Current and Future Participation in Marine Recreational Fishing in the Southeast U.S. Region

J. Walter Milon

U.S. Department of Commerce

National Oceanic and Atmospheric Administration

National Marine Fisheries Service

A copy of this report may be obtained from:

NOAA, National Marine Fisheries Service
Fisheries Statistics and Economics Division, F/ST1
1315 East-West Highway
Silver Spring, MD 20910

Current and Future Participation in the Marine Recreational Fishing in the Southeast U.S. Region

J. Walter Milon
Professor
Food and Resource Economics Department
University of Florida
Gainesville, FL 32611-0240

U.S. Department of Commerce
Donald Evans, Secretary

National Oceanic and Atmospheric Administration
Scott B. Gudes, Acting Under Secretary for Oceans and Atmosphere

National Marine Fisheries Service
William Hogarth, Assistant Administrator for Fisheries

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

In order to supplement baseline data collected as part of the ongoing Marine Recreational Fisheries Statistics Survey (MRFSS), the National Marine Fisheries Service conducted an add-on survey during the March 1997 to February 1998 MRFSS telephone survey of households in coastal states in the Southeastern U.S. (North Carolina to Louisiana). Demographic data collected for the add-on survey were used to develop age, gender, and ethnicity profiles of resident marine recreational fishing participants for each coastal state within the region. These data were also used to develop population cohort participation rates that were combined with U.S. Census Bureau population projections to provide forecasts of marine recreational fishing participation for the period 2000 to 2025. Forecasts were developed for resident participation in each coastal state and for the region. These forecasts are comparable to forecasts developed for the Northeast region by Thunberg et al., 1999 and for the Pacific region (Milon, 2000). The forecasts do not include nonresident participants who may be a sizeable share of total participation in some states.

The survey data indicate that a large majority of participants in all coastal states were white males between the ages of 26 and 55. Most participants had household incomes greater than $25,000 but less than $60,000. Only a small percentage of participants in all states were of Spanish or Hispanic origin. This demographic profile of participants was consistent across all coastal states in the region.

The total number of resident participants in marine recreational fishing in the Southeast region has averaged approximately 4 million residents during the 1990s. Florida has had the largest number of resident participants followed by North Carolina and Louisiana. Based on the survey results and Census Bureau population projections, it is expected that the number of participants in the region will increase at an average annual rate of 1.34 percent through 2025. The total number of participants in the region would increase to approximately 5.5 million in 2025 with Florida, North Carolina and Louisiana continuing to have the largest number of resident participants. This increase in the number of participants is due to a general increase in the population throughout the Southeast. Despite this overall increase, the participation rate for marine recreational fishing is expected to decline as individuals in the prime participation cohort groups (white males, ages 26 to 55) become a smaller proportion of the total population in each coastal state in the region.

These forecasts are based on the assumption that the influence of age, gender and ethnicity on participation in marine recreational fishing will be the same in the future as in the survey year. While other influences such as income, access to fishing, and the quality of the fishing experience undoubtedly influence participation, past research has indicated that demographic factors exert the strongest influence on recreational fishing participation. Also, the forecasts depend on a continuing aging of the population in the Southeast as the Baby Boom generation moves past 65 years of age. To the extent that these assumptions reflect future events, the forecasts in this report will provide a reliable guide to future trends in marine recreational fishing participation in the Southeast region.

CHAPTER 1

INTRODUCTION

A telephone survey of households in the Southeastern region (North Carolina to Louisiana[1]) was conducted by the National Marine Fisheries Service, National Oceanic and Atmospheric Administration during March – December, 1997 and January – February, 1998. The survey was designed to identify participation in marine recreational fishing during the prior 2 and 12-month periods from the date of the telephone interview. Only residents, 16 years of age or older, of each state were interviewed for the survey. For this survey, a participant is someone who engaged in saltwater fishing in the past 12 months.

In addition to marine recreational fishing participation, the survey also collected information on the socioeconomic characteristics of participants. This report presents results from this survey and develops participation rates for different socioeconomic cohort groups in each state within the region. The participation rate is the estimated number of fishing participants living in a state divided by the U. S. Census Bureau estimated state population (16 years and older). These participation rates are used to forecast marine recreational fishing participation by residents of each state through the year 2025. These forecasts of marine recreational fishing participation for the Southeast region are comparable to forecasts that have been developed for the Northeast (Thunberg et al., 1999) and Pacific (Milon, 2000) regions.

This chapter provides a brief review of marine recreational fishing participation in the Southeast region and other studies that have developed methods to forecast fishing participation. Chapter 2 describes the telephone survey methods and provides general information on the number of contacts and interview completion rates by state. A copy of the text for the interview is provided in Appendix C. Chapter 3 describes the methodology for developing participation rates for socioeconomic cohort groups and presents the results of this analysis for states within the Southeast region. Chapter 4 applies the cohort participation rates to forecast participation in each state through the year 2025 based on U.S. Census Bureau projections of population growth. Chapter 5 recaps the results and provides a comparison of forecasted marine recreational fishing participation in the Southeast with studies for other regions.

1.1 Trends in Marine Recreational Fishing Participation in the Southeast

Estimates of marine recreational fishing participation in the Southeast have been developed since 1981 by the National Marine Fisheries Service.[2] These participation

---

[1] Texas is not included within the Southeast region because the state conducts its own surveys of marine recreational fishing participation.
[2] More detailed information about the annual participation estimates is available from the National Marine Fisheries Service website: www.st.nmfs.gov/recreational.

estimates are based on the Marine Recreational Fisheries Statistics Survey (MRFSS). Total participation estimates within a state generally include coastal residents (people living in counties within 25 or 50 miles of ocean coastline), non-coastal residents, and out-of-state participants. Figure 1-1 presents the estimated number of participants and participation rates (based on the population 16 years of age and older) for marine recreational fishing by residents[3] in the Southeast for the period 1981 – 1998. Total participation has been at the highest level of about 4.5 million anglers in 1983 – 1984 and then again in 1994 – 1995. The lowest levels were in 1981 – 1982 but these estimates are somewhat questionable since the MRFSS procedures were untested at that time. Since 1983, participation has varied but the total number of participants in the region has remained relatively constant at approximately 4 million anglers.

Participation rates, on the other hand, have shown a distinct downward trend in the Southeast region since the early 1980s. Figure 1-1 shows the resident participation rate peaked at about 16 percent in 1983 and 1984 and has generally been below 14 percent since 1989. Within the exception of an increase to 13.44 percent in 1994, the participation rate has declined almost continuously throughout the 1990s to 10.95 percent in 1998.

Figure 1-1 MRFSS Estimates of Resident Participants and Participation
Rates in the Southeast Region, 1981-1998

---
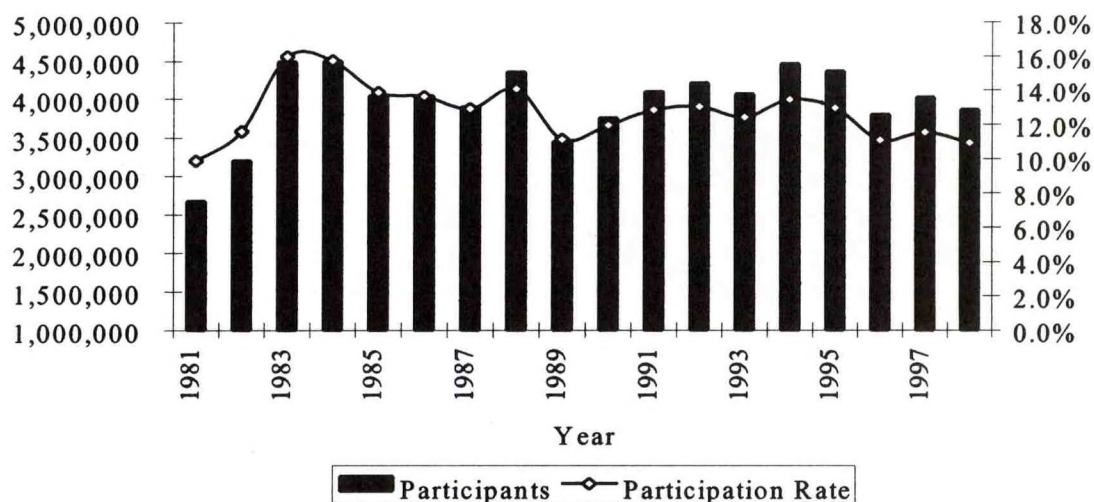
[3] In this analysis, participation is defined for residents only because the MRFSS data do not provide sufficient detail on the state of residence for nonresident participants. While some residents in one Southeastern state may fish in another state, it is not possible to account for participation outside of a resident's home state. Also, the reader should note that the figures presented are point estimates that have some level of statistical error.

Trends in the overall Southeastern region are relatively similar for each of the states within the region. Figure 1-2 shows the number of residents participating in marine recreational fishing in states within the Southeast region for the period 1981 – 1998. Florida clearly has the largest number of resident participants with an average of about 2.5 million residents fishing on the Atlantic and/or Gulf coasts of the state. Florida accounts for approximately 60 percent of all resident participants in the region.[4] Participation in Florida in the 1990s has increased from the late 1980s but has been relatively the same as the mid-1980s. Similarly, the other Southeastern states show relatively little trend over the 1981 - 1998 period. Louisiana and North Carolina are the next largest states in terms of resident participation in marine recreational fishing with approximately 500,000 anglers in each state. All of the other states have remained relatively constant over the past decade at less than 300,000 resident participants per state.

