

Linking the Economy and Environment of Florida Keys/Florida Bay

VISITOR PROFILES: EVERGLADES NATIONAL PARK

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U.S. Department of Commerce



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Linking the Economy and Environment of Florida Keys/Florida Bay

VISITOR PROFILES: EVERGLADES NATIONAL PARK

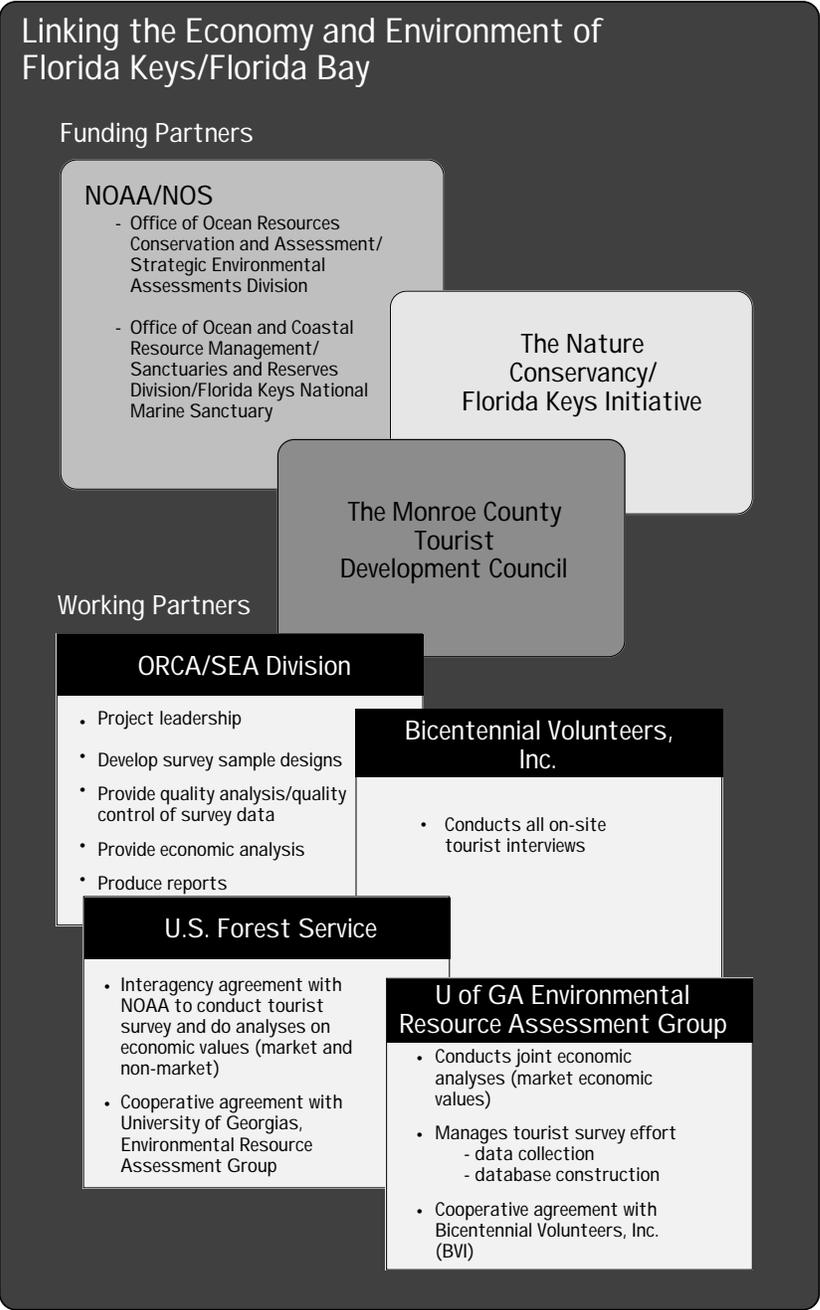


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Preface

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

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

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

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

Project objectives were decided upon by the funding partners and were based largely on a community meeting held in Key Largo in September 1993. This meeting was organized by Duncan Mathewson of the Center for Shipwreck Research, and Ken Vrana and Ed Mahoney from Michigan State University's Center for Maritime and Underwater Resources Management (CMURM), at the request of Spencer Slate, Chairman of the Keys Association of Dive Operators (KADO). Although the original focus of the meeting was a survey of divers, a consensus called for a study covering all recreational activities in the Florida Keys/Key West.

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

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

surveys. Florida State University's Policy Sciences Program, Survey Research Center is conducting the survey of residents of Monroe County.

This report provides the detailed profiles of visitors who accessed Florida Bay through Everglades National Park. Previous reports provided similar information for visitors to the Florida Keys/Key West and for residents of Monroe County, and addressed all of the items listed above. The limited amount of data collected for the Everglades National Park portion of this project precluded a complete analysis of the economic contribution section. However, all other project objectives were met.

This report is intended for all people involved in planning, managing or providing natural resources, facilities and services to visitors of Florida Bay and the Florida Bay region of Everglades National Park. Even though a significant amount of information is presented here, the data bases from which this report was generated are much richer in content. The authors encourage users to further explore this rich source of information by making special requests or obtaining the data bases themselves.

How to Use this Report

The report treats visitors or nonresidents of Monroe County (Part A) separately from residents of Monroe County (Part B). Visitors were sampled on-site and by mail, and residents of Monroe County were surveyed by telephone and mail. In Parts A and B, summaries of key features of the data are presented and significant differences are highlighted. "Significant differences" mean that formal statistical tests have been performed and the differences highlighted are statistically different. The details of these tests are not presented, but are available from the authors on request. At the end of each section of each chapter, a list of appendix tables are presented that include full details on the information summarized in the section. Users are guided to these tables for much more detail on the particular topic covered in the section. All of the data and documentation are available from the authors on request.

Double-counting. It is important to note that care must be taken in interpreting many of the estimates provided here with respect to activity participation. For example, one cannot add the number of participants in two different recreational activities to get the total number of participants that did both of those activities. Again, the reason is that visitors engage in more than one activity. Forty-one (41) aggregated activities were formed from the original list of 68 activities. These 41 activities contain no double-counting. For example, the estimates of the total number of visitors who participated in **all snorkeling** are lower than the estimates 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.

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PART A:
Non-Residents of Monroe County

Sampling Methodologies and Estimation Methods

Survey Sampling Methods

The sampling methods in the Florida Keys portion of this project required a relatively complicated sample design to achieve the project's multiple objectives. No one sample of visitors employing one survey instrument (questionnaire) could achieve all project objectives (Leeworthy and Wiley, 1996). To address visitors' (nonresidents of Monroe County) access to Florida Bay through Everglades National Park, a slightly different sample structure was employed. Two separate surveys of visitors that did at least one recreation activity were used: the Exit Gate Survey and the CUSTOMER Survey. To derive estimates of the number of person-trips and person-days of visitation by visitors accessing Florida Bay, a tally was conducted at the exit gate. Figure 1.1 shows the sample design employed and the objectives achieved with each sample or subsample.

Exit Gate Survey. This survey was primarily designed to provide information for estimating activity participation in a random sample of visitors who accessed Florida Bay through Everglades National Park. The survey was conducted face-to-face with visitors as they exited the park. An important feature of this sample design is that it enabled the authors to estimate the total number of visitors to Everglades National Park who accessed Florida Bay during the period when the interview took place. Visitors were surveyed during February through March of 1996. Table 1.1 shows

the number of completed interviews for each component of the survey.

CUSTOMER Survey. This survey was primarily designed to provide information for estimating the number of hours (intensity) of activity in Florida Bay and Everglades National Park near Florida Bay. There were three components of this survey: the on-site survey, the expenditure mailback survey, and the importance-satisfaction mailback survey. Figure 1.1 shows the general types of information obtained from each of the three survey components. The Exit Gate Survey was used to estimate the number of visitors that participated in each of 68 activities; CUSTOMER added the intensity of a selected set of 39 activities. THIS SURVEY collected hours of activity for 39 of the 68 activities, which are organized for presentation in 12 major activities/activity groups. It also provides detailed demographic profiles on as many as eight people of any age in a recreating party.

As with the Exit Gate Survey, the CUSTOMER survey was conducted face-to-face; however, the CUSTOMER Survey was considerably longer and took from 5 to 30 minutes to complete. The CUSTOMER sample contained demographic information on 440 visitors.

The expenditure and satisfaction mailback surveys were conducted by asking visitors who participated in the on-site survey if they would agree to participate in a follow-up mailback survey. Visitors were handed a bookmark brochure that described a sweepstakes/lottery in which they would have a chance to win a vacation to the Florida Keys/Key West, if they returned completed mailback questionnaires. Returning both question-

naires would give them two opportunities to win. Mailback response rates were slightly lower than average in comparison to past combination on-site/mailback surveys. The response rate was 51 percent for the importance-satisfaction mailback survey and 36 percent for the expenses mailback survey (see Table 1.1).

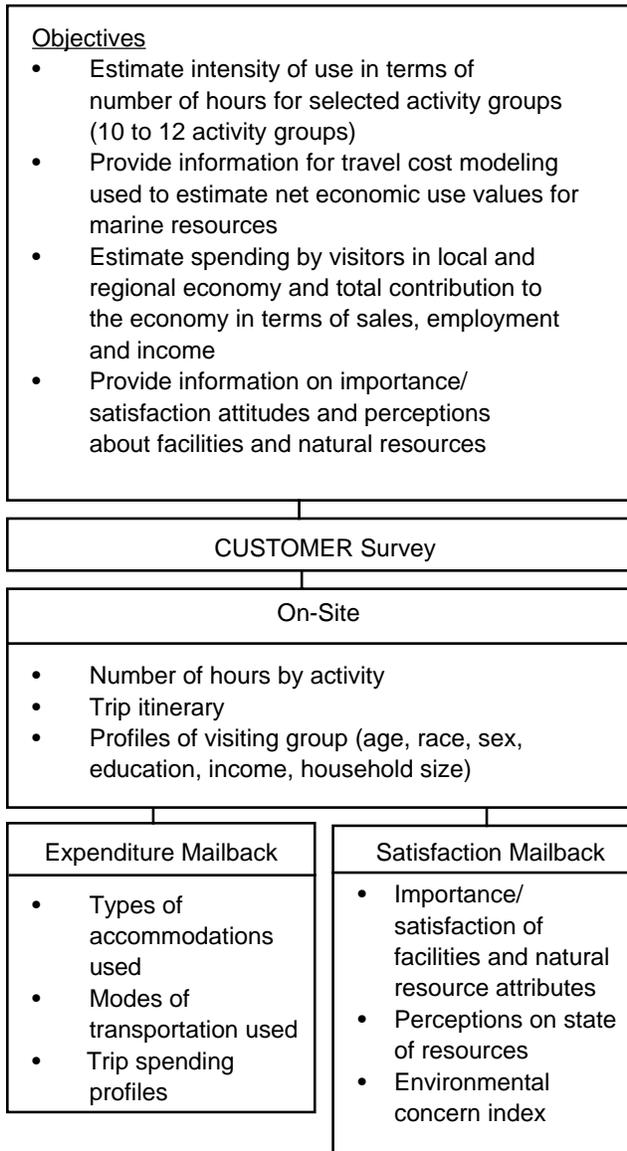
Because not all visitors responded to the mailback surveys, analyses were conducted to determine if samples might result in non-response bias. Low response rates alone are not sufficient to determine the existence of non-response bias. One may not have non-response bias with samples with very low response rates; however, the probability of non-response bias increases as response rates decline. Significant differences were found in response rates by age, race/ethnicity, household income and whether the visitor was from a foreign country. However, there were only a few questions in the satisfaction mailback where the answers were significantly different based on any of these factors.

Estimation of the Number of Visitors

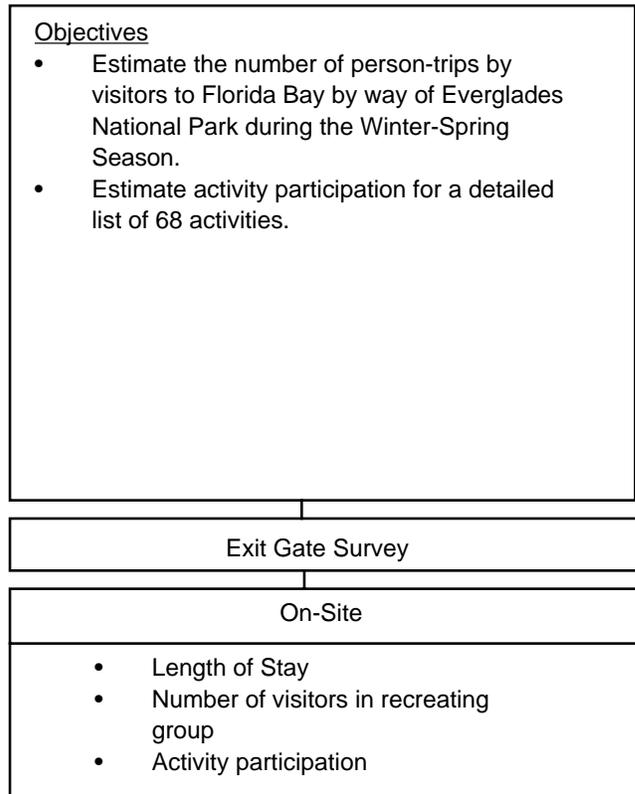
As mentioned above, the Exit Gate Survey was designed to estimate the total number of visitors who entered Florida Bay through Everglades National Park during the period when the interview took place. This was done by randomly selecting vehicles exiting Everglades National Park through the Main Entrance. A sign was placed a short distance before the exit alerting drivers to the survey activity ahead. A flagman provided by the park concessionaire waved random vehicles to the side, where they were greeted by a member of the Bicentennial Volunteers. The volunteer screened vehicles for nonresi-

Figure 1.1 Linking the Economy and Environment of the Florida Keys/Florida Bay Everglades National Park Sample Structure

Sample 1



Sample 2



dents of Monroe County who accessed Florida Bay by boat at the Flamingo Visitor Center (Figure 1.2, next page). Non-qualifying persons, or persons refusing to participate, were quickly guided back toward the exit gate. The occupants' status (Monroe County resident, non-Flamingo visitor, non-boat Flamingo visitor) was recorded on a tally sheet; this was used to estimate the proportion of vehicles containing each type of visitor. The on-site questionnaire pro-

vided the information required to estimate the number of people per vehicle. Other adjustments were necessary to convert the proportion of vehicles containing visitors

