

**Linking the Economy and the Environment of Florida
Keys/Key West**

A SOCIOECONOMIC ANALYSIS OF THE
RECREATION ACTIVITIES OF
MONROE COUNTY RESIDENTS IN THE
FLORIDA KEYS/KEY WEST 2008

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Table of Contents

Preface	ii
List of Tables	v
List of Figures	v
List of Appendix Tables	vi
Chapter 1. Sampling Methodologies, Estimation Methods, and Profiles of Monroe County Residents ...	1
Survey Sampling Methods	1
Sample Weighting	4
Participation Rates	6
Quality of Life and Most Important Reason for Living in Monroe County	9
Population of Monroe County.....	10
Endnotes	11
Chapter 2. Activity Participation	13
Participation Rates	13
Within-Region Participation Rates	13
Days in Selected Activities	14
Chapter 3. Economic Contributions	17
Background.....	17
Baseline Economy	17
Historical Perspective.....	20
Definitions	20
Summary of Results.....	21
Methods	22
Expenditures	23
Endnotes.....	25
Chapter 4. Importance and Satisfaction Ratings	27
Background	27
Importance-Satisfaction Analysis: All Residents.....	28
Satisfaction with Selected Items: Current Ratings vs. Ratings Five Years Ago.....	29
References	31
Appendix Tables	35

Preface

This report is based on a 12-year replication of the study on recreation-tourism entitled “Linking the Economy and Environment of the Florida Keys/Florida Bay”. The title has slightly changed since, based on the 1995-96 study, the Florida Bay component of Everglades National Park, was not a significant element for the Florida Keys/Key West and survey of residents and visitors that accessed Florida Bay via Everglades National Park were dropped from the study. The new title is “Linking the Economy and Environment of the Florida Keys/Key West”.

The recreation-tourism component of “Linking the Economy and Environment of the Florida Keys/Key West” is part of the Socioeconomic Research and Monitoring Program for the Florida Keys National Marine Sanctuary (FKNMS). This program was initiated in 1998 and it was determined that the recreation-tourism study should be replicated approximately every ten years. The reasoning was that the study was considered the “Census of Outdoor Recreation-Tourism in the Florida Keys/Key West. Due to administrative and funding delays, we were able to implement a 12-year replication. For a description of the Goals and Objectives of the Socioeconomic Research and Monitoring Program for the FKNMS go to the following web site:

<http://sanctuaries.noaa.gov/science/socioeconomic/floridakeys/>

The baseline study on recreation-tourism was done in 1995-96 and included separate survey of residents of Monroe County/Florida Keys and visitors to the Florida Keys/Key West. Results of the 1995-96 study are posted at the following web site:

<http://sanctuaries.noaa.gov/science/socioeconomic/floridakeys/recreation/linking96.html>

Results of the 12-year replication of the study on recreation-tourism, including this report, will be posted at the following web site location:

<http://sanctuaries.noaa.gov/science/socioeconomic/floridakeys/recreation/linking08.html>

We are generating a series of reports comparing selected measurements from the 1995-96 and 2007-08 studies for both residents and visitors. These results will be posted at the following web site location:

<http://sanctuaries.noaa.gov/science/socioeconomic/floridakeys/recreation/linking08a.html>

Funding Partners. As in 1995-96, the major funding partners were the Monroe County Tourist Development Council (TDC), the Nature Conservancy, Florida Keys Program (TNC) and the National Oceanic and Atmospheric Administration (NOAA). For NOAA, participation was much broader in the

2007-08 study. NCCOS and CRCP were major funders of this project. CRCP did not exist in 1995-96 and as discussed above, both these programs are significantly involved in the science and management of coral reef ecosystems. Although the FKNMS was designated by the U.S. Congress and signed by the President in 1992 to officially become a National Marine Sanctuary, in 1995-96 the management plan and regulations of the FKNMS were not yet final (Management Plan was finalized and regulations went into effect in July 1997). In the 2007-08 study, the FKNMS management and staff were able to provide significantly more support and had more extensive experience working with the local community, which was extremely important for this project.

Working Partners. The overall leader of this project is the same as in 1995-96, Dr. Vernon R. (Bob) Leeworthy, who was Leader of the Coastal and Ocean Economics Program located in the National Ocean Service, Special Projects Office from 1985 – 2007. Bob is now the Chief Economist of the Office of National Marine Sanctuaries and has served as the Leader of the Socioeconomic Research and Monitoring Program for the FKNMS since its inception in 1998. As mentioned above, the visitor and resident surveys of this project were implemented under the direction of Professor David Loomis from the University

of Massachusetts-Amherst. University of Massachusetts-Amherst graduate student, Chris Hawkins, was the Project Manager for the visitor surveys. In the winter season visitor survey, the Bicentennial Volunteers, Inc. (BVI) conducted the face-to-face interviews with visitors in the Florida Keys/Key West. BVI also had done the 1995-96 and 2000-01 visitor interviewing. BVI was not able to do the summer season surveys for the 2007-08 study and members of the local community were recruited and trained for the task by the University of Massachusetts-Amherst team. The University of Massachusetts-Amherst Team also conducted the mail survey of Monroe County/Florida Keys residents. David Loomis has since moved to East Carolina University.

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, lists of appendix tables are pre-

sented 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 74 detailed recreation activities and intensity of use for 39 activities across five districts of the Florida Keys/Key West. 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 resident’s 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 Key Largo, Islamorada, Marathon, Lower Keys, and Key West Districts to arrive at the total number of residents that did activities in the entire Florida Keys/Key West. The reason is that many residents engage in recreation activities in multiple districts. Estimates of the number of residents that participate in outdoor recreation in the Florida Keys/Key West, which 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-two (42) aggregated activities were formed from the original list of 74 activities. These 42 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 is intended for all people involved in planning, managing, or providing natural resources, facilities and services to residents of the Florida Keys/Key West. A great deal of information is presented. There are 13 appendix tables that include an enormous amount of detail on residents and their activities. The report should serve as a handy reference and should be considered a statistical abstract of resident's recreation activities in the Florida Keys/Key West in a similar way that the U.S. Census of population is used of the general U.S. population. Even though an enormous amount of information is presented here, the databases from which this report was generated are much richer in content. We encourage users to explore further this rich source of information by making special requests or obtaining the databases themselves. The databases with full documentation will be available for public distribution.

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List of Tables

Table	Page
1.1 Resident Mail Survey Response Rates.....	1
1.2 Comparative Demographic Profiles on Monroe County Residents.....	4
1.3 Comparative Profiles of Participants and Nonparticipants in Recreation.....	6
1.4 Participation Rates in Outdoor Recreation.....	6
1.5 Ratings on Quality of Life in Monroe County.....	10
1.6 Most Important Reason for Living in Monroe County.....	10
1.7 Population in Households (2000 and 2008).....	10
2.1 Activity Participation for All Keys	13
2.2 Top Rated Activity by Region - Number of Participants	13
2.3 All Resident Participation Rate vs. Within-Region Participation Rate: Key Largo.....	14
2.4 District Activity Participation by District of Residence.....	15
2.5 Top Rated Activity by District - Number of Days of Activity.....	16
3.1 Income by Place of Work as a Percent of Income by Place of Residence for Florida and Monroe County.....	18
3.2 Inter-county Commuting Patterns	18
3.3 Proprietors' Employment as a Percentage of Total Employment for the U.S., Florida and Monroe County.....	18
3.4 Historical Data for Sales, Income and Employment for Monroe County.....	20
3.5 Estimated Economic Contribution of Resident/Recreational Activities.....	22
3.6 Average Expenditures Per Person Per Day – Export, Non Export and Entire Sample.....	24
3.7 Total Expenditures in Monroe County: Export Sector and All Residents.....	24
4.1 A Comparison of Satisfaction Ratings on 13 Selected Items: Current Ratings versus Five Years Ago.....	30

List of Figures

Figure	Page
1.1 Monroe County Residents Mail Survey 2008.....	2
1.2 The Florida Keys/Key West.....	3
1.3 Age and Participation in Outdoor Recreation in Florida Keys/Key West.....	7
1.4 Race/Ethnicity and Participation in Outdoor Recreation in Florida Keys/Key West.....	7
1.5 Education Level and Participation in Outdoor Recreation in Florida Keys/Key West.....	7
1.6 Household Income and Participation in Outdoor Recreation in Florida Keys/Key West.....	8
1.7 Years Lived In Monroe County and Participation in Outdoor Recreation in Florida Keys/Key West.....	8
1.8 Employment Status and Participation in Outdoor Recreation in Florida Keys/Key West.....	8
1.9 District of Residence and Participation in Outdoor Recreation in Florida Keys/Key West.....	9

1.10	<i>Work Outside Monroe County and Participation in Outdoor Recreation in Florida Keys/Key West</i>	9
1.11	<i>Access to Water From Residence and Participation in Outdoor Recreation in Florida Keys/Key West</i>	9
1.12	<i>Own a Boat and Participation in Outdoor Recreation in Florida Keys/Key West</i>	9
2.1	<i>Participation in Water-based vs. Land-based Activities</i>	14
2.2	<i>Participation in Water- and Land-based Activities by District</i>	15
3.1	<i>Monthly Gross Sales in Monroe County: 2005-06 to 2007-08</i>	19
3.2	<i>Impact Process Due to Resident Spending in Monroe County</i>	21
4.1	<i>Importance-Satisfaction Matrix</i>	27
4.2	<i>Importance-Satisfaction Matrix Code Descriptions, Graph of Means, and Descriptive Statistics</i>	29

List of Appendix Tables

Appendix Table	Page
A.2.1 <i>Activity Participation in 42 Aggregate Activities by District: Key Largo, Islamorada, and Marathon</i>	36
A.2.2 <i>Activity Participation in 42 Aggregate Activities by District: Lower Keys, Key West and All Keys</i>	38
A.2.3 <i>Activity Participation in Detailed List of 74 Activities by District: Key Largo and Islamorada</i>	40
A.2.4 <i>Activity Participation in Detailed List of 74 Activities by District: Marathon and Lower Keys</i>	42
A.2.5 <i>Activity Participation in Detailed List of 74 Activities by District: Key West and All Keys</i>	44
A.2.6 <i>Within District Participation Rates for 42 Aggregate Activities</i>	46
A.2.7 <i>Average Number of Days of Activity by District 2008</i>	48
A.2.8 <i>Total Annual Number of Days by Activity and District (Thousands of Days)</i>	50
A.3.1 <i>Detailed Average Expenditures Per Person Per Day in Monroe County: Residents</i>	52
A.3.2 <i>Derivation of Direct Wages and Salaries and Employment for Monroe County: Export Sector of Residents</i>	54
A.3.3 <i>Derivation of Total Output and Income for Monroe County: Residents Export Sector</i>	56
A.3.4 <i>Derivation of Total Employment in Monroe County: Residents Export Sector</i>	57
A.3.5 <i>Total Expenditures by All Residents: Export and Non Export</i>	58

Chapter 1

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

Survey Sampling Methods

In 2008, the University of Massachusetts-Amherst Human Dimensions of Marine and Coastal Ecosystems Program conducted a survey of Monroe County residents. The survey used a mail survey of Monroe County households. Household addresses were provided for all households in Monroe County by Survey Sampling International (SSI). SSI had a list of 21,793 households in Monroe County. UMASS-Amherst sent out survey forms to 15,000 households, but only 11,661 were deliverable. Of those that were deliverable, 1,441 responded for a total response rate of 12.36% (Table 1.1).

To be eligible for the survey, a person in a household 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 county estimates of population, in 2008, there were 32,306 households containing a total population of 72,043 in Monroe County. We determined from returned surveys that 4.54% of households were households of seasonal visitors and were thus not eligible for our survey, so we dropped these observations from our results. This left us with a total eligible population of 30,839 households containing 68,771 people of all ages (Table 1.7). This would be the population from which we extrapolate survey sample estimates to population totals.

Table 1.1 *Monroe County Residents Mail Survey 2008*

Survey Samples	Number of Households Sent Forms	Number of Household Forms Received	Response Rate (%)
Expenditures Survey	3,887	701	18.03
Satisfaction Survey	3,887	397	10.21
Knowledge, Attitudes & Perceptions (KAP)	3,887	333	8.57
All Samples	11,661	1,441	12.36

Source: University of Massachusetts-Amherst, Survey of Residents of Monroe County 2008

The mail survey took place from November 2008 through May 2009. The survey was divided into three samples since not all survey questions could be asked of any one household. The survey was divided into the “Expenditure Survey”, the “Satisfaction Survey” and the “Knowledge, Attitudes and Perceptions (KAP) Survey”. Figure 1.1 shows the types of information obtained from each survey sample. Two follow-up efforts were conducted. One post card follow-up was done after two weeks and if a response had not been received one month later, another full survey questionnaire was sent.

CORE Survey Questions. A “core” set of questions were asked in all three survey samples. This included participation by households in any outdoor recreation in Monroe County/Florida Keys during the past 12 months, and participation by all household members in a detailed list of 74 activities by district (Key Largo, Islamorada, Marathon, Lower Keys, Key West—see Figure 1.2) during the past 12

months¹. The number of days of activity was asked for a select list of 39 activities by district during the past 12 months. Detailed profiles of residents (age, race/ethnicity, education level, household income, household size, employment status, work outside Monroe County, years lived in Monroe County, access to water from residence, ownership of a boat, and zip code of residence) were obtained. Also ratings on the quality of life in Monroe County and the primary reason for locating in Monroe County were obtained. Questions were also asked of those that did outdoor recreation on how specialized they were in their main activity. In addition, use of artificial and natural reefs was obtained by district and activity and how many days of outdoor recreation were done outside Monroe County over the past 12 months. A total of 1,441 completed questionnaires were returned, but only 1,366 of those were permanent residents of Monroe County. Seasonal residents were deleted to avoid double-counting, since seasonal visitors were included in

Figure 1.1 *Monroe County Resident Mail Survey 2008*

Target Population: All Monroe County Households with Permanent Residents, excluding seasonal visitors.

Sample: 1,366 Monroe County Households with Permanent Residents

Information Obtained in All Survey Samples: N=1,366

- Participation in any outdoor recreation in Monroe County/Florida Keys during the past 12 months.
- Participation by all household members in detailed list of 74 activities by District during the past 12 months.
- Number of days did each of 39 selected activities by district during the past 12 months.
- Profile of residents (age, race/ethnicity, education level, household income, household size, number in household age 16 and older, number of children under 16 years of age, employment status, work outside Monroe County, years lived in Monroe County, access to water from residence, own a boat, and zip code of residence).
- Ratings of Quality of Life in Monroe County
- Primary Reason for Locating in Monroe County
- Specialization Questions: Used to classify recreation users according to how specialized they are in their most important activity. This in turn is used to help predict how they would respond to management strategies and regulations.
- Use of artificial and natural reefs by activity and district of access.
- How many days did outdoor recreation outside Monroe County/Florida Keys over the past 12 months?

Expenditure Survey Sample: N=649

- Trip-related expenditures for last trip in Monroe County/Florida Keys to do outdoor recreation.
- Number of days of last trip for outdoor recreation in Monroe County/Florida Keys.
- Distance traveled from residence to recreation site/access point for last outdoor recreation trip in Monroe County/Florida Keys.
- For users who used their boats for last trip, distance traveled on-water to recreation site.
- Type of activities did on last trip to do outdoor recreation in Monroe County/Florida Keys.
- Expenditures on annual Vacation and Equipment in South Florida and Monroe County.
- Economic Non Market Valuation questions for artificial and natural reefs off Monroe County/Florida Keys.

Satisfaction Survey Sample: N=388

- Importance and Satisfaction ratings for 25 natural resource attributes, facilities, and services in Monroe County/Florida Keys.
- If lived in Monroe County/Florida Keys at least five years.
- For those that have lived in Monroe County/Florida Keys for at least five years, how they rated satisfaction with 13 of the 25 items five years ago.

Knowledge, Attitudes and Perceptions of FKNMS Management Strategies and Regulations (KAP) Sample: N=329

- Sources of information used, and the ranking of sources used, about the Florida Keys National Marine Sanctuary (FKNMS).
- Attitudes about the processes FKNMS has used to develop and implement management strategies, rules and regulations, and general support for the FKNMS.
- Knowledge of the fact that all waters surrounding the Florida Keys/Key West are in the FKNMS.
- Perception of FKNMS as making the Florida Keys/Key West as a better place to live and/or doing outdoor recreation activities.
- Knowledge, Attitudes & Perceptions of the different kinds of zones in the FKNMS as to purpose, who benefits, effectiveness and support for.
- Change in uses of zones since establishment.
- Perceptions of changes in status/condition of selected natural resources since implementation of the FKNMS.
- Management strategies or regulations would like to see changed and how would like to see them changed.

the separate visitor study (Leeworthy, Loomis and Paterson 2010).

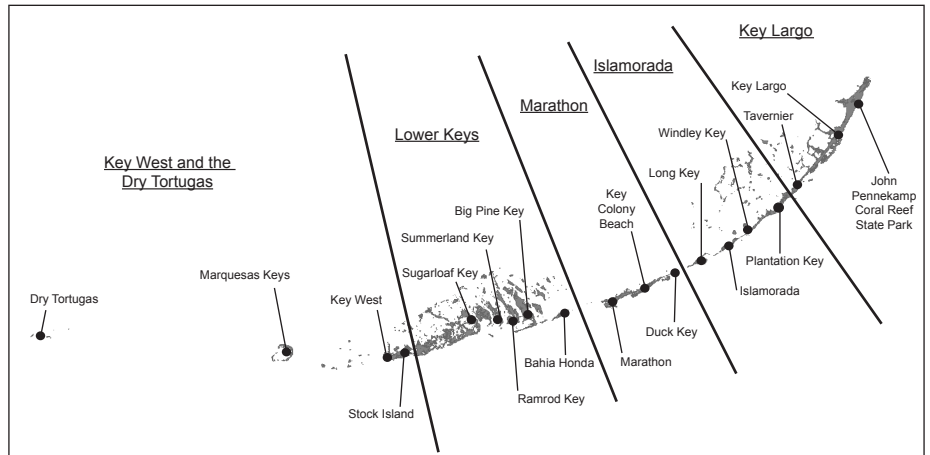
Expenditure Survey Questions.