Participation rates within the Southeastern states have also generally followed the overall regional trend. Figure 1-3 shows that Florida has had the highest participation rate with between 18 to 24 percent of the residents engaged in marine recreational fishing over the past decade. This reflects a decline from rates of over 30 percent during the early 1980s. Louisiana had the next highest participation rates with an average of around 12 to 15 percent during the 1990s. These rates are also a decline from the 1980s. In North Carolina, the participation rates were similar to Louisiana during the early 1990s but dropped to around 8 percent after 1995. Georgia has consistently had the lowest participation rates at less than 5 percent throughout the 1981 – 1998 period.

---

[4]This percentage does not account for the number of nonresident participants in Florida which has typically been approximately the same number as resident participants. The number of nonresident participants in Florida from other Southeastern states has not been estimated.

Figure 1-2. Number of Participants in Southeastern U.S. States, 1981 - 1998

Legend:
- Alabama
- Florida
- Georgia
- Louisiana
- Mississippi
- North Carolina
- South Carolina

Y-axis: 3,000,000 / 2,500,000 / 2,000,000 / 1,500,000 / 1,000,000 / 500,000

X-axis (Year): 1981 / 1983 / 1985 / 1987 / 1989 / 1991 / 1993 / 1995 / 1997

4
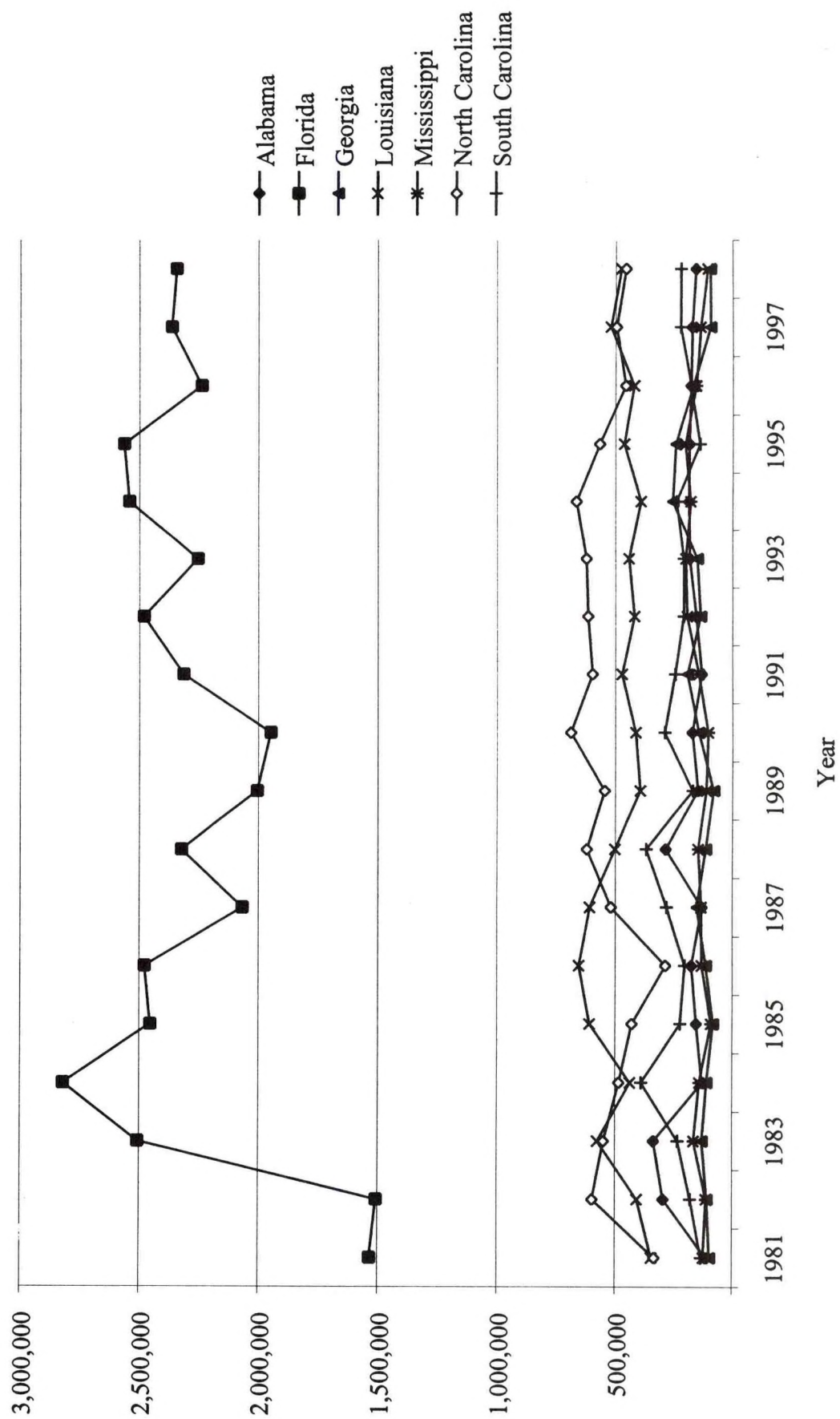
Figure 1-3. Participation Rates in Southeastern U.S. States, 1981 - 1998

Alabama
Florida
Georgia
Louisiana
Mississippi
North Carolina
South Carolina

5
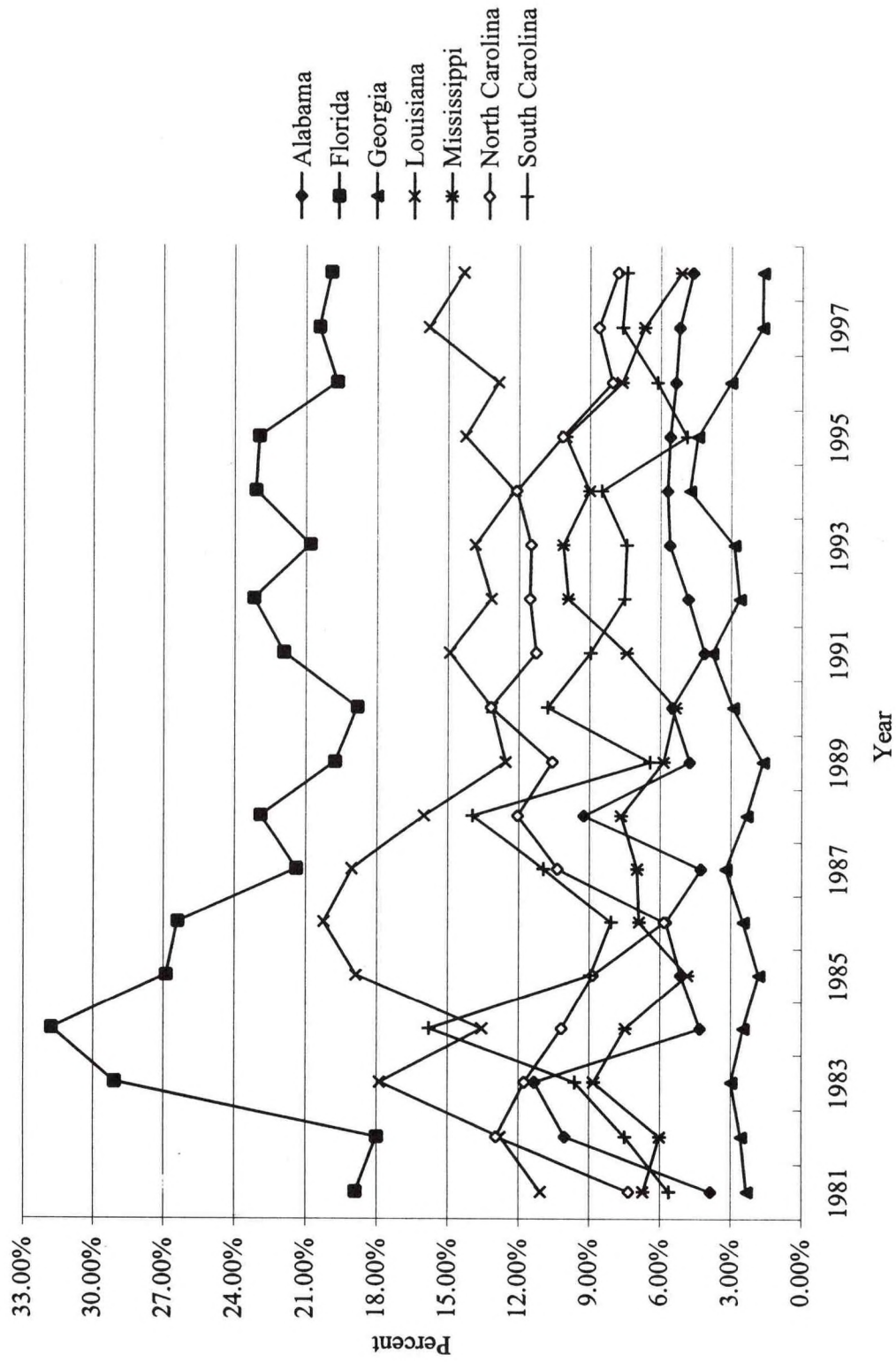
1.2 Forecasting Marine Recreational Fishing Participation

A number of studies have evaluated the factors that influence participation in marine recreational fishing. These factors may include social, cultural and demographic characteristics of individuals and/or specific constraints such as income, time, or knowledge about the activity (Searle and Jackson, 1985; Jackson, 1988; Kay and Jackson, 1991). As Thunberg et al. (1999) point out, demographic characteristics are generally not sufficient to fully explain individual behavior. But, a lack of information about the full set of constraints guiding leisure choice has often led researchers to rely on demographic data to predict future behavior. For example, Loomis and Ditton (1988), Edwards (1989), Murdock et al. (1992), Milon and Thunberg (1993), and Thunberg et al. (1999) all developed approaches based on demographic data for recreational fishing participants to predict future participation. This approach also avoids the problem of predicting changes in factors that may constrain leisure participation decisions such as income levels, time availability, and other cultural influences.

