

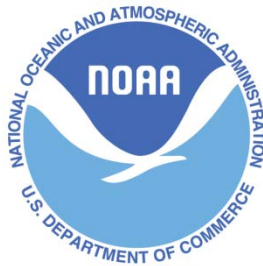
Linking the Economy and the Environment of Florida
Keys/Key West

Technical Appendix: Sampling Methodologies
and Estimation Methods Applied
to the Florida Keys/Key West
Visitor Surveys 2007-08

December 2010

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National Oceanic and Atmospheric Administration
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Linking the Economy and the Environment of Florida Keys/Key West

Technical Appendix: Visitors

2007-08

Funding Partners:

NOAA/NOS

- Office of National Marine Sanctuaries (ONMS) HQ and Florida Keys National Marine Sanctuary
- National Centers for Coastal Ocean Science
- Coral Reef

The Nature Conservancy's Florida Keys Program

Working Partners:

The Monroe County Tourist Development Council (TDC)

ONMS/TSPD

- Project Leadership
- Develop survey sample design/questionnaires
- Provide estimation of visitation
- Provide economic analysis

Bicentennial Volunteers, Inc.

- Recruit volunteers for winter tourist interviews

Local Chamber of Commerce/TDC

- Provide list of sample sites for customer survey
- Enlist business support to survey at sites

University of Massachusetts-Amherst, Human Dimensions of Marine and Coastal Ecosystems Program

- Manage tourist survey efforts
 - o Data collection
 - o Database construction
 - o Quality analysis/quality control of data
 - o Provide data analysis
 - o Produce reports

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Preface

This document was prepared to provide detailed documentation of how various measurements were derived as reported for visitors for the Florida Keys/Key West in “Visitor Profiles: Florida Keys/Key West 2007-08” (Leeworthy, Loomis and Paterson 2010) and “Economic Contribution of Recreating Visitors to the Florida Keys/Key West 2007-08” (Leeworthy and Ehler 2010a). In addition, the non response bias analysis and sample weighting for the estimates made in “Importance and Satisfaction Ratings by Recreating Visitors to the Florida Keys/Key West 2007-08 (Leeworthy and Ehler 2010b) are documented here. As a technical appendix, this document is intended for researchers that want to do further analyses with the visitor data and for researchers that may want to replicate the study in the future.

Chapter 1 provides details on the sampling methodologies and methods for estimating the total number of visitors or person-trips (visits) and the number of person-days of visitation. Chapter 2 documents the sample weighting applied to both the on-site and mail back samples. Chapter 3 provides details on the results of analyses to determine the existence of non response bias in the various mail back surveys. The corrections for non response bias are included in the sample weighting explained in Chapter 2. Chapter 4 documents the methods used to estimate participation rates and the total number of participants in each activity by season and district. Chapter 4 also documents how intensity of use was estimated for a select list of 39 activities by district and season. Intensity of use was defined in terms of the number of separate person-days of activity. Finally, Chapter 5 documents the methods used for estimating the economic contribution visitors had on the Monroe County economy.

All project data and documentation is available on CD-ROM in a variety of database and statistical package formats. To obtain copies contact:

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This document and all other project documents can be obtained on the World Wide Web at the following address:

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

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Chapter 1. Method of Estimating the Number of Person-Trips (visits) and Person-days

The sampling design used in the Auto, Air, Cruise Ship and Ferry Survey allows us 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 Florida Keys. The measurement, “person-trips,” must be differentiated from the number of visitors and the number of visitor 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 we expand the time period for estimation beyond one day, then the possibility exists that the same person can make more than one trip (visit). Because we interview visitors as they are leaving the Florida Keys (ending their visit), we count someone each time they visit 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 measurements that have long been a source of confusion. The State of Florida’s Division of Tourism (now Visit Florida) has long confused these two measurements. For the two measurements to be equivalent requires that for the given time period of estimation that 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 the Florida Keys, visitors during the January – April 2008 sampling period, made on average 1.98 trips annually, while visitors during the June - August 2008 sampling period made on average 2.58 trips annually. By dividing the total number of person-trips (visits) by the average number of trips (visits), for any given time period, we get an estimate of the separate number of visitors. That is, the separate number of different people that visited the Florida Keys during the given time period. We did not obtain the separate number of trips (visits) made by visitors each sampling season, so we cannot derive and estimate of the number of separate visitors by season. We can make such an estimate for the annual time period; however, the estimate is not needed for purposes of this study. For purposes of this study, we want an estimate of the total number of person-trips (visits) during each season. This estimate allows us to extrapolate average trip expenditures per person into total expenditures during the given time period for estimation. Also, when we estimate the percent of visitors that engaged in a certain recreation activity, we can extrapolate this into an estimate of the total number of visitors that did the activity during that time period.

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 thus equivalent. But many trips (visits) are for more than one day. In the Florida Keys, the average length of stay was 4.94 days per visit and 3.51 days per visit, for the January – April 2008 and June – August 2008 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 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 the Florida Keys 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 the Florida Keys on a given day. The concept of a functional population is used for planning for facilities and services and in the Florida Keys, hurricane evacuation.

Sampling Methodology

Auto, Air, Cruise Ship and Ferry Sample

The Florida Keys has a special geographic feature which allowed us to design a sample to estimate the total number of person-trips (visits). The Florida Keys are a chain of islands located at the southern end of the Florida peninsula. Access is limited to one highway (U.S. 1), two airports (Marathon and Key West), and the cruise ship and ferry docks in Key West. People can also come by private boat, and they do, but this is less than one percent of total visitation.

Another fact that makes estimation of person-trips possible is that the Florida Department of Transportation (FLDOT) collects hourly traffic counts on the northbound lane of U.S. 1 at points where people are exiting the Keys. The airports also maintain air enplanement counts on all flights leaving the

Keys, and the Port Authority maintains passenger counts for all cruise ships docking at or anchoring off Key West and the Ferries operating between Miami, Marco Island and Naples to Key West.

Restricted access and availability of total count data allowed us to design a sample from which we could estimate both person-trips (visits) and person-days. We did this for two seasons. We chose January – April 2008 as a sampling period that would be representative of visitation during the December 2007 through May winter season and June – August 2008 as representative of the June through November 2008 summer season.

We used a stratified random sample design, stratified across mode of access (Auto, Air, Cruise Ship and Ferry). Within mode of access, we sampled during different days of the week and times of the day for the auto and air samples. The cruise ships and ferries were on fixed schedules. For cruise ships, we attempted to get a representative sample of the different size ships that visit Key West. For the ferries, we sampled on different days of the week by type of day (weekday and weekend). We over-sampled the air, cruise ship, and ferry passengers to ensure adequate sample sizes to estimate important project measurements separately for these two groups. A priori, we had little information on how to exactly stratify by mode of access, since no one regularly estimates the number of person-trips (visits) by mode of travel for the Florida Keys. So our sample quotas by mode of access are not likely to result in exact sample stratification (i.e., not the same distribution that exists in the real population). Therefore, post sample weighting will be required based on the estimates of the total number of person-trips (visits) by mode of access.

Auto Survey. We randomly pulled vehicles from the traffic stream in the northbound right lane of U.S. 1 (at approximately the 105 mile marker). The parking lot of the Thom Thumb (at the corner of Taylor Drive and U.S. 1) was used during both sampling periods. A permit was obtained from the FLDOT to conduct the survey. Both survey sites met requirements for safely getting vehicles off and back onto the highway. Traffic signs were placed on both sides of the northbound lanes. The first set read “TRAFFIC SURVEY 1,000 FEET”, the second set read “TRAFFIC SURVEY 500 FEET”, and the third set read “BE PREPARED TO STOP”. Police units, with their emergency lights on, were placed on both sides of the northbound lane to aid in slowing traffic. One officer pointed at a vehicle (vehicle chosen randomly) and directed the vehicle into the parking lot. Traffic cones were deployed to help direct the traffic into the parking lot. In the parking lot, the driver of the vehicle was greeted by a member of the Bicentennial Volunteers, Inc. during the winter season and by a locally hired person for the summer season. The volunteer/hired personnel screened occupants of the vehicle using several criteria designed to select only non-residents of Monroe County that were leaving the Florida Keys (ending their visit), and had participated in some recreation activity (See Exhibit 1, Tally Sheet and Exhibit 2, the Blue Card containing the list of recreation activities). Those not meeting the screening criteria or that refused to be interviewed were quickly sent back onto the highway and tallied in the appropriate column of the Tally Sheet. The original design used in 1995-96 called for using the information obtained on the tally sheet to translate the number of vehicles to the number of vehicles with recreating visitors. Because the officers did not consistently follow selection criteria (some avoided choosing known residents), we had to use an alternative method to avoid significant biases.