The expenditure survey included all the “core questions” and added trip-related expenditures for the last trip in Monroe County/Florida Keys to do outdoor recreation. Number of days and number of people in the household the expenditures covered were asked to normalize expenditures on a per person per day basis. Distance from place of residence to the recreation site and for boat-related activities, the distance traveled on-water to the recreation site. The types of activities participated in were also obtained for the last trip. The expenditure survey also asked about annual vacation and equipment purchases in South Florida (Miami-Dade, Broward and Monroe County) and in Monroe County (estimates for these are not done in this report due to small sample sizes). Questions were also asked on the non market economic value for artificial and natural reefs located off Monroe County/Florida Keys. Estimates for this are not provided here, but may be the subject of future reports. A total of 3,887 questionnaires were mailed out to households that were deliverable and 701 were returned completed for a response rate of 18% (Table 1.1). However, only 649 were from households containing permanent residents of Monroe County and thus eligible for our survey and fully completed.

Satisfaction Survey Questions.

The satisfaction survey included all the “core” questions plus importance and satisfaction ratings for 25 natural resource attributes,

Figure 1.2 *The Florida Keys/Key West*



facilities, and services in Monroe County/Florida Keys. Residents were also asked if they had lived in Monroe County/Florida Keys for at least five years, and if so, to provide their satisfaction ratings for 13 of the 25 items from five years ago. This allows us to do a retrospective analysis of how things are perceived to have changed over a five-year period. A total of 3,887 questionnaires were mailed out to households that were deliverable and 397 were returned for a response rate of 10.21% (Table 1.1). However, only 388 of these were from permanent residents that fully completed the questionnaire.

KAP Survey Questions.

The KAP survey included all the “core” questions plus questions about the knowledge, attitudes & perceptions of the management strategies and regulation of the Florida Keys National Marine Sanctuary (FKNMS). Sources of information and the ranking of those sources as to usefulness were obtained about the FKNMS. Attitudes about the processes FKNMS has used to develop and implement management strategies, rules and regulations, as well as the general sup-

port for the FKNMS were obtained. People were asked about whether they knew that all the waters surrounding the Florida Keys are in the FKNMS and whether they thought the Florida Keys/Key West was a better place to live and/or to do their outdoor recreation activities because of the FKNMS. Residents were also asked about their knowledge, attitudes and perceptions of the different kinds of zones in the FKNMS as to purpose, who benefits, effectiveness and support for the zones. Residents were also asked about their changes in the use of the zones since they were established and their perceptions of the changes in status/condition of selected natural resources since implementation of the FKNMS. Finally, residents were asked about what management strategies or regulations they would like to see changed and how they would like to see them changed. A total of 3,887 questionnaires were mailed out to households that were deliverable and 333 were returned for a response rate of 8.57% (Table 1.1). However, only 329 of these were from permanent residents that fully completed the questionnaires.

Sample Weighting

Since we received relatively low response rates to each survey, the possibility exists that estimates from the samples could contain “non response bias”. We conducted an analysis of the potential for non response bias. Details of the analysis are provided in (Lee-worthy 2010). The first step of the analysis was to look at the profiles of respondents to each of the three survey samples as compared to the U.S. Bureau of Census 2000 Census of Population and the Bureau’s 2008 estimates for Monroe County (Table 1.2). A statistical test of the differences in the distributions of the population and our samples was conducted and significant differences were found for age, Hispanic or Latino Origin, and race. Younger, Hispanic and non whites were under represented in our samples comparing 2008 Census data with our samples.

For non response bias to exist there must be a relationship with what you are trying to estimate and the variable for which you have over or under representation. The next step was to estimate the relationships between key project measurements and the socioeconomic factors for which we had under representation, while controlling for other factors. We found no statistically significant relationships between the importance-satisfaction scores or the knowledge, attitudes and perception questions and age, Hispanic, or race. We did find a significant relationship between these factors and expenditures. However, the differences between the weighted and unweighted expenditures

Table 1.2 Comparative Demographic Profiles of Monroe County Residents

Characteristic	Percent Distributions					
	Census 2000	Census 2008	Sample EXP ¹ 2008	Sample KAP ² 2008	Sample SAT ³ 2008	Sample Total ⁴ 2008
SEX						
Male	52.25	53.15	-	-	-	-
Female	46.75	46.85	-	-	-	-
AGE (16 and over)						
16 - 24	9.67	8.85	0.63	0.62	0.53	0.60
25 - 44	36.66	26.56	9.75	9.66	12.11	10.40
45 - 64	36.41	46.23	53.93	54.52	55.79	54.60
65 and older	17.26	18.36	35.69	35.20	31.58	34.41
Hispanic or Latino Origin	15.90	19.06	6.41	4.39	6.81	6.04
Race						
White alone	92.80	91.62	96.54	97.49	97.36	97.00
Black or African American	4.99	5.38	1.42	0.63	1.06	1.13
American Indian or Alaskan Native	0.39	0.49	0.31	0.00	0.26	0.23
Asian alone	0.87	1.25	0.31	0.63	0.53	0.45
Native Hawaiian or Other Pacific Islander	0.04	0.05	0.16	0.00	0.00	0.08
Two or more races	0.91	1.21	1.26	1.25	0.79	1.13
Education Attainment						
8th grade or less	4.62	-	0.47	0.00	1.30	0.59
9th to 11th grade	10.47	-	1.72	1.24	1.30	1.49
12 grade/HS grad/GED	28.88	-	10.03	10.53	12.99	11.00
13 to 15 years 3	0.55	-	27.59	26.01	28.83	27.56
College Graduate	16.77	-	33.07	35.91	31.95	33.43
Graduate School Degree-Law-Medicine	8.71	-	27.12	26.32	23.64	25.93
Household Income (before taxes)						
Less than \$10,000	8.81	-	1.36	1.39	2.84	1.79
\$10,000 - \$14,999	5.74	-	3.05	2.78	1.99	2.68
\$15,000 - \$24,999	12.52	-	5.93	4.86	4.55	5.28
\$25,000 - \$34,999	13.20	-	7.12	6.60	6.25	6.75
\$35,000 - \$49,999	17.22	-	11.53	15.28	14.77	13.33
\$50,000 - \$74,999	19.86	-	21.53	25.35	23.01	22.85
\$75,000 - \$99,999	10.35	-	14.75	10.76	13.35	13.41
\$100,000 - \$149,999	6.87	-	18.47	17.36	15.34	17.32
\$150,000 and over	5.43	-	16.27	15.63	17.90	16.59
Employment Status						
Unemployed	2.02	-	1.57	1.86	2.33	1.86
Employed	62.85	-	50.47	49.54	51.55	50.56
Not in Labor force	35.13	-	47.96	48.61	46.11	47.59

1. Expenditure/Valuation Version N=649. Distributions unweighted.
 2. Knowledge, Attitudes & Perceptions (KAP) Version N=329. Distributions unweighted.
 3. Satisfaction Version N=388. Distributions unweighted.
 4. Total sample for all versions N=1,366. Distributions unweighted.
- Sources: U.S. Department of Commerce, Bureau of the Census Years 2000 and 2008.

were not significant. However, we constructed sample multiplicative weights for age, Hispanic and race. Multivariate weights for the three factors are not possible due to sample sizes (i.e., not enough observations in each cell of a matrix of five age classes times two Hispanic classes times six race classes or 60 cells) to have enough observations in each cell to make sample weighting effective. Multiplicative weights will lead to differences between univariate frequencies of the sample for age, Hispanic and race and the Census, but only small differences (see Tables 1.2 and 1.3).

Changes in Monroe County resident Population 2000 to 2008

There have been significant changes in the resident population of Monroe County from the time of the 2000 Census and 2008. The population has declined and those who left were concentrated in the younger age groups (less than 25 years of age). This younger population was most likely working people in lower paying service jobs that could no longer afford to live in Monroe County. The increase in the amount of commuters who live outside Monroe County but work in Monroe County has increased significantly. Although population has continued to decline in Monroe County, the number of employees has continued to increase (see Chapter 3). The education level, household income, and employment status found in the 2000 Census was likely much different in 2008 and so the differences in our samples and the actual popu-

Table 1.3 Comparative Profiles of Participants and Non Participants in Recreation

	Entire Sample	Participated in No	Recreation in Keys Yes
Age			
16-24	6.55	19.29	5.21
25-44	18.65	13.19	19.90
45-64	49.73	28.51	53.21
65+	25.07	39.01	21.68
Mean	54.44	57.33	53.96
Median	57.00	60.00	56.00
Race/Ethnicity			
White Not Hispanic	80.56	65.09	84.02
Black Not Hispanic	2.90	3.52	2.57
Hispanic	14.54	27.39	11.91
Amer. Indian or Alaskan Native Not Hispanic	1.10	1.45	1.04
Asian Not Hispanic	0.76	1.72	0.46
Native Hawaiian or Pacific Islander Not Hispanic	0.14	0.83	0.00
Education			
8th grade or less	0.62	1.48	0.45
9th to 11th grade	1.50	4.85	0.75
12th grade-HS grad	13.90	30.93	10.00
13-15 years	28.36	27.25	28.28
College Grad	32.18	22.25	34.64
Grad School-Law-Med	23.44	13.24	25.88
Household Income			
Less than \$10,000	2.37	6.58	1.19
\$10,000 - \$14,999	2.41	4.41	2.03
\$15,000 - \$24,999	7.38	23.99	4.04
\$25,000 - \$34,999	6.16	6.62	6.15
\$35,000 - \$49,999	12.65	15.58	12.12
\$50,000 - \$74,999	23.11	16.66	23.96
\$75,000 - \$99,999	14.74	10.55	15.79
\$100,000 - \$149,999	16.53	9.03	18.22
\$150,000 and over	14.65	6.58	16.50
Household Size (Mean)	2.27	2.07	2.32
Number in Household			
Age 16 and Older (Mean)	2.05	1.97	2.07
Number of Children in Household (Mean)	0.22	0.10	0.25
Work Outside Monroe County	11.73	3.27	13.64

Table 1.3 *Comparative Profiles of Participants and Non Participants in Recreation (continued)*

	Entire Sample	Participated in No	Recreation in Keys Yes
Employment Status			
Unemployed	2.05	3.84	1.38
Employed - full-time	49.58	30.42	53.32
Employed - part-time	6.63	5.44	6.97
Retired	35.46	42.27	34.41
Student	3.96	11.21	2.50
Homemaker	1.48	3.01	1.18
Medical Leave	0.06	0.00	0.08
Semi-retired	0.06	0.00	0.08
Disabled	0.72	3.81	0.08
Years Lived in Monroe			
Less than One Year	0.24	0.31	0.23
1 to 5 years	18.59	8.60	20.29
6 to 10 years	19.77	11.72	21.72
11 to 20 years	31.06	35.14	30.45
21 to 40 years	23.42	31.00	21.80
41+ years	6.92	13.23	5.51
Mean	17.53	24.07	16.15
Median	14.00	18.00	12.00
Access to Waterfront from Residence	60.63	57.50	61.03
Own a Boat	55.09	16.79	62.89

Table 1.4 *Participation Rate in Outdoor Recreation*

	Participation Rate (%) ¹
Any Outdoor Recreation in Monroe County/Florida Keys	
During the Past 12 months -- All Keys	82.54
Key Largo Residents	86.23
Islamorada Residents	91.43
Marathon Residents	85.91
Lower Keys Residents	87.22
Key West Residents	75.92

1. Percent of permanent residents of Monroe County, excludes seasonal visitors.

lation in Monroe County are not quite as different as comparing our samples with the 2000 Census.

Participation Rate in Outdoor Recreation

For all permanent residents of Monroe County, we estimated the percent of households that did any outdoor recreation in Monroe County/Florida Keys during the past 12 months, and we looked at the relationship between socioeconomic factors and the participation rate (i.e. the percent of households that participated). Table 1.3 shows the comparative socioeconomic profiles of participants and non participants that did any outdoor recreation in Monroe County/Florida Keys over a 12 month period. For the socioeconomic factors, the respondent age 16 or older who filled out the questionnaire was the subject. Significant differences were found between participants and non participants for age, race/ethnicity, education level, and whether they work outside Monroe County. Multivariate tests confirmed the differences in Table 1.3.

We estimated household participation rates for all of Monroe County/Florida Keys and for each of the five districts of the Florida Keys/Key West (Table 1.4). Overall, about 82.5% of Monroe County households participated in some form of outdoor recreation in Monroe County/Florida Keys in 2008. This varied by district from a high of 91.43% in Islamorada to a low of 75.92% in Key West.

Participation Rates by Socio-economic Factors. Table 1.3 showed the relative profiles of those that did and did not participate in outdoor recreation activities in the Florida Keys/Key West. Another way of viewing this information is to look at participation rates by each socioeconomic factor (Figures 1.3 to 1.12).

Age showed the common parabolic relationship between participation and age where participation rates first increase with age, reach a maximum, then decline (Figure 1.3). Residents in the middle age categories from 25-64 have the highest participation rates. Those over 65 and those under 25 have the lowest participation rates.

Participation rates varied by race/ethnicity with “Whites Not Hispanic” having the highest participation rate and Hispanics, “Asian Not Hispanics”, and “Native Hawaiian or Pacific Islander Not Hispanic” having the lowest participation rates, although there are very few Native Hawaiian or Pacific Islanders Not Hispanic” living in Monroe County/Florida Keys (Figure 1.4).

Participation rates generally increased with education level, except for those with a 9th to 11th grade education who had the lowest participation rate (Figure 1.5). A similar result was also true for Household Income, except that those with less than \$15,000 - \$24,999 of household income had the lowest participation rate (Figure 1.6).

As the number of years living in Monroe County increased, participation rates generally declined.

Figure 1.3 Age and Participation in Outdoor Recreation in Florida Keys/Key West

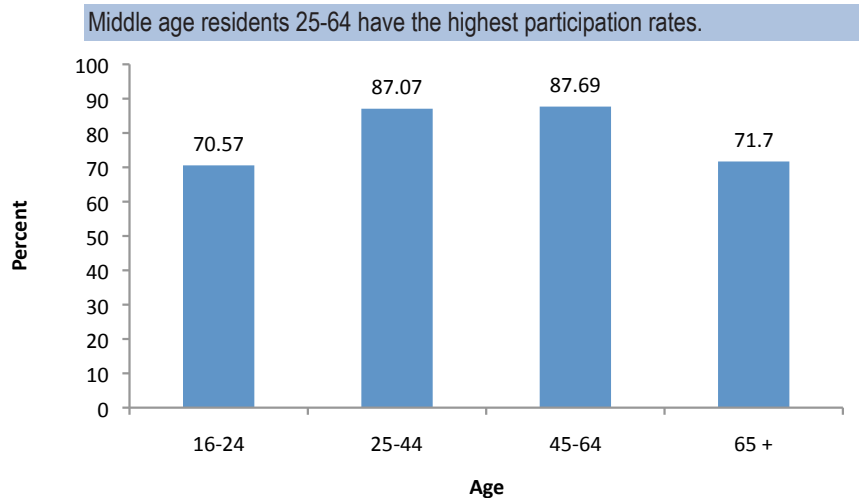


Figure 1.4 Race/Ethnicity and Participation in Outdoor Recreation in Florida Keys/Key West

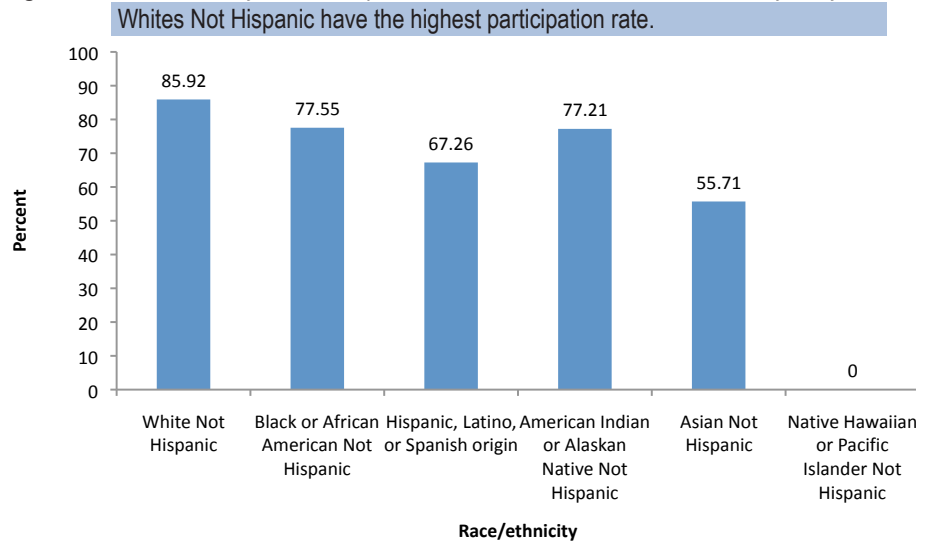


Figure 1.5 Education Level and Participation in Outdoor Recreation in Florida Keys/Key West

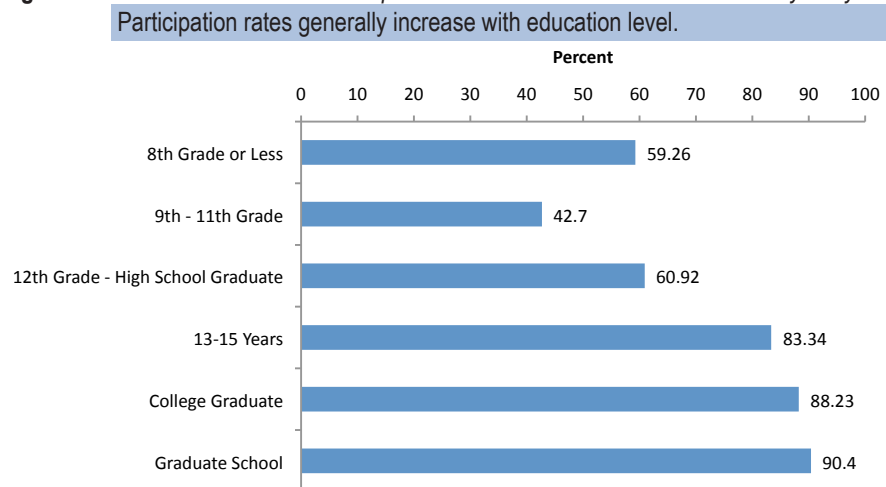


Figure 1.6 Household Income and Participation in Outdoor Recreation in Florida Keys/Key West

Participation rates generally increase with increase in household income.

