allow for this distinction.

private/rental=42%, party/charter=39%). College graduates moderately preferred party/charter fishing (21%) to shore (17%) and private/rental boat fishing (16%). However, those with post graduate and professional degrees seemed to be indifferent. Essentially, results indicated that anglers were quite well educated with only minor educational differences across modes.

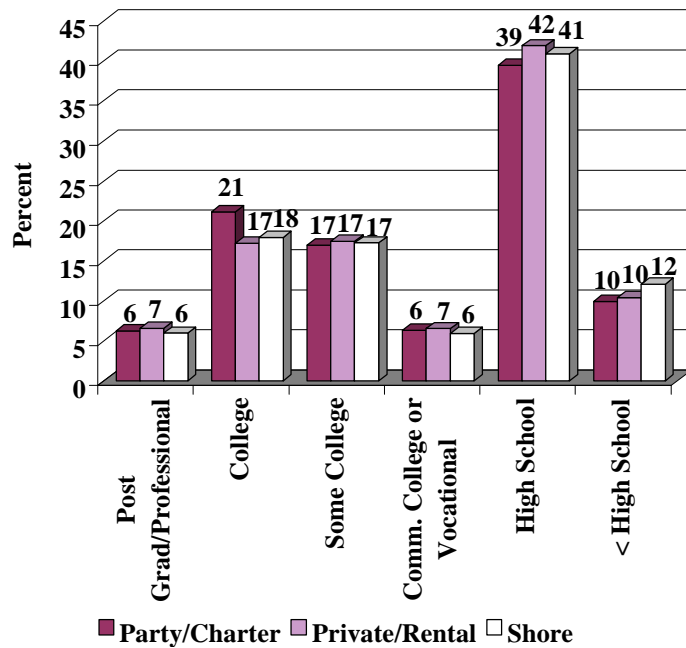
#### 4.1.3 Ethnicity

At least 85 percent of the anglers shown in Figure 4-3 considered themselves to be White (shore=85%, private/rental=94%, party/charter=88%). Most of the remainder of anglers in all modes were Black (shore=8%, private/rental=3%, party/charter=9%), leaving only 7 percent fishing from shore, 3 percent fishing from private/rental boats, and 4 percent fishing on party/charter boats to be of Asian, Hispanic, or other ethnic origins.

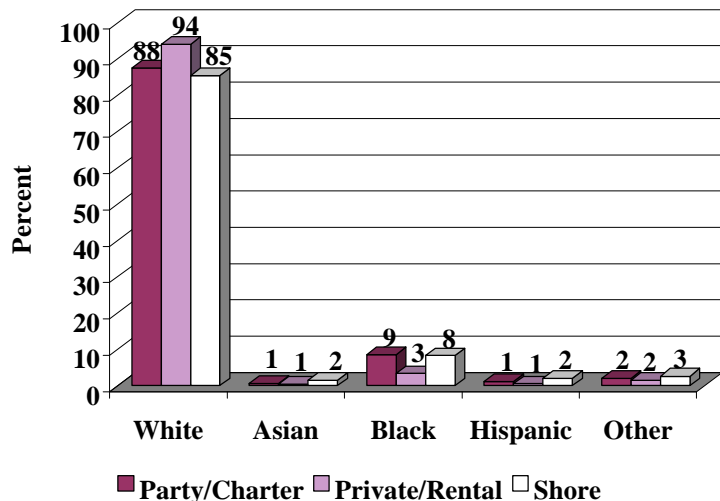
#### 4.1.4 Household Income

Income is one of the most important factors influencing recreational fishing behavior and patterns. A fisherman's choices are limited and bounded by the extent to which money is available to him/her. For those who have more money, there are more alternatives.<sup>23</sup> An individual's mode choice may be one of these alternatives.

**Figure 4-2 Distribution of Recreational Anglers' Education Levels, by Mode (Age 25 and Over)**



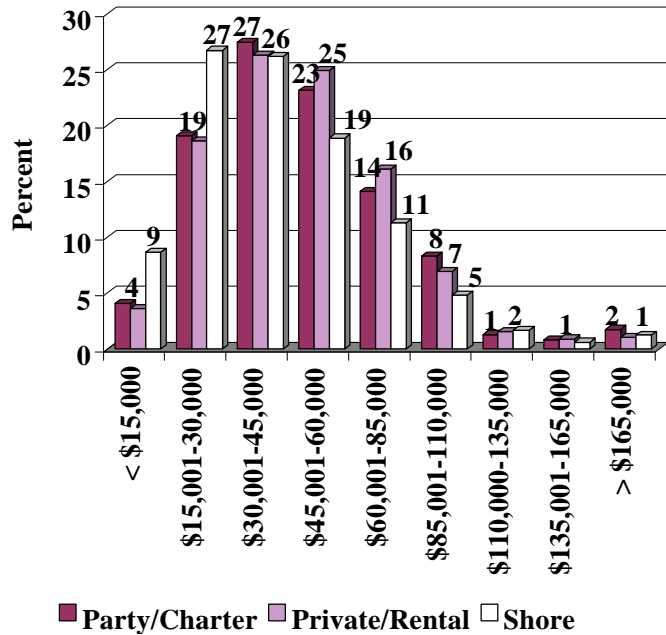
**Figure 4-3 Distribution of Recreational Anglers' Ethnicity, by Mode**



<sup>23</sup> Johnson, et. al. 1986.

A comparison of household income distributions by mode is shown in Figure 4-4. The largest share of household incomes fell between \$30,001 and \$45,000 for anglers who indicated they were fishing from private/rental boats (26%) and from party/charter boats (27%). The largest percentage of shore anglers' household incomes fell between \$15,001 and \$30,000 (28%). Consequently, shore anglers comprised the largest share of anglers with the lowest annual incomes; thirty-five percent of shore anglers indicated an annual household income of less than \$30,000.

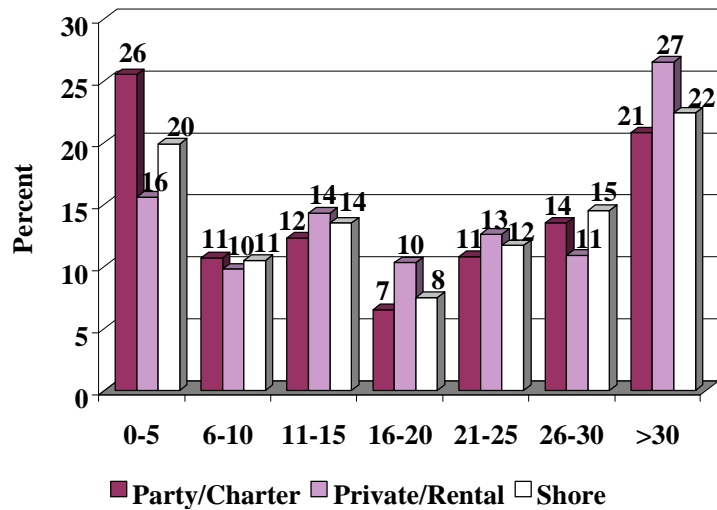
**Figure 4-4 Distribution of Recreational Anglers' Household Incomes, by Mode**



**4.1.5 Years of Experience**

Figure 4-5 illustrates the number of years anglers have been saltwater fishing by mode. Private/rental boat anglers comprised the largest share of experienced anglers, with over 27 percent indicating over 30 years of saltwater fishing experience and only 15 percent indicating less than 5 years of experience.<sup>24</sup> In contrast, a relatively large share of party/charter boat fishermen indicated more than 30 years of experience (20%), but over 25 percent indicated less than 5 years of experience. On the other hand, shore fishing comprised a large share of experienced (>30 years - 23%) and inexperienced anglers (0-5 years - 20%).

**Figure 4-5 Distribution of Recreational Anglers' Years of Experience, by Mode**



<sup>24</sup> “Years fished” is assumed to be a proxy for “experience.”

Results indicate that the majority of the experienced anglers fished from shore and private/rental boats, while many of the relatively inexperienced fishermen spent their time fishing from party/charter boats.

#### 4.1.6 Expenditures

Recreational fishermen incur certain costs or expenditures. Included among these costs are lodging expenditures, travel expenditures, and boat fees. Figure 4-6 illustrates these costs by mode for recreational anglers who participated in the economic survey.

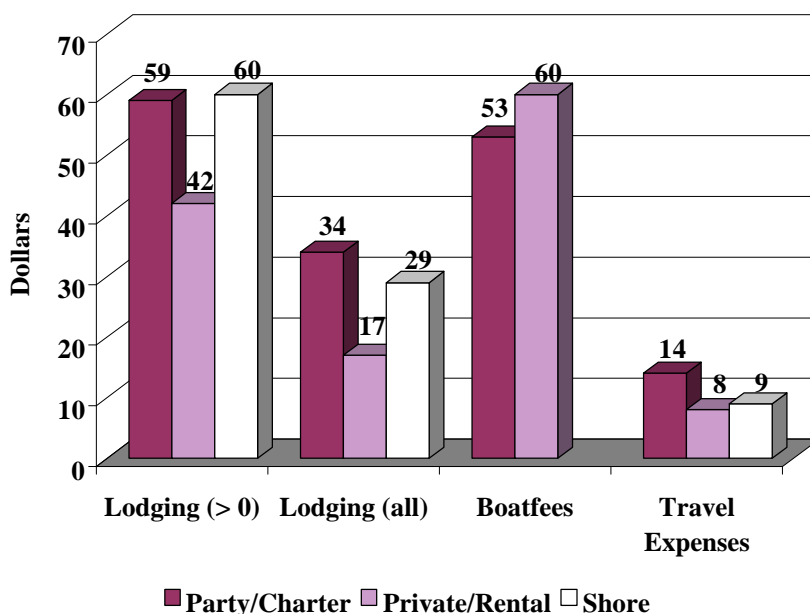
Party/charter and shore anglers that personally incurred lodging expenses (Lodging (>0)) spent approximately \$60.00 per night.<sup>25</sup> On the other hand, private/rental boat anglers spent substantially less, only

\$41.00 on average. Comparatively, across all overnight anglers (Lodging (all)) party/charter per night lodging costs were the highest (\$33.00), followed by shore anglers (\$29.00), and then private/rental boat anglers (\$17.00).

Of the expenditures illustrated, boat fees comprised a large portion of total expenses. In fact, boat fees represented 70 percent of total expenditures<sup>26</sup> for anglers fishing from private/rental boats and 53 percent for those fishing from party/charter boats. Boat fees averaged \$60.00 per trip on private/rental boats and \$52.00 on party/charter boats.

One-way travel expenses<sup>27</sup> represented the smallest portion of expenditures on average, for all the modes. Nevertheless, average party/charter one-way travel expenditures (\$14.00) were almost twice as high as private/rental boat expenditures (\$8.00) and larger than shore expenditures (\$9.00). If travel return costs are equal to arrival costs, average round-trip travel expenses would

**Figure 4-6 Distribution of Recreational Anglers' Expenditures, by Mode**



<sup>25</sup> The variable lodging (>0) is explained/defined in Chapter 3.

<sup>26</sup> In this case, total expenditures include lodging (all), boat fees, and one-way travel expenses.

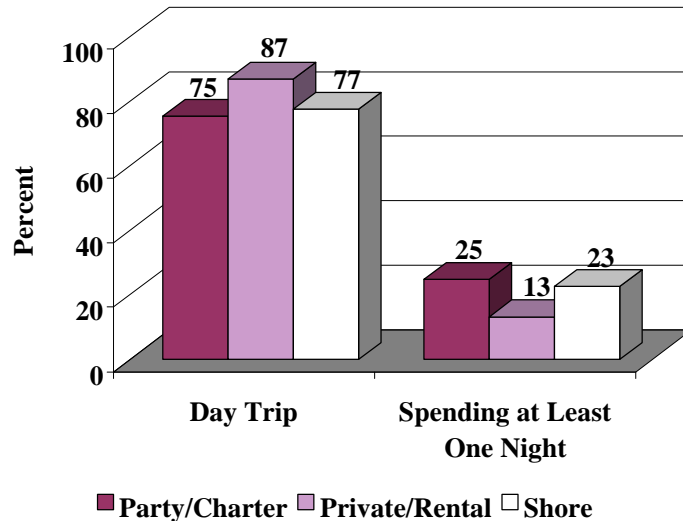
<sup>27</sup> Includes money spent on gas, travel fares, tolls, ferry and parking fees.

approximate \$28.00 for party/charter anglers, \$16.00 for private/rental boat anglers, and \$18.00 for shore anglers.

#### 4.1.7 Trip Length

The majority of anglers in all modes indicated they were on one-day fishing trips (Figure 4-7).<sup>28</sup> Nonetheless, approximately one-fourth of shore and party/charter anglers were on trips in which they spent at least one night away from their residence. In contrast, only 13 percent of private/rental boat anglers indicated the day of fishing was part of a longer trip.

**Figure 4-7 Distribution of Recreational Anglers' Taking One-Day and Overnight Trips, by Mode**



### 4.2 Preferences for Marine Recreational Fishing and Fishing Regulation Methods, by Mode

#### 4.2.1 Recreational Anglers Stated Preferences for Fishing Site Characteristics

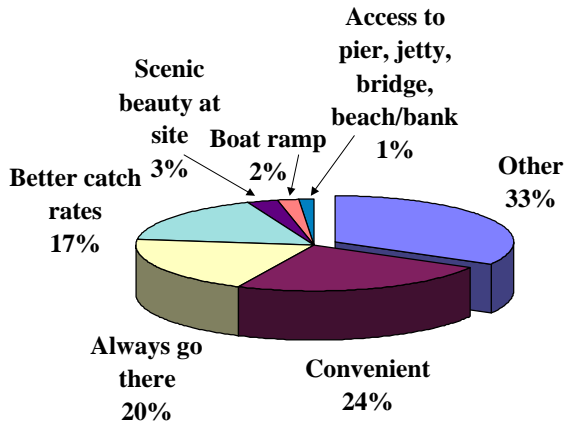
Figures 4-8 through 4-13 illustrate recreational anglers' first and second stated preferences for fishing site characteristics by mode of fishing. "Convenience," "better catch rates," and "always go there" were the main reasons why anglers chose fishing sites across all modes. However, one-third of party/charter fishermen did not choose any of the preestablished responses as their first stated preference for fishing site characteristics.<sup>29</sup> Unfortunately, these responses were coded as the category 'other' and were not specified. Site choice may also be conditional upon mode accessibility. A substantial percentage of shore anglers indicated "access to a pier, jetty, bridge or beach/bank" as either their first or second reason for site choice (17%), and many private/rental boat anglers preferred "access to a boat ramp" (29%).

Findings indicate that although access to certain kinds of fishing sites are important to shore anglers and that many private/rental boat anglers fish at sites because of access to a boat ramp, the majority of anglers chose fishing sites based upon convenience and better catch rates.

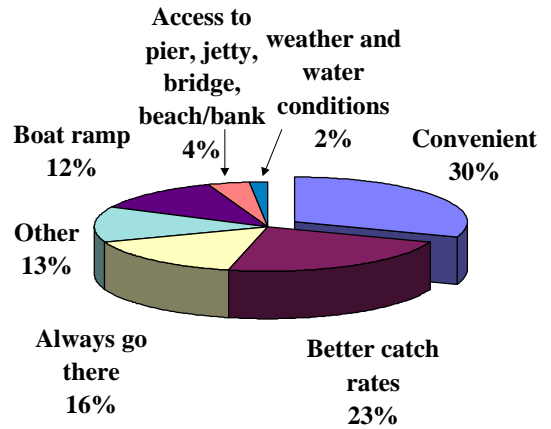
<sup>28</sup> One-day fishing trips are defined as trips in which an angler departs and returns on the same day.

<sup>29</sup> The predetermined responses are illustrated under question 6 in the economic telephone follow-up survey.

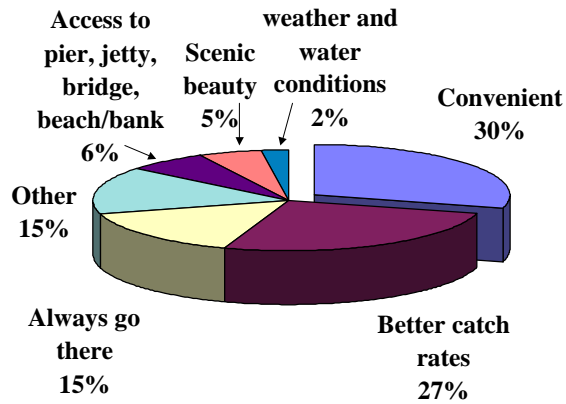
**Figure 4-8 Party/Charter Anglers' First Stated Preference for Fishing Site Characteristics**



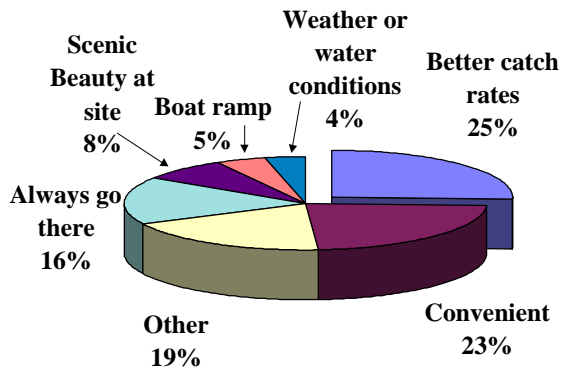
**Figure 4-9 Private/Rental Anglers' First Stated Preference for Fishing Site Characteristics**



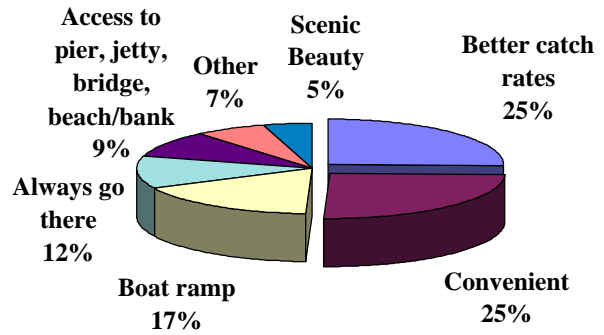
**Figure 4-10 Shore Anglers' First Stated Preference for Fishing Site Characteristics**



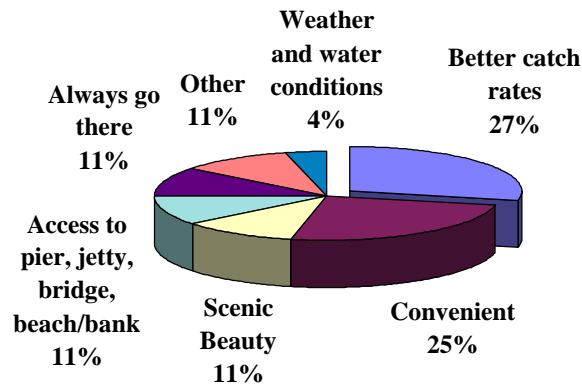
**Figure 4-11 Party/Charter Anglers' Second Stated Preference for Fishing Site Characteristics**



**Figure 4-12 Private/Rental Anglers' Second Stated Preference for Fishing Site Characteristics**



**Figure 4-13 Shore Anglers' Second Stated Preference for Fishing Site Characteristics**

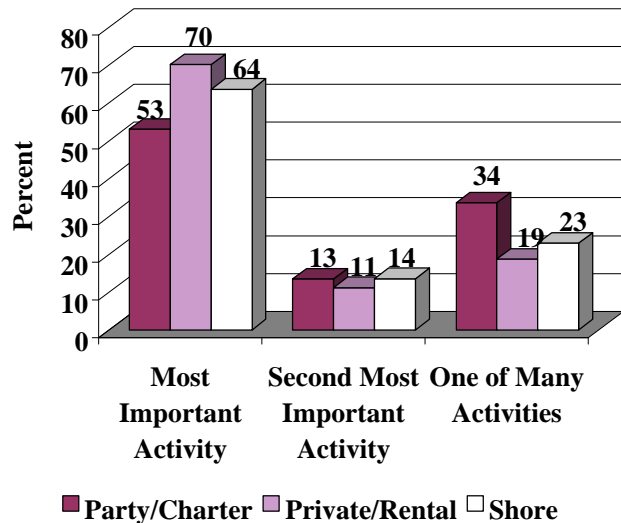


#### 4.2.2 Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities

Illustrated in Figure 4-14, the majority of anglers interviewed in all modes ranked marine recreational fishing as their most important outdoor activity during the past two months (shore=63%, private/rental=70%, party/charter=52%).<sup>30</sup> The higher importance of recreational fishing associated with private boat anglers may be attributable to substantial operational costs. Boat owners may take more fishing trips to warrant the costs of operation. It is also likely that anglers may own boats simply because recreational fishing is their most important outdoor activity.