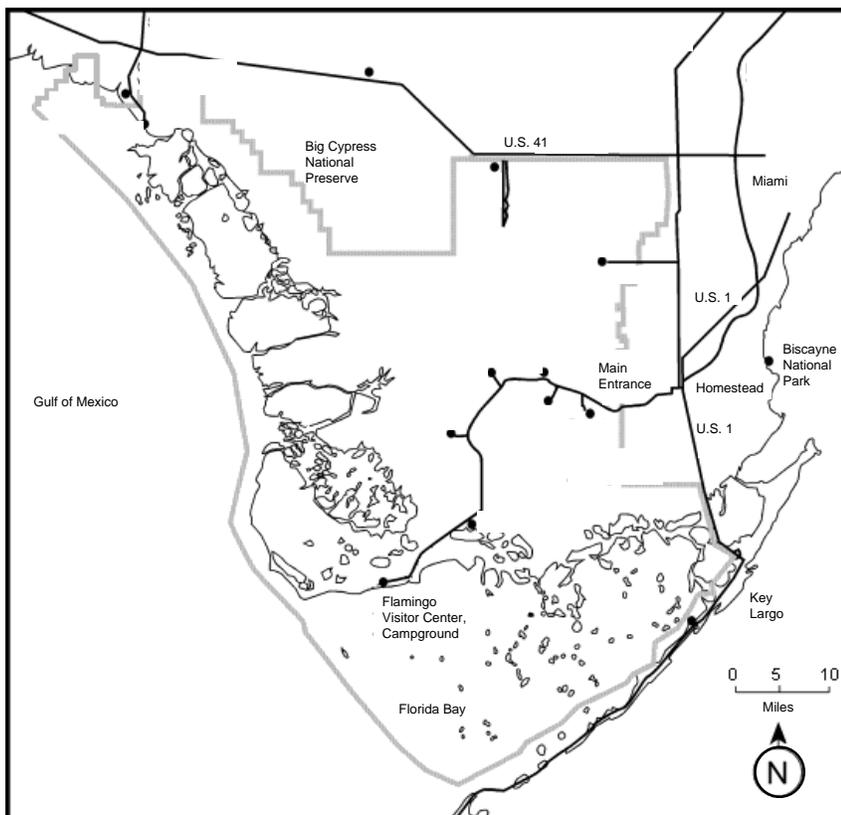
accessing Florida Bay through the Flamingo area of the park before it could be applied to the total traffic counts of vehicles exiting Everglades National Park (provided by park officials). The traffic counts

Table 1.1. Number of Completed Questionnaires: CUSTOMER and Exit Gate Samples

	Number of Completed Questionnaires	Response Rate
CUSTOMER	177	N/A
Importance-Satisfaction Mailback	91	51%
Expenditures Mailback	64	36%
Exit Gate	230	N/A

were weighted for weekend versus weekday traffic. Then, two estimates of the number of visitors were calculated: the sample containing all visitors to the Flamingo area of the park, and the sample containing only those visitors to the Flamingo area of the park who participated in any activities by boat. The method of estimating the number of visitors was to first estimate the proportion of all vehicles going through the exit gate that contained visitors who used a boat in the Flamingo area of the park. This estimate was then multiplied by the number of vehicles recorded that passed through the exit gate. This number of vehicles was multiplied by the average number of persons in each vehicle to get the total number of person-trips. Person-trips were then multiplied by the average number of days spent at the park per visit to get an estimate of the total number of person-days. Table 2.1 in Chapter 2 shows these estimates.

Figure 1.2 Everglades National Park



Chapter 2.

Profiles of Users

This chapter profiles those visitors to Everglades National Park who are non-residents of Monroe County, Florida and accessed Florida Bay through the park from December 1995 - May 1996 (winter season).

While some estimates of visitation for all visitors are presented below, the study focused on the sub-population of visitors who accessed Florida Bay through the park.

Number of Person-trips (visits) and Person-days

The sampling design used in the Exit Gate Survey made it possible to estimate the number of person-trips to Everglades National Park made by non-residents of Monroe County. The measurement "person-trips" must be differentiated from the number of visitors and the number of visitor days or person-days.

Concept of a Person-trip. For any given day, the number of person-trips and the number of visitors is the same. But once the time period for estimation is expanded beyond one day, then the possibility exists that the same person can make more than one trip (visit). Because visitors are interviewed as they are leaving Everglades National Park (ending their visit), a visitor is counted each time they visit Everglades National Park. This is the concept of a person-trip or visit. These two terms can be used interchangeably.

Number of Visitors. The number of person-trips (visits) and the number of visitors are two measurements that have long been a source of confusion. For the two measurements to be equivalent

requires that for the given time period of estimation, each person only makes one visit (trip). Although this is true for the vast majority of visitors, it is not true for all visitors. In Everglades National Park, visitors made on average 2.03 trips annually during the time period of the survey. Dividing the total number of person-trips (visits) by the average number of trips (visits), for any given time period, yields an estimate of the separate number of visitors; that is, the separate number of different people that visited Everglades National Park during the given time period. This estimate, however, is not needed for purposes of this study. For purposes of this study, an estimate of the total number of person-trips (visits) is required. This estimate made it possible to extrapolate average trip expenditures per person into total expenditures during the given time period for estimation. Also, when the percent of visitors that engaged in a certain recreation activity was estimated, it was then possible to extrapolate this into an estimate of the total number of visitors that did the activity during that time period. It is acceptable to refer to the number of person-trips (visits) as the number of visitors as long as one does not make the mistake of then multiplying this number by the average number of visits per visitor. So the terms "person-trips," "visits" and "number of visitors" will be used interchangeably in this report.

Number of Person-Days. Another useful measurement is the number of person-days. Each visit (trip) may have a different length of stay. For day-trips, the concept of a person-day and a person-trip are equivalent. But many trips (visits) are for more than one day. In Everglades National Park, the average length of stay was 2.63 days per visit. Multiplying the average length of stay by the total

number of person-trips (visits) yields an estimate of the total number of person-days for any given time period. Dividing the estimate of the total number of person-days by the number of days in the time period yields an estimate of the average number of visitors in Everglades National Park for the average day during that time period. This latter estimate could be used in assessing the "functional population," i.e., the number of people in Everglades National Park on a given day. The concept of a functional population is used in planning for facilities and services.

Summary: Estimation of Person-trips (visits) and Person-days

Table 2.1 summarizes the method by which the authors estimated the number of person-trips (visits) and person-days by type of visitor (e.g., visitors to the Flamingo area of the park -- boating and non-boating -- and residents of Monroe County). The proportion of each type of visitor was derived utilizing the data collected on the tally sheet at the exit gate by dividing the count of visitors of that type by the total number of visitors. The counts were weighted to the correct number of weekdays and weekend days.

Boating Visitors to the Flamingo Area of the Park. Multiplying the traffic counts at the exit gate provided by the park (119,182) by the proportion of Flamingo visitors (non-residents of Monroe County) who accessed Florida Bay by boat (22.38 percent) yields the number of vehicles entering the park that contained Flamingo visitors who accessed Florida Bay by boat (26,675 vehicles). This estimate was then multiplied by the average number of visitors per vehicle from the Exit Gate Survey (2.2664 people) to derive the estimated person-trips (60,457). To derive

Table 2.1 Estimation of Person-Trips and Person-Days: December 1995 - May 1996

	Boating Visitors to the Flamingo Area of the Park	All Visitors to the Flamingo Area of the Park	Residents of Monroe County	Total ⁴	Everglades National Park Estimate
1. Traffic Count	119,182	119,182	119,182		
2. Proportion in Category	22.38%	69.28%	0.83%		
3. Number of Vehicles in Category¹	26,675	82,565	986	83,551	N/A
4. Number of Visitors per Vehicle	2.2664	2.2664	2.2409		
5. Person Trips²	60,457	187,125	2,210	189,335	N/A
6. Average Number of Days Spent in Everglades National Park	2.6304	2.6304	2.6304		
7. Person Days³	159,026	492,220	5,814	498,033	507,693

1. Number of Vehicles in Category is calculated by multiplying the traffic count during the survey period (Row #1) by the proportion of vehicles in each category (Row #2), which is calculated with data from the tally sheet.
2. Person Trips is calculated by multiplying the Number of Vehicles in Category (Row #3) by Number of Visitors per Vehicle (Row #4).
3. Person Days is calculated by multiplying Person Trips (Row #5) by the Average Number of Days Spent in Everglades National Park (Row #6).
4. The "Total" column is the sum of the "All Visitors to the Flamingo Area of the Park" column and the "Residents of Monroe County" column. The "Boating Visitors to the Flamingo Area of the Park" column is a subsample of the "All Visitors to the Flamingo Area of the Park" column.

the estimate for person-days, the person trips estimate was multiplied by the average number of days spent in Everglades National Park from the Exit Gate Survey (2.6304). This calculation resulted in an estimate of **159,026** person-days.

All Visitors to the Flamingo Area of the Park. The authors again used the traffic counts at the exit gate provided by the park (119,182), and multiplied this figure by the proportion of all visitors to the Flamingo area of the park who were not residents of Monroe County (69.28 percent). This yields the number of vehicles entering the park that contained visitors to the Flamingo area of the park (82,565 vehicles). This estimate was then multiplied by the average number of visitors per vehicle from the Exit Gate Survey (2.2664 people) to derive the estimated person-trips (**187,125**). To derive the estimate for person-days, the person trips estimate was multiplied by the average number of days spent in Everglades National Park from the Exit Gate Survey (2.6304). This calculation resulted in an estimate of **492,220** person-days.

Residents of Monroe County. The traffic counts at the exit gate provided by the park (119,182) were then multiplied by the proportion of residents of Monroe County who visited the Flamingo area of the park (0.83 percent). This yields the number of vehicles entering the park that contained residents of Monroe County who visited the Flamingo area of the park (986 vehicles). This estimate was then multiplied by the average number of residents per vehicle (2.2409 people) to derive the estimated person-trips (**2,210**). To derive the estimate for person-days, the person trips estimate was multiplied by the average number of days spent in Everglades National Park from the Exit Gate Survey (2.6304). This calculation resulted in an estimate of **5,814** person days.

Total Person-trips and Person-days. The "Total" column of Table 2.1 is calculated by adding the preceding two columns. The "Boating Visitors to the Flamingo Area of the Park" column is a subsample of the "All Visitors to the Flamingo area of the Park" column. The final column in Table 2.1 contains the estimate of

person-days estimated by Everglades National Park research staff (**507,693**). One can see that this estimate is in the same ballpark as the person-days estimate that the authors derived using the methods described above (**498,033**). The difference in estimates is less than two percent.

Although estimates have been presented here for residents and visitors who did and did not access Florida Bay by boat, **the remainder of this section focuses solely on non-residents of Monroe County who accessed Florida Bay by boat from the Flamingo area of the park.** Other visitors to the Flamingo area of the park were not interviewed.

Activity Participation

In this section, the number of participants in 47 detailed recreation activities in Everglades National Park have been estimated. Appendix Tables A.2.1 reports on 32 aggregated activities, which eliminate the problem of double-counting when adding up numbers of participants across activities. For example, if one wants to know the total number of visitors who participated in wildlife viewing/nature study, Table 2.2 reports that number to be 34,597 visitors. This number is lower than the result of adding up the number of visitors who engaged in wildlife viewing/nature study by boat (31,685) and by land (8,038). 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 to report them in Appendix Table A.2.1. Appendix Table A.2.2 reports on the detailed list of 47 activities. Survey respondents were shown a list of 66 activities during the survey but only 45 are available in Everglades National Park¹

Although respondents were interviewed only if they accessed Florida Bay through Everglades National Park, *respondents may have had others in their recreating party who did not access Florida Bay and who may not have participated in water-based activities at all.* All participants in each recreating party are included in estimating these participation rates. Participation rates are the proportion of all visitors to Everglades National Park who participated in the activity during the survey period. For example, Table 2.2 shows that of the 60,457 visitors who came to Everglades National Park and accessed Florida Bay by boat, 57.23 percent participated in

viewing wildlife/nature study.

During the survey period, viewing wildlife/nature study was the visitors' top choice, followed by fishing. Among respondents who participated in viewing wildlife/nature study, those who did it by boat (52.41 percent participation) far outnumbered those who did it by land (13.29 percent participation). Among respondents who fished, flats/backcountry fishing was the top choice (16.96 percent participation).

The mix of water-based and land-

based activities available in Everglades National Park provides visitors with a unique recreational experience. Figure 2.2 shows that water-based activities predominated during the survey period.

For further details on information presented in this section, see Appendix Tables A.2.1 and A.2.2.

Table 2.2 Activity Participation in Selected Activities

Activity ¹	Number of Visitors	Participation Rate
All Fishing	15,959	26.40
Wildlife Observation/Nature Study-Boat	31,685	52.41
Wildlife Observation/Nature Study-Land	8,038	13.29
All Wildlife Observation/Nature Study	34,597	57.23
All Camping	3,145	5.20
Sightseeing & Attractions (paid & unpaid)	3,378	5.59
Visiting Museums & Historic Sites	3,145	5.20

1. For more detailed activity participation, see Tables A.2.1 and A.2.2

Water-based activities predominate during the survey period

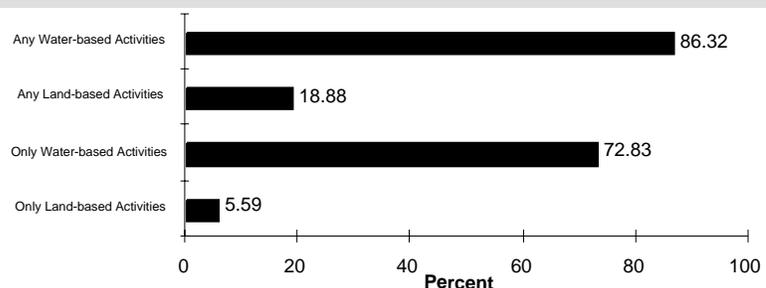


Figure 2.1 Participation in Water-based versus Land-based Activities

Intensity of Use in Selected Activities

The beginning of this chapter discussed the difference between the concept of a person-trip or visit and a person-day. Person-days better reflect the intensity of visitation and is a better measure for planning facilities and services. The same is true for activity participation. For purposes of planning facilities and services to support recreation activities, a measure of intensity of use is needed. The CUSTOMER survey form was used to estimate an even finer measurement, the hours of use per person-trip or visit. This was done for 35 detailed activities in Everglades National Park. However, when the list was constructed, little information was available on participation rates for most activities. Based on past experience, it was decided that at least 25 to 30 observations

were needed for each activity to yield reliable estimates of hours of use per visit.

Tables 2.3 and 2.4 present intensity of use in activities for which an adequate sample size for estimation was collected. Table 2.3 presents the average number of hours spent participating in each activity during the trip in which visitors were interviewed. Multiplying these averages by the number of visitors that did the activity yields estimates of the total intensity of use, presented in Table 2.4.

As can be seen in Tables 2.3 and 2.4, the activity with the highest intensity of use was viewing wildlife/nature study, by boat. This table is not directly comparable to the ratings provided earlier in this report based on the number of visitors that participated in the activity, because the authors are

currently unable to estimate the number of hours at the same level of aggregation as the number of visitors who participated in the activity.

Table 2.3. Average Intensity of Use (Hours) in Selected Activities

Activity ¹	Hours of Activity
Backcountry Boating Excursions-Not Fishing	2.39
View Nature/Wildlife - Boat	2.61
View Nature/Wildlife - Land	2.38
Other Nature Study From Land	1.68
Visiting Museums and Historic Areas	1.55

1. All other activities but those above did not have a sample size large enough (less than 20 observations) to consider the estimate reliable.

