
ECONOMIC CONTRIBUTION OF RECREATING
VISITORS TO THE FLORIDA KEYS / KEY WEST:
UPDATES FOR YEARS 1996-97 AND 1997-98

June 1999

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Florida Keys



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We would also like to thank Peter Wiley in the National Ocean Service, Special Projects Office for putting this document together in his usual professional manner.

Any errors are the sole responsibility of the authors.

Preface

This report has been produced as part of the Socioeconomic Monitoring Program of the Florida Keys National Marine Sanctuary. It is an effort to update specific baseline socioeconomic estimates presented in the 1995-1996 study entitled "Linking the Economy and Environment of the Florida Keys/Florida Bay." The objective of this report is to update the following priority elements for the years 1996-1997 and 1997-1998: 1) total number of visitors, 2) total visitor spending in Monroe County, and 3) the resulting secondary economic contribution to the Monroe County economy in terms of output/sales, income and number of jobs. In addition, this report presents data on the total Monroe County economy, which has been compiled in order to calculate the relative contribution to the local economy (e.g. percent of total output/sales, income, and jobs resulting from visitor recreational activities).

In 1995-1996, NOAA, The Nature Conservancy, Florida Keys Chapter (TNC), and the Monroe County Tourist Development Council (TDC) formed a partnership and entered into a cooperative agreement to conduct a study linking the economy and environment of the Florida Keys/Florida Bay. This study was completed and produced six separate reports. Its 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 marine resources, the way users interact with resources (their recreation activities), the amount and pattern associated with their uses, and users' assessment of natural resources, facilities and services. This was accomplished by designing and implementing a survey of both residents and non-residents (visitors) of Monroe County with respect to their recreational activities in the Florida Keys/Florida Bay Area, and analysing the data which yielded the following:

- Estimates 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).
- Profiles, developed from survey data, of residents and visitors including age, race/ethnicity, sex, income, education, place of residence, activity participation and spending in the local and regional economy.
- Estimates of economic contribution (sales/output, income, employment) of both resident and visitor uses of the Florida Keys and Florida Bay to the Monroe County economy and the South Florida (Broward, Dade and Monroe Counties) regional economy.
- Estimates of 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 of diversity of sealife as attractions for visitors to the area.

The following report builds upon the 1995-1996 surveys. The data presented in this report were derived by using the methods outlined in "Technical Appendix: Sampling Methodologies and Estimation Methods Applied to the Florida Keys/Key West Visitor Surveys" (Leeworthy, December 1996). No new surveys were conducted. The best current information available was combined with information previously gathered during the 1995-1996 survey to give us updated estimates for the following categories: 1) total number of visitors, 2) total visitor spending, and 3) total economic contribution to the Monroe County economy for the years defined as June 1996 - May 1997 and June 1997 - May 1998.

This report is a continued effort to monitor socioeconomic activities within the Florida Keys. As all residents of this region well know, tourism is an all-pervasive force that has far-reaching impacts. The massive yearly influx of visitors to the Florida Keys not only impacts the economy but also has serious social, political, and environmental repercussions that may have to be addressed by the local population and its decision-makers. The data gathered through this monitoring is essential in providing valuable information on the current state of tourism in the Florida Keys, and may also be helpful in detecting positive or negative visitation trends to the area.

Hence, this report, as well as previous reports in the “Linking the Economy and Environment of the Florida Keys/Florida Bay” series, are intended for all people involved in planning, managing or providing natural resources, facilities and services to residents and visitors of the Florida Keys/Key West. Despite the enormous amount of information available in these reports, the databases from which they were generated are much richer in content. We encourage users to further explore these rich sources of information by making special requests or obtaining the databases and documentation themselves.

The methods and data used to generate the estimates provided in this report are documented in a separate technical appendix as in the previous reports in this series. The technical appendix will also contain tables with a great more detail than provided in this report. The technical appendix for this report will be available about one month after the release of this report and will be posted on our World Wide Web site.

Other Reports Available

- Visitor Profiles: Florida Keys/Key West
- Economic Contribution of Recreating Visitors to the Florida Keys/Key West
- Importance and Satisfaction Ratings by Recreating Visitors to the Florida Keys/Key West
- Executive Summary-Visitor Survey
- Technical Appendix: Sampling Methodologies and Estimation Methods Applied to the Florida Keys/Key West Visitors Surveys
- A Socioeconomic Analysis of the Recreation Activities of Monroe County Residents in the Florida Keys/Key West
- Executive Summary-Resident Survey
- Technical Appendix: Sampling Methodologies and Estimation Methods Applied to the Survey of Monroe County Residents
- Nonmarket Economic User Values of the Florida Keys/Key West
- Executive Summary - Nonmarket Economic User Values of the Florida Keys/Key West
- Visitor Profiles: Everglades National Park

World Wide Web

A web site has been established that contains a project background along with all the reports generated in the project in PDF file format. The site address is <http://www-orca.nos.noaa.gov/projects/econkeys/econkeys.html>

The site also provides links to the Monroe County Tourist development council site where information can be obtained on lodging, restaurants, and recreation facilities and services. There is also a link to the Florida Keys National Marine Sanctuary site. You can also place orders for any of these reports from this site. In addition, the site contains the descriptions and links to electronic annotated bibliographic on-line searchable data bases for South Florida. Separate data bases are available for socioeconomics and ecology.

For further information about this report or the “Linking the Economy and Environment of the Florida Keys/Florida Bay” project, contact:

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Executive Summary

This report has been produced as part of the Socioeconomic Monitoring Program of the Florida Keys National Marine Sanctuary. It is an effort to update specific baseline socioeconomic estimates presented in the 1995-1996 study entitled "Linking the Economy and Environment of the Florida Keys/Florida Bay". The objectives of this study are 1) to update visitation estimates, and 2) to establish contributions made by tourism to Monroe County's economy, for the years defined as June 1996-May 1997 and June 1997-May 1998.

Visitation

June - November 1996: 1.16 million recreating visitors spent 4.7 million person-days in the Florida Keys/Key West. 79.3 percent came by auto, 7.2 percent by air (Key West and Marathon airports), and 13.5 percent by cruise ship (Key West).

December 1996 - May 1997: 1.49 million recreating visitors spent 8.6 million person-days in the Florida Keys/Key West. 69.3 percent came by auto, 9.1 percent by air, and 21.5 percent by cruise ship.

June 1996 - May 1997: 2.65 million recreating visitors spent 13.3 million person-days in the Florida Keys/Key West. 73.7 percent came by auto, 8.3 percent by air, and 18 percent by cruise ship (Key West).

June - November 1997: 1.45 million recreating visitors spent 5.8 million person-days in the Florida Keys/Key West. 80 percent came by auto, 6 percent by air (Key West and Marathon airports), and 14 percent by cruise ship (Key West).

December 1997 - May 1998: 1.47 million recreating visitors spent 8.5

million person-days in the Florida Keys/Key West. 69.4 percent came by auto, 9 percent by air, and 21.7 percent by cruise ship.

June 1997 - May 1998: 2.92 million recreating visitors spent 14.3 million person-days in the Florida Keys/Key West. 73.7 percent came by auto, 8.3 percent by air, and 18 percent by cruise ship.

Economic Contribution

1995-1996 recreating visitor spending information (adjusted for inflation), was combined with current 1996-1997 and 1997-1998 visitation estimates in order to estimate total visitor spending in Monroe County. These results were then used to estimate tourism impacts on the Monroe County economy. The results are summarized here.

1996-1997: For the period June 1996 - May 1997, 2.65 million recreating visitors spent about \$1.24 billion in Monroe County, which had a total impact of \$1.39 billion in output/sales, \$507.88 million in income, and a little over 17 thousand full and part-time jobs. Recreation/tourism accounted for about 59 percent of output/sales, 44 percent of income, and approximately 34 percent of employment in Monroe County.

1997-1998: For the period June 1995 - May 1996, 2.92 million recreating visitors spent about \$1.38 billion in Monroe County, which had a total impact of \$1.55 billion in output/sales, \$565.29 million in income, and almost 19 thousand full and part-time jobs. Recreation/tourism accounted for over 65 percent of output/sales, 47 percent of income, and over 36 percent of employment in Monroe County.

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Chapter 1.

Visitation Estimates

The first step in estimating economic contribution of recreating visitors is the estimation of the number of visitors. In this chapter, the measurements estimated are first defined then summaries are provided of each of the estimated visitation estimates. Comparisons are made across seasons, mode of access, and year. A technical appendix details how all the estimates were produced. See Leeworthy and Vanasse 1999.