Consequently, while the majority (53%) of party/charter boat fishermen indicated fishing was their most important outdoor activity, 33 percent of these respondents declared fishing to be only one of many outdoor activities during the past two months. Since party/charter trips are often part of longer vacations (i.e., not the sole purpose of the trip), this result can be expected.<sup>31</sup> Over 60 percent of the shore anglers, on the other hand, indicated fishing was their most important outdoor activity during the last two months. Shore fishing may be considered more important than other outdoor activities because it is often convenient, relatively inexpensive, safe, and easily accessible.

**Figure 4-14 Distribution of Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities, by Mode**



#### 4.2.3 Recreational Anglers' Ratings of Reasons for Marine Fishing

The survey revealed that party/charter, private/rental, and shore anglers have similar reasons for participating in marine fishing. Table 4-1 summarizes the ratings respondents assigned to 7 reasons for fishing. Over 60 percent of the anglers in all modes indicated the following reasons were very important: to spend quality time with friends and family (party/charter=84.0%, private/rental=84.8%, shore=81.6%); enjoy nature and the outdoors (party/charter=84.7%, private/rental=88.4%, shore=87.7%); experience the excitement or

<sup>30</sup> Anglers were asked to rate recreational fishing as their most important outdoor activity, their second most important outdoor activity, or only one of many outdoor activities during the past two months.

<sup>31</sup> Figure 4-7 illustrated that 25 percent of party/charter anglers indicated the day of fishing was part of a longer vacation where they spent at least one night away from their residence.



**Table 4-1 Mean Recreational Anglers' Ratings of Reasons for Marine Fishing, by Mode**

Statement	Party/Charter			Private/Rental			Shore		
	Not Important	Somewhat Important	Very Important	Not Important	Somewhat Important	Very Important	Not Important	Somewhat Important	Very Important
To Spend Quality Time with Friends & Family	3.1%	12.9%	84.0%	2.8%	12.4%	84.8%	5.1%	13.2%	81.6%
To Enjoy Nature and the Outdoors	1.4%	13.9%	84.7%	0.9%	10.7%	88.4%	1.7%	10.6%	87.7%
To Catch Fish to Eat	30.2%	41.0%	28.8%	31.2%	40.6%	28.2%	39.3%	35.1%	25.6%
To Experience the Excitement or Challenge of Sport Fishing	8.2%	30.1%	61.7%	7.2%	25.0%	67.8%	9.0%	24.6%	66.4%
To be Alone	59.6%	26.6%	13.8%	59.7%	24.9%	15.4%	48.7%	30.0%	21.3%
To Relax and Escape from my Daily Routine	2.4%	14.6%	83.0%	2.7%	12.4%	84.9%	3.4%	10.8%	85.8%
To Fish in a Tournament or when Citations are Available	73.3%	16.8%	10.0	74.0%	17.3%	8.7%	78.3%	13.1%	8.5%

challenge of sport fishing (party/charter=61.7%, private/rental=67.8%, shore=66.4%); and relax and “escape from my daily routine” (party/charter=83.0%, private/rental=84.9%, shore=85.8%). The reasons that the majority of anglers said were not important were: to catch fish to eat (shore=39.3%); be alone (party/charter=59.6%, private/rental=59.7%, shore=48.7%); and fish in a tournament or when citations are available. Private/rental boat anglers, and those fishing from party/charter boats rated to catch fish to eat as being somewhat important by the majority of anglers (PR=40.6%, PC=41.0%).

In general, there were no large differences across modes. Although catching fish to eat was considered somewhat more important by party/charter and private/rental boat anglers, results indicate consistent non-catch related reasons for fishing across modes.

#### **4.2.4 Recreational Anglers’ Ratings of Fishing Regulation Methods**

Table 4-2 portrays anglers’ opinions regarding four widely applied regulatory methods.<sup>32</sup> Anglers in all modes indicated strong support for the regulatory measures. Minimum size limits generated the strongest support, followed by catch limits, seasonal closures, and finally, area limits.

Although party/charter, private/rental, and shore respondents did offer varying degrees of support for each of a selection of regulatory measures, similar support existed across all modes. Support was highest for more common regulatory methods currently being implemented in New England and the Mid-Atlantic (e.g., size and bag limits), than for area and seasonal closures.

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<sup>32</sup> These opinions apply to regulatory measures implemented on species the angler typically fishes for.

**Table 4-2 Mean Recreational Anglers' Opinions\* of Fishing  
Regulation Methods, by Mode**

Statement	Party/Charter		Private/Rental		Shore	
	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	92.1%	7.9%	94.4%	5.6%	90.1%	9.9%
Limits on the Number of Fish You Can Keep	87.9%	12.1%	90.0%	10.0%	87.7%	12.3%
Limits on the Times of the Year When You Can Keep the Fish You Catch	79.2%	20.8%	78.3%	21.7%	75.0%	25.0%
Limits on the Areas You Can Fish	74.4%	25.6%	65.9%	34.1%	63.6%	36.4%
* 1=Support 2=Oppose						

## CHAPTER 5 SPORTFISHING BY STATE

Understanding the characteristics and preferences of fishermen may help resource managers and decision makers at state and local levels improve the quality of and access to fishing opportunities. The continuum of information obtained from the survey can be used to supplement harvest data collected by state agencies, and indicate to managers the types of impacts different regulations have on participation and access within their own state. Moreover, these data illustrate where potential improvements to access might enhance the quality of fishing opportunities.

Given the current and projected status of many inshore sport fish populations, and the likelihood of potentially more restrictive regulations in the future, it is likely that participation in recreational fishing will decline. To offset this decline, states may seek to find ways to improve and develop high quality fishing opportunities to continue to attract participants to recreational fishing.

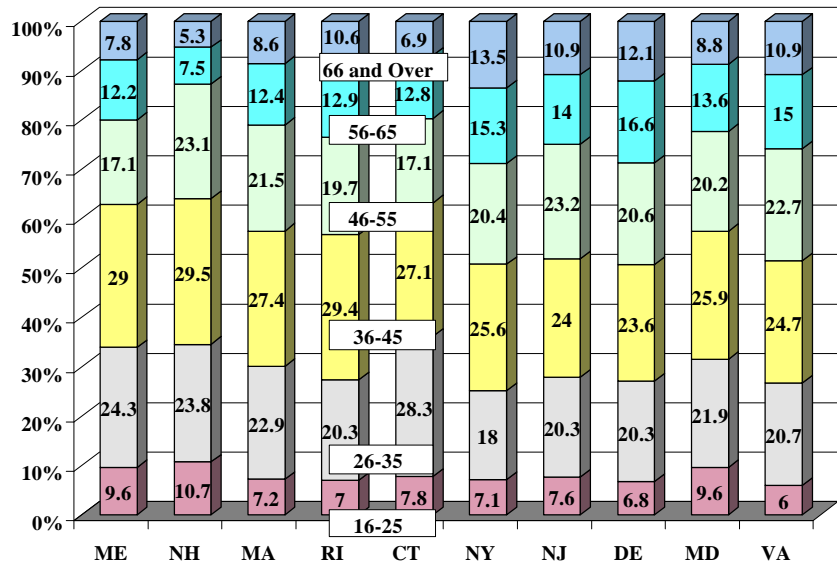
### 5.1 Demographic and Socio-economic Characteristics of Marine Recreational Anglers, by State

#### 5.1.1 Age

Figure 5-1 shows the distribution of recreational anglers' age by state.<sup>33</sup>

Except for Connecticut, of the categories illustrated, the majority of anglers were 36-45 years old. In Connecticut, over one-quarter of the anglers indicated they were 26-35 years of age (28%). Comparatively, New Hampshire had the greatest number of anglers age 16 to 25 (11%) and the fewest number of anglers age 66 and over (5%). New York and Delaware anglers were among the oldest; approximately 50 percent were over the age of 46. Furthermore, in New York, 14 percent were over the age of 66.

**Figure 5-1 Distribution of Recreational Anglers' Age, by State**



<sup>33</sup> Anglers under the age of 16 were not included in the analysis.

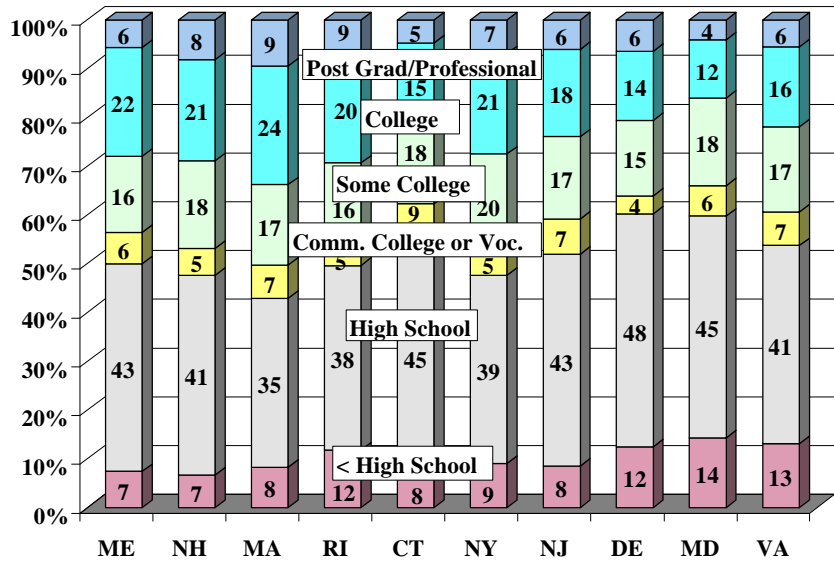
### 5.1.2 Education

Figure 5-2 portrays the distribution of anglers' educational levels by state. Across all states, over 86 percent of the anglers (age 25 and over) obtained at least a high school degree. In general, the percentage of high school graduates increased with each consecutive state north of Maryland and peaked in New Hampshire (93%) and Maine (93%). Overall, the Mid-Atlantic states had the highest percentage of anglers in the high school graduate category, with Delaware (48%) and Maryland (45%) leading the way. While no substantial differences in the percentage of vocational and community college graduates resulted across states, Connecticut anglers comprised the largest share of this group (9%). The proportion of college and post graduates was highest in the northern states of New England. At least 28 percent of the anglers interviewed in Rhode Island (29%), Massachusetts (33%), New Hampshire (29%), and Maine (28%) obtained college or post graduate degrees.

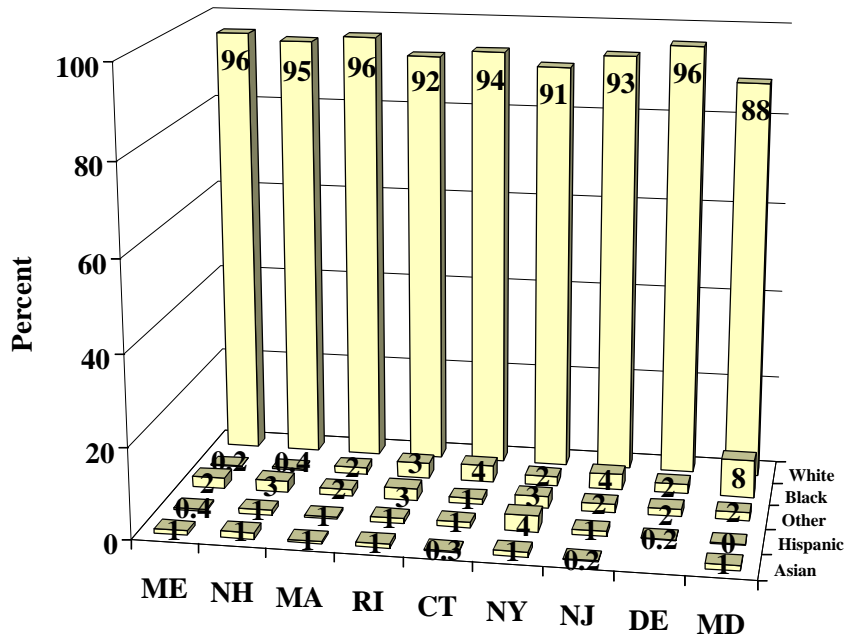
### 5.1.3 Ethnicity

As can be seen from Figure 5-3, over 90 percent of the anglers in every state except for Maryland and Virginia considered themselves to

**Figure 5-2 Distribution of Recreational Anglers' Education Levels, by state (Age 25 and Over)**



**Figure 5-3 Distribution of Recreational Anglers' Ethnicity, by State**

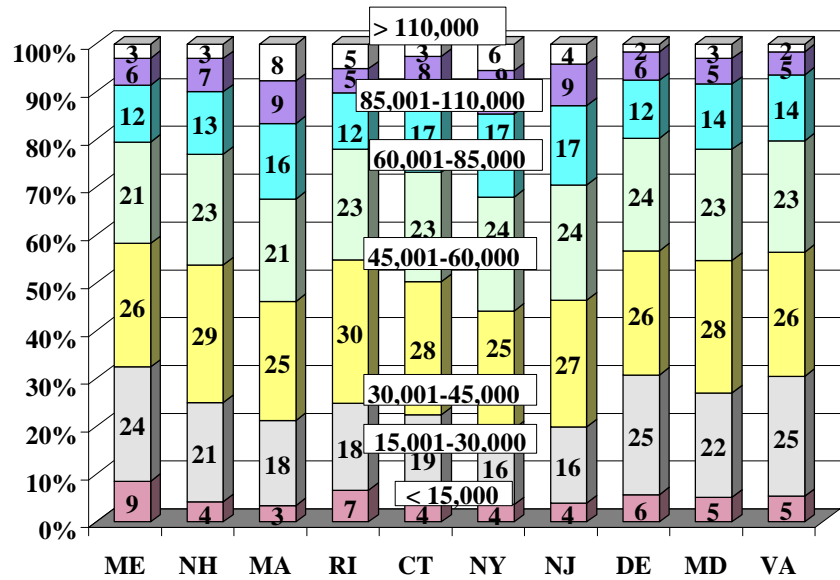


be White.<sup>34</sup> In fact, the percentage of White fishermen reached 96 percent in Maine, Massachusetts, and Delaware. The percentage of Black anglers was greatest in the southern states (MD=8%, VA=11%) and smallest in the northern states (NH=0.4%, ME=0.2%). The percentage of Hispanic anglers, although relatively small, was greatest in New York (4.0%). Approximately three to four percent of the remaining anglers in each state were either Asian or from some other racial or ethnic origin.

### 5.1.4 Household Income

**Figure 5-4 Distribution of Recreational Anglers' Household Income, by State**

Figure 5-4 shows the distribution of household income categories for recreational anglers by state. Comparatively, the majority of anglers indicated household incomes between \$30,001 and \$45,000 across all states. Anglers in Maine comprised the largest percentage of respondents with household incomes below \$30,000 (33%), followed closely by Delaware (31%) and Virginia (30%). In contrast, Massachusetts anglers indicated the highest annual household incomes; 33 percent of the respondents declared their household income to be above \$60,000 annually.



These findings indicate a relationship may exist between annual household income and fishing avidity. Participation in recreational fishing is often bounded by the extent to which money is available. It is likely that higher earnings may allow anglers to take more fishing trips. Although statistical tests were not attempted, a positive relationship appears to exist between the MRFSS estimates of number of fishing trips taken by state and the estimated annual household incomes obtained from the economic survey. During 1994, the estimated number of trips taken was highest in Massachusetts, New York, and New Jersey, the same states that boasted the highest average annual household incomes above \$60,000.<sup>35</sup>

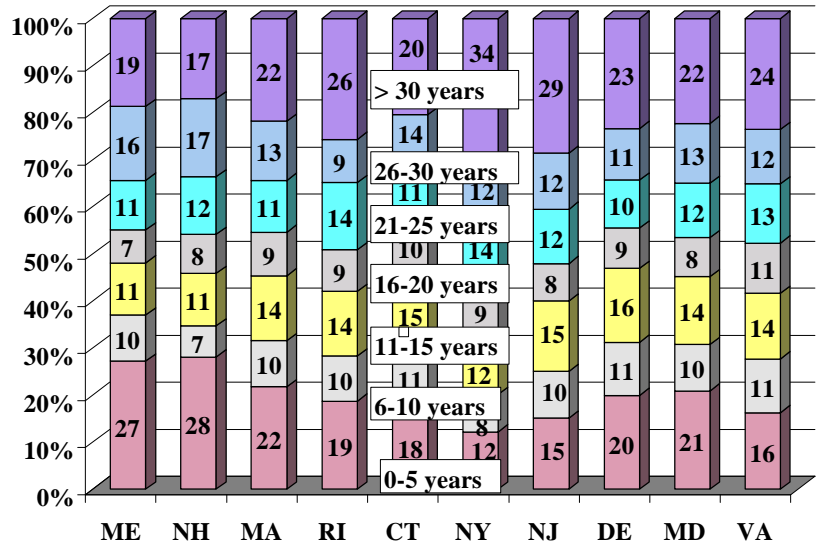
<sup>34</sup> Anglers were asked to describe themselves as White, Black, Hispanic, Asian, or some other racial or ethnic origin.

