Linking the Economy and Environment of Florida Keys/Florida Bay

A SOCIOECONOMIC ANALYSIS OF THE RECREATION ACTIVITIES OF MONROE COUNTY RESIDENTS IN THE FLORIDA KEYS/KEY WEST

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THE FLORIDA KEYS & KEY WEST
Come as you are
Monroe County Tourist Development Council

The Nature Conservancy
Florida Keys Initiative

The University of Georgia
College of Agricultural and Environmental Sciences
Department of Agricultural and Applied Economics

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Preface

This is the fourth in a series that is being developed as part of the project entitled "Linking the Economy and Environment of the Florida Keys/Florida Bay." The overall project objectives are to 1) estimate the market and nonmarket economic values of recreation/tourism uses of the marine resources of the Florida Keys/ Florida Bay ecosystem; 2) provide a practical demonstration of how market and nonmarket economic values of an ecosystem can be considered an integral component of the economy of a region when formulating sustainable development objectives and policies; and 3) foster cooperative management processes.

To achieve the above objectives it is necessary to develop information about the users of marine resources, the way users interact with resources (their recreation activities), the amount and pattern of spending associated with their uses, and users' assessments of natural resources, facilities and services. It is also important to develop the necessary tools to analyze the information in practical applications.

The project provided for the design and implementation of a survey of both residents and nonresidents of Monroe County with respect to their recreational activities in the Florida Keys/Florida Bay Area, and analyses of the data collected to provide the following:

- Estimation of the number of residents and visitors to the Florida Keys and Florida Bay by type of use, along with estimation of the extent of use by geographic areas (Upper Keys, Middle Keys, Lower Keys, Key West, and access to Florida Bay through Everglades National Park).
- Development from survey data of profiles of residents and visitors including age, race/ethnicity, sex, income, education, place of residence, activity participation and spending in the local and regional economy.
- Estimation of the economic contribution (sales/output, income, employment) of both resident and visitor uses of the Florida Keys and Florida Bay to the Monroe County economy and the South Florida regional economy.
- Estimation of the net economic user value of marine resources in the Florida Keys and Florida Bay.
- Importance and satisfaction ratings with respect to natural resources, facilities, and services and an assessment of the importance of water quality and abundance and diversity of sealife as attractions for visitors to the area.

The project is being conducted through a unique partnership between federal and local agencies and a private nonprofit organization. Two offices within the National Oceanic and Atmospheric Administration (NOAA): The Office of Ocean Resources Conservation and Assessment, Strategic Environmental Assessments Division and the Office of Ocean and Coastal Resource Management, Sanctuaries and Reserve Division, Florida Keys National Marine Sanctuary; The Nature Conservancy, Florida Keys Initiative (TNC); and The Monroe County Tourist Development Council (TDC) have entered into a cooperative agreement. These are the "funding partners."

The actual conduct of the project is done by the "working partners". NOAA's Strategic Environmental Assessments Division is the lead working partner and has an interagency agreement with the U.S. Forest Service's Southern Forest Research Station, Outdoor Recreation and Wilderness Assessment Group to conduct the survey of visitors to the Florida Keys and Florida Bay area, and to jointly conduct economic analyses of the data. The U.S. Forest Service has a cooperative agreement with the University of Georgia's Environmental and Resource Assessment Group and the Department of Applied and Agricultural Economics to conduct the visitor survey and to provide an economist to assist in estimating the economic contribution of both resident and visitor uses of the Florida Keys and Florida Bay Area. The University of Georgia has a cooperative agreement with the Bicentennial Volunteers, Inc. to conduct all on-site interviews in the visitor survey. Florida State University's Policy Sciences Program, Survey Research Center conducted the survey of residents of Monroe County under contract to NOAA's Strategic Environmental Assessments Division.

This report provides the results of the survey of residents of Monroe County. Information was collected on residents recreation activity in both the Florida Keys and in the Florida Bay portion of Everglades National Park. However, only the information related to residents of Monroe County's recreation activity in the Florida Keys is reported here. The information related to their activities in Everglades National Park is still being

assessed. If this information will support reliable estimates for the Florida Bay portion of Everglades National Park it will be included in future reports.

How to Use this Report

The report is divided into four Chapters plus an appendix containing more detailed tabular summaries of the data presented in each Chapter. Summaries of key features of the data are presented in each chapter and significant differences are highlighted. By significant differences, it is meant that formal statistical tests have been performed and the differences highlighted are statistically different. The details of these tests are not presented but are available from the authors on request. At the end of each section of each chapter, a list of appendix tables are presented that include full details on the information summarized in the section. Users are guided to these tables for much more detail on the particular topic covered in the section. There are numerous appendix tables in this report. The appendix tables serve as a statistical abstract for residents of the Florida Keys and should serve as a handy reference tool.

Chapter 1 of this report provides brief descriptions of the sampling methodologies used, estimation methods, and socioeconomic profiles of the residents of Monroe County. Participants and nonparticipants in outdoor recreation are compared. The reader is referred to a technical appendix for details on the sampling methods and sample weighting procedures used. Chapter 2 provides detailed information on participation in 66 detailed recreation activities and intensity of use for 37 activities across four regions of the Florida Keys. Chapter 3 provides detailed spending profiles by residents related to the recreation activities and provides estimates of the economic contribution to Monroe County in terms of sales, income and employment. Care is taken here to only include the "export" portion of the resident population in order to avoid double-counting the economic contribution of residents spending that is dependent on the tourist spending. Chapter 4 provides a summary and easy to use interpretive tool for the information collected on residents importance and satisfaction ratings for 25 natural resource attributes, facilities and services in the Florida Keys.

Double-counting. It is important to note that care must be taken in interpreting many of the estimates provided here with respect to recreation activity participation. For example, it is not appropriate to add the number of residents that did recreation activities in the Upper Keys, Middle Keys, Lower Keys, and Key West to arrive at the total number of residents that did activities in the entire Florida Keys. The reason is that many residents engage in recreation activities in multiple regions. Estimates of the number of residents that participate in outdoor recreation in the Florida Keys, that eliminates double-counting, have been provided. You also cannot add the number of participants in two different recreation activities to get the total number of participants that did both those activities. Again, the reason is that residents engage in more than one activity. Forty-one (41) aggregated activities were formed from the original list of 66 activities. These 41 activities contain no double-counting. So the estimates of the total number of residents that participated in ***all snorkeling*** is less than that obtained by adding the number of participants in ***snorkeling from a boat and snorkeling from shore.*** This type of double-counting has been eliminated from the reported estimates.

This report, as well as the other reports in this series, are intended for all people involved in planning, managing or providing natural resources, facilities and services to residents and visitors to the Florida Keys/Key West. Even though a great deal of information is presented in these reports, the data bases from which these reports were generated are much richer in content. We encourage users to explore further this rich source of information by making special requests or obtaining the data bases and documentation themselves. The visitor data and documentation is already available on CD-ROM. The resident data and documentation will be available in September 1997.

Other Reports Available

Visitor Profiles: Florida Keys/Key West
Economic Contribution of Recreating Visitors to the Florida Keys/Key West
Importance and Satisfaction Ratings by Recreating Visitors to the Florida Keys/Key West
Technical Appendix: Sampling Methodologies and Estimation Methods Applied to the Florida Keys/Key West Visitors Survey

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Reports Forthcoming

Nonmarket Economic User Values of the Florida Keys/Key West
Technical Appendix: Sampling Methodologies and Estimation Methods Applied to the Survey of Residents of Monroe County

World Wide Web Site

A world wide web site has been established that contains a project background along with all the reports generated in the project in PDF file format. The site address is

http://www-orca.nos.noaa.gov/projects/econkeys/econkeys.html

The site also provides links to the Monroe County Tourist Development Council site where information can be obtained on lodging, restaurants, and recreation facilities and services. There is also a link to the Florida Keys National Marine Sanctuary site. You can also place orders for any of the project reports from this site.

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Chapter 1.

Sampling Methodologies, Estimation Methods, and Profiles of Monroe County Residents

Survey Sampling Methods

In 1996, Florida State University's, Policy Sciences Program, Survey Research Center conducted a survey of Monroe County residents.[1] The survey used a combination telephone and mail back set of samples. The telephone sample was selected using the random digit dialing method. During the July 8, 1996 to November 21, 1996 period, 4,455 calls were made to eligible households. About 66 percent completed the telephone survey (2,936 households). To be eligible for the survey, a person had to be a permanent resident of Monroe County and had to be at least 16 years of age. Only people living in households were eligible. According to the U.S. Bureau of the Census's 1994 Current Population Survey, 98 percent of Monroe County's population lived in households, while the other two percent lived in group quarters. Among those age 16 or older, the respondent in a household was selected for the interview using the "birthday rule". The "birthday rule" selects the person in the household that last celebrated their birthday.

The telephone survey gathered information on whether the respondent participated in any outdoor recreation activities in either the Florida Keys or Everglades National Park during the past 12 months. The response to this question was used to select the sub-sample eligible to receive a mail back survey questionnaire.

The telephone survey also included a socioeconomic profile of all residents, age 16 or older, (See Figure 1.1). The socioeconomic profile provided for the comparison of the telephone sample with U.S. Census Bureau data for Monroe County.

The mail back portion of the survey was conducted between August 8, 1996 and December 19, 1996. Three follow-up efforts (two post card reminders and a full survey package) were conducted. The mail follow-up included information on recreation activity participation in 66 activities and intensity of use (days of activity) for 37 activities in four regions of the Florida Keys (Upper Keys, Middle Keys, Lower Keys, and Key West, see Figure 1.2 pg. 4).[2] In addition, detailed information was obtained on spending for outdoor recreation activities in Monroe County while on their "last trip or outing", importance and satisfaction ratings for 25 natural resource attributes, facilities, and services, and for 16 questions used to construct the "environmental concern index" (Figure 1.1).

The follow-up mail survey was sent to only those that did any outdoor recreation activities in the Florida Keys and/or Everglades National Park during the past 12 months (82.29% of those completing the telephone survey or 2,416 households) and that agreed to participate in the mail survey and provided their name and address (82.86% of those that participated in outdoor recreation activities or 2,001 households). Respondents were sent a questionnaire, a map showing the four regions of the

Figure 1.1. Monroe County Residents Survey

Telephone Survey N=2936	Mailback Survey N=632
Population: All Monroe County Households Sample: 2,936 Monroe County Households	Population: All Monroe County Residents that participated in any outdoor recreation activities in the Florida Keys during the past 12 months Sample: 632 Monroe County Residents that participated in outdoor recreation activities in the Florida Keys during the past 12 months and returned the mailback survey
• Participation in any outdoor recreation activites in either the Florida Keys or Everglades National Park during the past 12 months	• Participation in 66 activities in four regions of the Florida Keys
• Participation in any outdoor recreation activities in Florida Keys During the past 12 months	• Intensity of use (days of activity) for 37 activities in four regions of the Florida Keys
• Participation in any outdoor recreation activities in Everglades National Park during the past 12 months	• Expenditures on outdoor recreation in Monroe County
• Participation in any activities in Florida Bay portion of Everglades National Park during the past 12 months	• Importance and satisfaction ratings of facilities and natural resource attributes in Florida Keys
• Profile of Residents (age, race/ethnicity, sex, household income, zip code of residence, employment status, education level, household size, years lived in Monroe County, work outside Monroe County, access to waterfront property, own a boat)	• Environmental Concern Index
• Ratings of Quality of life in Monroe County	
• Primary reason for locating in Monroe County	

Florida Keys, and an activity list with the 66 recreation activities. About 32 percent or 632 households returned the mail back questionnaires. However, not every questionnaire was fully completed. Table 1.1 shows that 582 completed the activity section, 587 completed the expenditure section, 589 completed the importance and satisfaction section, and 613 completed the 16 questions used to construct the environmental concern index.

Table 1.1. Resident Survey Response Rates

Telephone Survey	Number Households	Response Rate (%)
Calls to eligible households	4,455	N/A
Completed interviews	2,936	66
Participated in outdoor recreation	2,415	82
Agreed to receive mailback	2,001	83
Mail Survey		
Returned completed questionnaire	632	32
Completed activity section	582	29
Completed expenditure section	587	29
Completed Importance/Satisfaction	589	29
Completed Environmental Concern	613	31

Sample Weighting

Telephone Survey. Sample weighting was required because of the potential for non-response bias. Only 66 percent of the eligible households completed the telephone survey. Most telephone surveys get participation rates around 70 percent, but this has been declining in recent years due to the rise of the use of answering machines to screen calls. Relatively low response rates do not necessarily mean that non-response bias exists, but it does increase the probability that the problem exists. To address this issue, the U.S. Bureau of Census's 1990 Census and 1994 Current Population Survey (CPS) were compared with the 1996 FSU Survey profiles for sex, age, race/ethnicity, education, household income, and household size (Table 1.2).

Table 1.2. Socioeconomic Profile of Residents of Monroe County

Characteristic	1990 Census	1994 Census CPS [1]	1996 FSU Survey (unweighted)	1996 FSU Survey (weighted) [2]
SEX				
Male	52.74	52.46	50.4	50.1
Female	47.26	47.54	49.6	49.9
AGE				
16-24	11.18	11.24	9.4	12.7
25-44	41.61	41.22	43.3	40.4
25-64	28.26	28.67	33.8	31.3
65+	18.95	18.87	13.6	15.6
RACE/ETHNICITY				
White Not Hispanic	81.62	80.11	85.6	82.0
Black Not Hispanic	4.99	5.22	3.6	5.2
Hispanic	12.28	13.40	7.5	9.1
Amer. Indian, Eskimo, Aleut	0.30	0.34	0.8	0.9
Asian/Pacific Islander	0.76	0.93	0.7	0.7
Other	0.05	0.00	1.8	1.9
EDUCATION				
8th grade or less	7.22	N/A	1.9	7.1
9th - 11th grade	13.38	N/A	6.9	13.5
High school graduate	29.75	N/A	27.3	29.8
13 - 15 years	30.69	N/A	29.1	30.7
College graduate	12.53	N/A	24.6	12.5
Graduate school	6.43	N/A	10.1	6.4
HOUSEHOLD INCOME				
Less than $5,000	5.11	N/A	3.2	5.3
$5,000 - $9,999	6.96	N/A	3.6	4.7
$10,000 - $14,999	9.49	N/A	6.0	7.0
$15,000 - $19,999	10.11	N/A	6.9	7.7
$20,000 - $24,999	9.92	N/A	9.0	9.7
$25,000 - $29,999	9.43	N/A	10.5	11.2
$30,000 - $39,999	15.30	N/A	14.5	14.2
$40,000 - $49,999	10.13	N/A	12.7	11.6
$50,000 - $59,999	7.16	N/A	10.9	9.7
$60,000 - $100,000	10.02	N/A	14.7	12.6
Greater than $100,000	6.36	N/A	7.9	6.3
HOUSEHOLD SIZE (mean)	2.24	2.24	2.39	2.45
Work Outside Monroe	6.64	6.64	7.6	6.6

1. U.S. Bureau of the Census 1994 Current Population Survey (CPS)
2. Weighted for education (see text).

There were significant differences between the Census data and the FSU Survey, especially for race/ethnicity, education and household income. Residents with higher education levels and household income had higher response rates. "Blacks not Hispanic" and "Hispanic" residents had lower response rates. Several methods, including two multivariate weighting methods, were tested for adjusting the survey data. The method that yielded profiles from the telephone survey most similar

to the Census data was that developed using the sample weight for education level only (last column of Table 1.2).

After sample weighting, the Hispanic population still appears to be under represented. However, much of this might be accounted for in the "Other Category" for race/ethnicity. In reviewing the Census data for Monroe County, it was discovered that all those that responded to the other category in the 1990 Census also said they were of Hispanic descent.

Non-response Bias - Telephone Survey. The telephone survey yielded a sample that was significantly different from the general population of Monroe County for several socioeconomic factors. If these factors also are related to question response, then the potential for non response bias exists. Table 1.3 presents a comparative profile of those that did and did not participate in outdoor recreation activities in the Florida Keys. There are significant differences for sex, age, race/ethnicity, education, household income, employment status, and years lived in Monroe County. This suggests the possibility of non response bias. The telephone sample was adjusted to minimize non response bias by sample weighting. The impact of non response bias can be seen by comparing estimates of the participation rate with and without sample weighting. Without sample weighting, the estimate of the percent of Monroe County residents that participated in outdoor recreation in the Florida Keys was 82.2 percent versus the with sample weighting estimate of 77 percent.

Mail Survey. The mail survey was more complicated than the telephone portion of the survey in that survey non-response could

Table 1.3. Comparative Profiles of Participants and Nonparticipants in Recreation

Characteristic	Participated in Recreation in Keys	
	No	Yes
SEX		
Male	39.0	52.7
Female	61.0	47.3
AGE (age 16 and older)		
16-24	12.2	13.2
25-44	21.2	46.8
45-64	29.6	31.3
65+	36.9	8.7
Mean	53.8	42.1
Median	54.0	42.0
RACE/ETHNICITY		
White Not Hispanic	68.3	86.9
Black Not Hispanic	12.5	2.6
Hispanic	15.3	7.0
Amer. Indian, Eskimo, Aleut	0.4	0.9
Asian/Pacific Islander	1.4	0.5
Other	2.2	2.1
EDUCATION		
8th grade of less	20.9	3.0
9th - 11th grade	20.8	11.1
High school graduate	31.8	28.0
13 - 15 years	17.0	36.1
College graduate	6.8	14.6
Graduate school	2.7	7.2
HOUSEHOLD INCOME		
Less than $5,000	14.6	2.4
$5,000 - $9,999	10.5	2.8
$10,000 - $14,999	15.2	5.0
$15,000 - $19,999	11.1	6.9
$20,000 - $24,999	9.9	9.9
$25,000 - $29,999	11.4	11.3
$30,000 - $39,999	9.8	15.1
$40,000 - $49,999	6.4	13.9
$50,000 - $59,999	3.8	11.0
$60,000 - $100,000	4.6	14.8
Greater than $100,000	2.7	7.1
HOUSEHOLD SIZE (mean)	2.2	2.5
Work Outside Monroe	3.1	7.5
EMPLOYMENT STATUS		
Unemployed	10.8	6.1
Employed - full-time	35.0	66.0
Employed - part-time	8.7	6.8
Retired	35.5	12.4
Student	3.6	4.2
Homemaker	4.1	2.4
Self-employed	0.9	1.4
Disabled	1.5	0.7
YEARS LIVED IN MONROE		
Less than 1 year	3.5	5.5
1 to 5 years	15.0	29.5
6 to 10 years	13.0	19.2
11 to 20 years	21.9	26.1
21 to 40 years	22.7	15.8
41 +	23.8	4.0
ACCESS TO WATERFRONT FROM RESIDENCE	49.2	58.6
OWN A BOAT	16.1	51.9

occur in two separate stages. First, once a respondent was identified as eligible for the mail survey, i.e. they participated in outdoor recreation activities, they were then asked if they would participate in the mail survey. A "no" response here then indicates a non respondent to the mail survey. In the second stage, those that agreed to participate in the mail survey may not, even after three follow-up attempts, have returned a completed mail back questionnaire. This later group would also be coded as a non respondent to the mail survey.

To test for non response bias from the mail back survey, comparative profiles of respondents and non respondents were developed and nonparametric univariate tests were conducted on each socio-economic factor.[3] Multivariate tests were then conducted using ordinary least squares regressions and probit and logit functions. Several factors were identified as statistically significant meaning that those that responded to the mail back survey were different from those that did not respond.