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

The sampling design used in the 1995-1996 Auto, Air, and Cruise Ship Survey made it possible to estimate the number of person-trips to the Florida Keys made by non-residents of Monroe County by season and mode of travel (access) to the area. By using information from the 1995-1996 survey and current figures with regards to traffic counts, air enplanements and cruise ship landings within Monroe County it is possible to derive updated visitation estimates for the region. The measurement "person-trips" must be differentiated from the number of visitors and the number of visitor days or "person-days."

Concept of Person-trip. For any given day, the number of person-trips and the number of visitors are the same. However, 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). The 1995-1996 survey was designed to interview visitors as they were leaving the Florida Keys (ending their visit), which allowed

it to count a visitor each time he/she visited the Florida Keys. This is the concept of a person-trip or visit. We can use these two terms interchangeably.

Number of Visitors. The number of person-trips (visits) and the number of visitors are two distinct 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 of all visitors. The 1995-1996 survey demonstrated that visitors sampled during the summer made on average 5.12 trips annually, while visitors surveyed during the winter period made an average of 2.42 trips annually. Therefore, dividing the total number of person-trips by the average number of visits yields an estimate of the separate number of visitors in a given period. For the purpose of this study, an estimate for the number of different visitors is not needed. However, an estimate for the number of person-trips (visits) to the Florida Keys is of value when discussing socioeconomic impacts to the region. This estimate makes it possible to extrapolate per person trip expenditures to total expenditures for a given period. Please note that the terms "person-trips" and "visits" are synonymous and will be used interchangeably throughout this report.

Number of Person-days. Another useful measurement is the number of person-days. Each visit (trip) may vary in length. For day-trips, the concept of a person-day and person-trip are thus equivalent. But many trips (visits) are for more than one day. According to the 1995-1996 survey, the average length of stay in the Florida Keys/Key West was 4.2 days per visit

and 6.35 days per visit, for the July-August 1995 and January-April 1996 sampling periods, respectively. 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 period. Conversely, dividing the estimate of the total number of person-days by the total number of days in the time period yields an estimate for the average number of visitors in the Florida Keys/Key West on 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 the Florida Keys/Key West on a given day. The concept of a functional population is used in planning for facilities and services in the Florida Keys/Key West, and for hurricane evacuation.

Summary: Person-trips (visits). Tables 1.1, 1.2, and 1.3 summarize the estimates of person-trips for the years 1995-1996, 1996-1997, and 1997-1998. The 1995-1996 table, developed prior to this report, was included in order to illustrate the changes in person-trips since monitoring efforts began in 1995. Person-trip estimates are distinguished according to type of visitor (e.g. recreating, non-recreating, and all), season, and mode of access.

June-November 1996. About 1.16 million person-trips (visits) were made by recreating visitors across all three modes of access to the Florida Keys/Key West. About 79.3 percent came by auto, 7.2 percent by air, and 13.5 percent by cruise ship. An additional 223 thousand person-trips (visits) were made by non-recreating visitors for a total of about 1.38 million person-trips (visits) by all visitors.

Table 1.1 Number of Person-trips (visits) and Person-days by Mode of Access and Season for 1995 -1996

Mode of Access	June - November 1995		Dec.1995 - May 1996		Annual Total	
	Person-trips	Person-days	Person-trips	Person-days	Person-trips	Person-days
Recreating Visitors						
1. Auto	984,046	4,172,355	1,013,656	6,913,134	1,997,702	11,085,489
2. Air	79,524	608,359	141,950	1,283,228	221,474	1,891,587
a) Key West	71,030	543,380	124,246	1,123,184	195,276	1,666,563
b) Marathon	8,494	64,979	17,704	160,044	26,198	225,023
3. Cruise Ship	108,434	108,434	212,878	212,878	321,313	321,312
Total	1,172,004	4,889,148	1,368,484	8,409,240	2,540,489	13,298,388
Ave.# of Visitors		26,717		45,952		36,334
Non-recreating Visitors						
1. Auto	217,508	922,234	294,162	2,006,185	511,670	2,928,419
2. Air	1,946	14,887	3,477	31,432	5,423	46,319
a) Key West	1,435	10,978	2,976	26,903	4,411	37,881
b) Marathon	511	3,909	501	4,529	1,012	8,438
3. Cruise Ship	-	-	-	-	-	-
Total	219,454	937,121	297,639	2,037,617	517,093	2,974,738
Ave.# of Visitors		5,121		11,135		8,128
All Visitors						
1. Auto	1,201,554	5,094,589	1,307,818	8,919,319	2,509,372	14,013,908
2. Air	81,470	623,246	145,427	1,314,660	226,897	1,937,906
a) Key West	72,465	554,357	127,222	1,150,087	199,687	1,704,444
b) Marathon	9,005	68,888	18,205	164,573	27,210	233,461
3. Cruise Ship	108,434	108,434	212,878	212,878	321,312	321,312
Total	1,391,458	5,826,268	1,666,123	10,446,857	3,057,581	16,273,125
Ave.# of Visitors		31,838		57,087		44,462

Table 1.2 Number of Person-trips (visits) and Person-days by Mode of Access and Season for 1996 -1997

Mode of Access	June - November 1996		Dec.1996 - May 1997		Annual Total	
	Person-trips	Person-days	Person-trips	Person-days	Person-trips	Person-days
Recreating Visitors						
1. Auto	920,527	3,903,034	1,029,829	7,023,434	1,950,356	10,926,468
2. Air	83,608	639,601	135,516	1,225,065	219,124	1,864,666
a) Key West	75,879	580,474	117,170	1,059,217	193,049	1,639,691
b) Marathon	7,729	59,127	18,346	165,848	26,075	224,975
3. Cruise Ship	156,262	156,262	319,904	319,904	476,166	476,166
Total	1,160,397	4,698,898	1,485,249	8,568,402	2,645,646	13,267,300
Ave.# of Visitors		25,677		47,079		36,349
Non-recreating Visitors						
1. Auto	220,912	936,667	314,793	2,146,888	535,705	3,083,555
2. Air	1,998	15,285	3,325	30,058	5,323	45,343
a) Key West	1,533	11,727	2,806	25,366	4,339	37,094
b) Marathon	465	3,557	519	4,692	984	8,249
3. Cruise Ship	-	-	-	-	-	-
Total	222,910	951,952	318,118	2,176,946	541,028	3,128,898
Ave.# of Visitors		5,202		11,961		8,572
All Visitors						
1. Auto	1,141,439	4,839,701	1,344,622	9,170,322	2,486,061	14,010,023
2. Air	85,606	654,886	138,841	1,255,123	224,447	1,910,009
a) Key West	77,412	592,202	119,976	1,084,583	197,388	1,676,785
b) Marathon	88,194	674,684	18,865	170,540	27,059	845,224
3. Cruise Ship	156,262	156,262	319,904	319,904	476,166	476,166
Total	1,383,307	5,650,849	1,803,367	10,745,349	3,186,674	16,396,198
Ave.# of Visitors		30,879		59,040		44,921

Table 1.3 Number of Person-trips (visits) and Person-days by Mode of Access and Season for 1997 -1998

Mode of Access	June - November 1997		Dec.1997 - May 1998		Annual Total	
	Person-trips	Person-days	Person-trips	Person-days	Person-trips	Person-days
Recreating Visitors						
1. Auto	1,159,861	4,917,811	1,021,441	6,966,228	2,181,302	11,884,038
2. Air	86,758	663,699	130,949	1,183,779	217,707	1,847,478
a) Key West	79,106	605,161	117,482	1,062,037	196,588	1,667,198
b) Marathon	7,652	58,538	13,467	121,742	21,119	180,279
3. Cruise Ship	203,967	203,967	319,518	319,518	523,485	523,485
Total	1,450,586	5,785,476	1,471,908	8,469,525	2,922,494	14,255,001
Ave.# of Visitors		31,615		46,536		39,055
Non-recreating Visitors						
1. Auto	283,312	1,201,243	320,109	2,183,143	603,421	3,384,386
2. Air	2,058	15,744	3,195	28,883	5,253	44,627
a) Key West	1,598	12,225	2,314	20,919	3,912	33,143
b) Marathon	460	3,519	381	3,444	841	6,963
3. Cruise Ship	-	-	-	-	-	-
Total	285,370	1,216,987	323,304	2,212,026	608,674	3,429,013
Ave.# of Visitors		6,650		12,154		9,395
All Visitors						
1. Auto	1,443,173	6,119,054	1,341,550	9,149,371	2,784,723	15,268,425
2. Air	88,816	679,442	134,144	1,212,662	222,960	1,892,104
a) Key West	80,704	617,386	119,796	1,082,956	200,500	1,700,341
b) Marathon	8,112	62,057	13,848	125,186	21,960	187,243
3. Cruise Ship	203,967	203,967	319,518	319,518	523,485	523,485
Total	1,735,956	7,002,463	1,795,212	10,681,551	3,531,168	17,684,014
Ave.# of Visitors		38,265		58,690		48,449

December '96– May '97. About 1.49 million person-trips (visits) were made by recreating visitors across all three modes of access to the Florida Keys/Key West. About 69.3 percent came by auto, 9.1 percent by air, and 21.5 percent by cruise ship. An additional 318 thousand person-trips (visits) were made by non-recreating visitors for a total of about 1.8 million person-trips (visits) by all visitors.

