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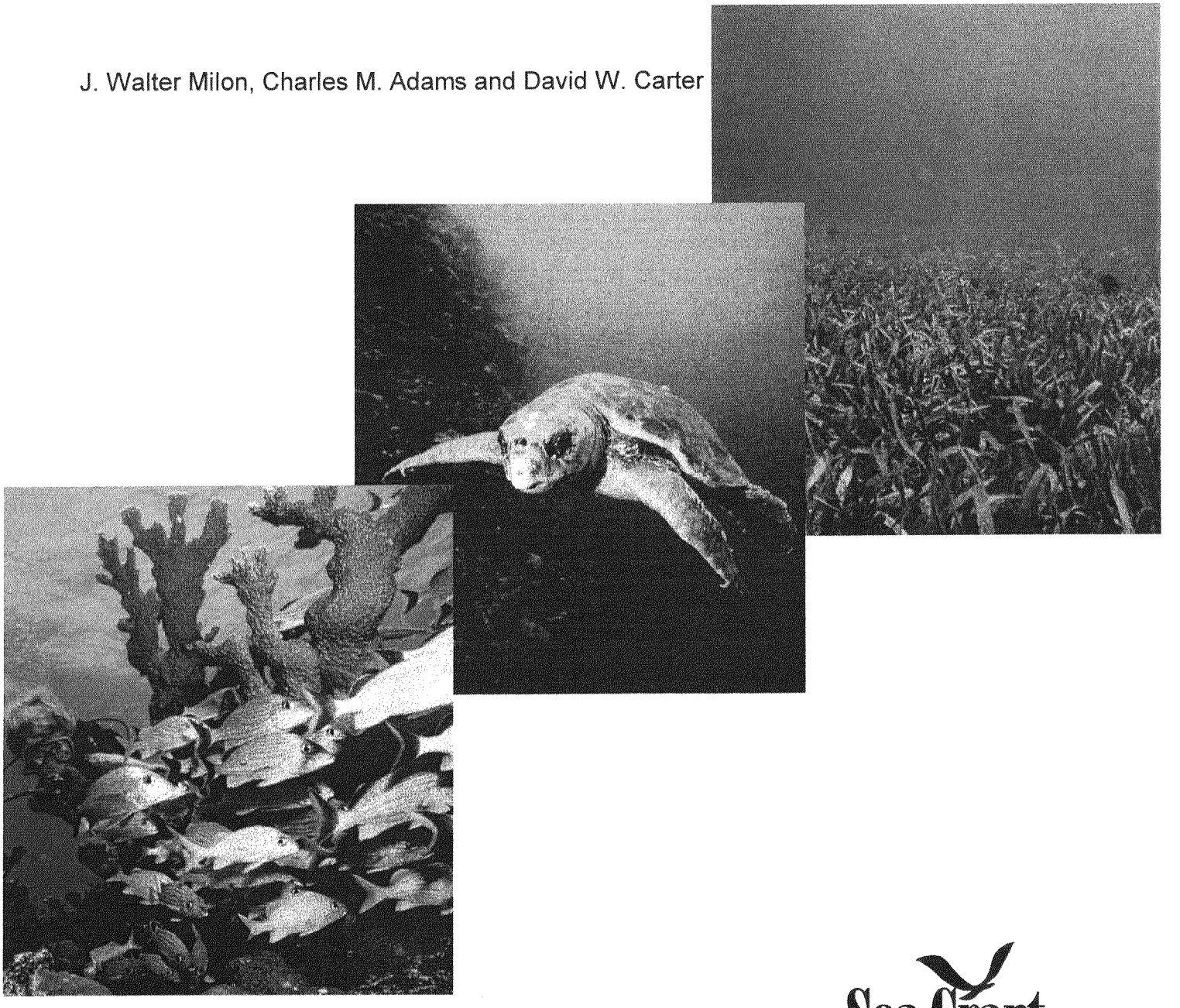
# Floridians' Attitudes About the Environment and Coastal Marine Resources

J. Walter Milon, Charles M. Adams and David W. Carter



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J. Walter Milon
Professor, Food and Resource Economics Department
University of Florida

Charles M. Adams
Professor, Food and Resource Economics Department
Marine Extension Specialist, Florida Sea Grant College Program
University of Florida

David W. Carter
Graduate Research Fellow, Food and Resource Economics Department
University of Florida

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(352) 392-2801

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The views expressed in this report are those of the authors and should not be attributed to the Florida Sea Grant College Program. Any errors or omissions are the sole responsibility of the authors.

# EXECUTIVE SUMMARY

This report provides a description of a research project designed to assess Floridians' attitudes about the environment and coastal marine resources and their support for programs to protect these resources. A randomized computer-assisted statewide telephone survey of nearly 1,800 adult residents was conducted in 1996 through the Survey Research Program of the Bureau of Economic and Business Research, University of Florida. Respondents were asked about their preferences for expenditures on various state programs, their attitudes about the environment and specific marine resources, their participation in various coastal recreation activities, and general socioeconomic and demographic characteristics. The margin of error for this survey was ± 3 percent (using a 95 percent level of confidence).

Floridians' attitudes about the environment were measured using the well-known "New Environmental Paradigm" (NEP) response items originally developed by Dunlap and Van Liere (1978). The NEP response items can be evaluated individually or combined in an index such as the Environmental Attitude Composite used in this analysis. The NEP represents an ecologically integrative view of humans and nature and rejects a purely anthropocentric world view. Support for the NEP can be considered an indicator of "environmental concern." In this context, environmental concern is a broad attitudinal concept that is best represented by expressions of support for government programs to improve and protect environmental quality and support for increased spending on environmental protection and resource conservation. An understanding of environmental attitudes can help in the design of education and communication programs and in the development of environmental policies. The highlights of this report can be summarized as follows:

- A large majority of respondents expressed strong support for the NEP, indicating a high level of concern about the environment. These results are consistent with previous studies based on other measures of environmental concern that reported strong support among Floridians for efforts to protect the environment.

- While a broad cross-section of Floridians are concerned about the environment, there are important differences in the intensity of attitudes across various groupings of the population. On average, the individuals who expressed the highest levels of support for the NEP were female, non-Black, either a Democrat or an Independent, or a contributor to environmental groups. Also, respondents in South Florida generally expressed more support for the NEP than those in North Florida. Other socioeconomic factors such as age, education, income, and years of residency in Florida were not statistically significant sources of differences in general environmental attitudes.

- A majority (57.6 percent) of respondents indicated that state spending for environmental protection programs should increase from current levels; they ranked environmental protection as the fourth most important program for a spending increase, behind funding for public schools, crime prevention, and care for the elderly. These results were very similar to spending priorities reported from the Florida Annual Policy Survey conducted by Florida State University.

- Floridians' concern about the general environment also extends to coastal marine resources. More than three-fourths (75 percent) of the respondents believe that coastal habitats, coral reefs, and sea turtle populations are in worse condition now than they have been in the past. Similarly, more than two-thirds did not believe that existing regulations and funding are adequate to protect the state's coastal ecosystems and habitats.

- While there was broad agreement on concerns about coastal marine resources, there were also important differences across various groupings of the respondents. The most consistent sources of differences in the level of concern about coastal marine resources were the length of time that an individual lived in Florida and whether the individual contributed to environmental groups. Regarding the status of coral reefs, respondents who expressed higher levels of concern were generally white, under 65 years of age, had more education or higher income, donated to environmental groups, or had lived in Florida more than five years. Regarding the status of sea turtle populations, respondents who were under 65 years of age, female, had more education or higher income, donated to environmental groups, or had lived in Florida more than five years expressed higher levels of concern. Level of concern for both coral reefs and sea turtle populations did not differ across other socioeconomic factors, such as political party affiliation, gender, and geographic location. On the issue of concern about coastal habitats in general, higher levels of concern were expressed by respondents who had lived in Florida for more than five years, donated to environmental groups, were Democrats or Independents, or lived in South Florida.

- There was a consistent, direct relationship between respondents' level of concern about the environment in general and concern about coastal marine resources. Individuals who expressed higher levels of support for the NEP consistently expressed more concern about the status of coastal resources and the adequacy of existing regulations and funding to protect these resources.

- Also, the level of participation in saltwater recreation activities was consistently related to concern about coastal marine resources. Respondents who more actively participated in saltwater recreation expressed higher levels of concern about the status of coastal resources and the adequacy of existing regulations and funding.

- Finally, there was a consistent, direct relationship between respondents' concerns about coastal marine resources and preferences for funding environmental programs in Florida. Respondents who expressed higher levels of concern about coastal resources generally preferred to increase spending for environmental programs.

The survey results indicate that Floridians are broadly committed to an "environmentally oriented world view." They are concerned about the health of coastal resources and the adequacy of existing programs to protect these resources. While there were differences in the intensity of these attitudes across respondents, the consistency of the responses indicates that these attitudes are not random and idiosyncratic. These attitudes reflect the personal philosophies, interests, and experiences of the respondents. The degree to which these attitudes influence specific environmental and coastal resource policy choices and funding decisions in Florida will be determined over the ensuing years.

# Floridians' Attitudes About the Environment and Coastal Marine Resources

by

J. Walter Milon, Charles M. Adams, and David W. Carter*

## 1. INTRODUCTION

The State of Florida is blessed with abundant natural and environmental resources that provide a high quality of life for Florida residents and millions of visitors annually. Clean water and air, unique natural settings, and lush tropical habitats are hallmarks of Florida's image as a place to live and visit (Hiller). Critical elements of the resource base are the marine resources that surround the Florida peninsula and support fishing, diving, and numerous opportunities to enjoy leisure activities. These environmental assets are protected and managed under one of the most comprehensive sets of environmental laws and regulations in the United States (Christie; DeGrove).

While some efforts have been made to measure the contribution of natural and environmental resources to the state's economy (for example, English et al.; Milon), little formal research has been conducted on Floridians' attitudes about the environment and their perception of the status of these resources. Attitudes are important indicators of public sentiment because they provide a cognitive map to understanding individual and social behavior (Fishbein and Ajzen). While the linkages between attitudes and environmental actions is multifaceted and complex (Cottrell and Graefe; Manfredo et al.), attitudinal measures may help to anticipate political support and willingness to pay for specific environmental programs. Also, an understanding of environmental attitudes may help to tailor education and communication programs.

One of the few prior efforts to measure Floridians' attitudes about the environment was conducted by DeHaven-Smith. This study reported results from both statewide and local surveys conducted from 1983 to 1989. The surveys focused on attitudes toward growth management issues, such as land and water use regulations and pollution control. The survey results showed that, in general, respondents were strongly supportive of efforts to protect the environment and the quality of life. There was, however, some variation in support for specific policies reflecting differences in local environmental problems. DeHaven-Smith concluded that environmental attitudes do not emanate solely from abstract principles. Rather, attitudes are shaped and focused as part of a political process involving local groups and public officials.

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*J. Walter Milon is a professor in the Food and Resource Economics Department, University of Florida; Charles M. Adams is a professor in the Food and Resource Economics Department and Marine Extension Specialist in the Florida Sea Grant College Program, University of Florida; and David W. Carter is a graduate research fellow in the Food and Resource Economics Department, University of Florida.

Duda and Young reported results of a 1995 statewide survey to measure Floridians' awareness and attitudes about wildlife conservation in Florida. Their primary focus was the resources and activities conducted by the Florida Game and Fresh Water Fish Commission. Duda and Young reported that respondents expressed strong support for wildlife conservation programs, regardless of social or demographic group. Moreover, in comparison to responses to similar surveys conducted in 1985 and 1987, no major changes in Floridians' attitudes and opinions about wildlife conservation were detected.

The longest running public attitude survey in Florida is the Florida Annual Policy Survey (FAPS) conducted by the Policy Sciences Program (PSP) of the Florida State University. This survey is designed to monitor the policy interests and attitudes regarding issues facing state and local governments. While the survey is not focused specifically on environmental attitudes or policies, it includes a series of questions to elicit preferences for spending changes in various state programs, including environmental protection. Respondents are also asked to identify their single most important spending priority. Some results from the FAPS are discussed in Section 3 of this report.