Table 2.4. Total Intensity of Use (Hours) in Selected Activities

Activity ¹	Thousands of Hours of Activity
Backcountry Boating Excursions-Not Fishing	37.3
View Nature/Wildlife - Boat	49.9
View Nature/Wildlife - Land	18.6
Other Nature Study From Land	7.05
Visiting Museums and Historic Areas	4.15

1. All other activities but those above did not have a sample size large enough (less than 20 observations) to consider the estimate reliable.

Origin of Visitors

One of the most important pieces of information for assessing market demand is the origin or primary place of residence of visitors. In the survey, very detailed information was gathered on the location of visitors' primary place of residence. For purposes of calculating distance for travel cost demand modeling, zipcode, city and county for domestic visitors, and city and country for foreign visitors were collected. For summary presentations and comparisons with other data (e.g., U.S. Bureau of Census, Florida Division of Tourism, and the Monroe County Tourist Development Council), this information was organized in several ways. Table A.2.3 shows country of origin. Two separate percent distributions are reported for each country during each season. The first column reports the percent of all visitors to Everglades National Park from each country. The second column applies to *foreign visitors only* and reports the percent of all foreign visitors that come from each country.

Appendix Tables A.2.4, A.2.5 and A.2.6 show the detailed regions and states of primary residence for domestic visitors. Table A.2.4 organizes states into larger regions, called the TDC regions, as reported by The Monroe County Tourist Development Council (TDC). Table A.2.5 organizes the states into U.S. Bureau of the Census regions and divisions. Table A.2.6 reports the distributions for all 50 states. As with the country tables, Tables A.2.4 to A.2.5 report two columns for each season. The first column reports the percent of all visitors to Everglades National Park from each state. The second column applies to *domestic visitors only* and reports the percent of all domestic visitors from each state.

Foreign Visitors. Foreign visitors made up about 20 percent of all visitors to Everglades National Park during the survey period. Table 2.5 ranks the top five countries. Except for Canada, which is tied for number two with Germany, all top five countries are in Western Europe.

Domestic Visitors. Figure 2.3 (next page), shows a map defining the U.S. Bureau of Census Regions and Divisions. Visitors from the South Census Region dominate visitation during the period of the survey; however, of the states in the South Census Region, only Florida is among the top five states. Florida is the number one origin of all visitors with 34.8 percent of all visitors. Both the Middle Atlantic and New England Census Divisions have higher visitation than the East South Central and West South Central Census Divisions, which are included in the South Census Region. Table 2.7 ranks the top

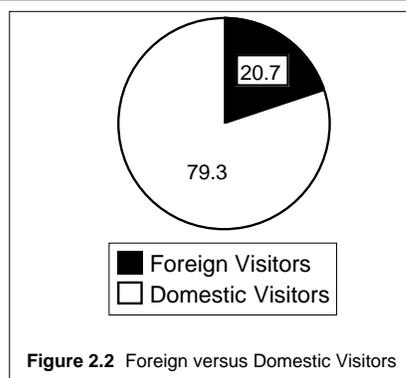


Figure 2.2 Foreign versus Domestic Visitors

five counties in Florida by visitation. South Florida is the dominant source of visitors from Florida. Dade, Broward and Palm Beach Counties are ranked numbers one, two and three among all Florida counties.

Table 2.5 Top Five Foreign Countries

	All Visitors		Foreign Visitors
	Rank	(percent)	Only (percent)
United Kingdom	1	5.2	25.0
Canada	2	4.3	20.8
Germany	2	4.3	20.8
Switzerland	3	1.7	8.3
Netherlands	4	1.3	6.3
Sweden	5	1.3	6.3

Table 2.6 Top Five States

State	All Visitors		Domestic Visitors
	Rank	(percent)	Only (percent)
Florida	1	34.78	43.96
New York	2	6.52	8.24
Michigan	3	4.35	5.49
Minnesota	4	2.61	3.30
Connecticut	5	2.17	2.75
New Jersey	5	2.17	2.75
Ohio	5	2.17	2.75

Table 2.7 Top Five Counties in Florida

County	All Visitors		Florida Visitors
	Rank	(percent)	Only (percent)
Dade	1	23.63	53.75
Broward	2	7.14	16.25
Palm Beach	3	3.85	8.75
Martin	4	2.20	5.00
Sarasota	5	1.10	2.50
Seminole	5	1.10	2.50



Figure 2.3 U.S. Bureau of the Census Regions and Divisions in the United States

For more details on this section, see Appendix Tables A.2.3 to A.2.6.

Number of Annual Visits and Length of Stay

In section one of this chapter, the number of person-trips (visits) and person-days by season and mode of access were reported. It was also shown how length of stay (number of days per visit) was used to derive the number of person-days of visitation. Here, some additional information with respect to repeat visitation is added. Another dimension to the length of stay measurement is also added. For repeat visitation, two measures are provided: the average annual number of visits (trips) and the average annual number of days that visitors spent in Everglades National Park. For those that make one visit annually, the annual number of days is equal to the length of stay of the interview visit. For length of stay, a separate measure is added—the number of nights.

Annual Visits and Days. Visitors make, on average, 2.0 trips per year to Everglades National Park during which they engage in at least one recreation activity, and, on average, they spend 2.6 days in Everglades National Park.

Length of Stay (Days) versus Number of Nights. The number of days were calculated according to a set of rules. Information was obtained on the date and time of arrival, and because exit interviews were conducted, the date and time of departure were recorded (people were only interviewed as they were leaving or ending their visit). The rule for calculating the number of days was that if they arrived after 10 PM that day was not counted. If they departed before noon, that day was not counted. For those that arrived after 10 and left before noon the next day, one day was assigned. Therefore, all visitors spent at least one day in the Everglades National Park.

Defining day visitors as those whose length of stay is one day would be misleading if a separate measure for the number of nights was not provided. The number of nights is important in assessing the demand for overnight accommodations. This is why the

number of days and number of nights are separately reported.

For more details on the information in this section see Appendix Tables A.2.7 and A.2.8

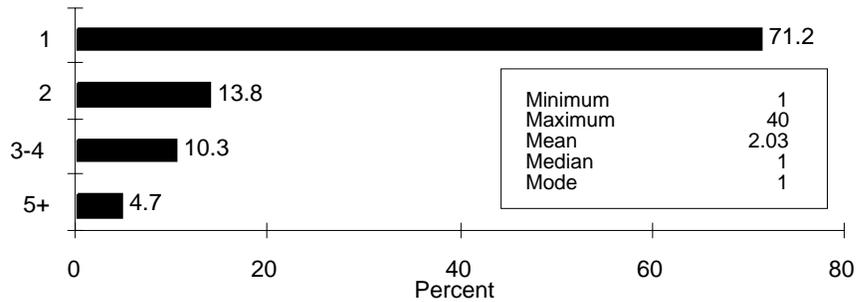


Figure 2.4 Annual Trips (Visits) to Everglades National Park

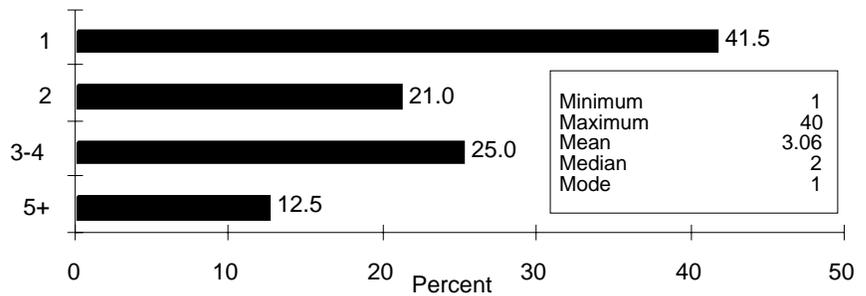


Figure 2.5 Annual Days in Everglades National Park

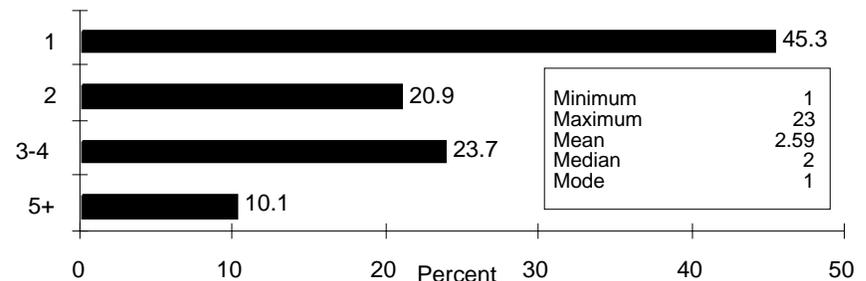


Figure 2.6 Length of Stay on Interview Trip in Everglades National Park

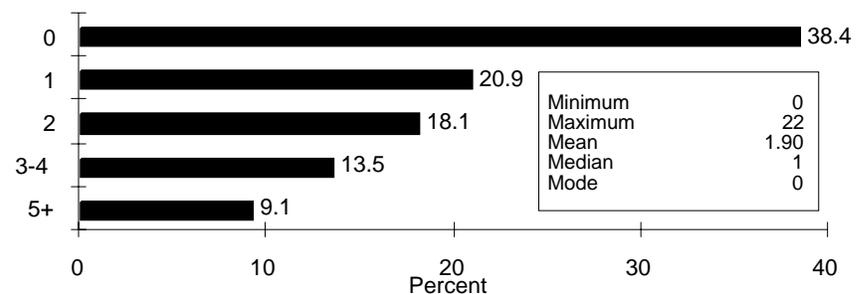


Figure 2.7 Number of Nights in Everglades National Park

Demographic Profiles

The CUSTOMER Survey gathers information on up to eight people in the recreation party and covers visitors of all ages. The survey gathered demographic information on 440 individuals of all ages from 177 interviews. Figures 2.8, 2.9 and 2.10 illustrate the distribution for age, sex and race/ethnicity. Appendix Table A.2.9 detail the distributions for each demographic characteristic.

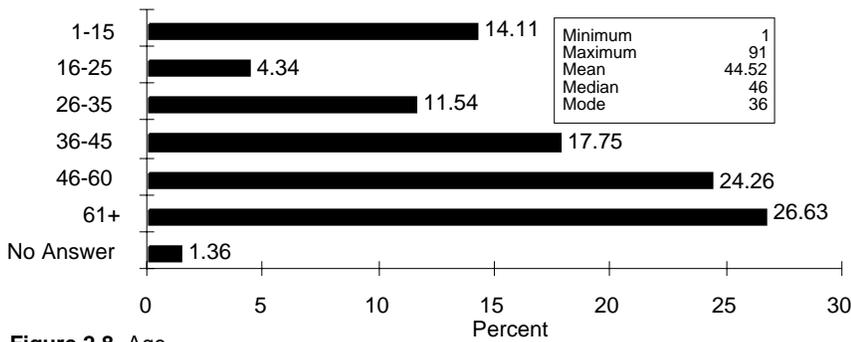


Figure 2.8 Age

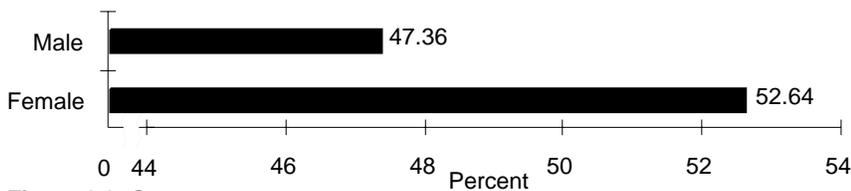


Figure 2.9 Sex

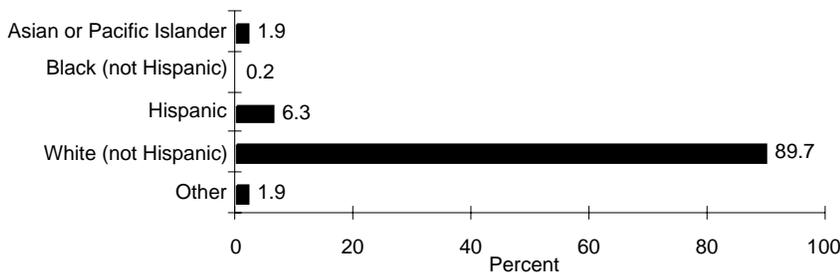


Figure 2.10 Race/Ethnicity

For more details on the information in this section see Appendix Table A.2.9

Endnotes

1. In answering questions pertaining to activity participation in Everglades National Park, respondents were given the list developed for the entire project, "Linking the Economy and the environment of the Florida Keys/Florida Bay." Of the activities itemized on that list, 21 do not occur in Everglades National Park. They include: Diving for Lobsters from Boat, Wreck Diving, Spear Fishing from Boat, Glass Bottom Boat Rides, Personal Watercraft Rental, Scuba Diving From Shore, Diving for Lobsters from Shore, Underwater Photography from Shore, Swimming with Dolphins, Visiting Historic Areas, Sites, Buildings, Attending Special Events, Attending Outdoor Concerts, Plays, etc., Attending Indoor Concerts, Plays, etc., Attending Outdoor Sporting Events, Golf, Tennis Outdoors, Other Outdoor Sports or Games, Horseback Riding, Driving for Pleasure, All Beach Activities, Sunbathing.

Chapter 3.

Importance and Satisfaction Ratings

Introduction

This chapter includes ratings given by visitors on the importance of, and satisfaction derived from 23 natural resource attributes, facilities and services. For presentation, a technique called "Importance-Performance" or "Importance-Satisfaction" is used. This technique is a simple but useful way in which to summarize and provide an interpretation of visitor ratings.

Mailback Survey. The information reported here was obtained from the mailback portion of the CUSTOMER Survey. 177 on-site interviews were conducted during December 1995 - May 1996 sampling period. As mentioned in Chapter One, there were 91 respondents to the Importance-Satisfaction mailback survey for a response rate of 51%. Response rates varied by age, household income, and whether the visitor was foreign or domestic. Generally, response rates were higher for older visitors, for visitors with higher household incomes, and for domestic visitors. An analysis on possible non-response bias was conducted and it was found that although there were significant differences in response rates by the socioeconomic factors cited above, these factors were not generally significant nor had high explanatory power for most responses.

Importance-Satisfaction Analysis. 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 visitor satisfaction. Satisfaction is a complex feature of the recreation/tourist 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, Fortney (1992), and Leeworthy and Wiley (1994, 1995 and 1996).

The satisfaction mailback questionnaire was divided into two sections to obtain the necessary information for the importance-satisfaction analysis. The first section asks the respondent to read each statement and rate the **importance** of each of the 23 items *as it contributes to an ideal recreation/tourist setting for the activities in which they participated in Everglades National Park*. Each item is rated or scored on a one to five scale (1-5) with one (1) meaning "Not Important" and five (5) meaning "Extremely Important." The respondent was also given the choices of answering "Not Applicable" or "Don't Know." The second section asks the respondent to consider the same list of items they just rated for importance and to rate them for how **satisfied** they were with each item *at the places at which they participated in their activities in Everglades National Park*. 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 report, the collected data is presented in several ways. First, the means or average scores are

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

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

The most useful analytical framework provided in importance-satisfaction analysis is the four-quadrant presentation. The four quadrants are formed by first placing the importance measurement on the vertical axis and the satisfaction measurement on the horizontal axis (see Figure 3.1). An additional vertical line is placed at the mean score for all 23 items on the satisfaction scale and an additional horizontal line is placed at the mean score for all 23 items on the importance scale. These two lines form a cross hair. The cross hair then separates the importance-satisfaction measure-

ment 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 Everglades National Park, we would still be able to judge the relative importance and satisfaction and establish priorities.