<sup>35</sup> The illustrated positive relationship between fishing avidity and income may be masked by the size of the angling population in those states. Data from the 1994 MRFSS revealed aggregate marine recreational fishing participation (i.e., the number of anglers) was highest in Massachusetts, New York, and New Jersey. Thus, the higher number of estimated trips in those states may simply be due to a higher angling population. Individual trip estimates were not available to make this distinction.

### 5.1.5 Years of Experience

Figure 5-5 illustrates the distribution of recreational anglers' years of experience by state. Results of the survey revealed anglers in the northern New England had the least saltwater fishing experience.<sup>36</sup> Over one-quarter of the respondents in Maine (27%) and New Hampshire (28%) indicated fewer than 5 years of experience, while less than 20 percent indicated more than 30 years of experience

**Figure 5-5 Distribution of Recreational Anglers' Years of Experience, by State**



(ME=19%, NH=17%). In contrast, New York and New Jersey anglers were the most experienced, with over 40 percent indicating more than 26 years of experience. Overall, it appears that experience generally increased in succession from Maine to Virginia.

### 5.1.6 Expenditures

A breakdown of mean fishing trip expenditures is presented by state in Figure 5-6.<sup>37</sup> Rhode Island and Massachusetts anglers spent the most on average, while anglers in New Hampshire and Connecticut spent the least.

Anglers in New Jersey incurred the largest per night personal lodging expenses (Lodging (>0), \$77.00) across states. Connecticut anglers, in contrast, incurred personal lodging expenses of \$22.00 on average, less than one-third the amount New Jersey anglers incurred and in comparison, the smallest cost across states. When considering all anglers (i.e., regardless of whether an angler incurred a lodging expense, Lodging (>0)), per night lodging costs for Massachusetts anglers were the highest (\$32.00). At the other extreme were Delaware anglers; they spent about \$12.00 a night on average.

Of the expenditures illustrated, one-way travel expenses represented the smallest portion of total expenditures across most of the states. However, if one-way travel costs are doubled to approximate round-trip expenditures, they would represent a substantial portion of total costs. The

<sup>36</sup> The assumption was made that “years fished” is a proxy for “experience.”

<sup>37</sup> See Chapter 3, Section 3.1.6 Expenditures, for a complete description of the illustrated variables.

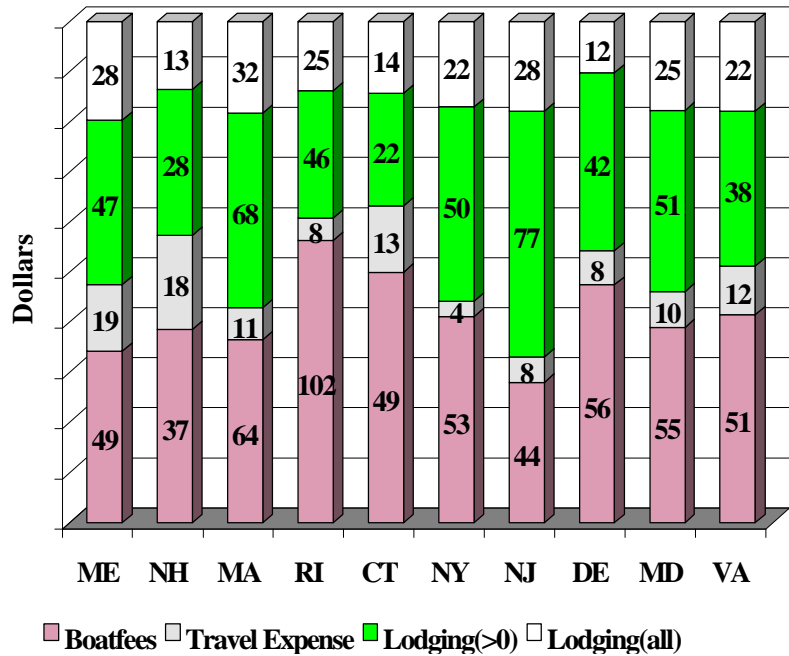
one-way travel expenses illustrated in Figure 5-6, which represent money spent on gas, travel fares, tolls, and ferry and parking fees, are highest in Maine (\$19.00) and lowest in New York (\$4.00).

Anglers expenditures may also include money spent on boat fees. Average party/charter and private/rental boat fees in Rhode Island (\$102.00) were substantially larger than in neighboring states. In fact, average Massachusetts boat fees (\$64.00) were exceeded only by Rhode Island and were \$32.00 lower. Anglers in New Hampshire spent the least amount on boat fees (\$37.00); approximately 36 percent less than the highest paying state, Rhode Island.

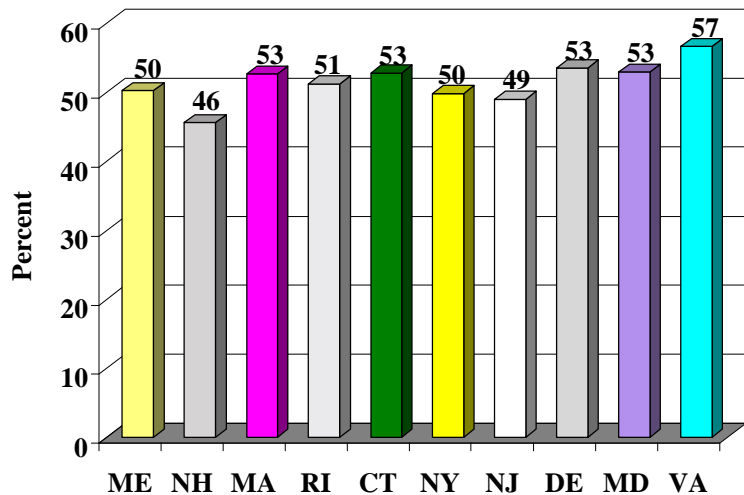
### 5.1.7 Boat Ownership

Figure 5-7 shows that approximately one-half of all anglers interviewed owned a boat (or someone in their household owned a boat) that was used for recreational fishing. Comparatively, anglers in Virginia owned the highest proportion of boats (57%) followed closely by anglers in Maryland, Delaware, Connecticut, and Massachusetts (53%). New Hampshire had the smallest proportion of boat-owning anglers (46%).

**Figure 5-6 Distribution of Recreational Anglers' Expenditures, by State**



**Figure 5-7 Distribution of Recreational Anglers who Own a Boat and Use it for Recreational Fishing, by State**

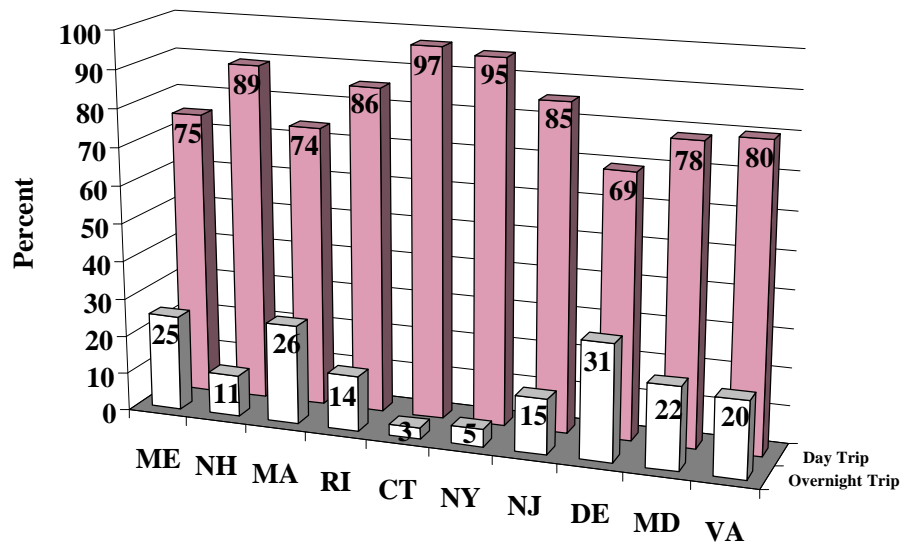




### 5.1.8 Trip Length

Figure 5-8 shows the duration of the interviewed trips by state. Most of the anglers in all states indicated they were on a one-day fishing trip.<sup>38</sup> Connecticut anglers represented the largest share of anglers taking one-day trips (97%). Almost one-third of Delaware anglers (31%), on the other hand, indicated the day of fishing was part of a longer trip in which they spent/or planned to spend at least one night away from their residence.

**Figure 5-8 Distribution of Recreational Anglers Taking One-Day and Overnight Trips, by State**



## 5.2 Preferences for Marine Recreational Fishing and Fishing Regulation Methods, by State

### 5.2.1 Recreational Anglers Stated Preferences for Fishing Site Characteristics

Anglers choose fishing sites for a variety of reasons. Understanding the underlying reasons behind site choice may help state and local decisionmakers enhance the quality and quantity of fishing trips. Table 5-1 illustrates anglers' first and second stated preferences for fishing site characteristics by state.<sup>39</sup> "Convenience" and "better catch rates" constituted the largest percentage of responses across states. These two responses comprised over 43 percent of anglers' first stated preferences and over 40 percent of their second stated preferences. "Convenience" was the most widely stated first preference across states. Rhode Island anglers, however, chose better catch rates (23.7%) and the largest percentage of anglers in Maine chose the category 'other' (25.6%) as their first stated preference for fishing site characteristics.<sup>40</sup>

<sup>38</sup> One-day fishing trips were defined to be trips in which an angler departs and returns on the same day.

<sup>39</sup> See question 6 in the economic follow-up survey for a list of preestablished responses.

<sup>40</sup> Unfortunately, the 'other' category was not specified in the coding process. However, it is likely that this category constitutes an assortment of responses.

**Table 5-1 Mean Recreational Anglers' Stated Preferences for Fishing Site Characteristics, by State**

<b>1st Stated Preference</b>	<b>ME</b>	<b>NH</b>	<b>MA</b>	<b>RI</b>	<b>CT</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>
Better Catch Rates	20.7%	20.3%	25.8%	23.7%	27.3%	23.5%	18.8%	20.7%	20.3%	23.3%
Convenient	23.8%	30.4%	27.7%	19.8%	30.9%	29.4%	28.4%	29.1%	31.2%	29.1%
Always Go There	16.4%	14.0%	15.8%	15.2%	13.8%	14.3%	16.8%	22.4%	15.7%	14.8%
Boat Ramp	3.6%	6.6%	6.8%	10.7%	5.4%	9.2%	10.0%	6.1%	6.9%	7.0%
Access to Pier	3.8%	5.2%	3.8%	4.9%	3.0%	3.0%	4.1%	3.7%	4.1%	4.4%
Scenic Beauty	4.4%	2.1%	2.6%	4.1%	2.4%	2.6%	1.7%	0.9%	3.4%	2.0%
Weather or Water Conditions	0.7%	1.0%	1.5%	2.1%	1.5%	1.8%	1.9%	0.9%	1.5%	1.8%
Pre-paid Fee	0.7%	0.7%	0.9%	1.0%	2.7%	0.6%	1.1%	0.2%	0.6%	1.1%
Less Congestion	0.4%	0.7%	0.1%	1.4%	0.6%	1.1%	0.9%	0.7%	0.8%	1.1%
Other	25.6%	18.9%	15.1%	17.1%	12.3%	14.4%	16.2%	15.2%	15.6%	15.4%
<b>2nd Stated Preference</b>										
Better Catch Rates	27.5%	14.1%	28.5%	20.1%	20.2%	26.2%	24.9%	27.7%	25.4%	24.3%
Convenient	18.6%	25.6%	19.7%	21.8%	20.2%	20.4%	23.2%	26.9%	27.6%	24.2%
Always Go There	8.8%	7.7%	11.9%	12.1%	11.3%	14.2%	10.2%	11.5%	11.0%	10.6%
Boat Ramp	8.8%	10.3%	10.2%	13.2%	12.9%	10.9%	12.7%	8.5%	11.3%	12.3%
Access to Pier	5.9%	12.8%	6.1%	9.2%	13.7%	7.3%	6.8%	7.7%	7.8%	10.2%
Scenic Beauty	13.7%	7.7%	6.8%	9.2%	6.5%	5.1%	6.1%	4.6%	5.7%	4.4%

**Table 5-1 Continued**

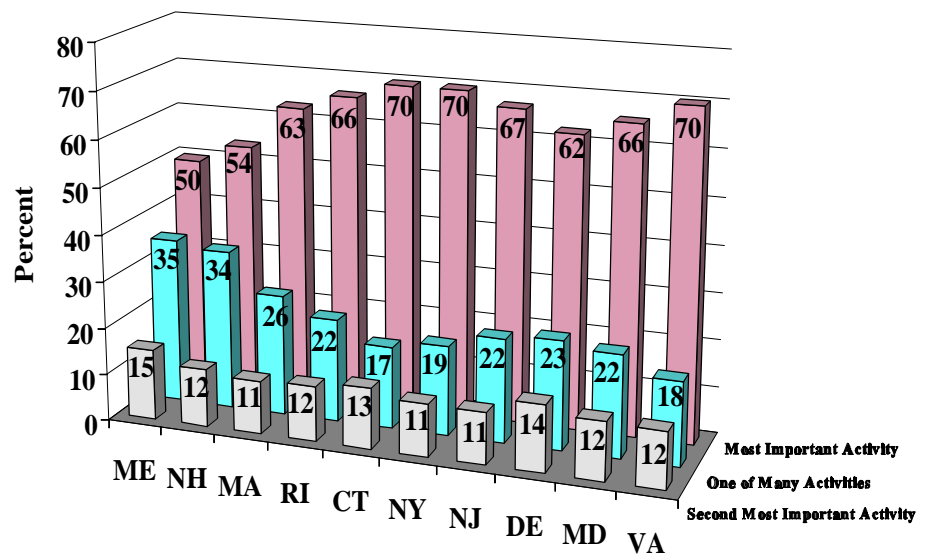
Weather or Water Conditions	2.0%	6.4%	6.8%	3.4%	2.4%	2.2%	2.9%	2.3%	2.5%	2.9%
Pre-paid Fee		2.6%	1.4%		1.6%	1.8%	2.4%	3.8%	1.4%	2.0%
Less Congestion	1.0%	2.6%	1.0%	1.1%	2.4%	1.8%	2.0%	3.1%	1.1%	1.7%
Other	13.7%	10.3%	7.8%	9.8%	8.9%	10.2%	8.8%	3.8%	6.4%	7.4%

Generally, results indicate that sites that offered good catch rates and were convenient attracted the most anglers. Additionally, habit (always go there), seemed to play a substantial role in an individual's site choice decision across states. Access to a boat ramp was considered to be relatively important to Rhode Island anglers, access to a pier to New Hampshire anglers, and scenic beauty to anglers in Maine.

### 5.2.2 Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities

Figure 5-9 shows anglers' ranking of marine recreational fishing compared to other outdoor activities by state.<sup>41</sup> At least one-half of the respondents in all states indicated fishing was their most important outdoor activity during the past two months. It is interesting to note the general progressive increase in importance in the coastal states from Maine to Virginia. In the Northeast Region, the importance rose with each consecutive state from Maine through Connecticut. The relative importance of fishing stabilized somewhat in the Mid-Atlantic, but still showed a southerly increase with each successive state, from Delaware to Virginia.

**Figure 5-9 Distributional Ranking of Recreational Fishing Compared to Other Outdoor Activities, by State**



A similar trend resulted with anglers that declared marine recreational fishing to be only one of many activities. Figure 5-9 shows that respondents in the North generally did not place as much importance on recreational fishing compared to their other outdoor activities. In fact, a consecutive increase in the percentage of anglers that indicated fishing was only one of many activities occurred in New England, from Connecticut up to Maine.

Weather may have a substantial effect on the importance of fishing as an outdoor activity. The weather is generally warmer and the fishing season longer the further south one travels through the Northeast Region, especially in New England. Additionally, investments in tackle and related

<sup>41</sup> Anglers were asked to rate marine recreational fishing as their most important outdoor activity, their second most important outdoor activity, or only one of many outdoor activities during the past two months.

gear are usually higher in areas with longer fishing seasons. These factors likely contribute to the importance anglers place on marine recreational fishing.

### **5.2.3 Recreational Anglers' Ratings of Reasons for Marine Fishing**

Table 5-2 illustrates the ratings anglers assigned to 7 reasons for marine recreational fishing by state. Over 60 percent of the anglers in all states indicated the following reasons were very important: to spend quality time with friends and family; enjoy nature and the outdoors; experience the excitement or challenge of sport fishing; and relax and escape from their daily routine.

Of the reasons the majority of anglers rated as not important were: "to be alone" and "to fish in a tournament or when awards were available." "To catch fish to eat" was the only reason declared to be 'somewhat important' by a large portion of anglers. Rhode Island was the only state in New England where the largest percentage of anglers felt "catching fish to eat" was 'somewhat important' (38.7%). Nevertheless, the largest percentage of anglers in every state in the Mid-Atlantic stated "to catch fish to eat" was 'somewhat important.'

If these findings are indicative of most recreational fishing participants in the Northeast, it is clear that although catching fish to eat is somewhat important to a large portion of anglers (especially in the Mid-Atlantic), many anglers participate in marine recreational fishing to catch fish for fun (i.e., catch and release) and for non-catch related reasons.

### **5.2.4 Recreational Anglers' Ratings of Fishing Regulation Methods**

Survey results indicate that, in general, there is strong support for four widely applied regulatory methods used to restrict total recreational catch.<sup>42</sup> Table 5-3 shows that over 88 percent of the anglers in all states indicated support for minimum size and catch limits. Over 70 percent in all states indicated support for limits on the times of the year when anglers can keep the fish they catch. The largest source of opposition for this type of regulation came from anglers in Virginia (29.4%). The regulation that generated the lowest support was area limits. However, over 63 percent of the anglers in all states indicated support for the measure.

Findings suggest that saltwater fishing participants in the Northeast strongly support the more common regulatory methods--size and catch limits, and although general support still exists, attempts to implement additional time/area restrictions may be met with less support.

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<sup>42</sup> The survey asked anglers if they supported or opposed the following regulation methods when considering the species they typically fish for: (1) limits on the minimum size of fish they could keep; (2) limits on the number of fish they can keep; (3) limits on the times of the year when they can keep the fish they catch; and (4) limits on the area they can fish.