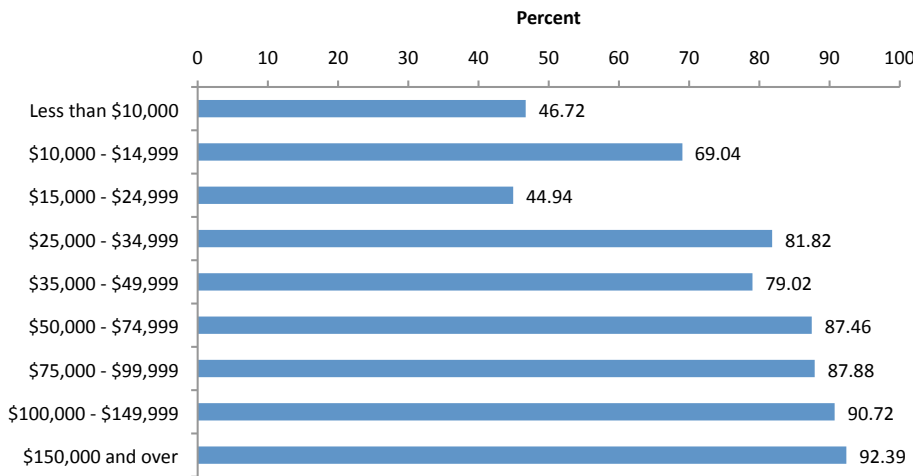


Figure 1.7 Years Lived In Monroe County and Participation in Outdoor Recreation in Florida Keys/Key West

Participation rates decline with the number of years lived in Monroe County, except for those residing in Monroe County less than one year.

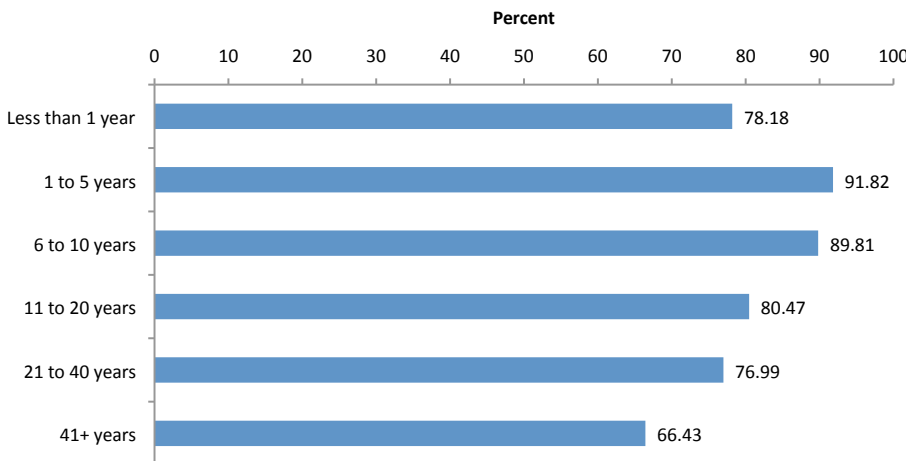
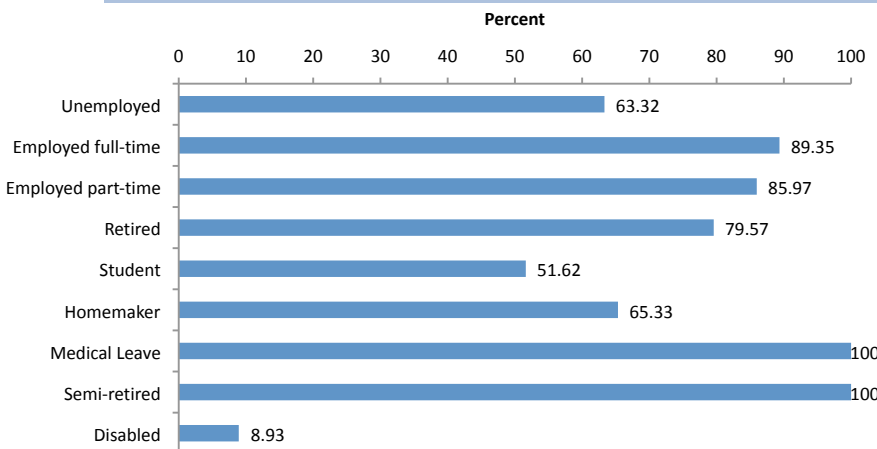


Figure 1.8 Employment Status and Participation in Outdoor Recreation in Florida Keys/Key West

Those that are employed have higher participation rates.



The only exception was that those who had lived in Monroe County less than one year had a lower participation rate than those with 1 to 20 years living in Monroe County (Figure 1.7).

Those who are employed have higher participation rates than those that are not employed. Those with disabilities have the lowest participation rate (Figure 1.8).

As we saw earlier, participation rates varied by district of residence with residents of Islamorada having the highest participation rate and residents of Key West with the lowest participation rate (Figure 1.9).

Those that work outside Monroe County have a higher participation rate than those who do not (Figure 1.10). This is an important finding because those who 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 have 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 in Monroe County/Florida Keys, residence on waterfront property (Figure 1.11) and boat ownership (Figure 1.12). Actually, those with waterfront access had a slightly lower participation rate than those that didn’t, but the difference was not statistically significant. Boat owners did have a significantly higher participation rate than those who did not own a boat.

Figure 1.9 District of Residence and Participation in Outdoor Recreation in Florida Keys/Key West

Residents of Islamorada have the highest participation rate, while residents of Key West have the lowest participation rate.

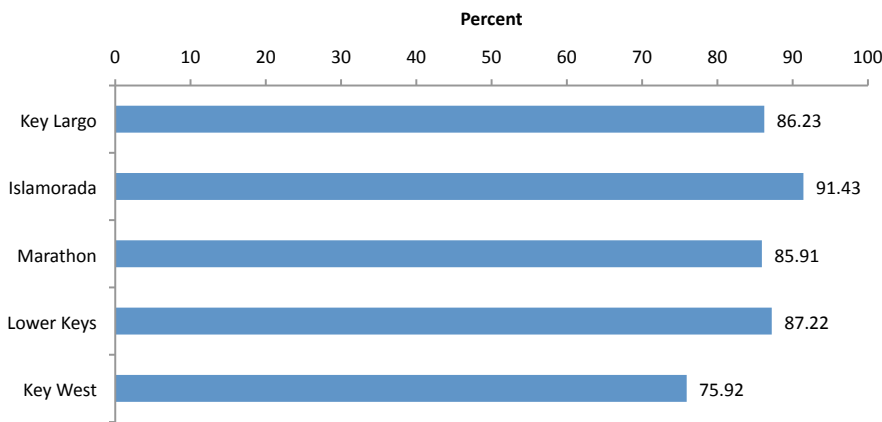


Figure 1.10 Work Outside Monroe County and Participation in Outdoor Recreation in Florida Keys/Key West

Those that work outside Monroe County have a higher participation rate than other residents.

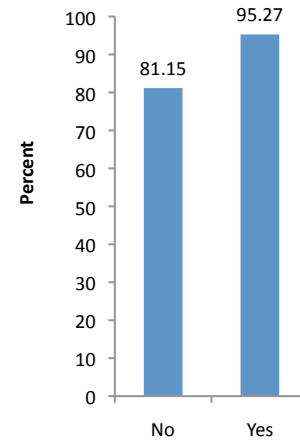


Figure 1.11 Access to Water From Residence and Participation in Outdoor Recreation in Florida Keys/Key West

Those with waterfront access from their residence have a lower participation rate than other residents, but the difference is not significant.

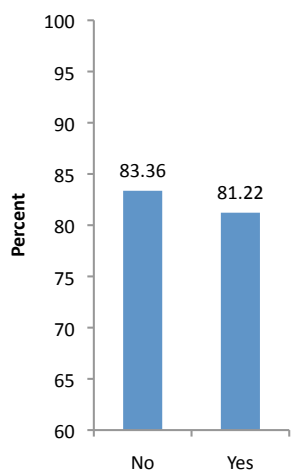
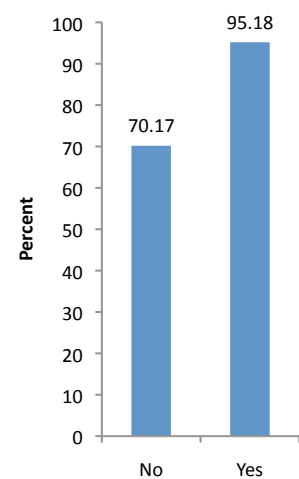


Figure 1.12 Own a Boat and Participation in Outdoor Recreation in Florida Keys/Key West

Those that own a boat have a higher participation rate than other residents.



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

As in the 1995-96 survey, we asked residents to rate the quality of life in Monroe County and for the most important reason they located 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 88 percent rated the quality of life in Monroe County as "good to excellent" (40.30% excellent and 48.21% good). Only a little over 1.89 percent rated it as "poor" (Table 1.5). These ratings also differed for participants and non participants in outdoor recreation activities. Those that participated in outdoor recreation activities had higher ratings than those that did not participate in outdoor recreation activities.

Climate topped the list of most important reasons for living in or locating in Monroe County followed by "Job or Business", "Born Here", "Environment", "Water Activities", and "Access to Natural Resources" (Table 1.6). Factors hypothesized to be related to outdoor recreation participation (e.g. Climate, Water Activities, Environment, and Access to Natural Resources) were among the top six most important reasons for living or locating in Monroe County. Those that par-

Table 1.5 *Ratings on Quality of Life in Monroe County*

Rating	Participation in Recreation in Keys (%)		
	No	Yes	All Monroe
Excellent	29.15	42.83	40.30
Good	49.90	47.61	48.21
Fair	15.93	8.38	9.60
Poor	5.02	1.18	1.89
Total	100.00	100.00	100.00

Table 1.6 *Most Important Reason for Living in Monroe County*

Reason	Rank ¹	Participation in Recreation in Keys		
		No	Yes	All Monroe
Climate	1	41.62	45.25	44.13
Job or Business	2	14.21	21.33	20.54
Born Here	3	26.43	6.92	10.35
Environment	4	4.24	9.91	8.89
Water Activities	5	1.68	7.05	6.05
Access to Natural Resources	6	1.12	4.77	4.09
No Special Reason	7	8.54	1.78	2.92
Military Orders	8	0.00	2.05	1.68
Low Crime Rate	9	0.68	0.53	0.75
Retirement	10	0.86	0.34	0.43
Friends/Family	11	0.31	0.08	0.12
Cultural Activities	12	0.31	0.00	0.05
Total				100.00

1. Rank based on all residents of Monroe County.

Table 1.7 *Population in Households (2000 and 2008)*

	2000 Census	2008 Census	Eligible ¹ 2008
Total Population in Households	78,227	72,043	68,771
Number of Households	35,086	32,306	30,839
Average Household Size	2.23	2.23	2.23

1. Eligible means those that are permanent residents of Monroe County and eliminates seasonal residents. Seasonal residents in households are estimated to be 4.54% of all households.

Sources: U.S. Department of Commerce, Bureau of the Census, Census 2000 and County estimates of Population 2008. Survey of Monroe County Residents, University of Massachusetts-Amherst 2008.

ticipated in outdoor recreation activities rated these factors higher than those that did not participate in outdoor recreation activities.

Population of Monroe County

In Chapter 2, estimates of outdoor recreation in 74 detailed activities are presented. The 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 our target population was limited to the permanent resident population, excluding seasonal visitors, we had to derive from the Census of population, the eligible population in Monroe County. The 2008 estimate of Monroe County's population living in households by the U.S. Census Bureau was 32,306 households containing 72,043 persons of all ages. Using the information from the UMASS-Amherst survey, we estimate that 4.54% of all residents of Monroe county living in households were seasonal visitors and subtracted them from the 2008 census population estimate yielding 68,771 permanent residents living in households. This is the estimate we use in extrapolating from sample to population in this report (Table 1.7).

End Notes

1. 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.

Chapter 2

Activity Participation

Participation Rates

The estimates provided in this report are of activity participation in the Florida Keys/Key West by permanent residents of Monroe County/Florida Keys over the 12 month period of 2008. Appendix Tables A.2.1 and A.2.2 report on 42 aggregated activities, which eliminate the problem of double-counting when adding up numbers of participants across activities or across the same activity over several districts. 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.2.2 reports that to be 25,538 residents. This is less than adding up the numbers of residents reported in Table 2.1 of snorkelers (24,379) and SCUBA divers (8,266). 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 and A.2.3. Appendix Tables A.2.3 to A.2.5 report the detailed 74 activities for each district 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 permanent residents of the Florida Keys/Key West that did the activity in the particular district. So in Table 2.1 it is reported that 35.45 percent of the 68,771 permanent residents of households (not group quarters) of the

Table 2.1 Activity Participation for All Keys

Activity ¹	Number of Participants	Participation Rate (%)
Snorkeling	24,379	35.45
SCUBA Diving	8,266	12.02
Fishing	27,334	39.75
Viewing Wildlife-Nature Study	22,646	32.93
Beach Activities (including swimming)	18,412	26.77
Sightseeing & Attractions (Paid & Unpaid)	15,169	22.06
Visiting Museums or Historic Areas	21,568	31.36
Cultural Events (fairs, concerts, plays)	21,981	31.96
All Camping	3,034	4.41
Personal Watercraft Use	4,884	7.10
Sailing	5,928	8.62
Outdoor Sports and Games	9,220	13.41
SPA, Health & Wellness	8,288	12.05

1. For more detailed activity participation , see Tables A.2.1 to A.2.5.

Table 2.2 Top Rated Activity by District - Number of Participants

District	Activity	Number of Participants	Participation Rate (%) ¹
Key Largo	Snorkeling	7,915	11.51
Islamorada	Fishing	6,080	8.84
Marathon	Cultural Events (fairs, concerts, plays)	5,703	8.29
Lower Keys	Fishing	8,611	12.52
Key West	Visiting Museums or Historic Areas	17,052	24.79
All Keys	Fishing	27,334	39.75

1. Percent of all permanent residents of all ages in Monroe County.

Florida Keys/Key West did snorkeling. Appendix Table A.2.1, reports that 11.51 percent of all permanent residents of the Florida Keys/Key West participated in snorkeling in the Key Largo District.

Table 2.2 shows the top-rated activity by district based on the number of participants. Fishing was the top-rated activity for the entire

Keys and for the Islamorada and Lower Keys Districts. Snorkeling was the top activity in the Key Largo District, while Attending Cultural Events was the top activity in Marathon and Visiting Museums or Historic Areas was the top activity in the Key West District.

With prime access to both the Atlantic Ocean and the Gulf of Mex-

ico, the tremendous coral reefs, the flats and backcountry environments make the Florida Keys/Key West a mecca for water-based activities. Across the entire Keys, water-based activities had a higher participation rate than land-based activities (Figure 2.1). Further, the participation rate of those that did “Only Water-based Activities” is higher than that of those that did “Only Land-based Activities”. 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.

Figure 2.1 Participation in Water-based vs. Land-based Activities

Residents have a higher participation rate in water versus land-based activities.

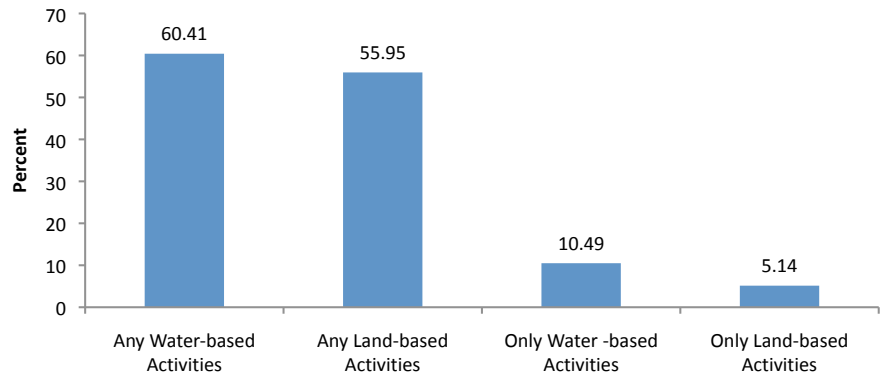


Table 2.3 All Resident Participation Rate vs. Within-District Participation Rate: Key Largo

Activity ¹	Percent of All Keys Residents	Percent of Residents who Participated in Key Largo
Snorkeling	11.51	36.14
SCUBA Diving	4.07	12.79
Fishing	10.78	33.86
Viewing Wildlife-Nature Study	10.15	31.88
Beach Activities (including swimming)	5.61	17.62
Sightseeing & Attractions (Paid & Unpaid)	4.17	13.11
Visiting Museums or Historic Areas	5.98	18.78
Cultural Events (fairs, concerts, plays)	8.82	27.70
All Camping	1.56	4.90
Personal Watercraft Use	5.28	16.59
Sailing	1.91	5.99
Outdoor Sports and Games	3.40	10.69
SPA, Health & Wellness	3.12	9.79

1. For more detailed activity participation, see Tables A.2.1 to A.2.6.

Within-District Participation Rates

In the previous section, participation rates were defined as the percent of all permanent 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 district; for example, the answer to the question, of all the residents that participated in outdoor recreation in the Key Largo District, what percent participate in Snorkeling? Table A.2.6 in the appendix presents the within district participation rates for all the districts. Table 2.3 illustrates the difference between the overall participation rate and the within district participation rate. The first column presents the percent of all residents of the entire Florida Keys/Key West who participated in activities in the Key Largo District. 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 Key Largo District who participated in a given activity in the Key Largo District. So the answer to the questions posed above is that 36.14 percent of all the residents who do activities in the Key Largo District participated in Snorkeling.