This report presents the results of a statewide survey of Florida residents in 1996 to measure their attitudes about the environment and the status of living marine resources in Florida. The survey utilized a set of response items initially developed by Dunlap and Van Liere (1978) to measure individual acceptance of what they described as the "New Environmental Paradigm" (NEP). The NEP is based on an ecologically integrative view of humans and nature as opposed to an anthropocentric view of human dominion over nature. Individual's strength of support for the NEP can be used as an indicator of "environmental concern" as expressed in support for environmental protection and resource conservation programs (Dunlap and Van Liere, 1984). The survey focused on three living marine resources: seagrasses, coral reefs, and sea turtles. Documented reductions in the abundance of these resources (for example, National Marine Fisheries Service; Ogden et al.; Sargeant et al.) has led to several state and federal initiatives to restore these resources—such as the Charlotte Harbor, Indian River, Sarasota Bay, and Tampa Bay National Estuary Programs; the Florida Keys National Marine Sanctuary; and the federal recovery plan for Green and Loggerhead sea turtles. All of these programs are based on long-term plans to protect and restore water quality and critical habitats, and they all are dependent on continuing public support.

The next section of this report describes the survey methodology that was based on random computer-assisted, digit-dialing telephone interviews with Florida residents. The telephone interviews were conducted by the Survey Research Program of the Bureau of Business and Economic Research, University of Florida. A copy of the interview questions is included in the appendix. A socioeconomic profile of the respondents and their participation in various coastal recreation activities is presented in Section 3. Respondents' priorities for State of Florida program expenditures are also presented in Section 3, along with the comparison of these priorities to those reported in the Florida Annual Policy Survey conducted by Florida State University. Environmental attitude results from the Dunlap and Van Liere item responses are presented in Section 4. Statistical tests are used to determine whether attitudes differ between various socioeconomic groupings of the individuals. These groupings include individual characteristics (for example, age, income, ethnicity, and years of residency in Florida),

membership (political party and environmental donations), and geographic characteristics (region of the state and distance from the coast)). Respondents' perceptions of the status of living marine resources in Florida are presented in Section 5. These responses are also evaluated to determine whether there are statistically significant differences between various socioeconomic groupings. Finally, a summary of the findings and conclusions about the current status of environmental attitudes in Florida is presented in Section 6.

## 2. Survey Methodology and Response Disposition

### 2.1 Design and Sample Selection

The Coastal Resources Survey (CRS) project consisted of two related telephone questionnaires, which are summarized as Parts A and B in Figure 1. The surveys were designed by the authors and conducted by the Survey Research Program of the Bureau of Business and Economic Research at the University of Florida. This report presents the results of Part A, which was designed to provide a background profile and environmental attitudes for each respondent. Part A elicited four types of information:

- socioeconomic data (age, ethnicity, gender, etc.).
- participation in saltwater recreation activities in Florida.
- perceived priorities for State of Florida program expenditures.
- attitudes regarding environmental and marine resources.

A copy of Part A of the survey instrument is included in the appendix. The second part of the project, Part B, was administered only to those respondents who had agreed in Part A to answer questions relating to their willingness to pay for coastal resource restoration programs. Results from Part B will be reported in subsequent publications.

The target population for the CRS was adults over the age of 18 in all Florida households with a telephone, approximately 95 percent of all Florida households (Chris McCarty, Director, Survey Research Program, personal communication). A computer-assisted, random digit-dialing sample of 17,632 households—proportionate to the number of households per county—was conducted, and responses were monitored to obtain representative percentages of male and female responses. Interviews were conducted in both English and Spanish. The advantage of random digit-dialing is that unlisted numbers can be sampled. In addition, respondents were selected randomly within each household by asking for the adult in the household with the next birthday. All numbers resulting in no answer were called 10 times before finalizing them as unproductive. Refusals were called twice, unless the refusal was strong on the first call.

### 2.2 Completion Rates

The disposition of responses and completion rates for the CRS are presented in Table 1. Of 17,632 total calls made, 8,961 were made to "probable households" for a sampling pool efficiency of just over 50 percent. "Probable households" consist of all numbers called (including incompleted

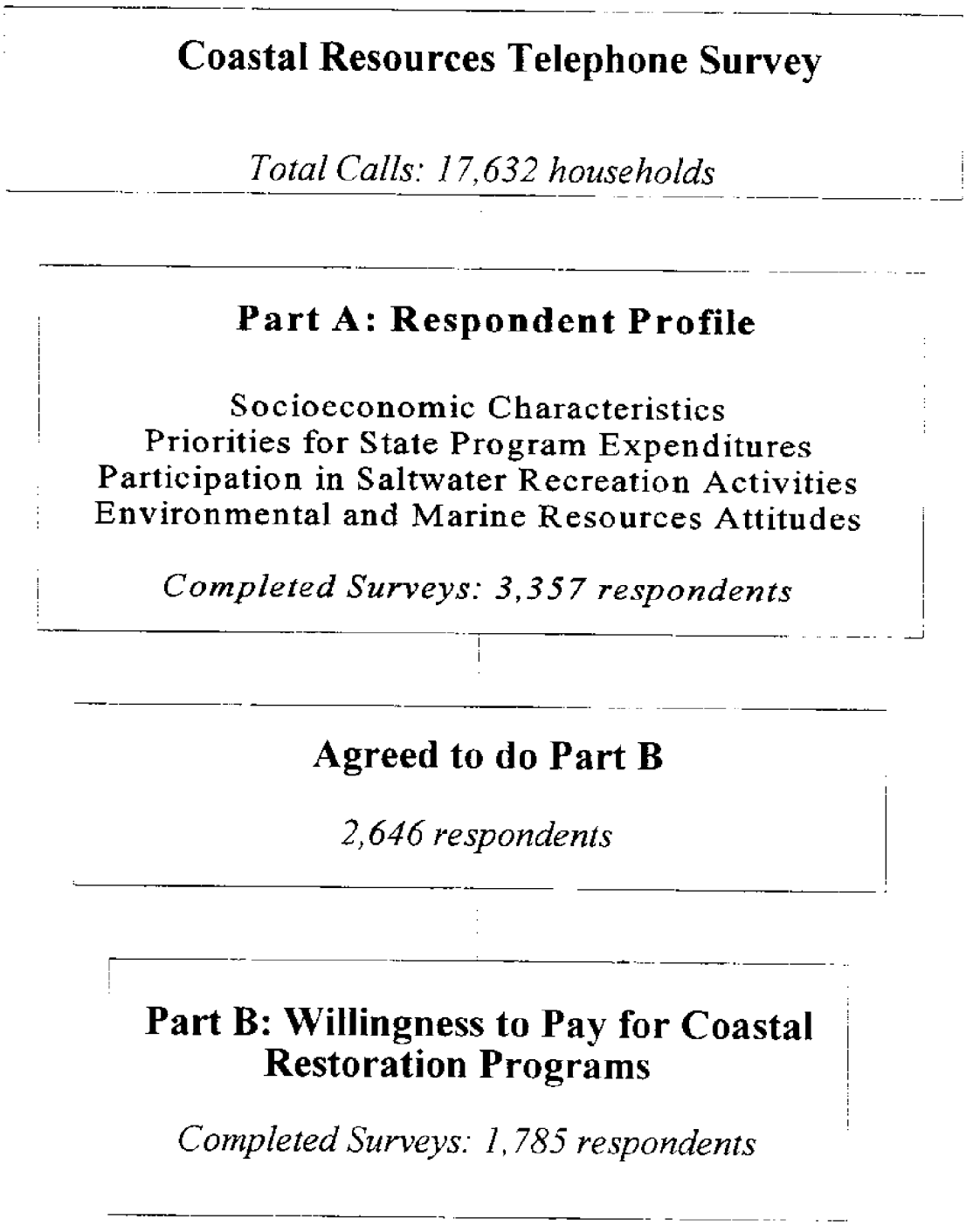


Figure 1. Overview of Survey Methodology and Sample Size

Table 1. Coastal Resources Survey Completion Rates by Sample Subgroup

| | Part A | | Part B | |
|---|---|---|---|---|
| **TOTAL CALLS** | | **17,632** | | **2,581** |
| **COMPLETES** | | | | |
| Agreed to do Part B | 78.82% | | na | |
| Did not agree to do Part B | 21.00% | | na | |
| Don't know about Part B | 0.18% | | na | |
| **Completes Subtotal** | **19.04%** | **3,357** | **69.16%** | **1,785** |
| **INCOMPLETES** | | | | |
| Nonresponse Incompletes | | | | |
| No respondent identified | 90.31% | | 0.00% | |
| Refusal by informant for respondent | 4.06% | | 52.81% | |
| Refusal by respondent | 5.63% | | 47.19% | |
| **Nonresponse Incompletes Subtotal** | **20.84%** | **3,674** | **3.45%** | **89** |
| Other Incompletes | | | | |
| Language barrier | 0.43% | | 3.54% | |
| Sick/incapable | 2.31% | | 1.56% | |
| Residents/respondent away | 2.48% | | 10.04% | |
| No adults | 0.40% | | 0.00% | |
| Business/nonresidence/computer | 31.24% | | 1.27% | |
| Not in service | 38.02% | | 7.21% | |
| No answer | 12.54% | | 5.52% | |
| Answering machine | 6.47% | | 11.17% | |
| Busy | 0.94% | | 0.99% | |
| Possible residence | 0.92% | | 0.14% | |
| Callbacks/not completed | 4.25% | | 58.56% | |
| **Other Incompletes Subtotal** | **60.12%** | **10,601** | **27.39%** | **707** |
| **Incomplete Subtotal** | **80.96%** | **14,275** | **30.84%** | **796** |
| **EFFICIENCY OF SAMPLING POOL[1]** | | **50.82%** | | **96.16%** |
| **EFFECTIVE COMPLETION RATE[2]** | | **37.83%** | | **72.65%** |

[1]The efficiency of the sampling pool in reaching households is calculated by dividing the total calls by the number of probable households given by working numbers less any business/nonresidence/computer connections and no answer numbers (Lavrakas).

[2]The effective completion rate is all completions divided by all eligibles (Lavrakas). Eligibles are defined as working numbers less business/nonresidence/computer connections, no answer numbers, and households in which there were language barriers or no adults.

callbacks) except nonworking numbers, calls with no answer, and business/nonresidence/computer connections. The sampling pool efficiency for this survey is typical of random-digit telephone surveys (Lavrakas).

Interviewers were able to produce 3,357 completed surveys for Part A. Based on an estimated 1996 Florida population of 11.2 million residents over the age of 18, this sample size produces sampling error rates of ±2 percent (using a 95 percent level of confidence). The effective completion rate was 38 percent for Part A (based on the 8,873 eligible adult households from the 8,961 probable households). This completion rate is on the lower end but still within the typical range for telephone surveys (Rea and Parker). For example, the UF Survey Research Program, which conducted this survey, also conducts the monthly Florida Economic and Consumer Survey (FECS). The effective completion rate for the CRS is similar to the typical rates for FECS (Chris McCarty, Director, Survey Research Program, personal communication).

Of the interviews completed for Part A, 79 percent or 2,646 respondents, agreed to Part B. Part B was completed approximately two weeks after respondents were mailed a detailed booklet describing various coastal restoration programs. Copies of the booklet are available from the authors.

The sampling pool efficiency and effective completion rate for Part B were much higher than those for Part A, primarily because the sampling pool had been narrowed and focused considerably (Table 1). The final sample, which completed Part B, was 1,785 respondents. Based on an estimated 1996 Florida population of 11.2 million residents over 18, this sample size produces sampling error rates of ±3 percent (using a 95 percent level of confidence).

While the sample size for the group completing Part B is smaller than the total completes for Part A, the completed Part B sample was used for all statistical comparisons presented in this report. This approach provides consistency between the results in this report and the results from Part B to be reported in subsequent publications. Comparisons of responses between all respondents who completed Part A and respondents who completed both Parts A and B indicated no statistically significant differences. Differences in the socioeconomic characteristics between the two groups are discussed in Section 3.