**Table 5-2 Mean Recreational Anglers' Ratings of Reasons for Marine Fishing, by State**

<b>Statement</b>	<b>ME</b>	<b>NH</b>	<b>MA</b>	<b>RI</b>	<b>CT</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>
To Spend Quality Time with Friends & Family										
Not Important	5.4%	3.6%	4.4%	4.1%	4.1%	4.2%	3.1%	2.6%	2.3%	2.8%
Somewhat Important	11.9%	13.4%	14.9%	15.5%	15.0%	15.7%	12.8%	11.8%	11.1%	10.5%
Very Important	82.8%	83.0%	80.7%	80.4%	80.9%	80.0%	84.0%	85.6%	86.5%	86.7%
To Enjoy Nature and the Outdoors										
Not Important	2.0%	0.4%	1.2%	1.5%	1.6%	1.4%	1.0%	0.7%	0.8%	1.2%
Somewhat Important	10.1%	9.4%	10.5%	11.2%	8.5%	11.2%	12.1%	11.8%	12.9%	11.0%
Very Important	87.9%	90.3%	88.3%	87.3%	90.0%	87.4%	86.9%	87.5%	86.3%	87.9%
To Catch Fish to Eat										
Not Important	42.5%	43.0%	45.0%	35.3%	43.9%	31.5%	31.7%	27.9%	33.8%	25.6%
Somewhat Important	37.6%	35.7%	35.4%	38.7%	42.0%	41.4%	42.4%	41.1%	36.7%	39.3%
Very Important	19.9%	21.3%	19.6%	26.0%	14.1%	27.1%	25.9%	31.0%	29.6%	35.1%
To Experience the Excitement or Challenge of Sport Fishing										
Not Important	8.1%	5.8%	5.8%	5.4%	6.6%	6.5%	9.0%	8.7%	8.5%	8.8%
Somewhat Important	27.3%	29.6%	25.1%	21.9%	21.3%	26.4%	26.5%	29.8%	24.1%	25.4%
Very Important	64.7%	64.6%	69.1%	72.7%	72.1%	67.1%	64.4%	61.5%	67.4%	65.8%

**Table 5-2 Continued - Mean Recreational Anglers' Ratings of Reasons for Marine Fishing, by State**

<b>Statement</b>	<b>ME</b>	<b>NH</b>	<b>MA</b>	<b>RI</b>	<b>CT</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>
To Be Alone										
Not Important	55.5%	56.7%	56.0%	55.1%	50.2%	53.8%	60.0%	61.9%	56.8%	57.6%
Somewhat Important	28.4%	30.0%	26.6%	28.4%	27.9%	29.2%	26.5%	23.2%	25.6%	24.8%
Very Important	16.1%	13.4%	17.5%	16.6%	21.9%	17.0%	13.5%	14.9%	17.5%	17.7%
To Relax and Escape from Daily Routine										
Not Important	5.8%	3.6%	2.5%	3.9%	1.6%	2.8%	2.7%	1.9%	2.7%	2.6%
Somewhat Important	13.9%	11.2%	13.9%	15.1%	10.3%	13.6%	11.0%	12.1%	12.5%	11.6%
Very Important	80.3%	85.2%	83.6%	81.1%	88.1%	83.6%	86.3%	86.1%	84.8%	85.9%
To Fish in a Tournament or when Citations are Available										
Not Important	79.0%	81.9%	79.3%	79.1%	72.7%	73.0%	74.9%	76.1%	74.0%	71.9%
Somewhat Important	11.6%	12.3%	14.3%	13.1%	19.1%	17.0%	16.9%	17.5%	16.4%	17.6%
Very Important	9.4%	5.8%	6.4%	7.7%	8.2%	10.0%	8.2%	6.4%	9.6%	10.5%

**Table 5-3 Mean Recreational Anglers' Ratings of Fishing Regulation Methods, by State**

<b>Statement</b>	<b>ME</b>	<b>NH</b>	<b>MA</b>	<b>RI</b>	<b>CT</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>
Limits on the Minimum Size of Fish You Can Keep										
Support	88.0%	90.4%	94.6	94.8%	92.2%	95.8%	93.2%	94.3%	93.9%	91.6%
Oppose	12.0%	9.6%	5.4%	5.2%	7.8%	4.2%	6.8%	5.7%	6.1%	8.4%
Limits on the Number of Fish You Can Keep										
Support	88.0%	91.7%	92.4%	91.7%	91.1%	92.8%	88.5%	91.7%	87.8%	85.8%
Oppose	12.0%	8.3%	7.6%	8.3%	8.9%	7.2%	11.5%	8.3%	12.2%	14.2%
Limits on the Times of the Year When You Can Keep the Fish You Catch										
Support	78.4%	75.8%	78.9%	78.3%	82.2%	83.1%	79.0%	88.0%	79.0%	70.6%
Oppose	21.6%	24.2%	21.1%	21.7%	17.8%	16.9%	21.0%	12.0%	21.0%	29.4%
Limits on the Areas You Can Fish										
Support	68.4%	73.3%	65.0%	70.2%	66.9%	66.5%	66.0%	77.3%	67.2%	63.0%
Oppose	31.6%	26.7%	35.0%	29.8%	33.1%	33.5%	34.0%	22.7%	32.8%	37.0%



## CHAPTER 6 CONCLUSIONS

### 6.1 Summary of Major Findings

#### 6.1.1 Sportfishing by Subregion

The demographic and socio-economic characteristics of anglers were similar across New England and the Mid-Atlantic. The resulting distributions of age, education, ethnicity, household income, trip length, and boat ownership showed only marginal variability across subregions. The largest share of anglers in both subregions were 36 to 45 years old, obtained at least a high school degree, were predominantly White, indicated annual household incomes of \$30,001 to \$45,000, were on one-day fishing trips, and owned at least one boat used for saltwater sportfishing. Moreover, survey results revealed that anglers in New England had relatively less saltwater fishing experience than their counterparts in the Mid-Atlantic and that fishing trip expenditures were greater in New England.

Relative to the general population, the resulting anglers' distributions were quite different. Findings of the survey revealed participation in marine recreational fishing peaked between the ages of 36 to 45; the largest share of the general population was estimated as between the ages of 25 to 34. Additionally, the survey revealed anglers were generally more educated than the population as a whole, had higher annual household incomes, and were predominantly White.

Anglers in New England and the Mid-Atlantic indicated similar preferences for marine recreational fishing and for fishing regulation methods. Respondents in both subregions indicated "convenience" and "better catch rates" were the main reasons why fishing sites were chosen. Furthermore, over 60 percent of the anglers in both subregions rated marine recreational fishing as their most important outdoor activity during the past two months and over 66 percent indicated strong support for all of the illustrated regulation methods (e.g., size limits, catch limits, time/area limits). Lastly, the majority of anglers in both subregions rated 'to experience the excitement or challenge of sportfishing' and non-catch related reasons for marine fishing highly while catching fish to eat was rated as being of some importance to Mid-Atlantic anglers.

#### 6.1.2 Sportfishing by Mode

In general, angler demographics, socio-economic characteristics, and preferences for marine recreational fishing and fishing regulation methods were relatively consistent across modes of fishing. Nevertheless, several noteworthy differences in age, household income, years of experience, expenditures, trip length, and preferences for marine recreational fishing occurred between the modes.

Of all the respondents, party/charter fishermen comprised the largest share who indicated they were: age 16-25 (25%); college and post graduates (27%); inexperienced anglers (0-5 years, 25%); and on overnight trips (25%). Additionally, party/charter anglers incurred the highest lodging and one-way travel expenditures (\$60.00 and \$14.00, respectively) and comprised the

largest share of respondents who indicated fishing to be only one of many outdoor activities during the past two months (33%).

Private/rental boat fishermen constituted the largest percentage of anglers who indicated they were: 36 to 45 years old (27%); experienced saltwater fishermen (greater than 30 years of saltwater fishing experience, 27%); and on one-day fishing trips (87%). Seventy percent of these anglers rated marine recreational fishing to be their most important outdoor activity during the past two months, the highest proportion across modes. Furthermore, private/rental fishermen incurred the smallest lodging and one-way travel expenses (\$41.00 and \$8.00, respectively) and represented the smallest share of respondents with annual household incomes under \$30,000 (21%).

Shore anglers comprised the largest share of respondents over the age of 66 (13%) and the largest share of household incomes under \$30,000 (35%). Furthermore, shore anglers incurred the highest personal lodging expenses (\$60.00) and represented the only 'group' of anglers to rate "to catch fish to eat" as being 'not important' by the largest share of respondents (39%).

### **6.1.3 Sportfishing by State**

Although the demographic, socio-economic, and preference data by state displayed the same general patterns illustrated in the subregion and mode chapters, occasionally the size of the distributions varied considerably across states. Moreover, the resulting differences were generally larger the further the distance between the states.

Anglers in Maine (along with New Hampshire) constituted the largest portion of respondents who obtained at least a high school degree (93%). These respondents, ironically, also indicated the largest share of household incomes below \$30,000 (33%). Additionally, anglers in Maine incurred the highest one-way travel expenditures (\$19.00), but placed the least importance on recreational fishing compared to other outdoor activities.

In New Hampshire, anglers indicated the least saltwater fishing experience (28% indicated fewer than 5 years of experience) and incurred the lowest overall trip expenditures across states. Finally, New Hampshire anglers owned the smallest proportion of boats (46%) and represented the smallest share of anglers over the age of 66 (5%).

Anglers in Massachusetts comprised the highest proportion of college and post graduates (33%), represented the largest share of respondents with household incomes above \$60,000 annually (33%), and incurred the highest per-night lodging costs across all overnight anglers (\$32.00).

Marine recreational fishermen in Rhode Island were the most experienced anglers in New England (26% indicated more than 30 years of experience), incurred the highest overall trip expenditures, and comprised the only state in which the largest share of anglers indicated "better catch rates" as their first stated preference for fishing site characteristics (23.7%). Furthermore, Rhode Island was the only state in New England where the largest percentage of anglers felt catching fish to eat was somewhat important (38.7%).

Anglers fishing in Connecticut incurred the lowest personal lodging expenses (\$22.00), represented the largest majority of anglers taking one-day fishing trips (97%), and indicated the most importance for recreational fishing compared to their other outdoor activities (70%).

Marine recreational fishermen in New Jersey incurred the largest per-night personal lodging expense (\$77.00) and owned the fewest proportion of boats in the Mid-Atlantic (49%).

New York anglers comprised the largest share of respondents over the age of 66 (14%), the second largest percentage of respondents with annual household incomes over \$60,000 (32%), and indicated the most saltwater fishing experience (34% indicated over 30 years of experience). Additionally, anglers in New York spent the least amount on one-way travel expenses (\$4.00).

Anglers fishing in Delaware indicated the smallest per night lodging expense across all overnight anglers (\$12.00), represented the largest percentage of respondents that indicated the day of fishing was part of an overnight trip (31%), and declared “to catch fish to eat” as being ‘somewhat important’ or ‘very important’ by the highest percentage of anglers (72.1%).

Maryland anglers were among the youngest in the Mid-Atlantic, with only 23 percent indicating they were over the age of 56. Additionally, Maryland had the lowest proportion of college and post graduates in the Northeast (16%).

In Virginia, anglers represented the largest proportion of Black fishermen (11%), incurred the highest one-way travel expenses in the Mid-Atlantic (\$12.00), and owned the greatest proportion of boats (57% indicated boat ownership).

## 6.2 Future Research

The demographic and economic information contained within this report forms the basis for a more comprehensive economic study yet to come. While the first phase of the research provides a broad-brushed picture of marine recreational anglers in the Northeast Region, the second will provide information on the economic value anglers place on marine recreational fishing.

Statistical models of the demand for marine recreational fishing will be estimated for eight regionally selected species that are either currently managed or are expected to be managed in the near future.<sup>43</sup> Species-specific demand models (travel cost models and random utility models) will be specified to begin to answer questions about the economic value of or costs of two common forms of regulations imposed on anglers: (1) participation and access and (2) changes in catch (e.g., creel limits, catch and release, minimum size). In keeping with the state of the art in recreational demand modeling, the demand models will be estimated as being contingent on the choice to go marine recreational fishing and the choice of target species.

The present phase of the research will not estimate economic impact statistics, including multiplier effects for regional income or employment. Although some of the data we collected could be used by others for this purpose (particularly data on anglers' expenditures), credible regional economic impact analysis requires an entirely different survey methodology. The focus of this research project will be on the economic valuation of marine recreational fishing and catch by anglers.

Additional research is currently being conducted at the University of Rhode Island. A graduate student in the Department of Marine Affairs is using the survey data to examine the relationships between economic, behavioral, and attitudinal components of marine recreational

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<sup>43</sup> Models will be estimated for bluefish, striped bass, summer flounder, Atlantic cod, black sea bass, tautog, scup, and weakfish.

fishing within a conceptual framework of recreation specialization. The purpose of the research is to explore the use of fishing frequency, a displayed behavior, in order to represent varying degrees of recreation specialization. In particular, the establishment of typologies of Massachusetts anglers is being investigated using participation (i.e., fishing frequency) as the core element. Investigations will concentrate on developing an alternative to allocating resources based upon assumed homogeneity within the angling population.



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**APPENDIX A**  
**SPORTFISHING BY STATE AND MODE**



This appendix presents statistical summary tables of the demographic and economic survey data by state and mode. Two tables are provided for each state: (1) Recreational Anglers' Demographics and (2) Preferences for Marine Recreational Fishing and Fishing Regulation Methods. Information on anglers' demographics include: age, gender, years fished, household income, boat ownership, education level, expenditures, trip length, and ethnicity. Information on preferences include: recreational anglers' stated preferences for fishing site characteristics, rankings of fishing compared to other outdoor activities, ratings of reasons for marine fishing, and ratings of fishing regulation methods.

A-1 MAINE <sup>1</sup>

Table A-1 Maine - Recreational Anglers' Demographics

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	13.8		7.8		7.9	
26-35	31.5		21.4		21.3	
36-45	21.5		33.3		29.9	
46-55	16.2		19.8		14.2	
56-65	11.5		13		11.8	
>65	5.4		4.7		15	
<b>Gender</b>	M=82.7 F=17.3		M=89.7 F=10.3		M=89.1 F=10.9	
<b>Years Fished</b>						
0-5	39.8		23.6		19.8	
6-10	12		17.9		16	
11-15	15		8.7		6.1	
16-20	9		12.8		10.7	
21-25	6.8		6.2		8.4	
26-30	6.8		10.3		14.5	
>30	10.5		20.5		24.4	
<b>Household Income</b>						
Less than 15,000	4.9		5.6		17.1	
15,001-30,000	13.9		23.2		36	
30,001-45,000	27		27.7		21.6	
45,001-60,000	24.6		23.7		13.5	
60,001-85,000	18		11.9		5.4	
85,001-110,000	9.8		3.4		4.5	
110,001-135,000	0.8		2.3			
135,001-165,000	0.8					
>165,000			2.3		1.8	

1 - See Chapter 3 for variable definitions and estimation procedures

**Table A-1 Continued**  
**Maine - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=19.5 N=80.5		Y=79.4 N=20.6		Y=38.0 N=62.0	
<b>Education Level</b>						
College Graduate	24.4		17.1		22.2	
High School Graduate	38.2		46.6		39.7	
Less than High School	7.6		7.8		15.1	
Post Graduate/Prof.	5.3		6.7		3.2	
Some College	17.6		14.5		15.9	
Vocational School or Comm. Col.	6.9		7.3		4	
<b>Expenditures</b>						
Lodging (>0)		55.8		28.3		40.8
Lodging (all)		34.7		16.4		22.9
Boat fees		46.2		*		
Travel Expenses		44.6		10.9		10.5
<b>Trip Length</b>	Day=46.2 Multi=53.8		Day=87.0 Multi=13.0		Day=81.2 Multi=18.8	
<b>Ethnicity</b>	A=2.3 H=0.8 W=94.6		W=98.4		A=0.8 B=0.8 H=0.8 W=93.8	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black      H=Hispanic						

\* - Too few observations for statistical significance

**Table A-1-1 Maine - Preferences for Marine Recreational Fishing and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	19.5	13.9	17.2
Better catch rates	10.2	21.1	30.5
Boat ramp	0.8	7.2	0.8
Convenient	19.5	28.4	21.1
Pre-paid access fee	1.6	0.5	
Scenic beauty	3.1	3.6	7.0
Weather/water conditions	1.6		0.8
Access to pier, jetty, bridge		4.1	7.0
Less Congestion		1.0	
Other	43.8	20.1	15.6
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,	7.7	6.4	4.8
Better catch rates	23.1	29.8	26.2
Convenient	7.7	23.4	16.7
Less congestion	7.7		
Scenic beauty	30.8	10.6	11.9
Always go there		4.3	16.7
Boat ramp		19.1	
Weather/water conditions			
Pre-paid access fee			
Other	23.1	6.4	19.0

**Table A-1-1 Continued  
Maine - Preferences for Marine Recreational Fishing and  
Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	37.6			59.0			48.1		
Second Most Important Activity	17.3			14.4			13.7		
Only One of Many Activities	45.1			26.7			38.2		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family	5.5	12.5	82.0	6.2	11.9	81.9	4.0	11.1	84.9
To Enjoy Nature and the Outdoors	2.3	14.8	82.8	1.6	8.8	89.6	2.4	7.1	90.5
To Catch Fish to Eat	31.3	44.5	24.2	49.7	32.6	17.6	42.9	38.1	19.0
To Experience the Excitement or Challenge of sport	9.4	28.9	61.7	5.7	26.9	67.4	10.3	26.2	63.5
To Be Alone	59.4	23.4	17.2	54.9	29.0	16.1	52.4	32.5	15.1
To Relax and Escape from Daily Routine	4.77	17.2	78.1	5.7	13.5	80.8	7.1	11.1	81.7
To Fish in Tournament or when Citations are Available	10.9	7.0	72.0	15.5	12.4	86.5	6.3	7.1	
* 1=Not Important    2=Somewhat Important    3=Very Important									

**Table A-1-1 Continued**  
**Maine - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	93.9	6.1	86.3	13.7	84.7	15.3
Limits on the Number of Fish You Can Keep	86.8	13.2	89.3	10.7	87.4	12.6
Limits on the Times of the Year When You Can Keep the Fish You Catch	86.0	14.0	78.0	22.0	71.2	28.8
Limits on the Areas You Can Fish	77.2	22.8	62.5	37.5	68.5	31.5
* 1=Support    2=Oppose						