The disadvantage of predicting future recreational participation choices on the basis of past behavior is that other factors that influence participation in specific activities may change. For example, fishing participation may change with changes in access, the levels of fishery stocks, and/or the cost of fishing equipment. Similarly, social and cultural norms may change over time leading to different participation behavior by various age, gender and ethnic groups. While these types of changes are inevitable, they most likely occur slowly. As a result, past trends may be reliable indicators for the foreseeable future and provide a means to anticipate how these trends may influence fishery resource management.

The remainder of this report describes the survey data that were collected for participants in marine recreational fishing in the Southeast region in 1997 – 1998 and how these data were used to develop forecasts of participation throughout the region.

CHAPTER 2

SURVEY METHODS

2.1 Marine Recreational Fisheries Statistics Survey (MRFSS) Household Survey

The MRFSS household survey is designed to estimate the number of participants in marine recreational fishing within a given state. Information from the survey is also used to develop estimates of the number of trips by fishing mode (shore, party or charter boat, or private/rental boat) for these participants. Telephone interviews are conducted using a stratified random design to identify participation during the prior two-month period. Interviews only focus on residents 16 years or older who live in coastal counties within 25 or 50 miles of the coastline. For respondents who participated during the prior two months, detailed data are gathered on mode and primary fishing location (estuary, bay, sound, or distance from shore). To maintain temporal consistency, each 2-month period during the year is defined as a "wave" so there are 6 waves during the year.

MRFSS telephone surveys collect detailed trip data for participants who fished within the prior 2 months. But, only basic demographic data such as state and county of residence are collected for participants. Respondents who may have fished within the past 12-months or who did not fish at all are usually just tallied as part of the overall sample reporting.

2.2 MRFSS Add-on Participation Survey

An "add-on" participation survey was designed and implemented as part of the 1997-1998 MRFSS Southeastern region telephone survey. Each interview identified whether the respondent participated in marine recreational fishing within the prior 2 or 12 months, fished at some time in the past but not in the last 12 months, or never fished. For participants who fished during the prior 2 or 12 months, the add-on survey collected detailed data to provide a demographic profile of participants. No data were collected for respondents who had not fished within the past 12 months other than a record that they had not participated during the last 12 months. This feature of the add-on participation survey design differed from a similar survey that was conducted in 1994 in the Northeast region (Thunberg et al., 1999) in which demographic data were collected for both participants and non-participants. A copy of the survey instrument is provided in Appendix C.

Interviews for the add-on participation survey were conducted in the Southeast region from March through December, 1997 (MRFSS waves 2 – 6) and January to February 1998 (MRFSS wave 1). Sampling effort was allocated using the standard MRFSS sampling procedures and 100 percent of 2 and 12 month participants were administered the add-on survey questions.

Table 2-1 provides a summary of the survey responses and overall completion rates for each state within the Southeast region. A total of 157,637 households were screened as part of the survey with the largest share of the interviews in Florida, Louisiana and North Carolina. As shown in Table 2-1, the largest category of respondents in all states was individuals who had never fished. From the total number of households screened, 21,121 detailed interviews were completed with 2 and 12-month participants for the add-on survey. Completion rates varied from a low of 76.9 percent in Georgia to a high of 82.3 percent in Florida.

Table 2-1. Summary of Participation Survey Completion Rates by State in the Southeast Region

	State						
	AL	**FL**	**GA**	**LA**	**MS**	**NC**	**SC**
Households Screened	5,026	98,581	4,367	12,246	5,079	21,377	10,961
Participants							
2-month	418	8,871	342	1,041	535	1,703	700
12-month	477	7,220	381	1,065	512	1,861	849
Never Fished	3,258	70,983	2,734	8,308	3,050	14,849	7,580
Fished but not in Past 12 Months	847	10,903	881	1,754	946	2,810	1,749
Don't Know	26	604	29	78	36	154	83
Completed Interviews [a]	725	13,241	556	1,669	843	2,892	1,195
Percent Completed [a]	81.0%	82.3%	76.9%	79.2%	80.5%	81.1%	77.1%

[a] Completed interviews includes both 2-month and 12-month anglers.

Demographic information from the completed interviews with 2 and 12-month participants are presented in Table 2-2. Participants in all states were typically white males between the ages of 26 and 64. A relatively small fraction of the participants were of Spanish or Hispanic origin with Florida having the highest percentage within the Southeast region. The majority of respondents had annual household incomes less than $60,000. These patterns were relatively consistent across all the states and suggest that demographic factors such as gender and age are stable influences on marine recreational fishing participation throughout the region.

Table 2-2. Demographic Characteristics of Participation Survey Respondents by State in the Southeast Region

		State						
Variable	Southeast Region	AL	FL	GA	LA	MS	NC	SC
					%			
Gender								
Male	72.8	70.6	73.5	70.5	74.9	72	71.4	70.1
Female	27.2	29.4	26.5	29.5	25.1	28	28.6	29.9
Age Group								
16-25	13.2	14.3	13	13.6	15	13.3	14.5	12.3
26-35	20.1	18.9	19.8	17.7	24	20	21.6	19.5
36-45	25.6	25	25.3	29.6	27.3	26.2	26	25
46-55	19.3	19.6	18.9	18.5	19	19.2	20.4	20.8
56-64	10.8	11.7	11	9.2	8.1	11.1	9.1	11.9
65 and over	11.1	10.4	12	11.5	6.6	10.2	8.4	10.6
Ethnicity								
White	90.4	88.2	92.8	86.3	89.2	82.8	88.8	84.8
Black	7.5	10	5.1	10.8	9.8	15.7	9.8	12.1
Asian	0.5	0.4	0.6	0.8	0.2	0.2	0.1	0.2
Other	1.6	1.5	1.5	2.1	0.8	1.3	1.3	2.9
Spanish/Hispanic Origin	4.5	1.9	5.8	2	3.7	1.5	2.3	1.7
Household Income								
$15,000 or less	8.9	8.9	8.4	9.1	8.5	11.5	12.3	8.9
$15,001 to $25,000	15	13.1	15.5	13.5	13.7	14.5	13.6	15.1
$25,001 to $35,000	19.5	20.1	19.1	19.1	18.4	20.5	22.3	20.7
$35,001 to $45,000	16.2	14.2	15.9	18.6	16	16.5	15.3	17.6
$45,001 to $60,000	17.7	16.2	17.7	16.3	20.2	16.3	19.6	17.1
$60,001 to $75,000	9.1	10.4	9	8.9	9.7	9.8	6.2	9
$75,001 to $100,000	7.4	9.7	7.4	9.8	7.5	6	6.3	7.2
$100,001 to $125,000	2.8	2.6	3.1	1.2	2.7	2.1	2.7	1.9
$125,001 or greater	3.5	4.7	3.9	3.5	3.3	2.7	1.6	2.6

CHAPTER 3

PARTICIPATION COHORT METHODOLOGY

3.1 Participation Cohorts

To develop a participation forecasting methodology based on the Southeastern add-on participation survey data, anglers who had fished in marine waters within the prior 2 or 12 months were defined as participants. Because no demographic data were collected for individuals who had fished previously but not in the past 12 months or for individuals who had never fished, it was not possible to use these non-participant groups directly in the forecasting methodology. This differs from the approach adopted in Thunberg et al. (1999) in which a statistical model of participation behavior was developed from demographic data for participants and non-participants.

The methodology used in this report is similar to the population cohort group approach first developed by Loomis and Ditton[5] (1988). Participation ratios were created for different age/gender/ethnic cohort groups within the sample for each of the states within the Southeast region. These demographic variables were selected to define the cohort groups because: previous research (Edwards, 1989; Milon and Thunberg, 1993; Aas, 1995 and Thunberg et al., 1999) has shown they are consistent predicters of marine fishing participation, b) these variables were included in the sample of participants for the Southeastern add-on survey, and c) U.S. Census Bureau projections are available for these demographic groups for each state within the region.

Mathematically, the sample participation ratio can be defined as:

P_{ij} = (Participants in sample cohort$_{ij}$) ÷ (Participants in the sample for state j)

where i $(i = 1,\ldots, n)$ represents age/gender/ethnic cohort groupings and j represents a state within the Southeast region. The product is the percentage of the total participant sample in each cohort. The sample participation ratio for each state can then be multiplied times the MRFSS estimate of the number of participants in the year of the add-on survey to determine the total number of participants (PT) in each cohort group:

PT_{ij} = P_{ij} x Number of MRFSS Resident Participants in state j.

The sample information can then be extrapolated to the population of each state by computing population participation ratios (PR) as:

$PR_{ij} = PT_{ij} ÷ $ Population$_{ij}$.

---

[5] Loomis and Ditton's approach was to project number of days fishing rather than participation. Also, their application only considered white males in Texas.

These population participation ratios provide the basis for forecasts of marine recreational participation in each state. The future number of participants in each cohort group (FPT_{ij}) can be calculated by applying the population cohort participation ratio to Census Bureau population forecasts for each cohort group:

$$FPT_{ij} = PR_{ij} \text{ x Forecasted Population}_{ij}.$$

By summing across all the FPT_{ij} for a given year, the total number of participants in each state can be estimated. Then, the overall population participation rate in each year can be calculated by dividing the estimated total number of participants in a year by the total population forecast for that year.