# 3. RESPONDENT CHARACTERISTICS

## 3.1 Socioeconomic Profile

The socioeconomic characteristics of respondents for Parts A and B of the CRS sample are presented in Table 2. The first and second columns show the percentage of respondents who completed Part A but either refused to do Part B or did not complete Part B after agreeing to do so. The distribution of response rates among each socioeconomic characteristic category in these columns can be compared with the distributions in the third column in which the results for respondents who completed *both* Parts A and B of the CRS are listed. The distribution of response rates within the socioeconomic characteristic groups is fairly similar between respondents who only

Table 2. Respondents' Socioeconomic Characteristics by Sample Subgroup

| Socioeconomic Characteristic | Completed Part A | | Completed Parts A and B | Florida Population[1] |
|---|---|---|---|---|
| | Part B Refused | Part B Not Completed | | |
| **AGE** | | | | |
| 18–24 years | 5.7% | 13.2% | 6.8% | 10.6% |
| 25–44 years | 33.0% | 52.2% | 46.3% | 38.3% |
| 45–64 years | 24.2% | 23.1% | 28.1% | 26.9% |
| 65 years and over | 22.6% | 10.4% | 17.8% | 24.2% |
| **GENDER** | | | | |
| Male | 48.1% | 49.4% | 45.6% | 47.8% |
| Female | 51.9% | 50.6% | 54.4% | 52.2% |
| **ETHNICITY** | | | | |
| White | 74.8% | 65.3% | 80.6% | 85.9% |
| Black | 8.0% | 12.5% | 6.7% | 12.5% |
| Other | 3.1% | 4.7% | 3.8% | 1.8% |
| Hispanic origin[2] | 8.7% | 14.9% | 6.0% | 12.8% |
| **EDUCATION[3]** | | | | |
| No high school diploma | 12.3% | 10.6% | 6.5% | 25.6% |
| Completed high school | 29.2% | 29.1% | 27.1% | 30.1% |
| Some college | 24.9% | 29.5% | 30.5% | 26.0% |
| Completed college | 22.0% | 21.9% | 22.6% | 12.0% |
| Graduate degree | 11.6% | 8.9% | 13.2% | 6.3% |
| **ANNUAL INCOME** | | | | |
| Less than $20,000 | 42.3% | 47.2% | 18.7% | 22.9% |
| $20,000–$50,000 | 22.8% | 27.0% | 47.0% | 48.8% |
| more than $50,000 | 20.9% | 25.8% | 23.8% | 28.4% |
| **POLITICAL PARTY[4]** | | | | |
| Republican | 29.3% | 30.9% | 34.8% | 42.9% |
| Democrat | 29.2% | 31.9% | 30.9% | 48.4% |
| Other | 41.5% | 37.2% | 34.2% | 8.7% |
| **MEAN HOUSEHOLD SIZE** | 2.28 | 2.75 | 2.59 | 2.46 |

[1]Figures are from or computed from 1996 data for persons aged 18 or older as reported in the *1996* and *1997 Florida Statistical Abstracts*, University of Florida, Bureau of Economic and Business Research, except as noted.
[2]Persons of Hispanic origin may be of any ethnicity. Consequently, the data in the ethnicity group sum to more than 100 percent.
[3]Florida population percentages computed from the 1990 Census counts for persons aged 25 years and older as reported in Table 4.01 of the *1995 Florida Statistical Abstract*, University of Florida, Bureau of Economic and Business Research.
[4]The CRS data is reported party preference, whereas the data for the Florida population is actual party registration.

completed Part A and those who completed both Parts A and B. Respondents are typically white, between 25 and 65 years of age, have attended college, and earn less than $50,000 in annual household income. There were, however, some notable differences in response patterns within the socioeconomic categories.

A relatively larger percentage of respondents aged 18–24 agreed to do Part B but were not able to be contacted to complete the Part B survey. This may have occurred because younger respondents tend to spend less time at home and are more difficult to reach directly a second time (Lavrakas). Black and Hispanic respondents also appeared more likely to either refuse Part B or to not complete it after they had agreed to do so. Language barriers could have played a role in refusals and incompletions among the Hispanic population even though interviews were conducted in Spanish whenever appropriate. Refusals and incompletions of Part B among these minority groups may also be related to the relatively high percentage of refusals and incompletions among low-income (less than $20,000) respondents. However, there was no attempt in this study to isolate correlations in response patterns among socioeconomic categories.

The sample of respondents who completed Parts A and B of the CRS reflects the general socioeconomic characteristics of the Florida population. Comparison of the last two columns in Table 2 shows, however, that certain portions of the population tend to be either underrepresented or overrepresented in the final sample relative to 1990 Census figures or 1996 estimates.

The relatively young (18–24) and old (65+) members of the Florida voting age population are relatively underrepresented in the sample, as are black and Hispanic residents. As suggested above, younger residents may be more difficult to contact because they typically spend more time away from home than do older residents. The underrepresentation of the minority population is common among telephone surveys and is usually attributed to the relative lack of telephone service in the areas where these residents live (Thornberry and Massey).

Florida residents without a high school diploma are underrepresented in the sample, whereas college graduates and those with graduate degrees are overrepresented relative to state percentages. The population with relatively less education may have been less willing to participate in the CRS due to the fairly technical nature of the subject matter and survey instrument used in Part B.

The distribution of political party affiliations in the CRS sample is roughly representative of the percentage of Republicans and Democrats in the general population. The "other" political party category is significantly greater for the CRS sample, partly because it includes responses that were not available or unknown. However, it is more likely that the discrepancy exists because data from the *Florida Statistical Abstracts* are based on actual voter registration, whereas the CRS figures are based on what respondents reported as their party affiliation. Often people register with one political party but vote for and/or subscribe to the beliefs of another. For example, many areas require registration as either a Democrat or a Republican for participation in local elections. In these cases, those with party affiliations other than Democratic or Republican have to register for a party with which they do not necessarily associate themselves in order to vote in local elections. These

individuals are likely to report the party with which they are affiliated, when asked, rather than their actual party registration. It should be noted that the 1996 Florida Annual Policy Survey (FAPS)[1] reported a breakdown of political party affiliations that was similar to the CRS sample. Like the CRS, FAPS elicits reported, not registered, political party affiliations.

Other socioeconomic characteristics for the sample of respondents who completed Parts A and B of the CRS are presented in Table 3. Data from the FAPS of the Florida population is presented for comparison purposes where available. Birthplace and residency distributions are comparable for the CRS and FAPS samples, with the majority of respondents not born in Florida and about one-half having lived in the state for 10 or more years. Almost one-half of the CRS sample was taken from the central portion of Florida, and more than one-half of the respondents lived less than 16 miles from saltwater. In addition, more than 70 percent have voted in the past three years and typically contribute less than $100 a year to environmental groups. By comparison, more than 70 percent of respondents in the 1990 FAPS reported that they had voted in the 1990 gubernatorial election.

### 3.2 Participation in Saltwater Recreational Activities

The CRS included questions to determine how often residents participated in outdoor activities. Respondents indicated whether they participated in an activity very often, often, sometimes, or never. The results are presented in Table 4.

Swimming or sunbathing at the beach were the most common activities with about one-half of the respondents indicating that they participated in this activity often or very often. By comparison, the 1992–93 Outdoor Recreation Survey (ORS) of Florida residents and tourists (FDEP, 1994a) found that 27 percent of residents and 41 percent of tourists indicated that they had used the beach during 1992. Respondents to the ORS also indicated that saltwater beach activities were their favorite resource-based activity in 1992. Note, however, that direct comparisons between the CRS and the ORS cannot be made because the ORS results are for one year whereas the CRS results cover participation frequencies over an indefinite time period.

Roughly one-third of the sample respondents participated in all activities at least sometimes. What is striking, though, is the relatively high percentage of respondents who indicated that they *never* participate in specific activities. Almost one-half of the sample said that they never saltwater fish or go on nature trips to observe birds or other wildlife. Additionally, more than one-half of the sample said that they never participate in diving or non-fishing boating activities. For the purposes of comparison, a Florida study estimated that approximately 20 percent of the state's population

[1]The FAPS has been conducted every year since 1980 by the Survey Research Center, Policy Sciences Program, Florida State University. Respondents from this survey are chosen at random from all regions of Florida. The complete survey and results by year are available from the National Network of State Polls (NNSP) on the Internet at http://www.irss.unc.edu/data_archive/pollsearch.html.

Table 3. Other Socioeconomic Characteristics of Respondents

| Socioeconomic Characteristic | Coastal Resources Survey | Florida Annual Policy Survey[1] |
|---|---|---|
| **BIRTHPLACE** | | |
| Florida | 19.5% | 28.8% |
| Other | 80.4% | 71.2% |
| **YEARS OF RESIDENCY** | | |
| 1–5 | 16.7% | 17.5% |
| 6–10 | 13.2% | 16.9% |
| 11–20 | 23.4% | 26.9% |
| 21 + | 26.9% | 37.1% |
| Don't know or not available | 19.8% | na |
| **REGION[2]** | | |
| North | 21.4% | |
| Central | 48.9% | na |
| South | 28.6% | |
| **MILES FROM SALTWATER** | | |
| 0–5 | 33.1% | |
| 6–15 | 23.0% | |
| 16–30 | 14.0% | |
| 31–75 | 18.5% | na |
| 76 + | 2.6% | |
| Don't know or not available | 8.4% | |
| **VOTED IN STATE OR LOCAL ELECTION IN THE PAST 3 YEARS** | | |
| Yes | 71.6% | 72.7%[3] |
| No | 28.2% | 27.3% |
| Don't know or not available | 0.2% | 0.0% |
| **DONATIONS TO ENVIRONMENTAL GROUPS** | | |
| None | 45.8% | |
| Less than $100 | 32.6% | |
| Between $100 and $500 | 12.4% | na |
| More than $500 | 1.8% | |
| Don't know or not available | 7.5% | |

[1]1996 Florida Annual Policy Survey, except as noted.

[2]The northern region consists of counties north of (and including) Levy, Marion, Putnam, and Flagler counties. The southern region includes Collier, Palm Beach, Monroe, Broward, and Dade counties. All remaining counties are considered part of the central region.

[3]Percentage of the respondents in the 1991 Florida Annual Policy Survey who reported that they voted in the 1990 election for Florida governor.

Table 4. Participation in Outdoor Recreation Activities

| Activity | Very Often | Often | Sometimes | Never | Don't Know or Not Available |
|---|---|---|---|---|---|
| Swimming or sunbathing at the beach | 13.2% | 33.7% | 38.4% | 14.7% | 0.0% |
| Saltwater fishing | 5.6% | 12.4% | 32.0% | 48.3% | 1.7% |
| Snorkeling or scuba diving | 2.5% | 7.5% | 25.2% | 64.9% | 0.0% |
| Saltwater boating activities other than fishing | 4.5% | 9.5% | 34.9% | 51.0% | 0.0% |
| Nature trips to observe and study birds or other wildlife | 3.8% | 10.5% | 40.2% | 45.5% | 0.0% |

participated in marine recreational fishing in 1991–92 (Milon et al.). The relatively high percentage of reported non-participation for these outdoor activities suggests that the saltwater recreation opportunities in Florida may not play a significant role in some residents' decision to live in the state.

3.3 Priorities for State Program Expenditures

Respondents to the CRS were also asked whether government expenditures on various Florida programs should increase, stay the same, or decrease. Respondents were then asked which type of program should be the top priority for funding increases. These questions were the same as the question sequence used in the FAPS and were included in this survey to provide a comparison of attitudes about expenditure priorities between the two surveys. The results for the respondents who completed Parts A and B of the CRS are presented in Table 5 along with the percentages of FAPS respondents who chose each program area as a top priority for funding increases. Not only are the priorities remarkably consistent among the CRS and FAPS; the results from FAPS since 1980 suggest consistent trends in public support for environmental protection spending.

Almost 60 percent of the CRS respondents thought spending on environmental protection in Florida should be increased. This is consistent with results from the FAPS since the 1980s that indicate an average of 60 percent of respondents from annual samples were willing to increase spending for environmental protection (FDEP, 1994b). Almost 10 percent of the CRS sample placed environmental protection as their top priority for funding increases. From 1980 to 1994, the mean percent of the public who identified environmental protection as the top priority for funding increase

Table 5. Priorities for State of Florida Expenditures by Program Area

| Program | Coastal Resources Survey | | | | | FAPS[1] |
|---|---|---|---|---|---|---|
| | Increase | Same | Decrease | Don't Know or Not Available | Top Priority | Top Priority |
| Crime prevention | 70.5% | 21.8% | 4.5% | 3.2% | 16.0% | 16.4% |
| Public schools | 78.5% | 15.0% | 3.0% | 3.5% | 45.3% | 35.4% |
| Environmental protection | 57.6% | 33.0% | 6.3% | 3.1% | 9.6% | 8.6% |
| Attract new industry | 24.4% | 43.0% | 27.4% | 5.2% | 1.7% | 4.3% |
| Land acquisition to protect endangered species | 51.1% | 36.3% | 9.3% | 3.4% | 1.7% | na |
| Health care service | 55.0% | 32.1% | 8.6% | 4.3% | 5.6% | 7.6% |
| State colleges and universities | 55.3% | 34.3% | 5.8% | 4.6% | 3.7% | 3.9% |
| State highways and road systems | 35.5% | 52.9% | 9.4% | 2.2% | 1.8% | 3.7% |
| Low-income families with children | 36.5% | 40.9% | 16.2% | 6.4% | 3.5% | 6.0% |
| Elderly | 49.7% | 38.8% | 6.6% | 4.9% | 6.9% | 9.6% |
| State prisons and correctional facilities | 33.7% | 39.5% | 21.5% | 5.2% | 3.0% | 2.9% |
| Promotion of tourism | 20.8% | 53.6% | 23.5% | 2.1% | 1.3% | 1.0% |

[1]1996 Florida Annual Policy Survey. The complete survey and results are available from the National Network of State Polls (NNSP) on the Internet at http://www.irss.unc.edu/data_archive/pollsearch.html.

in the FAPS was 8.2, with a high of 13 percent in 1990 and a low of 3.6 percent in 1982 (FDEP, 1994b). In the overall ranking of state program-funding priorities, CRS respondents chose environmental protection as the third most important priority for spending increases behind public schools and crime prevention. This is slightly higher than results from the 1996 FAPS in which environmental protection was ranked fourth, behind public schools, crime prevention, and care for the elderly. In fact, respondents to the FAPS since 1984 have ranked environmental protection fourth on average as the top priority for a funding increase on state programs (FDEP, 1994b).