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

labelled “**Low Priority.**” And, finally, scores in the lower right quadrant are relatively low on the importance scale but relatively high on the satisfaction scale and are labelled “**Possible Overkill.**”

Importance-Satisfaction Analysis

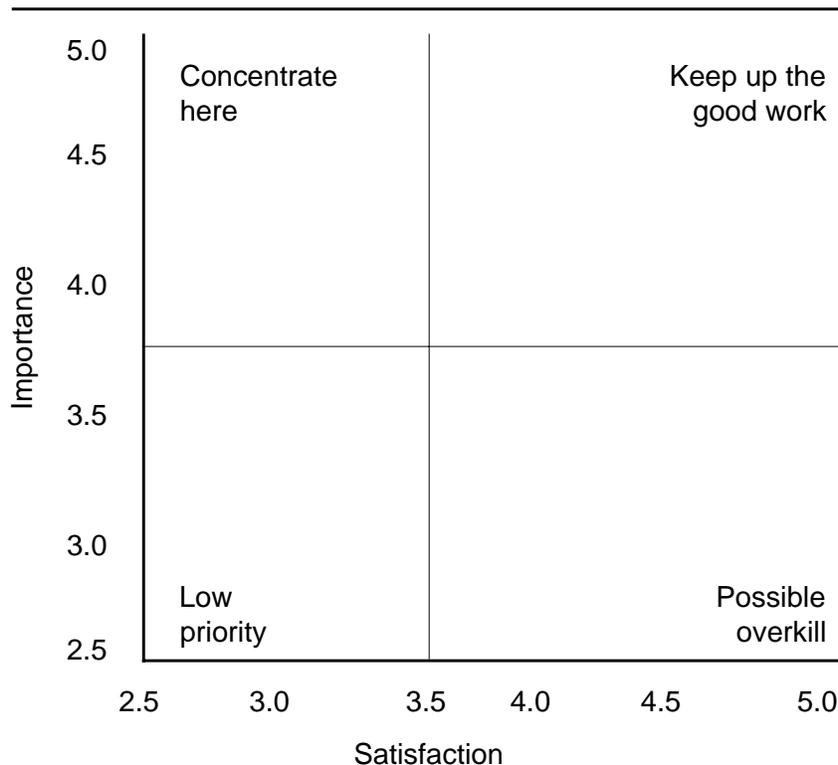
For presentation purposes, the 23 items that visitors were asked to rate are organized into four categories. In the survey, the order of the items was mixed. Each of the items is given a letter rather than a number and so are labelled A through W. Items A through G are labelled “**Natural Resources.**” These seven (7) items are either natural resources or attributes of natural resources such as clear water. Items H through L are labelled “**Natural Resource Facilities.**” These five (5) items are either facilities that provide access to natural resources or areas or features that provide public access to natural

resources. Items M through T are labelled “**Other Facilities.**” These eight (8) 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 U through W are labelled “**Services.**” These three (3) items are either services or features of a service provided to visitors. 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 91 respondents in total to the survey. In three of the cases, 100 percent of all respondents give ratings for the item. Figure 2 summarizes the importance-satisfaction results for the summer season; 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 three items in the “**Concentrate Here**” quadrant. They are B. Amount of living coral on reefs, E. Opportunity to view large wildlife, and G. Quality of beaches.

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 visitors.

Figure 3.1 Importance-Satisfaction Matrix



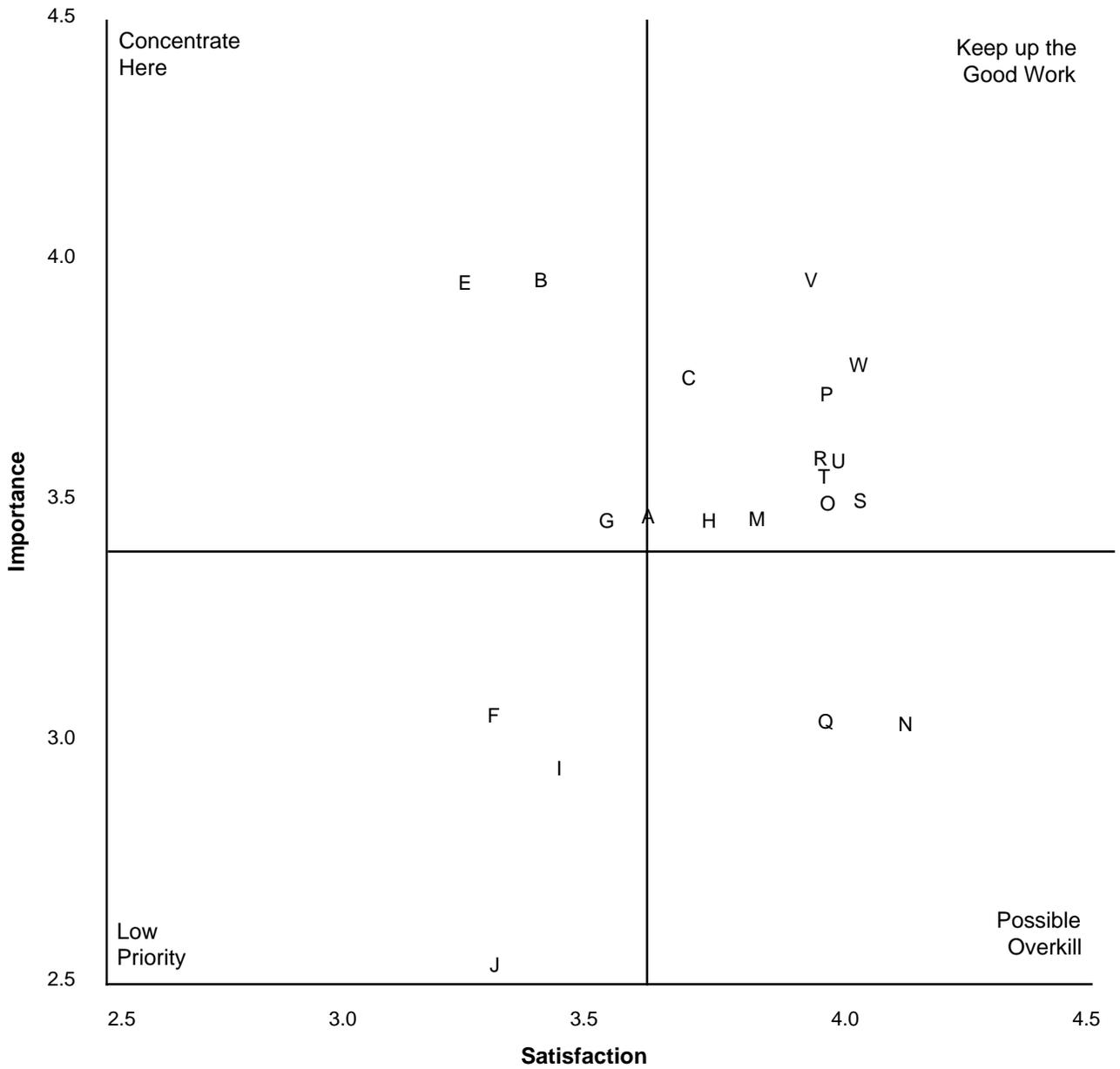
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Figure 3.2.a. Importance/Satisfaction Matrix Code Descriptions, Graph of Means, and Descriptive Statistics

Code From Matrix - Description		Mean	Standard Error	N	% Rated
<u>Natural Resources</u>					
A. Clear water (high visibility)	I	3.48	0.1374	75	82%
	S	3.62	0.1005	68	75%
B. Amount of living coral on reefs	I	3.90	0.1403	59	65%
	S	3.38	0.1571	24	26%
C. Many different kinds of fish and sea life to view	I	3.77	0.1168	82	90%
	S	3.70	0.1079	66	73%
D. Many different kinds of fish and sea life to Catch	I	1.83	0.1634	58	64%
	S	3.29	0.2230	17	19%
E. Opportunity to view large wildlife: (manatees, Whales, dolphins, seaturtles)	I	3.93	0.1276	81	89%
	S	3.26	0.1124	65	71%
F. Large numbers of fish	I	3.11	0.1501	72	79%
	S	3.33	0.1299	55	60%
G. Quality of Beaches	I	3.45	0.1419	76	84%
	S	3.58	0.1708	36	40%
<u>Natural Resource Facilities</u>					
H. Shoreline access	I	3.48	0.1141	82	90%
	S	3.73	0.1032	60	66%
I. Designated swimming/beach areas	I	2.96	0.1525	72	79%
	S	3.40	0.2011	30	33%
J. Mooring buoys near coral reefs	I	2.59	0.2244	51	56%
	S	3.33	0.2357	9	10%
K. Marina Facilities	I	2.02	0.1480	59	65%
	S	4.09	0.0938	32	35%
L. Boat ramps/launching facilities	I	2.05	0.1668	57	63%
	S	4.04	0.1299	26	29%
<u>Other Facilities</u>					
M. Historic preservation (historic landmarks, houses, etc.)	I	3.47	0.1285	79	87%
	S	3.81	0.1090	42	46%
N. Parking	I	3.06	0.1181	88	97%
	S	4.20	0.0534	89	98%
Q. Directional signs, street signs, mile markers	I	3.46	0.1184	90	99%
	S	3.98	0.0757	90	99%
P. Condition of bike paths and sidewalks/ walking paths	I	3.69	0.0967	89	98%
	S	3.96	0.0814	81	89%
Q. Condition of roads and streets	I	3.08	0.1119	91	100%
	S	4.03	0.0621	90	99%
R. Availability of public restrooms	I	3.64	0.0957	91	100%
	S	3.99	0.0656	88	97%
S. Cleanliness of streets and sidewalks	I	3.49	0.1153	90	99%
	S	4.09	0.0700	90	99%
T. Uncrowded Conditions	I	3.63	0.1065	90	99%
	S	3.97	0.0614	91	100%
<u>Services</u>					
U. Maps, brochures, and other tourist information	I	3.62	0.1078	90	99%
	S	4.00	0.0793	86	95%
V. Service and friendliness of people	I	3.94	0.0947	88	97%
	S	3.97	0.0924	89	98%
W. Value for the price	I	3.79	0.1077	91	100%
	S	4.09	0.0667	87	96%

I - Importance, S - Satisfaction

Figure 3.2.b. Importance/Satisfaction Matrix



1. Items D, K, and L do not appear because their importance scores are low (less than 2.1).

Table 3.1. A Comparison of Satisfaction Ratings on 9 Selected Items: Current Ratings versus Five Years Ago

Item	Mean	Stderr	N	Significant Difference ¹
Clear water (high visibility)			16	YES
Current rating	3.06	0.249		
Five years ago	3.63	0.239		
Amount of living coral on reefs			8	NO
Current rating	3.63	0.263		
Five years ago	3.75	0.412		
Opportunity to view large wildlife			16	NO
Current rating	3.06	0.250		
Five years ago	3.69	0.270		
Uncrowded conditions			27	NO
Current rating	4.04	0.113		
Five years ago	3.93	0.130		
Shoreline access			14	NO
Current rating	3.79	0.214		
Five years ago	3.71	0.244		
Quality of beaches			11	NO
Current rating	3.91	0.163		
Five years ago	3.92	0.226		
Service and friendliness of people			27	YES
Current rating	4.30	0.104		
Five years ago	3.96	0.100		
Historic preservation (historic landmarks, houses, etc.)			16	NO
Current rating	3.69	0.198		
Five years ago	3.88	0.125		
Value for the price			25	NO
Current rating	4.12	0.088		
Five years ago	4.04	0.108		

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 tests were based on those that gave ratings for current time period and for five years ago.

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

As discussed in the Introduction, a subsample of visitors were asked to provide a retrospective rating for 9 of the 23 items presented in the importance-satisfaction analysis. The subsample of visitors was based on the answer

to the following question: Had you visited the Everglades more than five years ago? Thirty-two (32) percent answered YES to this question. This subsample was then asked to provide the retrospective rating for the 9 items. Table 1 presents the 9 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 1 indicates that there was a statistically significant difference in the two mean scores for an item. A paired t-test was

Key Findings:

Satisfaction Ratings: Current versus Five Years Ago

- **Clear water (high visibility).** Significant decline.
- **Amount of living coral on reefs.** No difference.
- **Uncrowded conditions.** No difference.
- **Shoreline access.** No difference.
- **Quality of beaches.** No difference.
- **Service and friendliness of people.** Significant Increase
- **Historic preservation.** No difference.
- **Value for the price.** No difference.
- **Conditions of roads and streets.** No difference.

done using PROC MEANS in SAS Version 6.12. Differences in the scores were first calculated and tests for normality were conducted. All of the differences except Opportunity to view large wildlife were normally distributed, making the paired t-test appropriate. The results of the t-test were that only two of the attributes: Clear water (high visibility) and Service and Friendliness of People were significantly different from five years ago. The remaining attributes showed no significant difference from five years ago.

Environmental Concern Index (ECI).

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

In 1992, NOAA, the U.S. Forest Service, the U.S. Environmental

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

Liere, 1978), the Roper Survey (1991), and the ECI.

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

Of visitors to Everglades National Park, 57.7 percent had scores over 65, meaning they placed a very high priority on protection of the environment, and an additional 34.6 percent scored between 49 and 64, meaning they were concerned about protection of the environment (see Figure 4.3). Overall then, 92.3 percent of visitors to Everglades National Park are concerned about protecting the environment.

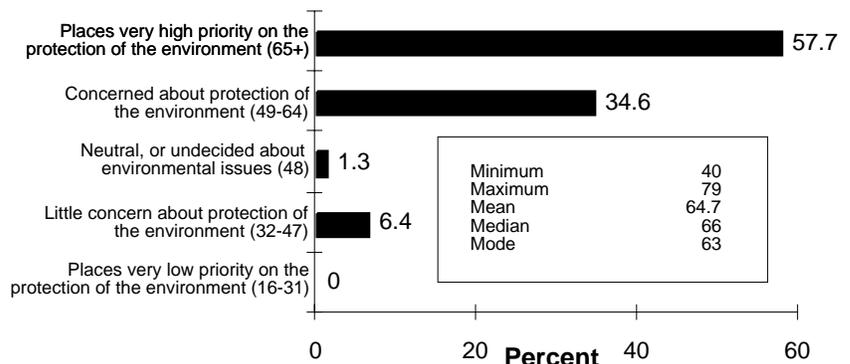


Figure 3.3 Environmental Concern Index

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PART B:
Residents of Monroe County

Chapter 4

Sampling Methodologies and Estimation Methods

Survey Sampling Methods

In 1996, Florida State University's, Policy Sciences Program, Survey Research Center conducted a survey of Monroe County residents.¹ The survey used a combination telephone and mail back set of samples. The telephone sample was selected using the random digit dialing method. During the July 8, 1996 to November 21, 1996 period, 4,455 calls were made to eligible households. About 66 percent completed the telephone survey (2,936 households). To be eligible for the survey, a person had to be a permanent resident of Monroe County and had to be at least 16 years of age. Only people living in households were eligible. According to the U.S. Bureau of the Census's 1994 Current Population Survey, 98 percent of Monroe County's population lived in households, while the other two percent lived in group quarters. Among those age 16 or older, the respondent in a household was selected for the interview using the "birthday rule". The "birthday rule" selects the person in the household that last celebrated their birthday (see Leeworthy and Wiley 1997).