There are a couple of other design aspects that required special treatment. First, for purposes of safety, the Monroe County Sheriffs recommended that we only pull vehicles from the right lane. U.S. 1 is a four lane highway along the portion we sampled. Second, not all types of vehicles would be eligible to be pulled into the parking lots (tractor trailers, large commercial vehicles and buses). We did pull motor homes and vehicles pulling trailers (both travel trailers and boats). In order to be able to translate vehicle counts from the FLDOT on U.S. 1 into vehicles containing eligible visitors, we needed to be able to estimate the proportion of vehicles that were eligible to be selected by the officers and we needed to be able to test whether traffic in the right lane was any different from traffic in the left lane (type of vehicle). We gathered the necessary information using Tally Sheet number two (Exhibit 3).

Exhibit 4 is a calendar showing the dates and times the highway survey was conducted during both the January – April 2008 and June – August 2008 sampling periods. The highway survey was conducted on 36 days during the January – April 2008 period and on 30 days during the June – August

2008 period (originally 40 days were planned for each sampling period to account for contingencies—bad weather, emergencies requiring Monroe County Sheriff’s to respond, or problems with personnel). Note that our sampling times were restricted to the hours between 9 am and 4 pm. This is extremely important because inter-county commuters (i.e., people that live inside Monroe County but work outside Monroe County and people that work inside Monroe County but live outside Monroe County) are not accounted for in this sample design. We had to supplement our sample design with estimates of inter-county commuters from the Census of Inter-county Commuters (U.S. Department of Commerce, Bureau of Economic Analysis, 1996).

There were two key issues for which many members of the community expressed concern about the conduct of the highway survey; police intimidation and traffic delays and/or accidents. **Neither problem occurred** due to the design and professional implementation by the Monroe County Sheriffs Department. The only person (s) that came into contact with the occupants of vehicles were the Bicentennial Volunteers or hired survey personnel located in the parking lots. Traffic was never stopped on the highway. Vehicles were selected and directed into a parking lot.

Residents of Monroe County, non-qualifying visitors, or visitors that refused the interview were never delayed more than one minute maximum. For most residents, the delay was only a few seconds. An interesting finding was that the survey worked “best” when traffic was relatively heavy. That is, even during the heaviest traffic periods, the traffic survey never resulted in a traffic backup.

Person-trips-Auto Survey: Recreating Visitors. We need five basic measurements in order to estimate the number of person-trips by recreating visitors accessing the Florida Keys by the highway:

1. Total traffic counts.
2. Proportion of traffic that was eligible to be pulled from the traffic stream.
3. Proportion of vehicles that was pulled from the traffic stream that contained visitors that were non-residents of Monroe County, that were ending their visit to the Florida Keys, and that did some recreation activity during their visit.
4. Number of eligible visitors per vehicle.
5. Number of inter-county commuters.

Total traffic counts. Total traffic counts are available for U.S. 1 on an hourly basis from the FLDOT. Exhibit 5 shows an example for January 2008. We obtained this information from the FLDOT for December 2007 through November 2008. Table A.1.1 summarizes the traffic counts by sampling period or season and by type and time of day.

Proportion of traffic pulled. Exhibit 3 shows the tally sheet used for obtaining the information on the proportion of the traffic that was eligible to be pulled from the traffic stream. Tour buses, school buses, commercial pick-ups and vans, and commercial and government trucks were not eligible to be pulled from the traffic stream. Fifteen minute samples were taken alternatively between the left and right northbound lanes on U.S. 1. The tally person counted every vehicle in the lane during each fifteen-minute period. On a typical sampling day, four to five samples were taken on each lane. This allowed us to test for differences in the distribution by type of vehicle between the left and right lanes (remember, we only pulled vehicles from the right lane). We used a non-parametric test (Kolmogorov-Smirnoff, two-sample test). The test showed no difference between the left and right lanes. Because the differences were not significant, we used the average of the left and right lane proportions on the total traffic counts on U.S. 1. Table A.1.2 summarizes the proportions of eligible sample-type vehicles by season and type and time of day.

Proportion of vehicles with recreating visitors. Exhibit 1 shows the tally sheet used for gathering the necessary information for estimating the proportion of eligible vehicles that contained recreating visitors who were ending their trip to the Florida Keys. This proportion is defined as all exiting visitors who did some recreation activity (column 7 + column 8) divided by the total number of vehicles pulled. Note that it would also be possible to estimate of the proportion of vehicles containing visitors no matter what they were doing (participants and non-participants in recreation activity). This estimate is obtained by adding columns 6, 7 and 8 and then dividing by the total number of vehicles pulled. However, as noted above, not

all the Monroe County Sheriffs implementing the random selection followed the protocols and avoided selecting residents thus biasing the results using the tally sheet. So we had to use an alternative approach.

The alternative approach for estimating the amount of eligible vehicles with recreating visitors used the trends in eligible vehicles from 1995-96 to 2007-08 by season, type of day and time of day. First, traffic count data was summarized by year, season, and type of day and time of day (see Table A.1.3). Next growth rates were calculated over the 1995-96 to 2007-08 time period by type and time of day for each season. The percent of eligible vehicles (from Tally sheet in Exhibit 3) for each season by type of day and time of day were then summarized. Multiplying the proportion of eligible vehicles times the traffic counts yields estimates of the number of eligible vehicles.

Growth rates of eligible vehicles from 1995-96 to 2007-08 were then calculated by season, type of day and time of day and applied to the 1995-96 counts of eligible vehicles with recreating visitors yielding estimates of the number of vehicles with recreating visitors (Table A.1.3).

Of concern here is a consistency check on our estimates to account for times we didn't survey (before 9am and after 4:00 pm). These would be the times when commuters were going in and out of the area. We use the Census of Inter-county commuters to get an estimate of the number of people commuting inside and outside the county. The time of day for concern would be the weekday afternoon traffic with workers leaving to go home. Table A.1.3 shows that the growth in this traffic of eligible vehicles is consistent with the growth in commuters found in the Census of Inter-county commuters.

Number of people per vehicle. Exhibit 6 shows the questionnaire that was used for the Auto, Air, and Cruise Ship Survey. This form took about 3-5 minutes to complete. The information relevant to the estimation of person-trips (visits) is the number of people in the vehicle. The number of people per vehicle can also be further broken down into the number of people age 16 and older and the number less than 16 years of age. For the January – April 2008 sampling period there were an average of 2.38 recreating visitors per vehicle and, for the June – August 2008 sampling period there was an average of 3.00 recreating visitors per vehicle.

Estimation of Auto Recreating Visitor Person-trips. In Table A.1.4, we show the calculations for estimating the number of person-trips by recreating visitors for each season. The number of eligible vehicles with recreating visitors is multiplied by the average number of people per vehicle. This yields estimates of the number of person-trips, by season, for recreating visitors.

During the December 2007 – May 2008 time period (winter season), we estimate over 987.4 thousand person-trips (visits) by the auto mode. For the June – November 2008 time period (summer season), we estimate almost 1.8 million person-trips by the auto mode. The annual total is over 2.06 million person-trips.

Person-trips Auto Survey: Non-recreating Visitors. Our alternative estimates for person-trips of recreating visitors did not use the tally sheet in Exhibit 1 because as we noted above the bias that would have resulted from the failure to follow sampling protocols in randomly selecting vehicles. This bias would not affect the proportion of vehicles pulled containing non-recreating visitors. So we used the proportion of non-recreating visitor to recreating visitors from the tally sheets for each season and type of day and time of day. Here we used an estimate of 1.5 people vehicle for vehicles containing non-recreating visitors. Table A.1.4 shows the calculations.

During the December 2007 – May 2008 time period (winter season), we estimate over 38 thousand person-trips by the auto mode. For the June – November time period (summer season), we estimate over 199 thousand person-trips by the auto mode. The annual total is over 237 thousand person-trips.

Person-trips Auto Survey: All Visitors. Combining our estimates for recreating and non-recreating visitors, we estimate over 1.02 million person-trips for the winter season and about 1.28 million person-trips for the summer season for an annual total of over 2.3 million person-trips. Table A.1.6 shows the changes in Auto visitation over the 12-year period from 1995-96 to 2007-08.

Airport Survey – Key West. There are two airports in the Florida Keys, Key West and Marathon. However, in the 2007-08 visitor seasons only Key West was receiving commercial air traffic. All flights leaving Key West are carrying passengers leaving the Florida Keys. Exhibit 7 is a calendar showing the days and times we sampled flights and interviewed visitors for both the winter and summer seasons. Even though we sampled on different days of the week and different times of the day as in the highway survey, we did not develop separate estimates of the proportions of passengers by type and time of day. The reason is the air enplanement data is not available by type and time of day. A total of 29 days were sampled during the January – April 2008 time period and 28 days were sampled during the June – August 2008 time period.

During the winter season the Bicentennial Volunteers conducted all the interviews at the Key West Airport. During the summer season, local people were hired to conduct the interviews. The interviewers' set-up outside the terminal area lounges before the security gates. All passengers were screened using the Air Tally Sheet (Exhibit 8). Those that qualified for an interview and agreed to the interview were interviewed using the same questionnaire as the highway survey (Exhibit 6).

We only need two measurements from the airport samples to estimate person-trips (visits) for visitors accessing the Florida Keys by the air mode of travel; 1) the number of air enplanements (people getting on planes leaving the Florida Keys) and 2) the proportion of passengers that were recreating visitors.