The next step was to evaluate the possible extent of non response bias. For each question in the mail survey, ordinary least squares regressions were run on question response as a function of socio-economic factors. If the same factors that were related to non response were also significantly related to question response (e.g. participation in various recreation activities, spending on various items, importance and satisfaction scores, or the environmental concern index), then this would indicate the existence of non response bias. The tests did reveal the existence of non-response bias. Multivariate weighting was used to adjust the mail survey data to minimize non-response bias. See Leeworthy and Wiley, 1997 for the details of the non-response bias analyses and sample weighting.

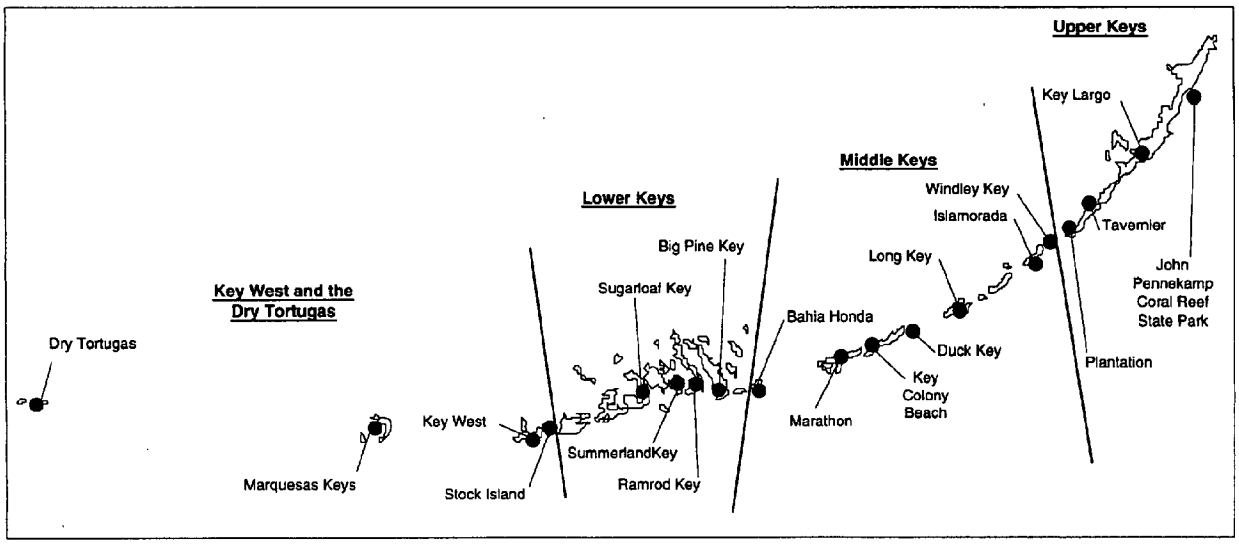
Participation Rates

From the telephone survey, information was gathered to estimate four overall participation rates in outdoor recreation activities: 1) participation in any outdoor recreation activities in the Florida Keys and/or Everglades National Park during the past 12 months, 2) participation in any outdoor recreation activities in the Florida Keys during the past 12 months, 3) participation in any outdoor recreation activities in Everglades National Park during

Table 1.4. Overall Participation Rates in Outdoor Recreation

Type of Participation (12 months)	Participation Rate (Percent Yes)
1. Any Outdoor Recreation Activity in Florida Keys and/or Everglades National Park	77.7
2. Any Outdoor Recreation Activity in Florida Keys	77.0
3. Any Outdoor Recreation Activity in Everglades National Park	18.9
4. Any Outdoor Recreation Activity in Florida Bay Portion of Everglades National Park	13.2

Figure 1.2 The Florida Keys/Key West



the past 12 months, and 4) participation in any outdoor recreation activities in the Florida Bay portion of Everglades National Park

Participation rates are time dependent, that is, the longer the period of time covered, the higher the participation rate The time period selected for use in this study was 12 months Some individuals that may normally participate in outdoor recreation may be nonparticipants for the 12 month period due to conflicts with their job or business, illness, or some other priorities The objective of this study is to estimate the number of participants in outdoor recreation in the Florida Keys and their economic contribution to the Monroe County economy for a year's time This is the reason for limiting participation to the 12 month period [4]

Males have higher participation rates than females

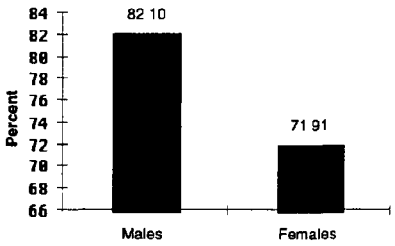


Figure 1 3 Sex

During a 12 month period in 1995-96, 77 7 percent of all Monroe County residents, age 16 years or older, participated in at least one outdoor recreation activity in the Florida Keys and/or Everglades National Park [5] For the Florida Keys only, the participation rate was 77 percent. For Everglades National Park, the participation rate was 18 9 percent, and for the Florida Bay portion of the park, 13 2 percent (Table 1 4)

Participation Rates by Socioeconomic Factors. Table 1 3 showed the relative profiles of those that did and did not participate in outdoor recreation activities in the Florida Keys Another way of viewing this information is to look at the participation rates by each socioeconomic factor (Figures 1 3 through 1 13)

Males have higher participation rates than females (Figure 1.3) Age shows the common parabolic relationship between participation and age where participation rates first increase with age, reach a maximum, then decline Residents age 25-44 have the highest participation rate and those 65 and older have the lowest participation rate (Figure 1 4) Race/ethnicity shows significant differences by category Those residents that are "White not Hispanic" and "American Indian, Eskimo, or Aleut" have the highest participation rates (however, less than one percent of the Monroe County population is classified as "American Indian, Eskimo, or Aluet) Hispanics have a lower than average participation rate, while "Blacks not Hispanic" have the lowest participation rate (Figure 1 5)

Participation rates increase with the level of education (Figure 1 6) and with Household Income (Figure 1 7) but decline with the number of years lived in Monroe County (Figure 1 8) These

Residents over age 65 have the lowest participation rate

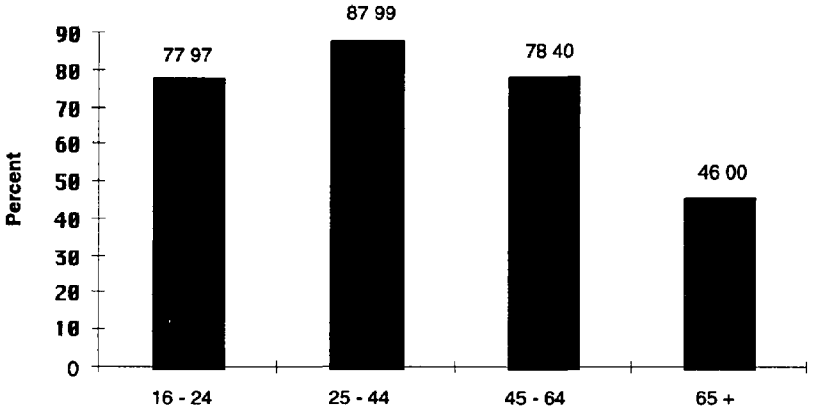


Figure 1 4 Age

Whites not Hispanic and American Indians have the highest participation rates

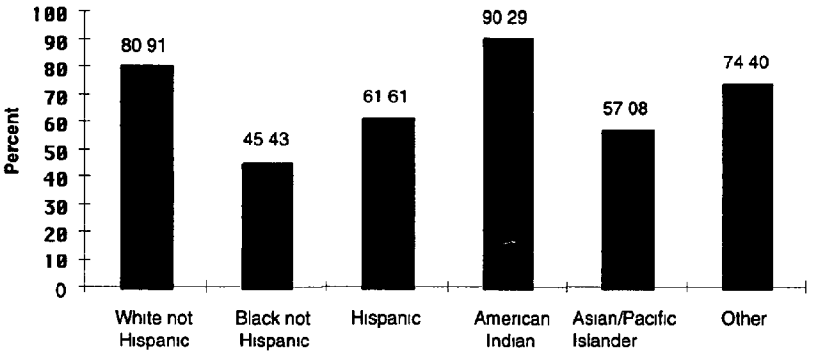


Figure 1 5 Race Ethnicity

Participation rates increase with the level of education

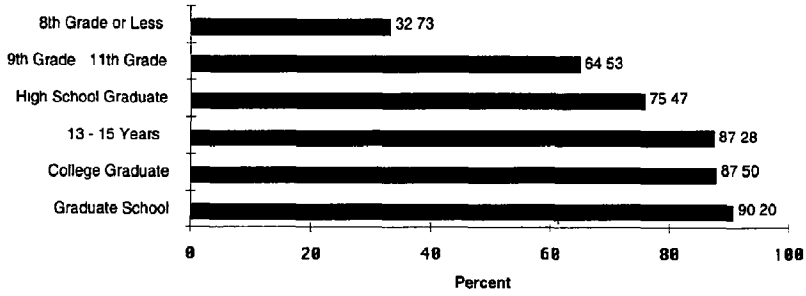


Figure 1 6 Education

Participation rates increase with level of household income

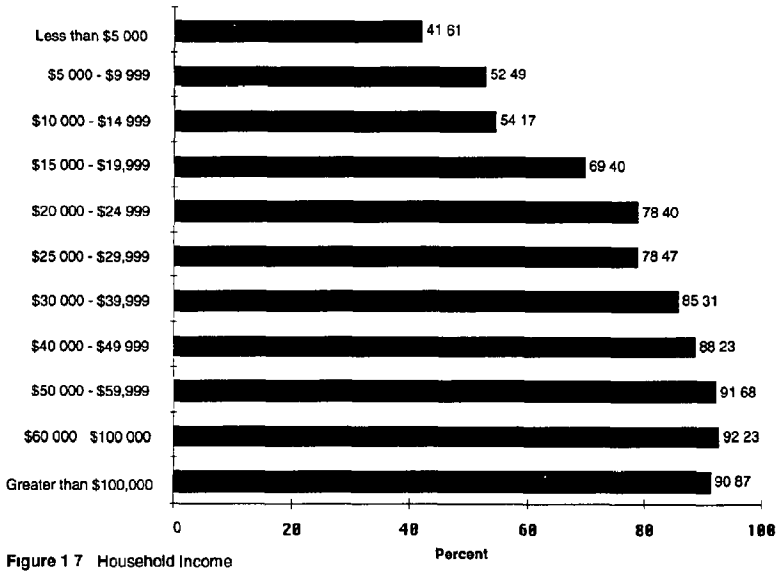


Figure 1 7 Household Income

Participation rate declines with years living in Monroe County

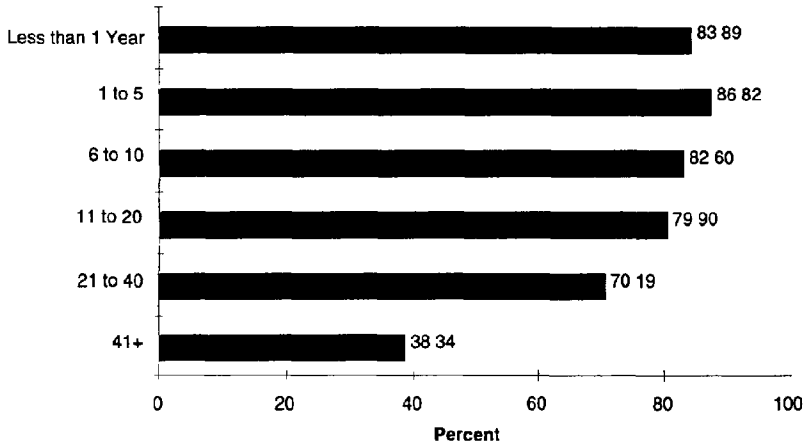


Figure 1.8 Years Lived in Monroe

findings are consistent with past studies on outdoor recreation in Florida

Participation rates are also significantly different across different categories of employment status (Figure 1 9) Those employed full-time and those self-employed have the highest participation rates Those that are "retired" have the lowest participation rates Participation rates also differed by zip code of residence Those living in Key Largo, Tavernier, Big Pine Key, and Summerland Key have higher than average participation rates, while those living in Islamorada, Marathon, and Key West have lower than average participation rates, with those in Key West having the lowest participation rate (Figure 1 10) Those that live in Monroe County but work outside Monroe County have a higher than average participation rate (Figure 1 11) This is an important finding because those that work outside Monroe County represent part of the "export base" of the local economy That is, they bring dollars into the county and spend them locally which has multiplier impacts like the "tourist or "visitor" spending This will be discussed in Chapter 3

Finally, there are two additional factors that are related to participation in outdoor recreation activities, waterfront property (Figure 1 12) and boat ownership (Figure 1 13) Those with residences with waterfront property and those that own boats have higher than average participation rates Some might expect that those that own a boat would have a 100 percent participation rate But there are two reasons why this is not true First, not everyone in a household that owns a boat may participate in boating activities Second, the participation rate is for the past 12 months and the respondent may have not done

Retired residents have the lowest participation rate

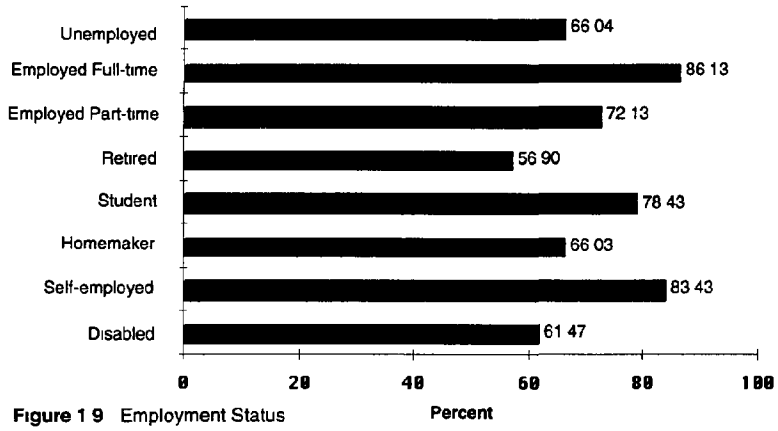


Figure 1 9 Employment Status

Residents of Key West (33040) have the lowest participation rate

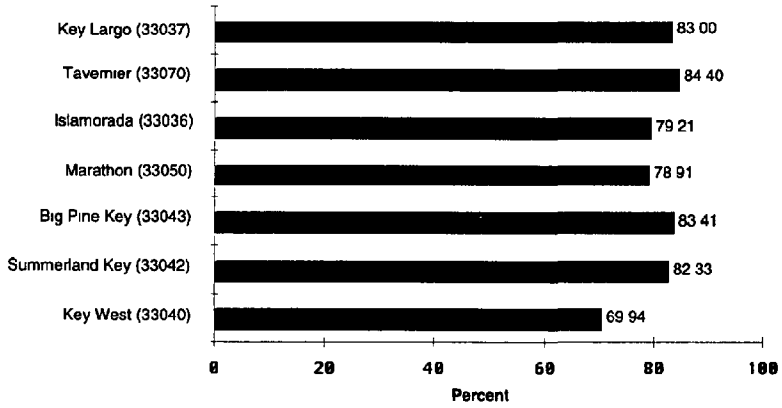


Figure 1 10 Zip Code

any activities in the past 12 months due to other life priorities

Quality of Life and Most Important Reason for Living in Monroe County.

Two questions were added to the telephone survey as warm-up questions One asked the respondent to rate the "Quality of life in Monroe County" and the second asked for the "Most Important Reason for Living in Monroe County" Many have hypothesized that the reason people live in Monroe County is because of the environment and the quality of the areas' natural resources

Overall, over 32 percent rated the quality of life in Monroe County as "excellent", while over 46 percent rated it as "good" Less than five percent rated it as "poor" (Table 1 5) These ratings also differed for participants and nonparticipants in outdoor recreation activities Those that participated in outdoor recreation activities gave higher ratings than those that did not participate in outdoor recreation activities

Climate topped the list for the "Most Important Reason for Living in Monroe County" followed by "job/business", "born here", "water activities", and "environment" (Table 1.6) Factors hypothesized to be related to outdoor recreation participation (e g Climate, Water activities, Environment, and

Those that work outside Monroe County have a higher participation rate

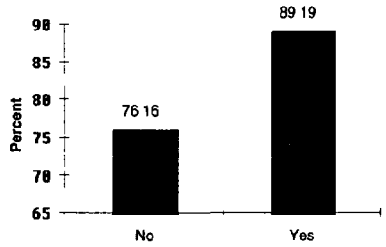


Figure 1 11 Work Outside Monroe

Those with residences with waterfront access have higher participation

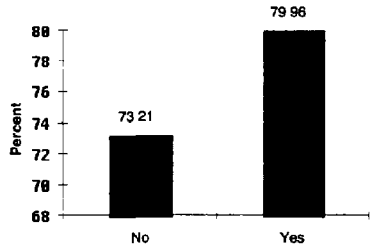


Figure 1 12 Access to Waterfront Residence

Those that own a boat have a higher participation rate

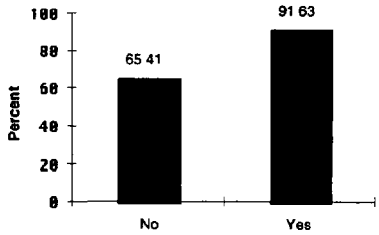


Figure 1 13 Own a Boat

Access to Natural Resources) were among the top ten most important reasons for living in Monroe County. Those that participated in outdoor recreation rated these reasons higher than those that did not participate in outdoor recreation.

Population of Monroe County

In Chapter 2, estimates of outdoor recreation in 66 detailed outdoor recreation activities are presented. This information was collected as part of the mail survey and information was collected for all members of the household, that is, for residents of all ages. To estimate the total number of participants in any outdoor recreation activity requires an estimate of the total Monroe County population. Since the FSU Survey was limited to households, as well as the fact that the survey asked for participation during the past 12 months (corresponding to the year 1995-96), an estimate of the population living in households during the time period 1995-96 was required. Table 1.7 reports estimates from both the U.S. Bureau of Census's 1990 Census and the updated estimates for the time period 1995-96.

For the 1995-96 time period, it is estimated that Monroe County had a total population of about 81,000. From the 1994 Current Population Survey, 98 percent of Monroe County's population was estimated to be living in households. This yields an estimate of 79,830 people living in households corresponding to the 1995-96 period of the FSU Survey. This estimate is used in Chapter 2 for developing estimates of the total number of participants in outdoor recreation activities in the Florida Keys.

Table 1.5. Ratings on Quality of Life in Monroe County

	Participation in Recreation in Keys (%)		
Rating	No	Yes	All Monroe
Excellent	29.17	33.15	32.24
Good	43.42	47.49	46.58
Fair	18.85	15.67	16.39
Poor	8.56	3.69	4.79
Total	100.00	100.00	100.00

Table 1.6. Most Important Reason for Living in Monroe County

		Participate in Recreation in Keys		
Reason	Rank	No	Yes	All Monroe
Climate	1	17.81	24.51	22.97
Job/Business	2	17.30	17.19	17.22
Born here	3	23.51	10.50	13.49
Water activities	4	3.89	15.55	12.87
Environment	5	6.87	10.38	9.58
Family/Friends	6	13.61	5.66	7.48
Low Crime Rate	7	5.05	4.90	4.93
Access to Natural Resources	8	0.80	3.80	3.11
Retirement	9	6.32	1.99	2.99
Community	10	1.54	1.29	1.35
No Special Reason	11	1.11	1.41	1.34
Cultural Activities	12	0.16	0.94	0.76
Be away from family	13	0.61	0.31	0.38
Stuck here	14	0.46	0.35	0.37
Education	15	0.29	0.27	0.27
Low cost of living/no income tax	16	0.09	0.17	0.15
Housing prices/own home	17	0.16	0.10	0.11
Total	-	100.00	100.00	100.00

Table 1.7. Population in Households (1990, 1995-96)

	1990 Census	1995-96 Census
Total Population (All Ages)	78,024	81,000 [1]
Number of Households	33,583	35,437
% of Population in Households	96.4	98.0
% of Population in Group Quarters	3.6	2.0
Population in Households	75,215	79,380
Population in Households Age 16 or older	63,384	66,679

1. U.S. Department of Commerce, Bureau of the Census reports population estimates for Monroe County of 81,152 as of 7/1/95 and 80,730 as of 7/1/96. 81,000 is our estimate for 1995-96.