This participation ratio approach to forecasting future participation in marine recreational fishing requires several assumptions. First, it is assumed that the add-on MRFSS participation survey was a random sample of marine recreational fishing participants in each state. Because the add-on survey was administered to 100 percent of 2 and 12-month participants in coastal counties included in the base MRFSS survey for each state, this assumption is not a problem for coastal county participants. On the other hand, MRFSS participation estimates for each state include both coastal and non-coastal components.[6] These non-coastal participants were not included in the add-on survey data. In order to use the participation rates from the sample for population estimates, it must be assumed that non-coastal participants have the same demographic profile as coastal participants. For some states such as Florida, this assumption is not a problem since all counties are classified as coastal. In most other states in the Southeast region (Georgia is the exception), coastal participants greatly outnumber non-coastal participants. Therefore, it is not likely that using the demographic profile of coastal participants as a proxy for non-coastal participants would cause a serious problem in the Southeastern region.

A second important assumption for this forecasting methodology is that the pattern of participation in marine recreational fishing by cohort groups within each state will remain stable in the future. This is a much more difficult assumption to evaluate since no panel studies of marine fishing participation over prior years have been conducted and future behavior cannot be known with any certainty. While this

---

[6] Although the base MRFSS household survey does not include non-coastal counties, participation from non-coastal areas is estimated from sample data collected for the MRFSS intercept survey. For a complete description of the MRFSS participation estimation methodology, see Fisheries Statistics and Economic Division (1996).

assumption is more problematic, it is an assumption that is common to all forecasting approaches based on demographic data.[7]

Also, as discussed in the prior chapter, other factors that influence marine recreational fishing participation such as income or access to marine fishing experiences cannot be included. While these factors are likely to have some influence, it is difficult for any forecasting procedure to account for these influences since they must be projected independently from fishing participation.

Finally, because the basis of this forecasting methodology is U.S. Census Bureau population projections for cohort groups within each state, it is assumed that these are the best available estimates of future population changes. While the Census Bureau does provide alternative projections (referred to as series 'A' and series 'B' estimates), there is no basis to reject these series. In the tables presented in the following chapter, all results are based on series 'A' estimates. Other estimates based on series 'B' population projections are reported in Appendix B.

3.2 Sample Cohort Participation Rates

To define cohort groups for the analysis, the following groupings were created for the add-on MRFSS survey data: gender – male or female, ethnicity – white or nonwhite, and age – 16 to 25 years, 26 to 45 years, 46-64 years, and over 65. The nonwhite group was not desegregated (e.g. black, Asian) due to the relatively small number of participants from nonwhite groups (Table 2-2). The age groupings were determined in part by the age categories defined in the survey interview (see Appendix C). Prior studies have found a nonlinear relationship between age and participation. Generally, participation in marine recreational fishing increases through middle age and then decreases (Loomis and Ditton, 1988; Edwards, 1989; Milon and Thunberg, 1993) although Thunberg et al. (1999) found no statistically significant difference within the 25 to 64 year old grouping.

Table 3-1 presents the computed sample participation ratios (P_{ij}) for each cohort group and state within the Southeastern region. As expected, the white, male cohorts in the 26-45 and 46-64 age groups had the highest participation ratios in all states. The share of total participants in these cohort groups were surprisingly consistent across the states indicating again that gender and age are powerful influences on participation in

---

[7] The statistical approach used by Thunberg et al. (1999) has the advantage that participation ratios for different cohort groups are derived from sample observations of participation behavior (both participants and non-participants) over several states. This approach is desirable in that the pooled data may provide better predictions since more information is included. To the extent, however, that participation behavior is determined by state specific factors such as fishing quality, weather, etc., the two approaches may yield similar results. It was not possible to evaluate the merits of each approach in this analysis because the Southeastern add-on data set did not include demographic information for non-participants.

marine recreational fishing. Note also that participation by white males decreases dramatically after age 64 in all states.

The white, female cohorts in the 26-45 and 46-64 age groups in Table 3-1 had relatively high participation ratios compared to the other nonwhite cohort groups. And, participation by white females declined after age 64. These ratios were also consistent across the states suggesting that the behavioral pattern of participation in marine recreational fishing in the region was not influenced by unique locational factors in each state.

Table 3-1 also shows that nonwhite female cohort groups had the lowest participation rates overall within the sample. As in the other cohorts, however, participation typically peaked in the 26-45 year old period and then declined. This pattern of participation behavior is particularly important because it suggests that overall participation in marine recreational fishing in the Southeast region will change as the age structure of the population changes.

Table 3-1. Participation Rates for Ethnicity, Gender and Age Cohorts by State in the Southeast Region[a]

Cohort Group	State						
	AL	FL	GA	LA	MS	NC	SC
	%						
White Male							
16-25	9.01	8.86	9.23	9.73	9.34	7.44	7.45
26-45	26.47	29.3	28.44	34.01	29.98	24.97	26.52
46-64	20.89	19.86	16.2	17.04	18.3	20.23	18.2
65 +	6.58	9.09	5.65	4.65	5.9	6.04	6.67
Total White Male	62.95	67.11	59.52	65.43	63.52	58.68	58.84
White Female							
16-25	2.86	2.74	2.82	2.97	3.32	2.55	2.69
26-45	10.59	11.83	12.62	12.14	12.04	11.75	11.7
46-64	7.44	7.54	7.16	6.38	7.62	7.73	6.59
65 +	2.72	2.01	3.01	1.05	1.47	2.77	1.73
Total White Female	23.61	24.12	25.61	22.54	24.45	24.8	22.71
Non-White Male							
16-25	2.15	1.15	0.94	1.55	1.6	1.55	2.6
26-45	4.15	2.95	4.71	4.4	4.42	5.64	5.89
46-64	1.43	1.7	3.01	3.04	1.97	3.09	3.81
65 +	0.57	0.64	1.88	0.74	0.37	1.19	0.87
Total Non-White Male	8.3	6.44	10.54	9.73	8.36	11.47	13.17
Non-White Female							
16-25	0.29	0.26	0.56	0.74	0.25	0.72	0.52
26-45	2.72	1	1.51	0.74	1.23	2.19	2.08
46-64	1.57	0.8	1.32	0.62	1.6	1.58	1.73
65 +	0.57	0.26	0.94	0.19	0.61	0.57	0.95
Total Non-White Female	5.15	2.32	4.33	2.29	3.69	5.06	5.28

[a] Percentages may not sum to 100% due to rounding.

CHAPTER 4

PARTICIPATION IN MARINE RECREATIONAL FISHING

4.1 Forecasting Participation

To forecast participation in marine recreational fishing in each state within the Southeast region, the participation ratios presented in Table 3-1 were combined with MRFSS resident participant estimates for 1997 in each state. The resulting population participation ratios (PR_{ij}) were then combined with comparable U.S Census Bureau population forecasts for the ethnicity, gender, and age cohorts in each state.[8] The forecasts were for 5-year increments from the year 2000 to 2025. The resulting forecasts of the number of participants in each cohort (FPT_{ij}) were then summed to provide forecasts of the total number of participants in each state.

Table 4-1 and Figure 4-1 presents the results of the forecasting methodology for states in the Southeast region. More detailed forecasts for the cohort groups in each state are presented in Appendix A. Alternative total and cohort group forecasts based on Census Bureau series B population projections are provided in Appendix B. The results in Table 4-1 show that the total number of participants in marine recreational fishing in the Southeast region is expected to increase to approximately 5.5 million by year 2025. The overall trend over time is positive reflecting increasing population in most cohorts throughout the region. The increase to 5.5 million in 2025 represents an increase of 37.5 percent over the MRFSS estimate of approximately 4.0 million anglers (Figure 1-1) in the Southeast region in 1997.

Figure 4-1 shows that Florida continues to be the state with the largest number of participants within the region. The total number of resident participants in Florida is projected to increase to nearly 3.5 million anglers in 2025 from approximately 2.4 million in 1997. North Carolina and Louisiana also continue to be the states with the next largest numbers of participants in the region. All of the other states in the region are expected to have increases in the number of participants through the year 2025. But, the number of participants in these states continues to be lower than the three largest states in the region.

---

[8] Census Bureau forecasts were only available at the state level. Therefore it was not possible to disaggregate coastal from non-coastal population changes. Because the participation ratio approach used in this study assumes that coastal and non-coastal residents share the same participation behavior for marine recreational fishing, it was not necessary to prorate the population forecasts as in Thunberg et al. (1999).