**A-2 NEW HAMPSHIRE <sup>2</sup>**

**Table A-2 New Hampshire - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	18.2		5.1		13.2	
26-35	22.1		21.3		30.9	
36-45	27.3		35.3		20.6	
46-55	19.5		27.2		19.1	
56-65	9.1		6.6		7.4	
>65	3.9		4.4		8.8	
<b>Gender</b>	M=77.9 F=22.1		M=93.4 F=6.6		M=94.2 F=5.8	
<b>Years Fished</b>						
0-5	37.2		22.0		30.4	
6-10	14.1		17.0		18.8	
11-15	7.7		7.1		4.3	
16-20	11.5		12.1		8.7	
21-25	6.4		8.5		10.1	
26-30	6.4		14.2		14.5	
>30	16.7		19.1		13.0	
<b>Household Income</b>						
Less than 15,000	4.3		0.8		10.8	
15,001-30,000	18.6		20.8		23.1	
30,001-45,000	34.3		25.6		29.2	
45,001-60,000	21.4		24.0		23.1	
60,001-85,000	10.0		18.4		6.2	
85,001-110,000	10.0		6.4		4.6	
110,001-135,000	1.4		0.8		3.1	
135,001-165,000			2.4			
>165,000			0.8			

2 - See Chapter 3 for variable definitions and estimation procedures

**Table A-2 Continued**  
**New Hampshire - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=11.7 N=88.3		Y=76.5 N=23.5		Y=30.4 N=69.6	
<b>Education Level</b>						
College Graduate	25.3		20.6		10.1	
High School Graduate	33.3		39.7		53.6	
Less than High School	10.7		4.4		14.5	
Post Graduate/Prof.	6.7		7.4		8.7	
Some College	18.7		22.1		8.7	
Vocational School or Comm. Col.	5.3		5.9		4.3	
<b>Expenditures</b>						
Lodging (>0)		33.1		16.4		29.8
Lodging (all)		20.7		4.9		14.9
Boat fees		36.9		*		
Travel Expenses		12.1		16.9		24.8
<b>Trip Length</b>	Day=90.4 Multi=9.6		Day=92.8 Multi=7.2		Day=80.3 Multi=19.7	
<b>Ethnicity</b>	A=2.6 H=2.6 B=1.3 W=92.2		W=97.0		A=3.0 H=1.5 W=92.4	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black      H=Hispanic						

\* - Too few observations for statistical significance



**Table A-2-1 New Hampshire - Preferences for Marine Recreational Fishing and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	18.2	12.9	11.6
Better catch rates	11.7	17.9	34.8
Boat ramp		13.6	
Convenient	28.6	34.3	24.6
Pre-paid access fee		1.4	
Scenic beauty	3.9	0.7	2.9
Weather/water conditions		0.7	2.9
Access to pier, jetty, bridge,	1.3	7.1	5.8
Less Congestion	1.3		1.4
Other	35.1	11.4	15.9
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,	8.3	17.3	
Better catch rates	16.7	13.5	14.3
Convenient	16.7	21.2	50.0
Less congestion		3.8	
Scenic beauty	8.3	5.8	14.3
Always go there	25.0	5.8	
Boat ramp		15.4	
Weather/water conditions	16.7	3.8	7.1
Pre-paid access fee		3.8	
Other	8.3	9.6	14.3

**Table A-2-1 Continued**  
**New Hampshire - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	35.9			60.1			60.9		
Second Most Important Activity	10.3			12.3			14.5		
Only One of Many Activities	53.8			27.5			24.6		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family	2.6	11.8	85.5	3.7	12.7	83.6	4.5	16.4	79.1
To Enjoy Nature and the Outdoors		14.5	85.5	0.7	5.2	94.0		11.9	88.1
To Catch Fish to Eat	39.5	35.5	25.0	38.1	40.3	21.6	56.7	26.9	16.4
To Experience the Excitement or Challenge of sport	5.3	39.5	55.3	3.7	24.6	71.6	10.4	28.4	61.2
To Be Alone	55.3	30.3	14.5	56.7	31.3	11.9	58.2	26.9	14.9
To Relax and Escape from Daily Routine	1.3	13.2	85.5	2.2	9.7	88.1	9.0	11.9	79.1
To Fish in Tournament or when Citations are Available	75.0	17.1	7.9	85.8	11.2	3.0	82.1	9.0	9.0
* 1=Not Important    2=Somewhat Important    3=Very Important									

**Table A-2-1 Continued**  
**New Hampshire - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	90.8	9.2	90.8	9.2	89.1	10.9
Limits on the Number of Fish You Can Keep	93.8	6.2	90.8	9.2	90.9	9.16
Limits on the Times of the Year When You Can Keep the Fish You Catch	69.2	30.8	78.3	21.7	78.2	21.8
Limits on the Areas You Can Fish	84.6	15.4	66.7	33.3	74.5	25.5
* 1=Support    2=Oppose						

**A-3 MASSACHUSETTS <sup>3</sup>**

**Table A-3 Massachusetts - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	12.5		5.5		8.9	
26-35	15.3		24.7		21.6	
36-45	23.6		29.6		24.5	
46-55	25.0		21.8		20.1	
56-65	13.9		11.6		13.4	
>65	9.7		6.8		11.5	
<b>Gender</b>	M=86.3 F=13.7		M=93.9 F=6.1		M=94.4 F=5.6	
<b>Years Fished</b>						
0-5	40.5		19.5		20.7	
6-10	9.5		11.4		15.6	
11-15	8.1		10.1		9.6	
16-20	17.6		13.7		13.0	
21-25	2.7		11.0		8.1	
26-30	2.7		12.2		11.1	
>30	18.9		22.2		21.9	
<b>Household Income</b>						
Less than 15,000	6.0		2.6		4.3	
15,001-30,000	16.4		17.3		19.2	
30,001-45,000	20.9		25.1		25.6	
45,001-60,000	17.9		23.9		17.9	
60,001-85,000	13.4		16.3		15.8	
85,001-110,000	14.9		8.3		8.1	
110,001-135,000			3.5		4.3	
135,001-165,000			1.9		1.7	
>165,000	10.4		1.2		3.0	

3 - See Chapter 3 for variable definitions and estimation procedures

**Table A-3 Continued**  
**Massachusetts - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=19.2 N=80.8		Y=74.0 N=26.0		Y=23.8 N=76.2	
<b>Education Level</b>						
College Graduate	20.5		22.8		26.5	
High School Graduate	30.1		37.8		34.7	
Less than High School	12.3		8.4		7.1	
Post Graduate/Prof.	8.2		9.1		8.6	
Some College	20.5		15.2		17.5	
Vocational School or Comm. Col.	8.2		6.8		5.6	
<b>Expenditures</b>						
Lodging (>0)		86.4		45.2		73.6
Lodging (all)		46.9		18.3		35.4
Boat fees		68.0		45.9		
Travel Expenses		15.7		8.6		13.7
<b>Trip Length</b>	Day=59.3 Multi=40.7		Day=86.4 Multi=13.6		Day=54.4 Multi=45.6	
<b>Ethnicity</b>	B=4.2 W=94.4		A=0.2 B=0.9 H=0.6 W=96.4		A=1.1 B=2.3 H=0.4 W=95.5	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black      H=Hispanic						

**Table A-3-1 Massachusetts - Preferences for Marine Recreational Fishing and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	19.2	14.7	16.9
Better catch rates	19.2	23.7	31.5
Boat ramp		11.4	0.4
Convenient	24.7	31.3	22.1
Pre-paid access fee	1.4	1.0	0.4
Scenic beauty	1.4	1.7	4.5
Weather/water conditions		1.7	1.5
Access to pier, jetty, bridge,	1.4	3.9	4.1
Less Congestion			0.4
Other	32.9	10.6	18.4
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,		7.63	4.1
Better catch rates	42.9	29.3	24.7
Convenient	21.4	17.4	23.7
Less congestion		0.5	2.1
Scenic beauty		3.3	14.4
Always go there	14.3	12.5	10.3
Boat ramp	7.1	15.2	1.0
Weather/water conditions		4.9	11.3
Pre-paid access fee		1.6	1.0
Other	14.3	7.6	7.2

**Table A-3-1 Continued**  
**Massachusetts - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	36.5			67.4			62.5		
Second Most Important Activity	17.6			10.6			10.8		
Only One of Many Activities	45.9			22.0			26.8		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family		13.9	86.1	2.7	15.4	81.9	8.6	14.2	77.2
To Enjoy Nature and the Outdoors	1.4	13.9	84.7	0.4	9.7	89.9	2.6	10.9	86.5
To Catch Fish to Eat	29.2	43.1	27.8	47.0	33.5	19.4	45.7	36.7	17.6
To Experience the Excitement or Challenge of sport	6.9	44.4	48.6	5.5	23.6	70.9	6.0	22.5	71.5
To Be Alone	72.2	16.7	11.1	58.0	25.9	16.0	47.9	30.3	21.7
To Relax and Escape from Daily Routine	1.4	13.9	84.7	2.1	13.9	84.0	3.4	13.9	82.8
To Fish in Tournament or when Citations are Available	83.3	12.5	4.2	77.8	15.4	6.8	80.9	12.7	6.4
* 1=Not Important    2=Somewhat Important    3=Very Important									

**Table A-3-1 Continued**  
**Massachusetts - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	96.7	3.3	95.4	4.6	92.7	7.3
Limits on the Number of Fish You Can Keep	93.3	6.7	91.8	8.2	93.1	6.96
Limits on the Times of the Year When You Can Keep the Fish You Catch	83.3	16.7	78.7	21.3	78.0	22.0
Limits on the Areas You Can Fish	88.3	11.7	67.1	32.9	55.5	44.5
* 1=Support    2=Oppose						



**A-4 RHODE ISLAND <sup>4</sup>**

**Table A-4 Rhode Island - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	12.4		3.8		9.8	
26-35	22.5		20.4		18.7	
36-45	27.0		29.6		30.9	
46-55	22.5		21.9		13.0	
56-65	9.0		13.8		13.8	
>65	6.7		10.4		13.8	
<b>Gender</b>	M=95.5 F=4.57		M=93.6 F=6.4		M=94.4 F=5.6	
<b>Years Fished</b>						
0-5	23.3		17.6		17.9	
6-10	8.9		9.0		9.8	
11-15	16.7		7.6		8.9	
16-20	7.8		15.1		15.4	
21-25	7.8		9.0		8.9	
26-30	13.3		14.0		15.4	
>30	22.2		27.7		23.6	
<b>Household Income</b>						
Less than 15,000	2.4		4.8		13.9	
15,001-30,000	16.7		14.3		27.8	
30,001-45,000	27.4		34.2		23.1	
45,001-60,000	23.8		24.2		20.4	
60,001-85,000	14.3		12.6		8.3	
85,001-110,000	9.5		4.3		2.8	
110,001-135,000			1.7		1.9	
135,001-165,000	3.6		0.9			
>165,000	2.4		3.0		1.9	

4 - See Chapter 3 for variable definitions and estimation procedures

**Table A-4 Continued**  
**Rhode Island - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=29.2 N=70.8		Y=69.7 N=30.3		Y=27.4 N=72.6	
<b>Education Level</b>						
College Graduate	20.2		21.5		17.1	
High School Graduate	38.2		36.9		37.4	
Less than High School	9.0		11.5		16.3	
Post Graduate/Prof.	11.2		9.2		5.7	
Some College	12.4		16.2		18.7	
Vocational School or Comm. Col.	9.0		4.6		4.9	
<b>Expenditures</b>						
Lodging (>0)		54.5		41.8		37.4
Lodging (all)		38.9		16.8		21.5
Boat fees		103.8		*		
Travel Expenses		14.5		6.7		6.6
<b>Trip Length</b>	Day=74.3 Multi=25.7		Day=88.6 Multi=11.4		Day=85.2 Multi=14.8	
<b>Ethnicity</b>	H=2.3 B=4.5 W=92.0		H=0.4 A=0.8 B=4.2 W=92.7		B=0.8 A=1.6 H=1.6 W=91.0	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black      H=Hispanic						

\* - Too few observations for statistical significance

**Table A-4-1 Rhode Island - Preferences for Marine Recreational Fishing and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	13.5	15.3	16.9
Better catch rates	28.1	20.7	31.5
Boat ramp	1.1	17.8	0.4
Convenient	12.4	22.9	22.1
Pre-paid access fee	2.2	1.1	0.4
Scenic beauty	1.1	1.8	4.5
Weather/water conditions		2.2	1.5
Access to pier, jetty, bridge,	3.4	5.1	4.1
Less Congestion	1.1	1.1	0.4
Other	37.1	12.0	18.4
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,		11.2	5.7
Better catch rates	14.3	18.4	27.0
Convenient	23.8	18.4	18.0
Less congestion		1.0	2.5
Scenic beauty	9.5	7.1	11.5
Always go there	23.8	13.3	16.4
Boat ramp	4.8		1.6
Weather/water conditions		4.1	3.3
Pre-paid access fee			
Other	23.8	7.1	13.9

**Table A-4-1 Continued**  
**Rhode Island - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	62.2			66.3			69.5		
Second Most Important Activity	13.3			11.8			10.5		
Only One of Many Activities	24.4			21.9			20.2		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family	4.7	23.3	72.1	3.5	12.9	83.6	4.9	15.4	79.7
To Enjoy Nature and the Outdoors		15.1	84.9	1.2	12.1	86.7	3.3	6.5	90.2
To Catch Fish to Eat	27.9	40.7	31.4	35.2	40.6	24.2	40.7	33.3	26.0
To Experience the Excitement or Challenge of sport	2.3	15.1	82.6	6.6	24.2	69.1	4.9	22.0	73.2
To Be Alone	64.0	30.2	5.8	57.8	25.4	16.8	43.1	33.3	23.6
To Relax and Escape from Daily Routine	3.5	16.3	80.2	3.1	14.1	82.8	5.7	16.3	78.0
To Fish in Tournament or when Citations are Available	73.3	14.0	12.8	80.5	14.1	5.5	80.5	10.6	8.9
* 1=Not Important    2=Somewhat Important    3=Very Important									

**Table A-4-1 Continued**  
**Rhode Island - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	96.2	3.8	96.2	3.8	90.6	9.4
Limits on the Number of Fish You Can Keep	84.8	15.2	92.8	7.2	94.3	5.7
Limits on the Times of the Year When You Can Keep the Fish You Catch	78.5	21.5	80.9	19.1	72.6	27.4
Limits on the Areas You Can Fish	72.2	27.8	72.8	27.2	63.2	36.8
* 1=Support    2=Oppose						

A-5 CONNECTICUT<sup>5</sup>

Table A-5 Connecticut - Recreational Anglers' Demographics

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	6.7		6.1		12.5	
26-35	36.7		27.6		23.8	
36-45	25.0		24.9		33.8	
46-55	15.0		21.5		8.8	
56-65	8.3		13.8		13.8	
>65	8.3		6.1		7.5	
<b>Gender</b>	M=95.2 F=4.8		M=98.4 F=1.6		M=91.4 F=8.6	
<b>Years Fished</b>						
0-5	18.8		16.5		21.0	
6-10	20.3		12.2		13.6	
11-15	7.8		12.2		12.3	
16-20	15.6		15.4		14.8	
21-25	7.8		11.7		6.2	
26-30	9.4		11.2		12.3	
>30	20.3		20.7		19.8	
<b>Household Income</b>						
Less than 15,000			1.8		12.1	
15,001-30,000	12.0		16.5		28.8	
30,001-45,000	28.0		30.5		21.2	
45,001-60,000	24.0		25.0		16.7	
60,001-85,000	26.0		14.0		16.7	
85,001-110,000	4.0		9.8		4.5	
110,001-135,000	4.0		0.6			
135,001-165,000			0.6			
>165,000	2.0		1.2			

5 - See Chapter 3 for variable definitions and estimation procedures

**Table A-5 Continued**  
**Connecticut - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=9.7 N=90.3		Y=80.3 N=19.7		Y=23.5 N=76.5	
<b>Education Level</b>						
College Graduate	20.0		16.1		11.3	
High School Graduate	38.3		43.3		48.8	
Less than High School	8.3		6.7		15.0	
Post Graduate/Prof.	6.7		3.3		5.0	
Some College	16.7		19.4		16.3	
Vocational School or Comm. Col.	10.0		11.1		3.8	
<b>Expenditures</b>						
Lodging (>0)		*		*		21.2
Lodging (all)		*		*		15.9
Boat fees		49.7		*		
Travel Expenses		13.3		11.0		16.9
<b>Trip Length</b>	Day=96.5 Multi=3.5		Day=97.9 Multi=2.1		Day=94.8 Multi=5.2	
<b>Ethnicity</b>	B=1.7 W=98.3		A=0.6 B=2.8 W=95.6		H=4.9 B=7.4 W=85.2	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black      H=Hispanic						

\* - Too few observations for statistical significance

**Table A-5-1 Connecticut - Preferences for Marine Recreational Fishing and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	18.8	10.1	18.5
Better catch rates	20.3	32.4	21.0
Boat ramp	3.1	8.5	
Convenient	18.8	35.1	30.9
Pre-paid access fee	4.7	3.2	
Scenic beauty	1.6		8.6
Weather/water conditions		1.1	3.7
Access to pier, jetty, bridge,		2.1	7.4
Less Congestion	1.1	0.5	1.2
Other	32.8	6.9	8.6
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,	6.3	15.0	14.3
Better catch rates	12.5	18.8	28.6
Convenient	12.5	18.8	28.6
Less congestion			10.7
Scenic beauty	6.3	5.0	10.7
Always go there	31.3	11.3	
Boat ramp		20.0	
Weather/water conditions		2.5	3.6
Pre-paid access fee		2.5	
Other	31.3	6.3	3.6



**Table A-5-1 Continued**  
**Connecticut - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	53.1			73.8			72.8		
Second Most Important Activity	17.2			11.8			12.3		
Only One of Many Activities	29.7			14.4			14.8		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family	5.2	13.8	81.0	3.3	14.4	82.2	4.9	17.3	77.8
To Enjoy Nature and the Outdoors	1.7	12.1	86.2	1.1	7.2	91.7	2.5	8.6	88.9
To Catch Fish to Eat	39.7	43.1	17.2	40.0	43.3	16.7	55.6	38.3	6.2
To Experience the Excitement or Challenge of sport	6.9	27.6	65.5	4.4	20.6	75.0	11.1	18.5	70.4
To Be Alone	44.8	37.9	17.2	53.3	25.0	21.7	46.9	27.2	25.9
To Relax and Escape from Daily Routine	5.2	8.6	86.2	1.1	11.7	87.2		8.6	91.4
To Fish in Tournament or when Citations are Available	63.8	22.4	13.8	76.1	17.8	6.1	71.6	19.8	8.6
* 1=Not Important    2=Somewhat Important    3=Very Important									