Endnotes

1. The survey of residents of Monroe County was done under contract to the National Oceanic and Atmospheric Administration, Office of Ocean Resources Conservation and Assessments, Strategic Environmental Assessments Division (order # 40AANC609064, $34,171).

2. Information was collected on activity participation, intensity of use (days), and spending for trips in Everglades National Park. This information is still being assessed and will be included in future reports if the information will support the development of reliable estimates.

3. Univariate nonparametric tests included the Kolmogorov-Smirnoff, two-sample test for differences in the entire empirical distribution function not just particular moments of the distribution like the mean or median.

4. Some have questioned the reliability of using a 12-month recall period. However, there is no empirical evidence of the relative superiority of shorter time periods of recall for outdoor recreation participation. An often cited study, Westat, Inc. 1989, finds that shorter time periods of recall yielded lower participation rates. However, Westat did not test the differences in recall time periods against a known true number, they simply assume the shortest time period estimates are closest to the true. Sudman and Bradburn, 1974 reviewed a variety of studies where the true number was known and different time periods of recall were used to estimate the known number. They used a time memory model to explain their results which incorporates two offsetting factors; telescoping and memory decay. Telescoping results in people overestimating in shorter periods of time because for one reason or another they expand the time period beyond what is specified in the survey. For memory decay, the longer the time period of recall the more people tend to forget resulting in a downward bias. Sudman and Bradburn found for household expenditures that a 12-month recall period was better than shorter time periods.

5. The survey was conducted between July 8, 1996 and November 21, 1996. Each respondent was asked about their activities during the previous 12 month period. Thus, activity participation would potentially cover a period from July 8, 1995 to November 21,1996. These responses are used to approximate estimates for the annual time period of June 1995 - May 1996 in order to make annual estimates comparable to estimates for visitors to the Florida Keys/ Key West found in Leeworthy and Wiley 1996 a,b and English et. al. 1996.

Chapter 2.

Activity Participation

Participation Rates

The estimates provided in this report are of activity participation by residents over the 12 month period June 1995 - May 1996. Appendix Tables A.2.1 to A.2.3 report on 41 aggregated activities, which eliminate the problem of double-counting when adding up numbers of participants across activities or across the same activity over several regions. For example, if one wants to know the total number of residents that did all types of snorkeling or scuba diving in the entire Florida Keys/ Key West, Table A.2.1 reports that to be about 37 thousand residents. This is less than adding up the numbers of residents reported in Table 2.1 here of snorkelers (35.9 thousand) and scuba divers (13.2 thousand). The difference is accounted for by those that did both activities. An attempt was made to anticipate the kinds of activities people would want to add together and report them in appendix tables A.2.1 to A.2.3. Appendix Tables A.2.4 to A.2.6 report the detailed 66 activities for each region and for the entire Florida Keys/Key West.

Participation rates or the percent of residents are reported in each table. These percents are the proportion of all residents of the Florida Keys/Key West that did the activity in the particular region. So in Table 2.1 it is reported that 45.3 percent of the 79,380 residents of households (not group quarters) of the Florida Keys/Key West did snorkeling. Appendix Table A.2.2, reports that 16.81 percent of all residents of the Florida Keys/Key West participated in snorkeling in the Upper Keys.

Table 2.2 shows the top-rated activity by region based on the number of participants. Fishing was the top-rated activity for the entire Keys and for the Upper and Middle Keys regions. Snorkeling was the top activity in the Lower Keys region, while Visiting Museums or Historic Areas was the top activity in the Key West region.

With prime access to both the Atlantic Ocean and the Gulf of Mexico, the tremendous coral reefs, the flats and backcountry environments make the Florida Keys/Key West a mecca for water-based activities, however for residents of the Keys land-based activities are slightly more prevalent. An interesting fact to note however, is that although those that participated in land-based activities have a slightly higher participation rate than those that participated in water-based activities (88.59 percent and 69.71 percent respectively), those that participated in *only* water-based activities (8.95 percent) have a slightly higher participation rate than those that participated in *only* land-based activities (See Figure 2.1). Also, the participation rate for those that participated in only land or water-based activities is relatively small, implying that a significant percentage of residents participated in both land and water-based activities.

Table 2.1 Activity Participation for All Keys

Activity[1]	Number of Participants	Participation Rate
Snorkeling	35,963	45.30
Scuba Diving	13,219	16.65
Fishing	37,835	47.66
Viewing Wildlife-Nature Study	28,577	36.00
Beach Activities (Including swimming)	30,369	38.26
Sightseeing & Attractions(Paid & Unpaid)	17,305	21.80
Visiting Museums or Historic Areas	22,753	28.66
Cultural Events(Fairs,Concerts,Plays)	25,519	32.15
All Camping	5,231	6.59
Personal Watercraft Use (Rental Only)[2]	3,520	4.43

1. For more detailed activity participation, see Tables A.2.1 to A.2.9
2. FSU - Survey Research Center re-typed activity list and left-off Personal Watercraft Use-Private Boat and Sailing Charter Boat. Therefore these Activities were not measured.

Table 2.2 Top Rated Activity by Region - Number of Participants

Region	Activity	Number of Participants	Participation Rate[1]
Upper Keys	Fishing	14,340	18.07
Middle Keys	Fishing	12,964	16.33
Lower Keys	Snorkeling	11,754	14.81
Keys West	Visiting Museums or Historic Areas	16,920	21.32
All Keys	Fishing	37,835	47.66

1. Percent of residents of all ages that did activity.

Within-Region Participation Rates:

In the previous section, participation rates were defined as the percent of all residents of the Florida Keys/Key West who participated in a particular activity However, one may be more interested in the distribution of participation within a region, for example, the answer to the question, *Of all the residents that participated in outdoor recreation in the Upper Keys, what percent participate in Snorkeling?* Table A 2 7 in the appendix presents the within region participation rates for all the regions Table 2 3 illustrates the difference between the overall participation rate and the within region participation rate The first column presents the percent of all residents of the entire Florida Keys/Key West who participated in activities in the Upper Keys This is what was presented in the previous section The second column presents the percent of all residents who participated in outdoor recreation in the Upper Keys who participated in a given activity in the Upper Keys So the answer to the questions posed above is that 49 73 percent of all the residents who do activities in the Upper Keys participated in Snorkeling

In the previous section, land-based activities were shown to dominate in the Florida Keys/Key West as a whole Figure 2 2 breaks down this relationship into its regional components Land-based activities dominate in the Middle and Lower Keys and in Key West however, water-based activities dominate in the Upper Keys This relationship can be seen in greater detail in Appendix Table A 2 7 The Upper Keys has higher within region participation rates in fishing, snorkeling, scuba diving, viewing wildlife and nature

Participation in land-based activities is higher than participation in water-based activities for Residents

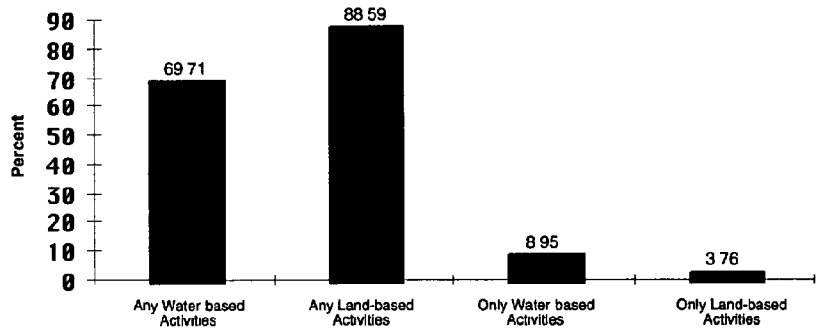


Figure 2.1 Participation in Water-based vs Land Based Activities

Table 2 3 All Resident Particpation Rate Vs Within-Region Participation Rate Upper Keys

Activity[1]	Percent of All Keys Residents	Percent of Residents who Participated in the Upper Keys
Snorkeling	16 81	49 73
Scuba Diving	6 65	19 66
Fishing	18 07	53 45
Viewing Wildlife-Nature Study	14 27	42 21
Beach Activities (Including swimming)	12 19	36 06
Sightseeing & Attractions(Paid & Unpaid)	6 85	20 27
Visiting Museums or Historic Areas	6 65	19 68
Cultural Events(Fairs,Concerts,Plays)	8 96	26 52
All Camping	1 15	3 41
Personal Watercraft Use (Rental Only)[2]	2 15	6 36

1 For more detailed activity participation, see Tables A 2 1 to A 2 9
2 FSU - Survey Research Center re-typed activity list and left-off Personal Watercraft Use-Private Boat and Sailing Charter Boat Therefore these Activities were not measured

Water-based activities predominate in the Upper Keys, while Land-based activities predominate in the Lower and Middle Keys and Key West

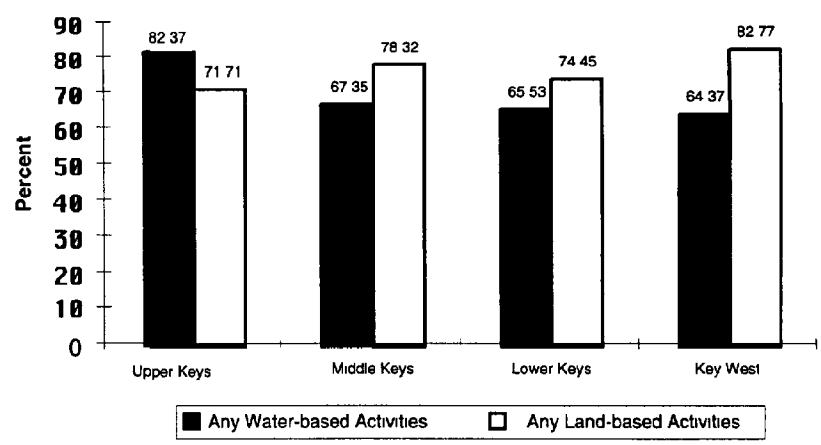


Figure 2.2 Participation in Water- and Land-based Activities by region

Table 2.4 Regional Activity Participation by Region of Residence

	Region of Activity			
	Upper Keys	Middle Keys	Lower Keys	Key West
Region of Residence	Participation Rate (%)	Participation Rate (%)	Participation Rate (%)	Participation Rate (%)
Upper Keys	63.87 (68.51)	24.07 (30.49)	14.90 (19.08)	15.18 (23.42)
Middle Keys	17.22 (25.73)	37.30 (65.78)	18.11 (32.30)	14.82 (31.84)
Lower Keys	7.10 (12.21)	14.62 (29.68)	30.35 (62.29)	18.00 (44.50)
Key West	11.80 (8.26)	24.01 (19.85)	36.65 (30.64)	52.01 (52.39)
Total	100.00	100.00	100.00	100.00

Table 2.5 Top Rated Activity by Region - Number of Days of Activity

Region	Activity	Number of Days (000's)
Upper Keys	Fishing	274.3
Middle Keys	Fishing	223.0
Lower Keys	Fishing	214.6
Keys West	All Beach Activities	237.3
All Keys	Fishing	889.8

See Appendix Table A.2.9 for other activities.

study and boating than any of the other regions of the Florida Keys/ Key West.

To clarify the idea of within region participation rates, it is helpful to distinguish between the region of origin of participants in a particular region and the region of participation of residents who reside in a particular region. Table 2.4 illustrates this idea. If one wants to know the location of residence of those that do outdoor recreation activities in a region of the Keys, read the first column of numbers under each region of activity from top to bottom. These percents add to 100. Thus, 63.87 percent of those that do outdoor recreation in the Upper Keys live in the Upper Keys, whereas 17.22 percent live in the Middle Keys 7.10 percent in the Lower Keys and 11.80 percent in Key West.

If one wants to know the location of activity for those who live in a certain region, read the numbers in parentheses from left to right. For those that live in the Upper Keys, 68.51 percent do their outdoor recreation in the Upper Keys, 30.49 percent in the Middle Keys, 19.08 percent in the Lower Keys and 23.42 percent in Key West. These percents will not add to 100 percent because residents can do activities in multiple regions.

Days in Selected Activities

In the portion of the questionnaire that was used to collect activity information, respondents were also asked on how many different days they participated in each activity during the past 12 months. Unlike the visitor survey there was no way to "target" specific activities to ensure an adequate number of observations within the confines of the mailback approach. There are therefore a significant number of activities for which the sample size was not large enough (under 25 observations) to consider the estimates reliable. In Appendix Table A.2.8, this is noted with an asterisk (*).

Appendix Table A.2.8 details the estimated average number of days of activity per person in each region over the 12 months preceding the interview. Multiplying these averages by the number of residents that did the activity in the region yields estimates of the total intensity of activity in each region. Appendix Table A.2.9 contains the estimates of the total number of days per region.

Table 2.5 shows the top-rated activity by region based on the number of days of activity. Overall, the ratings by days of activity are similar to those by number of participants, with a few exceptions. Fishing was the top-rated activity in the entire Florida Keys/ Key West as well as in the Upper, Middle and Lower Keys. All beach activities was the number one activity in Key West.

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Chapter 3

Economic Contributions

Background

Economic impact analyses of recreation sites are designed to answer the question: How much does an activity contribute to the local economy? Impacts are determined by three different factors: the structure of the local economy, the amount and type of spending residents do while on trips to a recreation site, and the number of days residents engage in the activity. Because most of the money spent by residents in the Florida Keys/Key West is not "new money" (i.e. money from sources external to the local economy) the analysis is limited to the export sector. For the purpose of this analysis, the export sector is defined as the residents of Monroe County who are either retired or who work outside of Monroe County. The term "export" refers to the fact that money comes in from outside the county to these residents. In the next section, this idea is explained in greater detail. Residents in the export sector account for about 25 percent of all residents who participate in outdoor recreation in the Florida Keys/Key West and about 32 percent of the total days of recreation undertaken by residents who participate in outdoor recreation in the Florida Keys/Key West, and about 23 percent of expenditures.

Other Basic Industries. Basic or export industries in Monroe County include tourism (non-residents of Monroe County), the military, commercial fishing industry, retirement, and the Florida Keys/Key West as a bedroom community. Spending in each of these industries represents "new" money being brought into the county which has multiplier impacts. In English et. al. 1996, the economic contribution from tourism are detailed. **Here, the contribution of retirement and the Florida Keys/Key West as a bedroom community is estimated.** Although information on all resident spending for outdoor recreation in Monroe County was collected, a large portion of this was already counted through the multiplier process in calculating the contribution of tourism. Additional portions would be attributed to the military and the commercial fishing industry, that is, if studies were conducted on the economic contribution of the military and the commercial fishing industry, much of the spending by residents for outdoor recreation would be counted in the multiplier impacts from spending in these industries.

Although spending by residents of Monroe County may contribute to the economies of many nearby counties, this analysis is limited to Monroe County only. An overview of the baseline economy is discussed in the next section, followed by definitions of the various concepts used in the analysis, a summary of results, and an explanation of the methodology used in the analysis.

Baseline Economy

Special Features. There are several special features of the Monroe County economy that make analysis of the contribution of one sector (export) more difficult. Monroe County is connected to the larger South Florida economy in so many ways that it is difficult to analyze the separate contribution of residents to Monroe County alone. In doing so, several pieces of information about the special features of the Monroe County economy were utilized to aid in selecting appropriate methods and checking the results. Each of these special features is discussed below.

Residents. Because of the significant number of retired residents in Monroe County there is a large amount of income in transfer payments flowing into the economy in the form of pensions, retirement pay, dividends and interest on investments, and social security. This creates a base of income in Monroe County that is independent of employment. Retirement in Florida and Monroe County is what economists call a "basic industry."

Basic industries derive their demand from outside the study area. Retirement is basic in that the income that flows into the local economy results in demand for local goods and services. It is "new money" arriving in the economy that becomes a driving force in the economy, creating income and employment. Other basic industries in Monroe County include the military and commercial fishing. Both of these industries also derive their demand from outside the study area, however, as mentioned above, the analysis is limited to retired residents and residents who work outside the county. Residents who work inside the county receive wages & salaries based on the demand for goods and services produced inside the county. When tourists spend money in the Florida Keys/ Key West, businesses pay their employees who in turn spend additional money in the area. In this way, spending by non-export sector residents is accounted for in the multiplier process of tourist spending.

Income by place of Work vs. Residence. Compared to Florida as a whole, Monroe County's income by place of work as a percentage of income by place of

residence is much lower. Table 3.1 shows the percentages for 1989 through 1994. In 1994, Monroe County's income by place of work as a percentage of income by place of residence was 50.52 percent while the percentage for Florida as a whole was 61.32 percent.

An explanation for the significant difference between income by place of work and income by place of residence is intercounty commuters. As mentioned above, there are a significant number of residents of Monroe County working outside the county. There are also non-residents who work inside Monroe County. Table 3.2 shows the number of commuters coming into (going out of) the county and where they are coming from (going to). The net transfer of commuters is -126. In other words, there are 126 more commuters leaving Monroe County than there are coming in. In 1994, net income to Monroe County was about $67 million. Residents of Monroe County that work outside the county brought in $116.5 million, and non-residents of Monroe County that work in Monroe County took out $49.5 million. The Keys as a "bedroom community" for other counties in South Florida is also a basic industry.