June '96 – May '97. About 2.65 million person-trips (visits) were made by recreating visitors across all three modes of access to the Florida Keys/Key West. About 73.7 percent came by auto, 8.3 percent by air, and 18 percent by cruise ship. An additional 541 thousand person-trips (visits) were made by non-recreating visitors for a total of about 3.2 million person-trips (visits) by all visitors.

June-November 1997. About 1.45 million person-trips (visits) were made by recreating visitors across all three modes of access to the Florida Keys/Key West. About 80 percent came by auto, 6 percent by air, and 14 percent by cruise ship. An additional 285 thousand person-trips (visits) were made by non-recreating visitors for a total of about 1.74 million person-trips (visits) by all visitors.

December '97 – May '98. About 1.47 million person-trips (visits) were made by recreating visitors across all three modes of access to the Florida Keys/Key West. About 69.4 percent came by auto, 9 percent by air, and 21.7 percent by cruise ship. An additional 323 thousand person-trips (visits) were made by non-recreating visitors for a total of about 1.8 million person-trips (visits) by all visitors.

June '97 – May '98. About 2.92 million person-trips (visits) were made by recreating visitors across all three modes of access to the Florida Keys/Key West. About 73.7 percent came by auto, 8.3 percent by air, and 18 percent by cruise ship. Non-recreating visitors made an additional 609 thousand person-trips (visits) for a total of about 3.5 million person-trips (visits) by all visitors.

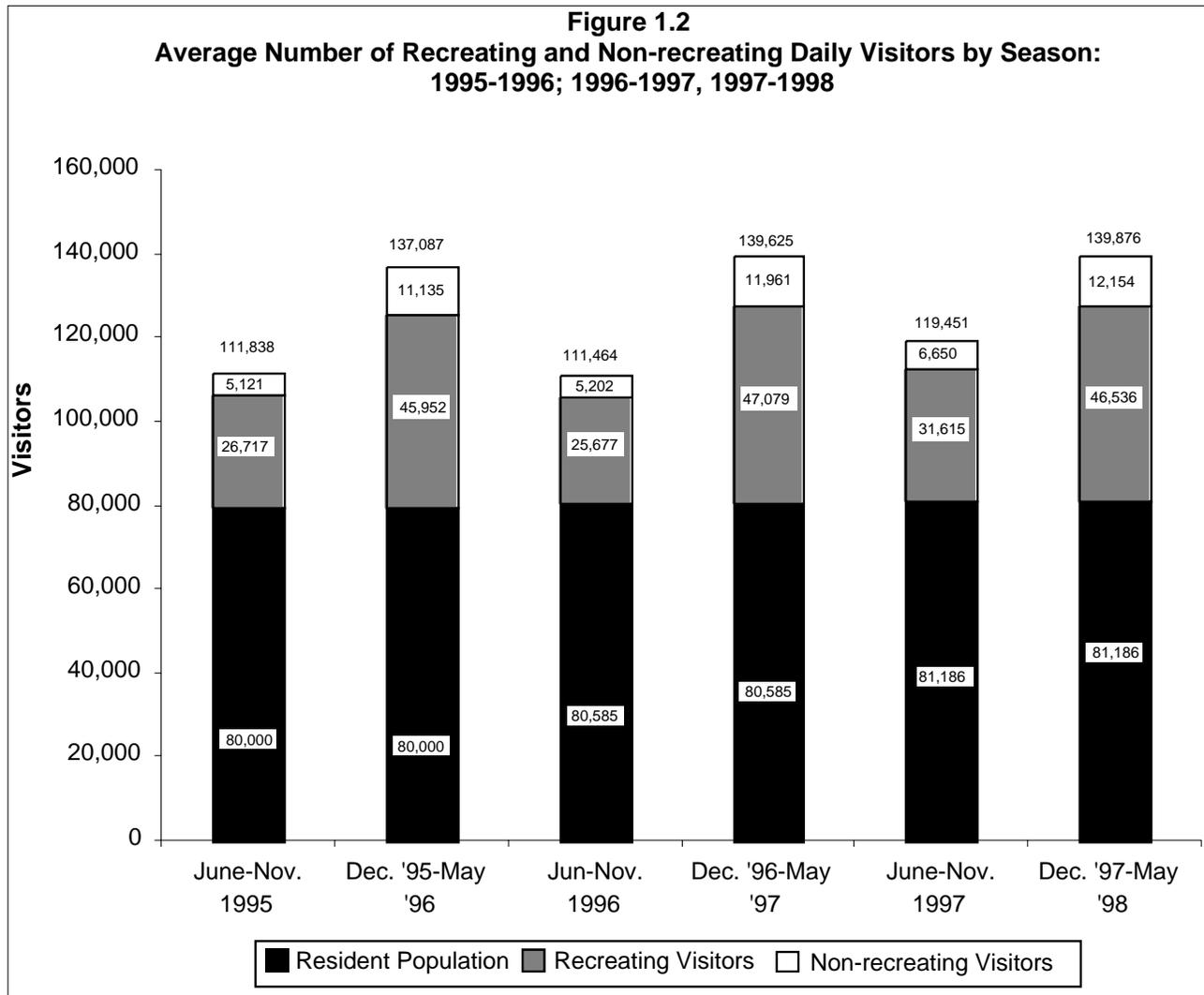
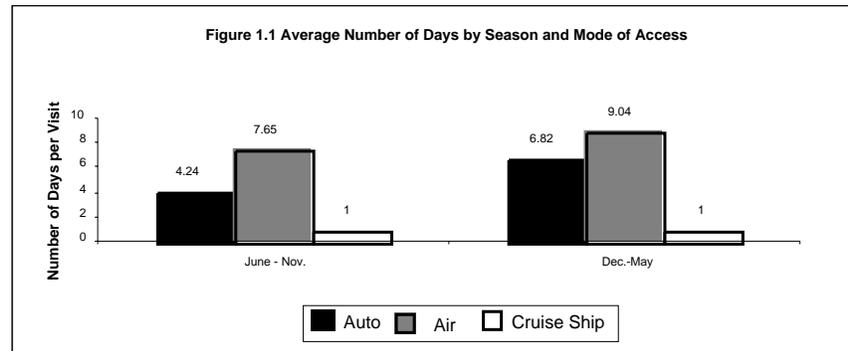
Summary: Person-days. The concept of person-trips (visits) is important for several purposes in the study. However, person-trips (visit) are not of constant length. The person-trip (visits) measurement does not tell us much about the relative congestion in the Florida Keys/Key West during different seasons. As Tables 1.1, 1.2, and 1.3 demonstrate, there is relatively little differences between the number of person-trips (visits) for June-November (summer) and

December-May (winter) seasons. But anyone familiar with the Florida Keys would readily attest to the fact that, on average, it is much busier during the winter season than the summer season.

Person-days is the appropriate measure to reflect the total demand placed on facilities and services by visitors to the Florida Keys/Key West. Person-days can be estimated for each season with measures obtained on the average length of stay for visitors by mode of access and season. Estimates of the average length of stay (measured in number of days) are summarized in Figure 1.1. These estimates were taken from the 1996 "Visitor Profiles: Florida Keys/Key West" report (Leeworthy and Wiley, 1996).

They were derived from Auto, Air and Cruise ship on-site samples, and represent length-of-stay estimates for recreating visitors only. Since non-recreating visitors were not interviewed, it was assumed that non-recreating visitors have the same average length of stay as recreating visitors. Since the probability of

engaging in recreation activity is related to the length of stay, the estimates for non-recreating visitors will most likely be overstated or biased upwards. The upward bias can be accounted for by developing a range of estimates based on reducing the average length of stay for non-recreating visitors by 50 percent.