Regarding state expenditures for land acquisition to protect endangered species, an additional program choice was added to the CRS. More than 50 percent of the CRS respondents thought Florida's spending on this type of program should be increased, but the program ranked relatively low as top priority for a funding increase.

# 4. ENVIRONMENTAL ATTITUDES

Part A of the CRS was designed to measure Florida residents' attitudes about the environment and marine resources. In this section, following a brief discussion of environmental attitude methodology, results for the total sample and then for groupings of the sample by the individual, membership, and geographic characteristics of the respondents are presented. Hypothesis tests for differences between the responses of various socioeconomic sample groupings are also presented in this section.

## 4.1 Environmental Attitude Measurement Methodology

Dunlap and Van Liere (1978) developed one of the first survey instruments to measure environmental attitudes. The purpose of the instrument was to gauge the level of acceptance of a "New Environmental Paradigm" (NEP). The NEP is described by Dunlap and Van Liere as an ecologically integrative view of humans and nature that implies fundamentally different values than the "Dominant Social Paradigm" that fostered an anthropocentric world view. The NEP instrument consisted of 12 items for which respondents indicated levels of agreement or disagreement. Initial tests using the instrument led Dunlap and Van Liere to conclude that it provided "an internally consistent and unidimensional scale" (p. 14) of environmental attitudes.

Subsequent research by Albrecht et al., Geller and Lasley, and Pierce et al. found that the NEP scale could be decomposed into three dimensions reflecting concerns about the *Balance of Nature*, *Man Over Nature*, and *Limits to Growth*. These studies also raised questions about the need to include all 12 response items when a shorter version appeared to produce similar results. Research by Noe and Snow (1990b) and the Center for Public and Urban Research supported the conclusion that shorter versions of the NEP scale could produce comparable results.

The Dunlap and Van Liere NEP item response set is one of the most commonly used and accepted measures of environmental attitudes. It has been adapted to consider differences in

environmental attitudes between ethnic groups (Caro and Ewert; Noe and Snow, 1990a; Sheppard), urban and rural residents (Arcury and Christianson; Buttel), as a predictor of outdoor recreation behavior (Cottrell and Graefe; Van Liere and Noe), and changes in environmental attitudes over time (Dunlap).

For this study, the original Dunlap and Van Liere response set was reduced to six items that focused on respondents' perceptions of the *Balance of Nature* and *Society's Relationship to Nature*. The *Balance of Nature* attitude measures are designed to reveal sentiments regarding the balance and potential fragility of the natural environment. The responses for the *Society's Relationship to Nature* attitude measures provide insight as to how Florida residents view the interactions between human and natural systems. The *Limits to Growth* items in Dunlap and Van Liere's response set were not used because of their questionable reliability (Noe and Snow, 1990b) and lack of relevance to the marine resource issues addressed in this study.

The specific items used to represent the selected dimensions of the NEP scale are given in Table 6 along with the weighting scheme for each statement in the scale. All of the attitude measure statements are presented as they were used in the CRS questionnaire (see the appendix). To measure the intensity of attitudes, respondents were asked to state the degree (mildly or strongly) that they agree or disagree with each of the statements as they were read by the interviewer. The responses were weighted (see Table 6) and a simple arithmetic mean was used to calculate our NEP scale, the Environmental Attitude Composite (EAC). The EAC scale ranges from -12 to 12 and is designed so that the higher (lower) the EAC score, the greater (less) acceptance of the NEP.

Table 6. Weighting Scheme for the Environmental Attitude Composite

| **Response Item** | **Weight Applied for the Environmental Attitude Composite** | | | | |
|---|---|---|---|---|---|
| | **Strongly Disagree** | **Mildly Disagree** | **Mildly Agree** | **Strongly Agree** | **Don't Know or Not Available** |
| **BALANCE OF NATURE** | | | | | |
| Mankind is severely abusing the environment. | -2 | -1 | 1 | 2 | 0 |
| When people interfere with nature, it often produces disastrous results. | -2 | -1 | 1 | 2 | 0 |
| The balance of nature is very delicate and is easily upset. | -2 | -1 | 1 | 2 | 0 |
| **SOCIETY'S RELATIONSHIP TO NATURE** | | | | | |
| Mankind was created to rule over the rest of nature. | 2 | 1 | -1 | -2 | 0 |
| Plants and animals exist primarily to be used by people. | 2 | 1 | -1 | -2 | 0 |
| People have the right to change the natural environment to suit their needs. | 2 | 1 | -1 | -2 | 0 |

## 4.2 Results for the Total Sample

The responses for the sample that completed Parts A and B of the CRS are summarized in Table 7. In addition to the *Balance of Nature* and *Society's Relationship to Nature* item responses, two other items were included to gauge Floridians' knowledge of environmental issues. The responses to these additional statements indicate that the majority of the CRS sample believed that they were very well-informed on both U.S. and Florida environmental issues. Less than 10 percent strongly disagreed with these statements.

Table 7. Attitudes About the Environment for the Total Sample

| Response Item | Strongly Disagree | Mildly Disagree | Mildly Agree | Strongly Agree | Don't Know or Not |
|---|---|---|---|---|---|
| **KNOWLEDGE OF ENVIRONMENTAL ISSUES** | | | | | |
| Very well-informed on national environmental issues. | 7.6% | 27.8% | 44.9% | 19.6% | 0.1% |
| Very well-informed on Florida environmental issues. | 6.7% | 25.9% | 47.8% | 19.6% | 0.1% |
| **BALANCE OF NATURE** | | | | | |
| The balance of nature is very delicate and is easily upset. | 3.0% | 10.1% | 24.1% | 62.1% | 0.7% |
| When people interfere with nature, it often produces disastrous results. | 3.3% | 11.9% | 22.8% | 61.2% | 1.0% |
| Mankind is severely abusing the environment. | 7.9% | 14.5% | 21.4% | 55.6% | 0.7% |
| **SOCIETY'S RELATIONSHIP TO NATURE** | | | | | |
| Mankind was created to rule over the rest of nature. | 49.8% | 18.7% | 12.3% | 16.3% | 2.9% |
| Plants and animals exist primarily to be used by people. | 44.6% | 25.5% | 17.9% | 10.5% | 1.5% |
| People have the right to change the natural environment to suit their needs. | 58.9% | 20.9% | 11.5% | 7.1% | 1.7% |

For the *Balance of Nature* response items, more than 60 percent of the respondents strongly agreed that *the balance of nature is very delicate and is easily upset* and that, *when people interfere with nature, it often produces disastrous results*. Also, most respondents strongly agreed that *mankind is severely abusing the environment*. Relatively few of the respondents disagreed with these statements, suggesting a fairly broad consensus on concern about the fragility of the environment.

For the *Society's Relationship to Nature* response items, most of the respondents did not support a strictly anthropocentric notion that nature exists solely for human use. The majority of respondents disagreed that *mankind was created to rule over the rest of nature* and that *plants and animals exist primarily to be used by people*. Almost 60 percent of the sample also strongly disagreed that *people have the right to change the natural environment to suit their needs*. Overall, these responses indicate strong support for a more ecologically integrative view of society and nature.

4.3 Comparison of Responses by Individual Socioeconomic Characteristics

To provide a more detailed evaluation of Floridians' environmental attitudes, the responses to the NEP items are reported by six individual socioeconomic characteristics in Tables 8 and 9: age, gender, ethnicity, education, income, and years of residency in Florida. For this analysis, the EAC—as described in Section 4.1—is reported to summarize the level of environmental attitudes within each socioeconomic group. The responses are presented as mean attitude scores, not percentages, for sample subgroups. These mean attitude scores were calculated for each socioeconomic group by weighting the level of agreement as follows:

| | |
|---|---|
| strongly disagree | = -2; |
| mildly disagree | = -1; |
| don't know or not available | = 0; |
| mildly agree | = 1; and |
| strongly agree | = 2. |

Using this weighting schedule, the more positive (negative) the mean attitude score, the more respondents in the group agreed (disagreed) on average with each specific statement. Note that these weights are different than the weights used for the EAC (see Table 6), so the EAC cannot be computed directly from the mean attitude scores reported in Tables 8 and 9. Note that the EAC scores are reported in the last row of Tables 8, 9, 10, and 11.

The superscripts A, B, C, and D that appear in the tables denote the results of statistical tests of the hypothesis that mean attitude scores for each group are the same. Mean attitude scores that have the same lettered superscript are *significantly different* at a 5 percent confidence level. Similarly, mean attitude scores that do not have the same letter or have no superscript are not significantly different. The statistical significance of mean differences were determined with Tukey studentized range tests using SAS/STAT™ software. The Tukey test is appropriate for mean score comparisons between samples of unequal size with unequal variance (SAS Institute, Inc.).

Table 8. Attitudes About the Environment by Individual Characteristics

| Response Item[1] | Education | | | Income | | | Years of Residency in Florida | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | no college | some college | post-college | <$20,000 | $20,000–$50,000 | $50,000< | 1–5 | 6–10 | 11–20 | 21+ |
| **KNOWLEDGE OF ENVIRONMENTAL ISSUES** | | | | | | | | | | |
| Very well-informed on national environmental issues. | .13$^{A}$ | .46$^{A}$ | .87$^{A}$ | .17$^{A,B}$ | .41$^{A}$ | .60$^{B}$ | .41 | .24$^{A}$ | .45 | .55$^{A}$ |
| Very well-informed on Florida environmental issues. | .27$^{A,B}$ | .54$^{A}$ | .69$^{B}$ | .36$^{A}$ | .45 | .63$^{A}$ | .20$^{A,B}$ | .36$^{C}$ | .54$^{B}$ | .68$^{A,C}$ |
| **BALANCE OF NATURE** | | | | | | | | | | |
| The balance of nature is very delicate and is easily upset. | 1.25 | 1.36 | 1.34 | 1.28 | 1.36 | 1.28 | 1.27 | 1.38 | 1.36 | 1.38 |
| When people interfere with nature, it often produces disastrous results. | 1.36 | 1.23 | 1.17 | 1.39$^{A}$ | 1.36$^{B}$ | 1.05$^{A,B}$ | 1.14 | 1.29 | 1.35 | 1.3 |
| Mankind is severely abusing the environment. | 1.44 | .96 | .97 | 1.16$^{A}$ | 1.05 | .87$^{A}$ | 1.08 | 1.09 | .96 | 1.04 |
| **SOCIETY'S RELATIONSHIP TO NATURE** | | | | | | | | | | |
| Mankind was created to rule over the rest of nature. | -.57$^{A,B}$ | -.82$^{A}$ | -.89$^{B}$ | -.57 | -.77 | -.84 | -.64 | -.83 | -.72 | -.79 |
| Plants and animals exist primarily to be used by people. | -.65 | -.82 | -.88 | -.56$^{A}$ | -.81$^{A}$ | -.82 | -.70 | -.87 | -.82 | -.74 |
| People have the right to change the natural environment to suit their needs. | -1.07 | -1.18 | -1.13 | -1.09 | -1.13 | -1.69 | -1.50 | -1.38 | -1.44 | -1.42 |
| **ENVIRONMENTAL ATTITUDE COMPOSITE** | 4.56 | 4.79 | 4.87 | 4.59 | 4.9 | 4.49 | 4.35 | 5.11 | 4.75 | 4.90 |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same letter superscript are significantly different.