**Table A-5-1 Continued**  
**Connecticut - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	90.0	10.0	96.2	3.8	84.9	15.1
Limits on the Number of Fish You Can Keep	94.0	6.0	92.4	7.6	86.3	13.7
Limits on the Times of the Year When You Can Keep the Fish You Catch	84.0	16.0	83.5	16.5	78.1	21.9
Limits on the Areas You Can Fish	78.0	22.0	67.7	32.3	57.5	42.5
* 1=Support    2=Oppose						

**A-6 NEW YORK<sup>6</sup>**

**Table A-6 New York - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	8.8		5.5		9.7	
26-35	17.6		17.3		19.9	
36-45	25.7		28.6		19.0	
46-55	22.3		21.6		16.2	
56-65	14.2		16.3		13.9	
>65	11.5		10.6		21.3	
<b>Gender</b>	M=93.4 F=6.6		M=92.5 F=7.5		M=90.8 F=9.2	
<b>Years Fished</b>						
0-5	11.2		11.2		15.3	
6-10	14.5		9.8		13.1	
11-15	4.6		8.9		7.9	
16-20	9.9		12.9		11.8	
21-25	9.9		9.1		6.6	
26-30	14.5		15.3		11.4	
>30	35.5		32.8		34.1	
<b>Household Income</b>						
Less than 15,000	2.3		2.7		6.7	
15,001-30,000	16.0		12.1		23.8	
30,001-45,000	27.5		21.3		29.5	
45,001-60,000	19.8		26.6		20.7	
60,001-85,000	20.6		19.6		10.4	
85,001-110,000	9.2		11.1		4.7	
110,001-135,000	1.5		3.4		2.6	
135,001-165,000	1.5		1.2		0.5	
>165,000	1.5		1.9		1.0	

6 - See Chapter 3 for variable definitions and estimation procedures

**Table A-6 Continued**  
**New York - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=21.2 N=78.8		Y=71.0 N=29.0		Y=21.6 N=78.4	
<b>Education Level</b>						
College Graduate	23.5		21.2		16.5	
High School Graduate	36.9		37.1		44.5	
Less than High School	12.1		8.2		11.9	
Post Graduate/Prof.	4.0		8.0		5.0	
Some College	18.8		20.4		18.3	
Vocational School or Comm. Col.	4.70		5.1		3.7	
<b>Expenditures</b>						
Lodging (>0)		65.9		43.3		34.7
Lodging (all)		37.7		15.2		13.4
Boat fees		44.6		91.3		
Travel Expenses		4.9		3.7		3.4
<b>Trip Length</b>	Day=91.3 Multi=8.7		Day=96.9 Multi=3.1		Day=94.1 Multi=5.9	
<b>Ethnicity</b>	A=0.7 H=4.7 B=4.7 W=87.2		A=0.2 B=1.0 H=1.9 W=95.9		A=3.3 B=4.2 H=6.5 W=81.3	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black     H=Hispanic						

\* - Too few observations for statistical significance

**Table A-6-1 New York - Preferences for Marine Recreational Fishing  
and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	15.0	15.0	12.4
Better catch rates	23.1	21.2	29.2
Boat ramp	3.4	14.6	0.9
Convenient	25.2	29.5	31.9
Pre-paid access fee	0.7	0.8	
Scenic beauty	2.7	0.6	7.1
Weather/water conditions	2.0	1.9	1.3
Access to pier, jetty, bridge,		3.1	4.9
Less Congestion	1.4	0.8	1.8
Other	26.5	12.6	10.6
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,		6.8	11.8
Better catch rates	18.4	27.3	27.6
Convenient	26.3	19.9	18.4
Less congestion		3.1	
Scenic beauty	13.2	2.5	6.67
Always go there	15.8	13.0	15.8
Boat ramp	5.3	16.1	2.6
Weather/water conditions	5.3	1.2	2.6
Pre-paid access fee	5.3	1.9	
Other	10.5	8.1	14.5

**Table A-6-1 Continued**  
**New York - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	67.8			69.8			70.3		
Second Most Important Activity	10.5			11.4			11.4		
Only One of Many Activities	21.7			18.8			18.3		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family	3.4	19.5	77.2	3.9	15.5	80.6	5.6	13.6	80.8
To Enjoy Nature and the Outdoors	1.3	13.4	85.2	1.0	10.0	89.0	2.3	12.1	85.5
To Catch Fish to Eat	31.5	42.3	26.2	28.8	44.0	27.2	37.4	35.0	27.6
To Experience the Excitement or Challenge of sport	7.4	25.5	67.1	5.9	27.6	66.5	7.0	24.3	68.7
To Be Alone	54.4	31.5	14.1	57.3	28.4	14.3	45.3	29.4	25.2
To Relax and Escape from Daily Routine	1.3	18.8	79.9	3.1	14.1	82.8	3.3	8.9	87.9
To Fish in Tournament or when Citations are Available	65.1	22.1	12.8	76.3	15.1	8.6	71.0	17.8	11.2
* 1=Not Important    2=Somewhat Important    3=Very Important									

**Table A-6-1 Continued**  
**New York - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	96.0	4.00	97.1	2.9	93.0	7.0
Limits on the Number of Fish You Can Keep	91.9	8.1	94.8	5.2	89.0	11.0
Limits on the Times of the Year When You Can Keep the Fish You Catch	78.2	21.8	85.4	14.6	81.0	19.0
Limits on the Areas You Can Fish	72.6	27.4	66.7	33.3	62.5	37.5
* 1=Support    2=Oppose						

A-7 NEW JERSEY<sup>7</sup>

Table A-7 New Jersey - Recreational Anglers' Demographics

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	8.9		6.3		9.6	
26-35	17.2		19.1		24.9	
36-45	27.6		23.4		23.1	
46-55	21.7		25.8		18.6	
56-65	12.3		15.0		12.9	
>66	12.3		10.4		11.1	
<b>Gender</b>	M=89.7 F=10.3		M=90.4 F=9.6		M=91.1 F=8.9	
<b>Years Fished</b>						
0-5	19.1		11.9		19.5	
6-10	16.2		9.7		14.0	
11-15	12.7		9.2		10.2	
16-20	11.8		16.3		13.7	
21-25	4.9		8.8		8.1	
26-30	11.3		12.0		10.8	
>30	24.0		32.1		23.8	
<b>Household Income</b>						
Less than 15,000	3.4		3.0		6.1	
15,001-30,000	17.1		15.2		16.8	
30,001-45,000	32.0		24.4		27.8	
45,001-60,000	24.0		24.8		22.7	
60,001-85,000	11.4		18.4		16.2	
85,001-110,000	8.0		10.0		6.5	
110,001-135,000	1.7		1.9		1.3	
135,001-165,000	1.7		0.9		1.0	
>165,000	0.6		1.4		1.6	

7 - See Chapter 3 for variable definitions and estimation procedures



**Table A-7 Continued**  
**New Jersey - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=15.8 N=84.2		Y=70.1 N=29.9		Y=23.7 N=76.3	
<b>Education Level</b>						
College Graduate	21.2		15.7		19.9	
High School Graduate	44.3		44.2		38.7	
Less than High School	8.4		9.6		9.2	
Post Graduate/Prof.	3.4		5.8		6.8	
Some College	16.7		18.0		17.0	
Vocational School or Comm. Col.	5.9		6.7		8.3	
<b>Expenditures</b>						
Lodging (>0)		69.1		63.9		90.2
Lodging (all)		36.1		15.3		36.9
Boat fees		45.2		34.8		
Travel Expenses		7.8		8.8		6.5
<b>Trip Length</b>	Day= 80.2 Multi=19.8		Day=88.8 Multi=11.2		Day=81.8 Multi=18.2	
<b>Ethnicity</b>	A=0.5 H=1.0 B=10.3 W=86.7		A=0.1 B=1.4 H=1.3 W=95.3		A=0.0 B=3.7 H=0.9 W=93.6	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black      H=Hispanic						

\* - Too few observations for statistical significance

**Table A-7-1 New Jersey - Preferences for Marine Recreational Fishing  
and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	21.9	16.4	14.6
Better catch rates	15.4	18.2	22.2
Boat ramp	2.5	16.8	
Convenient	22.9	26.2	36.4
Pre-paid access fee	1.0	1.5	0.3
Scenic beauty	2.5	1.2	2.3
Weather/water conditions	2.5	1.2	2.9
Access to pier, jetty, bridge,	0.5	3.6	7.3
Less Congestion	1.0	0.8	1.2
Other	29.9	14.0	12.8
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,	4.9	5.4	10.9
Better catch rates	24.4	22.4	30.9
Convenient	22.0	25.9	17.3
Less congestion		1.5	3.6
Scenic beauty	4.9	2.7	14.5
Always go there	9.8	11.6	7.38
Boat ramp	4.9	18.9	0.9
Weather/water conditions		3.9	1.8
Pre-paid access fee	2.4	2.7	1.8
Other	26.8	5.0	10.9

**Table A-7-1 Continued**  
**New Jersey - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	58.0			73.3			58.1		
Second Most Important Activity	10.7			9.24			15.2		
Only One of Many Activities	31.2			17.5			26.7		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family	3.1	10.3	86.7	2.3	12.5	85.2	5.1	14.9	80.0
To Enjoy Nature and the Outdoors	2.1	15.4	82.6	0.7	11.5	87.7	1.2	11.3	87.5
To Catch Fish to Eat	29.2	45.6	25.1	28.2	44.5	27.3	40.6	36.1	23.3
To Experience the Excitement or Challenge of sport	12.8	33.3	53.8	8.2	25.6	66.2	8.7	24.5	66.9
To Be Alone	63.1	26.7	10.3	63.1	24.5	12.4	51.6	30.4	17.9
To Relax and Escape from Daily Routine	3.1	11.8	85.1	3.2	10.3	86.5	1.5	11.9	86.6
To Fish in Tournament or when Citations are Available	77.9	11.8	10.3	73.7	18.6	7.7	75.8	16.1	8.1
* 1=Not Important    2=Somewhat Important    3=Very Important									

**Table A-7-1 Continued**  
**New Jersey - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	90.6	9.4	94.7	5.3	91.5	8.5
Limits on the Number of Fish You Can Keep	87.2	12.8	89.0	11.0	88.1	11.9
Limits on the Times of the Year When You Can Keep the Fish You Catch	77.8	22.2	81.5	18.5	74.5	25.5
Limits on the Areas You Can Fish	70.0	30.0	66.4	33.6	62.6	37.4
* 1=Support    2=Oppose						

**A-8 DELAWARE<sup>8</sup>**

**Table A-8 Delaware - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	12.6		3.3		10.2	
26-35	21.8		21.8		15.3	
36-45	19.5		24.3		25.5	
46-55	13.8		22.6		21.4	
56-65	16.1		16.9		16.3	
>65	16.1		11.1		11.2	
<b>Gender</b>	M=83.0 F=17.0		M=84.6 F=15.4		M=89.8 F=10.2	
<b>Years Fished</b>						
0-5	31.0		15.8		20.4	
6-10	9.2		10.9		12.2	
11-15	10.3		12.1		10.2	
16-20	14.9		14.2		20.4	
21-25	4.6		12.1		3.1	
26-30	9.25		10.1		11.2	
>30	20.7		24.7		22.4	
<b>Household Income</b>						
Less than 15,000	8.1		4.7		6.0	
15,001-30,000	23.0		22.5		33.7	
30,001-45,000	25.7		25.4		27.7	
45,001-60,000	29.7		23.9		16.9	
60,001-85,000	5.4		16.0		8.4	
85,001-110,000	6.8		5.6		6.0	
110,001-135,000	1.4		0.9			
135,001-165,000			0.9		1.2	
>165,000						

8 - See Chapter 3 for variable definitions and estimation procedures

**Table A-8 Continued**  
**Delaware - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=25.0 N=75.0		Y=72.4 N=27.6		Y=31.6 N=68.4	
<b>Education Level</b>						
College Graduate	12.5		13.5		15.3	
High School Graduate	42.0		50.4		43.9	
Less than High School	14.8		11.9		12.2	
Post Graduate/Prof.	5.7		4.9		9.2	
Some College	20.5		14.3		16.3	
Vocational School or Comm. Col.	4.5		4.9		3.1	
<b>Expenditures</b>						
Lodging (>0)		39.6		44.8		38.2
Lodging (all)		15.4		11.2		11.9
Boat fees		57.1		*		
Travel Expenses		10.0		7.7		9.3
<b>Trip Length</b>	Day=71.3 Multi=28.7		Day=69.9 Multi=30.1		Day=65.9 Multi=34.1	
<b>Ethnicity</b>	B=3.5 W=95.3		H=0.4 B=0.4 W=98.3		B=5.1 W=90.8	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black      H=Hispanic						

\* - Too few observations for statistical significance

**Table A-8-1 Delaware - Preferences for Marine Recreational Fishing  
and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	30.6	21.5	17.5
Better catch rates	16.5	16.6	35.1
Boat ramp		10.5	
Convenient	22.4	34.0	22.7
Pre-paid access fee		0.4	
Scenic beauty	2.4	0.4	1.0
Weather/water conditions	1.2	0.8	1.0
Access to pier, jetty, bridge,	1.2	3.2	7.2
Less Congestion	1.2	0.8	
Other	24.7	11.7	15.5
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,		7.4	11.4
Better catch rates	57.1	28.4	14.3
Convenient	7.1	23.5	42.9
Less congestion	7.1		8.6
Scenic beauty		4.9	5.7
Always go there		14.8	8.6
Boat ramp	7.1	9.9	5.7
Weather/water conditions		3.7	
Pre-paid access fee	14.3	3.7	
Other	7.1	3.7	2.9

**Table A-8-1 Continued**  
**Delaware - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	53.4			64.5			65.3		
Second Most Important Activity	14.8			15.3			11.2		
Only One of Many Activities	31.8			20.2			23.5		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family	3.4	11.5	85.1	2.1	10.9	87.0	3.1	14.4	82.5
To Enjoy Nature and the Outdoors	1.1	14.9	83.9	0.4	11.7	87.9	1.0	9.31	89.7
To Catch Fish to Eat	27.6	42.5	29.9	24.7	41.8	33.5	36.1	38.1	25.8
To Experience the Excitement or Challenge of sport	12.6	37.9	49.4	6.7	27.2	66.1	10.3	28.9	60.8
To Be Alone	63.2	24.1	12.6	64.9	21.8	13.4	53.6	25.8	20.6
To Relax and Escape from Daily Routine	2.3	18.4	79.3	1.3	10.5	88.3	3.1	10.3	86.6
To Fish in Tournament or when Citations are Available	72.4	18.4	9.2	77.0	18.4	4.6	77.3	14.4	8.2
* 1=Not Important    2=Somewhat Important    3=Very Important									



**Table A-8-1 Continued**  
**Delaware - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	93.6	6.4	97.2	2.8	87.9	12.1
Limits on the Number of Fish You Can Keep	93.6	6.4	93.0	7.0	86.8	13.2
Limits on the Times of the Year When You Can Keep the Fish You Catch	92.3	7.78	88.4	11.6	83.5	16.5
Limits on the Areas You Can Fish	83.3	16.7	78.1	21.9	70.3	29.7
* 1=Support    2=Oppose						

A-9 MARYLAND<sup>9</sup>

Table A-9 Maryland - Recreational Anglers' Demographics

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	13.0		8.9		9.6	
26-35	20.0		22.4		21.6	
36-45	26.1		24.9		28.4	
46-55	17.4		20.5		20.7	
56-65	15.7		14.0		11.5	
>65	7.8		9.3		8.2	
<b>Gender</b>	M=83.5 F=16.5		M=85.7 F=14.3		M=78.4 F=21.6	
<b>Years Fished</b>						
0-5	37.4		18.5		18.5	
6-10	15.7		10.8		16.1	
11-15	6.1		9.6		12.8	
16-20	11.3		14.9		14.7	
21-25	7.0		8.7		8.1	
26-30	7.8		12.1		11.8	
>30	14.8		25.4		18.0	
<b>Household Income</b>						
Less than 15,000	2.8		4.5		8.6	
15,001-30,000	23.9		19.9		25.7	
30,001-45,000	26.6		28.4		26.7	
45,001-60,000	22.9		24.7		19.3	
60,001-85,000	11.9		15.2		10.7	
85,001-110,000	6.4		5.1		5.3	
110,001-135,000	1.8		1.2		2.1	
135,001-165,000			0.8			
>165,000	3.7		0.2		1.6	

9 - See Chapter 3 for variable definitions and estimation procedures

**Table A-9 Continued**  
**Maryland - Recreational Anglers' Demographics**

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=19.9 N=80.9		Y=72.0 N=28.0		Y=21.6 N=78.4	
<b>Education Level</b>						
College Graduate	18.3		10.1		13.1	
High School Graduate	41.7		48.3		43.7	
Less than High School	11.3		13.9		16.9	
Post Graduate/Prof.	3.5		4.2		3.3	
Some College	20.0		17.4		16.9	
Vocational School or Comm. Col.	5.2		6.2		6.1	
<b>Expenditures</b>						
Lodging (>0)		62.5		46.2		46.6
Lodging (all)		33.1		21.5		24.4
Boat fees		51.2		78.3		
Travel Expenses		11.7		9.5		10.5
<b>Trip Length</b>	Day=57.8 Multi=42.2		Day=85.6 Multi=14.4		Day=72.2 Multi=27.8	
<b>Ethnicity</b>	B=11.5 W=85.0		A=0.5 B=4.0 W=93.8		H=1.0 A=3.4 B=18.3 W=76.0	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black      H=Hispanic						

\* - Too few observations for statistical significance

**Table A-9-1 Maryland - Preferences for Marine Recreational Fishing  
and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	23.0	12.8	19.4
Better catch rates	11.5	22.6	19.0
Boat ramp	1.8	10.3	0.5
Convenient	20.4	35.5	25.6
Pre-paid access fee	1.8	0.4	0.5
Scenic beauty	6.2	1.6	6.6
Weather/water conditions	0.9	1.1	2.8
Access to pier, jetty, bridge,	2.7	2.7	8.5
Less Congestion		0.9	0.9
Other	31.9	12.1	16.1
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,		6.8	12.7
Better catch rates	25.0	25.0	26.8
Convenient	25.0	28.6	25.4
Less congestion		1.0	1.4
Scenic beauty	5.0	4.7	8.5
Always go there	25.0	9.48	11.3
Boat ramp		15.1	4.2
Weather/water conditions		3.1	1.4
Pre-paid access fee	5.0	1.0	1.4
Other	15.0	5.2	7.0