The estimate using the assumption that non-recreating visitors, on average, stay about half the number of days of recreating visitors will called a lower bound estimate.

Person-days are derived by multiplying the estimate of person-trips (visits) by the average length of stay. During the June-November 1996 season, it was estimated that there was between 4.7 and 5.7 million person-days of visitation in the Florida Keys. This translates into between 25.7 and 30.9 thousand visitors in the Keys on an average day (see Figure 1.2). With a resident population of about 80.6 thousand, an average “functional population” is estimated to be between 106.3 and 111.5 thousand people. This is an estimate of the number of people requiring facilities and services in the Florida Keys/Key West on an average (not peak) day during this time period. This means that the ratio between tourists and residents was approximately 1:(2.6 to 3.1) (one tourist for every 2.6 to 3.1 residents).

For the December 1996 – May 1997 season, between 8.6 and 10.7 million person-days of visitation were estimated. This translates into between 47.1 and 59 thousand visitors in the Florida Keys/Key West on an average day during this season. Again, with a resident population of approximately 80.6 thousand, an average of between 127.7 and 139.6 thousand people per day is estimated during this period. (Tourist/resident ratio: 1:(1.4 to 1.7)).

During the June-November 1997 season, it was estimated that there were between 5.8 and 7 million person-days of visitation in the Florida Keys. This translates into between 31.6 and 38.3 thousand visitors in the Keys on an average day (see Figure 1.2).

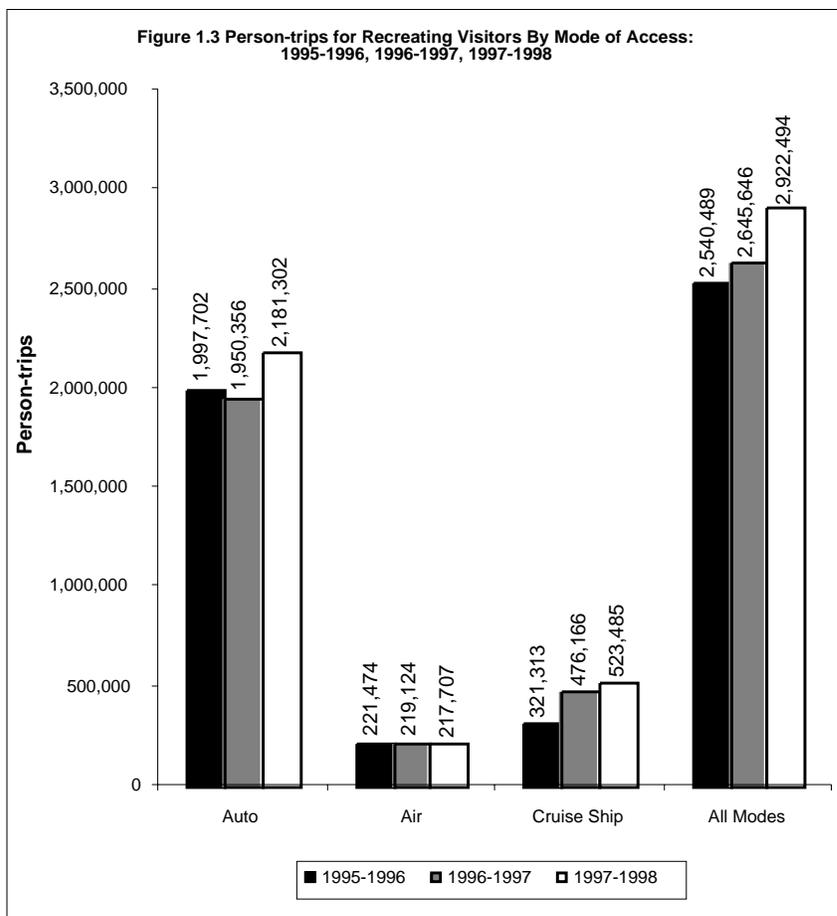
With a resident population of about 81.2 thousand, an average “functional population” is estimated to be between 112.8 and 119.8 thousand people. This is an estimate of the number of people requiring facilities and services in the Florida Keys/Key West on an average (not peak) day during this time period. (Tourist/resident ratio: 1:(2.1 to 2.6)).

For the December 1997– May 1998 season, between 8.5 and 10.7 million person-days of visitation were estimated. This translates into between 46.5 and 58.7 thousand visitors in the Florida Keys/Key West on an average day during this season. Again, with a resident population of approximately 81.2 thousand,

an average of between 127.7 and 139.9 thousand people per day is estimated during this period. (Tourist/resident ratio: 1:(1.4 to 1.7)).

Person-trips (visits) and Person-days from 1995-1996 to 1997-1998

Person-trips. For the year 1995-1996, approximately 2.54 million person-trips (visits) were made by recreating visitors across all three modes of access to the Florida Keys/Key West. For the year 1996-1997, that figure increased by 4 percent to 2.65 million. The year 1997-1998 saw a further 9.5 percent increase in person-trips, making the annual visitation by



From 1995-1996 to 1997-1998 visits to the Florida Keys have increased by 15 percent.

recreating visitors 2.92 million (see Figure 1.3). Since the first year of monitoring, person-trips (visits) to the Florida Keys/Key West have therefore increased by approximately 15 percent. The person-trip totals for all visitors (recreating and non-recreating), over that same period, have followed roughly the same pattern of increase.

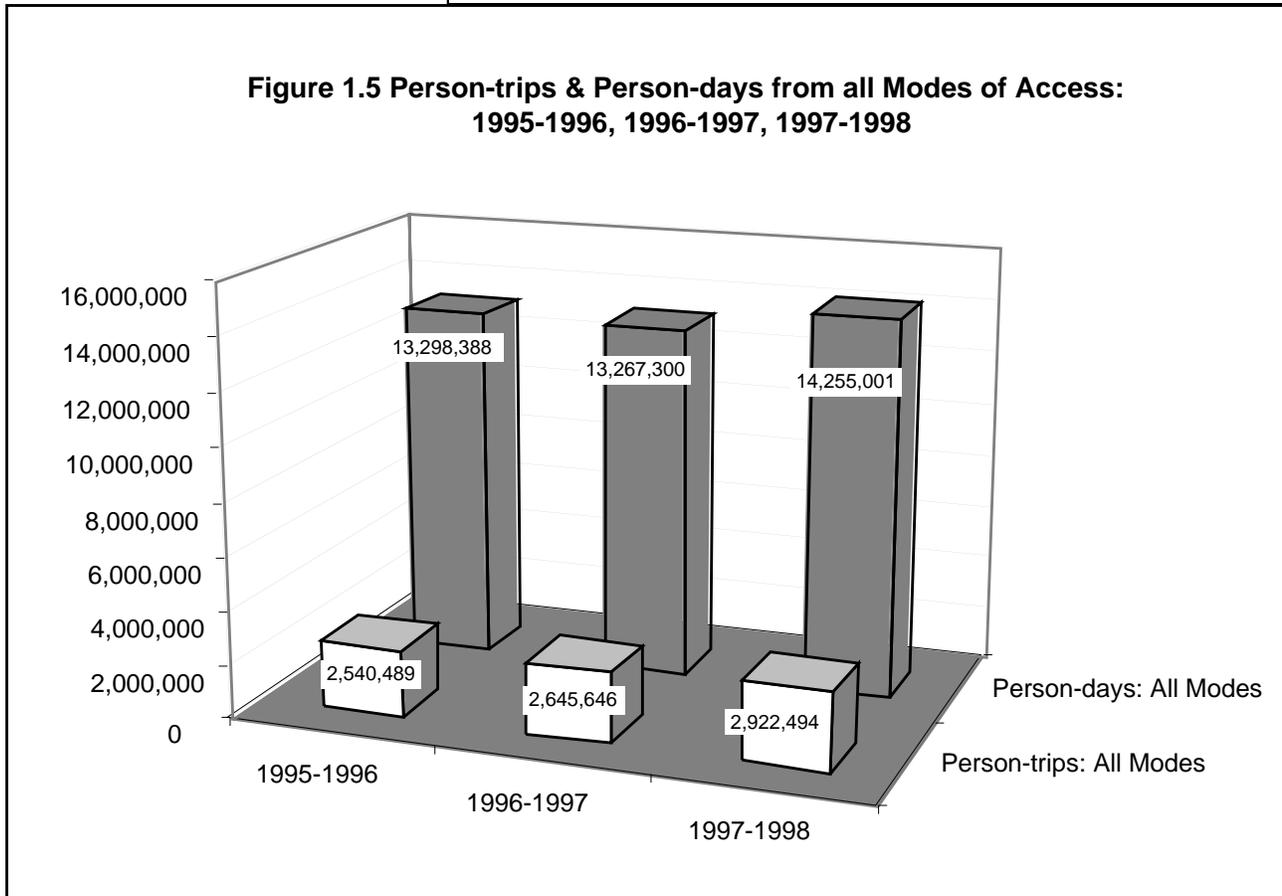
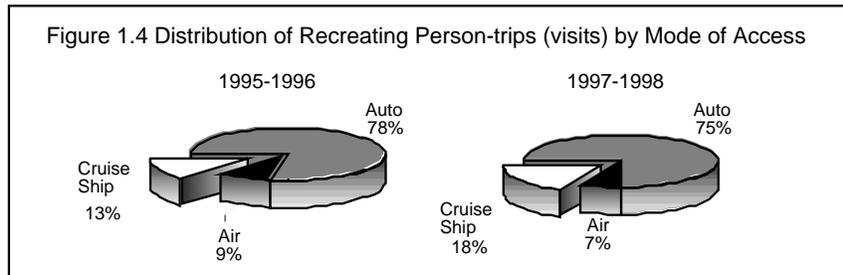
Interestingly, even though 1996-1997 and 1997-1998 saw overall increases in total person-trips, individual seasons have experienced slight decreases at different times. For example, the December – May season experienced a slight decrease, while the June-November season of 1997-1998 demonstrated a significant increase in person-trips over the previous year. Although these seasonal variations over time are to be expected, continued monitoring will enable us to determine if