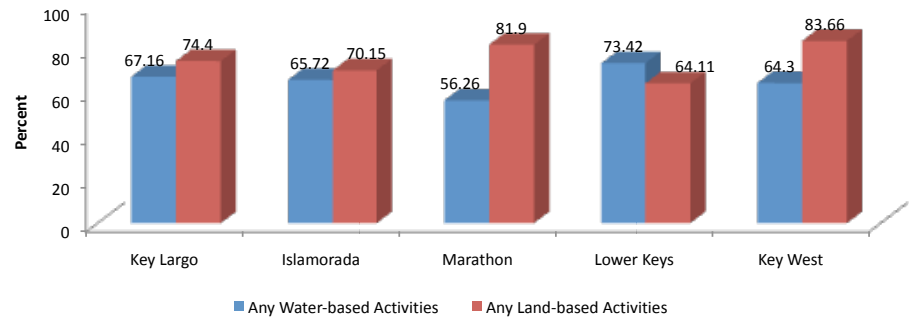
In the previous section, water-based activities were shown to dominate in the Florida Keys/Key West as a whole. Figure 2.2 breaks down this relationship into its district components. Land-based activities dominate in every district, except the Lower Keys. This relationship can be seen in greater detail in Appendix Table A.2.6. The

Key Largo District has higher within district participation rates in snorkeling and SCUBA diving than any of the other districts of the Florida Keys/Key West.

To clarify the idea of within district participation rates, it is helpful to distinguish between the district of origin of participants in a particular district and the district of participation of residents who reside in a particular district. Table 2.4 illustrates this idea. If one wants to know the location of residence of those that do outdoor recreation activities in a district of the Keys, read the first column of numbers under each district of activity from top to bottom. These percents add to 100. Thus, 31.09 percent of those that do outdoor recreation in the Key Largo District live in the Key Largo District, whereas 22.15 percent live in the Islamorada District, 11.82 percent live in the Marathon District, 13.18 percent in the Lower Keys District and 21.76 percent in the Key West District.

If one wants to know the location of activity for those who live in a certain district, read the numbers in parentheses from left to right. For those that live in the Key Largo

Figure 2.2 Participation in Water- and Land-based Activities by District
Land-based activities predominate in all districts, except the Lower Keys.



District, 79.87 percent do their outdoor recreation in the Key Largo District, 46.94 percent in the Islamorada District, 22.87 percent in the Marathon district, 30.88 percent in the Lower Keys District and 40.44 percent in Key West District. These percents will not add to 100 percent because residents can do activities in multiple districts.

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. There are a significant number of activi-

ties for which the sample size was not large enough (under 25 observations) to consider the estimates reliable. In Appendix Table A.2.7, this is noted with an asterisk (*). We did an outlier analysis and censored “high” values (those that have large influences on the estimated averages). The details of the outlier analysis and censoring can be found in Leeworthy (2010). Most of the censoring took place for activities with low participation rates where outliers can have a lot of influence.

Appendix Table A.2.7 details the estimated average number of days of activity per person in each district over the 12 months pre-

Table 2.4 District Activity Participation Rates by District of Residence

District of Residence	District of Activity									
	Key Largo		Islamorada		Marathon		Lower Keys		Key West	
	Participation Rate (%)		Participation Rate (%)	Participation Rate (%)		Participation Rate (%)		Participation Rate (%)		Participation Rate (%)
Key Largo	31.09	(79.87)	20.33	(46.94)	12.90	(22.87)	11.28	(30.88)	10.73	(40.44)
Islamorada	22.15	(63.36)	29.63	(76.15)	16.64	(32.84)	11.56	(35.23)	11.95	(50.16)
Marathon	11.82	(37.57)	14.00	(39.98)	35.32	(77.48)	12.17	(41.24)	10.51	(49.00)
Lower Keys	13.18	(29.26)	13.35	(26.63)	18.34	(28.09)	33.46	(79.13)	16.75	(54.54)
Key West	21.76	(20.90)	22.69	(19.59)	16.80	(11.14)	31.53	(32.27)	50.06	(70.56)
Total	100.00		100.00		100.00		100.00		100.00	

ceding the interview. Multiplying these averages by the number of residents that did the activity in the district yields estimates of the total intensity of activity in each district. Appendix Table A.2.8 contains the estimates of the total number of days per district. Table 2.5 shows the top-rated activity by district 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 all five districts.

Table 2.5 *Top Rated Activity by District - Number of Days of Activity*

District	Activity ¹	Number of Days (000s)
Key Largo	Fishing	164.12
Islamorada	Fishing	80.34
Marathon	Fishing	92.08
Lower Keys	Fishing	182.36
Key West	Fishing	137.66
All Keys	Fishing	756.55

1. See Table A.2.8 for details on other activities.

Chapter 3

Activity Participation

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 47 percent of all permanent residents of Monroe County, 48 percent of those who participate in outdoor recreation in the Florida Keys/Key West and about 45 percent of the total days of recreation undertaken by residents who participate in outdoor recreation in the Florida Keys/Key West, and about 44 percent of expenditures.

Other Basic Industries. Basic or export industries in Monroe County include tourism (nonresidents of Monroe County), the military, com-

mercial 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 Leeworthy and Ehler (2010a), the economic contribution from tourism is 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 in-

dustries 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 2003 through 2008. In 2008, Monroe County's income by place of work as a percentage of income by place of residence was 57.36 percent while the percentage for Florida as a whole was 67.97 percent.

An explanation for the significant difference between income by place of work and income by place of residence is inter-county 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

Table 3.1 *Income by Place of Work as a Percent of Income by Place of Residence for Florida and Monroe County*

Year/State/County	Income by Place of Residence ¹	Income by Place of Work	Percent
2003 Florida	531,215,779	361,091,583	67.97
2003 Monroe County	3,140,067	1,801,125	57.36
2004 Florida	582,767,302	389,502,660	66.84
2004 Monroe County	3,526,669	1,882,144	53.37
2005 Florida	633,198,348	423,331,870	66.86
2005 Monroe County	3,868,314	1,998,057	51.65
2006 Florida	690,273,244	452,353,587	65.53
2006 Monroe County	4,287,418	2,117,837	49.40
2007 Florida	713,489,866	460,365,819	64.52
2007 Monroe County	4,511,348	2,202,975	48.83
2008 Florida	719,707,709	455,176,422	63.24
2008 Monroe County	4,531,670	2,214,144	48.86

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 Monroe County	39,721
Residents that commute to work outside county	1,896
Further Breakdown	
Broward County	142
Collier County	8
Miami-Dade County	1,186
Palm Beach County	4
Other counties	91
Total Other Counties	1,441
Total Other States	318
Total Other Countries	137
Non residents that work inside the county	4,225
Further Breakdown	
Broward County	256
Collier County	20
Miami-Dade County	2,821
Palm Beach County	97
Other Counties	459
Total Other Counties	3,653
Total Other States	572
Net	2,329

Source: Regional Economic Information System, Bureau of Economic 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	Percent
2003			
U.S.	29,954,500	166,019,500	18.04
Florida	1,443,679	9,286,024	15.55
Monroe County	13,573	55,063	24.65
2004			
U.S.	31,435,700	169,026,700	18.60
Florida	1,760,360	9,661,605	18.22
Monroe County	13,935	54,996	25.34
2005			
U.S.	32,997,400	172,551,400	19.12
Florida	1,910,396	10,087,925	18.94
Monroe County	15,227	55,493	27.44
2006			
U.S.	34,208,600	176,124,600	19.42
Florida	2,009,216	10,407,356	19.31
Monroe County	15,563.5	5,981	27.80
2007			
U.S.	36,372,700	179,871,700	20.22
Florida	2,159,547	10,552,660	20.46
Monroe County	16,134	56,349	28.63
2008			
U.S.	38,742,100	181,755,100	21.32
Florida	2,309,007	10,424,100	22.15
Monroe County	17,286	57,928	29.84

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

is +2,329. In other words, there are 2,329 more commuters coming into Monroe County than there are going out. In 2008, net income to Monroe County was about \$26 million. That is, even though there were more people coming into Monroe County to work than are living in Monroe County and commuting to work outside the county, the people living in and working outside Monroe County are making more money than those who are commuting to the county for work. 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 2008, proprietors' employment as a percentage of total employment in Monroe County was 29.84 percent, while in Florida it was 22.15 percent and in the U.S. as a whole it was 21.32 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/Key West 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 gross

Figure 3.1 *Monthly Gross Sales in Monroe County: 2005-06 to 2007-08*
Source: Florida Department of Revenue

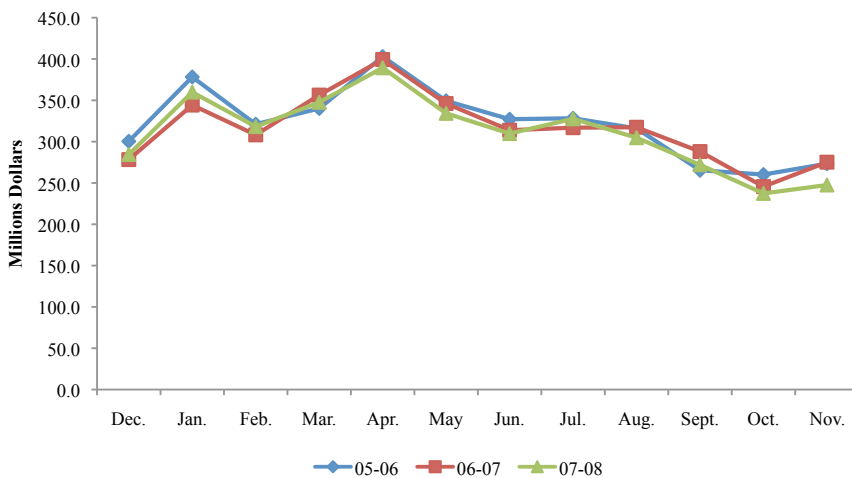


Table 3.4 *Historical Data for Sales, Income by Place of Work and Employment For Monroe County*

Year ¹	Measure	(000s 2008 \$)/Number of Jobs ²	Annual % Change
2002-03	Sales	3,742,000	
2003	Income	2,107,512	
2003	Employment	55,063	
2003-04	Sales	3,963,658	5.92
2004	Income	2,145,186	1.79
2004	Employment	54,996	-0.12
2004-05	Sales	4,037,869	1.87
2005	Income	2,202,671	2.68
2005	Employment	55,493	0.90
2005-06	Sales	4,125,077	2.16
2006	Income	2,261,757	2.68
2006	Employment	55,981	0.88
2006-07	Sales	3,935,819	-4.59
2007	Income	2,287,991	1.16
2007	Employment	56,349	0.66
2007-08	Sales	3,732,763	-5.16
2008	Income	2,214,144	-3.23
2008	Employment	57,928	2.80

1. Year for Sales is Visitor Year Dec. - Nov. and calendar year for income and employment.

2. Sales and income adjusted to 2008 dollars (\$) using the Consumer Price Index. Sources: Florida Department of Revenue (Sales); Regional Economic Information, Bureau of Economic Analysis, U.S. Department of Commerce (Income); and U.S. Department of Labor, Bureau of Labor Statistics (CPI).

sales in Monroe County for visitor season years (visitor seasons are from Dec. – Nov.) 2005-06 through 2007-08. Gross sales 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.

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 employment data were compiled for the years 2003 through 2008. Sales, after increasing strongly between 2002-03 and 2003-004, then slowing, but still growing, from 2204-05 to 2005-06, then started fairly sharp declines in 2006-07 and 2007-08. Income steadily increased from 2003 through 2007. This reflects the stabilizing influence of the “retirement community”. Except for a decline between 2003 and 2004, employment followed a similar pattern as income but even grew from 2007 to 2008.

The National Bureau of Economic Research (NBER) is the agency that officially declares the beginning and ends of recessions. NBER officially declared the recession of 2007 – 2009 started in December 2007. This corresponds with our tourist survey period of Dec. 07 to Nov. 08 and covers our study of residents in 2008. The numbers for sales and income reflect the recession in Monroe County with sales declining 5.16 percent from 2006-07 to 2007-08 and income declined 3.23 percent from 2007 to 2008. Thus, the year of study was not a “typical year”, but a relatively bad year for the economy of Monroe County. Thus, our estimates of economic contribution most likely under-estimate the impacts of recreation-tourism to the Monroe County economy.

Definitions

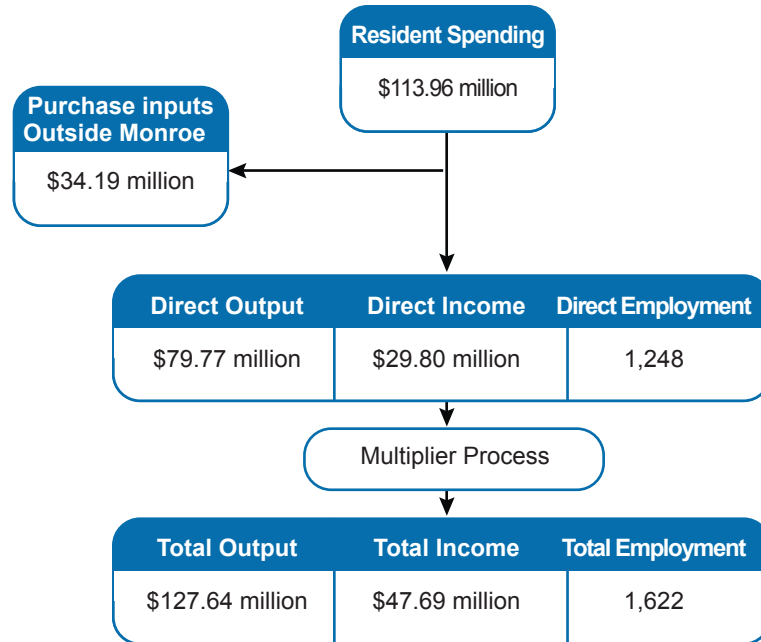
When a local economy experiences an increase in spending, residents of that economy benefit by more than just the dollar amount of the goods and services purchased. This is because the businesses serving those spending the money must increase the amount of labor, goods and services they buy in order 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 bulleted items in bold below 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.

Figure 3.2 Impact Process Due to Resident Spending in Monroe County



- **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 \$113.96 million. Of these expenditures \$34.19 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 \$79.77 million in direct output (sales), \$29.80 million in direct income, and 1,248 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 \$127.64 million, the total estimated income is \$47.69 million and the estimated total employment is 1,622 jobs.

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 \$3.73 billion. The estimated total contribution from the export sector of residents was \$127.64 million or about 3.42 percent. The total estimated contribution from the export sector of residents to income, \$47.69 million, was about 2.15 percent of the official reported income of \$2.21 billion. The official reported employment was 57,928 jobs. The estimated total resident contribution to employment was 1,622 jobs, or about 2.80 percent.

Because the calculations employed in the multiplier process used here are the same as those used in the tourist analysis (Lee-worthy and Ehler 2010), one would

Table 3.5 *Estimated Economic Contribution of Resident Recreational Activities*

	Estimated Resident Contribution			Percent of Economy
	Official Reported ^{1, 2}	Direct	Total	
Output/Sales	\$3,732,762, 683	\$79,774,112	\$127,638,579	3.42
Income	\$2,214,144,000	\$29,805,211	\$47,688,338	2.15
Employment	57,928	1,248	1,622	2.80

1. Source (Output/Sales) : Florida Department of Revenue

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

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 59.86 percent, 43.82 percent and 55.27 percent for output, income and employment, respectively. Here the total impacts as percentages of the economy were 3.42 percent, 2.15 percent and 2.80 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.3.2. 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 equations 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 Keys, 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, Leeworthy and Wiley 1997 and Leeworthy and Ehler 2010a).

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 2007 and from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 2008. Appendix Table A.3.2 shows the wages-to-sales and wages-to-employment ratios by industry and expenditure type. Appendix Table A.3.3 shows the derivation of the total income to wages & salaries ratio and the proprietor's income to proprietor's 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 industry from Appendix Table A.3.2. 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.3.2 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.3.2 is 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.3.3 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.3.2 are multiplied by the total income-to-wages & salaries ratio (1.3658) from Appendix Table A.3.3. 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.3.3.

Finally, to estimate the total employment impact required several steps. First, direct wages & salaries employment from Appendix Table A.3.2 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 (12,321) 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.3.4.