**Table A-9-1 Continued**  
**Maryland - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	43.5			69.9			66.5		
Second Most Important Activity	16.5			10.8			14.6		
Only One of Many Activities	40.0			19.3			18.9		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family	3.6	9.1	87.3	1.8	11.6	86.6	2.9	11.1	86.1
To Enjoy Nature and the Outdoors	1.8	14.5	83.6	0.7	13.1	86.2	0.5	11.5	88.0
To Catch Fish to Eat	29.1	36.4	34.5	34.6	37.1	28.3	34.1	35.6	30.3
To Experience the Excitement or Challenge of sport	4.5	33.6	61.8	8.6	23.5	67.8	10.1	20.7	69.2
To Be Alone	63.6	20.0	16.4	59.9	23.9	16.2	45.2	33.2	21.6
To Relax and Escape from Daily Routine	1.8	15.5	82.7	3.3	13.2	83.5	1.4	9.13	89.4
To Fish in Tournament or when Citations are Available	70.0	20.0	10.0	73.3	16.5	10.1	77.9	13.9	8.2
* 1=Not Important    2=Somewhat Important    3=Very Important									

**Table A-9-1 Continued**  
**Maryland - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	90.5	9.5	94.5	5.5	94.1	5.9
Limits on the Number of Fish You Can Keep	92.4	7.6	87.9	12.1	84.9	15.1
Limits on the Times of the Year When You Can Keep the Fish You Catch	84.8	15.2	77.9	22.1	78.4	21.6
Limits on the Areas You Can Fish	75.2	24.8	64.4	35.6	70.3	29.7
* 1=Support    2=Oppose						

A-10 VIRGINIA<sup>10</sup>

Table A-10 Virginia - Recreational Anglers' Demographics

	Party/Charter		Private/Rental		Shore	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Age</b>						
16-25	5.8		4.6		10.9	
26-35	18.8		21.0		20.7	
36-45	25.0		24.6		24.7	
46-55	23.7		23.3		20.5	
56-65	13.8		16.1		12.0	
>65	12.9		10.5		11.1	
<b>Gender</b>	M=82.7 F=17.3		M=87.5 F=12.5		M=81.4 F=18.6	
<b>Years Fished</b>						
0-5	18.1		14.6		21.2	
6-10	12.8		10.3		14.9	
11-15	13.3		10.5		13.6	
16-20	15.0		14.0		13.4	
21-25	6.2		12.3		7.1	
26-30	15.9		12.6		10.8	
>30	18.6		25.8		18.8	
<b>Household Income</b>						
Less than 15,000	5.6		4.0		9.9	
15,001-30,000	25.8		21.7		36.1	
30,001-45,000	24.2		26.5		25.3	
45,001-60,000	23.2		25.3		16.6	
60,001-85,000	12.6		15.5		8.77	
85,001-110,000	6.6		5.4		1.9	
110,001-135,000	1.0		0.6		0.7	
135,001-165,000			0.5		0.5	
>165,000	1.0		0.6		0.2	

10 - See Chapter 3 for variable definitions and estimation procedures

**Table A-10 Continued**  
**Virginia - Recreational Anglers' Demographics**

	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent	Mean	Percent	Mean	Percent	Mean
<b>Boat Ownership</b>	Y=22.6 N=77.4		Y=73.6 N=26.4		Y=16.2 N=83.8	
<b>Education Level</b>						
College Graduate	17.8		16.4		12.9	
High School Graduate	40.0		40.2		40.4	
Less than High School	12.0		13.3		16.1	
Post Graduate/Prof.	7.1		5.6		4.0	
Some College	16.9		17.7		19.4	
Vocational School or Comm. Col.	6.2		6.8		7.1	
<b>Expenditures</b>						
Lodging (>0)		36.7		35.6		48.7
Lodging (all)		24.6		19.4		28.9
Boat fees		49.5		54.9		
Travel Expenses		26.6		10.3		10.8
<b>Trip Length</b>	Day=68.9 Multi=31.1		Day=79.8 Multi=20.2		Day=84.5 Multi=15.5	
<b>Ethnicity</b>	A=0.5 B=23.5 W=74.7		H=0.2 A=0.3 B=6.7 W=91.4		A=2.0 H=2.4 B=18.9 W=74.0	
M=Male      Y=Yes      W=White      A=Asian F=Female    N=No        B=Black      H=Hispanic						

\* - Too few observations for statistical significance



**Table A-10-1 Virginia - Preferences for Marine Recreational Fishing  
and Fishing Regulation Methods**

<b>Recreational Anglers Stated Preferences for Fishing Site Characteristics</b>			
	<b>Party/Charter</b>	<b>Private/Rental</b>	<b>Shore</b>
<b>1st Stated Preference</b>	Percent		
Always go there	15.1	15.4	12.6
Better catch rates	14.7	25.0	21.4
Boat ramp	4.0	9.3	0.7
Convenient	28.4	28.1	32.9
Pre-paid access fee	3.1	1.0	0.7
Scenic beauty	0.9	1.3	4.8
Weather/water conditions	0.4	1.8	2.2
Access to pier, jetty, bridge,	2.2	4.2	6.3
Less Congestion	0.9	1.1	1.3
Other	30.2	12.7	17.2
<b>2nd Stated Preference</b>			
Access to pier, jetty, bridge,	2.0	10.2	12.9
Better catch rates	22.0	23.4	28.8
Convenient	26.0	24.7	21.6
Less congestion	4.0	1.4	2.2
Scenic beauty	2.0	4.3	5.8
Always go there	12.0	10.2	11.5
Boat ramp	6.0	15.0	3.6
Weather/water conditions	8.0	2.9	1.4
Pre-paid access fee	4.0	1.8	2.2
Other	14.0	6.1	10.1

**Table A-10-1 Continued**  
**Virginia - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ranking of Fishing Compared to Other Outdoor Activities</b>									
	<b>Party/Charter</b>			<b>Private/Rental</b>			<b>Shore</b>		
	Percent								
Most Important Activity	60.0			73.1			65.0		
Second Most Important Activity	12.0			11.0			15.8		
Only One of Many Activities	28.0			16.0			19.2		
<b>Recreational Anglers' Ratings* of Reasons for Marine Fishing</b>									
	1	2	3	1	2	3	1	2	3
To Spend Quality Time with Friends and Family	1.4	9.0	89.6	2.3	10.6	87.0	4.9	10.7	84.3
To Enjoy Nature and the Outdoors	1.4	11.3	87.3	1.1	10.8	88.2	1.3	11.4	87.2
To Catch Fish to Eat	26.7	36.7	36.7	23.6	41.7	34.8	31.8	32.7	35.6
To Experience the Excitement or Challenge of sport	8.1	24.9	67.0	8.2	24.8	67.0	11.2	28.0	60.9
To Be Alone	56.1	27.1	16.7	60.5	23.3	16.3	48.5	28.6	22.8
To Relax and Escape from Daily Routine	0.9	12.7	86.4	2.4	12.3	85.3	4.0	8.5	87.5
To Fish in Tournament or when Citations are Available	70.1	19.5	10.4	69.7	19.5	10.8	80.3	10.3	9.4
* 1=Not Important    2=Somewhat Important    3=Very Important									

**Table A-10-1 Continued**  
**Virginia - Preferences for Marine Recreational Fishing and**  
**Fishing Regulation Methods**

<b>Recreational Anglers' Ratings* of Fishing Regulation Methods</b>						
	<b>Party/Charter</b>		<b>Private/Rental</b>		<b>Shore</b>	
	Percent					
Statement	1	2	1	2	1	2
Limits on the Minimum Size of Fish You Can Keep	88.0	12.0	93.4	6.6	87.1	12.9
Limits on the Number of Fish You Can Keep	77.5	22.5	87.9	12.1	82.8	17.2
Limits on the Times of the Year When You Can Keep the Fish You Catch	69.6	30.4	71.7	28.3	67.2	32.8
Limits on the Areas You Can Fish	66.0	34.0	62.5	37.5	63.4	36.6
* 1=Support    2=Oppose						

**APPENDIX B**

**ADD-ON ECONOMICS INTERCEPT SURVEY INSTRUMENT**

**Add-On Intercept Survey Instrument**

(IF INTERVIEWER IS NOT CERTAIN RESPONDENT IS AT LEAST 16 YRS OF AGE, SIMPLY ASK RESPONDENT IF HE/SHE IS AT LEAST 16 YRS OF AGE. IF < 16 YRS OF AGE, THEN TERMINATE AND THANK RESPONDENT.)

\*

1 . Are you on a one-day fishing trip or was this day of fishing part of a longer trip in which you spent/plan to spend at least one night away from your residence?

One day	1	)> Go to Q.7.
Longer		2
Don't Know	8	
Refused	9	

2. How many days will you be away from your residence on this trip?

ENTER NUMBER	
Don't Know	88
Refused	99

3. How many days of this trip will be spent fishing?

ENTER NUMBER	
Don't Know	888
Refused	999

\*

4 . How much did you, personally, pay for lodging on this trip?

ENTER NUMBER	
Don't Know	888
Refused	999

5. How long did it take you to travel one-way from your residence to those lodgings?

ENTER NUMBER	
Don't Know	888
Refused	999

6. Would you have made this trip if you did not go fishing?

Yes	1
No	2
Don't Know	8
Refused	9

\*

7 . How long did it take you to travel from where you stayed last night to the fishing or boat launch site?

ENTER NUMBER	
Don't Know	888

Refused 999

8. (If fished by boat, PC or PR--Q.11. MRFSS) How long did it take you to travel from the boat launch site to the first fishing site?

ENTER NUMBER  
Don't Know 888  
Refused 999

\*  
9 . How much did you, personally, spend to travel from your residence to the fishing or boat launch site (one-way costs)? Please consider expenditures on travel fares, gas, tolls, ferry and parking fees.

ENTER NUMBER  
Don't Know 8  
Refused 9

\*  
10 . I appreciate your time for this interview. There is another part to this survey that involves a short follow-up interview by telephone. Would you be willing to participate in this follow-up survey?

Yes 1 )))))))  
Don't Know 8 \*  
Refused 9 \*

▼

IF ANGLER DID NOT RELEASE NAME/AND OR PHONE NUMBER DURING MRFSS PORTION OF THE SURVEY (Q.24. MRFSS), STATE: TO PARTICIPATE, MAY I HAVE YOUR NAME AND A PHONE NUMBER?

Thank you for your time !

APPENDIX C

TELEPHONE FOLLOW-UP TO INTERCEPT SURVEY INSTRUMENT

**Telephone Follow-Up To Intercept Survey Instrument**

Hello, may I speak with \_\_\_\_\_ (IF RESPONDENT IS NOT AVAILABLE, ASK FOR BEST TIME TO CALL BACK)

Hello, I'm \_\_\_\_\_ calling long distance from KCA Research Division in Alexandria, VA. I'm calling about your fishing trip on \_\_\_\_\_ (ENTER DAY/DATE). As you recall, after that trip you participated in a survey conducted for the National Marine Fisheries Service. Your participation in this follow-up survey is very important since only a limited number of households have been selected to participate. The information you give will be coded with the answers of others to ensure your confidentiality. (IF IT IS OBVIOUS THAT THE RESPONDENT HAS BEEN CONTACTED BY TELEPHONE BEFORE TO DISCUSS ANOTHER TRIP, PROCEED WITH INTERVIEW BUT TERMINATE AFTER Q.9.)

**IF INTERCEPTED TRIP WAS THE ONLY TRIP TAKEN WITHIN THE PAST 2 MONTHS (Q.19. MRFSS), SKIP TO 4\*\*.**

1. Counting the day you were interviewed you stated that you had fished \_\_\_\_\_ days within the past 2 months (Q.19. MRFSS). On how many of those days did you target either bluefish, striped bass, black sea bass, summer flounder, Atlantic cod, tautog or scup (substitute weakfish for scup in the Mid-Atlantic). (IF RESPONDENT HESITATES, STATE: WE ONLY HAVE A FEW QUESTIONS ABOUT THOSE TRIPS; WE'RE NOT GOING TO ASK DETAILED QUESTIONS ABOUT EACH INDIVIDUAL TRIP.)

ENTER NUMBER  
Don't Know 888 )),  
Refused 999 ))2) ▶ Go to 4\*\*.

\*  
2 .On the day that you were interviewed you stated that you targeted \_\_\_\_\_ on that trip (Q.14. MRFSS). On how many days within the past 2 months did you target \_\_\_\_\_ (insert target species).

ENTER NUMBER  
Don't Know 888  
Refused 999

\*  
3 .On how many days within past 2 months did you fish at the site where the interview took place?

ENTER NUMBER  
Don't Know 88  
Refused 99

4.On how many of those days (fished at site where interview took place) did you target \_\_\_\_\_ (Q.2., target species).

ENTER NUMBER  
Don't Know 88  
Refused 99

**4\*\*.** (IF TRIP WAS ONE-DAY TRIP--Q.1. ADD-ON INTERCEPT SURVEY = 1 SKIP TO Q.6.  
IF TRIP WAS MULTIPLE DAY TRIP--Q.1. ADD-ON INTERCEPT SURVEY = 2 GO TO Q.5.  
IF DIDN'T KNOW OR REFUSED Q.1. = 8 OR 9 SKIP TO Q.6.)



5. How many overnight trips did you take during the past 2 months?

ENTER NUMBER  
Don't Know 88  
Refused 99

6. What would you say is the main reason why you chose to fish at that site where you were interviewed?

I always go there	1
Better catch rates (access to species)	2
Convenient	3
Less Congestion	4
Weather or Water Conditions	5
Scenic Beauty at the Site	6
Access to pier, jetty, bridge, beach/bank	7
Boat Ramp (Quality of or existence of)	10
Pre-paid Access Fee	11
Combination of (up to 3)	? ? ?
Other (Specify)	12
Don't Know	8
Refused	9

\*  
7. (If fished from party/charter or rental boat) How much did you, personally, spend on boat fees for that trip?

ENTER NUMBER  
Don't Know 888  
Refused 999

8. How many years have you been saltwater recreational fishing?

ENTER NUMBER  
Don't Know 88  
Refused 99

9. Compared to your other outdoor recreation activities during the last two months (such as swimming, tennis, golf, etc.), would you rate fishing as:

Your Most Important Outdoor Activity	1
Your Second Most Important Outdoor Activity	2
Only One Of Many Outdoor Activities	3
Don't Know	8
Refused	9

10. People list many different reasons why they like to go saltwater fishing. Please rate each, of the following items I state as Not Important, Somewhat Important, or Very Important.

Not Important 1  
Somewhat Important 2  
Very Important 3  
Don't know 8  
Refused 9

- A. To spend quality time with friends and family
- B. To enjoy nature and the outdoors
- C. To catch fish to eat
- D. To experience the excitement or challenge of sport fishing
- E. To be alone
- F. To relax and escape from my daily routine
- G. To fish in a tournament or when citations are available
- H. Other (specify)

11. Considering the species you typically fish for, indicate whether you support or oppose the following conservation measures used to restrict total catch.

Support 1      Oppose 2  
Don't Know 8      Refused 9

- A. Limits on the minimum size of fish you can keep
- B. Limits on the number of fish you can keep
- C. Limits on the times of the year when you can keep the fish you catch
- D. Limits on the areas you can fish

VERSION 1

\*  
 12 . The current daily bag limit for striped bass in (ENTER STATE) \_\_\_\_ is (ENTER STATE BAG LIMIT) \_\_\_\_ fish. Suppose you could choose to buy a special license that would increase your daily bag limit from (ENTER STATE BAG LIMIT) \_\_\_\_ to (ENTER STATE BAG LIMIT + 1) \_\_\_\_ fish. If you chose not to buy the license, your daily bag would still be (ENTER STATE BAG LIMIT) \_\_\_\_ fish. What would be the maximum amount of money you would be willing to pay for this special license? ENTER NUMBER )))))))0)) ▶ IF \$0 Go to Q.12a.

Don't Know 888 \*  
 Refused 999 .))) ▶ IF > \$0 Go to Q.13.

STRIPED BASS BAG LIMIT BY STATE

ME	1	RI	1
CT	1	NH	1
MA	1	DE	1
MD	1(Rec) 2(Charter)	NY	1
NJ	1	VA	2

\*  
 12a . (IF RESPONDENT ANSWERS \$0 TO Q.12.) Which of the following statements best describes why you feel the way you do?

You don't fish for striped bass	1
You already keep all the fish you care to	2
You don't want to pay any more to fish than you do now	3
You don't know how much a one fish change is worth to you	4
Other (describe)	5
Don't Know	8
Refused	9

\*  
 13 . The current daily bag limit for bluefish in (ENTER STATE) \_\_\_\_ is 10 fish. In the future it may be necessary to decrease the bag from 10 fish to 8 fish. Suppose you could choose to buy a special license that would allow you to maintain the current bag of 10 fish. If you chose not to buy the license, your daily bag would be 8 fish. What would be the maximum amount of money you would be willing to pay for this special license?

ENTER NUMBER )))))))0)) ▶ IF \$0 Go to Q.13a.  
 Don't Know 888 \*  
 Refused 999 .))) ▶ IF > \$0 Go to Q.14.

BLUEFISH BAG LIMIT BY STATE

ME	10	RI	10
CT	10	NH	10
MA	10	DE	10
MD	10	NY	10
NJ	0	VA	10

\*  
 13a . (IF RESPONDENT ANSWERS \$0 TO Q.13.) Which of the following statements best describes why you feel the way you do?

- You don't fish for bluefish 1
- You already keep all the fish you care to 2
- You don't want to pay any more to fish than you do now 3
- You don't know how much a 2 fish change in the bag limit is worth to you 4
- Other (describe) 5
- Don't Know 8
- Refused 9

VERSION 2

\*  
 12 . The current daily bag limit for striped bass in (ENTER STATE) \_\_\_\_ is (ENTER STATE BAG LIMIT) \_\_\_\_ fish. Suppose you could choose to buy a special license that would increase your daily bag limit from (ENTER STATE BAG LIMIT) \_\_\_\_ to (ENTER STATE BAG LIMIT + 1) \_\_\_\_ fish. If you chose not to buy the license, your daily bag would still be (ENTER STATE BAG LIMIT) \_\_\_\_ fish. What would be the maximum amount of money you would be willing to pay for this special license?

ENTER NUMBER )))))))0))> IF \$0 Go TO Q.12A.  
 Don't Know 888 \*  
 Refused 999 .))> IF > \$0 Go TO Q.13.

STRIPED BASS BAG LIMIT BY STATE

ME	1	RI	1
CT	1	NH	1
MA	1	DE	1
MD	1(Rec) 2(Charter)	NY	1
NJ	1	VA	2

\*  
 12a . (IF RESPONDENT ANSWERS \$0 TO Q.12.) Which of the following statements best describes why you feel the way you do?