trends are developing. In this particular case, we may see an indication that the summer season is attracting a greater proportion of annual person-trips. This phenomenon would then lead us to believe that the usual summer season trough in tourism to the Florida Keys may be lessening.

A closer look at person-trips over time, also demonstrates that the distribution of person-trips may be changing. As can be seen in Figure 1.3, person-trips by air have experienced a continued decrease since 1995-1996, person-trips from auto visitors dropped slightly in 1996-1997 but

rebounded the following year, and person-trips by cruise ship visitors have continued to increase. From 1995-1996 to 1997-1998, the annual proportion of person-trips made by air visitors decreased from 9 to 7 percent, the proportion of auto person-trips also decreased from 78 to 75 percent, while person-trips from cruise ship visitors increased from 13 to 18 percent (see Figure 1.4).

This may be of importance since air visitors stay longer per visit than auto and cruise ship visitors in all seasons (see Figure 1.1). In addition, the following section will demonstrate that air visitors also



spend more per visit than other visitors.

Person-days. As mentioned previously, person-trip data can help us gauge visitation estimates to the Florida Keys/Key West. However, person-day estimates are better indicators of the relative congestion within an area, and are therefore extremely useful when examining social and economic impacts from visitation over time. A closer look at person-days for 1996-1997 illustrates this point. Over the course of that year, the Florida Keys experienced an increase in person-trips, but person-days actually declined slightly within that same period (see Figure 1.5). This decline is due to changes in the composition of visitors to the Florida Keys. In 1996-1997, total person-trips increased from the previous year.

However, auto and air person-trips experienced a slight decrease, which was more than offset by an increase in person-trips (visits) from cruise ship visitors (see Figure 1.3). These minor changes in visitor distribution, actually caused total annual person-days to decline, since cruise ship visitors have much shorter stays than other auto or air visitors. It is therefore important to note that slight changes in the distribution of person-trips can have a considerable impact on annual person-day totals.

The person-day data also helps reveal the relative impacts from the three visitor groups. For example, someone solely looking at person-trip figures might overestimate the economic impact of cruise ship visitors. In 1997-1998 cruise ship visitors ac-

counted for 18 percent of all person-trips but only accounted for 4 percent of total person-days (see Figure 1.6).

Annually, the average daily number of visitors in the Florida Keys has continued to increase over the three-year study period (see Tables 1.1, 1.2, and 1.3). In 1995-1996, the number of visitors in the Florida Keys on a given day was about 44 thousand, the next year that figure increased to 45 thousand, and in 1997-1998 there were 48 thousand visitors in the Florida Keys on an average day. However, when looking at these figures by season, we observe year to year fluctuations (see Figure 1.7). This data also clearly shows that the average daily number of visitors in the Keys is much higher in the winter season than the summer season. In 1995-1996, the average number of visitors was 44 percent higher during the average winter season day. In 1996-1997, that figure went up to 47 percent and then dropped to 34 percent for 1997-1998. Over time these figures may help us determine if concerted efforts to promote summer visitation are yielding positive results.

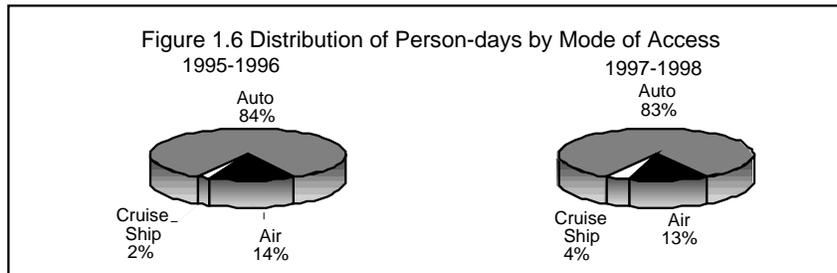
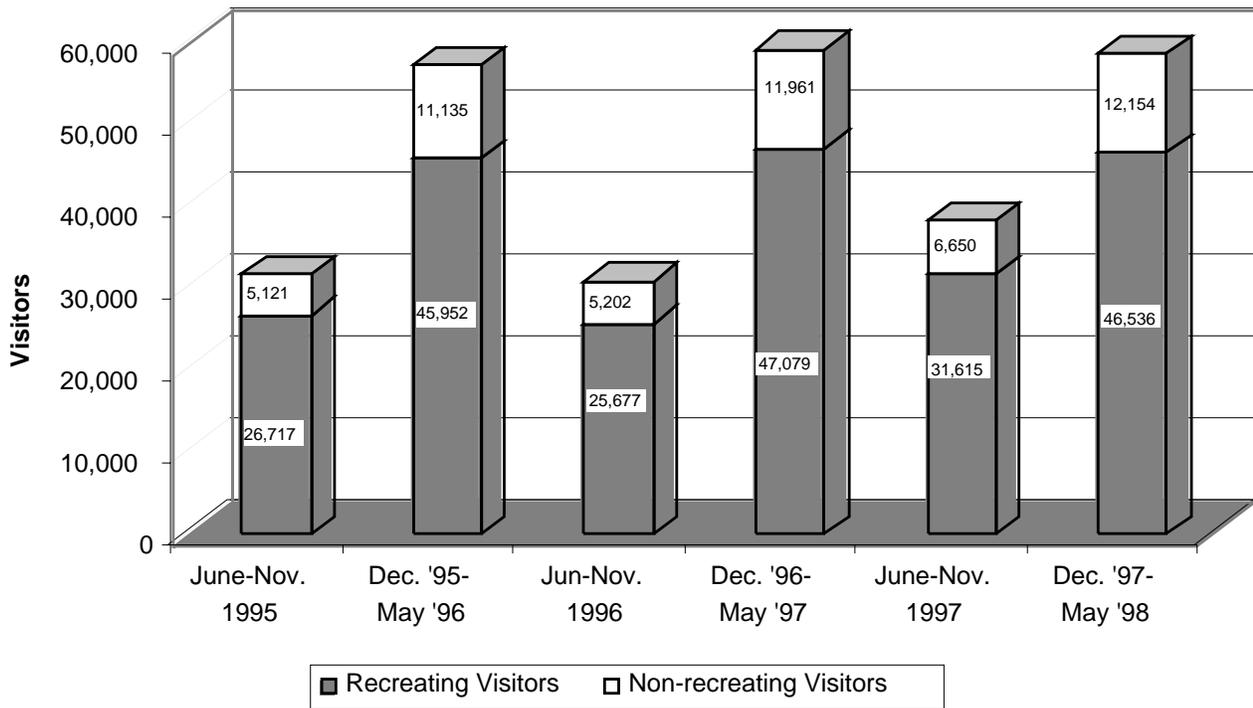


Figure 1.7 Average Number of Recreating and Non-recreating Daily Visitors by Season: 1995-1996, 1996-1997, 1997-1998



The average daily number of visitors in the Keys is much higher in the winter season than the summer season. In 1995-1996, the average number of visitors was 44 percent higher during the average winter season day. In 1996-1997 that figure rose to 47 percent and then dropped to 34 percent in 1997-1998

*Although the first section has presented estimates for both recreating and non-recreating visitors, **the remainder of this report focuses solely on recreating visitors.** Non-recreating visitors were not interviewed in the 1995-1996 survey; consequently, there are no expenditure estimates available for that group.*

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Chapter 2.