Exhibit 9 shows the air enplanement counts for each month for the study period. Exhibit 8 shows the tally sheet we used to gather the information necessary for estimating the proportion of passengers that were recreating visitors. Multiplying the estimated proportion of recreating visitors by the number of air passenger enplanements yields an estimate of the number of person-trips (visits) by the air mode of travel. Table A.1.7 shows the estimates for recreating visitors, Table A.1.8 shows the estimates for non-recreating visitors, and Table A.1.9 shows the totals for all visitors.

Person-trips Air Survey: Recreating Visitors. During the December 2007 – May 2008 winter season, we estimate that 64.27% of the air enplanements out of the Key West Airport were recreating visitors. This translates into an estimated 80,284 person-trips. During the June – November 2008 summer season, we estimate that 72.35% of the air enplanements out of Key West Airport were recreating visitors. This translates into an estimated 63,719 person-trips. For the entire visitor year of December 2007 – November 2008, we estimate that 67.32% of Key West Airport enplanements were recreating visitors and this translates into an estimated 156,847 person-trips (Table A.1.7).

Person-trips Air Survey: Non-recreating Visitors. During the December 2007 – May 2008 winter season, we estimate that 7.6% of the air enplanements out of the Key West Airport were non-recreating visitors. This translates into an estimated 11,012 person-trips. During the June – November 2008 summer season, we estimate that 1.29% of the air enplanements out of Key West Airport were non-recreating visitors. This translates into an estimated 1,136 person-trips. For the entire visitor year of December 2007 – November 2008, we estimate that 5.21% of Key West Airport enplanements were non-recreating visitors and this translates into an estimated 12,149 person-trips (Table a.1.8).

Person-trips Air Survey: All Visitors. During the December 2007 – May 2008 winter season, we estimate 104,140 person-trips were made by all visitors via Key West Airport. During the June – November 2008 summer season, we estimate 64,855 person-trips. For the entire visitor year of December 2007 – November 2008, we estimate 168,996 person-trips by all visitors via Key West Airport (Table A.1.9).

Cruise Ship Survey. All the cruise ships land their passengers in Key West. Smaller ships are able to dock at Mallory Square and large ships at Truman Annex Pier B, or at the Navy Mole. Some larger ships anchor in the Key West channel and ferry passengers to shore.

Cruise ships have fixed schedules. Ships docked at Mallory Square must depart before the daily sunset celebration. Most cruise ships are in Key West for half-a-day or less. The Key West Port Authority keeps data on the number of passengers on each ship that lands in Key West (Exhibit 12). One shipping agent

handles all the cruise ships that land in Key West, Caribe Nautical. Due to post 9/11 Homeland Security concerns, our interviewers had to undergo security clearances to get access to the cruise ship docks to conduct interviews with passengers before they boarded the ships at the end of their stay. To be consistent with the auto, air and ferry surveys, we had to identify the proportion of passengers that were non-residents of Monroe County that did at least one recreation activity. For this we used the Tally sheet in Exhibit 11. Exhibit 10 shows the calendars for cruise ships that were surveyed during the winter and summer seasons. During the winter season, 25 days of sampling were conducted, while 20 days were done during the summer season.

We only need two measurements from the cruise ship samples to estimate person-trips (visits) for visitors accessing the Florida Keys by the cruise ship mode of travel; 1) the number of cruise ship passengers and 2) the proportion of passengers that were recreating visitors.

Exhibit 12 shows the cruise ship passenger counts from the Key West Port Authority for each month for the study period by docking area. Exhibit 11 shows the tally sheet we used to gather the information necessary for estimating the proportion of passengers that were recreating visitors. Multiplying the estimated proportion of recreating visitors by the number of cruise ship passengers yields an estimate of the number of person-trips (visits) by the cruise ship mode of travel. Table A.1.10 shows the estimates for recreating visitors, Table A.1.11 shows the estimates for non-recreating visitors, and Table A.1.12 shows the totals for all visitors.

Person-trips Cruise Ship Survey: Recreating Visitors. During the December 2007 – May 2008 winter season, we estimate that 96.48%% of the cruise ship passengers were recreating visitors. This translates into an estimated 448,456 person-trips. During the June – November 2008 summer season, we estimate that 94.25% of the cruise ship passengers were recreating visitors. This translates into an estimated 258,532 person-trips. For the entire visitor year of December 2007 – November 2008, we estimate that 95.65% of cruise ship passengers were recreating visitors and this translates into an estimated 706,989 person-trips (Table A.1.10).

Person-trips Cruise Ship Survey: Non-recreating Visitors. During the December 2007 – May 2008 winter season, we estimate that 1.48% of the cruise ship passengers were non-recreating visitors. This translates into an estimated 6,879 person-trips. During the June – November 2008 summer season, we estimate that 0.57% of the cruise ship passengers were non-recreating visitors. This translates into an estimated 1,564 person-trips. For the entire visitor year of December 2007 – November 2008, we estimate that 1.14% of cruise ship passengers were non-recreating visitors and this translates into an estimated 8,443 person-trips (Table A.1.11).

Person-trips Cruise Ship Survey: All Visitors. During the December 2007 – May 2008 winter season, we estimate 455,335 person-trips were made by all visitors via Cruise Ships. During the June – November 2008 summer season, we estimate 260,096 person-trips. For the entire visitor year of December 2007 – November 2008, we estimate 715,432 person-trips by all visitors via Cruise Ships (Table A.1.12). The remaining difference between total cruise ship passengers and our estimate of all visitors via cruise ship are accounted for by residents of Monroe County that were passengers. As noted above, we eliminated them from our visitor populations as we had done for the auto, air and ferry surveys.

Ferry Passenger Survey. The ferry service to Key West did not exist in 1995-96. During our visitor year December 2007 – November 2008, there were three ferries running daily trips to Key West from Miami, Fort Myers and Marco Island. The Miami and Marco Island ferries did not run during the summer season. The ferries run on fixed schedules each day and there is a passenger lounge where people wait for the ferry and it presented an excellent place to interview passengers before leaving Key West at the end of their visit. As with the cruise ships, our interviewers had to have security clearances to be able to access the passenger lounge to conduct interviews. Permission to interview was granted by the Key West Port Authority.

Passenger counts were obtained from the Key West Port Authority and the Key West Chamber of Commerce. Exhibit 13 shows the ferry passenger counts by month for our survey time periods. Two columns are presented. One is labeled “Counts”, which are counts of total traffic both into and out of Key

West. The Key West Chamber of Commerce provided us the estimate of “Passengers”, which are the number of counts divided by two. These are the numbers we want for estimating person-trips (visits) by ferry passengers.

As with the auto, air, and cruise ship surveys, we employed a tally sheet to determine the proportion of ferry passengers that were non-residents of Monroe County and did at least one recreation activity while in Key West. The tally sheet is shown in Exhibit 14. To estimate person-trips for recreating and non-recreating visitors, the number of passengers is multiplied by the proportion of passengers that were recreating visitors and non-recreating visitors. Tables A.1.13 shows the calculations for recreating visitors and Table A.1.14 shows the calculations for non-recreating visitors.

Person-trips Ferry Passenger Survey: Recreating Visitors. During the December 2007 – May 2008 winter season, we estimate that 97.58%% of the ferry passengers were recreating visitors. This translates into an estimated 53,624 person-trips. During the June – November 2008 summer season, we estimate that 86.11% of the ferry passengers were recreating visitors. This translates into an estimated 23,430 person-trips. For the entire visitor year of December 2007 – November 2008, we estimate that 93.78% of ferry passengers were recreating visitors and this translates into an estimated 77,054 person-trips (Table A.1.13).

Person-trips Ferry Passenger Survey: Non-recreating Visitors. During the December 2007 – May 2008 winter season, we estimate that 1.61% of the ferry passengers were non-recreating visitors. This translates into an estimated 885 person-trips. During the June – November 2008 summer season, we estimate that 0.69% of the ferry passengers were non-recreating visitors. This translates into an estimated 188 person-trips. For the entire visitor year of December 2007 – November 2008, we estimate that 1.31% of ferry passengers were non-recreating visitors and this translates into an estimated 1,073 person-trips (Table A.1.14).

Person-trips Ferry Passenger Survey: All Visitors. During the December 2007 – May 2008 winter season, we estimate 54,509 person-trips were made by all visitors via the ferries. During the June – November 2008 summer season, we estimate 23,618 person-trips. For the entire visitor year of December 2007 – November 2008, we estimate 78,127 person-trips by all visitors via the ferries (Table A.1.15). The remaining difference between total ferry passengers and our estimate of all visitors via the ferries are accounted for by residents of Monroe County that were passengers. As noted above, we eliminated them from our visitor populations as we had done for the auto, air and cruise ship surveys.

Summary of Person-trips (visits)

Table A.1.16 summarizes our estimates of person-trips (visits) by type of visitor (e.g. recreating, non-recreating and all visitors), by season (December 2007 – May 2008 winter season and the June 2008 – November 2008 summer season), and by mode of access (e.g., auto, air, cruise ship or ferry). Annual totals for the December 2007 – November 2008 visitor season are also presented.