Table 9. Attitudes About the Environment by Individual Characteristics

| Response Item[1] | Sample Mean | Age | | | | Gender | | Ethnicity | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 18–24 | 25–44 | 45–64 | 65+ | Male | Female | White | Black | Hispanic | Other |
| **KNOWLEDGE OF ENVIRONMENTAL ISSUES** | | | | | | | | | | | |
| Very well-informed on national environmental issues. | .41 | $.03^{A,B}$ | $.24^{C,D}$ | $.59^{B,D}$ | $.71^{A,C}$ | $.52^{A}$ | $.32^{A}$ | $.40^{A}$ | .43 | $.22^{B}$ | $.71^{A,B}$ |
| Very well-informed on Florida environmental issues. | .48 | $.16^{A}$ | $.36^{B,C}$ | $.63^{A,C}$ | $.67^{A,B}$ | $.56^{A}$ | $.40^{A}$ | .49 | .44 | .28 | .53 |
| **BALANCE OF NATURE** | | | | | | | | | | | |
| The balance of nature is very delicate and is easily upset. | 1.32 | 1.15 | 1.35 | 1.31 | 1.31 | 1.27 | 1.36 | $1.34^{A}$ | $1.03^{A}$ | 1.24 | 1.41 |
| When people interfere with nature, it often produces disastrous results. | 1.27 | 1.33 | 1.19 | 1.33 | 1.38 | $1.17^{A}$ | $1.35^{A}$ | 1.26 | 1.25 | 1.46 | 1.24 |
| Mankind is severely abusing the environment. | 1.02 | 1.01 | 1.00 | 1.02 | 1.10 | $.92^{A}$ | $1.12^{A}$ | $.98^{A}$ | 1.1 | $1.39^{A}$ | 1.11 |
| **SOCIETY'S RELATIONSHIP TO NATURE** | | | | | | | | | | | |
| Mankind was created to rule over the rest of nature. | -.73 | $-1.02^{A}$ | $-.82^{B}$ | -.71 | $-.42^{A,B}$ | -.70 | -.76 | $-.81^{A}$ | $-.17^{A,B}$ | -.46 | $-.68^{B}$ |
| Plants and animals exist primarily to be used by people. | -.76 | $-.99^{A}$ | $-.80^{B}$ | $-.82^{C}$ | $-.47^{A,B,C}$ | -.69 | -.82 | $-.81^{A}$ | $-.47^{A}$ | -.53 | -.65 |
| People have the right to change the natural environment to suit their needs. | -1.13 | -1.13 | -1.15 | $-1.21^{A}$ | $-.93^{A}$ | $-1.08^{A}$ | $-1.17^{A}$ | $-1.16^{A}$ | -1.03 | $-.73^{A,B}$ | $-1.19^{B}$ |
| **ENVIRONMENTAL ATTITUDE COMPOSITE** | 4.70 | 5.00 | 4.73 | 4.82 | 4.31 | $4.35^{A}$ | $5.00^{A}$ | $4.80^{A}$ | $3.68^{A}$ | 4.50 | 4.68 |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same lettered superscript are significantly different.

Table 10. Attitudes About the Environment by Membership Characteristics

| Response Item[1] | Political Party Affiliation | | | Environmental Donations | | |
|---|---|---|---|---|---|---|
| | Republican | Democrat | All Other | $0 | <$100 | $100+ |
| **KNOWLEDGE OF ENVIRONMENTAL ISSUES** | | | | | | |
| Very well-informed on national environmental issues. | .43 | .46 | .35 | .19$^{A}$ | .58$^{A}$ | .84$^{A}$ |
| Very well-informed on Florida environmental issues. | .47 | .55 | .43 | .23$^{A}$ | .68$^{A}$ | .93$^{A}$ |
| **BALANCE OF NATURE** | | | | | | |
| The balance of nature is very delicate and is easily upset. | 1.13$^{A,B}$ | 1.42$^{A}$ | 1.43$^{B}$ | 1.14$^{A,B}$ | 1.51$^{A}$ | 1.59$^{B}$ |
| When people interfere with nature, it often produces disastrous results. | 1.07$^{A,B}$ | 1.35$^{A}$ | 1.39$^{B}$ | 1.14$^{A,B}$ | 1.38$^{A}$ | 1.49$^{B}$ |
| Mankind is severely abusing the environment. | .77$^{A,B}$ | 1.15$^{A}$ | 1.17$^{B}$ | .91$^{A,B}$ | 1.13$^{A}$ | 1.22$^{B}$ |
| **SOCIETY'S RELATIONSHIP TO NATURE** | | | | | | |
| Mankind was created to rule over the rest of nature. | -.51$^{A,B}$ | -.84$^{A}$ | -.86$^{B}$ | -.55$^{A,B}$ | -.89$^{A}$ | -1.08$^{B}$ |
| Plants and animals exist primarily to be used by people. | -.54$^{A,B}$ | -.87$^{A}$ | -.88$^{B}$ | -.57$^{A,B}$ | -.90$^{A}$ | -1.13$^{B}$ |
| People have the right to change the natural environment to suit their needs. | -1.01$^{A}$ | -1.18 | -1.20$^{A}$ | -1.03$^{A}$ | -1.16$^{B}$ | -1.42$^{A,B}$ |
| **ENVIRONMENTAL ATTITUDE COMPOSITE** | 3.73$^{A,B}$ | 5.18$^{B}$ | 5.24$^{A}$ | 3.94$^{A,B}$ | 5.33$^{A}$ | 6.05$^{B}$ |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5% confidence level; that is, means with the same lettered superscript are significantly different.

Table 11. Attitudes About the Environment by Geographic Characteristics

| Response Item[1] | Region | | | Miles from Saltwater | | |
|---|---|---|---|---|---|---|
| | North | Central | South | <5 | 5–10 | 10+ |
| **KNOWLEDGE OF ENVIRONMENTAL ISSUES** | | | | | | |
| Very well-informed on national environmental issues. | .39 | .42 | .41 | .44 | .45 | .41 |
| Very well-informed on Florida environmental issues. | .41 | .51 | .48 | .53 | .41 | .46 |
| **BALANCE OF NATURE** | | | | | | |
| The balance of nature is very delicate and is easily upset. | 1.18[A] | 1.34 | 1.4[A] | 1.39 | 1.32 | 1.27 |
| When people interfere with nature, it often produces disastrous results. | 1.16[A] | 1.26 | 1.36[A] | 1.30 | 1.31 | 1.21 |
| Mankind is severely abusing the environment. | 1.01 | .94[A] | 1.16[A] | 1.07 | 1.10 | .94 |
| **SOCIETY'S RELATIONSHIP TO NATURE** | | | | | | |
| Mankind was created to rule over the rest of nature. | -.61 | -.76 | -.80 | -.78 | -.77 | -.71 |
| Plants and animals exist primarily to be used by people. | -.62[A] | -.75 | -.90[A] | -.78 | -.80 | -.78 |
| People have the right to change the natural environment. | -1.09 | -1.18 | -1.06 | -1.18 | -1.03 | -1.16 |
| **ENVIRONMENTAL ATTITUDE COMPOSITE** | 4.23[A] | 4.69 | 5.09[A] | 4.93 | 4.80 | 4.55 |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same lettered superscript are significantly different.

The degree to which respondents agreed that they are informed on U.S. and Florida environmental issues tends to increase with age, with significant differences in attitudes among the age groups of 18–44 and 45+. The attitudes of younger [18–44] respondents also tended to be less anthropocentric. On the *Society's Relationship to Nature* statements, the younger group showed greater significant disagreement with the statements that *mankind was created to rule over the rest of nature* and that *plants and animals exist primarily to be used by people*. There were, however, no significant differences in attitudes by age group about the *Balance of Nature* response items. In addition, the EAC indicates that there were no significant differences in the level of environmental attitudes among different age groups.

There were significant differences in the attitudes of males and females about the environment and the extent to which they report being informed on environmental issues. Males tended to agree more than females on average that they were very well-informed on U.S. and Florida environmental issues. However, female respondents, on average, had higher EAC scores than males. The mean attitude scores for the individual response items also show that females supported a slightly less anthropocentric viewpoint and agreed more that mankind can and does have an effect on the balance of nature. Female respondents agreed more than males on average that, *when people interfere with nature, it often produces disastrous results* and that *mankind is severely abusing the environment.* Females also reported more disagreement than males with the statement that *people have the right to change the natural environment to suit their needs.*

There were no significant variations in responses among black and white ethnic groups regarding the extent to which respondents agreed that they are informed on U.S. and Florida environmental issues. However, the average white respondent had a higher EAC score than that of the average black respondent. The *Balance of Nature* response items show that this is partly because black respondents tended to agree less than white respondents that *the balance of nature is very delicate and easily upset.* Black respondents also tended to be more anthropocentric in their attitudes about the *Society's Relationship to Nature* response items. That is, black respondents disagreed less than whites on average that *mankind was created to rule over the rest of nature* and that *plants and animals exist primarily to be used by people.* Also, white respondents tended to agree more than Hispanic respondents that they are informed on U.S. environmental issues. Hispanic respondents disagreed less than white respondents on the *Society's Relationship to Nature* response item that *people have the right to change the environment.* However, on the *Balance of Nature* response items, Hispanic respondents agreed more that *mankind is severely abusing the environment.* This slight contrast in Hispanic responses relative to white respondents suggests that, while Hispanics disagreed less than whites that people have the right to change the environment, Hispanic respondents had relatively strong feelings that mankind is going too far in exercising this right.

There is a clear relationship between education and the extent to which respondents agreed that they are informed on environmental issues. Generally, respondents with more education were more likely to agree that they are well-informed on U.S. and Florida environmental issues. However, environmental attitudes did not vary significantly with respondents' level of education. This was evident in the similarity of mean EAC scores and the scores for the individual response items among different groupings of educational attainment. The only response item that varied significantly with education levels regards *Society's Relationship to Nature.* Respondents with higher levels of educational attainment disagreed more that *mankind was created to rule over the rest of nature.*

The extent to which respondents agreed that they are well-informed on U.S. and Florida environmental issues increased with income. Significant differences in attitudes occurred between the highest and lowest income groups. The EAC scores indicate that there was no significant difference in environmental attitudes among income groups. The item responses for the *Society's Relationship to Nature* show, however, that the lowest income group disagreed less than upper income groups with *plants and animals exist to be used by people.* The lower income group also agreed relatively more with the *Balance of Nature* response items that *mankind is severely abusing the environment* and that *human interference in the environment can produce disastrous results.*

The degree to which respondents agreed that they are well-informed on Florida environmental issues also increased with years of residency: the more (less) residency time, the more (less) informed the respondents. However, years of residency in Florida did not contribute to significant variations in environmental attitudes in the sample.

4.4 Results by Membership Characteristics

The levels of agreement with the NEP item responses for the membership socioeconomic characteristic categories are reported in Table 11. The same scale and connotation system described in Section 4.2 is used in this section to describe the variation in mean environmental attitudes by political party affiliation and level of environmental donation.

There were no significant variations in responses among political affiliations in the extent to which respondents agreed that they are well-informed on U.S. and Florida environmental issues. But the average Republican respondent had a lower EAC score than either Democratic or other political affiliations. On the *Society's Relationship to Nature* response items, Republican respondents exhibited relatively more anthropocentric attitudes, disagreeing less that *mankind was created to rule over the rest of nature* and that *plants and animals exist primarily to be used by people*. Republicans also agreed less with the *Balance of Nature* response items that *the balance of nature is very delicate and easily upset* and that, *when people interfere with the environment, it often produces disastrous results*.

The degree to which respondents agreed that they were well-informed on U.S. and Florida environmental issues increased with the level of environmental donations. In addition, the amount that respondents had donated to environmental groups was directly related to their EAC scores. This relationship is also consistently confirmed by the *Balance of Nature* and *Society's Relationship to Nature* response items. Relatively large environmental donators agreed significantly more with statements that *the balance of nature is very delicate and easily upset*; *when people interfere with nature, it often produces disastrous results*; and *mankind is severely abusing the environment*. Larger donators also disagreed more that *mankind was created to rule over the rest of nature, plants and animals exist primarily to be used by people*, and that *people have the right to change the natural environment to suit their needs*.

4.5 Results by Geographic Characteristics

The mean levels of agreement for the geographic socioeconomic characteristic categories are reported in Table 11. The same scale and connotation system described in Section 4.2 is used in this section to describe the variation in mean environmental attitudes by Florida region and the distance that respondents reported living from saltwater.

There were no significant variations among respondents from different regions in Florida on the extent to which they agreed that they are informed on U.S. and Florida environmental issues. On the other hand, respondents in the southern part of Florida generally had higher EAC scores than

respondents in other regions of the state. Respondents in south Florida agreed more on average than those in north Florida with the *Balance of Nature* response items that the *balance of nature is very delicate and easily upset* and that, *when people interfere with nature, it often produces disastrous results*. Respondents in the south also disagreed more than northern respondents with the *Society's Relationship to Nature* response item that *plants and animals exist primarily to be used by people*. The stronger environmental attitudes reported in south Florida may have occurred because southern Floridians have more exposure to environmental issues given the high-profile controversies surrounding the Everglades system and the Florida Keys. While respondents who lived closer to a saltwater body generally had higher EAC scores than respondents who lived farther away, these differences were not statistically significant.