Visitor Expenditures and Economic Contribution to the Florida Keys

In 1995-1996, an expenditure mailback survey gathered detailed information on 47 spending categories. Information was also gathered on total trip expenditures, the amount spent in South Florida (Dade, Broward, and Monroe Counties), and the amount spent in the Florida Keys/Key West (Monroe County). Estimates were made for spending in Monroe County on a per person per day basis. Estimates were also made on a per person trip basis for the total trip, the amount spent in South Florida, and the amount spent in Monroe County. Combining per person per trip expenditure estimates with visitation (person-trips) estimates made it possible to estimate total expenditure which was then used to evaluate the economic contribution of visitors to South Florida and the Florida Keys/Key West. More detailed information about the mailback survey and the resulting information is available in "Visitor Profiles: Florida Keys/Key West" (Leeworthy and Wiley, 1996) and "Economic Contribution of Recreating Visitors to the Florida Keys/Key West" (English et al, 1996).

The objective, for this section of the report, is much narrower in scope than the 1995-1996 study, consisting solely of updating 1) total visitor spending in Monroe County, and 2) the resulting secondary economic contribution to the Monroe County economy in terms of output/sales, income and number of jobs. The objective is not to update all the information gathered in the previous survey. Therefore, this study does not

necessitate an extensive survey like the one utilized 1995-1996. The information gathered in the 1995-1996 provides valuable information concerning visitor-spending patterns, which is used in conjunction with up-to-date secondary data in order to yield the desired estimates for 1996-1997 and 1997-1998. While visitor-spending patterns may change over time, it is assumed that in the short-run these figures undergo only minor changes; therefore visitor spending figures gathered in 1995-1996 are the most appropriate and cost effective data available.

This section focuses on total visitor spending in Monroe County and the resulting economic contribution made to the economy. Several tables in the technical appendix (see Leeworthy and Vanasse, 1999) provide detailed information about the spending patterns for different visitors. However, it must be noted that the figures in the detailed expenditure tables were taken from the 1995-1996 survey and were simply adjusted to take inflation into account¹. These tables are essential in calculating total expenditure figures used in the assessment of visitor economic impact, but they are of little value when trying to evaluate changes in visitor spending across specific categories. As a result, this section will not take a detailed look at visitor spending (according to demographics, spending categories, geographic area, and season) as was done previously, because the results would essentially be the same as the ones for 1995-1996.

Definitions

When a local economy experiences an increase in spending by visitors, residents of that economy benefit by more than just the dollar amount of the goods and services

purchased. This happens because the businesses serving tourists must increase the amount of labor, goods, and services they buy in order to produce the additional goods and services. Thus, the businesses that have experienced increased tourist spending will have a ripple effect on the other businesses that supply them, and those businesses, in turn, affect others on down the supply chain. Economists call the initial spending activity the "direct effect," and the subsequent ripples are the "indirect" and "induced" effects. The indirect and induced effects are also called the multiplier impacts. See the box on the next page for detailed definitions of these and related terms.

Since we were not able to correctly calibrate the microcomputer IMPLAN input-output model for Monroe County, we used an alternative method that does not allow for the separate estimation of the indirect and induced effects nor does the method used allow for the estimation of value added. The methods used here are explained in English et al, 1996 and in Leeworthy 1996.

Summary of Economic Contribution Results

Synopsis of 1995-1996 Results

For the period June 1995 - May 1996, 2.54 million recreating visitors spent about \$1.2 billion in Monroe County. This had a total impact of \$1.33 billion in output/sales, \$506 million in income, and created almost 22 thousand full and part-time jobs. Recreation/tourism accounted for over 60 percent of output/sales, 45 percent of income, and over 46 percent of employment in Monroe County.

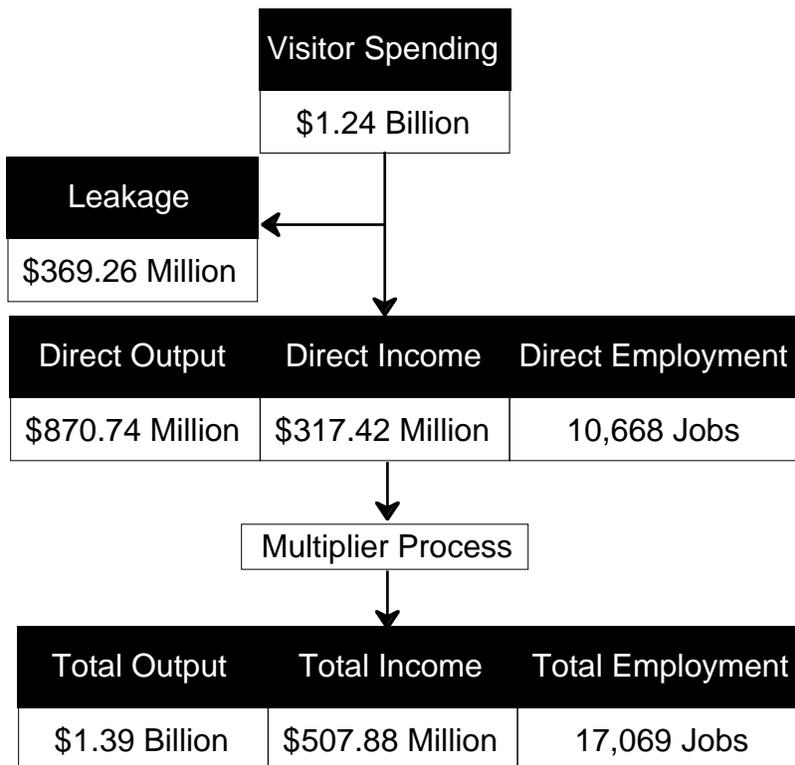
1996-1997 Results. Figure 2.1 summarizes the estimated eco-

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

conomic contribution of recreating visitors to the Florida Keys/Key West. From June 1996 to May 1997, visitors spent an estimated \$1.24 billion in Monroe County. Of these expenditures \$369.26 million, or roughly 30 percent, were spent to purchase inputs outside of Monroe County. An example of this may be telephone service. When a merchant sends a check outside the county to pay his phone bill, only a portion of this money remains in the county to support operations. Due to "leakage", the direct impact on the local economy is therefore less than the total initial spending.

The direct effects are the amount of the increased purchase of inputs used to manufacture or produce the final goods and services purchased by visitors. In the case of Monroe County, this translated to \$870.74 million in direct output (sales), \$317.42 million in direct income, and 10,688 jobs in direct employment.

Figure 2.1 Impact Process Due to Visitor Spending in Monroe County: 1996-1997



As mentioned previously, businesses that have experienced increased tourist spending will cause a ripple effect on the other businesses that supply them. This is represented in Figure 2.1 by the multiplier effect, which yields the total effects shown at the bottom of the figure. The total estimated output is \$1.39 billion, estimated income is \$507.88 million, and the estimated total employment is 17,069 jobs.