The telephone survey gathered information on whether the respondent participated in any outdoor recreation activities in either the Florida Keys or Everglades National Park during the past 12 months. The response to this question was used to select the sub-sample eligible to receive a mail back survey questionnaire. Of the 2,936 households who

completed the telephone survey, 613 participated in outdoor recreation activity in Everglades National Park in the 12 months preceding the interview. The telephone survey also included a socioeconomic profile of all residents, age 16 or older, (See Figure 4.1). The socioeconomic profile provided for the comparison of the telephone sample with U.S. Census Bureau data for Monroe County.

The mail back portion of the survey was conducted between August 8, 1996 and December 19, 1996. Three follow-up efforts (two post card reminders and a full survey package) were conducted. The mail follow-up included information on recreation activity participation in 66 activities and intensity of use (days of activity) for 37 activities.² In addition,

importance and satisfaction ratings for 25 natural resource attributes, facilities, and services, and for 16 questions used to construct the "environmental concern index" were obtained (Figure 4.1).

The follow-up mail survey was sent to only those that did any outdoor recreation activities in the Florida Keys and/or Everglades National Park during the past 12 months (82.29% of those completing the telephone survey or 2,416 households) and that agreed to participate in the mail survey and provided their name and address (82.86% of those that participated in outdoor recreation activities or 2,001 households). Respondents were sent a questionnaire and an activity list with the 66 recreation activities. Of the 501 who participated in outdoor recreation

Figure 4.1. Monroe County Residents Survey

Telephone Survey N=2936	Mailback Survey N=192
<p>Population: All Monroe County Households Sample: 2,936 Monroe County Households</p> <ul style="list-style-type: none"> • Participation in any outdoor recreation activities in either the Florida Keys or Everglades National Park during the past 12 months • Participation in any outdoor recreation activities in Florida Keys During the past 12 months • Participation in any outdoor recreation activities in Everglades National Park during the past 12 months • Participation in any activities in Florida Bay portion of Everglades National Park during the past 12 months • Profile of Residents (age, race/ethnicity, sex, household income, zip code of residence, employment status, education level, household size, years lived in Monroe County, work outside Monroe County, access to waterfront property, own a boat) • Ratings of Quality of life in Monroe County • Primary reason for locating in Monroe County 	<p>Population: All Monroe County Residents that participated in any outdoor recreation activities in Everglades National Park during the past 12 months Sample: 192 Monroe County Residents that participated in outdoor recreation activities in Everglades National Park during the past 12 months and returned the mailback survey</p> <ul style="list-style-type: none"> • Participation in 45 activities in Everglades National Park • Intensity of use (days of activity). • Importance and satisfaction ratings of facilities and natural resource attributes in Everglades National Park • Environmental Concern Index

Table 4.1 Resident Survey Response Rates

	Number Households	Response Rate (%)
Telephone Survey		
Calls to eligible households	4,455	N/A
Completed interviews	2,936	66
Participated in outdoor recreation in Everglades National Park	613	21
Agreed to receive mailback	501	17
Mail Survey		
Returned completed questionnaire	192	38
Completed activity section	172	35
Completed importance-satisfaction	183	37
Completed environmental concern	183	37
Completed expenditures section	180	36

activities in Everglades National Park and agreed to receive the mailback, about 38 percent or 192 households returned the mail back questionnaires. However, not every questionnaire was fully completed. Table 4.1 shows that 172 completed the activity section, and 183 completed the importance and satisfaction section and the 16 questions used to construct the environmental concern index, and 182 completed the expenditures question. Since the sample of non-residents who completed the expenditures section was limited, an analysis of economic contributions was not performed for residents either. This issue will be addressed in a later report.

Endnotes

1. The survey of residents of Monroe County was done under contract to the National Oceanic and Atmospheric Administration, Office of Ocean Resources Conservation and Assessments, Strategic Environmental Assessments Division (order # 40AANC609064, \$34,171).
2. Although respondents were shown the list of 66 activities, 21 of those are not available in Everglades National Park.

Activities that are not available are: Diving lobsters from Boat Wreck Diving, Spear Fishing from Boat, Glass Bottom Boat Rides, Personal Watercraft Rental, Scuba Diving from Shore, Diving for Lobsters from Shore, Underwater Photography from Shore, Swimming with Dolphins, Visiting Historic Areas, sites and Buildings, Attending Special Events, Attending Outdoor concerts, plays, etc., Attending Indoor Concerts, Plays, etc., Attending Outdoor Sporting Events, Golf, Tennis Outdoors, Other Outdoor Sports or Games, Horseback Riding, Driving for Pleasure, All Beach Activities, and Sunbathing.

Chapter 5

Profile of Users

This chapter profiles those visitors to Everglades National Park who are residents of Monroe County, Florida.

Participation Rates

Participation rates are time dependent, that is, the longer the period of time covered, the higher the participation rate. The time period selected for use in this study was 12 months. Some individuals that may normally participate in outdoor recreation may be nonparticipants for the 12 month period due to conflicts with their job or business, illness, or some other priorities. This is the reason for limiting participation to the 12 month period.¹

During a 12 month period in 1995-96, 18.9 percent of all Monroe County residents, age 16 years or older, participated in at least one outdoor recreation activity in Everglades National Park.

Participation Rates by Socio-economic Factors. Although participation rates are valuable information with regard to the overall population of residents of Monroe County, participation rates by each individual socioeconomic factor can be more informative.

Males have higher participation rates than females (Figure 5.1). Age shows the common parabolic relationship between participation and age where participation rates first increase with age, reach a maximum, then decline. Residents age 25-44 have the highest participation rate and those 65 and older have the lowest participation rate (Figure 5.2). Race/ethnicity shows significant differences by category. Those resi-

Males have higher participation rates than females.

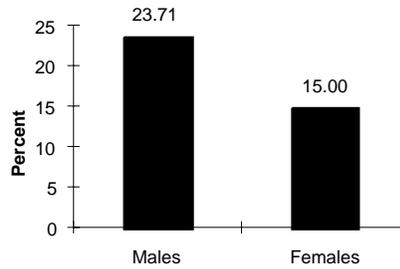


Figure 5.1 Sex

dents that are “American Indian, Eskimo, or Aluet” have the highest participation rates (however, less than one percent of the Monroe County population is classified as “American Indian, Eskimo, or Aluet”). Hispanics have a lower than average participation rate, while no “Blacks not Hispanic” in the sample participated in recreation in the Everglades (Figure 5.3).

Residents over the age of 65 have the lowest participation rate.

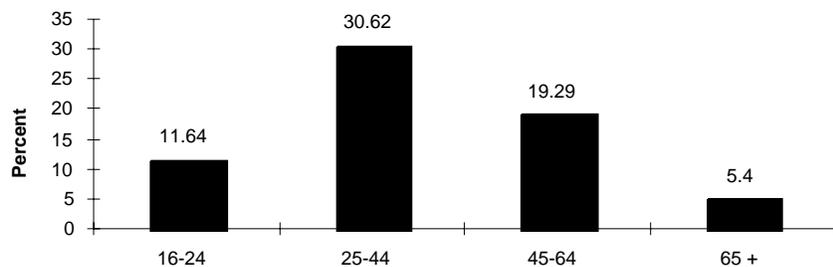


Figure 5.2 Age

American Indians have the highest participation rates.

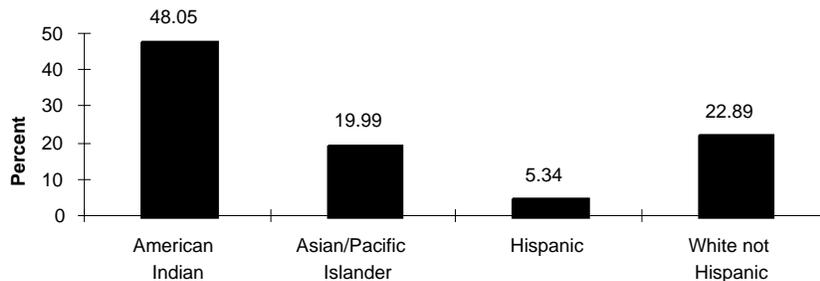


Figure 5.3 Race/Ethnicity

Participation rates increase with the level of education.

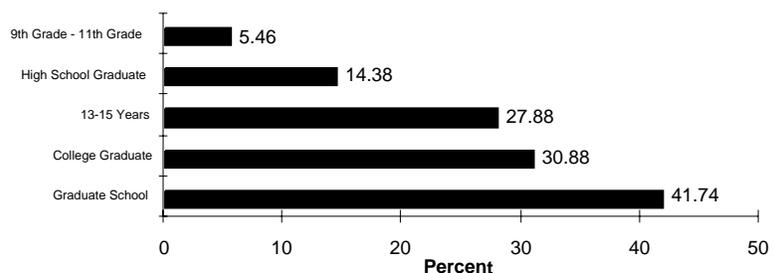


Figure 5.4 Education

Participation rates increase with the level of education (Figure 5.4) and with Household Income (Figure 5.5) but exhibit a general decline with the number of years lived in Monroe County (Figure 5.6). These findings are consistent with past studies on outdoor recreation in Florida.

Participation rates are also significantly different across different categories of employment status (Figure 5.7). Those employed full-time, part-time and those self-employed have the highest participation rates. Those that are “retired” have the lowest participation rates. Participation rates also differed by zip code of residence. Those living in Key Largo and Tavernier have the highest participation rates, and in general the farther away from Everglades National Park residents live, the lower their participation rate is (Figure 5.8).

Finally, there are two additional factors that are related to participation in outdoor recreation activities, waterfront property (Figure 5.9) and boat ownership (Figure 5.10). Those with residences with waterfront property have a higher than average participation rate and those who own a boat have a significantly higher than average participation rate.

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

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

Participation rates increase with household income.

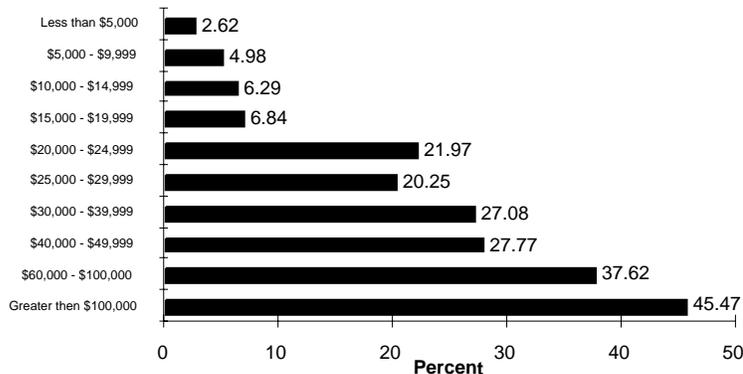


Figure 5.5 Household Income

Participation is highest for those who have lived in Monroe County for between one and five years.

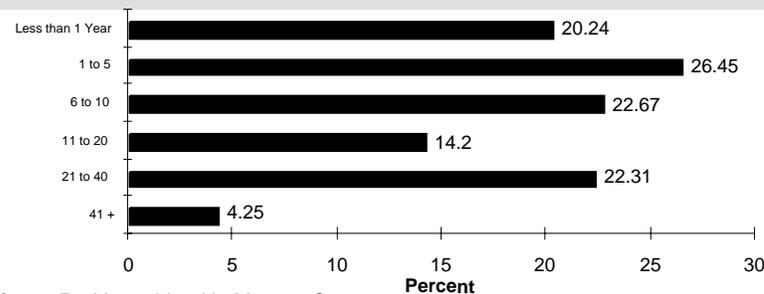


Figure 5.6 Years Lived in Monroe County

Those employed full-time have the highest participation rate and retired residents have the lowest participation rate.

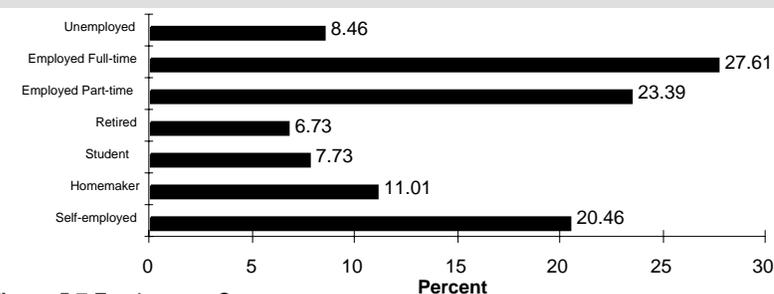


Figure 5.7 Employment Status

There is a general trend of decreased participation rates as distance by road increases.

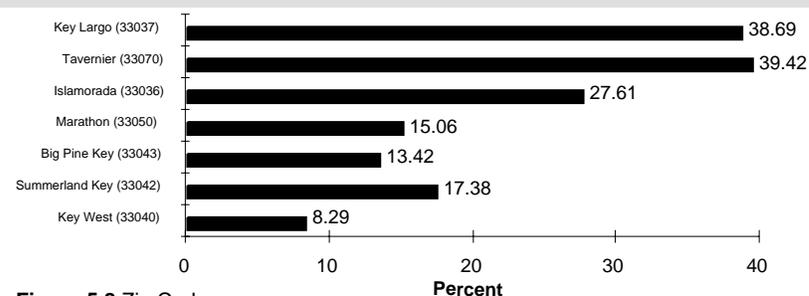


Figure 5.8 Zip Code

Those with residences with waterfront access have higher participation.

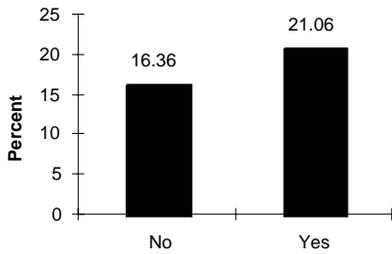


Figure 5.9 Access to Waterfront Residence

Those who own a boat have a higher participation rate.

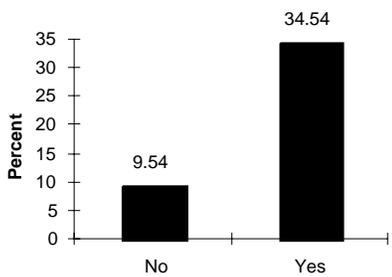


Figure 5.10 Own a Boat

Overall, over 32 percent rated the quality of life in Monroe County as “excellent”, while over 45 percent rated it as “good”. Only six percent rated it as “poor” (Table 5.1). These ratings also differed for participants and nonparticipants in outdoor recreation activities. Those that participated in outdoor recreation activities gave higher ratings than those that did not participate in outdoor recreation activities.

Climate topped the list for the “Most Important Reason for Living in Monroe County” followed by “job/business” and “born here” (Table 5.2). Factors hypothesized to be related to outdoor recreation participation (e.g. Climate, Water activities, Environment, and Access to Natural Resources) were among the top ten most important reasons for living in Monroe County.