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 the mail back 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 6 general types of expenditures: lodging (5 items),

food (2 items), transportation (9 items), activities (19 items), miscellaneous (6 items) and services (3 items). Table 3.6 shows average expenditures per person per day for the export sector of residents and for all the residents. The average spending per person per day was \$101.42 for the export sector and \$94.41 for the entire sample of residents. Generally the export sector of residents spent, on average, a little less for lodging, transportation, boating, sightseeing, other activities, miscellaneous, and service expenditures, but more for food & beverages, fishing, and SCUBA diving and snorkeling. For detailed average per person per day expenditures, please refer to Appendix Tables 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 all residents. These numbers are derived by multiplying the mean expenditures per person per day by the number of person-days for the export sector (about 1.12 million) and for the all residents (about 2.73 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 Tables A.3.2. and A.3.5.

Table 3.6 Average Expenditures Per Person Per Day: Export, Non Export and Entire Sample

Category ²	Export ¹	Non Export	Entire Sample
Lodging	\$4.56	\$5.07	\$4.85
Food and Beverages	\$29.02	\$24.34	\$26.36
Transportation	\$4.19	\$10.11	\$7.55
Boating	\$20.89	\$23.61	\$22.43
Fishing	\$27.25	\$8.10	\$16.40
SCUBA diving/Snorkeling	\$4.90	\$2.21	\$3.37
Sightseeing	\$2.36	\$3.64	\$3.08
Other Activity Expenditures	\$3.07	\$5.05	\$4.19
Miscellaneous Expenditures	\$4.59	\$4.99	\$4.82
Services	\$0.59	\$1.96	\$1.36
Total	\$101.42	\$89.08	\$94.41

1. Export is that portion of expenditures made by residents that don't earn their income from work within Monroe County and is the portion of spending used to estimate resident economic contribution. This avoids double-counting economic contribution from other basic or export industries such as tourism, commercial fisheries, or the military. Much of the spending by residents is already captured in the multiplier processes of other basic or export industries.

2. For more detailed spending, see Table A.3.1.

Table 3.7 Total Expenditures in Monroe County: Export Sector and All Residents¹

Category	Export Sector	Export Sector as Percent of All Residents	All Residents
Lodging	\$5,123,953	38.64	\$13,259,900
Food and Beverages	\$32,609,019	45.25	\$72,068,240
Transportation	\$4,708,194	22.81	\$20,641,700
Boating	\$23,473,550	38.28	\$61,323,620
Fishing	\$30,620,117	68.29	\$44,837,600
SCUBA diving/Snorkeling	\$5,506,003	59.64	\$9,231,580
Sightseeing	\$2,651,871	31.49	\$8,420,720
Other Activity Expenditures	\$3,449,679	30.11	\$11,455,460
Miscellaneous Expenditures	\$5,157,664	39.14	\$13,177,880
Services	\$662,968	17.83	\$3,718,240
Total	\$113,963,017	44.15	\$258,116,940

1. 2008 dollars.

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 boat and automobile repairs. For clothing, footwear, fishing licenses and permits and medical expenses several residents reported large amounts that in our judgment were not trip-related. We also conducted an “outlier” analysis and eliminated large spending amounts that had significant influences on estimated average expenditures per person per day. In these cases, amounts over \$100 were censored (not counted).

Chapter 4

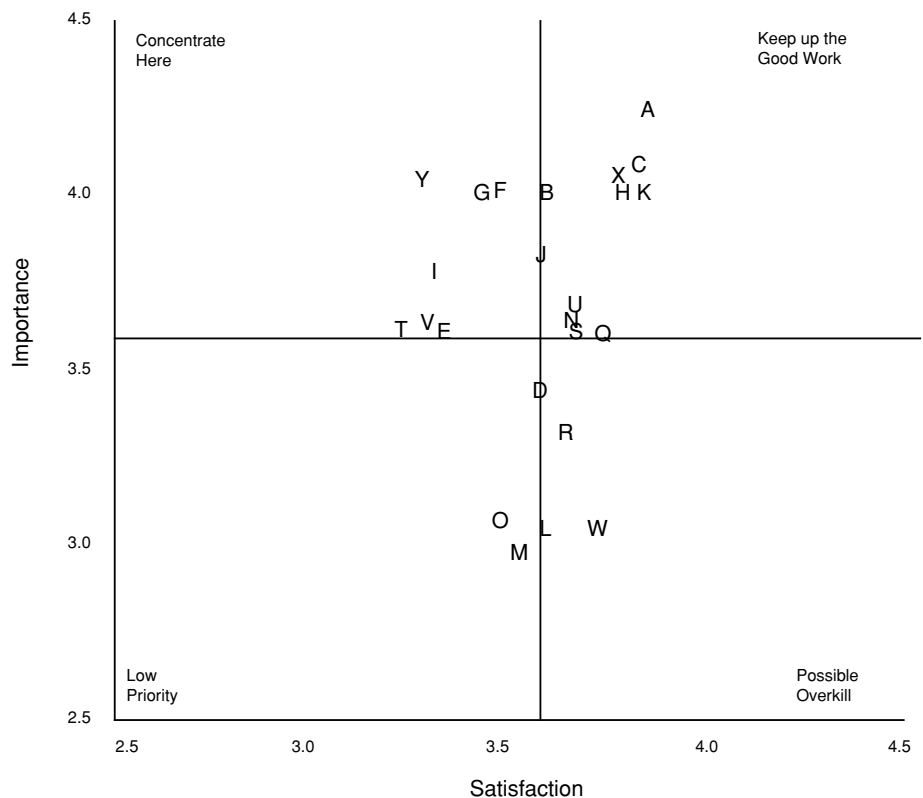
Importance and Satisfaction Ratings

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 Guadagnolo (1985), Richardson (1987), Hollenhorst, Olson, and Fortney (1992), Leeworthy and Wiley (1994, 1995, 1996, and 1997), and Leeworthy and Ehler (2010b).

The importance and satisfaction section of the mail back 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/Key West. 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.”

Figure 4.1 Importance-Satisfaction Matrix



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/Key West. 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 past and 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, 1996 and 1997 and Leeworthy and Ehler 2010b).

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/Key West, 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 rela-

tively high on the importance scale and relatively low on the satisfaction scale. This quadrant is labeled “**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 labeled “**Keep up the Good Work.**” Scores falling in the lower left quadrant are relatively low on both the importance and satisfaction scale and are labeled “**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 labeled “**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 13 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 13 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 residents 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 labeled A through Y. Items A through G are

labeled “**Natural Resources.**” These seven (7) items are either natural resources or attributes of natural resources such as clear water. Items H through M are labeled “**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 labeled “**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 labeled “**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.

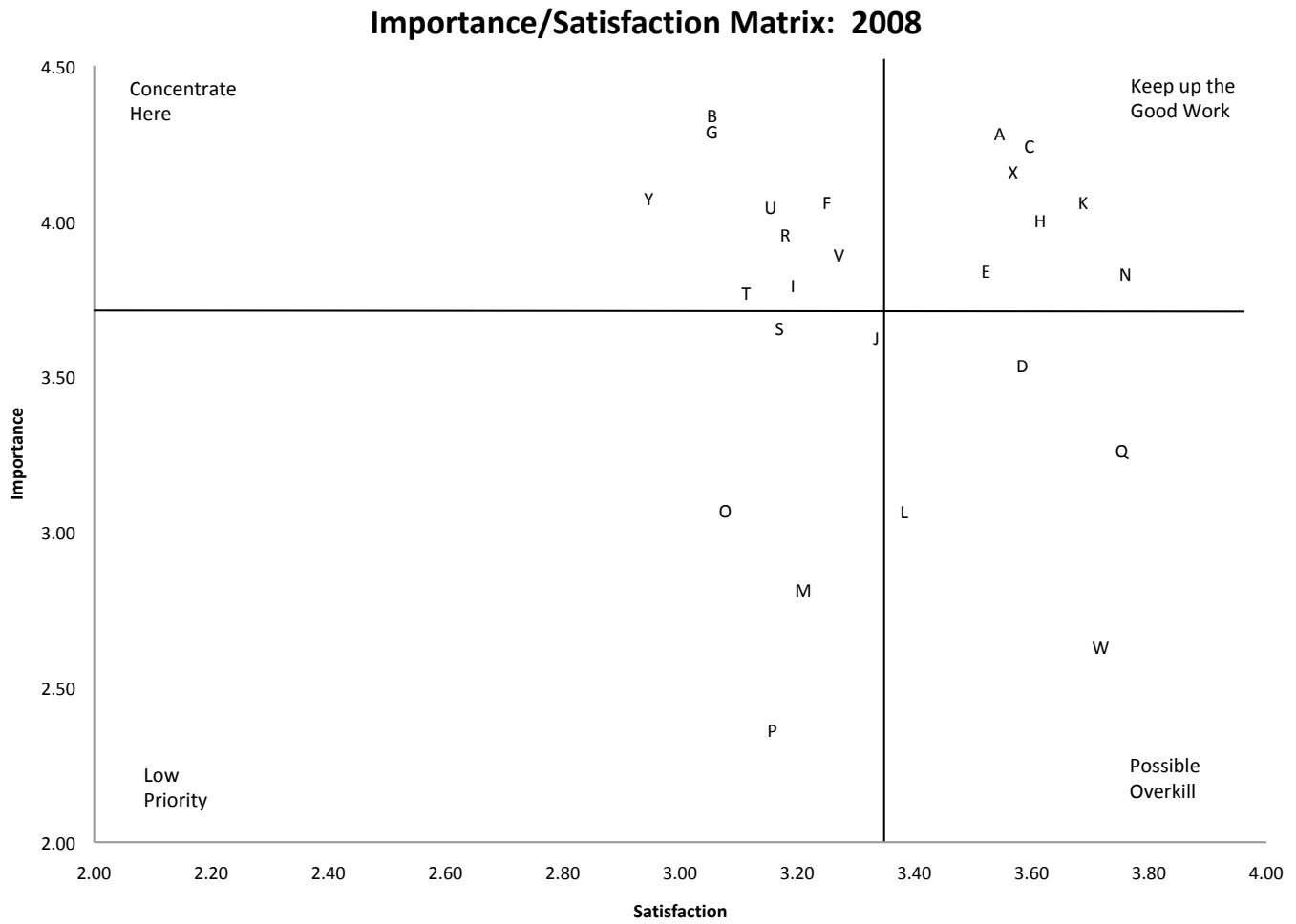
There were 329 respondents in total to the importance-satisfaction mail back questionnaire. In none of the cases did 100 percent of all respondents give ratings for any one item. Figure 4.2 summarizes the importance-satisfaction results; the last column reports the percent of respondents that provided 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 nine items in the “**Concen-**

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

Code from Matrix - Description	Graph of Mean	Mean	Standard Error	N	% Rated
<u>Natural Resources</u>					
A. Clear water (high visibility)		4.2854	0.0513	316	80
B. Amount living coral on reefs		4.3439	0.0544	306	77
C. Many different kinds of fish and sealife to view		4.2438	0.0585	307	77
D. Many different kinds of fish and sealife to catch		3.5387	0.0797	298	75
E. Opportunity to view large wildlife		3.8427	0.0632	310	78
F. Large numbers of fish		4.0627	0.0608	309	78
G. Quality of beaches		4.2916	0.0586	314	79
<u>Natural Resource Facilities</u>					
H. Parks and specially protected areas		4.0036	0.0587	314	79
I. Shoreline access		3.7963	0.0645	306	77
J. Designated swimming/beach areas		3.1956	0.0603	267	67
K. Mooring bouys near coral reefs		3.6259	0.0701	310	78
L. Marina facilities		3.3379	0.0566	278	70
M. Boat ramps/launching facilities		4.0625	0.0679	299	75
		3.6905	0.0521	244	61
		3.0672	0.0753	296	75
		3.3854	0.0524	235	59
		2.8164	0.0749	294	74
		3.2132	0.0588	215	54
<u>Other Facilities</u>					
N. Historic preservation (historic landmarks, houses, etc.)		3.8311	0.0631	317	80
O. Parking		3.7626	0.0439	288	73
P. Public transportation		3.069	0.0766	299	75
Q. Directional signs, street signs, mile markers		3.0793	0.0648	251	63
R. Condition of bike paths and sidewalks/walking paths		2.3622	0.0752	283	71
S. Condition of roads and streets		3.1604	0.0775	173	44
T. Availability of public restrooms		3.2625	0.0731	310	78
U. Cleanliness of streets and sidewalks		3.756	0.0468	278	70
V. Uncrowded conditions		3.958	0.0612	311	78
		3.1824	0.0592	293	74
		3.6581	0.0617	317	80
		3.1715	0.0508	310	78
		3.7695	0.0621	319	80
		3.1154	0.0582	284	72
		4.0468	0.0563	314	79
		3.1576	0.0523	313	79
		3.893	0.0601	315	79
		3.2743	0.0506	309	78
<u>Services</u>					
W. Maps, brochures, and other tourist information		2.6291	0.0672	306	77
X. Customer service and friendliness of people		3.7202	0.0448	226	57
Y. Value for the price		4.16	0.0564	317	80
		3.5712	0.0545	307	77
		4.0767	0.0546	314	79
		2.9493	0.0568	301	76

Figure 4.2 Importance-Satisfaction Matrix Code Descriptions, Graph of Means, and Descriptive Statistics (continued)



trate Here” quadrant. They are B. Amount of living coral on reefs, F. Large Numbers of Fish, G. Quality of Beaches, I. Shoreline Access, R. Condition of bike paths and sidewalks/ walking paths, T. Availability of Public Restrooms, 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.

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

As discussed in the Introduction, a sub-sample of residents was asked to provide a retrospective rating for 13 of the 25 items presented in the importance-satisfaction analysis. The sub-sample 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? Almost 95 percent (94.74 %) answered YES to this question. This sub-sample was then asked to provide the retrospective rating for the 13 items. Table 4.1 presents the 13 items, summarizes the mean scores along with the estimated standard 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 9.1. 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 ten (10) of the 13 items. For two of the items, there was a decline in satisfaction ratings but the differences were not significant. For one item (Mooring buoys near coral reefs), there was an increase in the satisfaction score, but the difference was not significant.

Table 4.1 A Comparison of Satisfaction Ratings on 13 Selected Items: Current Ratings versus Five Years Ago

Item	Mean	Stderr	N	Significant Difference ¹
Clear water (high visibility)			275	Yes
Current rating	3.57	0.0457		
Five years ago	3.90	0.0479		
Amount of living coral on reefs			241	Yes
Current rating	3.01	0.0604		
Five years ago	3.65	0.0585		
Many different kinds of fish & sea life to view			254	Yes
Current rating	3.56	0.0535		
Five years ago	3.90	0.0492		
Large numbers of fish			251	Yes
Current rating	3.29	0.0535		
Five years ago	3.82	0.0523		
Opportunity to view large wildlife			258	Yes
Current rating	3.48	0.0503		
Five years ago	3.76	0.0505		
Uncrowded conditions			286	Yes
Current rating	3.29	0.0490		
Five years ago	3.64	0.0511		
Condition of roads and streets			283	Yes
Current rating	3.21	0.0509		
Five years ago	3.26	0.0476		
Shoreline access			234	Yes
Current rating	3.12	0.0568		
Five years ago	3.41	0.0539		
Quality of beaches			263	Yes
Current rating	3.14	0.0564		
Five years ago	3.35	0.0544		
Customer service and friendliness of people			285	Yes
Current rating	3.62	0.0520		
Five years ago	3.74	0.0492		
Historic preservation (historic landmarks, houses, etc.)			253	Yes
Current rating	3.76	0.0434		
Five years ago	3.82	0.0448		
Parks and specially protected areas			268	Yes
Current rating	3.62	0.0429		
Five years ago	3.71	0.0429		
Mooring buoys near coral reefs			211	Yes
Current rating	3.64	0.0532		
Five years ago	3.61	0.0561		

1. YES means statistically significant 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 the tests were based on those that gave ratings for the current time period and for five years ago.

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Appendix



Table A.2.1 Activity Participation in 42 Aggregate Activities by District: Key Largo, Islamorada, and Marathon

Activity ¹	Key Largo		Islamorada		Marathon	
	Number of Participants	Participation Rate ²	Number of Participants	Participation Rate ²	Number of Participants	Participation Rate ²
Diving						
Snorkeling from Boat	7,607	11.06	4,597	6.68	2,938	4.27
Snorkeling from Shore	1,620	2.36	1,168	1.70	1,354	1.97
All Snorkeling	7,915	11.51	4,924	7.16	3,731	5.43
SCUBA Diving from Boat	2,762	4.02	1,394	2.03	1,351	1.96
SCUBA Diving from Shore	217	0.32	59	0.09	146	0.21
All SCUBA Diving	2,801	4.07	1,414	2.06	1,425	2.07
All Diving	8,436	12.27	5,275	7.67	4,014	5.84
Fishing						
Offshore Fishing	5,481	7.97	4,376	6.36	3,400	4.94
Flats/Backcountry Fishing	3,457	5.03	3,376	4.91	1,495	2.17
Other Fishing from Boat	2,135	3.11	1,461	2.12	1,754	2.55
All Boat Fishing	6,895	10.03	5,853	8.51	4,079	5.93
Fishing from Shore	1,713	2.49	1,414	2.06	1,454	2.11
All Types of Fishing	7,417	10.78	6,080	8.84	4,551	6.62
Viewing Wildlife - Nature Study						
Viewing Wildlife/Nature-Boat	5,163	7.51	3,657	5.32	2,056	2.99
Viewing Wildlife/Nature-Land	3,195	4.65	2,207	3.21	2,181	3.17
All Viewing Wildlife/Nature Study	6,983	10.15	4,871	7.08	3,726	5.42
Boating						
Personal Watercraft Use	3,634	5.28	3,592	5.22	1,059	1.54
All Sailing	1,312	1.91	937	1.36	592	0.86
Other Boating Activities	3,444	5.01	2,416	3.51	1,285	1.87
Other Land-based Activities						
All Beach Activities (Inc Swimming)	3,859	5.61	3,268	4.75	4,310	6.27
All Camping	1,074	1.56	681	0.99	461	0.67
Visiting Museums or Historic Areas	4,113	5.98	4,040	5.88	4,103	5.97
Sightseeing & Attractions (Paid & Unpaid)	2,871	4.17	2,470	3.59	3,057	4.45
Cultural Events (Fairs, Concerts, Plays)	6,068	8.82	5,024	7.31	5,703	8.29
Outdoor Sports and Games	2,341	3.40	1,446	2.10	1,499	2.18
SPA, Health & Wellness	2,144	3.12	1,306	1.90	910	1.32
Special Aggregations						
Any Activities Involving Boats	13,598	19.77	11,401	16.58	6,443	9.37
All Activities Involving Swimming	9,962	14.49	7,075	10.29	6,550	9.52
Any Water-Related Activities	14,708	21.39	12,589	18.31	8,813	12.81
Any Land-Based Activities	16,294	23.69	13,438	19.54	12,830	18.66
Only Water-Based Activities	2,936	4.27	2,474	3.60	1,147	1.67
Only Land-Based Activities	4,784	6.96	4,572	6.65	5,496	7.99

1. These activities are summaries from a list of 74 activities used in the survey. See Tables A.2.3 and A.2.4.

2. Percent of residents of all ages that did the 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 visitor may have participated in both activities. The estimate for all snorkeling eliminates this kind of double-counting.