Proprietors' Employment as a Percentage of Total Employment. Another important issue to consider is the proportion of proprietors' income in relation to the total. The percentage for Monroe County is considerably higher than for both Florida and the country as a whole. Table 3.3 shows proprietors' employment as a percentage of total employment for the U.S., Florida and Monroe County. In 1994, proprietors' employment as a percentage of total employment in Monroe

Table 3.1 Income by place of Work as a percentage of Income by Place of Residence for the U.S., Florida and Monroe County

	Income by Place of Residence [1]	Income by Place of Work	Percentage
1989			
Florida	228,024.443	139,640.381	61.24%
Monroe County	1,549.638	795.473	51.33%
1990			
Florida	244,604.378	149,094.249	60.95%
Monroe County	1,673.438	855.311	51.11%
1991			
Florida	255,028.668	154,627.756	60.63%
Monroe County	1,735.216	883.311	50.90%
1992			
Florida	265,729.633	164,550.621	61.92%
Monroe County	1,793.998	939.366	52.36%
1993			
Florida	285,248.059	175,169.736	61.41%
Monroe County	1,976.637	1,013.430	51.27%
1994			
Florida	302,099.041	185,236.774	61.32%
Monroe County	2,068.322	1,044.824	50.52%

1. Dollars in Thousands

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce

Table 3.2 Inter-county Commuting Patterns

Residents that work in the County		**38,139**
Residents that commute to work outside the county		**2,172**
Further Breakdown		
Broward County	227	
Collier County	31	
Dade County	1,727	
Orange County	20	
Palm Beach County	31	
Sarasota County	5	
Other Counties	2,041	
Other States	131	
Outside the Country	546	
Non-residents that work inside the County		**2,046**
Further Breakdown		
Broward County	186	
Collier County	20	
Dade County	1,801	
Palm Beach County	39	
Net		**-126**

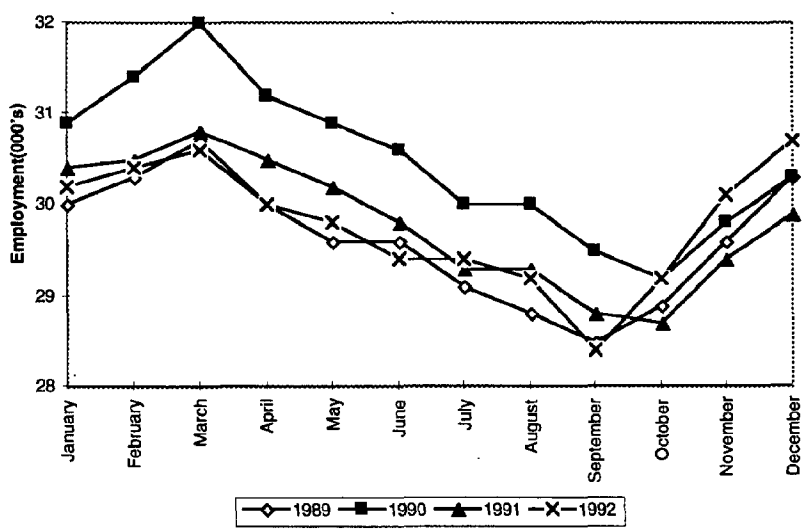
Source: Regional Economic Information System, Bureau of Enomic Analysis, U.S. Department of Commerce

Table 3.3 Proprietors' Employment as a Percentage of Total Employment for the U.S., Florida and Monroe County

	Proprietors' Employment	Total Employment	Percentage
1989			
U.S.	19,979,800	136,413,800	14.65%
Florida	913,369	6,629,138	13.78%
Monroe County	7,696	42,546	18.09%
1990			
U.S.	20,995,300	138,981,300	15.11%
Florida	995,624	6,832,045	14.57%
Monroe County	8,492	44,276	19.18%
1991			
U.S.	21,685,500	137,737,500	15.74%
Florida	1,046,386	6,784,758	15.42%
Monroe County	9,154	44,344	20.64%
1992			
U.S.	21,730,400	138,473,400	15.69%
Florida	1,064,441	6,874,166	15.48%
Monroe County	9,560	44,746	21.37%
1993			
U.S.	21,989,500	140,817,500	15.62%
Florida	1,079,813	7,103,222	15.20%
Monroe County	9,911	46,632	21.25%
1994			
U.S.	22,341,500	144,390,500	15.47%
Florida	1,100,782	7,362,288	14.95%
Monroe County	10,163	46,784	21.72%

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce

Figure 3.1 Monthly Non-proprietor Employment in Monroe County: 1989 - 1992



Source: Mulkey, David and Charles Adams, 1994. Monroe County: An Economic Overview Final Report of a Component Study (Volume II) for the Economic Adjustment Assistance Development Grant for Monroe Count (UF Acct, No. 7306186-13) University of Florida, Gainsville, FL.

County was 21.72 percent, while in Florida it was 14.95 percent and in the U.S. as a whole it was 15.47 percent. The high proportion of proprietors' to wage employment reflects the dominance of the many small businesses in the tourist industry.

Seasonality. In a region like the Florida Keys where recreation dominates the economic activity, an important aspect is the ups and downs of the economy during the year, i.e., seasonality. Figure 3.1 shows monthly non-proprietor employment in Monroe County for 1989 through 1992. Employment is at its highest level from December - April (the heart of the winter tourist season), declines steadily from May-October, then begins increasing in November, signaling the beginning of the winter tourist season. From 1989-1992, 1990 was the year with the highest degree of employment change. Employment reached a high of 32,040 in March and a low of 29,209 in October (an 8.8 percent change). Even this amount of change is not that extreme. A possible reason for this low level of change is the dampening effect that transfer payments have on the seasonality pattern. As discussed above, transfer payments form a base of income in Monroe County that is independent of employment (as a source of income), but is an important driving force in creating income and employment.

Historical Perspective

In economic impact analyses it is important to know if the year during which you surveyed is a "typical" year. By this we mean, was this a good or bad year, was there a recession in the U.S. economy, and if so, how might it have affected the local economy? In Table 3.4, gross sales, income (by place of work) and employ-

ment data were compiled for the years 1989 through 1995. Sales, after increasing slightly between 1989 and 1990, then decreasing slightly in 1991, had robust growth in 1992 and 1993 (8.13 percent and 11.24 percent, respectively), then slowed in 1994 (to an increase of 3.56 percent). During our survey sales picked up again to **$2.203 billion** (an increase of 9.51 percent). Income showed fairly consistent growth between 1989 and 1995 ranging between 3.31 percent in 1991 to 7.88 percent in 1993. In our survey period income was **$1.123 billion** (a growth of 7.55 percent from 1994). Employment had fairly slow growth in general with two years of growth over 4 percent (1990 and 1993). During our survey period, employment was **47,000**, an increase of 0.4 percent from 1994. In our judgment, the period of study was a little better than average, so our conclusions about the economic contribution of residents to the local economy are not significantly over or underestimated.

Table 3.4 Historical Data for Sales, Income and Employment for Monroe County

		($000's)/ Employment	% Change
1989	Sales	1,594,096	
	Income	795,473	
	Employment	42,546	
1990	Sales	1,636,212	2.64%
	Income	855,311	7.52%
	Employment	44,276	4.07%
1991	Sales	1,615,442	-1.27%
	Income	883,614	3.31%
	Employment	44,344	0.15%
1992	Sales	1,746,707	8.13%
	Income	939,366	6.31%
	Employment	44,746	0.91%
1993	Sales	1,942,961	11.24%
	Income	1,013,430	7.88%
	Employment	46,632	4.21%
1994	Sales	2,012,035	3.56%
	Income	1,044,824	3.10%
	Employment	46,784	0.33%
1995/1996[1]			
	Sales	2,203,305	9.51%
	Income	1,123,686	7.55%
	Employment	47,000	0.46%

1. Survey period: June 1995 - May 1996

Source: Florida Department of Revenue and Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce

Definitions

When a local economy experiences an increase in spending, residents of that economy benefit by more than just the dollar amount of the goods and services purchased. This is because the businesses serving those spending the money must increase the amount of labor, goods and services they buy in order to produce the additional goods and services. Thus, the businesses that have experienced increased spending will have a ripple effect on the other businesses that supply them, and those businesses, in turn, affect others on down the supply chain. Economists call the initial spending activity the "direct effect," and the subsequent ripples are the "indirect" and "induced" effects. The indirect and induced effects are also called the multiplier impacts. See the box at right for detailed definitions of these and related terms.

Because we were not able to properly calibrate the Monroe County IMPLAN input-output model, only direct and total effects are estimated and presented in the next section. This is further explained in the Methods Section.

- **Direct Effects**: The amount of the increased purchase of inputs used to manufacture or produce the final goods and services purchased by residents.
- **Indirect Effects**: The value of the inputs used by firms that are called upon to produce additional goods and services for those firms first impacted directly by recreational spending.
- **Induced effects**: Result from the direct and indirect effects of recreation spending. Induced effects are related to persons and businesses that receive added income as a result of local spending by employees and managers of the firms and plants that are impacted by the direct and indirect effects of recreational spending. This added income results in increased demand for goods and services and, in turn, increased production and sales of inputs.
- **Total Effect**: The sum of direct, indirect, and induced effects (Walsh et al. 1987). Typically, the total effects are between 1.5 to 2 times more than the amount that the visitors originally spent in the local economy.
- **Total Output**: The value of all goods and services produced by the industries in a sector. For an economy as a whole, total output double-counts the value of production because it accounts for all sales; intermediate outputs are counted every time they are sold. In terms of direct impacts, the additional total output caused by visitor expenditures is equal to the increased final demand, and the increased final demand will roughly equal the dollar value of visitor expenditures, minus the value of items that have to be imported into the region.
- **Value Added**: Total output minus the value of inputs to a sectors' production. As such, value added is the net benefit to an economy, and it contains the sum of employee compensation, indirect business taxes, and property income.
- **Total Income**: The sum of property income and employee compensation.
- **Employment**: The number of full-time job equivalents or the sum of full-time and part-time employees, depending on the context of analysis (this is explained in greater detail in the "Summary of Results.")

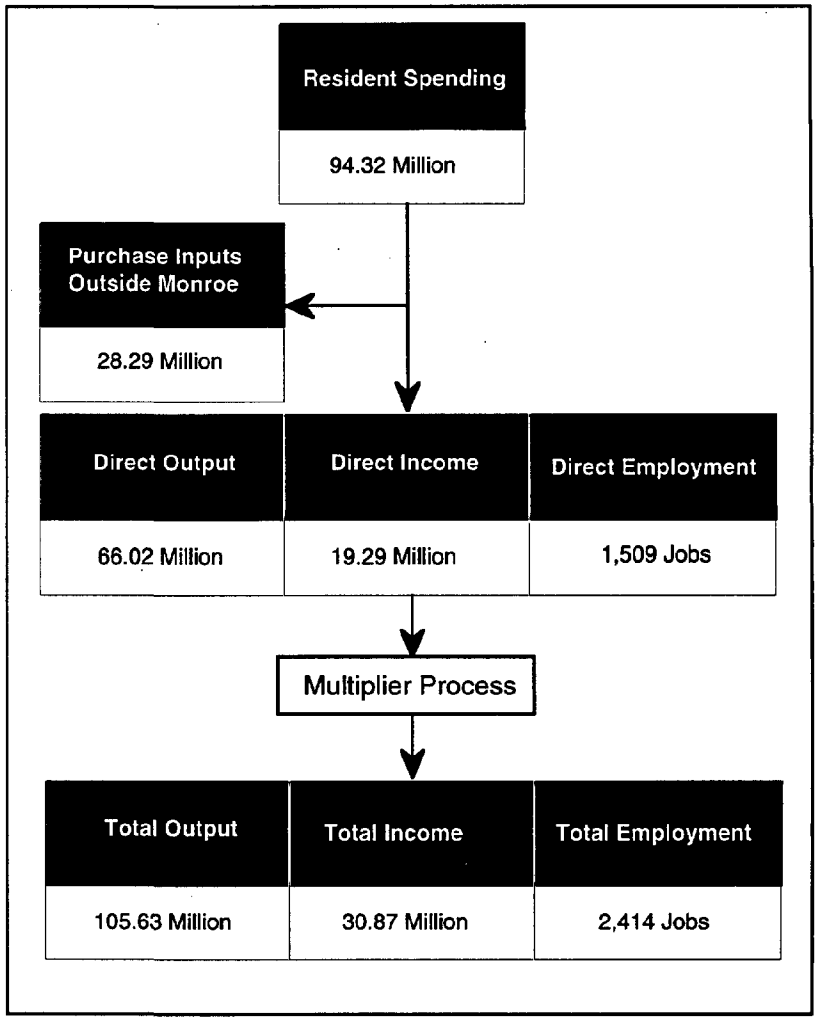
Summary of Results

Figure 3.2 summarizes the estimated economic contribution of the export sector of residents to the Florida Keys/Key West. Export sector resident spending was an estimated $94.32 million. Of these expenditures $28.29 million, or about 30 percent, was spent to purchase inputs outside Monroe County. An example of this may be telephone service. When a merchant sends his phone bill outside the county, only a portion of this money remains in the county to support operations. So the direct impact on the local economy is less than the total initial spending.

The direct effects are the amount of the increased purchase of inputs used to manufacture or produce the final goods and services purchased by residents. In the case of Monroe County, this translated to $66.02 million in direct output (sales), $19.29 million in direct income, and 1,509 jobs in direct employment.

As mentioned previously, businesses that have experienced increased spending will have a ripple effect on the other businesses that supply them. This is represented in Figure 3.2 by the multiplier effect, which yields the total effects shown at the bottom of the figure. The total estimated output is $105.63 million, the total estimated income is $30.87 million and the estimated total employment is 2,414 jobs.

Figure 3.2 Impact Process Due to Resident Spending in Monroe County



For these numbers to be meaningful, we must be able to compare them to the Monroe County baseline economy. Table 3.5 shows the official reported output (sales), income and employment for Monroe County. The official reported output for the survey period was about $2.20 billion. The estimated total contribution from the export sector of residents was $105.63 billion or about 4.79 percent. The total estimated contribution from the export sector of residents to income, $30.87 million, was about 2.75 percent of

Table 3.5. Estimated Economic Contribution of Resident/Recreational Activities

	Official Reported[1,2]	Estimated Resident Contribution		
		Direct	Total	% of Economy
Output	$2,203,305,357	$66,020,640	$105,633,024	4.79%
Income	$1,123,685,732	$19,291,709	$30,866,734	2.75%
Employment	47,000	1,509	2,414	5.14%

1. Source (Output): Florida Department of Revenue
2. Source (Income and Employment): Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce

the official reported income of $1.12 billion. The official reported employment was 47,000 jobs. The estimated total resident contribution to employment was 2,414 jobs, or about 5.14 percent.

Because the calculations employed in the multiplier process used here are the same as those used in the tourist analysis (English et. al., 1996), one would expect that the relationship of total impact as percentages of the economy between output, income and employment would be about the same. In the tourist analysis, however, the total impact as percentages of the economy were 60.53 percent, 45.03 percent and 46.49 percent for output, income and employment, respectively. Here the total impacts as percentages of the economy were 4.79 percent, 2.75 percent and 5.14 percent for output, income and employment, respectively. The explanation for this disparity lies in the difference in spending patterns between tourists and residents. Residents tended to spend more in categories with lower wages to sales ratios (such as oil and gas and film purchase and development) and less in categories with higher wages to sales ratios (such as lodging). For more details see Appendix Table A.3.5. The derivation of wage and employment estimates will be covered in much greater detail in the Methods section.

Methods

Background Concepts. According to export base theory, economic growth in an economy is due to growth in exports. Purchases of local goods by export sector residents are exports, as they bring outside dollars into the local region. Thus, impacts in an economy attributable to recreation are traceable to export sector residents who spend money for locally sold goods and services while on recreation trips (English and Bergstrom 1994).

When considering which method of economic impact analysis to use for export sector residents, we originally considered input-output analysis, using the IMPLAN model. Input-output analysis is one of the most widely applied methods in regional economic analysis (Miller and Blair, 1985). It consists of a system in which linear equation are used to describe the linkages among production sectors in a given economy. However for a market area with the small size and unique characteristics of Monroe County, using an I-O model such as IMPLAN is not feasible. In the visitor component of Linking the Economy and Environment of the Florida Keys/Florida Bay, the authors attempted the IMPLAN analysis. It was discovered that there was a tendency for overestimation of impacts. Monroe County has many links to the surrounding South Florida economy. Properly calibrating an IMPLAN model for Monroe County would require additional research to specify and net-out transfers outside Monroe County. It was decided that a more simplified approach would be more appropriate (English et. al. 1996)

The Use of Census Ratios. The simplified approach for Monroe County used several types of ratios on economic measurements for the Monroe County economy from the U.S. Department of Commerce, Census Bureau, Census of Business 1992 and from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 1994. Appendix Table A.3.3 shows the wages-to-sales and wages-to-employment ratios by standard industrial classification (SIC). Appendix Table A.3.4 shows the derivation of the total income to wages & salaries ratio and the proprietor's income to proprietors employment ratios. These ratios are fundamental to estimating the direct income and employment impacts from resident expenditures.

Direct Wages & Salaries and Employment. To estimate the direct wages & salaries and wages & salaries related employment impacts in Monroe County, first required estimating the total expenditures by spending category and then matching each spending category to the appropriate SIC from Appendix Table A.3.3. Direct wages & salaries are first derived by multiplying total expenditures by category by the appropriate wages-to-sales ratio. Direct wages & salaries employment is then equal to the direct wages & salaries divided by the wages-to-employment ratios. Appendix Table A.3.5 shows these calculations.

Total Output, Income and Employment. To estimate total output required two steps. In step one, the total expenditures from Appendix Table A.3.5 are multiplied by the percent of inputs purchased locally (.70). This percent was taken from the Monroe County IMPLAN input-output model tables and revised downwards from .77 to .70 using information about the percent of wages & salaries. Total output was then equal to direct output times an output multiplier of 1.6. Appendix Table A.3.6 shows these calculations.

Estimation of total income also required two steps. In step one, the direct wages & salaries derived and reported in Appendix Table A.3.5 are multiplied by the total income-to-wages & salaries ratio (1.2222) from Appendix Table A.3.4. This yields an estimate of total direct income, that is, income to wages & salary workers and

income to proprietors. In step two, total direct income was multiplied by an income multiplier of 1.6 to get the total income impact on Monroe County. These calculations are shown in Appendix Table A.3.6.

Finally, to estimate the total employment impact required several steps. First, direct wages & salaries employment from Appendix Table A.3.5 were multiplied by the employment multiplier of 1.6 to get the total wages & salaries employment. Second, direct proprietors income was divided by the proprietors income-to-employment ratio from Appendix Table A.3.3 (18,690) to yield an estimate of direct proprietors employment. Direct proprietors employment was then multiplied by the employment multiplier of 1.6 to get an estimate of the total proprietors employment. Total wages & salaries employment was then added to the total proprietors employment to get an estimate of the total employment impact. These calculations are all shown in Appendix Table A.3.7.

Note that under this approach, we cannot estimate value-added, nor can we separately estimate indirect or induced effects.

Expenditures.

Per Person Per Day. Expenditure information was collected on a per group, per trip basis. In Part B of the mailback questionnaire, respondents were asked how many days their last trip or outing in the Florida Keys/Key West was (with any part of a day counted as a whole day). They were also asked how many people they or someone in their household was paying expenses for on their last trip or outing in the Florida Keys/ Key West. The purpose was to extrapolate to total spending by multiplying our estimates of person-days by spending per person per day.

We obtained expenditure information for 47 different trip-related expenditure items.[1] These can be aggregated into 5 general types of expenditures: lodging (5 items), food (3 items), transportation (9 items), activities (21 items), and miscellaneous (9 items). Table 3.6 shows average expenditures per person per day for the export sector of residents and for all the residents. The average per person per day $73.51 for the export sector and $98.80 for the entire sample of residents. Generally the export sector of residents spent, on average, considerably less for lodging, transportation, boating, miscellaneous expenditures and services. For detailed average per person per day expenditures, please refer to Appendix Table A.3.1.

Total Expenditures. Table 3.7 summarizes total expenditures. It presents total expenditures for the export sector of residents, the percent of total expenditures of the export sector of residents as a percentage of the total expenditures for the entire sample and the total expenditures for the entire

Table 3.6. Relative Summary of Average Expenditures Per Person Per Day - Entire Sample and Export Sector

Category	Export Sector	Entire Sample
Lodging	4.31	4.59
Food and Beverages	24.10	27.17
Transportation	4.46	7.31
Boating	16.30	20.16
Fishing	8.86	9.58
Scuba Diving/Snorkeling	0.12	1.53
Sightseeing	2.77	3.54
Other Activity Expenditures	2.59	2.97
Miscellaneous Expenditures	8.43	18.31
Services	1.57	3.62
Total	73.51	98.79

Table 3.7. Relative Summary of Total Expenditures Per Person - Entire Sample and Export Sector[1]

Category	Export Sector	Export Sector as Percent of Entire Sample	Entire Sample
Lodging	5,529.84	29.65%	18,648.25
Food and Beverages	30,920.91	28.01%	110,386.28
Transportation	5,722.29	19.27%	29,699.07
Boating	20,913.31	25.53%	81,906.05
Fishing	11,367.61	29.21%	38,921.62
Scuba Diving/Snorkeling	153.96	1.67%	9,216.08
Sightseeing	3,553.98	24.71%	14,382.31
Other Activity Expenditures	3,323.04	27.54%	12,066.52
Miscellaneous Expenditures	10,815.90	14.54%	74,389.87
Services	2,014.35	13.70%	14,707.34
Total	94,315.19	23.33%	404,323.39

1. Dollars in Thousands.

sample. These numbers are derived by multiplying the mean expenditures per person per day by the number of person-days for the export sector (about 1.28 million) and for the entire sample (about 4.06 million) respectively. These numbers are the interim step between expenditures from the survey data and the multiplier process. Once these numbers are calculated, inputs that are not purchased locally are deducted and then the multiplier effects are calculated. For detailed total expenditures, please refer to Appendix Table A.3.2.