Table 4-1. Projected Number of Marine Recreational Fishing Participants by State, 2000- 2025

State	Year						
	1997	2000	2005	2010	2015	2020	2025
Alabama	175,144	185,651	195,475	204,946	211,264	215,578	217,645
Florida	2,363,963	2,582,451	2,805,319	3,023,969	3,194,538	3,337,863	3,443,806
Georgia	95,786	104,885	112,484	118,805	123,711	127,973	131,358
Louisiana	519,840	527,596	536,155	549,632	559,242	566,090	569,894
Mississippi	138,071	146,120	151,889	156,352	158,551	159,746	159,547
North Carolina	496,013	546,143	588,865	622,904	644,575	660,130	667,359
South Carolina	224,327	239,320	253,442	267,377	277,634	258,449	290,319
Southeast Region	4,013,144	4,332,167	4,643,629	4,943,986	5,169,515	5,352,828	5,479,929
Regional Participation Rate	11.56%	11.97%	11.99%	12.00%	11.93%	11.82%	11.64%

Figure 4-1. Projected Number of Resident Participants by State, 2000 - 2025

16
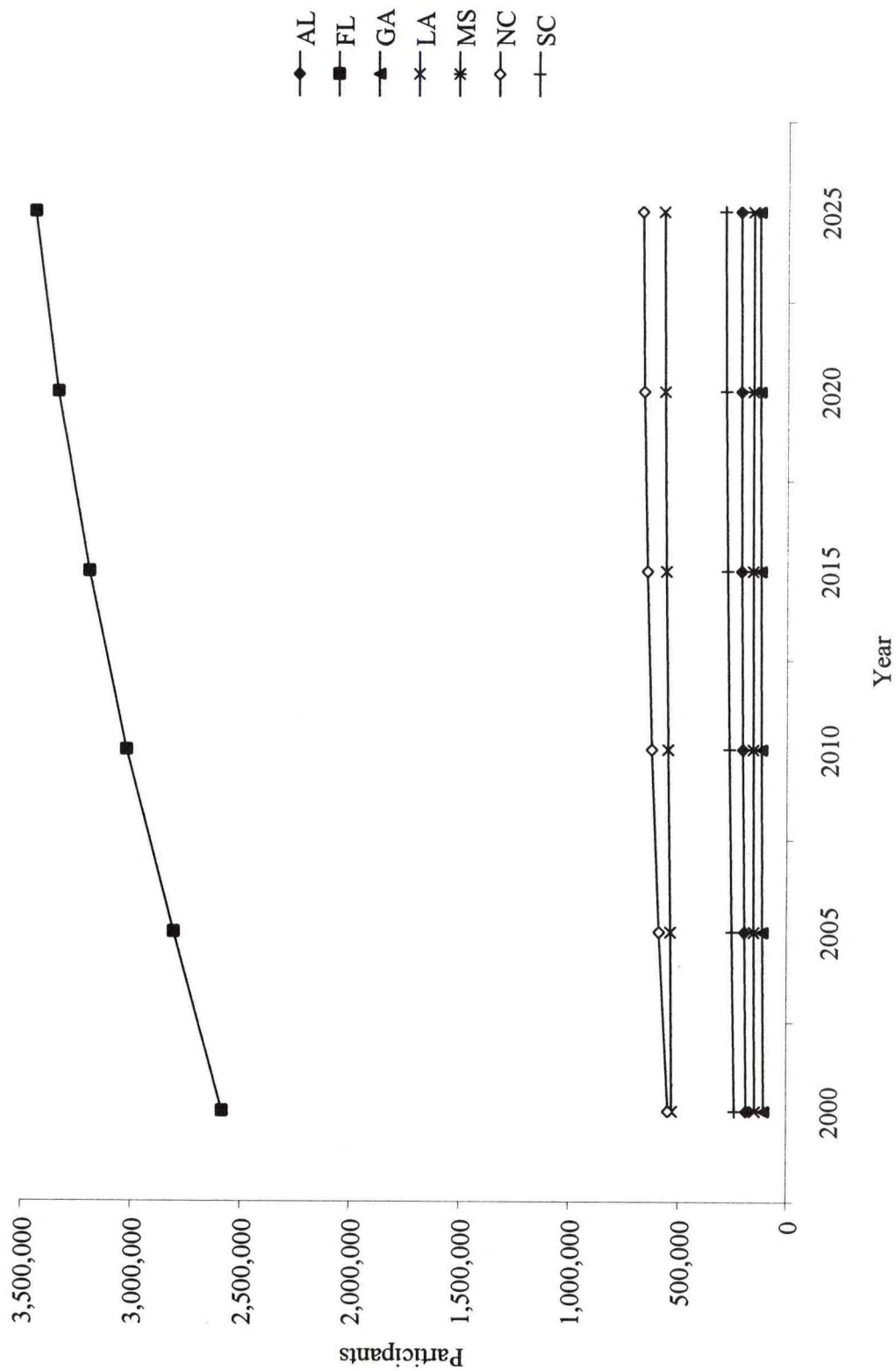
Figure 4-2 shows the rate of change (over 5 year intervals) in the number of resident participants over the 2000 – 2025 period. In virtually all of the states, the rate of change is greatest at the beginning of the period and then declines over time. With the exception of Louisiana, all of the states are expected to increase by nearly 4 percent or more in the 2000 – 2005 period. Florida has the highest rate of change throughout the period but the rate of change declines from 8.6 percent in the 2000 – 2005 period to 3.2 percent in the 2020 – 2025 period. Louisiana is the only state in which the rate of change increases over time, but this only occurs in the 2005 – 2010 period relative to the 2000 – 2005 period. By the end of the forecasting period, the rate of change in all the states is 3.2 percent or less. And, the rate of change in Mississippi actually becomes negative in the 2020 – 2025 period.

Figure 4-2. Percent Change in Resident Participation by State, 2000 - 2025
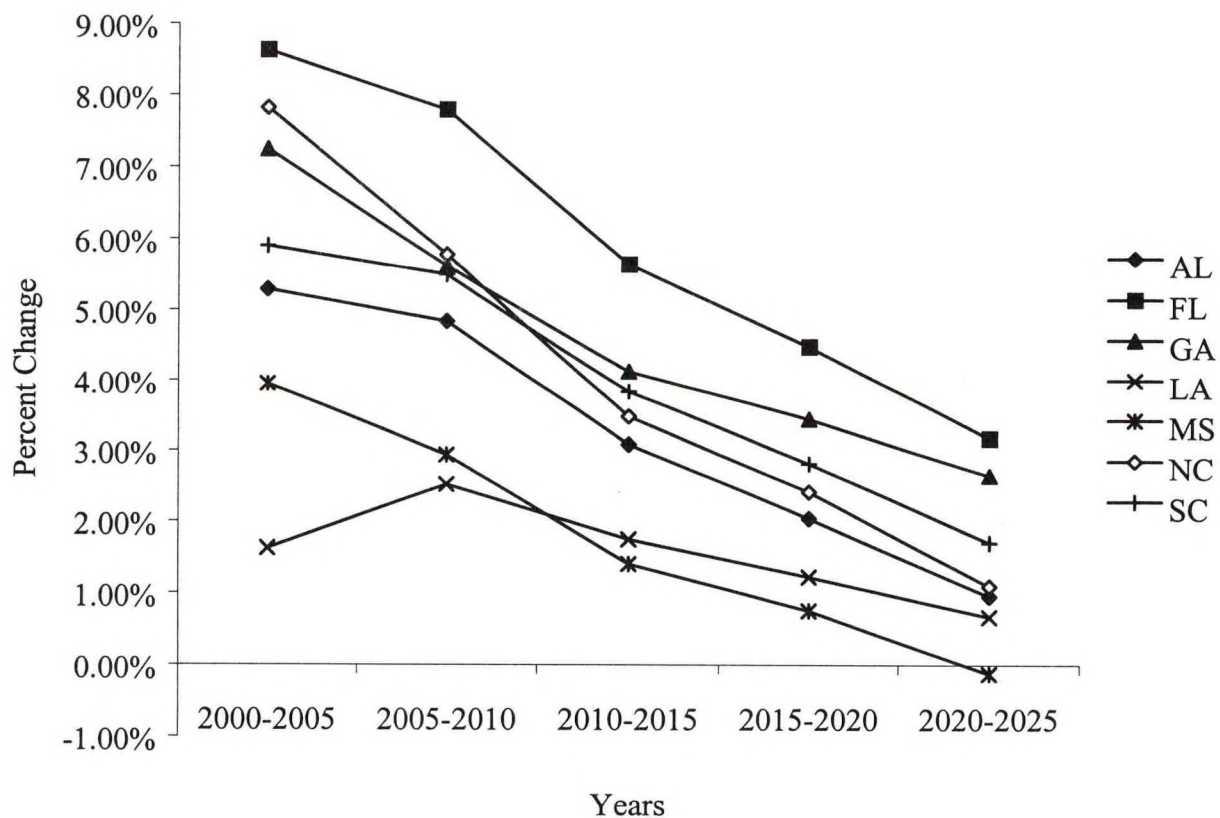
Figure 4-3 presents the trends in participation rates (based on the population 16 years of age or older) for states in the Southeast region for the 2000 – 2025 period. Most of the state participation rates remain constant or increase slightly in the 2000 –2005 period. After 2005, all of the states show a declining participation rate. This pattern can be attributed to a gradual aging of residents and new migrants in the region as the Baby-Boom generation (individuals born between 1946 and 1964) matures. As these individuals move out of the prime participation age group of 26 to 64, their participation in marine recreational fishing is expected to decline. Note that despite the underlying changes in the number and composition of the population within the region, the overall changes in participation rates for individual states are relatively small.[9]