December 2007 – May 2008 (winter season). We estimate that over 1.58 million person-trips (visits) were made by recreating visitors across all four modes of access to the Florida Keys/Key West. About 62.4% came by auto, 5.9% by air (Key West), 28.3% by cruise ship, and 3.4% by ferry. An additional 56,803 visits were made by non-recreating visitors. Almost 67% came by auto, 19.4% by air (Key West), 12% by cruise ship, and 1.5% by ferry. For all visitors, we estimate over 1.6 million person-trips across all four modes of access; about 62.5% by auto, 6.35% by air (Key West), 27.8% by cruise ship and 3.3% by ferry.

June 2008 – November 2008 (summer season). We estimate that over 1.42 million person-trips (visits) were made by recreating visitors across all four modes of access to the Florida Keys/Key West. About 76% came by auto, 4.5% by air (Key West), 18% by cruise ship, and 1.6% by ferry. An additional 202 thousand visits were made by non-recreating visitors. About 98.6% came by auto, 0.56% by air (Key West), 0.77% by cruise ship, and 0.09% by ferry. For all visitors, we estimate over 1.6 million person-trips across all four modes of access; about 78.6% by auto, 4% by air (Key West), 16% by cruise ship and 1.45% by ferry.

December 2007 – November 2008 (Annual). We estimate that over 3 million person-trips (visits) were made by recreating visitors across all four modes of access to the Florida Keys/Key West. About 69% came by auto, 5% by air (Key West), 23.5% by cruise ship, and 2.5% by ferry. An additional 259 thousand visits were made by non-recreating visitors. Almost 92% came by auto, 4.7% by air (Key West), 3% by cruise ship, and less than one-half a percent by ferry. For all visitors, we estimate over 3.2 million person-trips across all four modes of access; about 70% by auto, 5% by air (Key West), 22% by cruise ship and 2% by ferry.

Person-days

As discussed above, the concept of a person-trip (visit) is important for several purposes in the study. However, person-trips (visits) are not of constant length. The person-trip (visit) measurement doesn't tell us much about the relative congestion in the Keys during different seasons. As Table A.1.16 shows, there is very little difference between the estimated numbers of person-trips (visits) for the December 2007 – May 2008 winter season and the June - November 2008 summer season (1.639 million versus 1.627 million). But anyone familiar with the Florida Keys would readily attest to the fact that, on average, it is much busier during the winter than 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. We can estimate person-days for each sampling period and 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 Table A.1.17. These estimates were derived from the Auto, Air, Cruise Ship, Ferry on-site samples. These estimates are for recreating visitors. Since we did not interview non-recreating visitors, we had to assume that non-recreating visitors have the same average length of stay as recreating visitors. Since the probability of engaging in a recreation activity is related to the length of stay, our estimates for non-recreating visitors will most likely be overstated or biased upwards. We can account for this upward bias 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 be called a lower bound estimate.

On average, auto and air visitors have longer lengths of stays during the winter season (6.51 days per visit during the winter season for auto visitors versus 3.95 days per visit for summer season auto visitors, and 8.63 days per visit for air visitors during the winter season versus 6.4 days per visit for summer season air visitors). Seasonal visitors (those who stay for two to six months) who visit during the winter season influence these averages. Cruise ship visits do not vary in length, they are always day visits. Ferry visitors are to a large extent day visitors, but some do stay overnight. The average length of stay only varies from 2.50 days per visit in the winter to 2.97 days per visit in the summer, and even though the relationship between length of stay and season does not hold for ferry visitors, the difference is not statistically significant.

Person-days are derived by multiplying the estimates of person-trips (visits) by the average length of stay. Table A.1.18 summarizes the results for different types of visitors (e.g., recreating, non-recreating, and all), by mode of access, and by season.

Summary of Person-days

December 2007 – May 2008 (winter season). We estimate that over 7.8 million person-days of visitation were made by recreating visitors across all four modes of access to the Florida Keys/Key West. About 82.2% came by auto, 10.3% by air (Key West), 5.7% by cruise ship, and 1.7% by ferry. An additional 328 thousand person-days of visitation were made by non-recreating visitors. About 75% came by auto, 22% by air (Key West), 2% by cruise ship, and less than one percent by ferry. For all visitors, we estimate over 8.1 million person-days across all four modes of access; about 82% by auto, 10.8% by air (Key West), 5.5% by cruise ship and 1.7% by ferry.

June 2008 – November 2008 (summer season). We estimate that over 5 million person-days of visitation were made by recreating visitors across all four modes of access to the Florida Keys/Key West. About 85% came by auto, 8% by air (Key West), 5% by cruise ship, and 1.4% by ferry. An additional 796 thousand person-days of visitation were made by non-recreating visitors. About 98.8% came by auto, 0.9% by air (Key West), 0.2% by cruise ship, and 0.07% by ferry. For all visitors, we estimate almost 5.8 million person-days of visitation across all four modes of access; about 87% by auto, 7% by air (Key West), 4.5% by cruise ship and 1.2% by ferry.

December 2007 – November 2008 (Annual). We estimate that over 12.8 million person-days of visitation were made by recreating visitors across all four modes of access to the Florida Keys/Key West. About 83.4% came by auto, 9.5% by air (Key West), 5.5% by cruise ship, and 1.6% by ferry. An additional 1.12 million person-days of visitation were made by non-recreating visitors. Almost 92% came by auto, 7% by air (Key West), 0.75% by cruise ship, and 0.25% by ferry. For all visitors, we estimate over 13.94 million person-days of visitation across all four modes of access; about 84% by auto, 9% by air (Key West), 5% by cruise ship and 1.5% by ferry.

Functional Population

Above it was noted that one of the use of the person-days estimates is to assess the “functional population” of Monroe County/Florida Keys. This is the population relevant to planning facilities and services and includes both residents and visitors that are in the area on an average day or on a peak day.

December 2007 – May 2008 (Winter Season). During the winter season, it was estimated that there were between 7.97 and 8.14 million person-days of visitation. This translates into between 43.6 and 44.5 thousand visitors in the Florida Keys/Key West on an average day. With a resident population of about 72.25 thousand, an average “functional population” is estimated to be between 115.85 and 116.75 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 the winter season.

June – November 2008 (Summer Season). For the summer season, between 5.4 and 5.8 million person-days of visitation were estimated. This translates into between 29.5 and 31.7 thousand visitors in the Florida Keys/Key West on an average day during this season. Again, with a resident population of about 72.25 thousand, an average of between 101.75 and 103.95 thousand people per day is estimated for the summer season.

As a comparison, the Price Waterhouse and Wallace Roberts & Todd (1991) prepared estimates of the “functional population” for Monroe County for the years 1985 and 1990 and forecasted this to the year 2010. If we use their 1995 estimate of a peak day compared with our 1995-96 estimate of the functional population and hold the ratio of functional population to peak day constant at 1.3, we estimate the peak day functional population of between 150.6 and 151.8 thousand during the winter season and between 132.28 and 135.14 thousand during the summer season.

Consistency Checks

Several consistency checks were performed to validate our estimates of total visitation. From sample data and our visitation estimates, it was possible to estimate total lodging expenditures, and expenditures on food & beverages. For each of these items, official reported statistics exist with which we can compare our estimates to gauge whether they are reasonably accurate. This is only a rough test since the official reported statistics may contain under-reporting or other inaccuracies. An additional check was done using the “Capacity Utilization Method”, which will be described below. In each cases, our estimates would seem to be very accurate.

Lodging and Food & beverage Expenditures. Using our visitation estimates and our estimates of average expenditures per person per trip for lodging and food & beverages, we estimate total expenditures and compare these to reported sales from the State of Florida’s Department of Revenue for Monroe County

corresponding to our time period of estimation (December 2007 – November 2008). For lodging (private lodging establishments only since government owned facilities revenues are not in those reported by the Department of Revenue), we estimated over \$588.684 million compared to almost \$680.927 million reported by the Department of Revenue. Thus using our estimates imply that recreating visitors account for 86.45 percent of reported lodging expenditures. If we include the public lodging expenditures, our estimate is 93.82% of lodging expenditures. For food & beverages, we estimate recreating visitors accounted for 58.67 percent of reported sales and if we assume about 10 percent under reporting due to tips (which are included in visitor spending), our estimate is 53.34 percent of all sales. These calculations are summarized in Table A.1.19.

For lodging, we would expect a high percent of lodging expenditures would be accounted for by recreating visitors, but not 100 percent, since there are non-recreating visitors. Recreating visitors accounted for 92 percent of total person-trips by visitors and 91.93 percent of all visitor person-days. Overnight recreating visitors accounted for 59.82% of all visitor person-trips and 81.85% of all visitor person-days. So we believe our lodging estimates are consistent with the sales data reported by the Florida Department of Revenue.