Table 5.1 Ratings on Quality of Life in Monroe County

Rating	Participation in Recreation in ENP (%)		
	No	Yes	All Monroe
Excellent	29.87	41.77	32.14
Good	46.12	41.73	45.28
Fair	17.91	12.17	16.82
Poor	6.10	4.33	5.76
Total	100.00	100.00	100.00

Table 5.2 Most Important Reason for Living in Monroe County

Reason	Rank	Participation in Recreation in ENP (%)		
		No	Yes	All Monroe
Climate	1	20.79	19.19	20.49
Job/Business	2	19.09	12.92	17.91
Born here	3	17.29	6.98	15.32
Other	4	13.96	7.17	12.67
Water Activities	5	8.32	23.40	11.19
Environment	6	7.46	12.97	8.51
Low Crime Rate	7	4.12	7.41	4.75
Retirement	8	5.01	0.00	4.06
Natural Resources	9	2.13	7.10	3.08
Cultural Activities	10	0.79	2.01	1.02
No Special Reason	11	1.04	0.85	1.00
Total	-	100.00	100.00	100.00

Activity Participation

The estimates provided in this report are of activity participation by residents over the 12 month period June 1995 - May 1996. Appendix Tables A.5.1 reports on 32 aggregated activities, which eliminate the problem of double-counting when adding up numbers of participants across activities or across the same activity over several regions. For example, if one wants to know the total number of residents that did All Viewing Wildlife-Nature Study in Everglades National Park, Table 5.1 reports that to be 4,420 residents. This is less than adding up the numbers of residents who participated in Viewing Wildlife-Nature Study from Boat (4,139) and from Land (2,275). The difference is accounted for by those who participated from both boat and land. An attempt was made to anticipate the kinds of

activities people would want to add together and report them in Appendix Table A.5.1. Appendix Table A.5.2 reports activity participation in the detailed list of 47 activities.

Participation rates for "All Residents" and for "Those Residents Who Recreated in Everglades National Park" are reported. Participation rates for "All Residents" are the proportion of all residents of Monroe County that participated in the activity. So in Table 5.1 it is reported that 5.57 percent of the 79,380 residents of households (not group quarters) of Monroe County participated in viewing wildlife or nature study.

Of the 79,380 residents of households in Monroe County 18.9 percent (or 15,003 residents) participated in recreation in Everglades National Park. Participation rates for "Those Residents

Who Recreated in Everglades National Park" are the proportion of these residents who participated in the activity. So in Table 5.1 it is reported that 32.05 percent of the 15,003 residents who recreated in any activity in Everglades National Park, participated in some type of fishing.

With 137 miles of coastline and 484,200 acres in Florida Bay and the Gulf of Mexico, as well as a tremendous flats and backcountry environment, Everglades National Park is a mecca for water-based activities. There are also many opportunities to participate in all the Everglades has to offer on land. For residents of Monroe County, water-based activities are slightly more prevalent. (See Figure 5.1).

Endnotes

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 be-

cause 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.

Table 5.3 Activity Participation for Selected Activities

Activity ¹	Number of Participants	Participation Rate (%)	
		All Residents	Those Residents Who Recreated in ENP
All Types of Fishing	4,809	6.06	32.05
All Viewing Wildlife-Nature Study	4,420	5.57	29.46
Viewing Wildlife-Nature Study-Boat	4,139	5.21	27.59
Flats/Backcountry Fishing	3,560	4.48	23.73
All Snorkeling and Scuba Diving	2,716	3.42	18.10
All Snorkeling	2,661	3.35	17.74
Viewing Wildlife-Nature Study-Land	2,275	2.87	15.16
All Camping	1,659	2.09	11.06
Sightseeing & Attractions (Paid & Unpaid)	1,368	1.72	9.12
Other Boating Activities	1,071	1.35	7.14

1. For more detailed activity participation information, see Table A.5.1 and A.5.2

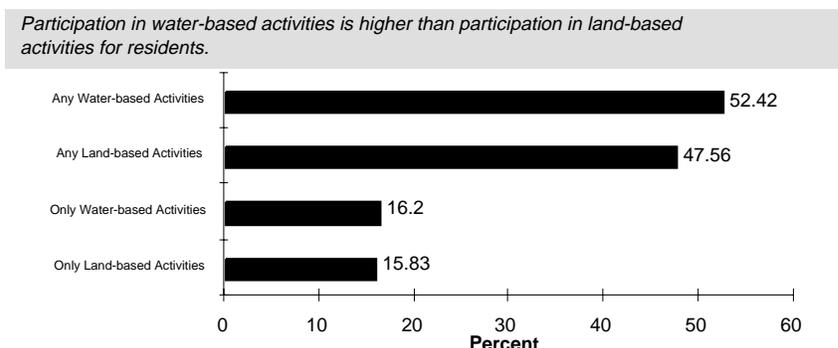


Figure 5.11 Participation in Water-based versus Land-based Activities

For more details on the information in this section see Appendix Tables A.5.1 and A.5.2

Chapter 6

Importance and Satisfaction Ratings

This chapter profiles those visitors to Everglades National Park who are residents of Monroe County, Florida.

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 and 1996).

The importance and satisfaction section of the mailback questionnaire was divided into two sections to obtain the necessary information for the importance-satisfaction analysis. The first section asks the respondent to read each statement and rate the **importance** of each of the 25 items *as it contributes to an ideal recreation setting for the activities they did in the Florida Keys/Florida Bay area*. Each item is rated or scored on a one to five scale (1-5) with one (1) meaning "Not Important" and five (5) meaning "Extremely Important." The respondent was also given the choices of answering

"Not Applicable" or "Don't Know." The second section asks the respondent to consider the same list of items they just rated for importance and to rate them for how **satisfied** they were with each item *at the places they did their activities in the Florida Keys/Florida Bay area*. Again, a five point scale was used with one (1) meaning "Terrible" and a score of five (5) meaning "Delighted." Respondents were also given the choices of answering either "Not Applicable" or "Don't Know."

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

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

The most useful analytical framework provided in importance-satisfaction analysis is the four-quadrant presentation. The four quadrants are formed by first placing the importance measurement on the vertical axis and the satisfaction measurement on the horizontal axis (see Figure 6.1). An additional vertical line is placed at the mean score for all 25 items on the satisfaction scale and an additional horizontal line is placed at the mean score for all 25 items on the importance scale. These two lines form a cross hair. The cross hair then separates the importance-satisfaction measurement area into four separate areas or quadrants. This allows for interpretation as to the "**relative importance**" and "**relative satisfaction**" of each item. That is, if everyone gave high scores to all items in the Florida Keys/Florida Bay area, we would still be able to judge the relative importance and satisfaction and establish priorities.

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

Importance-Satisfaction Analysis: All Residents

For presentation purposes, the 25 items that respondents were asked to rate are organized into four categories. In the survey, the order of the items was mixed. Each of the items is given a letter rather than a number and so are labelled A through Y. Items A through G are labelled “**Natural Resources.**” These seven (7) items are either natural resources or attributes of natural resources such as clear water. Items H through M are labelled “**Natural Resource Facilities.**” These six (6) items are either facilities that provide access to natural resources or areas or features that provide public access to natural resources. Items N through V are labelled “**Other Facilities.**” These nine (9) items are either facilities or features of facilities that are not directly related to natural resources but are indirectly related since they represent items associated with the general infrastructure of the area. Items W through Y

are labelled “**Services.**” These three (3) items are either services or features of a service provided to recreationists. We considered separate analyses for each group but rejected this approach in favor of establishing the relative importance of each item with respect to all items. The organization into four categories was done simply as an aid to those users that have responsibilities in separate areas.

There were 183 respondents in total to the importance-satisfaction section of the mailback questionnaire. In none of the cases did 100 percent of all respondents give ratings for any one item. Figure 6.2 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 ten items in the “**Concentrate**

Here” quadrant. They are A. Clear water, B. Amount of living coral on reefs, G. Quality of beaches, H. Park and specially protected areas, I. Shoreline access, O. Parking, R. Condition of bike paths and sidewalks/walking paths, S. Condition of roads and streets, V. Uncrowded conditions, and W. Maps, brochures, and other tourist information.

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 subsample of residents were asked to provide a retrospective rating for 10 of the 25 items presented in the importance-satisfaction analysis. The subsample of residents was based on the answer to the following question: Had you lived-in or visited the Florida Keys/Florida Bay more than five years ago? Seventy-two (72) percent answered YES to this question. This subsample was then asked to provide the retrospective rating for the 10 items. Table 6.1 presents the 10 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 6.1 indicates that there was a statistically significant difference

Figure 6.1 Importance/Satisfaction Matrix

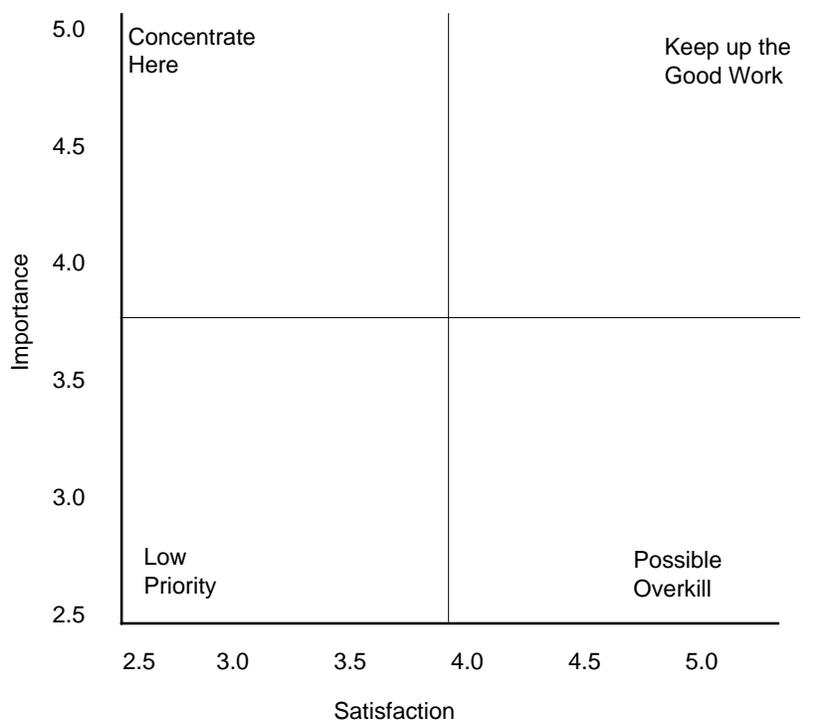
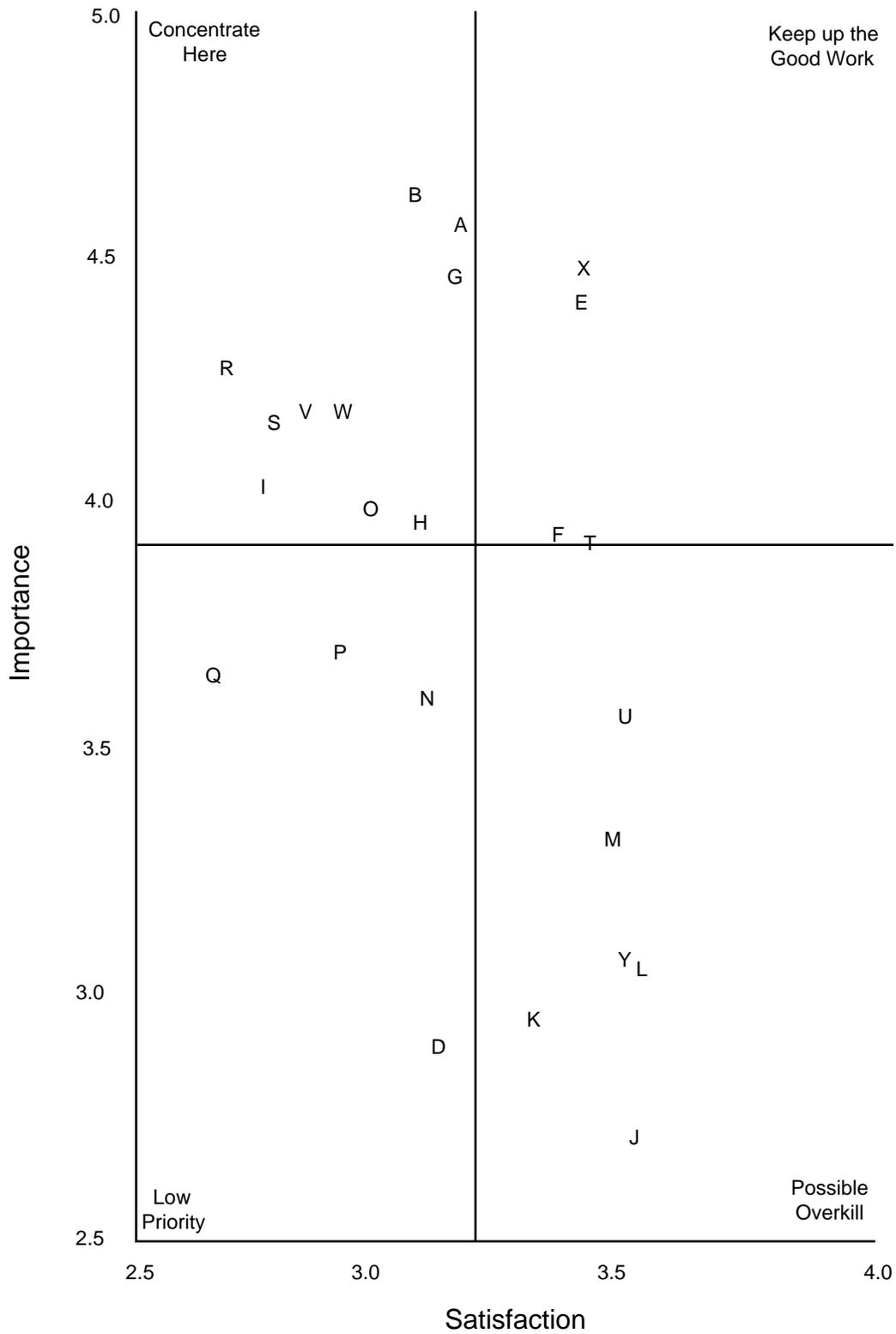


Figure 6.2.a. Importance/Satisfaction Matrix Code Descriptions, Graph of Means, and Descriptive Statistics