Figure 4-3. Projected Participation Rates by State, 2000 - 2025

---
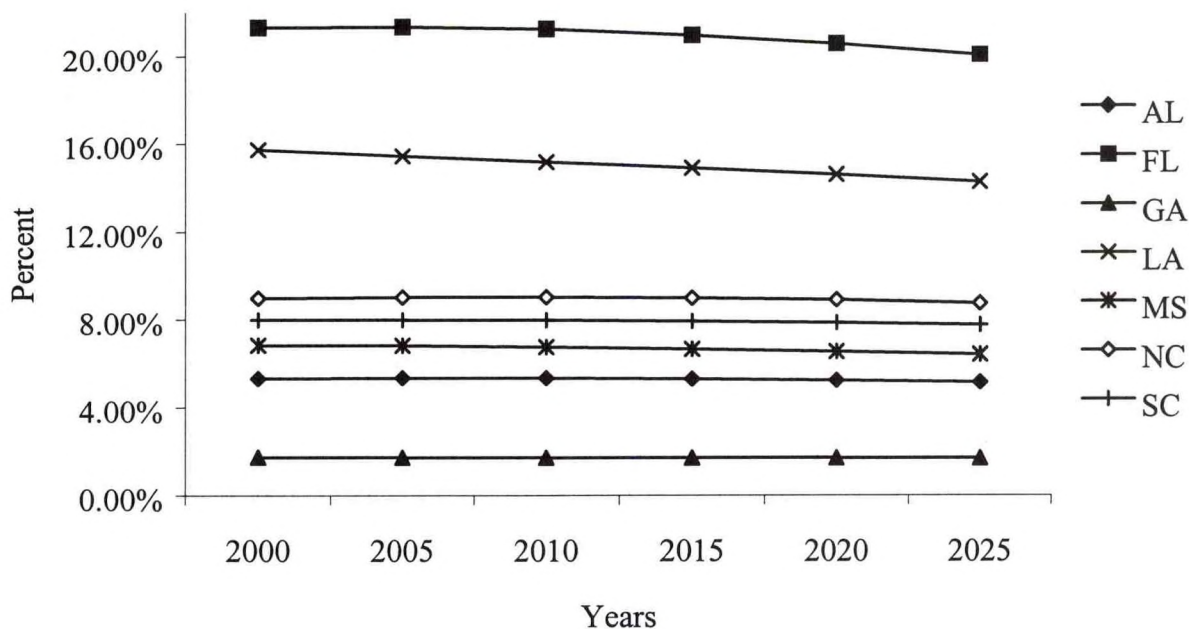
[9] The projected slow decline in participation rates is very similar to the results in Milon and Thunberg (1993) for Florida. They projected that participation rates in Florida would decrease from 21.6 percent in 2000 to 21.1 percent in 2010 (for ages groups 15 years of age or older).

CHAPTER 5

SUMMARY AND CONCLUSIONS

This study used a population cohort methodology to forecast marine recreational fishing participation in the Southeast region. For the region and each state within the region, the number of marine anglers is expected to increase throughout the period 2000 to 2025. The total number of anglers is expected to increase from approximately 4.0 million in 1997 to nearly 5.5 million in 2025. The overall increase in the region would be 37.5 percent, or an annual average rate of 1.34 percent per year. Florida is expected to continue to have the largest number of participants of any state in the region followed by North Carolina and Louisiana. Florida is also expected to have the largest increase in the number of anglers over the period. The rate of growth in the number of participants throughout the region is expected to be the greatest prior to 2010 as the Baby-Boom generation reaches maturity. After 2010, the overall rate of growth in the number of participants declines as this population cohort moves past 65 years of age and their participation in marine recreational fishing decreases.

Participation rates over the 2000 to 2025 period reflect these same general trends. Participation rates in the region and in each state gradually decline as an increasingly larger share of the total population becomes 65 years of age and older. Despite these demographic trends, states that had relatively higher participation rates continue to have higher rates while states that had low participation rates continue to have low rates. This result suggests factors such as climate, access to the coast, and cultural influences that are unique to each state also influence decisions to participate in marine recreational fishing.

The projections are based on the assumption that people in different age groups will behave in the future in the same way as in the past. To the extent that advances in life expectancy and changes in life styles may influence future recreation decisions, future behavior may differ from the past. Thus, the socioeconomic profile of future participants in marine recreational fishing may be different from today's.

The results of this study are similar to studies for other areas but show that participation in marine recreational fishing in the Southeast region is likely to grow faster than other parts of the U.S. Thunberg et al. (1999) predicted that marine recreational fishing in the Northeast region would increase at an average annual rate of 0.5 percent (from 3.2 million in 1995 to 3.7 million in 2025). Milon (2000) predicted that marine recreational fishing in the Pacific region would increase at an average annual rate of 1.96 percent (from 1.7 million in 1998 to 2.6 million in 2025). At the national level, Edwards (1989) projected an annual growth rate of less than 0.6 percent for all coastal states (except Alaska) over the 1985 to 2025 period. And, Murdock et al. (1992) estimated that participation in all recreational fishing (marine and freshwater) would increase at an annual rate of less that 0.5 percent through 2050. Thus, the rate of growth of marine recreational fishing in the Southeast region is expected to be higher than the national average.

REFERENCES

Aas, O. 1995. Constraints on sportfishing and effect of management actions to increase participation rates in fishing. North American Journal of Fisheries Management. 15:631-638.

Campbell, P. R. Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025. U.S. Bureau of the Census, Population Division, PPL-47.

Edwards, S.F. 1989. Forecast of in-state participation in marine recreational fishing. Transactions of the American Fisheries Society. 118:564-572.

Fisheries Statistics and Economics Division. 1996. Recreational Fisheries – National Marine Fisheries Service, Marine Recreational Fisheries Statistics Survey. Silver Springs, MD

Jackson, E.L. 1988. Leisure constraints: a survey of past research. Leisure Sciences. 10:203-215.

Kay, T. and Jackson, G. 1991. Leisure despite constraints: the impact of leisure constraints on leisure participation. Journal of Leisure Research 23:301-313.

Loomis, D.K. and Ditton, R.B. 1988. Technique for projecting the future growth and distribution of marine recreational fishing demand. North American Journal of Fisheries Management. 8:259-263.

Milon, J. W. 2000. Current and Future Participation in Marine Recreational Fishing in the Pacific U. S. Region.

Milon, J.W. and Thunberg, E.M. 1993. A regional analysis of current and future Florida resident participation in marine recreational fishing. Florida Sea Grant College Program Report SGR-112. Gainesville, FL.

Murdock, S.H., Backman, K., Ditton, R.B., Hoque, M.N., and Ellis, D. 1992. Demographic change in the United States in the 1990's and the Twenty-first Century: implications for fisheries management. Fisheries 17:6-13.

Searle, M.S. and Jackson, E.L. 1985. Socioeconomic variations in perceived barriers to recreation participation amount would-be participants. Leisure Sciences 7:227-249.

Thunberg, E., S. Steinback, G. Gray, A. Gautam, M. Osborn. 1999. Volume III: Summary Report of Methods and Descriptive Statistics for the 1994 Northeast Region Marine Recreational Fishing Participation Survey. NOAA Technical Memorandum NMFS-F/SPO-39. Washington, D.C.: U.S. Department of Commerce.

APPENDIX A

PARTICIPATION FORECASTS BY COHORT GROUP FOR SOUTHEAST REGION STATES

Table A-1. Projected Number of Marine Recreational Fishing Participants by Ethnicity, Gender and Age Cohorts in Alabama, 2000-2025

Cohort Group	Year					
	2000	2005	2010	2015	2020	2025
White Male						
16-25	15,356	16,181	17,062	17,099	16,341	16,057
26-45	46,602	44,265	42,027	41,576	42,245	43,194
46-64	42,352	49,170	54,971	56,389	55,630	52,205
65+	12,460	13,540	15,254	18,191	21,544	25,253
Total White Male	116,770	123,156	129,314	133,255	135,760	136,709
White Female						
16-25	4,824	5,036	5,301	5,319	5,088	5,000
26-45	18,807	17,992	17,140	16,952	17,142	17,503
46-64	14,874	17,147	19,025	19,489	19,324	18,189
65+	5,022	5,282	5,751	6,553	7,462	8,500
Total White Female	43,527	45,457	47,217	48,313	49,016	49,192
Non-White Male						
16-25	3,779	3,822	3,989	4,076	4,049	4,110
26-45	7,606	7,589	7,647	7,836	8,070	8,317
46-64	3,135	3,876	4,450	4,700	4,807	4,774
65+	986	997	1,071	1,300	1,638	1,978
Total Non-White Male	15,506	16,284	17,157	17,912	18,564	19,179
Non-White Female						
16-25	486	483	497	506	502	509
26-45	4,965	4,896	4,830	4,859	4,910	5,021
46-64	3,388	4,175	4,848	5,160	5,292	5,203
65+	1,007	1,025	1,083	1,259	1,533	1,831
Total Non-White Female	9,846	10,579	11,258	11,784	12,237	12,564
Grand Total	**185,649**	**195,476**	**204,946**	**211,264**	**215,577**	**217,644**

Table A-2. Projected Number of Marine Recreational Fishing Participants by Ethnicity, Gender and Age Cohorts in Florida, 2000-2025

Cohort Group	Year					
	2000	2005	2010	2015	2020	2025
White Male						
16-25	222,603	248,986	265,765	265,348	256,637	259,095
26-45	694,024	659,135	629,049	634,325	663,755	693,182
46-64	582,669	719,372	842,694	892,766	894,677	849,956
65+	220,466	230,634	257,414	308,175	372,846	449,017
Total	1,719,762	1,858,127	1,994,922	2,100,614	2,187,915	2,251,250
White Female						
16-25	69,163	77,322	82,370	82,278	79,606	80,304
26-45	282,181	270,274	260,251	263,910	275,957	288,100
46-64	216,732	264,685	307,536	324,591	325,776	310,809
65+	49,521	51,420	55,814	64,167	74,700	87,090
Total	617,597	663,701	705,971	734,946	756,039	766,303
Non-White Male						
16-25	30,995	35,003	38,148	39,042	39,677	42,318
26-45	75,567	77,847	80,776	86,008	93,211	99,290
46-64	54,543	70,798	86,914	97,698	103,815	105,868
65+	18,363	22,950	28,769	37,442	48,804	61,952
Total	179,468	206,598	234,607	260,190	285,507	309,428
Non-White Female						
16-25	6,936	7,808	8,471	8,656	8,767	9,325
26-45	25,561	26,393	27,477	29,246	31,510	33,434
46-64	25,579	33,373	40,910	45,968	48,980	50,160
65+	7,545	9,318	11,610	14,919	19,146	23,906
Total	65,621	76,892	88,468	98,789	108,403	116,825
Grand Total	**2,582,448**	**2,805,318**	**3,023,968**	**3,194,539**	**3,337,864**	**3,443,806**