Table A.2.1 Activity Participation in 42 Aggregate Activities by District: Key Largo, Islamorada, and Marathon (continued)

Activity ¹	Key Largo		Islamorada		Marathon	
	Number of Participants	Participation Rate ²	Number of Participants	Participation Rate ²	Number of Participants	Participation Rate ²
Type of Fishing Boat						
Any Charter Boat Fishing	691	1.01	1,249	1.82	972	1.41
Any Party Boat Fishing	224	0.33	266	0.39	374	0.54
Any Private Boat Fishing	6,667	9.69	5,521	8.03	3,511	5.11
Any Rental Boat Fishing	59	0.09	0	0.00	149	0.22
Type of Diving Boat						
Any Charter Boat Diving-Snork & SCUBA	996	1.45	435	0.63	490	0.71
Any Private Boat Diving-Snork & SCUBA	7,687	11.18	4,690	6.82	2,866	4.17
Any Rental Boat Diving-Snork & SCUBA	95	0.14	53	0.08	72	0.11
Type of Boat Use						
Any Use of Charter/Party Boats	2,668	3.88	1,813	2.64	1,795	2.61
Any Use of Private Boats	10,599	15.41	7,679	11.17	5,363	7.80
Any Use of Rental Boats	367	0.53	309	0.45	521	0.76

1. These activities are summaries from a list of 74 activities used in the survey. See Tables A.2.3 and A.2.4.

2. Percent of residents of all ages that did the 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 visitor may have participated in both activities. The estimate for all snorkeling eliminates this kind of double-counting.

Table A.2.2 Activity Participation in 42 Aggregate Activities by District: Lower Keys, Key West and All Keys

Activity ¹	Number of Participants	Lower Keys Participation Rate ²	Number of Participants	Key West Participation Rate ²	Number of Participants	All Keys Participation Rate ²
Diving						
Snorkeling from Boat	6,221	9.05	8,080	11.75	22,623	32.90
Snorkeling from Shore	2,330	3.39	2,432	3.54	7,088	10.31
All Snorkeling	6,999	10.18	8,903	12.95	24,379	35.45
SCUBA Diving from Boat	2,156	3.13	2,330	3.39	8,099	11.78
SCUBA Diving from Shore	39	0.06	109	0.16	512	0.74
All SCUBA Diving	2,175	3.16	2,382	3.46	8,266	12.02
All Diving	7,492	10.89	9,136	13.28	25,538	37.13
Fishing						
Offshore Fishing	5,633	8.19	5,873	8.54	19,726	28.68
Flats/Backcountry Fishing	4,156	6.04	3,240	4.71	12,729	18.51
Other Fishing from Boat	2,724	3.96	2,873	4.18	8,999	13.09
All Boat Fishing	7,453	10.84	8,082	11.75	25,070	36.45
Fishing from Shore	2,614	3.80	2,307	3.35	7,842	11.40
All Types of Fishing	8,611	12.52	9,125	13.27	27,334	39.75
Viewing Wildlife - Nature Study						
Viewing Wildlife/Nature-Boat	5,053	7.35	5,629	8.18	16,577	24.10
Viewing Wildlife/Nature-Land	5,098	7.41	4,426	6.44	11,044	16.06
All Viewing Wildlife/Nature Study	8,291	12.06	8,847	12.86	22,646	32.93
Boating						
Personal Watercraft Use	3,555	5.17	4,627	6.73	4,884	7.10
All Sailing	1,351	1.96	2,950	4.29	5,928	8.62
Other Boating Activities	2,156	3.14	4,876	7.09	11,520	16.75
Other Land-based Activities						
All Beach Activities (Inc Swimming)	4,942	7.19	9,570	13.92	18,412	26.77
All Camping	1,152	1.68	432	0.63	3,034	4.41
Visiting Museums or Historic Areas	4,259	6.19	17,052	24.79	21,568	31.36
Sightseeing & Attractions (Paid & Unpaid)	2,082	3.03	11,213	16.30	15,169	22.06
Cultural Events (Fairs, Concerts, Plays)	3,263	4.74	13,076	19.01	21,981	31.96
Outdoor Sports and Games	1,500	2.18	4,434	6.45	9,220	13.41
SPA, Health & Wellness	918	1.34	4,468	6.50	8,288	12.05
Special Aggregations						
Any Activities Involving Boats	14,293	20.78	17,783	25.86	37,110	53.96
All Activities Involving Swimming	9,984	14.52	14,004	20.36	33,497	48.71
Any Water-Related Activities	16,851	24.50	21,313	30.99	41,542	60.41
Any Land-Based Activities	14,715	21.40	27,730	40.32	38,476	55.95
Only Water-Based Activities	1,111	1.62	1,027	1.49	7,212	10.49
Only Land-Based Activities	4,840	7.04	8,807	12.81	3,533	5.14

1. These activities are summaries from a list of 74 activities used in the survey. See Tables A.2.4 and A.2.5.

2. Percent of residents of all ages that did the 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 visitor may have participated in both activities. The estimate for all snorkeling eliminates this kind of double-counting.

Table A.2.2 Activity Participation in 42 Aggregate Activities by District: Lower Keys, Key West and All Keys (continued)

Activity ¹	Number of Participants	Lower Keys Participation Rate ²	Number of Participants	Key West Participation Rate ²	Number of Participants	All Keys Participation Rate ²
Type of Fishing Boat						
Any Charter Boat Fishing	443	0.64	2,001	2.91	4,234	6.16
Any Party Boat Fishing	188	0.27	359	0.52	1,164	1.69
Any Private Boat Fishing	7,052	10.25	7,133	10.37	23,769	34.56
Any Rental Boat Fishing	56	0.08	94	0.14	298	0.43
Type of Diving Boat						
Any Charter Boat Diving-Snork & SCUBA	733	1.07	2,443	3.55	4,392	6.39
Any Private Boat Diving-Snork & SCUBA	6,265	9.11	6,715	9.76	21,702	31.56
Any Rental Boat Diving-Snork & SCUBA	72	0.11	340	0.49	593	0.86
Type of Boat Use						
Any Use of Charter/Party Boats	1,476	2.15	7,108	10.34	12,187	17.72
Any Use of Private Boats	10,379	15.09	12,219	17.77	33,866	49.25
Any Use of Rental Boats	272	0.40	1,977	2.87	3,027	4.40

1. These activities are summaries from a list of 74 activities used in the survey. See Tables A.2.4 and A.2.5.

2. Percent of residents of all ages that did the 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 visitor may have participated in both activities. The estimate for all snorkeling eliminates this kind of double-counting.

Table A.2.3 Activity Participation in Detailed List of 74 Activities by District: Key Largo and Islamorada

Activity	Key Largo		Islamorada	
	Number of Participants	Participation Rate ¹	Number of Participants	Participation Rate ¹
Snorkeling from Charter/Party boat	601	0.87	183	0.27
Snorkeling from a Rental boat	75	0.11	53	0.08
Snorkeling from Private boat	7,295	10.61	4,398	6.40
SCUBA Diving from Charter/Party boat	667	0.97	252	0.37
SCUBA Diving from Rental boat	59	0.09	0	0.00
SCUBA Diving from Private boat	2,429	3.53	1,221	1.77
Diving for Lobsters from boat	3,124	4.54	2,227	3.24
Underwater Photography from boat	746	1.08	287	0.42
Wreck Diving	1,221	1.78	291	0.42
Spear fishing from boat	581	0.84	448	0.65
Fishing Offshore from Charter boat	537	0.78	1,003	1.46
Fishing Offshore from Party/head boat	204	0.30	233	0.34
Fishing Offshore from Rental boat	59	0.09	0	0.00
Fishing Offshore from Private boat	5,257	7.64	4,061	5.90
Fishing Flats/Backcountry Guided	134	0.20	318	0.46
Fishing Flats/Backcountry Rental boat	0	0.00	0	0.00
Fishing Flats/Backcountry Private boat	3,362	4.89	3,301	4.80
Other Fishing Charter boat	59	0.09	92	0.13
Other Fishing Party/Head boat	20	0.03	33	0.05
Other Fishing Rental boat	20	0.03	0	0.00
Other Fishing Private boat	2,096	3.05	1,389	2.02
Glass-bottom Boat Rides	1,014	1.47	118	0.17
Back Country Boat Excursions-not fishing	112	0.16	39	0.06
Viewing Nature/Wildlife from Private boat	4,410	6.41	3,318	4.82
Personal Watercraft Rental boat	98	0.14	57	0.08
Personal Watercraft Private boat	1,159	1.68	555	0.81
Sailing from Charter/Party boat	129	0.19	16	0.02
Sailing from Rental boat	157	0.23	160	0.23
Sailing from Private boat	1,102	1.60	761	1.11
Other Boating from Charter/Party boat	280	0.41	91	0.13
Other Boating from Rental boat	112	0.16	59	0.09
Other Boating from Private boat	3,245	4.72	2,323	3.38
Snorkeling from Shore	1,620	2.36	1,168	1.70
SCUBA Diving from Shore	217	0.32	59	0.09
Diving for Lobsters from Shore	822	1.20	346	0.50
Underwater Photography from Shore	210	0.30	79	0.11

1. Number of Participants is equal to the total number of residents living in households (68,771) times the percent of residents that did the activity in each district.

Table A.2.3 Activity Participation in Detailed List of 74 Activities by District: Key Largo and Islamorada (continued)

Activity	Key Largo		Islamorada	
	Number of Participants	Participation Rate ¹	Number of Participants	Participation Rate ¹
Fishing from Shore	1,713	2.49	1,414	2.06
Swimming at Beaches (not pool)	3,091	4.49	2,732	3.97
Swimming in Outdoor Pool	3,082	4.48	2,992	4.35
Swimming with Dolphins	324	0.47	380	0.55
Windsurfing, Sailboarding, Kite Boarding	54	0.08	70	0.10
Wildlife Observation/Photography from Land	2,905	4.22	2,022	2.94
Other Nature Study and Observation from Land	1,108	1.61	725	1.05
Photography-Natural Scenery (not wildlife)	1,192	1.73	780	1.13
Backpacking	20	0.03	20	0.03
Camping in Developed Campgrounds	540	0.79	360	0.52
Camping in Primitive Campgrounds	631	0.92	321	0.47
Day Hiking	1,309	1.90	347	0.50
Attending Ranger Guided Walk	184	0.27	281	0.41
Self-guided Nature or Historic Trail	1,284	1.87	1,317	1.92
Picnicking	1,468	2.13	891	1.30
Visiting Historic Areas, Sites, Bldgs	3,106	4.52	2,515	3.66
Attending Special Events (fairs, festivals, etc.)	5,342	7.77	3,846	5.59
Attending Outdoor Concerts, Plays, etc.	2,184	3.18	2,230	3.24
Attending Indoor concerts, Plays, etc.	1,597	2.32	1,890	2.75
Sight-seeing Tours and Tourist Attractions (paid)	439	0.64	636	0.92
Sight-seeing Tours and Tourist Attractions (not paid)	1,632	2.37	950	1.38
Reading Roadside Exhibits or Markers	960	1.40	901	1.31
Visiting a Museum, Education Facility, or Info Center	1,557	2.26	1,346	1.96
Attending Outdoor Sports Events	1,168	1.70	1,121	1.63
Attending Weddings	1,497	2.18	836	1.22
Shopping	5,513	8.02	3,756	5.46
Visit Art Gallery	945	1.37	1,020	1.48
Golf	838	1.22	355	0.52
Tennis	550	0.80	280	0.41
Participation in Other Outdoor Sports and Games	1,362	1.98	1,021	1.49
Bicycling	3,189	4.64	1,788	2.60
Horseback Riding	0	0.00	39	0.06
Driving for Pleasure (mopeds, motorcycles)	548	0.80	556	0.81
All Beach Activities (other than swimming)	1,758	2.56	1,098	1.60
Sunbathing (not at beach)	949	1.38	656	0.95
Spa Treatments (massage, esthetician services)	606	0.88	661	0.96
Fitness Activities (fitness classes, visited gym)	1,331	1.93	595	0.87
Healthy Cuisine (specialty dining for health or diet)	814	1.18	295	0.43

Table A.2.4 Activity Participation in Detailed List of 74 Activities by District: Marathon and Lower Keys

Activity	Marathon		Lower Keys	
	Number of Participants	Participation Rate ¹	Number of Participants	Participation Rate ¹
Snorkeling from Charter/Party boat	243	0.35	567	0.82
Snorkeling from a Rental boat	53	0.08	72	0.11
Snorkeling from Private boat	2,721	3.96	5,826	8.47
SCUBA Diving from Charter/Party boat	247	0.36	205	0.30
SCUBA Diving from Rental boat	20	0.03	0	0.00
SCUBA Diving from Private boat	1,157	1.68	2,062	3.00
Diving for Lobsters from boat	690	1.00	2,949	4.29
Underwater Photography from boat	343	0.50	683	0.99
Wreck Diving	381	0.55	438	0.64
Spear fishing from boat	453	0.66	1,711	2.49
Fishing Offshore from Charter boat	728	1.06	309	0.45
Fishing Offshore from Party/head boat	335	0.49	171	0.25
Fishing Offshore from Rental boat	149	0.22	39	0.06
Fishing Offshore from Private boat	2,901	4.22	5,205	7.57
Fishing Flats/Backcountry Guided	251	0.36	187	0.27
Fishing Flats/Backcountry Rental boat	20	0.03	16	0.02
Fishing Flats/Backcountry Private boat	1,426	2.07	4,067	5.91
Other Fishing Charter boat	316	0.46	0	0.00
Other Fishing Party/Head boat	39	0.06	36	0.05
Other Fishing Rental boat	0	0.00	16	0.02
Other Fishing Private boat	1,645	2.39	2,691	3.91
Glass-bottom Boat Rides	39	0.06	118	0.17
Back Country Boat Excursions-not fishing	36	0.05	75	0.11
Viewing Nature/Wildlife from Private boat	1,681	2.44	4,638	6.74
Personal Watercraft Rental boat	178	0.26	20	0.03
Personal Watercraft Private boat	882	1.28	572	0.83
Sailing from Charter/Party boat	0	0.00	33	0.05
Sailing from Rental boat	143	0.21	125	0.18
Sailing from Private boat	450	0.65	1,193	1.73
Other Boating from Charter/Party boat	133	0.19	75	0.11
Other Boating from Rental boat	0	0.00	33	0.05
Other Boating from Private boat	1,226	1.78	2,140	3.11
Snorkeling from Shore	1,354	1.97	2,330	3.39
SCUBA Diving from Shore	146	0.21	39	0.06
Diving for Lobsters from Shore	1,064	1.55	832	1.21
Underwater Photography from Shore	124	0.18	226	0.33

1. Number of Participants is equal to the total number of residents living in households (68,771) times the percent of residents that did the activity in each district.