For food & beverage expenditures at bars and restaurants, we must remember that residents of Monroe County and workers commuting into the county also eat and drink at local restaurants and bars and so recreating visitor spending should be a much lower percent of spending than lodging. Our estimates ranging from 53.34 to 58.67 percent of reported sales seem to be consistent with what we would expect.

Capacity Utilization Method of Estimating Visitation – Reconciliation with TDC and Key West Chamber of Commerce Estimates. The Monroe County Tourist Development Council (TDC) subscribes to Smith Travel Services, which provides the number of lodging units and the vacancy rates or utilization rates of all lodging units by types of units. The TDC and the Key West Chamber of Commerce use the information to estimate the number of overnight visitors. They then supplement this with known cruise ship passengers, who are all day visitors, and also add in other day visitors using ratios of day visitors to overnight visitors from the NOAA 1995-96 study. We conducted a reconciliation of the two approaches to test our estimates. The TDC/Key West Chamber of Commerce (referred to as TDC Estimates here) are for the calendar year January – December 2008. Our visitor year is December 2007 – November 2008, so we used our data to also estimate equivalent numbers for the January – December 2008 calendar year for comparison.

Table A.1.20 summarizes the reconciliation. In step 1, we show the “original TDC estimate, which estimates 2,169,595 person-trips (visits) by overnight visitors; 401,369 person-trips (visits) by “Day Trippers”; and 739,218 person-trips by cruise ship passengers for a total of 3,310, 152 person-trips.

In step 2, the NOAA estimates are presented. We estimated 2,194,137 person-trips (visits) by overnight visitors; 319,832 person-trips (visits) by “day trippers”; and 712,703 person-trips by cruise ship passengers for a total of 3,226,672 person-trips (visits).

Step 3 shows the differences between the TDC and NOAA estimates. There is only a 1.12% difference in overnight visitor estimates with the NOAA estimates higher. There is a more significant difference for “Day Trippers” with the NOAA estimate almost 25.5% lower. For cruise ships, the NOAA estimate is 3.72 percent lower than the TDC estimate.

For “Day Tripper” and cruise ship passengers, who are also day visitors, there are known reasons for the differences in the NOAA and TDC estimates. For “Day Trippers”, the TDC estimate is based on the NOAA 1995-96 study ratio of day trippers to overnight visitors. The new 2007-08 study updates this ratio. For the cruise ships, the TDC estimate counts all cruise ship visitors, while the NOAA estimates exclude permanent residents of Monroe County that were on the cruise ships. Step 4 (Table A.1.20) revises the TDC estimates to take account of these two facts.

Step 5 (table A.1.20) shows the differences between the TDC and NOAA estimates once we adjust the TDC estimates in Step 4. The 1.12% difference for overnight visitors is the same (1.12%), while the differences for Day trippers falls to 1.10% and there is no difference in the cruise ship passengers estimate.

The overall difference is less than one percent (0.87%). Thus we think our estimates of visitation are very accurate.

Table A.1.1 Total Auto Traffic Counts on U.S. 1
(MM106.5, Northbound Lanes) By Sampling
Period Season and Type and Time of Day

Sampling Period or Season/ Type and Time of Day	Traffic Counts	Percent
January - April 2008	1,470,244	100.00
Week Day Mornings	376,637	25.62
Week Day Afternoons	637,887	43.39
Weekend Mornings	140,527	9.56
Weekend Afternoons	315,193	21.44
June - August 2008	1,043,579	100.00
Week Day Mornings	237,870	22.79
Week Day Afternoons	424,970	40.72
Weekend Mornings	112,102	10.74
Weekend Afternoons	268,637	25.74
December 2007 - May 2008	2,145,051	100.00
Week Day Mornings	532,241	24.81
Week Day Afternoons	913,311	42.58
Weekend Mornings	216,252	10.08
Weekend Afternoons	483,247	22.53
June - November 2008	1,920,882	100.00
Week Day Mornings	461,024	24.00
Week Day Afternoons	791,433	41.20
Weekend Mornings	206,174	10.73
Weekend Afternoons	462,251	24.06
January - May 2008	1,818,687	100.00
Week Day Mornings	453,780	24.95
Week Day Afternoons	775,954	42.67
Weekend Mornings	179,964	9.90
Weekend Afternoons	408,989	22.49
June - December 2008	2,247,978	100.00
Week Day Mornings	549,012	24.42
Week Day Afternoons	940,848	41.85
Weekend Mornings	234,735	10.44
Weekend Afternoons	523,383	23.28

Source: Florida Department of Transportation

Table A.1.1.A. Total Auto Traffic Counts on U.S. 1
 (MM106.5, Northbound Lanes)
 Extrapolation Months

Extrapolation Months	Traffic Counts	Percent
December 2007 & May 2008	674,807	100.00
Week Day Mornings	155,604	23.06
Week Day Afternoons	275,424	40.82
Weekend Mornings	75,725	11.22
Weekend Afternoons	168,054	24.90
May 2008	348,443	100.00
Week Day Mornings	77,143	22.14
Week Day Afternoons	138,067	39.62
Weekend Mornings	39,437	11.32
Weekend Afternoons	93,796	26.92
Sept., Oct., & Nov. 2008	877,303	100.00
Week Day Mornings	223,154	25.44
Week Day Afternoons	366,463	41.77
Weekend Mornings	94,072	10.72
Weekend Afternoons	193,614	22.07
September - December 2008	1,204,399	100.00
Week Day Mornings	311,142	25.83
Week Day Afternoons	515,878	42.83
Weekend Mornings	122,633	10.18
Weekend Afternoons	254,746	21.15

Source: Florida Department of Transportation

Table A.1.2 Proportions of Eligible Sample-type Vehicles on U.S. 1 by Season and Type and Time of Day

Season/ Type and Time of Day	Proportion of sample-type Vehicles (%)			K-S test*
	Left Lane	Right Lane	Both Lanes	
January - April 2008				
Week Day Mornings	87.20	85.74	86.47	no difference
Week Day Afternoons	88.40	86.01	87.20	no difference
Weekend Mornings	94.03	95.27	94.65	no difference
Weekend Afternoons	96.39	97.12	96.76	no difference
June - August 2008				
Week Day Mornings	90.19	87.53	88.86	no difference
Week Day Afternoons	91.27	89.75	89.95	no difference
Weekend Mornings	95.24	96.22	96.22	no difference
Weekend Afternoons	96.67	95.96	95.96	no difference

* Kolmogorov-Smirnoff Two-Sample Test for differences in the empirical distribution function.

Table A.1.3. Derivation of the Number of Vehicles with Recreating Visitors by Season and Type and Time of Day

	Dec. 07 - May 08	Dec. 95 - May 96	Percent Change
	Traffic Counts	Traffic Counts	95-96 to 07-08
Week Day Mornings	532,241	565,918	-5.95
Week Day Afternoons	913,311	839,975	8.73
Weekend Mornings	216,252	220,942	-2.12
Weekend Afternoons	483,247	503,889	-4.10
Total	2,145,051	2,130,724	0.67
	Jun. - Nov. 08	Jun. - Nov. 96	Percent Change
	Traffic Counts	Traffic Counts	96 to 08
Week Day Mornings	461,024	474,964	-2.93
Week Day Afternoons	791,433	705,302	12.21
Weekend Mornings	206,174	195,162	5.64
Weekend Afternoons	462,251	473,026	-2.28
	1,920,882	1,848,454	3.92
	Dec. 07 - May 08	Dec. 95 - May 96	Percent Change
	% Eligible Vehicles	% Eligible Vehicles	95-96 to 07-08
Week Day Mornings	86.47	88.35	-2.13
Week Day Afternoons	87.20	86.86	0.39
Weekend Mornings	94.65	97.97	-3.39
Weekend Afternoons	96.76	96.48	0.29
	Jun. - Nov. 08	Jun. - Nov. 96	Percent Change
	% Eligible Vehicles	% Eligible Vehicles	96 to 08
Week Day Mornings	88.86	85.64	3.76
Week Day Afternoons	89.95	89.21	0.83
Weekend Mornings	96.22	98.67	-2.48
Weekend Afternoons	95.96	97.90	-1.98
	Dec. 07 - May 08	Dec. 95 - May 96	Percent Change
	Eligible Vehicles	Eligible Vehicles	95-96 to 07-08
Week Day Mornings	460,229	499,989	-7.95
Week Day Afternoons	796,407	729,602	9.16
Weekend Mornings	204,683	216,457	-5.44
Weekend Afternoons	467,590	486,152	-3.82
Total	1,928,908	1,932,200	-0.17

Table A.1.3 (continued)