- You don't fish for striped bass 1
- You already keep all the fish you care to 2
- You don't want to pay any more to fish than you do now 3
- You don't know how much a one fish change is worth to you 4
- Other (describe) 5
- Don't Know 8
- Refused 9

\*  
 13 . The current daily bag limit for bluefish in (ENTER STATE) \_\_\_\_ is 10 fish. In the future it may be necessary to decrease the bag from 10 fish to 6 fish. Suppose you could choose to buy a special license that would allow you to maintain the current bag of 10 fish. If you chose not to buy the license, your daily bag would be 6 fish. What would be the maximum amount of money you would be willing to pay for this special license?

ENTER NUMBER )))))))0))> IF \$0 Go TO Q.13A.  
 Don't Know 888 \*  
 Refused 999 .))> IF > \$0 Go TO Q.14.

BLUEFISH BAG LIMIT BY STATE

ME	10	RI	10
CT	10	NH	10
MA	10	DE	10

MD	10	NY	10
NJ	0	VA	10

\*  
13a . (IF RESPONDENT ANSWERS \$0 TO Q.13.) Which of the following statements best describes why you feel the way you do?

You don't fish for bluefish	1
You already keep all the fish you care to	2
You don't want to pay any more to fish than you do now	3
You don't know how much a 4 fish change in the bag limit is worth to you	4
Other (describe)	5
Don't Know	8
Refused	9

**VERSION 3**

\*  
12 . The current daily bag limit for striped bass in (ENTER STATE) \_\_\_\_ is (ENTER STATE BAG LIMIT) \_\_\_\_ fish. Suppose you could choose to buy a special license that would increase your daily bag limit from (ENTER STATE BAG LIMIT) \_\_\_\_ to (ENTER STATE BAG LIMIT + 1) \_\_\_\_ fish. If you chose not to buy the license, your daily bag would still be (ENTER STATE BAG LIMIT) \_\_\_\_ fish. What would be the maximum amount of money you would be willing to pay for this special license?

ENTER NUMBER )))))))0))> IF \$0 Go to Q.12A.  
 Don't Know 888 \*  
 Refused 999 .))> IF > \$0 Go to Q.13.

STRIPED BASS BAG LIMIT BY STATE

ME	1	RI	1
CT	1	NH	1
MA	1	DE	1
MD	1(Rec) 2(Charter)	NY	1
NJ	1	VA	2

\*  
12a . (IF RESPONDENT ANSWERS \$0 TO Q.12.) Which of the following statements best describes why you feel the way you do?

You don't fish for striped bass	1
You already keep all the fish you care to	2
You don't want to pay any more to fish than you do now	3
You don't know how much a one fish change is worth to you	4
Other (describe)	5
Don't Know	8
Refused	9

\*  
13 . The current daily bag limit for bluefish in (ENTER STATE) \_\_\_\_ is 10 fish. In the future it may be necessary to decrease the bag from 10 fish to 4 fish. Suppose you could choose to buy a special license that would allow you to maintain the current bag of 10 fish. If you chose not to buy the license, your daily bag would be 4 fish. What would be the maximum amount of money you would be willing to pay for this special license?

ENTER NUMBER )))))))0))> IF \$0 Go to Q.13A.  
 Don't Know 888 \*  
 Refused 999 .))> IF > \$0 Go to Q.14.

BLUEFISH BAG LIMIT BY STATE

ME	10	RI	10
----	----	----	----

CT	10	NH	10
MA	10	DE	10
MD	10	NY	10
NJ	0	VA	10

\*  
13a . (IF RESPONDENT ANSWERS \$0 TO Q.13.) Which of the following statements best describes why you feel the way you do?

You don't fish for bluefish	1
You already keep all the fish you care to	2
You don't want to pay any more to fish than you do now	3
You don't know how much a 6 fish change in the bag limit is worth to you	4
Other (describe)	5
Don't Know	8
Refused	9

**VERSION 4**

\*  
12 . The current daily bag limit for striped bass in (ENTER STATE) \_\_\_\_ is (ENTER STATE BAG LIMIT) \_\_\_\_ fish. Suppose you could choose to buy a special license that would increase your daily bag limit from (ENTER STATE BAG LIMIT) \_\_\_\_ to (ENTER STATE BAG LIMIT + 1) \_\_\_\_ fish. If you chose not to buy the license, your daily bag would still be (ENTER STATE BAG LIMIT) \_\_\_\_ fish. What would be the maximum amount of money you would be willing to pay for this special license?

ENTER NUMBER )))))))0))> IF \$0 Go to Q.12A.  
 Don't Know 888 \*  
 Refused 999 .))> IF > \$0 Go to Q.13.

STRIPED BASS BAG LIMIT BY STATE

ME	1	RI	1
CT	1	NH	1
MA	1	DE	1
MD	1(Rec) 2(Charter)	NY	1
NJ	1	VA	2

\*  
 12a . (IF RESPONDENT ANSWERS \$0 TO Q.12.) Which of the following statements best describes why you feel the way you do?

- You don't fish for striped bass 1
- You already keep all the fish you care to 2
- You don't want to pay any more to fish than you do now 3
- You don't know how much a one fish change is worth to you 4
- Other (describe) 5
- Don't Know 8
- Refused 9

\*  
 13 . The current daily bag limit for bluefish in (ENTER STATE) \_\_\_\_\_ is 10 fish. In the future it may be necessary to decrease the bag from 10 fish to 2 fish. Suppose you could choose to buy a special license that would allow you to maintain the current bag of 10 fish. If you chose not to buy the license, your daily bag would be 2 fish. What would be the maximum amount of money you would be willing to pay for this special license?

ENTER NUMBER )))))))0))) ▶ IF \$0 Go to Q.13A.  
 Don't Know 888 \*  
 Refused 999 .))) ▶ IF > \$0 Go to Q.14.

BLUEFISH BAG LIMIT BY STATE

ME	10	RI	10
CT	10	NH	10
MA	10	DE	10
MD	10	NY	10
NJ	0	VA	10

\*  
 13a . (IF RESPONDENT ANSWERS \$0 TO Q.13.) Which of the following statements best describes why you feel the way you do?

- You don't fish for bluefish 1
- You already keep all the fish you care to 2
- You don't want to pay any more to fish than you do now 3
- You don't know how much a 8 fish change in the bag limit is worth to you 4
- Other (describe) 5
- Don't Know 8
- Refused 9

**Continuation of Interview After Versions 1-4**

14. Do you or does anyone living in your household own a boat that is ever used for recreational saltwater fishing?

Yes	1
No	2 ),
Don't Know	8 /) ▶ Go to Q.16.
Refused	9 )-

15. In what county and state do you store your boat?

16. What is the length of the boat? (IF MORE THAN ONE BOAT, ASK ABOUT PRIMARY FISHING BOAT.)

Less than 10 feet	1	10 to 14 feet	2
15 to 19 feet	3	20 to 24 feet	4
25 to 29 feet	5	30 to 39 feet	6
40 feet or more	7	Don't Know	8
Refused	9		

17. Would you describe your ethnic background as:

White	1	Other(specify)	5
Black	2	Refused	8
Hispanic	3	Don't Know	9
Asian	4		

18. How old were you on your last birthday? (IF RESPONDENT HESITATES, QUICKLY GO TO Q.18a.) ENTER NUMBER ))))))))))) ▶Go to Q.18.

Don't Know	888 )),
Refused	999 ))2) ▶Go to Q.17a.

18a. That is, in which of the following age groups do you belong:

16 to 25	1	56 to 65	5
26 to 35	2	66 and over	6
36 to 45	3	Don't Know	8
46 to 55	4	Refused	9

19. Code Gender: Male 1 ),  
Female 2 ))1

IF UNCERTAIN, SIMPLY ASK WHAT IS YOUR GENDER?

20. Including yourself, how many people reside in your household?

ENTER NUMBER	
Don't Know	88
Refused	99

21. What was the last grade of formal education you completed?

(IF RESPONDENT HESITATES, READ LISTED ALTERNATIVES)

Less than a high school degree	1	High school graduate	2
Vocational or community college	3	Some college	4
College graduate	5	Post-graduate/prof.degree	6
Don't know	8	Refused	9

\*  
22 . Are you personally employed outside the home?



Yes	1 )))) ▶ Go to Q.23.
No	2 )))) ▶ Go to Q.22.
Don't Know	8 ),
Refused	9 ))2) ▶ Go to Q.27.

23. Are you currently not employed as a result of your own choice, ... are you retired, ... or are you unemployed but looking for work.

Not employed by choice	1
Retired	2
Unemployed & looking	3
Don't Know	8
Refused	9

(Go to Q.30.)

24. And are you self-employed?

Yes	1 )))) ▶ Go to Q.25.
No	2
Don't Know	8
Refused	9

25. Do you work for an hourly wage or for a salary?

Hourly Wage	1	Salary	2
Commission only	3	Other (Specify)	5
Don't Know	8	Refused	9

26. How much is your hourly wage?

27. How many hours a week do you usually work?

ENTER NUMBER	
Don't Know	888
Refused	999

28. Can you choose to work more or fewer hours a week?

Yes	1
No	2
Don't Know	8
Refused	9

29. During this fishing trip were you on a paid vacation?

Yes	1
No	2
Don't Know	8
Refused	9

30. Did you forgo any wages by taking this trip?

Yes	1
No	2 ),
Don't Know	8 /) ▶ Go to Q.30.
Refused	9 )-

31. About how much money could you have earned if you hadn't taken this trip?

ENTER NUMBER	
Don't Know	888
Refused	999

32. Is your total annual household income before taxes over or under \$45,000?

+))))))))))))))))))))))))))))))))))))))))))))))))))))))))- +)-  
▼ ▼

And is it over or under \$60,000? And is it over or under \$30,000?  
**IF OVER) ▶** And is it over or under \$85,000? **IF UNDER) ▶** And is it over or under \$15,000?  
**IF OVER) ▶** And is it over or under \$110,000?  
**IF OVER) ▶** And is it over or under \$135,000?  
**IF OVER) ▶** And is it over or under \$160,000?

Less than \$15,000	1
\$15,001 to 30,000	2
\$30,001 to \$45,000	3
\$45,001 to \$60,000	4
\$60,001 to \$85,000	5
\$85,001 to \$110,000	6
\$110,001 to \$135,000	7
\$135,001 to \$160,000 or more	10
Don't Know	8
Refused	9

**APPENDIX D**  
**TELEPHONE SURVEY INSTRUMENT**

Telephone Survey Instrument - Version A

IF CATEGORY 1 (NO ONE IN HOUSEHOLD) GO TO PART II.

IF CATEGORY 2 OR 3, START WITH PART 1.

PART 1. Angler Screening

IF CATEGORY 3 (FISHED IN LAST YEAR BUT NOT LAST 2 MONTHS) GO TO SCREENING QUESTION 2.

1. Are you (the angler/one of the anglers) who goes saltwater fishing but has not within the past 12 months?

Yes )))▶Go to Part II.

No )))▶May I speak with that angler/one of those anglers? If successful, go to INTRODUCTION FOR NEW RESPONDENT.

2. Are you (the angler/one of the anglers) who goes saltwater fishing but has not within the past 2 months?

Yes )))▶Go to Part II.

No )))▶May I speak with that angler/one of those anglers?

(IF DESIRED FISHERMAN IS NOT IMMEDIATELY AVAILABLE, THANK RESPONDENT AND TERMINATE)

(INTRODUCTION FOR NEW RESPONDENT)

Hello, I'm conducting a survey on saltwater sport anglers for the National Marine Fisheries Service. We are collecting socio-demographic information on saltwater sport anglers. This survey is being conducted in accordance with the privacy act of 1974, therefore you are not obligated to answer any question if you find it to be an invasion of your privacy. I understand that you participate in saltwater fishing, but have not done so within the past (2 or 12) months.

Is this correct? Yes )))▶Go to Part II.

No )))▶When was the last time you went saltwater sportfishing?

If within 2 months Go to **Version B** of the Economic Questionnaire.

If never thank and terminate.

PART II. Economic Questionnaire

(IF INTERVIEWER IS NOT CERTAIN RESPONDENT IS AT LEAST 16 YRS OF AGE, SIMPLY ASK RESPONDENT IF HE/SHE IS AT LEAST 16 YRS OF AGE. IF < 16 YRS OF AGE, THEN TERMINATE AND THANK RESPONDENT.)

1. How old were you on your last birthday? (IF RESPONDENT HESITATES, QUICKLY GO TO Q.1a.) ENTER NUMBER )))))))))))▶Go to Q.2.

Don't Know 888 ),

Refused 999 ))2))▶Go to Q.1a.

1a. That is, in which of the following age groups do you belong:

16 to 25	1	26 to 35	2
36 to 45	3	46 to 55	4
56 to 65	5	66 and over	6
Don't Know	8	Refused	9

2. Code Gender: Male 1 ),  
Female 2 ))1

IF UNCERTAIN, SIMPLY ASK WHAT IS YOUR GENDER?

3. Would you describe your ethnic background as:
- |                |   |            |   |
|----------------|---|------------|---|
| White          | 1 | Black      | 2 |
| Hispanic       | 3 | Asian      | 4 |
| Other(specify) | 5 | Don't Know | 8 |
| Refused        | 9 |            |   |

4. What was the last grade of formal education which you have completed?  
 (IF RESPONDENT HESITATES, READ LISTED ALTERNATIVES)
- |                                   |   |
|-----------------------------------|---|
| Less than a high school degree    | 1 |
| High school graduate              | 2 |
| Vocational or community college   | 3 |
| Some college                      | 4 |
| College graduate                  | 5 |
| Post-graduate/professional degree | 6 |
| Don't know                        | 8 |
| Refused                           | 9 |

- \*  
 5 . Are you personally employed outside the home?
- |            |   |
|------------|---|
| Yes        | 1 |
| No         | 2 |
| Don't Know | 8 |
| Refused    | 9 |

- \*  
 6 . Is your total annual household income before taxes over or under \$45,000?  
 +))))))))))))))))))))))))))))))))))))))))))))))))))))- +)-

- |                                                       |                                                       |
|-------------------------------------------------------|-------------------------------------------------------|
| And is it over or under \$60,000?                     | And is it over or under \$30,000?                     |
| <b>IF OVER</b> ) ▶ And is it over or under \$85,000?  | <b>IF UNDER )</b> ▶ And is it over or under \$15,000? |
| <b>IF OVER</b> ) ▶ And is it over or under \$110,000? |                                                       |
| <b>IF OVER</b> ) ▶ And is it over or under \$135,000? |                                                       |
| <b>IF OVER</b> ) ▶ And is it over or under \$160,000? |                                                       |
| Less than \$15,000                                    | 1                                                     |
| \$15,001 to 30,000                                    | 2                                                     |
| \$30,001 to \$45,000                                  | 3                                                     |
| \$45,001 to \$60,000                                  | 4                                                     |
| \$60,001 to \$85,000                                  | 5                                                     |
| \$85,001 to \$110,000                                 | 6                                                     |
| \$110,001 to \$135,000                                | 7                                                     |
| \$135,001 to \$160,000 or more                        | 10                                                    |
| Don't Know                                            | 8                                                     |
| Refused                                               | 9                                                     |

Telephone Survey Instrument - Version B

FOR CATEGORY 4 RESPONDENTS.

QUESTION 1 SHALL BE ASKED FOR EACH TRIP FOLLOWING THE TRIP MODE QUESTION ON MRFSS TELEPHONE FISHERMAN QUESTIONNAIRE.

- \*  
 1 . Were you fishing for any particular kinds of fish on that trip?  
     Yes )))))))))))> What Kinds? ))0)> 1st Target \_\_\_\_\_  
     No                   2                   .)> 2nd Target \_\_\_\_\_

DO NOT PROMPT FOR A SECOND SPECIES IF ONLY ONE SPECIES IS MENTIONED. "ANYTHING" IS A VALID ANSWER.

QUESTIONS 2-10 WILL BE ASKED AT THE END OF THE ROUTINE MRFSS TELEPHONE TRIP QUESTIONS

(IF INTERVIEWER IS NOT CERTAIN RESPONDENT IS AT LEAST 16 YRS OF AGE, SIMPLY ASK RESPONDENT IF HE/SHE IS AT LEAST 16 YRS OF AGE. IF < 16 YRS OF AGE, THEN THANK RESPONDENT AND TERMINATE.)

2. How many saltwater fishing trips did you take within the past 12 months?  
 ENTER NUMBER  
 Don't Know           8  
 Refused              9
3. On how many of those trips did you target either bluefish, striped bass, black sea bass, summer flounder, Atlantic cod, tautog or scup (substitute 'weakfish' for scup in the Middle Atlantic)?  
 ENTER NUMBER  
 Don't Know           888  
 Refused              999
4. Do you or does anyone living in your household own a boat that is ever used for recreational fishing?  
 Yes                   1  
 No                    2  
 Don't Know           8  
 Refused              9
5. How old were you on your last birthday? (IF RESPONDENT HESITATES, QUICKLY GO TO Q.5a.)  
 ENTER NUMBER )))))))))))> Go to Q.6.  
 Don't Know           8 ),  
 Refused              9 ))2)> Go to Q.5a.
- 5a. That is, in which of the following age groups do you belong?  
     16 to 25           1                   26 to 35           2  
     36 to 45           3                   46 to 55           4  
     56 to 65           5                   66 and over       6  
     Don't Know        8                   Refused           9
6. Code Gender:        Male                   1 ),  
                   Female                2 ))1

IF UNCERTAIN, SIMPLY ASK WHAT IS YOUR GENDER?

7. Would you describe your ethnic background as:

White	1
Black	2
Hispanic	3
Asian	4
Other(specify)	5
Don't Know	8
Refused	9

8. What was the last grade of formal education which you have completed?

(IF RESPONDENT HESITATES, READ LISTED ALTERNATIVES)

Less than a high school degree	1
High school graduate	2
Vocational or community college	3
Some college	4
College graduate	5
Post-graduate/professional degree	6
Don't know	8
Refused	9

\*

9 . Are you personally employed outside the home?

Yes	1
No	2
Don't Know	8
Refused	9

\*

10 . Is your total annual household income before taxes over or under \$45,000?

+))))))))))))))))))))))))))))))))))))))))))))))))))))))))- +)-

▼

And is it over or under \$60,000?

▼

And is it over or under \$30,000?

IF OVER) ▶ And is it over or under \$85,000?

IF UNDER ) ▶ And is it over or under \$15,000?

IF OVER) ▶ And is it over or under \$110,000?

IF OVER) ▶ And is it over or under \$135,000?

IF OVER) ▶ And is it over or under \$160,000?

Less than \$15,000	1
\$15,001 to 30,000	2
\$30,001 to \$45,000	3
\$45,001 to \$60,000	4
\$60,001 to \$85,000	5
\$85,001 to \$110,000	6
\$110,001 to \$135,000	7
\$135,001 to \$160,000 or more	10
Don't Know	8
Refused	9