Table A-3. Projected Number of Marine Recreational Fishing Participants by Ethnicity, Gender and Age Cohorts in Georgia, 2000-2025

Cohort Group	Year					
	2000	2005	2010	2015	2020	2025
White Male						
16-25	9,230	9,991	10,446	10,330	9,810	9,651
26-45	27,962	26,842	25,296	24,959	25,455	25,959
46-64	18,464	21,788	24,489	24,973	24,482	22,893
65+	6,064	6,790	7,962	9,752	11,612	13,707
Total White Male	61,720	65,411	68,193	70,014	71,359	72,210
White Female						
16-25	2,844	3,091	3,226	3,193	3,035	2,985
26-45	12,465	11,986	11,346	11,218	11,420	11,659
46-64	8,130	9,617	10,796	11,017	10,810	10,095
65+	3,091	3,298	3,669	4,273	4,932	5,691
Total White Female	26,530	27,992	29,037	29,701	30,197	30,430
Non-White Male						
16-25	1,043	1,170	1,282	1,337	1,360	1,429
26-45	4,927	5,107	5,229	5,504	5,934	6,305
46-64	3,881	5,039	6,142	6,753	7,018	7,077
65+	1,945	2,197	2,609	3,395	4,424	5,588
Total Non-White Male	11,796	13,513	15,262	16,989	18,736	20,399
Non-White Female						
16-25	611	683	742	771	783	821
26-45	1,576	1,620	1,643	1,708	1,820	1,926
46-64	1,690	2,212	2,723	3,024	3,159	3,168
65+	963	1,053	1,206	1,505	1,919	2,403
Total Non-White Female	4840	5568	6314	7008	7681	8318
Grand Total	**104,886**	**112,484**	**118,806**	**123,712**	**127,973**	**131,357**

Table A-4. Projected Number of Marine Recreational Fishing Participants by Ethnicity, Gender and Age Cohorts in Louisiana, 2000-2025

Cohort Group	Year					
	2000	2005	2010	2015	2020	2025
White Male						
16-25	50,767	52,172	52,857	52,307	50,256	49,837
26-45	165,406	151,448	144,373	144,734	148,304	151,245
46-64	99,614	112,514	121,746	120,883	115,721	107,368
65+	26,134	28,215	31,563	37,034	43,393	50,117
Total White Male	341,921	344,349	350,539	354,958	357,674	358,567
White Female						
16-25	15,242	15,482	15,686	15,508	14,877	14,747
26-45	59,635	55,079	52,656	52,569	53,614	54,554
46-64	36,959	41,516	44,715	44,552	42,926	39,982
65+	5,747	6,015	6,508	7,326	8,275	9,317
Total White Female	117,583	118,092	119,565	119,955	119,692	118,600
Non-White Male						
16-25	8,608	9,023	9,421	9,640	9,831	10,271
26-45	23,542	23,775	24,643	26,043	27,587	28,844
46-64	19,040	22,851	25,956	27,416	28,069	28,294
65+	4,005	4,213	4,664	5,596	6,910	8,289
Total Non-White Male	55,195	59,862	64,684	68,695	72,397	75,698
Non-White Female						
16-25	4,040	4,145	4,290	4,381	4,450	4,641
26-45	3,949	3,983	4,104	4,280	4,485	4,649
46-64	3,893	4,641	5,255	5,560	5,685	5,730
65+	1,014	1,084	1,196	1,412	1,706	2,011
Total Non-white Female	12,896	13,853	14,845	15,633	16,326	17,031
Grand Total	**527,595**	**536,156**	**549,633**	**559,241**	**566,089**	**569,896**

Table A-5. Projected Number of Marine Recreational Fishing Participants by Ethnicity, Gender and Age Cohorts in Mississippi, 2000-2025

Cohort Group	Year					
	2000	2005	2010	2015	2020	2025
White Male						
16-25	12,346	12,540	12,796	12,590	11,923	11,630
26-45	42,076	39,951	37,513	36,591	36,461	36,738
46-64	29,053	33,390	36,897	37,340	36,650	34,212
65+	8,757	9,505	10,643	12,585	14,750	17,099
Total White Male	92,232	95,386	97,849	99,106	99,784	99,679
White Female						
16-25	4,302	4,347	4,439	4,376	4,146	4,040
26-45	17,060	16,319	15,373	14,980	14,831	14,930
46-64	11,981	13,667	15,004	15,181	14,990	14,039
65+	2,147	2,262	2,445	2,767	3,124	3,525
Total White Female	35,490	36,595	37,261	37,304	37,091	36,534
Non-White Male						
16-25	2,226	2,180	2,207	2,225	2,190	2,191
26-45	6,530	6,632	6,736	6,863	6,930	6,997
46-64	3,446	4,257	4,860	5,105	5,271	5,288
65+	479	478	510	615	777	935
Total Non-White Male	12,681	13,547	14,313	14,808	15,168	15,411
Non-White Female						
16-25	327	314	315	318	311	310
26-45	1,824	1,834	1,823	1,809	1,789	1,790
46-64	2,728	3,362	3,894	4,170	4,342	4,315
65+	837	852	896	1,038	1,262	1,508
Total Non-White Female	5716	6362	6928	7335	7704	7923
Grand Total	**146,119**	**151,890**	**156,351**	**158,553**	**159,747**	**159,547**

Table A-6. Projected Number of Marine Recreational Fishing Participants by Ethnicity, Gender and Age Cohorts in North Carolina, 2000-2025

Cohort Group	Year					
	2000	2005	2010	2015	2020	2025
White Male						
16-25	36,630	40,381	42,313	41,168	38,682	37,778
26-45	128,743	122,772	115,429	112,823	113,573	115,769
46-64	120,712	144,260	163,664	169,667	168,289	157,160
65+	33,908	37,740	43,522	52,735	63,055	74,666
Total White Male	319,993	345,153	364,928	376,393	383,599	385,373
White Female						
16-25	12,899	14,326	15,014	14,604	13,699	13,368
26-45	60,190	57,263	53,878	52,702	53,179	54,319
46-64	45,503	53,810	60,463	62,324	61,509	57,133
65+	15,006	16,178	17,923	20,690	23,776	27,340
Total White Female	133,598	141,577	147,278	150,320	152,163	152,160
Non-White Male						
16-25	7,885	8,661	9,318	9,353	9,258	9,550
26-45	30,155	30,265	30,169	30,978	32,224	33,652
46-64	19,847	24,827	29,047	31,230	32,288	31,929
65+	6,229	6,770	7,709	9,620	12,071	14,705
Total Non-White Male	64,116	70,523	76,243	81,181	85,841	89,836
Non-White Female						
16-25	3,679	4,029	4,308	4,317	4,258	4,383
26-45	11,537	11,457	11,326	11,490	11,908	12,411
46-64	10,166	12,821	15,125	16,419	16,849	16,543
65+	3,055	3,302	3,696	4,455	5,512	6,653
Total Non-White Female	28,437	31,609	34,455	36,681	38,527	39,990
Grand Total	**546,144**	**588,862**	**622,904**	**644,575**	**660,130**	**667,359**

Table A-7. Projected Number of Marine Recreational Fishing Participants by Ethnicity, Gender and Age Cohorts in South Carolina, 2000-2025

Cohort Group	Year					
	2000	2005	2010	2015	2020	2025
White Male						
16-25	15,874	17,177	18,382	18,393	17,543	17,320
26-45	59,663	56,380	53,400	52,880	53,892	55,477
46-64	48,228	56,688	63,928	66,054	65,509	61,510
65+	16,797	18,602	21,563	26,254	31,395	37,018
Total White Male	140,562	148,847	157,273	163,581	168,339	171,325
White Female						
16-25	5,639	6,096	6,531	6,532	6,223	6,110
26-45	26,422	24,910	23,593	23,361	23,746	24,464
46-64	17,255	20,185	22,619	23,341	23,161	21,676
65+	4,223	4,541	5,061	5,872	6,770	7,780
Total White Female	53,539	55,732	57,804	59,106	59,900	60,030
Non-White Male						
16-25	5,875	6,047	6,310	6,394	6,379	6,518
26-45	13,456	13,257	13,217	13,571	14,064	14,558
46-64	10,847	13,222	15,022	15,656	15,817	15,597
65+	2,004	2,117	2,387	2,968	3,686	4,391
Total Non-White Male	32,182	34,643	36,936	38,589	39,946	41,064
Non-White Female						
16-25	1,127	1,153	1,198	1,201	1,192	1,216
26-45	4,758	4,648	4,556	4,605	4,697	4,828
46-64	4,922	6,068	7,004	7,418	7,533	7,386
65+	2,229	2,351	2,608	3,135	3,840	4,559
Total Non-White Female	13,036	14,220	15,366	16,359	17,262	17,989
Grand Total	**239,319**	**253,442**	**267,379**	**277,635**	**285,447**	**290,408**