For these numbers to be meaningful, we must be able to compare them to the Monroe County baseline economy. Table 2.1 shows the official reported output (sales), income and employment for 1996-1997 in Monroe County. The official reported output for the survey period was about \$2.38 billion. The estimated total tourist contribution was \$1.39 billion, or about 59 percent. The total estimated tourist contribution to

Table 2.1 Estimated Economic Contribution of Recreating Visitors to Monroe County for 1996-1997

	Reported County Totals*	Estimated Tourist Contribution		
		Direct	Total	% of Economy
Output	\$ 2,379,443,786	\$ 870,743,510	\$ 1,393,189,617	58.55%
Income	\$ 1,150,711,000	\$ 317,424,717	\$ 507,879,547	44.14%
Employment	49,944	10,668	17,069	34.18%

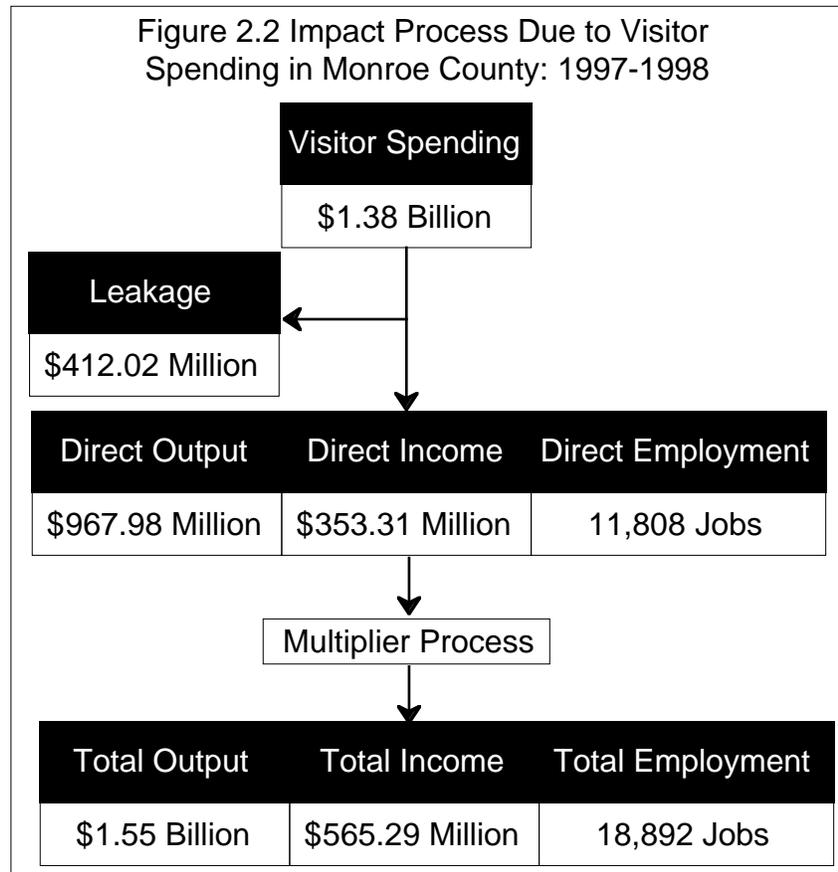
* Source (Output): Florida Department of Revenue.

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

income, \$507.88 million, was approximately 44 percent of the official reported income of \$1.15 billion. The official reported employment was 49,994 jobs. The estimated total tourist contribution to employment was 17,069 jobs, or about 34 percent. As we can see, tourist contribution to the economy of Monroe County is very significant. For details by season, see Appendix Tables A.1 and A.2.

1997-1998 Results. Figure 2.2 summarizes the estimated economic contribution of recreating visitors to the Florida Keys/Key West for the year 1997-1998. From June 1997 to May 1998, visitors spent an estimated \$1.38 billion in Monroe County. Of these expenditures \$412.02 million, or roughly 30 percent, was spent to purchase inputs outside of Monroe County. The amount that remained in the Monroe County economy translated to \$967.98 million in direct output (sales), \$353.31 million in direct income, and 11,808 jobs in direct employment. Once the multiplier effect is accounted for, the total estimated output is \$1.55 billion, estimated income is \$565.29 million, and the estimated total employment is 18,892 jobs.

Again, we must compare these numbers to the Monroe County baseline economy in order for them to be meaningful. Table 2.2 shows the official reported output (sales), income, and employment for 1997-1998. The official re-



ported output for the survey period was approximately \$2.36 billion. The estimated total tourist contribution was about \$1.55 billion, or about 66 percent. The total estimated tourist contribution to income, \$565.29 million, was about 47 percent of the official reported income of \$1.2 billion. The official reported employment was 51,571 jobs. The estimated total tourist contribution to employment was 18,892 jobs, or about 37 percent. For details by season, see Appendix Tables A.3 and A.4.

Recreation/Tourism Impact from 1995-1996 to 1997-1998

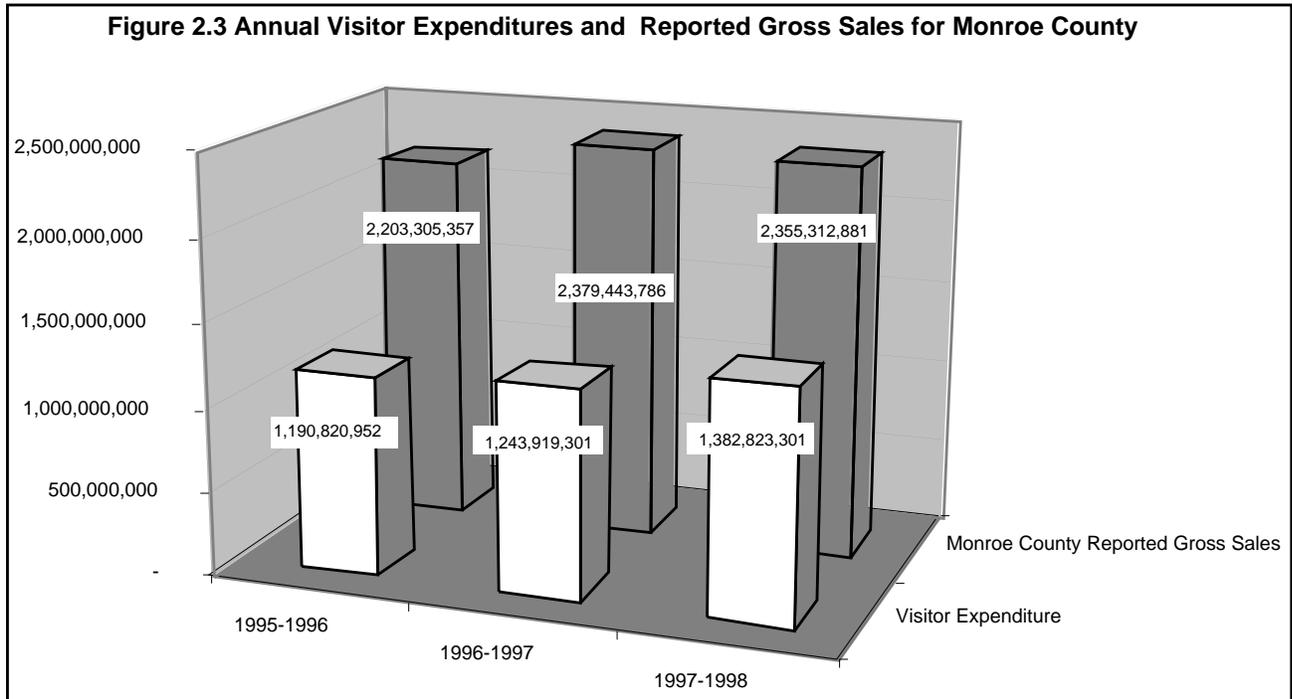
Over the last 3 years, visitor spending in the Florida Keys continued to increase at roughly the same pace as the rest of the local economy. Visitor expenditure was an estimated \$1.19 billion in 1995-1996, \$ 1.24 billion in 1996-1997, and about \$1.38 billion in 1997-1998.

Table 2.2 Estimated Economic Contribution of Recreating Visitors to Monroe County for 1997-1998

	Reported County Totals*	Estimated Tourist Contribution		
		Direct	Total	% of Economy
Output	\$ 2,355,312,881	\$ 967,976,311	\$ 1,548,762,097	65.76%
Income	\$ 1,200,279,500	\$ 353,307,147	\$ 565,291,435	47.10%
Employment	51,571	11,808	18,892	36.63%

* Source (Output): Florida Department of Revenue.

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



The impact of tourism sector on the Monroe County economy has remained relatively constant within that same period. The total output/sales resulting from tourism was an estimated 60.53 percent in 1995-1996, 58.55 percent 1996-1997, and 65.76 percent for 1997-1998. The proportion of income that can be accredited to tourism also underwent little change – 45.03 percent in 1995-1996, 44.14 percent the following year, and 47.10 in 1997-1998.

Employment resulting from tourism, is where we see the greatest amount of change. In 1995-1996, visitor spending created approximately 21,848 jobs, or 46.49 percent of Monroe County employment. In 1996-

1997, that figure dropped to 17,069 jobs or 34.18 percent, and later rose to 18,892 or 36.63 in 1997-1998. However it must be noted that the drop from 1995-1996 to 1996-1997 can be partly attributed to a change in the way the BEA classifies the different types of employment, and the way this study calculates annual employment.² When we recalculated the 1995-1996 employment by averaging the summer and winter employment, as was done for 1996-1997 and 1997-1998, we get a 1995-1996 employment estimate of 18,620 which was 39.6 percent of Monroe County employment.