	Jun. - Nov. 08 Eligible Vehicles	Jun. - Nov. 96 Eligible Vehicles	Percent Change 96 to 08
Week Day Mornings	409,666	406,759	0.71
Week Day Afternoons	711,894	629,200	13.14
Weekend Mornings	198,381	192,566	3.02
Weekend Afternoons	443,576	463,092	-4.21
	1,763,517	1,691,618	4.25
	Dec. 07 - May 08 Vehicles with Recreating Visitors	Dec. 95 - May 96 Vehicles with Recreating Visitors	Percent Change 95-96 to 07-08
Week Day Mornings	98,711	107,239	-7.95
Week Day Afternoons	172,378	157,918	9.16
Weekend Mornings	49,178	52,007	-5.44
Weekend Afternoons	94,627	98,383	-3.82
Total	414,893	415,547	-0.16
	Jun. - Nov. 08 Vehicles with Recreating Visitors	Jun. - Nov. 95 Vehicles with Recreating Visitors	Percent Change 96 to 08
Week Day Mornings	68,619	68,132	0.71
Week Day Afternoons	154,680	136,712	13.14
Weekend Mornings	27,067	26,274	3.02
Weekend Afternoons	109,350	114,161	-4.21
	359,716	345,279	4.18

Table A.1.4. Derivation of the Number of Person-trips by Auto, by Season

Season	Vehicles with Recreating Visitors	Number of People Per Vehicle	Number of Person-trips
December 2007 - May 2008	414,893	2.38	987,445
June - November 2008	359,716	3.00	1,079,148
Annual Total	774,609		2,066,593

Table A.1.5. Derivation of the Number of Person-trips of Non-recreating Visitors by Season

Season/Type and Time of Day	Vehicles with Non-recreating as a Percent of Recreating Visitors	Vehicles with Recreating Visitors	Vehicles with Non-recreating Visitors	Non-recreating Visitors Per Vehicle	Non Recreating Visitors Person-trips
December 2007 - May 2008					
Week Day Mornings	6.43	98,711	6,345	1.5	9,517
Week Day Afternoons	6.95	172,378	11,981	1.5	17,972
Weekend Mornings	2.68	49,178	1,316	1.5	1,975
Weekend Afternoons	6.03	94,627	5,709	1.5	8,563
		414,893	25,351	1.5	38,027
June - November 2008					
Week Day Mornings	26.35	68,619	18,080	1.5	27,120
Week Day Afternoons	37.54	154,680	58,065	1.5	87,098
Weekend Mornings	33.33	27,067	9,020	1.5	13,531
Weekend Afternoons	43.48	109,350	47,551	1.5	71,326
		359,716	132,716	1.5	199,075

Table A.1.6. Change in Auto Visitation over 12-Year Period

	Dec. 07 - May 08	Jun. 95 - May 96	Percent Change 12-year Period
Traffic Counts			
Winter	2,145,051	2,130,724	0.67
Summer	1,920,882	1,848,454	3.92
Annual	4,065,933	3,979,178	2.18
Eligible Vehicles			
Winter	1,928,908	1,932,200	-0.17
Summer	1,763,517	1,691,618	4.25
Annual	3,692,425	3,623,818	1.89
Vehicles with Recreating Visitors			
Winter	414,893	415,547	-0.16
Summer	359,716	345,279	4.18
Annual	774,609	760,826	1.81
Person-trips: Recreating Visitors			
Winter	987,445	984,046	0.35
Summer	1,079,148	1,013,656	6.46
Annual	2,066,593	1,997,702	3.45
Person-trips: Non Recreating Visitors			
Winter	38,027	294,162	-87.07
Summer	199,075	217,508	-8.47
Annual	237,102	511,670	-53.66
Person-trips: All Visitors			
Winter	1,025,472	1,278,208	-19.77
Summer	1,278,223	1,231,164	3.82
Annual	2,303,695	2,509,372	-8.20

Table A.1.7. Number of Person-trips (visits) by the Air Mode of Access,
By Season: Recreating Visitors

	Passengers	Proportion Rec Visitors	Number of Person-trips
January - April 08	102,904	64.27	66,136
Dec. 07 - May 08	144,901	64.27	93,128
January - May 08	124,917	64.27	80,284
June - August 08	46,950	72.35	33,968
June - November 08	88,071	72.35	63,719
June - December 08	105,885	72.35	76,608
Dec. 07 - Nov. 08	232,972	67.32	156,847
Jan. 08 - Dec. 08	230,802	67.98	156,892

Table A.1.8. Number of Person-trips (visits) by the Air Mode of Access,
By Season: Non-recreating Visitors

	Passengers	Proportion Non-rec Visitors	Number of Person-trips
January - April 08	102,904	7.6	7,821
Dec. 07 - May 08	144,901	7.6	11,012
January - May 08	124,917	7.6	9,494
June - August 08	46,950	1.29	606
June - November 08	88,071	1.29	1,136
June - December 08	105,885	1.29	1,366
Dec. 07 - Nov. 08	232,972	5.21	12,149
Jan. 08 - Dec. 08	230,802	4.71	10,860

Table A.1.9. Number of Person-trips (visits) by the Air Mode of Access,
By Season: All Visitors

Time Period	Rec Visitor Person-trips	Non Rec Visitor Person-trips	Total Visitor Person-trips
Dec. 07 - May 08	93,128	11,012	104,140
June 08 - Nov. 08	63,719	1,136	64,855
Dec. 07 - Nov. 08	156,847	12,149	168,996
Jan. 08 - Dec. 08	156,892	10,860	167,752

Table A.1.10. Number of Person-trips (visits) by Cruise Ship Passengers,
By Season: Recreating Visitors

Time Period	Passengers	Proportion Rec Visitors	Number of Person-trips
January - April 08	328,412	96.48	316,852
Dec. 07 - May 08	464,818	96.48	448,456
January - May 08	372,634	96.48	359,517
June - August 08	114,743	94.25	108,145
June - November 08	274,305	94.25	258,532
June - December 08	366,664	94.25	345,581
Dec. 07 - Nov. 08	739,123	95.65	706,989
Jan. 08 - Dec. 08	739,298	95.37	705,098

Table A.1.11. Number of Person-trips (visits) by Cruise Ship Passengers
By Season: Non-recreating Visitors

Time Period	Passengers	Proportion	
		Non-Rec Visitors	Number of Person-trips
January - April 08	328,412	1.48	4,860
Dec. 07 - May 08	464,818	1.48	6,879
January - May 08	372,634	1.48	5,515
June - August 08	114,743	0.57	654
June - November 08	274,305	0.57	1,564
June - December 08	366,664	0.57	2,090
Dec. 07 - Nov. 08	739,123	1.14	8,443
Jan. 08 - Dec. 08	739,298	1.03	7,605

Table A.1.12. Number of Person-trips (visits) by Cruise Ship Passengers
By Season: All Visitors

Time Period	Rec Visitor Person-trips	Non Rec Visitor Person-trips	Total Visitor Person-trips
Dec. 07 - May 08	448,456	6,879	455,335
June 08 - Nov. 08	258,532	1,564	260,096
Dec. 07 - Nov. 08	706,989	8,443	715,432
Jan. 08 - Dec. 08	705,098	7,605	712,703

Table A.1.13. Number of Person-trips (visits) by Ferry Passengers
By Season: Recreating Visitors

Time Period	Passengers	Proportion Rec Visitors	Number of Person-trips
January - April 08	41,456	97.58	40,452
Dec. 07 - May 08	54,954	97.58	53,624
January - May 08	48,003	97.58	46,841
June - August 08	16,702	86.11	14,382
June - November 08	27,210	86.11	23,430
June - December 08	31,982	86.11	27,539
Dec. 07 - Nov. 08	82,164	93.78	77,054
Jan. 08 - Dec. 08	79,985	92.99	74,381

Table A.1.14. Number of Person-trips (visits) by Ferry Passengers
By Season: Non-recreating Visitors

Time Period	Passengers	Proportion Non-recreating Visitors	Number of Person-trips
January - April 08	41,456	1.61	667
Dec. 07 - May 08	54,954	1.61	885
January - May 08	48,003	1.61	773
June - August 08	16,702	0.69	115
June - November 08	27,210	0.69	188
June - December 08	31,982	0.69	221
Dec. 07 - Nov. 08	82,164	1.31	1,073
Jan. 08 - Dec. 08	79,985	1.24	994

Table A.1.15. Number of Person-trips (visits) by Ferry Passengers
By Season: All Visitors

Time Period	Rec Visitor Person-trips	Non Rec Visitor Person-trips	Total Visitor Person-trips
Dec. 07 - May 08	53,624	885	54,509
June 08 - Nov. 08	23,430	188	23,618
Dec. 07 - Nov. 08	77,054	1,073	78,127
Jan. 08 - Dec. 08	74,381	994	75,374
Jan. - May 08	46,841	773	47,614
Jun. - Dec. 08	27,539	221	27,760