Endnotes

1. The same spending categories that were used in the visitor study were used for residents. However, several items were excluded because residents reported non trip related expenditures for medical services and air fares. For clothing and boat repair many residents reported large amounts that in our judgement were not trip-related. In these cases (amounts over $100), we put the expenditures on a per person per day basis by dividing by the total annual days of recreation for clothing and for annual days of boating activity for boat repair. We also conducted an "outlier" analysis and eliminated large spending amounts that had significant influences on estimated average expenditures per person per day. Oil and gas expenditures over $100 and Business Services over $50 were dropped.

Chapter 4

Importance and Satisfaction Ratings

Background

For many years, the U.S. Forest Service and many other federal, state, and local agencies that manage parks and/or other natural resources have used the National Satisfaction Index (NSI) for measuring satisfaction. Satisfaction is a complex feature of the recreation experience and it is now agreed upon by most researchers that "Importance-Performance" or "Importance-Satisfaction" is a much more complete measure and provides a much simpler interpretation than the NSI. First described in the marketing literature by Martilla and James (1977), it has been described and/or used in such studies as Guadgnolo (1985), Richardson (1987), Hollenhorst, Olson, and Fortney (1992), Leeworthy and Wiley (1994, 1995 and 1996).

The importance and satisfaction section of the mailback questionnaire was divided into two sections to obtain the necessary information for the importance-satisfaction analysis. The first section asks the respondent to read each statement and rate the **importance** of each of the 25 items *as it contributes to an ideal recreation setting for the activities they did in the Florida Keys/Florida Bay area.* Each item is rated or scored on a one to five scale (1-5) with one (1) meaning "Not Important" and five (5) meaning "Extremely Important." The respondent was also given the choices of answering "Not Applicable" or "Don't Know." The second section asks the respondent to consider the same list of items they just rated for importance and to rate them for how **satisfied** they were with each item *at the places they did their activities in the Florida Keys/ Florida Bay area.* Again, a five point scale was used with one (1) meaning "Terrible" and a score of five (5) meaning "Delighted." Respondents were also given the choices of answering either "Not Applicable" or "Don't Know."

In this chapter, the collected data is presented in several ways. First, the means or average scores are reported along with the estimated standard errors of the mean, the sample sizes (number of responses), and the percent of respondents that gave a rating. This latter measure is important because many respondents provide importance ratings for selected items but may not have had a chance to use a resource, facility, or service and therefore do not provide a satisfaction rating. This might lead to biases in comparing importance and satisfaction. However, in recent applications, we have found that the analysis is robust with respect to this problem, i.e., it has no significant impact on the conclusions (see Leeworthy and Wiley 1994, 1995 and 1996).

The second method of presentation is the bar charts showing the mean scores for each item for importance and satisfaction. It is important to note that while both importance and satisfaction are measured on a one to five scale, the scales have different meanings are not really directly comparable. They do, however, communicate relative importance/satisfaction relationships across the different items. But some find this harder to work with than the simpler analytical framework provided next.

The most useful analytical framework provided in importance-satisfaction analysis is the four-quadrant presentation. The four quadrants are formed by first placing the importance measurement on the vertical axis and the satisfaction measurement on the horizontal axis (see Figure 4.1). An additional vertical line is placed at the mean score for all 25 items on the satisfaction scale and an additional horizontal line is placed at the mean score for all 25 items on the importance scale. These two lines form a cross hair. The cross hair then separates the importance-satisfaction measurement area into four separate areas or quadrants. This allows for interpretation as to the "***relative importance***" and "***relative satisfaction***" of each item. That is, if everyone gave high scores to all items in the Florida Keys/ Florida Bay area, we would still be able to judge the relative importance and satisfaction and establish priorities.

The use of the four quadrants provides a simple but easy-to-interpret summary of results. Scores falling in the upper left quadrant are relatively high on the importance scale and relatively low on the satisfaction scale. This quadrant is labelled "**Concentrate Here.**" Scores falling in the upper right quadrant are relatively high on the importance scale and also relatively high on the satisfaction scale and are labelled "**Keep up the Good Work.**" Scores falling in the lower left quadrant are relatively low on both the importance and satisfaction scale and are labelled "**Low Priority.**" And, finally, scores in the lower right quadrant are relatively low on the importance scale but relatively high on the satisfaction scale and are labelled "**Possible Overkill.**"

This chapter is divided into two sections. In section one, the importance-satisfaction analysis is presented for 25 items. In section two, information is presented on 10 of the 25 items for which residents who had lived in or

visited the Florida Keys/Key West at least five years ago were asked to give retrospective satisfaction ratings. That is, these residents were asked to rate how satisfied they were with these 10 items five years ago. We then test for whether there has been a statistically significant increase or decline in the satisfaction with these items.

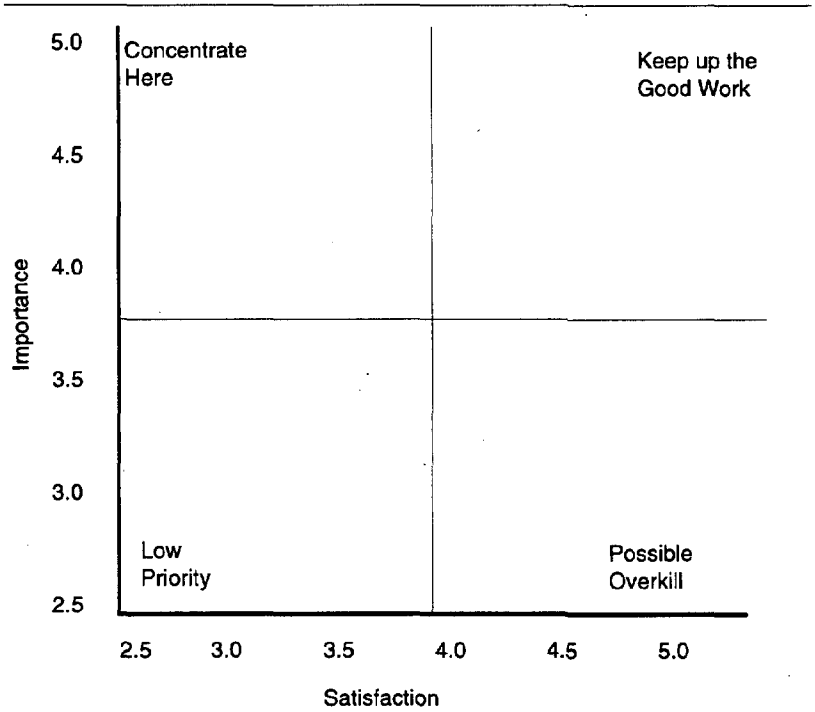
Importance-Satisfaction Analysis: All Residents

For presentation purposes, the 25 items that visitors were asked to rate are organized into four categories. In the survey, the order of the items was mixed. Each of the items is given a letter rather than a number and so are labelled A through Y. Items A through G are labelled "**Natural Resources.**" These seven (7) items are either natural resources or attributes of natural resources such as clear water. Items H through M are labelled "**Natural Resource Facilities.**" These six (6) items are either facilities that provide access to natural resources or areas or features that provide public access to natural resources. Items N through V are labelled "**Other Facilities.**" These nine (9) items are either facilities or features of facilities that are not directly related to natural resources but are indirectly related since they represent items associated with the general infrastructure of the area. Items W through Y are labelled "**Services.**" These three (3) items are either services or features of a service provided to recreationists. We considered separate analyses for each group but rejected this approach in favor of establishing the relative importance of each item with respect to all items. The organization into four categories was done simply as an aid to those users that have responsibilities in separate areas.

There were 615 respondents in total to the importance-satisfaction section of the mailback questionnaire. In none of the cases did 100 percent of all respondents give ratings for any one item. Figure 4.2 summarizes the importance-satisfaction results; the last column reports the percent of respondents that provided a rating on the item. Generally, as was discussed earlier, a lower percent of respondents provide satisfaction ratings for a given item than provide importance ratings. The four-quadrant analysis places six items in the "**Concentrate Here**" quadrant. They are B. Amount of living coral on reefs, G. Quality of beaches, R. Condition of bike paths and sidewalks/ walking paths, U. Cleanliness of streets and sidewalks, V. Uncrowded conditions, and Y. Value for the price.

Cautionary Note. The results presented here are not intended as any policy statement about what either business or governments should or should not be doing. The interpretive framework for the importance-satisfaction is simply intended as a helpful guide in organizing the ratings given by residents.

Figure 4.1 Importance/Satisfaction Matrix

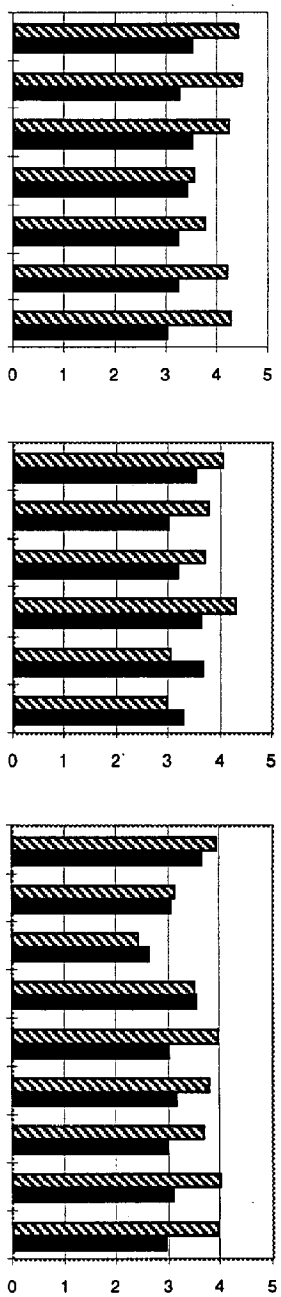


Satisfaction with Selected Items: Current Ratings versus Ratings Five Years Ago

As discussed in the Introduction, a subsample of residents were asked to provide a retrospective rating for 10 of the 25 items presented in the importance-satisfaction analysis. The subsample of residents was based on the answer to the following question: Had you lived-in or visited the Florida Keys more than five years ago? Seventy-three (73) percent answered YES to this question. This subsample was then asked to provide the retrospective rating for the 10 items. Table 4.1 presents the 10 items, summarizes the mean scores along with the estimated standard

Figure 4.2. Importance/Satisfaction Matrix Code Descriptions, Graph of Means, and Descriptive Statistics

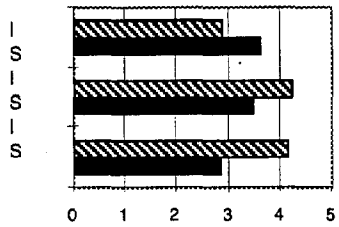
Code From Matrix - Description		Mean	Standard Error	N	% Rated
Natural Resources					
A. Clear water (high visibility)	I	4.40	0.0359	586	95%
	S	3.50	0.0405	581	94%
B. Amount of living coral on reefs	I	4.47	0.0375	575	93%
	S	3.23	0.0417	526	86%
C. Many different kinds of fish and sea life to view	I	4.22	0.0422	584	95%
	S	3.49	0.0386	562	91%
D. Many different kinds of fish and sea life to Catch	I	3.55	0.0613	561	91%
	S	3.39	0.0434	473	77%
E. Opportunity to view large wildlife: (manatees, Whales, dolphins, seaturtles)	I	3.77	0.0514	573	93%
	S	3.21	0.0462	510	83%
F. Large numbers of fish	I	4.17	0.0461	576	94%
	S	3.22	0.0432	534	87%
G. Quality of Beaches	I	4.26	0.0436	583	95%
	S	3.00	0.0485	531	86%
Natural Resource Facilites					
H. Park and specially protected areas	I	4.06	0.0475	581	94%
	S	3.51	0.0376	527	86%
I. Shoreline access	I	3.76	0.0493	570	93%
	S	3.01	0.0468	509	83%
J. Designated swimming/beach areas	I	3.69	0.0526	576	94%
	S	3.17	0.0510	506	82%
K. Mooring buoys near coral reefs	I	4.31	0.0477	554	90%
	S	3.63	0.0419	467	76%
L. Marina Facilities	I	3.04	0.0574	526	86%
	S	3.66	0.0419	403	66%
M. Boat ramps/launching facilities	I	2.95	0.0615	503	82%
	S	3.28	0.0580	349	57%
Other Facilities					
N. Historic preservation (historic landmarks, houses, etc.)	I	3.92	0.0491	578	94%
	S	3.64	0.0358	495	80%
O. Parking	I	3.12	0.0535	542	88%
	S	3.03	0.0495	456	74%
P. Public Transportation	I	2.42	0.0582	477	78%
	S	2.61	0.0719	279	45%
Q. Directional signs, street signs, mile markers	I	3.50	0.0554	572	93%
	S	3.53	0.0386	516	84%
R. Condition of bike paths and sidewalks/ walking paths	I	3.95	0.0479	571	93%
	S	3.02	0.0461	526	86%
S. Condition of roads and streets	I	3.78	0.0482	584	95%
	S	3.15	0.0428	564	92%
T. Availability of public restrooms	I	3.68	0.0506	561	91%
	S	2.96	0.0498	478	78%
U. Cleanliness of streets and sidewalks	I	3.99	0.0438	584	95%
	S	3.06	0.0419	567	92%
V. Uncrowded Conditions	I	3.93	0.0469	579	94%
	S	2.92	0.0445	561	91%



I - Importance, S - Satisfaction

Figure 4.2. Importance/Satisfaction Matrix Code Descriptions, Graph of Means, and Descriptive Statics (continued)

Code From Matrix - Description		Mean	Standard Error	N	% Rated
Services					
W. Maps, brochures, and other tourist information	I	2.87	0.0589	542	88%
	S	3.63	0.0419	391	64%
X. Service and friendliness of people	I	4.21	0.0401	582	95%
	S	3.46	0.0403	558	91%
Y. Value for the price	I	4.14	0.0414	580	94%
	S	2.84	0.0483	535	87%



I - Importance, S - Satisfaction

Importance/Satisfaction Matrix

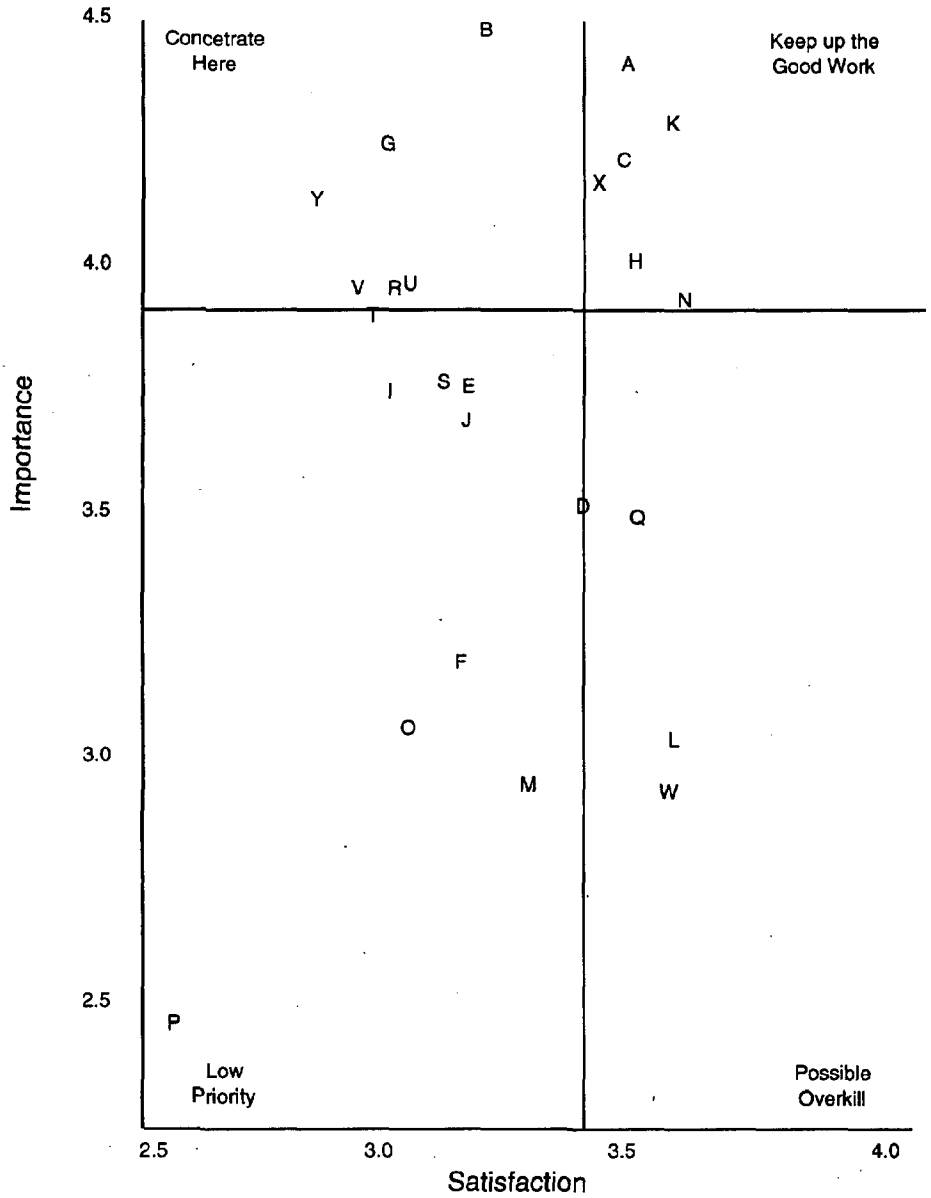


Table 4.1. A Comparison of Satisfaction Ratings on 10 Selected Items: Current Ratings versus Five Years Ago

Item	Mean	Stderr	N	Significant Difference[1]
Clear water (high visibility)			412	YES
Current rating	3.38	0.048		
Five years ago	3.92	0.046		
Amount of living coral on reefs			359	YES
Current rating	3.16	0.049		
Five years ago	3.79	0.047		
Opportunity to view large wildlife			340	YES
Current rating	3.20	0.056		
Five years ago	3.61	0.050		
Uncrowded conditions			395	YES
Current rating	2.94	0.056		
Five years ago	3.55	0.052		
Shoreline access			347	YES
Current rating	2.94	0.057		
Five years ago	3.14	0.055		
Quality of beaches			368	YES
Current rating	2.85	0.056		
Five years ago	3.04	0.055		
Service and friendliness of people			397	YES
Current rating	3.53	0.045		
Five years ago	3.62	0.046		
Historic preservation (historic landmarks, houses, etc.)			332	NO
Current rating	3.60	0.044		
Five years ago	3.55	0.044		
Parks and specially protected areas			363	YES
Current rating	3.50	0.046		
Five years ago	3.65	0.045		
Conditions of roads and streets			397	NO
Current rating	3.15	0.049		
Five years ago	3.06	0.049		

1. YES means statistically sifnificant difference with 95 percent confidence. Statistical test was a paired t-test for the difference in the means. Differences were normally distributed. Sample sizes for tests were based on those that gave ratings for current time period and for five years ago.

errors of the mean, and lists the sample size (or number of responses for each item). Also provided are the results of statistical tests for the difference in mean scores between the current rating and the rating for each item five years ago. A YES in the last column of Table 4.1 indicates that there was a statistically significant difference in the two mean scores for an item. A paired t-test was done using PROC MEANS in SAS Version 6.12. Differences in the scores were first calculated and tests for normality were conducted. The differences were all normally distributed, making the paired t-test appropriate. The differences noted here were significant at least at the 95 percent confidence level. There were significant declines in satisfaction ratings for eight (8) of the 10 items. For two of the items, there was no significant difference.