## 5. MARINE RESOURCE ATTITUDES

### 5.1 Results for Total Sample

The responses to the marine resource attitude response items in the CRS are reported in Table 12. These responses reveal several serious concerns about Florida's coastal and marine resources. More than 75 percent agreed that *Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than they used to be*. More than one-half of the respondents strongly agreed with this statement. Similarly, one-half of the respondents strongly disagreed that *the coral reefs in the Florida Keys are as healthy today as they have ever been* and that *there are as many sea turtles living around Florida today than there ever were in the past*. In addition, more than 60 percent of the sample disagreed that *existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future*.

Table 12. Attitudes About Marine Resources

| Response Item | Strongly Disagree | Mildly Disagree | Mildly Agree | Strongly Agree | Don't Know or Not Available |
|---|---|---|---|---|---|
| Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be. | 3.5% | 10.1% | 26.4% | 51.6% | 8.4% |
| The coral reefs in the Florida Keys are as healthy today as they have ever been. | 50.0% | 23.4% | 7.8% | 4.4% | 14.4% |
| There are as many sea turtles living around Florida today as there ever were in the past. | 54.3% | 22.7% | 5.8% | 3.3% | 14.0% |
| Existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future. | 32.1% | 32.6% | 18.4% | 7.06% | 9.8% |

## 5.2 Comparison of Responses by Individual Socioeconomic Characteristics

A breakdown of respondents' attitudes about marine resources, by individual socioeconomic group, is reported in Tables 13 and 14. The responses are presented as mean attitude scores, not percentages, for sample subgroups. These mean attitude scores were calculated for each socioeconomic group by weighting the level of agreement as follows:

| | |
|---|---|
| strongly disagree | = -2; |
| mildly disagree | = -1; |
| don't know or not available | = 0; |
| mildly agree | = 1; and |
| strongly agree | = 2. |

Using this weighting schedule, the more positive (negative) the mean attitude score, the more respondents in the group agreed (disagreed) on average with each specific statement.

The superscripts A, B, C, and D that appear in the tables denote the results of statistical tests of the hypothesis that mean attitude scores for each group are the same. Mean attitude scores that have the same lettered superscript are *significantly different* at a 5 percent confidence level. Similarly, mean attitude scores that do not have the same letter or that have no superscript are not significantly different. The statistical significance of mean differences was determined with Tukey studentized range tests using SAS/STAT™ software. The Tukey test is appropriate for mean score comparisons between samples of unequal size with unequal variance (SAS Institute, Inc.).

The analysis of responses by age group shows that, in general, younger respondents expressed stronger attitudes about Florida's coastal and marine resources. There were no significant differences in responses among age groups regarding the health of Florida's coastal ecosystems and the level of state funding and regulations on programs to protect these resources. Most age groups agreed that coastal ecosystems are relatively worse off today and disagreed that existing funding and regulations for coastal protection are adequate. Younger respondents, however, disagreed more than the older age groups [65+] that *coral reefs in the Florida Keys are as healthy today as they have ever been* and that *there are as many sea turtles living around Florida today than there ever were in the past.*

The attitudes of males and females about the condition of Florida's coastal marine resources and existing environmental protection regulations were generally not significantly different. One exception was related to the current status of the state's sea turtle population. Females disagreed more, on average, that *there are as many sea turtles living around Florida today as there ever were in the past.*

The primary difference in marine resource attitudes among different ethnic groups had to do with the current state of coral reefs in the Florida Keys. Both black and Hispanic respondents disagreed less than whites that *the coral reefs in the Florida Keys are as healthy today as they have ever been.* No other significant variations in attitudes about marine resources were found among different ethnic groups.

Table 13. Attitudes About Marine Resources by Individual Socioeconomic Characteristics

| Response Item[1] | Sample Mean | Age | | | | Gender | | Ethnicity | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 18–24 | 25–44 | 45–64 | 65+ | Male | Female | White | Black | Hispanic | Other |
| Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be. | 1.13 | 1.10 | 1.11 | 1.15 | 1.16 | 1.12 | 1.13 | 1.12 | 1.14 | 1.09 | 1.17 |
| The coral reefs in the Florida Keys are as healthy today as they have ever been. | -1.07 | -.97 | -1.11$^{A}$ | -1.15$^{A}$ | -.89$^{A,B}$ | -1.07 | -1.06 | -1.13$^{A,B}$ | -.72$^{A}$ | -.79$^{B}$ | -.96 |
| There are as many sea turtles living around Florida today as there ever were in the past. | -1.19 | -1.26$^{A}$ | -1.26$^{B}$ | -1.24$^{C}$ | -.90$^{A,B,C}$ | -1.12$^{A}$ | -1.25$^{A}$ | -1.22 | -1.06 | -1.07 | -1.07 |
| Existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future. | -.64 | -.59 | -.66 | -.72 | -.48 | -.57 | -.70 | -.67 | -.42 | -.43 | -.71 |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same lettered superscript are significantly different.

Table 14. Attitudes About Marine Resources by Individual Socioeconomic Characteristics

| Response Item[1] | Education | | | Income | | | Years of Residency in Florida | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | no college | some college | post-college | <$20,000 | $20,000–50,000 | $50,000< | 1–5 | 6–10 | 11–20 | 21+ |
| Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be. | 1.05 | 1.17 | 1.14 | 1.16 | 1.13 | 1.13 | .92$^{A,B}$ | 1.10 | 1.16$^{A}$ | 1.20$^{B}$ |
| The coral reefs in the Florida Keys are as healthy today as they have ever been. | -.92$^{A,B}$ | -1.15$^{A}$ | -1.21$^{B}$ | -.87$^{A,B}$ | -1.12$^{A}$ | -1.23$^{B}$ | -.84$^{A,B}$ | 1.12$^{A}$ | -1.06 | -1.16$^{B}$ |
| There are as many sea turtles living around Florida today as there ever were in the past. | -1.11$^{A}$ | -1.27$^{A}$ | -1.17 | -1.09 | -1.25 | -1.18 | -1.01$^{A}$ | -1.22 | -1.15 | -1.27$^{A}$ |
| Existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future. | -.52$^{A}$ | -.69 | -.81$^{A}$ | -.51 | -.67 | -.73 | -.56 | -.65 | -.62 | -.73 |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same lettered superscript are significantly different.

Respondents' level of educational attainment appears to have influenced their attitudes about some coastal marine resources. Those with at least some college disagreed more on average than respondents with no college education that *the coral reefs in the Florida Keys are as healthy today as they have ever been.* Respondents with higher levels of education also disagreed relatively more with the statement that *existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future.*

Attitudes about marine resources were generally consistent across all income levels. In fact, the only significant variation in marine resource attitudes among income groups was related to the health of coral reefs. The lowest income group [<$20,000] disagreed less than upper and middle income groups that *the coral reefs in the Florida Keys are as healthy today as they have ever been.*

The length of residence in Florida was a significant factor in the way respondents viewed the current state of marine resources. Respondents who lived in Florida for a relatively long time [21+ years] exhibited a less optimistic view of the status of the state's marine resources. This group agreed more than relative newcomers to the state that *Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be.* They also disagreed relatively more that *the coral reefs in the Florida Keys are as healthy today as they have ever been* and that *there are as many sea turtles living around Florida today as there ever were in the past.* Despite the stronger attitudes about marine resources reported by longtime residents, there were no significant differences in attitudes about current environmental regulations and funding according to length of residency in Florida.

5.3 Results by Membership Characteristics

The attitudes about marine resources by political affiliation and level of environmental donations are reported in Table 15. There were clear differences in marine resource attitudes among various political party affiliations. Republican respondents agreed less than either Democratic or other political affiliations that *Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse off today than what they used to be.* Republican respondents also disagreed less than either Democratic or other political affiliations that *existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future.*

The previous analysis of environmental attitudes across different levels of environmental donation (Table 10) showed a significant relationship between the amount of donations and EAC score. Similarly, the responses for marine resources show that those who donate agreed more on average that *Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than they used to be* and disagreed more that *the coral reefs in the Florida Keys are as healthy today as they have ever been* and that *there are as many sea turtles living around Florida today as there ever were in the past.* Respondents who contributed to environmental groups also disagreed relatively more than noncontributors that *existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future.*

Table 15. Attitudes About Marine Resources by Membership Characteristics

| Response Item[1] | Political Party Affiliation | | | Environmental Donations | | |
|---|---|---|---|---|---|---|
| | Republican | Democratic | All Other | $0 | <$100 | $100+ |
| Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be. | 1.00$^{A,B}$ | 1.22$^{A}$ | 1.17$^{B}$ | 98$^{A,B}$ | 1.29$^{A}$ | 1.30$^{B}$ |
| The coral reefs in the Florida Keys are as healthy today as they have ever been. | -1.04 | -1.13 | -1.04 | -.97$^{A}$ | -1.12 | -1.19$^{A}$ |
| There are as many sea turtles living around Florida today as there ever were in the past. | -1.14 | -1.23 | -1.21 | -1.08$^{A,B}$ | -1.28$^{A}$ | -1.41$^{B}$ |
| Existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future. | -.50$^{A,B}$ | -.76$^{A}$ | -.68$^{B}$ | -.46$^{A,B}$ | -.80$^{A}$ | -.98$^{B}$ |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same lettered superscript are significantly different

## 5.4 Results by Geographic Characteristics

The attitudes about marine resources are reported by geographic characteristics in Table 16. The attitudes about marine resources were fairly consistent across Florida and were not influenced significantly by the distance that a respondent lives from saltwater. The only significant variation in marine resources attitudes by region was related to Florida's coastal ecosystems. Respondents in South Florida agreed more strongly on average than central or northern area respondents that *Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be.*

## 5.5 Relationship Between Attitudes About Marine Resources and the Level of Support for the New Environmental Paradigm

The environmental attitude composite (EAC) constructed for this study measures respondents' acceptance of the New Environmental Paradigm (NEP) on a scale of -12 to 12. As discussed in Section 4.1, respondents with relatively higher EAC scores should be more supportive of the NEP and should express attitudes in favor of environmental protection. The results of statistical tests of the hypothesis—that mean attitude scores for the marine resource response items are the same for the sample regardless of the EAC score—are also presented in this section.

Table 16. Attitudes About Marine Resources by Geographic Characteristics

| Response Item | Region | | | Miles from Saltwater | | |
|---|---|---|---|---|---|---|
| | North | Central | South | <5 | 5–10 | 10+ |
| Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be. | 1.02[A] | 1.08[B] | 1.29[A,B] | 1.12 | 1.15 | 1.12 |
| The coral reefs in the Florida Keys are as healthy today as they have ever been. | -1.03 | -1.07 | -1.12 | -1.13 | -1.04 | -1.06 |
| There are as many sea turtles living around Florida today as there ever were in the past. | -1.23 | -1.13 | -1.27 | -1.24 | -1.23 | -1.17 |
| Existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future. | -.54 | -.65 | -.70 | -.67 | -.76 | -.59 |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same lettered superscript are significantly different.

Four categories of responses were created based on the distribution of EAC scores for the sample to indicate the level of support for the NEP. For the EAC scale, the highest and lowest scores in the sample where 9 and -12, respectively. The four categories reflect the upper, lower, and two intermediate ranges of the EAC score distribution. Based on the grouping below, roughly 25 percent of EAC scores in the CRS sample appeared in each of the four NEP support ranges. The moderate support range encompasses both the mean and mode EAC scores for the sample.

| EAC Score Range | Level of Support for the NEP | % of Sample |
|---|---|---|
| Less than 0 | No support | 11.0 |
| 0 to 2 | Low | 14.6 |
| 3 to 6 | Moderate | 34.2 |
| 7+ | High | 40.2 |

The mean attitude scores for each marine resource attitude measure were significantly different across the four levels of support for the NEP (Table 17). The mean marine resource attitude scores also exhibit a consistent pattern. The higher the EAC score, the higher the level of concern for

Table 17. Attitudes About Marine Resources by Level of Support for the NEP

| Response Item[1] | Level of Support for the NEP | | | |
|---|---|---|---|---|
| | No Support | Low | Moderate | High |
| Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be. | .12[A] | .76[A] | 1.20[A] | 1.47[A] |
| The coral reefs in the Florida Keys are as healthy today as they have ever been. | -.34[A] | -.74[A] | -1.01[A] | -1.43[A] |
| There are as many sea turtles living around Florida today as there ever were in the past. | -.51[A] | -.80[A] | -1.20[A] | -1.51[A] |
| Existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future. | .49[A] | -.11[A] | -.69[A] | -1.11[A] |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same lettered superscript are significantly different.

marine resources. Specifically, those with relatively high EAC scores tended to agree more on average that *Florida's coastal ecosystems and habitat are much worse today than what they used to be*. Respondents with relatively high EAC scores also disagreed more on average that *the coral reefs in the Florida Keys are as healthy today as they have ever been* and that *there are as many sea turtles living around Florida today as there ever were in the past*. Finally, respondents who were more supportive of the NEP tended to disagree more on average that *existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems in the future*. These results demonstrate a high level of consistency between marine resource attitude responses and the EAC.