Table A.1.16. Number of Person-trips by Mode of Access and Season

	Dec. '07 - May '08		Jun. '08 - Nov. '08		Annual Total	
	Person-trips	Percent	Person-trips	Percent	Person-trips	Percent
Recreating						
1. Auto	987,445	62.39	1,079,148	75.74	2,066,593	68.72
2. Air - Key West	93,128	5.88	63,719	4.47	156,847	5.22
3. Cruise Ship	448,456	28.34	258,532	18.14	706,989	23.51
4. Ferry	53,624	3.39	23,430	1.64	77,054	2.56
Total	1,582,653	100.00	1,424,829	100.00	3,007,483	100.00
Non-Recreating						
1. Auto	38,027	66.95	199,075	98.57	237,102	91.63
2. Air - Key West	11,012	19.39	1,136	0.56	12,149	4.69
3. Cruise Ship	6,879	12.11	1,564	0.77	8,443	3.26
4. Ferry	885	1.56	188	0.09	1,073	0.41
Total	56,803	100.00	201,963	100.00	258,767	100.00
All Visitors						
1. Auto	1,025,472	62.55	1,278,223	78.57	2,303,695	70.53
2. Air - Key West	104,140	6.35	64,855	3.99	168,996	5.17
3. Cruise Ship	455,335	27.77	260,096	15.99	715,432	21.90
4. Ferry	54,509	3.32	23,618	1.45	78,127	2.39
Total	1,639,456	100.00	1,626,792	100.00	3,266,250	100.00

Table A.1.17. Average Length of Stay by Mode of Access and Season

Mode of Access/Season	Length of Stay (# of Days)		
	Mean	Std. Error	Number
Auto Visitors			
December '07 - May '08	6.51	0.410	1,070
June '08 - November '08	3.95	0.147	589
December '07 - November '08	5.18	0.238	1,659
Air Visitors			
December '07 - May '08	8.63	0.660	277
June '08 - November '08	6.40	0.344	188
December '07 - November '08	7.73	0.419	465
Cruise Ship Visitors			
December '07 - May '08	1.00	0.000	220
June '08 - November '08	1.00	0.000	65
December '07 - November '08	1.00	0.000	285
Ferry Visitors			
December '07 - May '08	2.50	0.154	240
June '08 - November '08	2.97	0.128	205
December '07 - November '08	2.64	0.106	445
All Visitors			
December '07 - May '08	4.94	0.264	1,807
June '08 - November '08	3.51	0.109	1,047
December '07 - November '08	4.26	0.159	2,854

Table A.1.18. Number of Person-days by Mode of Access and Season

	Dec. '07 - May '08		Jun. '08 - Nov. '08		Annual Total	
	Person-days	Percent	Person-days	Percent	Person-days	Percent
Recreating						
1. Auto	6,428,267	82.25	4,266,951	85.29	10,695,218	83.44
2. Air - Key West	804,160	10.29	408,056	8.16	1,212,217	9.46
3. Cruise Ship	448,456	5.74	258,532	5.17	706,989	5.52
4. Ferry	134,274	1.72	69,493	1.39	203,768	1.59
Total	7,815,158	100.00	5,003,033	100.00	12,818,192	100.00
Non-Recreating						
1. Auto	247,556	75.40	787,143	98.82	1,034,698	91.98
2. Air - Key West	71,688	21.83	7,275	0.91	78,963	7.02
3. Cruise Ship	6,879	2.10	1,564	0.20	8,443	0.75
4. Ferry	2,217	0.68	558	0.07	2,775	0.25
Total	328,340	100.00	796,539	100.00	1,124,879	100.00
All Visitors						
1. Auto	6,675,823	81.98	5,054,094	87.15	11,729,916	84.13
2. Air - Key West	875,848	10.76	415,331	7.16	1,291,180	9.26
3. Cruise Ship	455,335	5.59	260,096	4.48	715,432	5.13
4. Ferry	136,491	1.68	70,051	1.21	206,542	1.48
Total	8,143,498	100.00	5,799,572	100.00	13,943,071	100.00

Table A.1.19. Consistency Checks for Lodging and Food & Beverage Expenditures

	Lodging Expenditures	
	Dec. 07 - Nov. 08	% of Reported
Estimated Lodging Expenditures		
With Public Lodging	\$638,819,464	93.82
Private Lodging Only	\$588,684,723	86.45
Reported Lodging Expenditures		
Florida Dept. of Revenue	\$680,927,972	100.00
	Food & Beverage Expenditures	
	Dec. 07 - Nov. 08	% of Reported
Estimated Food & Beverage Expenditures (Restaurants & Bars)	\$460,986,994	58.67
Reported Food & Beverage Sales form Florida Dept. of Revenue	\$785,697,173	100.00
Reported * 1.10 (unreported tips)	\$864,266,890	53.34

Table A.1.20. Reconciliation Between TDC Estimate of Visitation and NOAA Estimate: Jan. - Dec. 2008

		Visits/Person-trips	
1. Original TDC Estimate			
a. Overnight		2,169,565	
b. Day Trippers		401,369	
c. Cruise Ship`		739,218	
Total		3,310,152	
2. NOAA estimates			
a. Overnight (3,226,672*.68)		2,194,137	
b. Day Trippers (3,226,672 -[2,194,137 + 712,703])		319,832	
c. Cruise Ship		712,703	
Total		3,226,672	
3. Difference in Estimates (NOAA - TDC)			% Difference
a. Overnight		24,572	1.12
b. Day Trippers ¹		-81,537	-25.49
c. Cruise Ship ²		-26,515	-3.72
Total		-83,480	-2.59
4. Revised TDC Estimate			
a. Overnight		2,169,565	
b. Day Trippers (2,169,565*.1458)		316,323	
c. Cruise Ship (739,218 - 26,515)		712,703	
Total		3,198,591	
5. Difference in Estimates (NOAA-TDC Revised)			% Difference
a. Overnight		24,572	1.12
b. Day Trippers		3,509	1.10
c. Cruise Ship		0	0.00
Total		28,081	0.87

1. TDC used results from the 1995-96 study for day trippers as a percent of overnight visitors. The 1995-96 estimate was 18.5%. The new 2007-08 estimate is 14.58%.
2. The NOAA survey tallies cruise ship passengers as they board the ship and screens out residents of Monroe County. The NOAA estimate thus includes only the portion of reported cruise ship passengers that are visitors to Monroe County/Florida Keys.

Chapter 2. Sample Weighting

Chapter 1 discussed the sampling methodology for the Auto, Air, Cruise Ship and Ferry Survey as it related to estimating the total number of person-trips (visits) and person-days. These are the estimated population totals from which sample weights are constructed.

Figure 2.1 shows each of the survey samples, their associated subsamples, and the general types of information obtained from each sample and/or subsample. Sample 1 is the Auto, Air, Cruise Ship and Ferry Survey and has an on-site sample and two mailback samples; 1) the expenditure mailback and 2) the satisfaction mailback. Sample 2 is the CUSTOMER Survey and it has an on-site sample and three mailback samples; 1) Knowledge, Attitudes and Perceptions of Management Strategies and Regulations, 2) Economics of Climate Change/Coral bleaching, and 3) Management Alternatives. Tables A.2.1 and A.2.2 show the number of completed interviews for each sample for which sample weights are presented here. Sample weights for the CUSTOMER mailback surveys are not provided here since this data has not been analyzed and reported yet.

Auto, Air, Cruise Ship and Ferry Survey

On-site Sample. The on-site sample was a stratified random sample. Stratification was done by mode of access to the Florida Keys/Key West (auto, air, cruise ship and ferry) and by season. A priori, little information was available to establish exact sampling quotas by each mode of access and season. That is, the exact population distributions by mode of access and season were not known prior to the sampling. In fact, part of the study design was to estimate these very population numbers (see Chapter 1). In addition, project partners wanted the capability to estimate many project measurements by mode of access. To do this required over-sampling the some populations to ensure adequate sample sizes to yield reliable estimates by mode of access. For these reasons, sample-weighting is necessary. Sample weights equilibrate the sample distributions by mode of access to the population distribution by mode of access.

Table A.2.4 shows how sample weights were derived for the January – April 2008 sampling period, which are then applied for the December 2007- May 2008 season. Sample weights are derived by dividing the population distribution percentages (from Chapter 1) by the sample distribution percentages. Table A.2.5 shows how the sample weights were derived for the June – August 2008 sampling period, which are then applied for the June – November season.

Annual Sample Weights. In order to estimate annual weighted averages or weighted population distributions across seasons, the sample weights derived above must be adjusted by their sample distributions relative to their population distributions across seasons. Table A.2.6 shows how the annual adjustment factors were derived. These annual adjustment factors are multiplied by the seasonal sample weights to form the annual sample weights. Table A.2.7 summarizes the data base sample weight names for each time period and application.

Expenditure Mailback. Each visitor interviewed on-site received an expenditure mailback questionnaire. Actually, we first identified the person paying for the trip, since in some cases the randomly chosen individual within the traveling group may not have been the person paying trip expenses, and asked that person if they would complete the mailback questionnaire.

After two weeks, if a mailback questionnaire was not received, a post card reminder was sent. After one month, if a mailback response was still not received, a whole new questionnaire and letter were sent asking for a response. Foreign visitors were asked to complete their mailback questionnaires before they departed from the U.S. since the self-mailing questionnaire would require separate postage if mailed from outside the U.S.

Table A.2.8 shows the sample and population distributions for the December 2007 – May 2008 winter season for the expenditure mailbacks, while Table A.2.9 shows the sample weight derivations for the summer season (June – November 2008). Table A.2.9 shows the derivation of the annual adjustment factors for annual sample weights.