Key Findings:

Satisfaction Ratings: Current versus Five Years Ago

- ***Clear water (high visibility).*** Significant decline.
- ***Amount of living coral on reefs.*** Significant decline.
- ***Opportunity to view large wildlife.*** Significant decline.
- ***Uncrowded conditions.*** Significant decline.
- ***Shoreline access.*** Significant decline.
- ***Quality of beaches.*** Significant decline.
- ***Service and friendliness of people.*** Significant decline.
- ***Historic preservation.*** No difference.
- ***Parks and specially protected areas.*** Significant decline.
- ***Conditions of roads and streets.*** No difference.

Environmental Concern Index (ECI).

The ECI is an index created by the answers to 16 questions asked on the final section in the mailback questionnaire. The 16 questions were designed by Weigel and Weigel (1978). The index has been tested by past researchers for internal consistency, test re-test reliability and validity. The index has also been used successfully to predict actual behaviors with regard to environmental concerns such as recycling.

In 1992, NOAA, the U.S. Forest Service, the U.S. Environmental Protection Agency, the U.S. Department of the Interior's Bureau of Land Management, the U.S. Army Corps of Engineers, the U.S. Department of Agriculture's Economic Research Service, and the Sporting Goods Manufacturing Association joined in a cooperative effort to conduct the National Survey on Recreation and the Environment (NSRE). The NSRE partners hired Dr. Morgan Miles, Associate Professor of Marketing at Georgia Southern University, to evaluate several competing indexes that might be used for measuring people's environmental concerns. Dr. Miles was asked to evaluate the New Environmental Paradigm (Dunlap and Van Liere, 1978), the Personal Environmental Behavior Scale (Dunlap and Van Liere, 1978), the Roper Survey (1991), and the ECI.

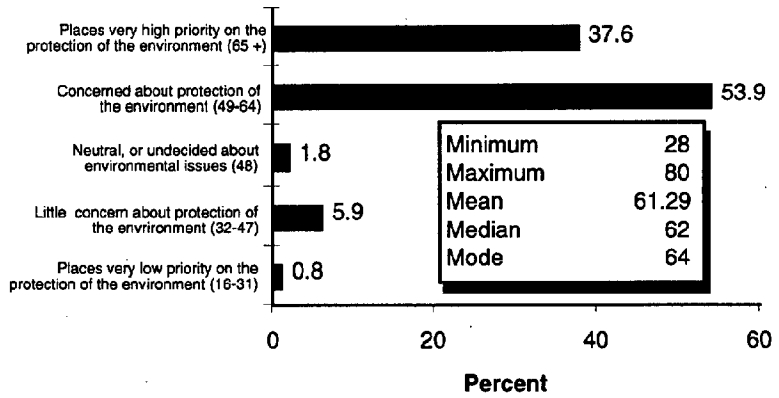


Figure 4.3 Environmental Concern Index

Dr. Miles concluded that the ECI was the best index because it measured three basic components of attitude: beliefs, evaluations, and intentions. The other scales measure only one or two of these components and thus can be more easily misinterpreted. Based on Dr. Miles's evaluation and the ECI's past record in predicting people's actual behavior, we decided to include it in the resident survey. The ECI's use in the context of predicting recreation behavior or in segmenting markets has not to our knowledge been tested. Therefore, we consider the ECI as experimental. In future work, we hope to test the usefulness of this index.

There was no statistical difference in the mean scores between residents and visitors (61.3 for the residents and 61.7 for the visitors) (Leeworthy and Wiley, 1996). Of residents of the Florida Keys/Key West, 37.6 percent had scores over 65, meaning they placed a very high priority on protection of the environment, and an additional 53.9 percent scored between 49 and 64, meaning they were concerned about protection of the environment (see Figure 4.3). Overall then, 91.5 percent of residents of the Florida Keys/Key West are concerned to very concerned about protecting the environment.

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Appendix Tables

Table A.2.1 Activity Participation in 41 Aggregate Activities for All Keys

Activity[1]	Number of Participants	Participation Rate[2]
Diving		
Snorkeling from a Boat	32,866	41.40
Snorkeling from Shore	15,207	19.16
All Snorkeling	35,963	45.30
Scuba Diving from a Boat	12,895	16.24
Scuba Diving from Shore	1,913	2.41
All Scuba Diving	13,219	16.65
All Snorkeling and Scuba Diving	36,859	46.43
Fishing		
Offshore Fishing	27,616	34.79
Flats/Backcountry Fishing	12,874	16.22
Other Fishing from a Boat	10,538	13.28
All Boat Fishing	31,151	39.24
Fishing from Shore	15,578	19.63
All Types of Fishing	37,835	47.66
Viewing Wildlife - Nature Study		
Viewing Wildlife/Nature Study-Boat	23,195	29.22
Viewing Wildlife/Nature Study-Land	13,836	17.43
All Viewing Wildlife-Nature Study	28,577	36.00
Boating		
Personal Watercraft Use (Rental Only)[3]	3,520	4.43
All Sailing (Excludes Charter)[4]	6,555	8.26
Other Boating Activities	18,581	23.41
All Beach Activities (Including swimming)	30,369	38.26
All Camping	5,231	6.59
Visiting Museums or Historic Areas	22,753	28.66
Sightseeing & Attractions(Paid & Unpaid)	17,305	21.80
Cultural Events(Fairs,Concerts,Plays)	25,519	32.15
Outdoor Sports and Games	13,486	16.99
Special Aggregates		
Any Activities Involving Boats	47,073	59.30
All Activities Involving Swimming	48,875	61.57
Any Water-based Activities	55,338	69.71
Any Land-based Activities	70,324	88.59
Only Water-based Activities	7,104	8.95
Only Land-based Activities	2,986	3.76
Types of Fishing Boat		
Any Charter Boat Fishing	3,948	4.97
Any Party Boat Fishing	3,832	4.83
Any Private Boat Fishing	28,949	36.47
Any Rental Boat Fishing	741	0.93
Types of Diving Boat		
Any Charter Boat Diving-Snork & Scuba	6,361	8.01
Any Private Boat Diving-Snork & Scuba	30,567	38.51
Any Rental Boat Diving-Snork & Scuba	1,682	2.12
Type of Boat Use		
Any Use of Charter/Party Boats	17,708	22.31
Any Use of Private Boats	43,274	54.52
Any Use of Rental Boats	6,322	7.96

1. These Activities are summaries from a list of 66 activities used in the survey. See Tables A.2.4, A.2.5, and A.2.6
2. Percent of residents of all ages that did activity. Double-counting has been eliminated from aggregated activities. For example, the estimate for All Snorkeling is not equal to the addition of snorkeling from a boat and snorkeling from shore since a resident may have participated in both activities. The estimate for all snorkeling eliminates this kind of double-counting.

3,4. FSU - Survey Research Center re-typed activity list and left-off Personal Watercraft Use-Private Boat and Sailing Charter Boat. Therefore these Activities were not measured.

Table A.2.2 Activity Participation in 41 Aggregate Activities for Upper and Middle Keys

Activity[1]	Upper Keys Number of Participants	Upper Keys Participation Rate[2]	Middle Keys Number of Participants	Middle Keys Participation Rate[2]
Diving				
Snorkeling from a Boat	12,432	15.66	9,044	11.39
Snorkeling from Shore	4,210	5.30	4,727	5.95
All Snorkeling	13,343	16.81	11,391	14.35
Scuba Diving from a Boat	5,235	6.60	4,967	6.26
Scuba Diving from Shore	228	0.29	1,074	1.35
All Scuba Diving	5,276	6.65	4,967	6.26
All Snorkeling and Scuba Diving	14,301	18.02	11,871	14.95
Fishing				
Offshore Fishing	9,819	12.37	9,202	11.59
Flats/Backcountry Fishing	4,969	6.26	3,916	4.93
Other Fishing from a Boat	2,973	3.74	3,816	4.81
All Boat Fishing	11,390	14.35	10,697	13.48
Fishing from Shore	5,743	7.24	3,971	5.00
All Types of Fishing	14,340	18.07	12,964	16.33
Viewing Wildlife - Nature Study				
Viewing Wildlife/Nature Study-Boat	8,881	11.19	6,153	7.75
Viewing Wildlife/Nature Study-Land	5,351	6.74	3,978	5.01
All Viewing Wildlife-Nature Study	11,325	14.27	8,793	11.08
Boating				
Personal Watercraft Use (Rental Only)[3]	1,707	2.15	492	0.62
All Sailing (Excludes Charter)[4]	2,653	3.34	1,473	1.86
Other Boating Activities	6,521	8.22	5,036	6.34
All Beach Activities (Including swimming)	9,674	12.19	12,614	15.89
All Camping	914	1.15	1,585	2.00
Visiting Museums or Historic Areas	5,280	6.65	8,298	10.45
Sightseeing & Attractions(Paid & Unpaid)	5,438	6.85	6,471	8.15
Cultural Events(Fairs,Concerts,Plays)	7,115	8.96	8,222	10.36
Outdoor Sports and Games	3,763	4.74	4,021	5.07
Special Aggregates				
Any Activities Involving Boats	19,830	24.98	15,030	18.94
All Activities Involving Swimming	18,703	23.56	17,640	22.22
Any Water-based Activities	22,099	27.84	21,917	27.61
Any Land-based Activities	19,239	24.24	25,486	32.11
Only Water-based Activities	4,458	5.62	2,760	3.48
Only Land-based Activities	3,674	4.63	7,943	10.01
Types of Fishing Boat				
Any Charter Boat Fishing	1,958	2.47	990	1.25
Any Party Boat Fishing	1,571	1.98	1,023	1.29
Any Private Boat Fishing	10,729	13.52	9,965	12.55
Any Rental Boat Fishing	300	0.38	169	0.21
Types of Diving Boat				
Any Charter Boat Diving-Snork & Scuba	2,207	2.78	1,337	1.68
Any Private Boat Diving-Snork & Scuba	12,205	15.38	8,621	10.86
Any Rental Boat Diving-Snork & Scuba	843	1.06	531	0.67
Type of Boat Use				
Any Use of Charter/Party Boats	7,062	8.90	4,862	6.12
Any Use of Private Boats	18,346	23.11	12,944	16.31
Any Use of Rental Boats	3,003	3.78	1,299	1.64

1. These Activities are summaries from a list of 66 activities used in the survey. See Tables A.2.4, A.2.5, and A.2.6
2. Percent of residents of all ages that did activity. Double-counting has been eliminated from aggregated activities. For example, the estimate for All Snorkeling is not equal to the addition of snorkeling from a boat and snorkeling from shore since a resident may have participated in both activities. The estimate for all snorkeling eliminates this kind of double-counting.

3,4. FSU - Survey Research Center re-typed activity list and left-off Personal Watercraft Use-Private Boat and Sailing Charter Boat. Therefore these Activities were not measured.

Table A.2.3 Activity Participation in 41 Aggregate Activities for Lower Keys and Key West

Activity[1]	Lower Keys Number of Participants	Lower Keys Participation Rate[2]	Key West Number of Participants	Key West Participation Rate[2]
Diving				
Snorkeling from a Boat	10,236	12.90	9,275	11.68
Snorkeling from Shore	5,142	6.48	5,040	6.35
All Snorkeling	11,754	14.81	10,397	13.10
Scuba Diving from a Boat	4,614	5.81	3,260	4.11
Scuba Diving from Shore	705	0.89	694	0.87
All Scuba Diving	4,727	5.96	3,430	4.32
All Snorkeling and Scuba Diving	13,313	16.77	11,134	14.03
Fishing				
Offshore Fishing	6,834	8.61	8,053	10.15
Flats/Backcountry Fishing	3,990	5.03	2,726	3.43
Other Fishing from a Boat	2,179	2.74	4,293	5.41
All Boat Fishing	8,596	10.83	10,132	12.76
Fishing from Shore	4,253	5.36	5,465	6.89
All Types of Fishing	10,692	13.47	12,612	15.89
Viewing Wildlife - Nature Study				
Viewing Wildlife/Nature Study-Boat	7,981	10.06	7,092	8.93
Viewing Wildlife/Nature Study-Land	5,989	7.54	4,953	6.24
All Viewing Wildlife-Nature Study	11,391	14.35	9,329	11.75
Boating				
Personal Watercraft Use (Rental Only)[3]	298	0.38	1,251	1.58
All Sailing (Excludes Charter)[4]	1,659	2.09	2,519	3.17
Other Boating Activities	4,352	5.48	6,409	8.07
All Beach Activities (Including swimming)	8,871	11.18	11,916	15.01
All Camping	2,988	3.76	395	0.50
Visiting Museums or Historic Areas	6,844	8.62	16,920	21.32
Sightseeing & Attractions(Paid & Unpaid)	6,006	7.57	13,281	16.73
Cultural Events(Fairs,Concerts,Plays)	6,347	8.00	16,146	20.34
Outdoor Sports and Games	3,304	4.16	6,468	8.15
Special Aggregates				
Any Activities Involving Boats	17,796	22.42	19,466	24.52
All Activities Involving Swimming	16,717	21.06	18,076	22.77
Any Water-based Activities	22,158	27.91	24,718	31.14
Any Land-based Activities	25,173	31.71	31,781	40.04
Only Water-based Activities	5,058	6.37	2,869	3.61
Only Land-based Activities	7,129	8.98	10,091	12.71
Types of Fishing Boat				
Any Charter Boat Fishing	787	0.99	1,013	1.28
Any Party Boat Fishing	411	0.52	1,472	1.85
Any Private Boat Fishing	7,954	10.02	8,830	11.12
Any Rental Boat Fishing	80	0.10	308	0.39
Types of Diving Boat				
Any Charter Boat Diving-Snork & Scuba	2,070	2.61	2,476	3.12
Any Private Boat Diving-Snork & Scuba	9,970	12.56	8,431	10.62
Any Rental Boat Diving-Snork & Scuba	894	1.13	421	0.53
Type of Boat Use				
Any Use of Charter/Party Boats	5,032	6.34	6,472	8.15
Any Use of Private Boats	14,801	18.65	16,050	20.22
Any Use of Rental Boats	1,287	1.62	2,211	2.79

1. These Activities are summaries from a list of 66 activities used in the survey. See Tables A.2.4, A.2.5, and A.2.6
2. Percent of residents of all ages that did activity. Double-counting has been eliminated from aggregated activities. For example, the estimate for All Snorkeling is not equal to the addition of snorkeling from a boat and snorkeling from shore since a resident may have participated in both activities. The estimate for all snorkeling eliminates this kind of double-counting.

3,4. FSU - Survey Research Center re-typed activity list and left-off Personal Watercraft Use-Private Boat and Sailing Charter Boat. Therefore these Activities were not measured.

Table A.2.4 Activity Participation in Detailed List of 66 Activities for All Keys

Activity Number	Activity Description	Number of Participants[1]	Participation Rate
N100A	Snorkeling Charter/Party Boat	4,774	6.01
N101A	Snorkeling Rental Boat	1,399	1.76
N102A	Snorkeling Private Boat	29,848	37.60
N200A	Scuba Charter/Party Boat	2,296	2.89
N201A	Scuba Rental Boat	328	0.41
N202A	Scuba Private Boat	11,452	14.43
N300	Diving Lobsters from Boat	13,525	17.04
N301	Underwater Photography	3,572	4.50
N302	Wreck Diving	2,694	3.39
N303	Spear Fishing from Boat	4,496	5.66
N400A	Fishing Offshore Charter Boat	3,018	3.80
N401A	Fishing Offshore Party Boat	3,483	4.39
N402A	Fishing Offshore Rental Boat	672	0.85
N403A	Fishing Offshore Private Boat	24,825	31.27
N404A	Fishing Flats/Backcountry Guided	1,115	1.40
N405A	Fishing Flats/Backcountry Rental Boat	128	0.16
N406A	Fishing Flats/Backcountry Private Boat	11,877	14.96
N407A	Other Fishing Charter Boat	639	0.81
N408A	Other Fishing Party Boat	442	0.56
N409A	Other Fishing Rental Boat	287	0.36
N410A	Other Fishing Private Boat	9,709	12.23
N500A	Glass Bottom Boat Rides	3,282	4.13
N501A	Backcountry Boating Excursions-Not Fish	1,668	2.10
N502A	View Nature/Wildlife Priv/Rental Boat	20,354	25.64
N600A	Personal Watercraft Rental	3,520	4.43
N701A	Sailing Rental Boat	543	0.68
N702A	Sailing Private Boat	6,095	7.68
N800A	Other Boating Charter/Party	5,419	6.83
N801A	Other Boating Rental Boat	766	0.97
N802A	Other Boating Private Boat	14,490	18.25
N10A	Snorkeling From Shore	15,207	19.16
N11A	Scuba Diving From Shore	1,913	2.41
N12	Diving For Lobsters From Shore	6,500	8.19
N13	Underwater Photography From Shore	470	0.59
N14A	Fishing From Shore	15,578	19.63
N15A	Swimming at Beaches (Not in Pool)	25,332	31.91
N16A	Swimming in Outdoor Pool	20,288	25.56
N17	Swimming with Dolphins	1,146	1.44
N18A	Windsurfing or Sailboarding	901	1.13
N19A	Wildlife Observ/Photography From Land	11,600	14.61
N20A	Other Nature Study From Land	4,849	6.11
N21	Photography From Land (Not Wildlife)	5,162	6.50
N22	Backpacking	95	0.12
N23	Camping in Developed Campgrounds	4,311	5.43
N24	Camping in Primitive Campgrounds	1,481	1.87
N25	Day Hiking	2,590	3.26
N26	Attending Ranger Guided Walk	1,920	2.42
N27	Self-Guided Nature or Historic Trails	6,109	7.70
N28	Picknicking	8,902	11.21
N29A	Visiting Historic Areas, Sites, Bldgs	17,018	21.44
N30	Attending Special Events (Fairs,etc)	22,867	28.81
N31	Attending Outdoor Concerts, Plays, etc	7,387	9.31
N32	Attending Indoor Concerts, Plays, etc	6,595	8.31
N33	Sightseeing Tours, Attractions (Paid)	6,233	7.85
N34	Sightseeing (Not Paid for Tours)	10,224	12.88
N35	Reading Roadside Exhibits or Markers	3,094	3.90
N36A	Visiting Museum, Educ Fac, Info Center	13,399	16.88
N37	Attending Outdoor Sporting Events	8,905	11.22
N38	Golf	3,482	4.39
N39	Tennis Outdoors	3,379	4.26
N40	Other Outdoor Sports or Games	8,946	11.27
N41	Bicycling	18,938	23.86
N42	Horseback Riding	180	0.23
N43	Driving for Pleasure (Mopeds,Motorcycle)	11,054	13.93
N44A	All Beach Activities (Not Swimming)	15,103	19.03
N45	Sunbathing (Not at Beach)	11,483	14.47

1. Number of Participants is equal to the total number of residents in the Keys living in Households (79,380) times the percent of residents that did the activity.