## 5.6 Relationship Between Attitudes About Marine Resources and Participation in Saltwater Recreation Activities

As reported in Section 3.2, roughly 30 percent of the respondents visited the beach, fished, scuba dived, or actively observed nature at least sometimes (Table 4). Participation in these saltwater recreation activities allows first-hand experience with Florida's coastal marine resources. Consequently, the frequency of participation in saltwater recreation activities may play a role in the formation of attitudes about the state's coastal and marine resources. We checked for this possibility by testing the hypothesis that respondents' attitudes about marine resources are the same regardless of their frequency of participation in saltwater recreation activities. The general level of participation in saltwater recreation activities for each respondent was measured with a saltwater activity composite (SWAC). The frequency of participation responses for each saltwater recreation activity were weighted using the following values, and a simple arithmetic sum was used to form a SWAC score for each respondent:

very often = 3;
often = 2;
sometimes = 1; and
never = 0.

The SWAC scores were then grouped into categories to represent three levels of participation in saltwater recreation activities:

| SWAC Range | Level of Participation | % of Sample |
|---|---|---|
| 0 to 3 | Low | 47.3 |
| 4 to 7 | Moderate | 40.6 |
| 8+ | High | 12.1 |

The mean attitude scores by SWAC grouping for the marine resource response items are presented in Table 18 along with the results of the hypothesis tests. There are notable differences in attitudes across the three participation levels. Specifically, higher levels of participation correspond with more sensitive attitudes about marine resources. Respondents who reported a high level of participation in saltwater recreation activities agreed more on average than those with low participation levels that *Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be.* The high level of participation group also tended to disagree more that *the coral reefs in the Florida Keys are as healthy today as they have ever been* and that *there are as many sea turtles living around Florida today as there ever were in the past.* The level of participation in saltwater recreation activities also contributed to significant differences in attitudes about the current state of environmental regulations and funding in Florida. Respondents who reported moderate saltwater recreation participation disagreed more than those with low participation that *existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future.*

## 5.7 Relationship Between Attitudes About Marine Resources and Support for Environmental Funding

The results reported in Section 3.3 indicated that nearly 60 percent of the CRS sample thought that spending on environmental protection in Florida should be increased (Table 5). To determine whether differences in state spending preferences may have been due to differences in respondents' attitudes about environmental and marine resources, we tested the hypothesis that respondents' attitudes about marine resources were the same regardless of their views about the current levels of state funding for environmental protection.

Mean sample scores for the marine resources attitude measures are presented in Table 19 according to respondent support for spending on environmental protection. The results show that concern about marine resources was significantly stronger among respondents who indicated that

Table 18. Attitudes About Marine Resources by Level of Participation in Saltwater Recreation Activities

| Response Item[1] | Level of Participation in Saltwater Recreation Activities | | |
|---|---|---|---|
| | Low | Moderate | High |
| Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be. | $1.03^{A,B}$ | $1.18^{A}$ | $1.29^{B}$ |
| The coral reefs in the Florida Keys are as healthy today as they have ever been. | $-.94^{A,B}$ | $-1.15^{A}$ | $-1.27^{B}$ |
| There are as many sea turtles living around Florida today as there ever were in the past. | $-1.03^{A,B}$ | $-1.30^{A}$ | $-1.42^{B}$ |
| Existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future. | $-.55^{A}$ | $-.73^{A}$ | -.71 |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same lettered superscript are significantly different.

Table 19. Attitudes About Marine Resources by Support for Environmental Funding

| Response Item[1] | Attitude about Current Funding for Environmental Programs | | | |
|---|---|---|---|---|
| | Increase | Same | Decrease | Don't Know or Not Available |
| Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be. | $1.31^{A,B}$ | $.91^{A}$ | $.61^{A}$ | $.89^{B}$ |
| The coral reefs in the Florida Keys are as healthy today as they have ever been. | $-1.15^{A,B}$ | -1.02 | $-.74^{A}$ | $-.68^{B}$ |
| There are as many sea turtles living around Florida today as there ever were in the past. | $-1.34^{A,B}$ | $-1.08^{A,B}$ | $-.74^{A}$ | $-.55^{B}$ |
| Existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future. | $-.95^{A,B}$ | $-.31^{A}$ | $.24^{A}$ | $-.21^{B}$ |

[1]The superscripts A, B, C, and D denote mean attitudes within a category that are significantly different at a 5 percent confidence level; that is, means with the same lettered superscript are significantly different.

state funding on environmental protection should be increased. Respondents who supported increased environmental spending tended to agree relatively more than others that *Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than they used to be*. These respondents also disagreed more strongly that *there are more sea turtles around Florida today than there ever were in the past* and that *the coral reefs in the Florida Keys are as healthy today as they have ever been*.

The mean response scores for the final marine resource response item is another indication that CRS respondents' attitudes about environmental and marine resources were consistent. Respondents who felt that funding levels for environmental protection should stay the same or increase expressed stronger disagreement that *existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future*—those for increased funding than respondents who said funding should stay the same. Respondents who thought that funding on environmental protection should be decreased agreed that *existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future*. These responses indicate a strong association between attitudes about marine resource protection and preferences for funding of environmental programs.

## 6. Summary and Conclusions

This report presented results from a statewide survey of 1,785 Floridians, using randomized telephone interviews. The survey questionnaire elicited information about respondents' participation in coastal recreation, their preferences for expenditures on various state programs, their attitudes about the environment in general, and their attitudes about specific marine resources. In addition, respondents where asked if they were familiar with national and state environmental issues. The majority of the those questioned agreed that they were very well-informed on both U.S. and Florida environmental issues. This suggests that Floridians have a knowledge base to draw upon when forming their attitudes and making decisions about the natural environment. An understanding of environmental attitudes can help in the design of education and communication programs and in the development of environmental policies.

Floridians' attitudes about the environment were measured using the well-known "New Environmental Paradigm" (NEP) response items originally developed by Dunlap and Van Liere (1978). The NEP represents an ecologically integrative view of humans and nature and rejects a purely anthropocentric world view. Support for the NEP is considered an indicator of concern about the environment. This analysis used response items based on two broad areas of environmental concern, the *Balance of Nature* and *Society's Relationship to Nature*. The NEP response items can be evaluated individually or as an index such as the Environmental Attitude Composite (EAC) reported in this analysis. Higher EAC scores indicate more support for the NEP and suggest more concern about environmental protection.

Overall, a large majority of respondents across the state expressed support for the NEP with only a small minority expressing strong conflicting opinions. The attitudes expressed were relatively

consistent across various socioeconomic, membership group, and geographic characteristics of the respondents. These results are consistent with previous studies, which indicated that a broad cross-section of Florida residents express strong support for efforts to protect the environment. But the results provide new information about differences in the intensity of attitudes between various groupings of individuals and the relationship between attitudes about the environment and specific marine resources.

Individuals with the highest EAC scores were typically white, Hispanic, or of other non-Black ethnic background. Black respondents had lower EAC scores than all other ethnic groups. Also, female respondents had higher EAC scores than male respondents. Younger respondents generally expressed higher levels of concern about *Society's Relationship to Nature*, but there were no statistically significant differences in overall EAC scores across age groups. Responses from other groupings of individuals based on characteristics such as income, ethnicity, education, and years of residency in Florida also did not reveal significant differences in environmental attitudes.

On the other hand, there were significant differences in environmental attitudes by political party and environmental group affiliations. Respondents who considered themselves to be Democrats, Independents, or to have other political party affiliation had higher EAC scores than Republicans. These differences were consistent for most of the response items related to the *Balance of Nature* and *Society's Relationship to Nature*. Similarly, individuals who contributed to environmental groups or causes expressed significantly stronger attitudes about the environment than individuals who did not contribute. These differences were significant across all response items.

The geographic location of respondents provided mixed results as a source of differences in environmental attitudes. Respondents who lived in the southern part of Florida expressed stronger attitudes about the environment than respondents in North Florida while respondents in Central Florida were not statistically different than respondents in South Florida. The primary difference between North and South Floridians was related to attitudes about the *Balance of Nature*. South Floridians' exposure to media reports about the Everglades ecosystem and ongoing restoration efforts may have contributed to their higher levels of concern about the environment. Also, individuals who lived within five miles of the coast expressed more concern about the environment than individuals who lived inland. But these differences between coastal and inland residents' attitudes were not statistically different.

On environmental issues relating to specific marine resources, a large majority of Floridians also consistently expressed high levels of concern. More than 75 percent of the respondents believed that coastal habitats, coral reefs, and sea turtle populations are in worse condition now than they were in the past. Similarly, more than two-thirds of the respondents did not believe that regulations and funding are adequate to protect the state's coastal ecosystems and habitats. These attitudes, however, varied across the socioeconomic, membership group, and geographic characteristics of the respondents.

On the issue of the health of coastal ecosystems, the major differences in attitudes were related to the respondents' years of residency in Florida, their membership groups, and their location in Florida. Residents who lived in Florida more than 10 years expressed higher levels of concern about the current health of coastal ecosystems than new residents. These differences exist because new residents lack a sufficient time frame to make long-term comparisons and may not have personally observed changes in coastal areas associated with population growth. This explanation is consistent with newer residents reporting that they were not as well-informed on Florida environmental issues as longer-term residents. Respondents who considered themselves Democrats, Independents, or as having other political party affiliation generally expressed more concern about the health of coastal ecosystems than Republican respondents. Similarly, respondents who made environmental donations were more concerned about coastal habitats, but the level of concern was not directly related to the amount of donations. Also, respondents in South Florida were more concerned about coastal habitats than respondents in any other region of the state.

Concern about the health of coral reefs varied across many of the major groupings considered in this analysis. Respondents who were more concerned about the health of coral reefs were generally between 25 and 64 years of age, had household income levels over $20,000, were white, had lived in Florida for more than five years, had higher levels of education, and made donations to environmental groups. Other groupings of respondents by political party affiliation, gender, and location did not reveal significantly different levels of concern about coral reefs.

The primary differences between respondents' beliefs about sea turtle populations were related to age, gender, years of residency, education, and environmental donations. Individuals who were less than 65 years of age expressed higher levels of concern about sea turtles. Similarly, individuals who had lived in Florida more than five years expressed more concern than new residents. Female respondents were also more concerned about sea turtle populations than males. And, as with most of the environmental attitude indicators, individuals who contributed to environmental causes expressed higher levels of concern about sea turtle populations.

On the issue of whether existing regulations and funding are adequate to protect the state's coastal resources, the level of concern varied by gender, education, political affiliation, and environmental donations. Females, more highly educated respondents, Democrats and other non-Republicans, and individuals who made environmental donations expressed more concern that existing regulations and funding were not adequate.

Concerns about coastal resources were also directly and consistently related to respondents' level of support for the NEP. While many Floridians share an ecologically integrative view of humans and nature, there are clear differences in the intensity with which individuals maintain this view. Individuals whose responses resulted in high EAC scores expressed higher levels of concern on each question about the current health of coastal resources. This strong association between general environmental attitudes and attitudes about marine resources suggests that individuals maintain a broad world view that they apply to specific environmental problems. Rather than being simple idiosyncratic feelings, environmental attitudes are powerful reflections of personal philosophies and values that influence people's views on important issues.

Attitudes about marine resources are also shaped by participation in various coastal recreation activities. In general, individuals who more avidly participated in coastal recreation activities expressed higher levels of concern about the current status of marine resources. This result suggests that attitudes may be shaped by experiences and personal interests and are not determined solely by broad cultural influences.

Lastly, respondents' attitudes about marine resources were also consistently related to attitudes about funding for environmental programs. Respondents who desired increased funding for environmental programs registered stronger mean attitude scores for each of the marine resource issues addressed in this study. Similarly, individuals who preferred to decrease funding for environmental programs were relatively less concerned about marine resources. The consistency of the association between these responses lends support to the proposition that individuals rationally draw upon their environmental attitudes when considering public policy issues.