Visitor Expenditures and Employment Impacts

As mentioned previously, this section only focuses on total visitor spending estimates. Visitation estimates for 1996-1997 and 1997-1998 were combined with the 1995-1996 expenditure estimates (adjusted for inflation) and yielded the figures presented in the following tables.

Tables 2.3 and 2.4 display the relative economic impact of Auto, Air, and Cruise Ship visitors for 1996-1997 and 1997-1998 by displaying their respective spending in the local economy and the number of direct wage and salary jobs they create. It should be noted that the employment figures

Table 2.3 Total Expenditures and Direct Jobs (Wage & Salary) Created by Mode of Access and Season for 1996-1997

Mode of Access	June- November 1996	Dec.'96 - May '97	Annual Total	% of Total Across All Modes
Auto				
Expenditures	\$ 401,019,478	\$ 561,295,146	\$ 962,314,623	77.36%
Direct Jobs (Wage & Salary)	5,814	8,283	7,049	77.66%
Air				
Expenditures	\$ 93,203,151	\$ 142,043,520	\$ 235,246,671	18.91%
Direct Jobs (Wage & Salary)	1,365	2,083	1,724	18.99%
Cruise Ships				
Expenditures	\$ 12,988,907	\$ 33,369,100	\$ 46,358,007	3.73%
Direct Jobs (Wage & Salary)	166	443	304	3.35%
Total Expenditure: All Modes			\$ 1,243,919,301	
Total Direct Jobs: All Modes			9,077	

Table 2.4 Total Expenditures and Direct Jobs (Wage & Salary) Created by Mode of Access and Season for 1997-1998

Mode of Access	June- November 1997	Dec.'97 - May '98	Annual Total	% of Total Across All Modes
Auto				
Expenditures	\$ 518,595,188	\$ 572,597,639	\$ 1,091,192,826	78.91%
Direct Jobs (Wage & Salary)	7,519	8,450	7,985	79.20%
Air				
Expenditures	\$ 99,206,573	\$ 141,034,566	\$ 240,241,139	17.37%
Direct Jobs (Wage & Salary)	1,453	2,069	1,761	17.46%
Cruise Ships				
Expenditures	\$ 17,327,265	\$ 34,062,071	\$ 51,389,336	3.72%
Direct Jobs (Wage & Salary)	221	452	336	3.34%
Total Expenditure: All Modes			\$ 1,382,823,301	
Total Direct Jobs: All Modes			10,082	

only state direct jobs created, and do not take into account either proprietors' employment or the employment from the multiplier process. As can be seen from the tables, the impact of auto visitors far exceeds that of air and cruise ship visitors. For the two years presented above, auto visitors were responsible for about 77 to 79 percent of total visitor spending and employment. Air visitors accounted for approximately 17 to 19 percent of expenditure and labor impacts, and cruise ships visitors had the smallest economic

impact by contributing to between 3 and 4 percent of total expenditures and direct jobs created.

Per Person Per Trip Economic Contribution

At the aggregate level, auto visitors clearly have a greater economic impact than air and cruise ship visitors do. However, Table 2.5 offers further insights into the relative economic importance between air, auto and cruise ship visitors. Table 2.5 displays

per person per trip expenditures and the employment impacts that the respective visitors have within the Florida Keys/Key West for 1997-1998. These data can be of value when making decisions regarding such things as, tourism promotion and infrastructure investment.

On an individual basis, air visitors contribute significantly more to the Monroe economy than any other visitors. In 1997-1998, it is estimated that individual air visitors, on average, spent \$1,103.51

Table 2.5 Per Person Per Trip Economic Contribution by Mode of Access: 1997-1998

Mode of Access	June- November 1997	Dec.'97 - May '98	Weighted Annual Average
Air			
Expenditures	\$ 1,143.49	\$ 1,077.02	\$ 1,103.51
Direct Jobs (Wage & Salary)	0.0167	0.0157	0.0160
Auto			
Expenditures	\$ 447.12	\$ 560.58	\$ 500.25
Direct Jobs (Wage & Salary)	0.0065	0.0083	0.0073
Cruise Ships			
Expenditures	\$ 84.99	\$ 106.60	\$ 98.17
Direct Jobs (Wage & Salary)	0.0011	0.0014	0.0013

during their visit to Monroe County. Auto visitors averaged about \$500 in expenditures, while cruise ships visitors contributed an estimated \$98 per person per trip. Since direct job figures are derived from expenditure data, we can also see that individual air visitors have a significantly greater employment impact than either auto or cruise ship visitors.

Conclusions and Future Monitoring Efforts

The tourism industry continues to grow in the Florida Keys/Key West and the tourism industry's relative contribution to the local Monroe County economy has remained constant. Most of the growth, however, has been in cruise ship visitors and, since these visitors never get outside of Key West, the growth has not been evenly distributed throughout the Florida Keys. Given that only a small percentage of cruise ship visitors participate in activities that involve direct use of the area's natural resources, analysis of this trend from a political-economic perspective suggests that this trend is a movement away from sustainable natural resource-based tourism. Cruise ship visitors do bring dollars into the local economy and do provide tax dollars to local

government. This will in turn develop a business-political constituency that may not support public and private investments that would support sustainable natural resource-based tourism, since their customers do not directly depend on quality natural resources to a significant extent for their visits. Also, given that the cruise ship based economy is concentrated in Key West, it may further drive a wedge between Key West business and government and other areas of the Florida Keys further fueling the trend towards incorporation throughout the Florida Keys.

Ecological monitoring information from the Florida Keys National Marine Sanctuary (FKNMS) is now available for only one year, but initial information all seems positive, and given the growth in the tourist economy, it would appear that the economy and environment of the Florida Keys/Key West are both improving. The monitoring programs for the FKNMS (both the ecological and socioeconomic) are still in their early stages (especially the socioeconomic). These programs provide the basic information for all stakeholders to judge the benefits of public and private

investments in environmental protection and restoration that are fundamental to sustaining the environment and economy of Monroe County.

Endnotes

¹ For the lodging category, the inflation rate was not used. Data for the average price per room in Monroe County were available from the Tourist Development Council. The adjustment for this category was made accordingly.

² For employment data after 1994, BEA classification changes attribute a greater proportion of total employment to the category "other" and a lesser proportion of total employment to the category "proprietors". This affects the total income to wages and salaries ratio which in turn affects the derivation of total employment impacts for Monroe County. For 1995-1996, total employment was equal to the largest number among summer and winter employment. For 1996-1997 and 1997-1998, total employment was derived by averaging summer and winter employment.

For further details about expenditures and economic impacts, please consult the Appendix.

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Appendix



Table A.1 Estimated Economic Contribution of Recreating Visitors to Monroe County: June - November 1996

	Reported County Totals*	Estimated Tourist Contribution		
		Direct	Total	% of Economy
Output	1,055,127,589	355,048,075	568,076,920	53.84%
Income	470,059,341	128,601,203	205,761,926	43.77%
Employment	40,454	8,634	13,814	34.15%

* Source (Output): Florida Department of Revenue

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

Table A.2 Estimated Economic Contribution of Recreating Visitors to Monroe County: Dec. 1996 - May 1997

	Reported County Totals*	Estimated Tourist Contribution		
		Direct	Total	% of Economy
Output	1,324,316,197	515,695,436	825,112,697	62.30%
Income	590,982,866	188,823,513	302,117,621	51.12%
Employment	59,434	12,702	20,323	34.19%

* Source (Output): Florida Department of Revenue

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

Table A.3 Estimated Economic Contribution of Recreating Visitors to Monroe County: June - November 1997

	Reported County Totals*	Estimated Tourist Contribution		
		Direct	Total	% of Economy
Output	1,154,541,561	444,590,318	711,344,509	61.61%
Income	543,659,741	161,220,389	257,952,622	47.45%
Employment	47,033	10,768	17,229	36.63%

* Source (Output): Florida Department of Revenue

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

Table A.4 Estimated Economic Contribution of Recreating Visitors to Monroe County: Dec. 1997 - May 1998

	Reported County Totals*	Estimated Tourist Contribution		
		Direct	Total	% of Economy
Output	1,200,771,320	523,385,993	837,417,588	69.74%
Income	565,397,259	192,086,758	307,338,814	54.36%
Employment	56,109	12,847	20,555	36.63%

* Source (Output): Florida Department of Revenue

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