Code From Matrix - Description		Mean	Standard Error	N	% Rated
<u>Natural Resources</u>					
A. Clear water (high visibility)	I	4.59	0.0596	176	96%
	S	3.19	0.0716	177	97%
B. Amount of living coral on reefs	I	4.67	0.0485	175	96%
	S	3.07	0.0683	167	91%
C. Many different kinds of fish and sea life to view	I	2.41	0.1092	140	77%
	S	2.40	0.1373	80	44%
D. Many different kinds of fish and sea life to Catch	I	2.89	0.0979	156	85%
	S	3.14	0.0911	130	71%
E. Opportunity to view large wildlife: (manatees, Whales, dolphins, seaturtles)	I	4.41	0.0704	174	95%
	S	3.38	0.0706	176	96%
F. Large numbers of fish	I	3.85	0.1054	167	91%
	S	3.34	0.0835	151	83%
G. Quality of Beaches	I	4.47	0.0682	173	95%
	S	3.18	0.0793	170	93%
<u>Natural Resource Facilities</u>					
H. Park and specially protected areas	I	3.93	0.0922	175	96%
	S	3.11	0.0879	157	86%
I. Shoreline access	I	4.02	0.0865	172	94%
	S	2.78	0.0807	170	93%
J. Designated swimming/beach areas	I	2.72	0.1028	161	88%
	S	3.52	0.0781	121	66%
K. Mooring buoys near coral reefs	I	2.93	0.1077	153	84%
	S	3.30	0.0963	111	61%
L. Marina Facilities	I	3.06	0.0988	164	90%
	S	3.57	0.0662	135	74%
M. Boat ramps/launching facilities	I	3.27	0.1050	168	92%
	S	3.46	0.0789	154	84%
<u>Other Facilities</u>					
N. Historic preservation (historic landmarks, houses, etc.)	I	3.62	0.0893	173	95%
	S	3.16	0.0726	172	94%
Q. Parking	I	3.97	0.0842	174	95%
	S	2.92	0.0774	172	94%
P. Public Transportation	I	3.71	0.0977	169	92%
	S	2.92	0.0809	162	89%
Q. Directional signs, street signs, mile markers	I	3.64	0.1018	175	96%
	S	2.65	0.0868	154	84%
R. Condition of bike paths and sidewalks/ walking paths	I	4.26	0.0782	176	96%
	S	2.70	0.0961	147	80%
S. Condition of roads and streets	I	4.15	0.0765	178	97%
	S	2.78	0.0865	156	85%
T. Availability of public restrooms	I	3.87	0.0892	176	96%
	S	3.39	0.0734	168	92%
U. Cleanliness of streets and sidewalks	I	3.57	0.0894	170	93%
	S	3.51	0.0684	149	81%
V. Uncrowded Conditions	I	4.15	0.0771	177	97%
	S	2.79	0.0953	141	77%
<u>Services</u>					
W. Maps, brochures, and other tourist information	I	4.16	0.0851	177	97%
	S	2.88	0.0865	161	88%
X. Service and friendliness of people	I	4.47	0.0749	173	95%
	S	3.41	0.0746	167	91%
Y. Value for the price	I	3.19	0.0716	177	97%
	S	3.53	0.0760	160	87%

I - Importance, S - Satisfaction

Figure 6.2.b. Importance/Satisfaction Matrix



- Item C. Many different kinds of fish and sea life to view does not appear because its importance score is low (less than 2.5).

Table 6.1. A Comparison of Satisfaction Ratings on 10 Selected Items: Current Ratings versus Five Years Ago

Item	Mean	Stderr	N	Significant Difference ¹
Clear water (high visibility)			125	YES
Current rating	3.25	0.084		
Five years ago	3.78	0.095		
Amount of living coral on reefs			116	YES
Current rating	3.10	0.082		
Five years ago	3.59	0.093		
Opportunity to view large wildlife			105	YES
Current rating	3.03	0.114		
Five years ago	3.50	0.101		
Uncrowded conditions			108	YES
Current rating	2.69	0.111		
Five years ago	2.87	0.114		
Shoreline access			116	NO
Current rating	3.45	0.091		
Five years ago	3.53	0.089		
Quality of beaches			104	YES
Current rating	3.67	0.109		
Five years ago	2.92	0.111		
Service and friendliness of people			99	NO
Current rating	3.47	0.089		
Five years ago	3.43	0.091		
Historic preservation (historic landmarks, houses, etc.)			119	NO
Current rating	3.21	0.089		
Five years ago	3.15	0.094		
Parks and specially protected areas			118	YES
Current rating	2.80	0.105		
Five years ago	3.42	0.105		
Conditions of roads and streets			116	NO
Current rating	3.52	0.083		
Five years ago	3.59	0.087		

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 tests were based on those that gave ratings for current time period and for five years ago.

in the two mean scores for an item. A paired t-test was done using PROC MEANS in SAS Version 6.12. Differences in the scores were first calculated and tests for normality were con-

ducted. 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 five (5) of the 10 items. For one item, there was a significant increase in satisfaction ratings. For four of the items, there was no significant difference.

Key Findings:

Satisfaction Ratings: Current versus Five Years Ago

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

Environmental Concern Index (ECI).

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

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

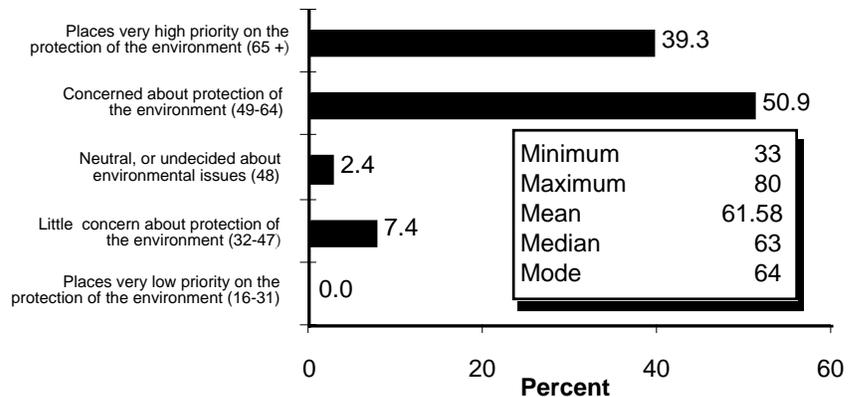


Figure 6.3 Environmental Concern Index

1978), the Personal Environmental Behavior Scale (Dunlap and Van Liere, 1978), the Roper Survey (1991), and the ECI.

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

work, we hope to test the usefulness of this index.

Of residents of the Florida Keys/Key West, 39.3 percent had scores over 65, meaning they placed a very high priority on protection of the environment, and an additional 50.9 percent scored between 49 and 64, meaning they were concerned about protection of the environment (see Figure 6.3). Overall then, 90.2 percent of residents of the Florida Keys/Key West are concerned to very concerned about protecting the environment.

References

- Alward, G. S., H. G. Davis, K. A. Despotakis and E. M. Lofting. 1985. Regional Non-survey Input-Output Analysis with IMPLAN. Washington, DC: Southern Regional Science Association.
- Bell, F. W. 1991. An Analysis of the Economic Base of Monroe County, Florida with Implications for Oil and Gas Exploration, 1969 - 1988. Working Paper. Department of Economics, Florida State University. Tallahassee, FL: FSU
- Bell, F. W. and V. R. Leeworthy. 1986. An Economic Analysis of the Importance of Saltwater Beaches in Florida. Report Number 82, Sea Grant Project No. R/C-P-12, Grant Number NA80AA-D-00038. Florida Sea Grant College, Department of Economics. Florida State University. Tallahassee, FL: FSU
- Dunlap, Riley E. and Van Liere, Kent D. 1978. "The New Environmental Paradigm." Journal of Environmental Education 9 (Summer): 10-19.
- Guadagnolo, Frank. 1985. "The Importance-Performance Analysis: An Evaluation and Marketing Tool." Journal of Park and Recreation Administration 3 (2):13-22.
- Hollenhorst, Steve, David Olson and Ronal Fortney. 1992. "Use of Importance-Performance Analysis to Evaluate State Park Cabins: The Case of the West Virginia Park System." Journal of Park and Recreation Administration 10 (1):1-11.
- Johnson, R.L. and E. Moore. Tourism Impact Estimation. Annals of Tourism Research 20(1993):279-288.
- Kearney/Centaur. 1990. Impacts of Oil and Gas Development on the Recreation and Tourism off the Florida Straits. Herndon, VA: U.S. Department of the Interior.
- Leeworthy, Vernon R. and Wiley, Peter C. 1997a. "A Socioeconomic Analysis of the Recreation Activities of Monroe County Residents in the Florida Keys/Key West." Silver Spring, MD: National Oceanic and Atmospheric Administration, Strategic Environmental Assessments Division.
- Leeworthy, Vernon R. and Wiley, Peter C. 1997b. "Technical Appendix: Sampling Methodologies and Estimation Methods Applied to the Survey of Resident of Monroe County." Silver Spring, MD: National Oceanic and Atmospheric Administration, Strategic Environmental Assessments Division.
- Leeworthy, Vernon R. 1996. "Technical Appendix: Sampling Methodologies and Estimating Methods Applied to the Florida Keys/ Key West Visitor Surveys." Silver Spring, MD: National Oceanic and Atmospheric Administration, Strategic Environmental Assessments Division.
- Leeworthy, Vernon R. and Wiley Peter C. 1996a. "Visitor Profiles: Florida Keys/Key West." Silver Spring, MD: National Oceanic and Atmospheric Administration, Strategic Environmental Assessments Division.
- Leeworthy, Vernon R. and Wiley Peter C. 1996b. "Importance and Satisfaction Ratings by Recreating Visitors to the Florida Keys/Key West." Silver Spring, MD: National Oceanic and Atmospheric Administration, Strategic Environmental Assessments Division.
- Leeworthy, Vernon R. and Wiley, Peter C. 1996c. "Economic Contribution of Recreating Visitors to the Florida Keys/Key West." Silver Spring, MD: National Oceanic and Atmospheric Administration, Strategic Environmental Assessments Division.
- Leeworthy, Vernon R. and Peter C. Wiley. 1995. "A Socioeconomic Profile of Recreationists at Cumberland Island National Seashore." Silver Spring, MD: National Oceanic and Atmospheric Administration.
- Leeworthy, Vernon R. and Peter C. Wiley. 1994. "A Socioeconomic Profile of Recreationists at Sonoma Coast State Beach." Silver Spring, MD: National Oceanic and Atmospheric Administration.

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- Martilla, John A. and John C. James. 1977. "Importance-Performance Analysis." Journal of Marketing 41 (1):77-79.
- Miles, Morgan P. 1992. "Analysis of Environmental Attitude Scales." Statesboro, GA: Georgia Southern University.
- Richardson, Sarah L. 1987. "An Importance-Performance Approach to Evaluating Communication Effectiveness." Journal of Park and Recreation Administration 5 (4):71-83.
- Schwartz, Joe and Miller, Thomas. 1991. "The Earth's Best Friends" American Demographics February 1991 (Roper Survey).
- Sudman, Seymour and Bradburn, Norman M. 1974. "Response Effects in Surveys: A Review and Synthesis", ALDINE Publishing Company, Chicago, Illinois.
- Wallace Roberts & Todd, Barton Ashman & Associates, Inc., Haben Culpepper, Dunbar & French, P.A., Henigar & Ray, Keith and Schnars, P.A., and Price Waterhouse. 1991. "Monroe County Year 2010 Comprehensive Plan, Working Paper 2: Inventory and Analysis, Proposed Levels of Service, Measures of Carrying Capacity." Prepared for Monroe County Board of County Commissioners, November 1991.
- Walsh, R.G. et al. 1987. Wildlife and fish use assessment: long-run forecasts of participation in fishing, hunting, and non-consumptive wildlife recreation. Colorado State University, Technical Report 50.
- Westat, Inc. 1989. "Investigation of Possible Recall/Reference Period Bias in National Surveys of Fishing, Hunting and Wildlife-Associated Recreation". Under contract (no. 14-16-009-87-008) to the U.S. Department of the Interior, Fish and Wildlife Service, Washington, DC.
- Weigel, Russell H. and Weigel, Joan. 1978. "Environmental Concern: The Development of a Measure," Environment and Behavior 10 (1): 3-15.

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Appendix Tables



Table A.2.1. Activity Participation in 32 Aggregate Activities

Activity ¹	Number of Participants	Participation Rate ²
Fishing		
Offshore Fishing	3,611	5.97
Flats/Backcountry Fishing	10,251	16.96
Other Fishing from a Boat	3,262	5.39
All Boat Fishing	15,493	25.63
Fishing from Shore	699	1.16
All Types of Fishing	15,959	26.40
Viewing Wildlife - Nature Study		
Viewing Wildlife/Nature Study-Boat	31,685	52.41
Viewing Wildlife/Nature Study-Land	8,038	13.29
All Viewing Wildlife-Nature Study	34,597	57.23
Boating		
Personal Watercraft Use	1,980	3.28
All Sailing	3,145	5.20
Other Boating Activities	5,009	8.29
All Beach Activities (Including swimming)	349	0.58
All Camping	3,145	5.20
All Snorkeling and Scuba Diving	0	0.00
Visiting Museums or Historic Areas	3,145	5.20
Sightseeing & Attractions(Paid & Unpaid)	3,378	5.59
Cultural Events(Fairs,Concerts,Plays)	0	0.00
Outdoor Sports and Games	0	0.00
Special Aggregates		
Any Activities Involving Boats	51,720	85.55
All Activities Involving Swimming	582	0.96
Any Water-based Activities	52,186	86.32
Any Land-based Activities	11,416	18.88
Only Water-based Activities	44,032	72.83
Only Land-based Activities	3,378	5.59
Types of Fishing Boat		
Any Charter Boat Fishing	1,631	2.70
Any Party Boat Fishing	233	0.39
Any Private Boat Fishing	11,998	19.85
Any Rental Boat Fishing	1,631	2.70
Type of Boat Use		
Any Use of Charter/Party Boats	20,036	33.14
Any Use of Private Boats	31,801	52.60
Any Use of Rental Boats	5,358	8.86

1. These Activities are summaries from a list of 47 activities used in the survey. See Table A.2.2. Although The list given to survey respondent included 68 activities, only 47 are available for recreationists in the park.
2. Percent of visitors of all ages that did activity. Double-counting has been eliminated from aggregated activities. For example, the estimate for All fishing is not equal to the addition of fishing from a boat and fishing from shore since a visitor may have participated in both activities. The estimate for all fishing eliminates this kind of double-counting.