Table A.2.5 Activity Participation in Detailed List of 66 Activities for the Upper and Middle Keys

Activity Number	Activity Description	Upper Keys Number of Participants[1]	Upper Keys Participation Rate	Middle Keys Number of Participants[1]	Middle Keys Participation Rate
N100A	Snorkeling Charter/Party Boat	1,159	1.46	776	0.98
N101A	Snorkeling Rental Boat	616	0.78	419	0.53
N102A	Snorkeling Private Boat	11,622	14.64	8,557	10.78
N200A	Scuba Charter/Party Boat	1,317	1.66	811	1.02
N201A	Scuba Rental Boat	272	0.34	112	0.14
N202A	Scuba Private Boat	4,392	5.53	4,215	5.31
N300	Diving Lobsters from Boat	3,102	3.91	4,687	5.90
N301	Underwater Photography	1,095	1.38	1,562	1.97
N302	Wreck Diving	1,049	1.32	1,133	1.43
N303	Spear Fishing from Boat	753	0.95	1,284	1.62
N400A	Fishing Offshore Charter Boat	1,580	1.99	720	0.91
N401A	Fishing Offshore Party Boat	1,459	1.84	965	1.22
N402A	Fishing Offshore Rental Boat	253	0.32	169	0.21
N403A	Fishing Offshore Private Boat	8,593	10.83	8,387	10.57
N404A	Fishing Flats/Backcountry Guided	425	0.53	326	0.41
N405A	Fishing Flats/Backcountry Rental Boat	0	0.00	48	0.06
N406A	Fishing Flats/Backcountry Private Boat	4,595	5.79	3,737	4.71
N407A	Other Fishing Charter Boat	47	0.06	56	0.07
N408A	Other Fishing Party Boat	159	0.20	105	0.13
N409A	Other Fishing Rental Boat	265	0.33	0	0.00
N410A	Other Fishing Private Boat	2,641	3.33	3,713	4.68
N500A	Glass Bottom Boat Rides	1,932	2.43	347	0.44
N501A	Backcountry Boating Excursions-Not Fish	340	0.43	260	0.33
N502A	View Nature/Wildlife Priv/Rental Boat	7,702	9.70	5,709	7.19
N600A	Personal Watercraft Rental	1,707	2.15	492	0.62
N701A	Sailing Rental Boat	138	0.17	151	0.19
N702A	Sailing Private Boat	2,543	3.20	1,377	1.74
N800A	Other Boating Charter/Party	1,075	1.35	1,817	2.29
N801A	Other Boating Rental Boat	286	0.36	188	0.24
N802A	Other Boating Private Boat	5,522	6.96	4,139	5.21
N10A	Snorkeling From Shore	4,210	5.30	4,727	5.95
N11A	Scuba Diving From Shore	228	0.29	1,074	1.35
N12	Diving For Lobsters From Shore	1,501	1.89	1,255	1.58
N13	Underwater Photography From Shore	113	0.14	56	0.07
N14A	Fishing From Shore	5,743	7.24	3,971	5.00
N15A	Swimming at Beaches (Not in Pool)	7,306	9.20	11,200	14.11
N16A	Swimming in Outdoor Pool	7,726	9.73	3,952	4.98
N17	Swimming with Dolphins	289	0.36	142	0.18
N18A	Windsurfing or Sailboarding	313	0.39	135	0.17
N19A	Wildlife Observ/Photography From Land	4,938	6.22	3,077	3.88
N20A	Other Nature Study From Land	1,475	1.86	1,576	1.99
N21	Photography From Land (Not Wildlife)	2,328	2.93	2,367	2.98
N22	Backpacking	0	0.00	0	0.00
N23	Camping in Developed Campgrounds	640	0.81	1,049	1.32
N24	Camping in Primitive Campgrounds	554	0.70	536	0.68
N25	Day Hiking	577	0.73	698	0.88
N26	Attending Ranger Guided Walk	311	0.39	863	1.09
N27	Self-Guided Nature or Historic Trails	2,395	3.02	2,439	3.07
N28	Picknicking	2,250	2.83	3,132	3.95
N29A	Visiting Historic Areas, Sites, Bldgs	3,226	4.06	4,930	6.21
N30	Attending Special Events (Fairs,etc)	6,000	7.56	7,474	9.42
N31	Attending Outdoor Concerts, Plays, etc	2,639	3.32	2,036	2.57
N32	Attending Indoor Concerts, Plays, etc	1,859	2.34	921	1.16
N33	Sightseeing Tours, Attractions (Paid)	1,549	1.95	1,204	1.52
N34	Sightseeing (Not Paid for Tours)	3,276	4.13	3,981	5.01
N35	Reading Roadside Exhibits or Markers	1,770	2.23	1,618	2.04
N36A	Visiting Museum, Educ Fac, Info Center	2,102	2.65	4,760	6.00
N37	Attending Outdoor Sporting Events	2,068	2.61	2,019	2.54
N38	Golf	522	0.66	1,382	1.74
N39	Tennis Outdoors	901	1.14	927	1.17
N40	Other Outdoor Sports or Games	2,716	3.42	2,143	2.70
N41	Bicycling	6,296	7.93	4,859	6.12
N42	Horseback Riding	112	0.14	157	0.20
N43	Driving for Pleasure (Mopeds,Motorcycle)	5,364	6.76	6,830	8.60
N44A	All Beach Activities (Not Swimming)	5,027	6.33	4,736	5.97
N45	Sunbathing (Not at Beach)	4,154	5.23	2,704	3.41

1. Number of Participants is equal to the total number of residents in the Keys living in Households (79,380) times the percent of residents that did the activity.

Table A.2.6 Activity Participation in Detailed List of 66 Activities for the Lower Keys and Key West

Activity Number	Activity Description	Lower Keys Number of Participants[1]	Lower Keys Participation Rate	Key West Number of Participants[1]	Key West Participation Rate
N100A	Snorkeling Charter/Party Boat	1,565	1.97	2,150	2.71
N101A	Snorkeling Rental Boat	726	0.92	309	0.39
N102A	Snorkeling Private Boat	8,673	10.93	7,677	9.67
N200A	Scuba Charter/Party Boat	641	0.81	505	0.64
N201A	Scuba Rental Boat	168	0.21	112	0.14
N202A	Scuba Private Boat	3,805	4.79	2,757	3.47
N300	Diving Lobsters from Boat	6,095	7.68	3,859	4.86
N301	Underwater Photography	1,900	2.39	508	0.64
N302	Wreck Diving	235	0.30	900	1.13
N303	Spear Fishing from Boat	1,878	2.37	2,007	2.53
N400A	Fishing Offshore Charter Boat	739	0.93	779	0.98
N401A	Fishing Offshore Party Boat	393	0.50	1,293	1.63
N402A	Fishing Offshore Rental Boat	58	0.07	308	0.39
N403A	Fishing Offshore Private Boat	6,304	7.94	6,791	8.56
N404A	Fishing Flats/Backcountry Guided	89	0.11	276	0.35
N405A	Fishing Flats/Backcountry Rental Boat	23	0.03	58	0.07
N406A	Fishing Flats/Backcountry Private Boat	3,879	4.89	2,392	3.01
N407A	Other Fishing Charter Boat	56	0.07	481	0.61
N408A	Other Fishing Party Boat	65	0.08	225	0.28
N409A	Other Fishing Rental Boat	23	0.03	23	0.03
N410A	Other Fishing Private Boat	2,036	2.56	3,564	4.49
N500A	Glass Bottom Boat Rides	296	0.37	1,141	1.44
N501A	Backcountry Boating Excursions-Not Fish	998	1.26	494	0.62
N502A	View Nature/Wildlife Priv/Rental Boat	6,103	7.69	6,066	7.64
N600A	Personal Watercraft Rental	298	0.38	1,251	1.58
N701A	Sailing Rental Boat	126	0.16	197	0.25
N702A	Sailing Private Boat	1,533	1.93	2,322	2.93
N800A	Other Boating Charter/Party	1,359	1.71	2,323	2.93
N801A	Other Boating Rental Boat	112	0.14	181	0.23
N802A	Other Boating Private Boat	3,127	3.94	4,107	5.17
N10A	Snorkeling From Shore	5,142	6.48	5,040	6.35
N11A	Scuba Diving From Shore	705	0.89	694	0.87
N12	Diving For Lobsters From Shore	2,432	3.06	2,936	3.70
N13	Underwater Photography From Shore	56	0.07	245	0.31
N14A	Fishing From Shore	4,253	5.36	5,465	6.89
N15A	Swimming at Beaches (Not in Pool)	6,548	8.25	8,662	10.91
N16A	Swimming in Outdoor Pool	2,737	3.45	8,333	10.50
N17	Swimming with Dolphins	496	0.63	242	0.30
N18A	Windsurfing or Sailboarding	422	0.53	441	0.56
N19A	Wildlife Observ/Photography From Land	4,846	6.10	4,045	5.10
N20A	Other Nature Study From Land	2,335	2.94	1,733	2.18
N21	Photography From Land (Not Wildlife)	2,065	2.60	3,649	4.60
N22	Backpacking	0	0.00	95	0.12
N23	Camping in Developed Campgrounds	2,393	3.01	301	0.38
N24	Camping in Primitive Campgrounds	827	1.04	170	0.21
N25	Day Hiking	1,309	1.65	842	1.06
N26	Attending Ranger Guided Walk	453	0.57	449	0.57
N27	Self-Guided Nature or Historic Trails	2,418	3.05	1,844	2.32
N28	Picknicking	3,411	4.30	4,454	5.61
N29A	Visiting Historic Areas, Sites, Bldgs	3,795	4.78	12,538	15.80
N30	Attending Special Events (Fairs,etc)	5,433	6.84	14,319	18.04
N31	Attending Outdoor Concerts, Plays, etc	1,778	2.24	4,289	5.40
N32	Attending Indoor Concerts, Plays, etc	1,031	1.30	3,768	4.75
N33	Sightseeing Tours, Attractions (Paid)	1,174	1.48	5,421	6.83
N34	Sightseeing (Not Paid for Tours)	3,443	4.34	8,150	10.27
N35	Reading Roadside Exhibits or Markers	1,649	2.08	1,818	2.29
N36A	Visiting Museum, Educ Fac, Info Center	3,630	4.57	9,868	12.43
N37	Attending Outdoor Sporting Events	1,915	2.41	6,127	7.72
N38	Golf	642	0.81	2,102	2.65
N39	Tennis Outdoors	614	0.77	1,397	1.76
N40	Other Outdoor Sports or Games	2,415	3.04	4,316	5.44
N41	Bicycling	5,526	6.96	7,053	8.88
N42	Horseback Riding	135	0.17	112	0.14
N43	Driving for Pleasure (Mopeds,Motorcycle)	6,217	7.83	6,402	8.06
N44A	All Beach Activities (Not Swimming)	4,010	5.05	7,369	9.28
N45	Sunbathing (Not at Beach)	4,194	5.28	4,540	5.72

1. Number of Participants is equal to the total number of residents in the Keys living in Households (79,380) times the percent of residents that did the activity.

Table A.2.7 Within Region Participation Rates for 41 Aggregate Activities

Activity[1]	Upper Keys (Percent)[1]	Middle Keys (Percent)[1]	Lower Keys (Percent)[1]	Key West (Percent)[1]
Diving				
Snorkeling from a Boat	46.33	27.79	30.27	24.16
Snorkeling from Shore	15.69	14.53	15.21	13.13
All Snorkeling	49.73	35.01	34.76	27.08
Scuba Diving from a Boat	19.51	15.26	13.65	8.49
Scuba Diving from Shore	0.85	3.30	2.09	1.81
All Scuba Diving	19.66	15.26	13.98	8.93
All Snorkeling and Scuba Diving	53.30	36.48	39.37	29.00
Fishing				
Offshore Fishing	36.60	28.28	20.21	20.97
Flats/Backcountry Fishing	18.52	12.03	11.80	7.10
Other Fishing from a Boat	11.08	11.73	6.44	11.18
All Boat Fishing	42.45	32.87	25.42	26.39
Fishing from Shore	21.41	12.20	12.58	14.23
All Types of Fishing	53.45	39.84	31.62	32.85
Viewing Wildlife - Nature Study				
Viewing Wildlife/Nature Study-Boat	33.10	18.91	23.60	18.47
Viewing Wildlife/Nature Study-Land	19.94	12.23	17.71	12.90
All Viewing Wildlife-Nature Study	42.21	27.02	33.69	24.30
Boating				
Personal Watercraft Use (Rental Only)[2]	6.36	1.51	0.88	3.26
All Sailing (Excludes Charter)[3]	9.89	4.53	4.91	6.56
Other Boating Activities	24.31	15.48	12.87	16.69
All Beach Activities (Including swimming)	36.06	38.77	26.24	31.03
All Camping	3.41	4.87	8.84	1.03
Visiting Museums or Historic Areas	19.68	25.50	20.24	44.07
Sightseeing & Attractions(Paid & Unpaid)	20.27	19.89	17.76	34.59
Cultural Events(Fairs,Concerts,Plays)	26.52	25.27	18.77	42.05
Outdoor Sports and Games	14.03	12.36	9.77	16.84
Special Aggregates				
Any Activities Involving Boats	73.91	46.19	52.63	50.70
All Activities Involving Swimming	69.71	54.21	49.44	47.08
Any Water-based Activities	82.37	67.35	65.53	64.37
Any Land-based Activities	71.71	78.32	74.45	82.77
Only Water-based Activities	16.62	8.48	14.96	7.47
Only Land-based Activities	13.69	24.41	21.08	26.28
Types of Fishing Boat				
Any Charter Boat Fishing	7.30	3.04	2.33	2.64
Any Party Boat Fishing	5.85	3.14	1.22	3.83
Any Private Boat Fishing	39.99	30.62	23.52	23.00
Any Rental Boat Fishing	1.12	0.52	0.24	0.80
Types of Diving Boat				
Any Charter Boat Diving-Snork & Scuba	8.23	4.11	6.12	6.45
Any Private Boat Diving-Snork & Scuba	45.49	26.49	29.48	21.96
Any Rental Boat Diving-Snork & Scuba	3.14	1.63	2.64	1.10
Type of Boat Use				
Any Use of Charter/Party Boats	26.32	14.94	14.88	16.85
Any Use of Private Boats	68.38	39.78	43.77	41.80
Any Use of Rental Boats	11.19	3.99	3.81	5.76

1. Percent is residents who did that activity in the region as a percentage of residents who did any activity in the region.
2,3. FSU - Survey Research Center re-typed activity list and left-off Personal Watercraft Use-Private Boat and Sailing Charter Boat. Therefore these Activities were not measured.

Table A.2.8 Average Number of Days of Activity by Region

Activity[1]	Upper Keys	Middle Keys	Lower Keys	Key West
All Snorkeling	**27.0**	**34.9**	**32.0**	**31.4**
Charter/Party Boat	4.1 *	4.4 *	2.3 *	2.9
Rental Boat	2.0 *	4.3 *	1.3 *	4.8 *
Private Boat	14.2	15.4	15.6	10.1
Snorkeling from Boat	20.3	24.1	19.2	17.8
Shore	6.7	10.8	12.8	13.6
All Scuba Diving	**20.5**	**16.7**	**22.0**	**16.7**
Charter/Party Boat	4.3 *	3.0 *	2.4 *	4.5 *
Rental Boat	1.0 *	0.0	10.0 *	0.0
Private Boat	11.0	11.1	7.3	9.2
Scuba from Boat	16.3	14.1	19.7	13.7
Shore	4.2 *	2.6 *	2.3 *	3.0 *
Offshore Fishing	**19.3**	**20.0**	**21.1**	**18.8**
Charter Boat	2.4 *	4.2 *	1.8 *	1.8 *
Party Boat	3.3 *	2.0 *	3.0 *	2.0 *
Rental Boat	1.3 *	1.0 *	2.0 *	1.5 *
Private Boat	12.3	12.8	14.3	13.5
Flats/Backcountry Fishing	**17.2**	**11.8**	**22.6**	**13.5**
Guided	7.7 *	1.5 *	9.0 *	1.0 *
Rental Boat	0.0	0.0	1.0 *	3.0 *
Private Boat	9.5	10.3	12.6	9.5 *
Other Fishing	**31.1**	**6.0**	**12.1**	**16.3**
Charter Boat	1.0 *	0.0	0.0	3.5 *
Party Boat	2.0 *	0.0	0.0	2.6 *
Rental Boat	7.5 *	0.0	1.0 *	3.0 *
Private Boat	20.6 *	6.0 *	11.1 *	7.2 *
Fishing from Shore	**9.8**	**12.4 ***	**11.6**	**5.6**
All Fishing	**77.4**	**50.2**	**67.4**	**54.2**
Personal Watercraft - Rental	**2.8 ***	**2.6 ***	**2.5 ***	**2.3 ***
Sailing	**10.9**	**16.7**	**16.8**	**12.7**
Rental Boat	1.0 *	1.0 *	3.0 *	4.8 *
Private Boat	9.9	15.7 *	13.8 *	7.9
Other Boating	**18.0**	**13.6**	**19.4**	**17.1**
Charter/Party Boat	1.3 *	2.1 *	2.3 *	2.2
Rental Boat	3.0 *	3.0 *	1.0 *	3.0 *
Private Boat	13.7	8.5	16.1	11.9
Viewing Nature & Wildlife	**15.6**	**16.1**	**19.4**	**11.7**
Glass-bottom Boat	1.3 *	1.0 *	1.0 *	1.3 *
Guided Backcountry Excursion	1.5 *	7.0 *	2.2 *	2.0 *
Private/Rental Boat	12.8	8.1	16.2	8.4
Wildlife & Nature Study - Land	**16.2**	**18.8**	**18.8**	**19.0**
Wildlife observation/photography	10.9	8.8	8.2	9.5
Other Nature Study	5.3 *	10.0 *	10.6 *	9.5 *
All Viewing Wildlife & Nature	**31.7**	**34.9**	**38.2**	**30.7**
All Beach Activities	**29.3**	**17.6**	**15.2**	**29.8**
Swimming at Beaches	12.8	11.0	9.5	13.7
Other Beach Activities	16.5	6.6	5.7	16.1
Windsurfing or Sailboarding	9.3 *	4.0 *	4.0 *	2.5 *
Swimming in Outdoor Pools	**29.3**	**18.9**	**11.5 ***	**28.0**
Museums & Historic Sites	**5.9**	**5.9**	**7.6**	**9.5**
Museums	2.5	2.0	2.4	4.7
Historic Areas	3.4	3.9	5.2	4.8

Averages are for those that did the activity. Table A.2.10 report the total numbers of days of activity in each region for each season.

* Sample size not large enough (less than 25 observations) to consider estimate reliable.