Table A.2.4 Activity Participation in Detailed List of 74 Activities by District: Marathon and Lower Keys (continued)

Activity	Marathon		Lower Keys	
	Number of Participants	Participation Rate ¹	Number of Participants	Participation Rate ¹
Fishing from Shore	1,454	2.11	2,614	3.80
Swimming at Beaches (not pool)	3,633	5.28	4,066	5.91
Swimming in Outdoor Pool	1,719	2.50	2,324	3.38
Swimming with Dolphins	594	0.86	130	0.19
Windsurfing, Sailboarding, Kite Boarding	36	0.05	198	0.29
Wildlife Observation/Photography from Land	1,830	2.66	4,559	6.63
Other Nature Study and Observation from Land	793	1.15	1,798	2.61
Photography-Natural Scenery (not wildlife)	719	1.05	1,781	2.59
Backpacking	20	0.03	20	0.03
Camping in Developed Campgrounds	442	0.64	752	1.09
Camping in Primitive Campgrounds	20	0.03	400	0.58
Day Hiking	581	0.85	1,225	1.78
Attending Ranger Guided Walk	149	0.22	210	0.31
Self-guided Nature or Historic Trail	1,044	1.52	2,190	3.19
Picnicking	852	1.24	2,120	3.08
Visiting Historic Areas, Sites, Bldgs	2,324	3.38	2,646	3.85
Attending Special Events (fairs, festivals, etc.)	3,682	5.35	2,825	4.11
Attending Outdoor Concerts, Plays, etc.	2,378	3.46	1,140	1.66
Attending Indoor concerts, Plays, etc.	1,119	1.63	961	1.40
Sight-seeing Tours and Tourist Attractions (paid)	134	0.20	219	0.32
Sight-seeing Tours and Tourist Attractions (not paid)	1,064	1.55	1,504	2.19
Reading Roadside Exhibits or Markers	1,436	2.09	1,232	1.79
Visiting a Museum, Education Facility, or Info Center	1,253	1.82	1,411	2.05
Attending Outdoor Sports Events	2,098	3.05	419	0.61
Attending Weddings	268	0.39	155	0.23
Shopping	4,041	5.88	3,326	4.84
Visit Art Gallery	1,236	1.80	963	1.40
Golf	1,069	1.55	334	0.49
Tennis	258	0.38	738	1.07
Participation in Other Outdoor Sports and Games	469	0.68	573	0.83
Bicycling	1,134	1.65	2,896	4.21
Horseback Riding	0	0.00	39	0.06
Driving for Pleasure (mopeds, motorcycles)	515	0.75	741	1.08
All Beach Activities (other than swimming)	1,938	2.82	1,845	2.68
Sunbathing (not at beach)	477	0.69	658	0.96
Spa Treatments (massage, esthetician services)	272	0.40	460	0.67
Fitness Activities (fitness classes, visited gym)	612	0.89	458	0.67
Healthy Cuisine (specialty dining for health or diet)	200	0.29	293	0.43

Table A.2.5 Activity Participation in Detailed List of 74 Activities by District: Key West and All Keys

Activity	Key West		All Keys	
	Number of Participants	Participation Rate ¹	Number of Participants	Participation Rate ¹
Snorkeling from Charter/Party boat	2,227	3.24	3,463	5.04
Snorkeling from a Rental boat	261	0.38	475	0.69
Snorkeling from Private boat	6,508	9.46	20,605	29.96
SCUBA Diving from Charter/Party boat	406	0.59	1,468	2.13
SCUBA Diving from Rental boat	135	0.20	214	0.31
SCUBA Diving from Private boat	1,958	2.85	7,300	10.62
Diving for Lobsters from boat	3,395	4.94	10,249	14.90
Underwater Photography from boat	629	0.91	2,087	3.04
Wreck Diving	857	1.25	2,572	3.74
Spear fishing from boat	1,607	2.34	4,176	6.07
Fishing Offshore from Charter boat	1,673	2.43	3,367	4.90
Fishing Offshore from Party/head boat	306	0.44	1,003	1.46
Fishing Offshore from Rental boat	94	0.14	282	0.41
Fishing Offshore from Private boat	5,048	7.34	18,405	26.76
Fishing Flats/Backcountry Guided	444	0.65	1,094	1.59
Fishing Flats/Backcountry Rental boat	0	0.00	36	0.05
Fishing Flats/Backcountry Private boat	2,926	4.25	12,243	17.80
Other Fishing Charter boat	20	0.03	428	0.62
Other Fishing Party/Head boat	90	0.13	218	0.32
Other Fishing Rental boat	0	0.00	36	0.05
Other Fishing Private boat	2,800	4.07	8,733	12.70
Glass-bottom Boat Rides	873	1.27	1,949	2.83
Back Country Boat Excursions-not fishing	172	0.25	336	0.49
Viewing Nature/Wildlife from Private boat	4,610	6.70	15,256	22.18
Personal Watercraft Rental boat	1,131	1.64	1,368	1.99
Personal Watercraft Private boat	1,455	2.12	3,535	5.14
Sailing from Charter/Party boat	1,685	2.45	1,830	2.66
Sailing from Rental boat	358	0.52	698	1.01
Sailing from Private boat	1,206	1.75	3,685	5.36
Other Boating from Charter/Party boat	2,279	3.31	2,430	3.53
Other Boating from Rental boat	150	0.22	314	0.46
Other Boating from Private boat	2,670	3.88	9,222	13.41
Snorkeling from Shore	2,432	3.54	7,088	10.31
SCUBA Diving from Shore	109	0.16	512	0.74
Diving for Lobsters from Shore	1,203	1.75	3,785	5.50
Underwater Photography from Shore	167	0.24	584	0.85

1. Number of Participants is equal to the total number of residents living in households (68,771) times the percent of residents that did the activity in each district.

Table A.2.5 Activity Participation in Detailed List of 74 Activities by District: Key West and All Keys (continued)

Activity	Key West		All Keys	
	Number of Participants	Participation Rate ¹	Number of Participants	Participation Rate ¹
Fishing from Shore	2,307	3.35	7,842	11.40
Swimming at Beaches (not pool)	7,072	10.28	14,756	21.46
Swimming in Outdoor Pool	6,775	9.85	14,288	20.78
Swimming with Dolphins	362	0.53	1,406	2.04
Windsurfing, Sailboarding, Kite Boarding	212	0.31	462	0.67
Wildlife Observation/Photography from Land	3,852	5.60	9,528	13.85
Other Nature Study and Observation from Land	1,570	2.28	4,112	5.98
Photography-Natural Scenery (not wildlife)	2,132	3.10	4,535	6.59
Backpacking	20	0.03	20	0.03
Camping in Developed Campgrounds	296	0.43	1,787	2.60
Camping in Primitive Campgrounds	136	0.20	1,394	2.03
Day Hiking	635	0.92	2,587	3.76
Attending Ranger Guided Walk	287	0.42	788	1.15
Self-guided Nature or Historic Trail	2,143	3.12	5,618	8.17
Picnicking	4,483	6.52	6,984	10.15
Visiting Historic Areas, Sites, Bldgs	13,192	19.18	16,384	23.82
Attending Special Events (fairs, festivals, etc.)	10,390	15.11	17,835	25.93
Attending Outdoor Concerts, Plays, etc.	4,146	6.03	8,406	12.22
Attending Indoor concerts, Plays, etc.	6,575	9.56	9,739	14.16
Sight-seeing Tours and Tourist Attractions (paid)	4,798	6.98	5,134	7.46
Sight-seeing Tours and Tourist Attractions (not paid)	4,845	7.05	5,975	8.69
Reading Roadside Exhibits or Markers	2,051	2.98	2,836	4.12
Visiting a Museum, Education Facility, or Info Center	9,826	14.29	11,786	17.14
Attending Outdoor Sports Events	5,223	7.59	8,092	11.77
Attending Weddings	2,328	3.39	4,383	6.37
Shopping	10,900	15.85	15,478	22.51
Visit Art Gallery	6,282	9.14	8,093	11.77
Golf	1,892	2.75	3,510	5.10
Tennis	1,109	1.61	2,453	3.57
Participation in Other Outdoor Sports and Games	1,885	2.74	4,405	6.41
Bicycling	6,287	9.14	13,247	19.26
Horseback Riding	39	0.06	98	0.14
Driving for Pleasure (mopeds, motorcycles)	1,918	2.79	2,437	3.54
All Beach Activities (other than swimming)	4,635	6.74	8,372	12.17
Sunbathing (not at beach)	2,235	3.25	4,248	6.18
Spa Treatments (massage, esthetician services)	2,294	3.34	3,972	5.78
Fitness Activities (fitness classes, visited gym)	2,852	4.15	5,474	7.96
Healthy Cuisine (specialty dining for health or diet)	1,558	2.27	2,314	3.36

Table A.2.6 Within District Participation Rates for 42 Aggregate Activities

	Key Largo	Islamorada	Marathon	Lower Keys	Key West
Diving					
Snorkeling from Boat	34.73	24.00	18.75	27.11	24.38
Snorkeling from Shore	7.40	6.10	8.64	10.15	7.34
All Snorkeling	36.14	25.70	23.82	30.49	26.86
SCUBA Diving from Boat	12.61	7.28	8.63	9.39	7.03
SCUBA Diving from Shore	0.99	0.31	0.94	0.17	0.33
All SCUBA Diving	12.79	7.38	9.10	9.48	7.19
All Diving	38.52	27.54	25.63	32.64	27.56
Fishing					
Offshore Fishing	25.03	22.84	21.70	24.54	17.72
Flats/Backcountry Fishing	15.79	17.62	9.54	18.11	9.78
Other Fishing from Boat	9.75	7.63	11.20	11.87	8.67
All Boat Fishing	31.48	30.55	26.04	32.47	24.38
Fishing from Shore	7.82	7.38	9.28	11.39	6.96
All Types of Fishing	33.86	31.74	29.05	37.52	27.53
Viewing Wildlife - Nature Study					
Viewing Wildlife/Nature-Boat	23.57	19.09	13.12	22.02	16.98
Viewing Wildlife/Nature-Land	14.59	11.52	13.92	22.21	13.35
All Viewing Wildlife/Nature Study	31.88	25.42	23.79	36.13	26.69
Boating					
Personal Watercraft Use	16.59	18.75	6.76	15.49	13.96
All Sailing	5.99	4.89	3.78	5.89	8.90
Other Boating Activities	15.73	12.61	8.20	9.40	14.71
Other Land-based Activities					
All Beach Activities (Inc Swimming)	17.62	17.06	27.51	21.53	28.87
All Camping	4.90	3.55	2.95	5.02	1.30
Visiting Museums or Historic Areas	18.78	21.09	26.19	18.56	51.44
Sightseeing & Attractions (Paid & Unpaid)	13.11	12.89	19.52	9.07	33.83
Cultural Events (Fairs, Concerts, Plays)	27.70	26.23	36.41	14.22	39.45
Outdoor Sports and Games	10.69	7.55	9.57	6.54	13.38
SPA, Health & Wellness	9.79	6.82	5.81	4.00	13.48
Special Aggregations					
Any Activities Involving Boats	62.09	59.52	41.13	62.28	53.65
All Activities Involving Swimming	45.49	36.93	41.81	43.50	42.25
Any Water-Related Activities	67.16	65.72	56.26	73.42	64.30
Any Land-Based Activities	74.40	70.15	81.90	64.11	83.66
Only Water-Based Activities	13.40	12.91	7.32	4.84	3.10
Only Land-Based Activities	21.84	23.87	35.08	21.09	26.57
Type of Fishing Boat					
Any Charter Boat Fishing	3.16	6.52	6.20	1.93	6.04
Any Party Boat Fishing	1.02	1.39	2.39	0.82	1.08
Any Private Boat Fishing	30.44	28.82	22.42	30.73	21.52
Any Rental Boat Fishing	0.27	0.00	0.95	0.24	0.28
Type of Diving Boat					
Any Charter Boat Diving-Snork & SCUBA	4.55	2.27	3.13	3.20	7.37
Any Private Boat Diving-Snork & SCUBA	35.10	24.48	18.29	27.30	20.26
Any Rental Boat Diving-Snork & SCUBA	0.43	0.27	0.46	0.31	1.03
Type of Boat Use					
Any Use of Charter/Party Boats	12.18	9.47	11.46	6.43	21.44
Any Use of Private Boats	48.40	40.09	34.24	45.22	36.86
Any Use of Rental Boats	1.68	1.61	3.33	1.19	5.96

Table A.2.7 Average Number of Days of Activity by District 2008¹

	Key Largo	Islamorada	Marathon	Lower Keys	Key West
Snorkeling					
Charter/Party boat*	6.92	5.00	2.00	1.85	3.02
Rental boat*	5.00	1.50	2.00	4.67	1.87
Private boat	10.08	10.78	8.48	12.82	9.21
Shore*	5.95	6.52	4.27	8.47	8.33
SCUBA Diving					
Charter/Party boat*	3.93	2.60	2.50	1.67	8.75
Rental boat*	2.00	1.00	2.00	2.00	3.00
Private boat	10.52	10.77	8.64	11.61	11.70
Shore*	2.40	3.00	4.00	1.50	2.00
Offshore Fishing					
Charter boat*	2.53	3.60	2.08	1.67	2.77
Party boat*	1.57	2.33	3.80	1.25	2.00
Rental boat*	5.00	0.00	1.80	0.00	2.00
Private boat	16.00	22.37	14.89	13.45	11.94
Flats/Backcountry Fishing					
Guided*	4.25	3.18	1.50	3.00	1.50
Rental boat*	0.00	0.00	1.00	1.00	0.00
Private boat	9.59	15.79	12.55	13.14	10.30
Other Fishing					
Charter boat*	4.00	1.75	3.33	0.00	4.00
Party boat*	1.00	1.00	1.00	1.67	1.60
Rental boat*	1.00	0.00	0.00	0.00	0.00
Private boat	11.75	14.19	8.43	11.97	8.27
Fishing from Shore	11.86	8.70	8.65	9.67	7.78
Personal Watercraft					
Rental boat*	1.00	1.50	3.00	1.00	1.33
Private boat	14.25	5.44	9.00	14.29	10.78
Sailing					
Charter/Party boat*	7.80	5.00	0.00	1.00	2.35
Rental boat*	4.75	3.40	3.00	16.67	2.55
Private boat	9.77	7.40	11.20	10.34	9.38
Other Boating					
Charter/Party boat*	1.80	5.00	1.00	1.67	2.17
Rental boat*	3.00	1.00	0.00	2.00	2.40
Private boat	13.70	12.34	10.00	10.11	8.78
Viewing Nature and Wildlife-Boat					
Glass-bottom boats*	1.56	1.50	0.00	1.00	1.53
Guided Backcountry boat excursions*	2.25	1.00	1.50	2.33	1.20
Private/Rental boat	11.79	12.55	11.24	10.56	8.32

1. Average or mean number of days are for those that did the activity in a district.

* Estimate based on small sample sizes and not reliable. This was true for activities with low participation rates.

Table A.2.7 Average Number of Days of Activity by District 2008 (continued)

	Key Largo	Islamorada	Marathon	Lower Keys	Key West
Viewing Nature and Wildlife-Land					
Wildlife Observation or Wildlife Photography	12.02	14.47	9.49	20.41	11.39
Other Nature Study and Observation	11.79	11.61	8.89	10.44	11.88
All Beach Activities					
Swimming in Beaches (not in pool)	10.60	10.00	7.75	8.58	10.14
Beach Activities other than Swimming	8.96	9.69	7.08	9.63	11.30
Windsurfing, Sailboarding, Kite Boarding	2.00	1.50	5.00	2.50	14.33
Swimming in an Outdoor Pool	25.00	14.32	18.82	16.05	17.68
Museums & Historic Sites					
Museums, Education Facility or Information Center	3.89	2.28	2.32	2.42	4.13
Historic sites	3.93	1.91	3.49	2.81	5.56

1. Average or mean number of days are for those that did the activity in a district.

* Estimate based on small sample sizes and not reliable. This was true for activities with low participation rates.

Table A.2.8 Total Annual Number of Days by Activity and District (Thousands of Days)

Activity	Key Largo	Islamorada	Marathon	Lower Keys	Key West	All Keys
Snorkeling	87.71	57.62	29.45	95.81	87.41	358.00
Charter/Party boat*	4.16	0.92	0.49	1.05	6.73	13.33
Rental boat*	0.38	0.08	0.11	0.34	0.49	1.38
Private boat	73.53	47.41	23.07	74.69	59.94	278.65
Shore*	9.64	9.22	5.78	19.74	20.26	64.63
SCUBA Diving	28.81	13.98	11.24	24.34	27.08	105.46
Charter/Party boat*	2.62	0.66	0.62	0.34	3.55	7.79
Rental boat*	0.12	0.00	0.04	0.00	0.41	0.56
Private boat	25.55	13.15	10.00	23.94	22.91	95.55
Shore*	0.52	0.18	0.58	0.06	0.22	1.56
All Snorkeling and SCUBA Diving	116.52	71.61	40.69	120.15	114.49	463.46
Offshore Fishing	86.09	95.00	46.25	70.78	65.52	363.64
Charter boat*	1.36	3.61	1.51	0.52	4.45	11.45
Party boat*	0.32	0.54	1.27	0.21	0.61	2.96
Rental boat*	0.30	0.00	0.27	0.04	0.19	0.79
Private boat	84.11	90.84	43.20	70.01	60.27	348.43
Flats/Backcountry Fishing	32.81	53.13	18.29	54.02	30.80	189.06
Guided*	0.57	1.01	0.38	0.56	0.67	3.18
Rental boat*	0.00	0.00	0.02	0.02	0.00	0.04
Private boat	32.24	52.12	17.90	53.44	30.14	185.84
Other Fishing	24.90	19.90	14.96	32.29	23.38	115.43
Charter boat*	0.24	0.16	1.05	0.00	0.08	1.53
Party boat*	0.02	0.03	0.04	0.06	0.14	0.30
Rental boat*	0.02	0.00	0.00	0.02	0.00	0.04
Private boat	24.63	19.71	13.87	32.21	23.16	113.57
Fishing from Shore	20.32	12.30	12.58	25.28	17.95	88.42
All Fishing	164.12	180.34	92.08	182.36	137.66	756.55
Personal Watercraft	16.61	3.10	8.47	8.19	17.19	53.57
Rental boat*	0.10	0.09	0.53	0.02	1.50	2.24
Private boat	16.52	3.02	7.94	8.17	15.68	51.33
Sailing	12.52	6.26	5.47	14.45	16.18	54.88
Charter/Party boat*	1.01	0.08	0.00	0.03	3.96	5.08
Rental boat*	0.75	0.54	0.43	2.08	0.91	4.72
Private boat	10.77	5.63	5.04	12.34	11.31	45.09
Other Boating	45.30	29.18	12.39	21.83	28.75	137.44
Charter/Party boat*	0.50	0.46	0.13	0.13	4.95	6.16
Rental boat*	0.34	0.06	0.00	0.07	0.36	0.82
Private boat	44.46	28.67	12.26	21.64	23.44	130.46
Viewing Nature and Wildlife-Boat	53.83	41.86	18.99	49.27	39.90	203.84
Glass-bottom boats*	1.58	0.18	0.04	0.12	1.34	3.25
Guided Backcountry boat excursions*	0.25	0.04	0.05	0.17	0.21	0.73
Private/Rental boat	51.99	41.64	18.89	48.98	38.36	199.86
Viewing Nature and Wildlife-Land	47.98	37.68	24.42	111.82	62.53	284.42
Wildlife Observation or Wildlife Photography	34.92	29.26	17.37	93.05	43.87	218.47
Other Nature Study and Observation	13.06	8.42	7.05	18.77	18.65	65.95
All Viewing Nature and Wildlife	101.81	79.53	43.40	161.09	102.42	488.26
All Beach Activities	48.52	37.96	41.88	52.65	124.09	305.09
Swimming in Beaches (not in pool)	32.76	27.32	28.16	34.89	71.71	194.84
Beach Activities other than Swimming	15.75	10.64	13.72	17.77	52.38	110.26
Windsurfing, Sailboarding, Kite Boarding	0.11	0.11	0.18	0.50	3.04	3.93
Swimming in an Outdoor Pool	77.05	42.85	32.35	37.30	119.78	309.33
Museums & Historic Sites	18.26	7.87	11.02	10.85	113.93	161.93
Museums, Education Facility or Information Center	6.06	3.07	2.91	3.41	40.58	56.03
Historic sites	12.21	4.80	8.11	7.44	73.35	105.90