APPENDIX B

**PROJECTED NUMBER OF RESIDENT PARTICIPANTS USING CENSUS BUREAU
SERIES B**

Table B-1. Projected Number of Marine Recreational Fishing Participants by State, 2000-2025, With Census Bureau Series B Population Estimates

	Year					
State	2000	2005	2010	2015	2020	2025
Alabama	185,019	194,749	204,767	212,048	217,553	220,957
Florida	2,584,497	2,800,317	3,003,338	3,150,229	3,258,858	3,319,686
Georgia	105,119	114,083	123,109	131,070	138,483	145,130
Louisiana	530,256	539,014	549,590	556,765	562,431	566,011
Mississippi	146,707	154,006	161,368	166,677	170,775	173,191
North Carolina	546,812	594,183	637,818	668,814	691,921	705,062
South Carolina	238,935	252,208	264,860	274,009	280,959	285,121
Southeast Region	4,337,345	4,648,561	4,944,851	5,159,611	5,320,979	5,415,157
Regional Participation Rate	11.98%	12.01%	12.01%	11.91%	11.75%	11.50%

APPENDIX C
ADD-ON TELEPHONE SURVEY INSTRUMENT

Telephone Survey Instrument - Version A

- IF CATEGORY 1 (NO ONE IN HOUSEHOLD FISHES), THANK RESPONDENT AND TERMINATE INTERVIEW.
- IF CATEGORY 2 (FISHED BUT NOT IN LAST 12 MONTHS), START WITH PART 1.
- IF CATEGORY 3 (FISHED IN LAST YEAR BUT NOT IN LAST 2 MONTHS), START WITH PART 1.
- IF CATEGORY 4 (FISHED IN LAST 2 MONTHS), GO TO VERSION B.

Part I. Angler Screening

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

1. **If not a 12-month angler, but someone in the household does fish, ask:** Does anyone in your household go saltwater sport-fishing?

> Yes
> No   **THANK AND TERMINATE.**

2. Are you one of the people who goes saltwater fishing?

> Yes
> No   May I please speak with one of the people who goes saltwater sport-fishing?

> **(IF DESIRED ANGLER IS NOT IMMEDIATELY AVAILABLE, THANK RESPONDENT AND TERMINATE)**

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

(INTRODUCTION FOR AVAILABLE ANGLER)

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 you have not done so within the past (2 or 12) months.

Is this correct?   Yes
                    No

> When was the last time you went saltwater sport-fishing? **IF WITHIN 2 MONTHS, GO TO VERSION B OF THE ECONOMIC QUESTIONNAIRE. IF NEVER, OR NOT IN PAST 12-MONTHS, THANK RESPONDENT AND TERMINATE.**

> Are you at least sixteen years of age? **IF YES, CONTINUE. IF NO, THANK RESPONDENT AND TERMINATE**

PART II.

INTRODUCTION: These questions are for statistical purposes and help us to be sure we've spoken with a random sample of anglers. I appreciate your cooperation.

1.   In what year were you born? **(IF RESPONDENT HESITATES, QUICKLY GO TO Q.1A.)**

ENTER YEAR		**GO TO Q.2.**
Don't know	98	**GO TO Q.1a.**
Refused	99	**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 64	5	65 and over	6
Don't know	98	Refused	99

2.   Code Gender: **(VOICE RECOGNITION ONLY)**

Male	1
Female	2

IF UNCERTAIN, SIMPLY ASK 'WHAT IS YOUR GENDER?'

3.   What is your race?

White	1
Black	2
Asian	3
American Indian/Native American	4
Other **(SPECIFY)**	5
Don't know	98
Refused	99

4.   Are you of Spanish/Hispanic origin or descent?

Yes	1	**GO TO Q.4a.**
No	2	**GO TO Q.5.**
Don't know	98	**GO TO Q.5.**
Refused	99	**GO TO Q.5.**

4a. What group best describes your Spanish/Hispanic origin?

Mexican/Mexican American	1
Cuban	2
Puerto Rican	3
Other **(SPECIFY)**	4
Don't know	98
Refused	99

5.   Are you employed? This includes self-employment.

Yes	1	**GO TO Q.5a.**
No	2	**GO TO Q.5b.**
Don't know	98	**GO TO Q.6.**

Refused   99   **GO TO Q.6.**

5a.   Are you employed part-time or full-time?

      Part-time   1   **GO TO Q.6.**
      Full-time   2   **GO TO Q.6.**
      Variable   3   **GO TO Q.6.**
      Don't know   98   **GO TO Q.6.**
      Refused   99   **GO TO Q.6.**

5b.   Which of the following reasons best explains your unemployed status?

      Looking for employment   1
      Retired   2
      Full time homemaker   3
      Student   4
      Disabled   5
      Other   **(SPECIFY)**   6
      Don't know   98
      Refused   99

6.   Lastly, I ll read a list of income categories. Please stop me when I read the category that describes your total household income, before taxes.

      Less than $15,000   1
      $15,001 to $25,000   2
      $25,001 to $35,000   3
      $35,001 to $45,000   4
      $45,001 to $60,000   5
      $60,001 to $75,000   6
      $75,001 to $100,000   7
      $100,001 to $125,000   10
      $125,001 to $150,000   11
      $150,001 to $175,000   12
      Greater than $175,000   13
      Don't know   98
      Refused   99

Telephone Survey Instrument - Version B

FOR CATEGORY 4 RESPONDENTS.
TO BE GIVEN TO ACTIVE ANGLERS ONLY

INTRODUCTION: Now, I just have a few more general questions about your fishing activity and some questions for statistical purposes to help us be sure we've spoken with a random sample of anglers. I appreciate your cooperation.

2.   Including the days we have already discussed, how many days did you go saltwater fishing within the past 12 months?

ENTER NUMBER		(<=365) (IF =1, AUTOCODE Q.3.=1 AND
		GO TO Q.4.)
Don't know	98	**GO TO Q.4.**
Refused	99	**GO TO Q.4.**

3.   **VERSION 1. ASK IF ANGLER TARGETED A SPECIFIC SPECIES.** On how many of those **(INSERT Q.2. NUMBER OF DAYS)** days did you target _____ **(INSERT 1ST TARGET SPECIES TO MOST RECENT TRIP DISCUSSED IN Q.1.)?**

ENTER NUMBER		(<=Q.2. RESPONSE)
Don't know	98	
Refused	99	

3.   **VERSION 2. ASK IF ANGLER DID NOT TARGET A SPECIFIC SPECIES.** On how many of those ___ **(INSERT Q.2. NUMBER OF DAYS)** days did you not target any particular species?

ENTER NUMBER		(<=Q.2. RESPONSE)
Don't know	98	
Refused	99	

4.   Do you ever sell the fish you catch?

Yes	1	**GO TO Q.4a.**
No	2	**GO TO Q.5.**
Don't know	98	**GO TO Q.4a.**
Refused	99	**GO TO Q.4a.**

4a.   If the sale of recreationally caught fish were prohibited, would you:

Keep fishing because you don't sell your fish	1
Keep fishing for the same species and not sell your catch	2
Keep fishing, but change your target species	3
Stop fishing altogether	4
Don't know	98
Refused	99

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

Yes	1
No	2
Don't know	98
Refused	99

6.   In what year were you born? **(IF RESPONDENT HESITATES, QUICKLY GO TO Q.6A.)**

ENTER YEAR		**GO TO Q.7.**
Don't know	98	**GO TO Q.6a.**
Refused	99	**GO TO Q.6a.**

6a. 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 64	5	65 and over	6
Don't know	98	Refused	99

7.   Code Gender: **(VOICE RECOGNITION ONLY)**

Male	1
Female	2

IF UNCERTAIN, SIMPLY ASK 'WHAT IS YOUR GENDER?'

8.   What is your race?

White	1
Black	2
Asian	3
American Indian/Native American	4
Other **(SPECIFY)**	5
Don't know	98
Refused	99

9.   Are you of Spanish/Hispanic origin or descent?

Yes	1	**GO TO Q.9a.**
No	2	**GO TO Q.10.**
Don't know	98	**GO TO Q.10.**
Refused	99	**GO TO Q.10.**

9a. What group best describes your Spanish/Hispanic origin?

Mexican/Mexican American	1
Cuban	2
Puerto Rican	3
Other **(SPECIFY)**	4
Don't know	98
Refused	99

10.   Are you employed? This includes self-employment.

Yes	1	**GO TO Q.10a.**
No	2	**GO TO Q.10b.**
Don't know	98	**GO TO Q.11.**
Refused	99	**GO TO Q.11.**

10a.   Are you employed part-time or full-time?

Part-time	1	**GO TO Q.11.**
Full-time	2	**GO TO Q.11.**
Variable	3	**GO TO Q.11.**
Don't know	98	**GO TO Q.11.**
Refused	99	**GO TO Q.11.**

10b.   Which of the following reasons best explains your unemployed status?

Looking for employment	1
Retired	2
Full time homemaker	3
Student	4
Disabled	5
Other **(SPECIFY)**	6
Don't know	98
Refused	99

11.   Lastly, I'll read a list of income categories. Please stop me when I read the category that describes your total household income, before taxes.

Less than $15,000	1
$15,001 to $25,000	2
$25,001 to $35,000	3
$35,001 to $45,000	4
$45,001 to $60,000	5
$60,001 to $75,000	6
$75,001 to $100,000	7
$100,001 to $125,000	8
$125,001 to $150,000	9
$150,001 to $175,000	10
Greater than $175,000	11
Don't know	98
Refused	99

☆U.S. GOVERNMENT PRINTING OFFICE: 2001-789-624/16095