Table A.2.2. Activity Participation in Detailed List of 47 Activities²

Activity Number	Activity Description	Number of Participants ¹	Participation Rate
N100A	Snorkeling Charter/Party Boat	0	0.00
N101A	Snorkeling Rental Boat	0	0.00
N102A	Snorkeling Private Boat	0	0.00
N200A	Scuba Charter/Party Boat	0	0.00
N201A	Scuba Rental Boat	0	0.00
N202A	Scuba Private Boat	0	0.00
N301	Underwater Photography	0	0.00
N400A	Fishing Offshore Charter Boat	815	1.35
N401A	Fishing Offshore Party Boat	233	0.39
N402A	Fishing Offshore Rental Boat	233	0.39
N403A	Fishing Offshore Private Boat	2,330	3.85
N404A	Fishing Flats/Backcountry Guided	1,048	1.73
N405A	Fishing Flats/Backcountry Rental Boat	1,398	2.31
N406A	Fishing Flats/Backcountry Private Boat	7,805	12.91
N407A	Other Fishing Charter Boat	0	0.00
N408A	Other Fishing Party Boat	0	0.00
N409A	Other Fishing Rental Boat	233	0.39
N410A	Other Fishing Private Boat	3,029	5.01
N501A	Backcountry Boating Excursions-Not Fish	15,609	25.82
N502A	View Nature/Wildlife Priv/Rental Boat	19,104	31.60
N601A	Personal Watercraft - Private	1,980	3.28
N700A	Sailing Party/Charter Boat (Pay Operation)	2,097	3.47
N701A	Sailing Rental Boat	466	0.77
N702A	Sailing Private Boat	582	0.96
N800A	Other Boating Charter/Party	699	1.16
N801A	Other Boating Rental Boat	3,262	5.39
N802A	Other Boating Private Boat	1,281	2.12
N10A	Snorkeling From Shore	0	0.00
N14A	Fishing From Shore	699	1.16
N15A	Swimming at Beaches (Not in Pool)	349	0.58
N16A	Swimming in Outdoor Pool	233	0.39
N18A	Windsurfing or Sailboarding	0	0.00
N19A	Wildlife Observ/Photography From Land	7,805	12.91
N20A	Other Nature Study From Land	4,194	6.94
N21	Photography From Land (Not Wildlife)	2,679	4.43
N22	Backpacking	0	0.00
N23	Camping in Developed Campgrounds	3,145	5.20
N24	Camping in Primitive Campgrounds	0	0.00
N25	Day Hiking	2,796	4.62
N26	Attending Ranger Guided Walk	1,864	3.08
N27	Self-Guided Nature or Historic Trails	4,427	7.32
N28	Picknicking	1,281	2.12
N33	Sightseeing Tours, Attractions (Paid)	1,631	2.70
N34	Sightseeing (Not Paid for Tours)	1,980	3.28
N35	Reading Roadside Exhibits or Markers	1,631	2.70
N36A	Visiting Museum, Educ Fac, Info Center	2,679	4.43
N41	Bicycling	233	0.39

1. Number of Participants is equal to the total number of person-trips during the survey period (60,457) times the percent of visitors participating in the activity.

2. Respondent were shown a list of 68 activities when responding to the survey, however 21 are not available in the park.

Table A.2.3 Country of Primary Residence

Country	All Visitors %	Foreign Visitors Only %
U.S.A	79.3	-
United Kingdom	5.4	24.9
Canada	4.3	20.8
Germany	4.3	20.8
Switzerland	1.7	8.3
Netherlands	1.3	6.3
Sweden	1.3	6.3
France	0.8	4.2
Belgium	0.4	2.1
Italy	0.4	2.1
New Zealand	0.4	2.1
Spain	0.4	2.1

Table A.2.4 TDC Regions of Primary Residence

TDC Region ¹	All Visitors %	Domestic Visitors only %
Florida	34.9	44.0
New England/North Atlantic	18.8	23.6
Middle and South Atlantic (without Florida)	5.2	6.6
North Central/Mid West	13.5	17.0
South West/West/Pacific	7.0	8.8
Foreign	20.7	-

1. Definitions of TDC Regions:

- New England/ North Atlantic = ME, NH, VT, MA, RI, CT, NY, NJ, PA, DE
- Middle and South Atlantic = DC, WV, MD, VA, NC, SC, GA, TN, AL, FL, MS
- North Central/Mid West = MI, OH, IN, KY, MT, ND, SD, MN, IA, WI, MO, IL, KS, NE
- South West/West/Pacific = AK, OK, TX, LA, AR, ID, WY, NV, UT, CO, AZ, NM, CA, OR, WA, HI

Table A.2.5 Census Regions and Divisions of Primary Residence

Census Region/Division	All Visitors %	Domestic Visitors only %
EAST	18.2	23.0
New England	9.1	11.5
Mid-Atlantic	9.1	11.5
SOUTH	42.8	53.8
West South Central	1.3	1.6
East South Central	1.7	2.2
South Atlantic	39.8	50.0
WEST	6.0	7.6
Pacific	3.0	3.8
Mountain	3.0	3.8
MIDWEST	12.3	15.4
East North Central	11.0	11.0
West North Central	1.3	4.4
FOREIGN	20.7	-

1. Definitions of Census Divisions:

- New England = ME, NH, VT, MA, RI, CT
- Mid-Atlantic = NY, NJ, PA
- West South Central = AR, OK, TX
- East South Central = KY, TN, MS, AL
- South Atlantic = WV, VA, DC, MD, DE, NC, SC, GA, FL
- Pacific = CA, OR, WA, AK, HI
- Mountain = ID, MT, WY, UT, CO, NM, AZ, NV
- East North Central = MI, MN, IL, IN, OH
- West North Central = WI, IA, MO, ND, SD, KS, NE

Table A.2.6 State of Primary Residence

State	All Visitors (Percent)	Domestic Visitors Only (Percent)
Alaska	0.43	0.55
Alabama	0.43	0.55
Arkansas	0.43	0.55
Arizona	0.43	0.55
California	1.74	2.20
Colorado	0.87	1.10
Connecticut	2.19	2.75
District of Columbia	0.00	0.00
Delaware	0.43	0.55
Florida	34.88	43.96
Georgia	0.87	1.10
Hawaii	0.00	0.00
Iowa	0.00	0.00
Idaho	0.00	0.00
Illinois	0.87	1.10
Indiana	0.87	1.10
Kansas	0.00	0.00
Kentucky	0.87	1.10
Louisiana	0.00	0.00
Massachusetts	1.74	2.20
Maryland	1.74	2.20
Maine	1.74	2.20
Michigan	4.35	5.49
Minnesota	2.63	3.30
Missouri	0.00	0.00
Mississippi	0.43	0.55
Montana	0.43	0.55
North Carolina	0.00	0.00
North Dakota	0.00	0.00
Nebraska	0.43	0.55
New Hampshire	0.87	1.10
New Jersey	2.17	2.75
New Mexico	0.87	1.10
Nevada	0.00	0.00
New York	6.52	8.24
Ohio	2.17	2.75
Oklahoma	0.87	1.10
Oregon	0.43	0.55
Pennsylvania	0.43	0.55
Rhode Island	0.87	1.10
South Carolina	0.00	0.00
South Dakota	0.44	0.55
Tennessee	0.00	0.00
Texas	0.00	0.00
Utah	0.43	0.55
Virginia	1.75	2.20
Vermont	1.75	2.20
Washington	0.43	0.55
Wisconsin	0.43	0.55
West Virginia	0.00	0.00
Foreign	20.70	N/A

Table A.2.7 Annual Trips and Days in the Last 12 Months

Number of Trips or Days	Trips (percent)	Days (percent)
1	71.2	41.5
2	13.8	21.0
3	6.9	15.3
4	3.4	9.7
5	1.1	1.7
6	0.0	1.1
7	1.1	1.1
8	0.0	1.7
9	0.0	1.1
10+	2.5	5.8
Minimum	1	1
Maximum	40	40
Mean	2.03	3.07
Median	1	2
Mode	1	1

Table A.2.8 Days and Nights on Interview Trip

Number of Days or Nights	Days (percent)	Nights (percent)
0	-	38.4
1	45.8	20.9
2	20.9	18.1
3	16.4	7.9
4	7.3	5.6
5	1.1	1.7
6	1.7	0.6
7	1.1	1.7
8	1.1	1.1
9	1.1	0.6
10+	3.5	3.4
Minimum	1	0
Maximum	23	22
Mean	2.59	1.90
Median	2	1
Mode	1	0

Table A.2.9 Demographic Profiles of CUSTOMER Sample - Visitors of All Ages

	Percent
Sex	
Male	52.6
Female	47.4
Race/Ethnicity	
Asian or Pacific Islander	1.9
Black (not Hispanic)	0.2
Hispanic	6.3
White (not Hispanic)	89.7
Other	1.9
Age	
1 - 15	14.1
16 - 25	4.34
26 - 35	11.5
36 - 45	17.8
46 - 60	24.3
61 +	26.6
No Answer	1.36
Minimum	1
Maximum	91
Mean	44.5
Median	46
Mode	36
Household Income	
<20	5.1
21 - 40	7.9
41 - 60	11.9
61 - 100	14.1
No Answer	18.6
Household Type	
Single adult with no children	10.8
Single adult with children	2.8
Two adults with no children	58.0
Two adults with children	23.9
More than two adults with no children	2.8
More than two adults with children	1.7

Table A.5.1 Activity Participation in 41 Aggregate Activities for Everglades National Park

Activity ¹	Number of Participants ²	Participation Rate ²	
		All Residents ³	Those Residents Who Recreated in ENP ⁴
Diving			
Snorkeling from a Boat	2,425	3.05	16.16
Snorkeling from Shore	595	0.75	3.97
All Snorkeling	2,661	3.35	17.74
All Scuba Diving	224	0.28	1.49
All Snorkeling and Scuba Diving	2,716	3.42	18.10
Fishing			
Offshore Fishing	1,298	1.64	8.65
Flats/Backcountry Fishing	3,560	4.48	23.73
Other Fishing from a Boat	550	0.69	3.67
All Boat Fishing	4,467	5.63	29.77
Fishing from Shore	833	1.05	5.55
All Types of Fishing	4,809	6.06	32.05
Viewing Wildlife - Nature Study			
Viewing Wildlife/Nature Study-Boat	4,139	5.21	27.59
Viewing Wildlife/Nature Study-Land	2,275	2.87	15.16
All Viewing Wildlife-Nature Study	4,420	5.57	29.46
Boating			
All Sailing (Excludes Charter) ⁵	798	1.01	5.32
Other Boating Activities	1,071	1.35	7.14
All Beach Activities (Including swimming)	1,284	1.62	8.56
All Camping	1,659	2.09	11.06
Visiting Museums or Historic Areas	579	0.73	3.86
Sightseeing & Attractions(Paid & Unpaid)	1,368	1.72	9.12
Special Aggregates			
Any Activities Involving Boats	7,520	9.47	50.12
All Activities Involving Swimming	3,464	4.36	23.09
Any Water-based Activities	7,865	9.91	52.42
Any Land-based Activities	7,135	8.99	47.56
Only Water-based Activities	2,430	3.06	16.20
Only Land-based Activities	2,375	2.99	15.83
Types of Fishing Boat			
Any Charter Boat Fishing	171	0.22	1.14
Any Party Boat Fishing	261	0.33	1.74
Any Private Boat Fishing	2,824	3.56	18.82
Any Rental Boat Fishing	44	0.06	0.29
Types of Diving Boat			
Any Charter Boat Diving-Snork & Scuba	187	0.24	1.25
Any Private Boat Diving-Snork & Scuba	2,240	2.82	14.93
Any Rental Boat Diving-Snork & Scuba	182	0.23	1.21
Type of Boat Use			
Any Use of Charter/Party Boats	1,495	1.88	9.96
Any Use of Private Boats	4,799	6.05	31.99
Any Use of Rental Boats	225	0.28	1.50

1. These Activities are summaries from a list of 47 activities used in the survey. See Table A.2.4

Although the list given to survey respondents included 66 activities, only 47 are available to recreationists in the Park.

2. Number of Participants is equal to the total number of residents in the Keys living in Households (79,380) times the All Residents Participation Rate

3. Percent of residents of all ages from Monroe County.

4. Percent of residents of all ages from Monroe County that participated in outdoor recreation in Everglades National Park. Equal to the number of participants divided by the 15,003 residents who visited ENP.

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

Table A.5.2 Activity Participation in Detailed List of 47 Activities for Everglades National Park¹

Activity ¹ Number	Activity Description	Number of Participants ²	Participation Rate ²	
			All Residents ³	Those Residents Who Recreated in ENP ⁴
N100A	Snorkeling Charter/Party Boat	265	0.33	1.77
N101A	Snorkeling Rental Boat	160	0.20	1.07
N102A	Snorkeling Private Boat	2,197	2.77	14.64
N200A	Scuba Charter/Party Boat	1,685	2.12	11.23
N201A	Scuba Rental Boat	21	0.03	0.14
N202A	Scuba Private Boat	158	0.20	1.05
N301	Underwater Photography	111	0.14	0.74
N400A	Fishing Offshore Charter Boat	0	0.00	0.00
N401A	Fishing Offshore Party Boat	374	0.47	2.49
N402A	Fishing Offshore Rental Boat	0	0.00	0.00
N403A	Fishing Offshore Private Boat	1,298	1.64	8.65
N404A	Fishing Flats/Backcountry Guided	171	0.22	1.14
N405A	Fishing Flats/Backcountry Rental Boat	23	0.03	0.15
N406A	Fishing Flats/Backcountry Private Boat	3,207	4.04	21.38
N407A	Other Fishing Charter Boat	0	0.00	0.00
N408A	Other Fishing Party Boat	74	0.09	0.49
N409A	Other Fishing Rental Boat	65	0.08	0.43
N410A	Other Fishing Private Boat	483	0.61	3.22
N501A	Backcountry Boating Excursions-Not Fish	544	0.69	3.63
N502A	View Nature/Wildlife Priv/Rental Boat	3,773	4.75	25.15
N701A	Sailing Rental Boat	0	0.00	0.00
N702A	Sailing Private Boat	798	1.01	5.32
N800A	Other Boating Charter/Party	74	0.09	0.49
N801A	Other Boating Rental Boat	27	0.03	0.18
N802A	Other Boating Private Boat	991	1.25	6.61
N10A	Snorkeling From Shore	595	0.75	3.97
N14A	Fishing From Shore	833	1.05	5.55
N15A	Swimming at Beaches (Not in Pool)	1,218	1.53	8.12
N16A	Swimming in Outdoor Pool	690	0.87	4.60
N18A	Windsurfing or Sailboarding	21	0.03	0.14
N19A	Wildlife Observ/Photography From Land	2,725	3.43	18.16
N20A	Other Nature Study From Land	1,017	1.28	6.78
N21	Photography From Land (Not Wildlife)	864	1.09	5.76
N22	Backpacking	176	0.22	1.17
N23	Camping in Developed Campgrounds	881	1.11	5.87
N24	Camping in Primitive Campgrounds	1,119	1.41	7.46
N25	Day Hiking	1,101	1.39	7.34
N26	Attending Ranger Guided Walk	470	0.59	3.13
N27	Self-Guided Nature or Historic Trails	1,538	1.94	10.25
N28	Picknicking	1,170	1.47	7.80
N33	Sightseeing Tours, Attractions (Paid)	553	0.70	3.69
N34	Sightseeing (Not Paid for Tours)	1,363	1.72	9.08
N35	Reading Roadside Exhibits or Markers	491	0.62	3.27
N36A	Visiting Museum, Educ Fac, Info Center	681	0.86	4.54
N41	Bicycling	839	1.06	5.59

1. Although the list given to survey respondents included 66 activities, only 47 are available to recreationists in the Park.
2. Number of Participants is equal to the total number of residents in the Keys living in Households (79,380) times the All Residents Participation Rate
3. Percent of residents of all ages from Monroe County.
4. Percent of residents of all ages from Monroe County that participated in outdoor recreation in Everglades National Park. Equal to the number of participants divided by the 15,003 residents that visited ENP.

Linking the Economy and Environment of Florida Keys/Florida Bay

VISITOR PROFILES: EVERGLADES NATIONAL PARK

November 1998

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National Ocean Service
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U.S. Department of Commerce



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Visitor Profiles: Everglades National Park