Table A.3.1 Detailed Average Expenditures Per Person Per Day in Monroe County: Residents

Category	Export ¹	Non Export	Entire Sample
Lodging	\$4.56	\$5.07	\$4.85
<i>Publicly Owned</i>			
Hotel/motel/bed & breakfast/cabin, etc.	\$0.18	\$1.46	\$0.91
Camping site (RV/tent/camper)	\$0.03	\$0.00	\$0.01
<i>Privately Owned</i>			
Hotel/motel/bed & breakfast/cabin, etc.	\$4.23	\$1.41	\$2.63
Rental home, cottage, cabin, condo	\$0.00	\$2.20	\$1.25
Camping site (RV/tent/camper)	\$0.12	\$0.00	\$0.05
Food and Beverages	\$29.02	\$24.34	\$26.36
Food & Drinks consumed at restaurants & bars	\$19.17	\$15.35	\$17.00
Food & Beverages purchased at a store for carry-out	\$9.85	\$8.99	\$9.36
Transportation	\$4.19	\$10.11	\$7.55
Rental automobile, motor home, trailer, motorcycle, or other recreation vehicle	\$0.04	\$0.54	\$0.33
Gas & Oil - auto or RV	\$3.41	\$5.93	\$4.84
Repair & Services - auto or RV	\$0.03	\$2.83	\$1.62
Parking fees & tolls	\$0.62	\$0.55	\$0.58
Taxi fare	\$0.09	\$0.23	\$0.17
Bus Fare			
a) Package tour	\$0.00	\$0.00	\$0.00
b) Any other bus fare	\$0.00	\$0.03	\$0.01
Airline Fares			
a) Package tours	\$0.00	\$0.00	\$0.00
b) Any other airline fares	\$0.00	\$0.00	\$0.00
Boating	\$20.89	\$23.61	\$22.43
Boat, jet ski, and wave runner rental	\$0.06	\$9.70	\$5.52
Boat fuel and oil	\$20.24	\$11.84	\$15.48
Boat launch fees	\$0.11	\$0.18	\$0.15
Boat slip or marina fees	\$0.30	\$0.63	\$0.49
Sailing charters or sunset cruises	\$0.18	\$1.26	\$0.79
Fishing	\$27.25	\$8.10	\$16.40
Cut bait	\$4.57	\$2.68	\$3.50
Live bait	\$3.07	\$1.89	\$2.40
Fishing lines, fly lines, fish nets, traps	\$2.10	\$1.26	\$1.63
Charter/party boat/guide fees	\$17.51	\$2.27	\$8.87
Scuba Diving/Snorkeling	\$4.90	\$2.21	\$3.37
Rental fee for equipment	\$0.29	\$0.38	\$0.34
Charter/party boat/guide service	\$4.61	\$1.83	\$3.03

1. Export is the portion of spending by those who receive their incomes from sources outside of Monroe County and are not double-counted in economic contributions of other export or basic industries such as the tourist industry via the multiplier process.

Table A.3.1 Detailed Average Expenditures Per Person Per Day in Monroe County: Residents (continued)

Category	Export ¹	Non Export	Entire Sample
Sightseeing	\$2.36	\$3.64	\$3.08
Sightseeing tours	\$1.10	\$1.27	\$1.19
Glass-bottom boat rides	\$0.07	\$0.00	\$0.03
Backcountry excursions, kayak tours	\$0.00	\$0.00	\$0.00
Park entrance fees	\$0.61	\$1.52	\$1.13
Admission to tourist, amusement, festivals and other tourist attractions	\$0.58	\$0.85	\$0.73
Other Activity Expenditures	\$3.07	\$5.05	\$4.19
Rental fee for recreation equipment (bicycles, golf carts or others not listed above)	\$1.06	\$1.52	\$1.32
Guides service, tour, or outfitters (not listed above like parasailing)	\$0.00	\$0.66	\$0.37
Admission to motion pictures, museums, etc.	\$2.01	\$2.87	\$2.50
Miscellaneous Expenditures	\$4.59	\$4.99	\$4.82
Film purchases	\$0.55	\$0.76	\$0.67
Film development	\$0.99	\$1.32	\$1.18
Footware	\$0.72	\$1.22	\$1.00
Clothing	\$1.47	\$1.10	\$1.26
Souvenirs and gifts (not including clothing)	\$0.86	\$0.58	\$0.70
Other general merchandise	\$0.00	\$0.01	\$0.01
Services	\$0.59	\$1.96	\$1.36
Barber, laundry, and other personal services	\$0.10	\$0.77	\$0.48
Telephone, fax, other other business services	\$0.05	\$0.06	\$0.05
Physician, dentist and other medical services	\$0.44	\$1.13	\$0.83
Total Trip	\$101.42	\$89.08	\$94.41

1. Export is the portion of spending by those who receive their incomes from sources outside of Monroe County and are not double-counted in economic contributions of other export or basic industries such as the tourist industry via the multiplier process.

Table A.3.2 Derivation of Direct Wages and Salaries Income and Employment for Monroe County: Export Sector of Residents

Category	Expenditures Per Person Per Day	Total Expenditures	Wages to Sales Ratio	Total Wages	Wages to Employment Ratio	Total Employment
Lodging	\$4.56	\$5,123,953		\$1,464,072		56.53
<i>Publicly Owned</i>						
Hotel/motel/bed & breakfast/cabin, etc.	\$0.18	\$202,261	0.1964	\$39,724	17,715	2.24
Camping site (RV/tent/camper)	\$0.03	\$33,710	0.1964	\$6,621	17,715	0.37
<i>Privately Owned</i>						
Hotel/motel/bed & breakfast/cabin, etc.	\$4.23	\$4,753,141	0.2927	\$1,391,244	26,551	52.40
Rental home, cottage, cabin, condo	\$0.00	\$0	0.1540	\$0	33,884	0.00
Camping site (RV/tent/camper)	\$0.12	\$134,841	0.1964	\$26,483	17,517	1.51
Food and Beverages	\$29.02	\$32,609,019		\$6,957,204		380.61
Food & Drinks at restaurants & bars	\$19.17	\$21,540,831	0.2662	\$5,734,169	17,461	328.40
Food & Beverages at a store for carry-out	\$9.85	\$11,068,189	0.1105	\$1,223,035	23,425	52.21
Transportation	\$4.19	\$4,708,194		\$529,148		25.00
Rental automobile, motor home, trailer, motorcycle, or other recreation vehicle	\$0.04	\$44,947	0.1477	\$6,639	31,533	0.21
Gas & Oil - auto or RV	\$3.41	\$3,831,728	0.0716	\$274,352	19,848	13.82
Repair & Services - auto or RV	\$0.03	\$33,710	0.2648	\$8,926	34,985	0.26
Parking fees & tolls	\$0.62	\$696,678	0.3153	\$219,663	21,233	10.35
Taxi fare	\$0.09	\$101,131	0.1935	\$19,569	54,121	0.36
Bus Fare						
a) Package tour	\$0.00	\$0	0.2638	\$0	25,388	0.00
b) Any other bus fare	\$0.00	\$0	0.2638	\$0	25,388	0.00
Airline Fares						
a) Package tours	\$0.00	\$0	0.3207	\$0	45,027	0.00
b) Any other airline fares	\$0.00	\$0	0.3207	\$0	45,027	0.00
Boating	\$20.89	\$23,473,550		\$1,778,604		87.85
Boat, jet ski, and wave runner rental	\$0.06	\$67,420	0.2414	\$16,275	24,248	0.67
Boat fuel and oil	\$20.24	\$22,743,162	0.0716	\$1,628,410	19,848	82.04
Boat launch fees	\$0.11	\$123,604	0.1847	\$22,830	27,280	0.84
Boat slip or marina fees (this trip only)	\$0.30	\$337,102	0.1847	\$62,263	27,280	2.28
Sailing charters or sunset cruises	\$0.18	\$202,261	0.2414	\$48,826	24,248	2.01
Fishing	\$27.25	\$30,620,117		\$7,391,696		304.84
Cut bait	\$4.57	\$5,135,190	0.2414	\$1,239,635	24,248	51.12
Live bait	\$3.07	\$3,449,679	0.2414	\$832,753	24,248	34.34
Fishing lines, fly lines, fish nets, traps	\$2.10	\$2,359,715	0.2414	\$569,635	24,248	23.49
Charter/party boat/guide fees	\$17.51	\$19,675,532	0.2414	\$4,749,673	24,248	195.88
Scuba Diving/Snorkeling	\$4.90	\$5,506,003		\$1,329,149		54.81
Rental fee for equipment	\$0.29	\$325,865	0.2414	\$78,664	24,248	3.24
Charter/party boat/guide service	\$4.61	\$5,180,137	0.2414	\$1,250,485	24,248	51.57

1. Export is the portion of spending by those who receive their incomes from sources outside of Monroe County and are not double-counted in economic contributions of other export or basic industries such as the tourist industry via the multiplier process.

Table A.3.2 Derivation of Direct Wages and Salaries Income and Employment for Monroe County: Export Sector of Residents (continued)

Category	Expenditures Per Person Per Day	Total Expenditures	Wages to Sales Ratio	Total Wages	Wages to Employment Ratio	Total Employment
Sightseeing	\$2.36	\$2,651,871		\$640,162		26.40
Sightseeing tours	\$1.10	\$1,236,041	0.2414	\$298,380	24,248	12.31
Glass-bottom boat rides	\$0.07	\$78,657	0.2414	\$18,988	24,248	0.78
Backcountry excursions, kayak tours	\$0.00	\$0	0.2414	\$0	24,248	0.00
Park entrance fees	\$0.61	\$685,441	0.2414	\$165,465	24,248	6.82
Admission to tourist, amusement, festivals and other tourist attractions	\$0.58	\$651,731	0.2414	\$157,328	24,248	6.49
Other Activity Expenditures	\$3.07	\$3,449,679		\$804,643		36.90
Rental fee for recreation equipment (bicycles, golf carts or others not listed above)	\$1.06	\$1,191,094	0.2178	\$259,420	17,994	14.42
Guides service, tour, or outfitters (not listed above like parasailing)	\$0.00	\$0	0.2414	\$0	24,248	0.00
Admission to motion pictures, museums, etc.	\$2.01	\$2,258,585	0.2414	\$545,222	24,248	22.49
Miscellaneous Expenditures	\$4.59	\$5,157,664		\$721,971		33.02
Film purchases	\$0.55	\$618,021	0.1143	\$70,640	21,864	3.23
Film development	\$0.99	\$1,112,437	0.1143	\$127,152	21,864	5.82
Footwear	\$0.72	\$809,045	0.1285	\$103,962	20,996	4.95
Clothing	\$1.47	\$1,651,801	0.1285	\$212,256	20,996	10.11
Souvenirs and gifts (not including clothing)	\$0.86	\$966,360	0.2152	\$207,961	23,344	8.91
Other general merchandise	\$0.00	\$0	0.1143	\$0	21,864	0.00
Services	\$0.59	\$662,968		\$205,882		5.79
Barber, laundry, and other personal services	\$0.10	\$112,367	0.2998	\$33,688	25,009	1.35
Telephone, fax, other other business services	\$0.05	\$56,184	0.2638	\$14,821	26,284	0.56
Physician, dentist and other medical services	\$0.44	\$494,417	0.3183	\$157,373	40,541	3.88
Total Trip	\$101.42	\$113,963,017		\$21,822,530		1,011.74

Table A.3.3 Derivation of Total Output and Income for Monroe County: Residents Export Sector

Person-days	1,123,674
x	
Expenditures per person-day (Table A.3.1)	\$101.42
=	
Total Expenditures (Table A.3.2)	\$113,963,017
x	
Percent of inputs purchased locally	0.7
=	
Direct Output	\$79,774,112
x	
Output Multiplier	1.6
=	
Total Output	\$127,638,579
Reported Gross Sales (Dec. 07 - Nov. 08)	\$3,732,762,683
Percent of Gross Sales	3.42
Wages & Salaries Income (Direct) (from Table A.3.2)	\$21,822,530
x	
Total Income-to-Wages & Salaries	1.3658
=	
Direct Income	\$29,805,211
x	
Income Multiplier	1.6
=	
Total Income	\$47,688,338
Reported Income (.554 * Reported Sales)	\$2,214,144,000
Percent of Income	2.15

Table A.3.4 Derivation of Total Employment in Monroe County: Residents Export Sector

Type of Employment	Number Full and Part-time
Wages & Salaries Employment Direct (from Table A.3.2)	1,011.74
x Employment Multiplier	1.3
= Total Wages & Salaries Employment	1,315.26
Proprietor's Employment Proprietor's Income to Wages & Salaries Ratio	0.1333
x Direct Wages & Salaries	\$21,822,530
= Proprietor's Income (Direct) divided by Proprietor's Income-to-employment ratio	\$2,909,038 12,321
= Proprietor's Direct Employment	236.10
x Employment Multiplier	1.3
= Total Proprietor's Employment	306.94
Total Direct Employment	1,247.84
Total Employment	1,622.20
Total Monroe County Employment (2007 sales to employment ratio: 66,489)	57,928
Percent of Monroe County Employment	2.80

Table A.3.5 Total Expenditures by All Residents: Export and Non Export

Category	Expenditures Per Person Per Day	Total Expenditures
Lodging	4.85	13,259,900
<i>Publicly Owned</i>		
Hotel/motel/bed & breakfast/cabin, etc.	0.91	2,487,940
Camping site (RV/tent/camper)	0.01	27,340
<i>Privately Owned</i>		
Hotel/motel/bed & breakfast/cabin, etc.	2.63	7,190,420
Rental home, cottage, cabin, condo	1.25	3,417,500
Camping site (RV/tent/camper)	0.05	136,700
Food and Beverages	26.36	72,068,240
Food & Drinks consumed at restaurants & bars	17.00	46,478,000
Food & Beverages purchased at a store for carry-out	9.36	25,590,240
Transportation	7.55	20,641,700
Rental automobile, motor home, trailer, motorcycle, or other recreation vehicle	0.33	902,220
Gas & Oil - auto or RV	4.84	13,232,560
Repair & Services - auto or RV	1.62	4,429,080
Parking fees & tolls	0.58	1,585,720
Taxi fare	0.17	464,780
Bus Fare		
a) Package tour	0.00	0
b) Any other bus fare	0.01	27,340
Airline Fares		
a) Package tours	0.00	0
b) Any other airline fares	0.00	0
Boating	22.43	61,323,620
Boat, jet ski, and wave runner rental	5.52	5,091,680
Boat fuel and oil	15.48	42,322,320
Boat launch fees	0.15	410,100
Boat slip or marina fees (this trip only)	0.49	1,339,660
Sailing charters or sunset cruises	0.79	2,159,860
Fishing	16.40	44,837,600
Cut bait	3.50	9,569,000
Live bait	2.40	6,561,600
Fishing lines, fly lines, fish nets, traps	1.63	4,456,420
Charter/party boat/guide fees	8.87	24,250,580
Scuba Diving/Snorkeling	3.37	9,213,580
Rental fee for equipment	0.34	929,560
Charter/party boat/guide service	3.03	8,284,020

Table A.3.5 Total Expenditures by All Residents: Export and Non Export (continued)

Category	Expenditures Per Person Per Day	Total Expenditures
Sightseeing	3.08	8,420,720
Sightseeing tours	1.19	3,253,460
Glass-bottom boat rides	0.03	82,020
Backcountry excursions, kayak tours	0.00	0
Park entrance fees	1.13	3,089,420
Admission to tourist, amusement, festivals and other tourist attractions	0.73	1,995,820
Other Activity Expenditures	4.19	11,455,460
Rental fee for recreation equipment (bicycles, golf carts or others not listed above)	1.32	3,608,880
Guides service, tour, or outfitters (not listed above like parasailing)	0.37	1,011,580
Admission to motion pictures, museums, etc.	2.50	6,835,000
Miscellaneous Expenditures	4.82	13,177,880
Film purchases	0.67	1,831,780
Film development	1.18	3,226,120
Footware	1.00	2,734,000
Clothing	1.26	3,444,840
Souvenirs and gifts (not including clothing)	0.70	1,913,800
Other general merchandise	0.01	27,340
Services	1.36	3,718,240
Barber, laundry, and other personal services	0.48	1,312,320
Telephone, fax, other other business services	0.05	136,700
Physician, dentist and other medical services	0.83	2,269,220
Total Trip	94.41	258,116,940