Table A.2.9 Total Annual Number of Days of Activity by Region (Thousands of Days)

Activity1	Upper Keys	Middle Keys	Lower Keys	Key West	All Keys
All Snorkeling	**199.2**	**187.9**	**205.7**	**153.8**	**746.5**
Charter/Party Boat	4.8 *	3.4 *	3.6 *	6.2	18.0
Rental Boat	1.2 *	1.8 *	0.9 *	1.5 *	5.5
Private Boat	165.0	131.8	135.3	77.5	509.6
Snorkeling from Boat	171.0	137.0	139.8	85.3	533.1
Shore	28.2	50.9	65.8	68.5	213.4
All Scuba Diving	**55.2**	**52.0**	**32.6**	**29.7**	**169.6**
Charter/Party Boat	5.7 *	2.4 *	1.5 *	2.3 *	11.9
Rental Boat	0.3 *	0.0	1.7 *	0.0	2.0
Private Boat	48.3	46.8	27.8	25.4	148.2
Scuba from Boat	54.2	49.2	31.0	27.6	162.1
Shore	1.0 *	2.8 *	1.6 *	2.1 *	7.5
Offshore Fishing	**114.5**	**112.5**	**92.9**	**96.1**	**416.1**
Charter Boat	3.8 *	3.0 *	1.3 *	1.4 *	9.5
Party Boat	4.8 *	1.9 *	1.2 *	2.6 *	10.5
Rental Boat	0.3 *	0.2 *	0.1 *	0.5 *	1.1
Private Boat	105.6	107.4	90.3	91.7	395.0
Flats/Backcountry Fishing	**47.0**	**39.0**	**49.7**	**23.2**	**158.8**
Guided	3.3 *	0.5 *	0.8 *	0.3 *	4.8
Rental Boat	0.0	0.0	0.0 *	0.2 *	0.2
Private Boat	43.7	38.5	48.9	22.7 *	153.8
Other Fishing	**56.8**	**22.3**	**22.6**	**28.0**	**129.7**
Charter Boat	0.0 *	0.0	0.0	1.7 *	1.7
Party Boat	0.3 *	0.0	0.0	0.6 *	0.9
Rental Boat	2.0 *	0.0	0.0 *	0.1 *	2.1
Private Boat	54.4 *	22.3 *	22.6 *	25.7 *	124.9
Fishing from Shore	**56.1**	**49.2 ***	**49.3**	**30.6**	**185.2**
All Fishing	**274.3**	**223.0**	**214.6**	**177.9**	**889.8**
Personal Watercraft - Rental	**4.8 ***	**1.3 ***	**0.7 ***	**2.9 ***	**9.7**
Sailing	**25.3**	**21.8**	**21.5**	**19.3**	87.9
Rental Boat	0.1 *	0.2 *	0.4 *	0.9 *	1.6
Private Boat	25.2	21.6 *	21.2 *	18.3	86.3
Other Boating	**77.9**	**39.6**	**53.6**	**54.5**	**225.6**
Charter/Party Boat	1.4 *	3.8 *	3.1 *	5.1	13.4
Rental Boat	0.9 *	0.6 *	0.1 *	0.5 *	2.1
Private Boat	75.7	35.2	50.3	48.9	210.1
Viewing Nature & Wildlife - Boat	**101.5**	**48.4**	**101.4**	**53.4**	**304.7**
Glass-bottom Boat	2.4 *	0.3 *	0.3 *	1.5 *	4.5
Guided Backcountry Excursion	0.5 *	1.8 *	2.2 *	1.0 *	5.5
Private/Rental Boat	98.6	46.2	98.9	51.0	294.7
Wildlife & Nature Study - Land	**61.6**	**42.8**	**64.5**	**54.9**	**223.8**
Wildlife observation/photography	53.8	27.1	39.7	38.4	159.1
Other Nature Study	7.7 *	15.8 *	24.8 *	16.5 *	64.7
All Viewing Wildlife & Nature	**163.1**	**91.2**	**165.8**	**108.3**	**528.5**
All Beach Activities	**176.5**	**154.5**	**85.1**	**237.3**	**653.3**
Swimming at Beaches	93.5	123.2	62.2	118.7	397.6
Other Beach Activities	82.9	31.3	22.9	118.6	255.7
Windsurfing or Sailboarding	**2.9 ***	**0.5 ***	**1.7 ***	**1.1 ***	**6.3**
Swimming in Outdoor Pools	**226.1**	**74.7**	**31.5 ***	**233.3**	**565.6**
Museums & Historic Sites	**16.3**	**28.7**	**28.4**	**106.6**	**180.0**
Museums	5.3	9.5	8.7	46.4	69.9
Historic Areas	11.0	19.2	19.7	60.2	110.1

* Sample size not large enough (less than 25 observations) to consider estimate reliable.

Table A.3.1. Relative Average Expenditures Per Person Per Day - Entire Sample and Export Sector

Category	Export Sector	Entire Sample
Lodging	**4.31**	**4.59**
Publicly Owned		
Hotel/motel/bed & breakfast/cabin, etc.	2.67	1.91
Camping site (RV/tent/camper)	0.30	0.34
Privately Owned		
Hotel/motel/bed & breakfast/cabin, etc.	1.24	1.72
Rental home, cottage, cabin, condo	0.00	0.58
Camping site (RV/tent/camper)	0.10	0.04
Food and Beverages	**24.10**	**27.17**
Food & drinks consumed at restuarants & bars	12.71	14.56
Beverages purchased at a store for carry-out	4.61	5.52
Food purchased at a store for carry-out	6.78	7.09
Transportation	**4.46**	**7.31**
Rental automobile, motor home, trailer, motor-cycle or other recreation vehicle	1.25	1.11
Gas & Oil - auto or RV	2.23	3.80
Repair & Service - auto or RV	0.64	1.68
Parking fees & tolls	0.20	0.63
Taxi fare	0.14	0.05
Bus Fare		
a) Package tour	0.00	0.02
b) Any other bus fare	0.00	0.02
Boating	**16.30**	**20.16**
Boat, jet ski, and wave runner rental	1.12	2.07
Boat fuel and oil	14.15	15.57
Boat repairs	0.48	1.41
Boat launch fees	0.10	0.23
Boat slip or marina fees (this trip only)	0.16	0.41
Sailing charters or sunset cruises	0.29	0.47
Fishing	**8.86**	**9.58**
Cut bait	3.11	2.26
Live bait	1.20	1.52
Daily or special fishing permits	0.89	1.37
Fishing lines, fly lines, fish nets, traps	0.44	0.90
Charter/party boat/guide service	3.22	3.53
Scuba Diving/Snorkeling	**0.12**	**1.53**
Rental fee for equipment	0.09	0.56
Charter/party boat/guide service	0.03	0.97
Sightseeing	**2.77**	**3.54**
Sightseeing tours	0.23	0.39
Glass-bottom boat rides	0.29	0.44
Backcountry excursions, kayak tours	0.24	0.41
Park entrance fees	0.00	0.00
Admission to tourist, amusement, festivals and other commercial attractions	2.01	2.30
Other Activity Expenditures	**2.59**	**2.97**
Rental fee for recreation equipment (bicycles, golf carts or others not listed above)	0.37	0.47
Guide service, tour, or outfitters (not listed above,like parasailing)	0.42	0.43
Admission to motion pictures, theaters, museums, etc.	1.80	2.07
Miscellaneous Expenditures	**8.43**	**18.31**
Film purchases	2.42	3.86
Film development	2.67	5.47
Footware	1.07	3.84
Clothing	0.53	1.80
Souvenirs and gifts (not clothing)	1.74	3.34
Services	**1.57**	**3.62**
Barber, laundry, and other personal services	1.37	3.36
Telephone,fax, and other business services	0.20	0.22
Other Services	0.00	0.04
Total Previous 12 months	**73.51**	**98.78**

Table A.3.2. Relative Total Expenditures Per Person Per Day - Entire Sample and Export Sector[1]

Category	Export Sector	Entire Sample
Lodging	**5,529.84**	**18,648.25**
Publicly Owned		
Hotel/motel/bed & breakfast/cabin, etc.	3,425.68	7,759.95
Camping site (RV/tent/camper)	384.91	1,381.35
Privately Owned		
Hotel/motel/bed & breakfast/cabin, etc.	1,590.95	6,988.02
Rental home, cottage, cabin, condo	0.00	2,356.42
Camping site (RV/tent/camper)	128.30	162.51
Food and Beverages	**30,920.91**	**110,386.28**
Food & drinks consumed at restuarants & bars	16,307.25	59,154.37
Beverages purchased at a store for carry-out	5,914.75	22,426.66
Food purchased at a store for carry-out	8,698.91	28,805.25
Transportation	**5,722.29**	**29,699.07**
Rental automobile, motor home, trailer, motor-cycle or other recreation vehicle	1,603.78	4,509.71
Gas & Oil - auto or RV	2,861.15	15,438.64
Repair & Service - auto or RV	821.14	6,825.50
Parking fees & tolls	256.61	2,559.56
Taxi fare	179.62	203.14
Bus Fare		
a) Package tour	0.00	81.26
b) Any other bus fare	0.00	81.26
Boating	**20,913.31**	**81,906.05**
Boat, jet ski, and wave runner rental	1,436.99	8,410.00
Boat fuel and oil	18,154.81	63,257.80
Boat repairs	615.85	5,728.55
Boat launch fees	128.30	934.44
Boat slip or marina fees (this trip only)	205.28	1,665.75
Sailing charters or sunset cruises	372.08	1,909.52
Fishing	**11,367.61**	**38,921.62**
Cut bait	3,990.21	9,181.93
Live bait	1,539.63	6,175.46
Daily or special fishing permits	1,141.89	5,566.04
Fishing lines, fly lines, fish nets, traps	564.53	3,656.52
Charter/party boat/guide service	4,131.34	14,341.68
Scuba Diving/Snorkeling	**153.96**	**6,216.08**
Rental fee for equipment	115.47	2,275.17
Charter/party boat/guide service	38.49	3,940.92
Sightseeing	**3,553.98**	**14,382.31**
Sightseeing tours	295.10	1,584.49
Glass-bottom boat rides	372.08	1,787.63
Backcountry excursions, kayak tours	307.93	1,665.75
Park entrance fees	0.00	0.00
Admission to tourist, amusement, festivals and other commercial attractions	2,578.88	9,344.44
Other Activity Expenditures	**3,323.04**	**12,066.52**
Rental fee for recreation equipment (bicycles, golf carts or others not listed above)	474.72	1,909.52
Guide service, tour, or outfitters (not listed above,like parasailing)	538.87	1,747.00
Admission to motion pictures, theaters, museums, etc.	2,309.45	8,410.00
Miscellaneous Expenditures	**10,815.90**	**74,389.87**
Film purchases	3,104.92	15,682.41
Film development	3,425.68	22,223.52
Footware	1,372.84	15,601.15
Clothing	680.00	7,313.04
Souvenirs and gifts (not clothing)	2,232.46	13,569.75
Services	**2,014.35**	**14,707.34**
Barber, laundry, and other personal services	1,757.74	13,651.01
Telephone,fax, and other business services	256.61	893.82
Other Services	0.00	162.51
Total Previous 12 months	**94,315.20**	**401,323.38**

Table A.3.3. Wages-to-Sales and Wages-to-Employment Ratios by SIC

SIC	Industry	Wages-to-Sales	Wages-to-Employment
70	Hotels and Motels	0.2418	14,874
72	Personal Services	0.2673	10,083
73	Business Services	0.3077	14,416
80	Health Services	0.3689	24,081
89	Other Services	0.3556	48,643
75	Automotive repair, services and parking	0.2213	18,036
751	Automotive rental and leasing	0.1542	19,577
753	Automotive repair	0.2191	19,188
54	Food Stores	0.1024	12,492
554	Gasoline Service Stations	0.0644	13,951
58	Eating and drinking places	0.2415	8,902
56	Apparel and accessory stores	0.1413	12,621
53	General Merchandise Stores	0.1116	10,636
591	Drug and proprietary Stores	0.1023	16,197
59	Miscellaneous retail stores	0.1666	13,528
78,79,84	Amusement and recreation services including motion pictures and museums	0.2806	14,398
79 ex.792, 793, 84	Commercial sports and other recreation services, including museums	0.2927	15,273

Table A.3.4. Derivation of Total Income to Wages & Salaries Ratio for Monroe County

Employment by Place of Work	46,784
Wage and Salary Employment	36,621
Proprietors Employment	10,163
Wages & Salaries and other Labor Income	854,877 (000's)
Proprietor's Income	189,947 (000's)
Total Income by Place of Work	1,044,824 (000's)
Total Income-to-Wages & Salaries Ratio	1.2222
Proprietor's Income-to-Proprietor's Employment	18,690

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 1994

Table A.3.5. Derivation of Direct Wages and Salaries Income and Employment

Category	Expenditures Per Person Per Day	Total Expenditures	Wages to Sales Ratio	Total Wages	Wages to Employment Ratio	Total Employment
Lodging	**4.31**	**5,529,839.66**	**0.2418**	**1,337,115.23**	**14,874.00**	**89.90**
Publicly Owned						
Hotel/motel/bed & breakfast/cabin, etc.	2.67	3,425,677.93	0.2418	828,328.92	14,874.00	55.69
Camping site (RV/tent/camper)	0.30	384,907.63	0.2418	93,070.67	14,874.00	6.26
Privately Owned						
Hotel/motel/bed & breakfast/cabin, etc.	1.24	1,590,951.55	0.2418	384,692.08	14,874.00	25.86
Rental home, cottage, cabin, condo	0.00	0.00	0.2418	0.00	14,874.00	0.00
Camping site (RV/tent/camper)	0.10	128,302.54	0.2418	31,023.56	14,874.00	2.09
Food and Beverages	**24.10**	**30,920,913.18**		**4,543,886.81**		**562.19**
Food & drinks consumed at restuarants & bars	12.71	16,307,253.38	0.2415	3,938,201.69	8,902.00	442.40
Beverages purchased at a store for carry-out	4.61	5,914,747.29	0.1024	605,670.12	12,492.00	48.48
Food purchased at a store for carry-out	6.78	8,698,912.50	0.1024	890,768.64	12,492.00	71.31
Transportation	**4.46**	**5,722,293.48**		**708,009.36**		**40.57**
Rental automobile, motor home, trailer, motor-cycle or other recreation vehicle	1.25	1,603,781.80	0.1542	247,303.15	19,577.00	12.63
Gas & Oil - auto or RV	2.23	2,861,146.74	0.0644	184,257.85	13,951.00	13.21
Repair & Service - auto or RV	0.64	821,136.28	0.2191	179,910.96	19,188.00	9.38
Parking fees & tolls	0.20	256,605.09	0.2213	56,786.71	18,036.00	3.15
Taxi fare	0.14	179,623.56	0.2213	39,750.69	18,036.00	2.20
Bus Fare						
a) Package tour	0.00	0.00	0.2418	0.00	14,874.00	0.00
b) Any other bus fare	0.00	0.00	0.2213	0.00	18,036.00	0.00
Boating	**16.30**	**20,913,314.72**		**1,931,257.37**		**131.90**
Boat, jet ski, and wave runner rental	1.12	1,436,988.50	0.2927	420,606.53	15,273.00	27.54
Boat fuel and oil	14.15	18,154,810.02	0.0644	1,169,169.77	13,951.00	83.81
Boat repairs	0.48	615,852.21	0.2191	134,933.22	19,188.00	7.03
Boat launch fees	0.10	128,302.54	0.2927	37,554.15	15,273.00	2.46
Boat slip or marina fees (this trip only)	0.16	205,284.07	0.2927	60,086.65	15,273.00	3.93
Sailing charters or sunset cruises	0.29	372,077.38	0.2927	108,907.05	15,273.00	7.13
Fishing	**8.86**	**11,367,605.42**	**0.2927**	**3,327,298.11**	**15,273.00**	**217.85**
Cut bait	3.11	3,990,209.13	0.2927	1,167,934.21	15,273.00	76.47
Live bait	1.20	1,539,630.53	0.2927	450,649.86	15,273.00	29.51
Daily or special fishing permits	0.89	1,141,892.64	0.2927	334,231.98	15,273.00	21.88
Fishing lines, fly lines, fish nets, traps	0.44	564,531.19	0.2927	165,238.28	15,273.00	10.82
Charter/party boat/guide service	3.22	4,131,341.93	0.2927	1,209,243.78	15,273.00	79.18
Scuba Diving/Snorkeling	**0.12**	**153,963.05**	**0.2927**	**45,064.99**	**15,273.00**	**2.95**
Rental fee for equipment	0.09	115,472.29	0.2927	33,798.74	15,273.00	2.21
Charter/party boat/guide service	0.03	38,490.76	0.2927	11,266.25	15,273.00	0.74
Sightseeing	**2.77**	**3,553,980.48**	**0.2927**	**1,040,250.09**	**15,273.00**	**68.11**
Sightseeing tours	0.23	295,095.85	0.2927	86,374.56	15,273.00	5.66
Glass-bottom boat rides	0.29	339,881.16	0.2927	99,483.22	15,273.00	6.51
Backcountry excursions, kayak tours	0.24	307,926.11	0.2927	90,129.97	15,273.00	5.90
Park entrance fees	0.00	0.00	0.2927	0.00	15,273.00	0.00
Admission to tourist, amusement, festivals and other commercial attractions	2.01	2,578,881.14	0.2927	754,838.51	15,273.00	49.42
Other Activity Expenditures	**2.59**	**3,323,035.90**	**0.2927**	**972,652.61**	**15,273.00**	**63.68**
Rental fee for recreation equipment (bicycles, golf carts or others not listed above)	0.37	474,719.41	0.2927	138,950.37	15,273.00	9.10
Guide service, tour, or outfitters (not listed above,like parasailing)	0.42	538,870.69	0.2927	157,727.45	15,273.00	10.33
Admission to motion pictures, theaters, museums, etc.	1.80	2,309,445.80	0.2927	675,974.78	15,273.00	44.26
Miscellaneous Expenditures	**8.43**	**10,815,904.48**		**1,330,075.27**		**91.72**
Film purchases	2.42	3,104,921.57	0.1023	317,633.48	16,197.00	19.61
Film development	2.67	3,425,677.93	0.1023	350,446.85	16,197.00	21.64
Footware	1.07	1,372,837.22	0.1413	193,981.90	12,621.00	15.37
Clothing	0.53	680,003.48	0.1413	96,084.49	12,621.00	7.61
Souvenirs and gifts (not clothing)	1.74	2,232,464.27	0.1666	371,928.55	13,528.00	27.49
Services	**1.57**	**2,014,349.95**		**548,802.59**		**52.07**
Barber, laundry, and other personal services	1.37	1,757,744.86	0.2673	469,845.20	10,083.00	46.60
Telephone,fax, and other business services	0.20	256,605.09	0.3077	78,957.39	14,416.00	5.48
Other Services	0.00	0.00	0.3556	0.00	48,643.00	0.00
Total Previous 12 months	**73.51**	**94,315,200.31**		**15,784,412.42**		**1,320.95**

Table A.3.6. Derivation of Total Output and Income Impacts

Days		1,283,025.443
x		
Expenditures per person Per trip	$	73.51
=		
Total Expenditures	$	94,315,200.31
x		
Percent of Inputs Purchased Locally		0.70
=		
Direct Output	$	66,020,640.22
x		
Output Multiplier		1.6
=		
Total Output	$	105,633,024.35
Reported Gross Sales	$	2,203,305,357.00
Percent of Gross Sales		**4.79%**
Wages and Salaries Income (Direct) (from Table A.3.3)	$	15,784,412.42
x		
Total Income-to-Wages & Salaries (from Table A.3.2)		1.2222
=		
Direct Income	$	19,291,708.86
x		
Income Multiplier		1.6
=		
Total Income	$	30,866,734.17
Reported Income (.51*Reported Sales)	$	1,123,685,732
Percent of Income		**2.75%**

Table A.3.7. Derivation of Total Employment Impacts for Monroe County

Employment (Direct) (from Table A.3.3)	1,321
x	
Employment Multiplier	1.6
=	
Employment Total	2,114
Proprietors Income (Direct) (Wages & Salaries*1.2222)-Wages & Salaries	$ 3,507,522.91
Proprietors Income-to-Employment Ratio (from Table A.3.2)	18,690.00
Proprietors Employment (Direct)	188
x	
Employment Multiplier	1.6
=	
Proprietors Employment (Total) (Wages & Salaries Plus Proprietors)	300
Total Employment (Wages & Salaries plus Proprietors)	
Direct (Employment (Direct) + Proprietors Employment (Direct))	1,509
Total (Employment (Total) + Proprietors Employment (Total))	2,414
Total Monroe County Employment	47,000
Tourist Impact as percent of Monroe County Employment	**5.14%**

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