In conclusion, this study has demonstrated that Floridians are broadly committed to an "environmentally oriented world view" that, along with personal interests and experiences, influence their perceptions of coastal resource problems. These attitudes and perceptions, however, are not homogeneous but vary in intensity across various segments of the population. While many clear and direct associations between attitudes and socioeconomic characteristics were identified, it is important to note that attitudes may be only weakly associated with actual behavior and policy choices. Social psychologists have developed elaborate theories of individual behavior, and attitudes are but one part of a complicated process (for example, Ajzen). As DeHaven-Smith observes, the public's perceptions of remedies for an environmental problem may be influenced by the following:

> . . . political values, beliefs about the costs of (the remedy), considerations of fairness, and so on. Different considerations are probably brought to bear on different environmental concerns by different issue publics or categories of individuals . . ..We need to determine when environmental concerns lead to social action. (pp. 13)

This report has described the breadth and diversity of Floridians' concerns about the environment and specific marine resources. The manner in which these attitudes translate into specific actions and policy choices will be determined over the ensuing years.

# APPENDIX - UNIVERSITY OF FLORIDA COASTAL RESOURCES SURVEY

>q1< First, I am going to ask you a few questions about where you live.

What county do you live in?

| | | | |
|---|---|---|---|
| <1> Alachua | <2> Baker | <3> Bay | <4> Bradford |
| <5> Brevard | <6> Broward | <7> Calhoun | <8> Charlotte |
| <9> Citrus | <10> Clay | <11> Collier | <12> Columbia |
| <13> Dade | <14> De Soto | <15> Dixie | <16> Duval |
| <17> Escambia | <18> Flagler | <19> Franklin | <20> Gadsden |
| <21> Gilchrist | <22> Glades | <23> Gulf | <24> Hamilton |
| <25> Hardee | <26> Hendry | <27> Hernando | <28> Highlands |
| <29> Hillsborough | <30> Holmes | <31> Indian River | <32> Jackson |
| <33> Jefferson | <34> Lafayette | <35> Lake | <36> Lee |
| <37> Leon | <38> Levy | <39> Liberty | <40> Madison |
| <41> Manatee | <42> Marion | <43> Martin | <44> Monroe |
| <45> Nassau | <46> Okaloosa | <47> Okeechobee | <48> Orange |
| <49> Osceola | <50> Palm Beach | <51> Pasco | <52> Pinellas |
| <53> Polk | <54> Putnam | <55> St.Johns | <56> St.Lucie |
| <57> Santa Rosa | <58> Sarasota | <59> Seminole | <60> Sumter |
| <61> Suwannee | <62> Taylor | <63> Union | <64> Volusia |
| <65> Wakulla | <66> Walton | <67> Washington | <68> Out of State |
| <-8> Don't Know | <-9> Not Available | | |

>q2< Are you a Florida resident, or do you live in Florida more than six months a year?

<1> yes
<2> no [goto 999]
<-8> Don't know
<-9> Not available

>q2a< Were you born in Florida?

<1> yes [goto q3]
<2> no
<-8> Don't know
<-9> Not available

>q2b< How many years have you lived in Florida?

<1–100>
<-8> Don't know
<-9> Not available

>q3< About how many miles is it from your home to the nearest body of saltwater, such as the ocean or a coastal bay?

<1–300>
<-8> Don't know
<-9> Not available

>q4< I am going to read a short list of outdoor recreational activities that you, or someone in your household, may have enjoyed here in Florida during the past three years. For each activity, please tell me whether people in your household participated Very Often, Often, Sometimes, or Never.

Swimming or sunbathing at the beach?

<1> Very often
<2> Often
<3> Sometimes
<4> Never
<-8> Don't know
<-9> Not available

>q5< Saltwater fishing?

<1> Very often
<2> Often
<3> Sometimes
<4> Never
<-8> Don't know
<-9> Not available

>q6< Snorkeling or scuba diving?

<1> Very often
<2> Often
<3> Sometimes
<4> Never
<-8> Don't know
<-9> Not available

>q7< Boating activities in saltwater, other than fishing (for example, sailing, skiing)?

<1> Very often
<2> Often
<3> Sometimes
<4> Never
<-8> Don't know
<-9> Not available

>q8< Nature study trips to observe birds or other wildlife?

<1> Very often
<2> Often

<3> Sometimes
<4> Never
<-8> Don't know
<-9> Not available

>q9< Now I'm going to ask you some questions about spending by the State of Florida. Please bear in mind that eventually all government spending comes out of the taxes you and other Floridians pay. As I mention each program area, tell me whether the amount now being spent should be increased, kept at the present level, or decreased.

Do you think that state spending should increase, stay at the present level, or decrease for programs to combat crime?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q10< How about for public schools (K-12)?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q11< To protect the environment?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q12< How about state spending for industrial development and attracting new industry?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q13< To acquire land to protect endangered species?

<1> increase
<2> same
<3> decrease

<-8> Don't know
<-9> Not available

>q14< For healthcare service?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q15< How about spending for state colleges and universities?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q16< For state highways and road systems?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q17< For low-income families with children?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q18< How about state spending for the elderly?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q19< For state prisons and correctional facilities?

<1> increase
<2> same
<3> decrease

<-8> Don't know
<-9> Not available

>q20< How about state spending to promote tourism?

<1> increase
<2> same
<3> decrease
<-8> Don't know
<-9> Not available

>q21< Of those program areas that you feel should receive increased spending, which one would you give as your top priority for the increase?

<1> programs to combat crime
<2> public schools (K-12)
<3> protect the environment
<4> industrial development and to attract new industry
<5> acquire land to protect endangered species
<6> healthcare service
<7> state colleges and universities
<8> state highways and road systems
<9> low-income families with children
<10> elderly
<11> prisons and correctional facilities
<12> promote tourism
<13> No increased spending on anything
<-8> Don't know
<-9> Not available

>q22a< The next stage of our study focuses on some proposals for new state programs. The State of Florida does not want to undertake these programs unless the public supports them. One way to do this is to give people like you information about the programs so that you can make up your own mind. To be sure that you fully understand what these programs would do, researchers at the University of Florida will send you a short information booklet, and I will call you back at a convenient time for a brief interview on just these programs. We realize that these surveys take time, but we don't have enough money in our budget to show everyone how much we appreciate their time. Therefore, we will have a drawing to select 10 people from those who complete the second survey, and we will send them a cashier's check for $50.

[goto q23a]

>q22b< The next stage of our study focuses on some proposals for new state programs. The State of Florida does not want to undertake these programs unless the public supports them. One way to do this is to give people like you information about the programs so that you can make up your own mind. To be sure that you fully understand what these programs would do, researchers at the

University of Florida will send you a short information booklet, and I will call you back at a convenient time for a brief interview on just these programs. We realize that these surveys take time, but we don't have enough money in our budget to show everyone how much we appreciate their time. Therefore, we will have a drawing to select 10 people from those who complete the second survey, and we will send them a cashier's check for $100.

[goto q23a]

>q22c< The next stage of our study focuses on some proposals for new state programs. The State of Florida does not want to undertake these programs unless the public supports them. One way to do this is to give people like you information about the programs so that you can make up your own mind. To be sure that you fully understand what these programs would do, researchers at the University of Florida will send you a short information booklet, and I will call you back at a convenient time for a brief interview on just these programs. We realize that these surveys take time, but we don't have enough money in our budget to show everyone how much we appreciate their time. Therefore, we will have a drawing to select 10 people from those who complete the second survey, and we will send them a cashier's check for $250.

>q23a< Would you be willing to participate in the second part of the survey to provide your opinions on these proposals for new state programs?

<1> yes
<2> no [goto q38]
<-8> Don't know [goto q38]
<-9> Not available [goto q38]

>q24< May I have your first and last name? [allow 30]

_____

>q24a< May I have your address [allow 30]

_____

>q24b< INTERVIEWER ONLY - NEED A SECOND LINE FOR THE ADDRESS?

<1> yes
<2> no [goto q24d]

>q24c< May I have the rest of your Address (apartment number, etc.)[allow 30]

_____

>q24d< May I have the name of the city? [allow 20]

_____

>q24e< What is your Zip Code in Florida (5-digit) ?

<32000-35000>
<-8> Don't know
<-9> Not available

>q25< Thank you, before we continue let me verify your address.

<1> Address OK [goto q26]
<2> Names need adjustment [goto q24]
<3> Address1 needs adjustment [goto q24a]
<4> Address2 needs adjustment [goto q24c]
<5> City needs adjustment [goto q24d]
<6> Zip code needs adjustment [goto q24e]
<7> More than one item needs adjustment [goto q24]

>q26< Now I have a few more questions to complete this survey. For each of the following statements, please indicate the extent to which you agree or disagree. Please use a four-point scale, where 1 is strongly disagree, 2 is mildly disagree, 3 is mildly agree, and 4 means strongly agree.

The first statement is: I consider myself to be very well-informed on national environmental issues.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q27< I consider myself to be very well-informed on environmental issues here in Florida.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q28< The balance of nature is very delicate and is easily upset.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q29< When people interfere with nature, it often produces disastrous results.

IF NECESSARY, do you strongly agree, mildly agree, mildly disagree, or strongly disagree?

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q30< Florida's coastal ecosystems and habitats that support fisheries and other marine animals are much worse today than what they used to be.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q31< People have the right to change the natural environment to suit their needs.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q32< Mankind is severely abusing the environment.

IF NECESSARY, do you strongly agree, mildly agree,
mildly disagree, or strongly disagree?

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q33< The coral reefs in the Florida Keys are as healthy today as they have ever been.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q34< Mankind was created to rule over the rest of nature.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q35< Plants and animals exist primarily to be used by people.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q36< There are as many sea turtles living around Florida today as there ever were in the past.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q37< Existing environmental regulations and funding for environmental programs in Florida are adequate to protect the state's coastal ecosystems and habitats in the future.

<1> strongly disagree
<2> mildly disagree
<3> mildly agree
<4> strongly agree
<-8> Don't know
<-9> Not available

>q38< Finally, these last questions will help us analyze your answers along with the answers of others.

Have you voted in a state or local election within the past three years?

<1> yes
<2> no
<-8> Don't know
<-9> Not available

>q39< What was the highest grade or year in school you completed?

<1> 0–8 years
<2> some high school
<3> completed high school
<4> some college
<5> completed college
<6> graduate or professional school
<-8> Don't know
<-9> Not available

>q40< What year were you born?

<0–80>
<-8> Don't know
<-9> Not available

>q41< Including yourself, how many people live in your household?

<1–20>
<-8> Don't know
<-9> Not available

>q42< How many children under age 18 do you have? (Either living with or apart)

<0-10>
<-8> Don't know
<-9> Not available

>q43< How would you describe your racial or ethnic background?

<1> White
<2> Black
<3> Hispanic
<4> Other
<-8> Don't know
<-9> Not available

>q44< Generally speaking, do you usually think of yourself as a Republican, a Democrat, an Independent, or what?

<1> Republican [goto q44a]
<2> Democrat [goto q44b]
<3> Independent [goto q45]
<4> Other party [goto q45]
<5> No preference [goto q45]
<-9> Not available [goto q45]

>q44a< Would you consider yourself a strong Republican or a not very strong Republican?

<1> Strong
<2> Not very strong
<-8> Don't know
<-9> Not available

[goto q45]

>q44b< Would you consider yourself a strong Democrat or a not very strong Democrat?

<1> Strong
<2> Not very strong
<-8> Don't know
<-9> Not available

>q45< Do you make donations to environmental groups?

<1> Yes [goto q45a]
<2> No
<-8> Don't know
<-9> Not available

[goto q46]

>q45a< On average, how much do you donate annually?

<1> Less than $100
<2> Between $100 and $500
<3> More than $500
<-8> Don't know
<-9> Not available

>q46< Now consider your family's household income from all sources. As I read a list, please stop me when I get to the income level that best describes your household income in 1995.

<1> less than $10,000
<2> $10,000 to $20,000
<3> $20,000 to $30,000
<4> $30,000 to $40,000
<5> $40,000 to $50,000
<6> $50,000 to $60,000
<7> $60,000 to $80,000
<8> $80,000 to $100,000
<9> more than $100,000
<-8> Don't know
<-9> Not available

>q47< As we discussed earlier, you will be receiving a booklet for the second part of this survey in about a week, and we will call you back in about 10–14 days. Please keep the booklet near your phone, so it will be nearby when we call back.

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FLORIDA



Florida Sea Grant College Program
University of Florida
P.O. Box 110409
Gainesville, Fl 32611-0409
(352)392-2801

or check out our home page at:

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