Chapter 3 will discuss our analysis of sample response rates and our multivariate analysis to determine if we had non-response bias. We show there that once we adjust for mode of access and season, not other factors require weighting.

Satisfaction Mailback. Each visitor interviewed on-site received a satisfaction mailback questionnaire. This was handed to each person interviewed as was done with the expenditure mailback. The same follow-up procedures were followed as in the expenditure mailback. The methods of deriving sample weights were the same as used in the expenditure mailback. Table A.2.11 shows the derivation of the winter season sample weights, while Table A.2.12 shows the derivation of the summer season sampling weights. The annual adjustment factors for the annual weights are in Table A.2.13.

CUSTOMER Survey

On-site Sample. The on-site CUSTOMER sample was a stratified random sample. However, there was little information available to properly stratify across sites. Local knowledge was relied upon to select a set of sites that would yield representative samples of all the different types of user populations. Over 200 sites were chosen in consultation with the Chambers of Commerce, the Monroe County Tourist Development Council, the Keys Association of Dive Operators (KADO), several charter boat captains and fishing guides, and local, state and federal park managers.

The major objective of the CUSTOMER survey was to estimate the intensity of use (number of days and hours per person per trip) for 39 selected activities by region and season. Sample quotas were established based on minimum sample sizes required to estimate the averages for each activity by region and season. Generally, a minimum of 25 observations per activity, per region, per season were thought needed to reliably estimate averages. It was expected that these minimum sample sizes would be exceeded because each interview, although targeted to fill a quota, included a full activity profile.

The resulting samples did not follow our expectations. Actually, the resulting samples came closer to the actual population distributions as reflected in the Auto, Air, Cruise Ship, Ferry samples. There were two exceptions. First, cruise ship passengers were generally excluded from the CUSTOMER Survey by the nature of those trips. Cruise Ship passengers were on extremely short stays, typically only a few hours, and generally did not participate in the activities we were targeting or visiting the sites where we were interviewing. Cruise ship passengers never leave Key West. For the entire seven months of sampling, only eight cruise ship passengers were included in the CUSTOMER Survey. The second exception was visitors who accessed the Florida Keys by private boat. This population of visitors was not included in the population estimates in Chapter 1 and was not part of the Auto, Air, Cruise Ship, and Ferry Survey. It was thought that this population was extremely small. The CUSTOMER Survey would seem to confirm this expectation. About one percent of the CUSTOMER winter and summer season were visitors who accessed the Florida Keys by private boat. The sample sizes obtained in the CUSTOMER Survey for cruise ship passengers or visitors by private boat were simply too small to do anything with. Inclusion or exclusion does not significantly affect any project measurements. Therefore, the CUSTOMER Survey was considered to be representative of the auto and air populations of visitors. Sample weights were derived to equate the CUSTOMER sample distributions to the population distributions by the auto and air modes of access for each season. Tables A.2.14 and A.2.15 show the CUSTOMER on-site sample sizes by mode of access, the sample and population distributions by mode of access, and the derived sample weights.

Summary

The sample weighting described in this chapter is somewhat complex and results in the derivation of numerous sample weights. Table A.2.16 summarizes the names of the various sample weights according to sample, season, and appropriate use.

Figure A.2.1. Survey Samples, Sample Objectives, and Topics Addressed in each Sample

Sample 1: Auto, Air, Cruise Ship Ferry Survey

Objectives

- Estimate the number of person-trips by visitors to the Florida Keys/Key west by season, activity, and geographic area or districts (Key Largo, Islamorada, Marathon, Lower Keys, and Key West)
- Develop profiles of visitors (age, race/ethnicity, gender, income, place of residence)
- Estimate spending by visitors in local and regional economies and total contribution to the economy in terms of sales/output, income and employment.
- Provide information on importance/satisfaction ratings for natural resource attributes, facilities, and services.

On-site Survey

- Modes of travel
- Demographic Profile of visitors (age, race/ethnicity, gender, income, & place of residence)
- Activity participation by district and season
- Party or Group size

Expenditure Mail back

- Modes of travel
- Types of accommodations used
- Trip spending profiles
- Annual expense items

Satisfaction Mail Back

- Importance/satisfaction ratings for 25 natural resource attributes, facilities and services
- Special Issue Questions
- Environmental Concern Index

Sample 2: CUSTOMER Survey

Objectives

- Estimate intensity of use in terms of number of days by activity district and season for 39 activities and aggregated into 12 activity groups.
- Develop detailed profiles for all group/party members for visitors of all ages.
- Provide information on “specialization” to categorize visitors into groups that provide predictive capability for assessing management strategies and regulations.
- Provide information for travel cost modeling used to estimate net economic use values for marine resources.
- Provide information on Knowledge, Attitudes & Perceptions of Management Strategies and Regulations in the Florida Keys National Marine Sanctuary.

On-site Survey

- Number of days of each activity by district and season
- Trip itinerary and modes of travel
- Demographic profiles of total visiting group/party (age, race/ethnicity, gender, household income, household type, household size, education)
- Specialization

Knowledge, Attitudes & Perceptions of Management Strategies and Regulations

Economics of Climate Change/Coral Bleaching

Management Alternatives

- SCUBA divers, snorkelers, & recreational fishermen
- substitution

Table A.2.1. Number of Completed Questionnaires by Mode of Access and Season: Auto, Air, Cruise Ship and Ferry Samples

Mode of Access	January - April '08			June - August '08		
	On-site	Satisfaction Mailback	Expenditure Mailback	On-site	Satisfaction Mailback	Expenditure Mailback
Auto (U.S. 1)	1,070	174	172	589	119	100
Air - Key West	277	27	20	188	42	47
Cruise Ship	220	14	16	65	8	9
Ferry	240	34	37	205	35	36
Total	1,807	249	245	1,047	204	192

Table A.2.2 Number of Completed Questionnaires by District and Season
CUSTOMER On-site Survey

District	January - April 2008		June - August 2008	
	Number	Percent	Number	Percent
Key Largo	157	19.08	30	2.63
Islamorada	87	10.57	10	0.88
Marathon	181	21.99	22	1.93
Lower Keys	157	19.08	603	52.89
Key West	241	29.28	475	41.67
Total	823	100.00	1,140	100.00

Table A.2.3. Number of Completed Questionnaires by Season: CUSTOMER Mailback Samples

Mailback Samples	Jan - April 2008	June - Aug. 08	Total
Knowledge, Attitudes & Perceptions of Management Strategies & Regulations	51	32	83
Economics of Climate Change/Coral bleaching	216	46	262
Management Alternatives	74	85	159

Table A.2.4. Sample Weights for the Auto-Air-Cruise Ship-Ferry Survey: Dec. 07 - May 08

Mode of Access	Person-trips	Population Distribution (%)	Sample Distribution Sample Size	Sample Distribution (%)	Sample Weight WTDC_MA1
Auto	987,445	62.39	1,070	59.21	1.05366265
Air	93,128	5.88	277	15.33	0.38386008
Cruise Ship	448,456	28.34	220	12.17	2.32739237
Ferry	53,624	3.39	240	13.28	0.25510585
Total	1,582,653	100.00	1,807	100.00	

Table A.2.5. Sample Weights for the Auto-Air-Cruise Ship-Ferry Survey: Jun. - Nov. 2008

Mode of Access	Person-trips	Population Distribution (%)	Sample Distribution Sample Size	Sample Distribution (%)	Sample Weight WTJU_NO1
Auto	1,079,148	75.74	589	56.26	1.346324197
Air	63,719	4.47	188	17.96	0.24905487
Cruise Ship	258,532	18.14	65	6.21	2.922704344
Ferry	23,430	1.64	205	19.58	0.083985123
Total	1,424,829	100.00	1,047	100.00	

Table A.2.6. Sample Weights for the Auto-Air-Cruise Ship-Ferry Survey: Dec. 07 - Nov. 08

Mode of Access	Person-trips	Population Distribution (%)	Sample Distribution Sample Size	Sample Distribution (%)	Annual Adjustment Factor ¹
Dec. 07 - May 08	1,582,653	52.62	1,807	63.31	0.83114823
June - Nov. 08	1,424,829	47.38	1,047	36.69	1.29141848
Annual	3,007,482	100.00	2,854	100.00	

1. Annual on-site weight is WDC_NO1 which is equal to WTDC_MA1*0.83114823 for the Dec. 07 - May 08 season observations, and is equal to WTJU_NO1*1.29141848 for the June - November 2008 season observations.

Table A.2.7. Sampling Weight Names for the Auto, Air, Cruise Ship, and Ferry On-site Surveys

	Winter	Summer	Annual
On-site Surveys	WTDC_MA1	WTJU_NO1	WDC_NO1

Table A.2.8. Sample Weights for the Auto-Air-Cruise Ship-Ferry Expenditure Survey: Dec. 07 - May 08

Mode of Access	Person-trips	Population Distribution (%)	Sample Distribution Sample Size	Sample Distribution (%)	Sample Weight WTDC_MA2
Auto	987,445	62.39	172	70.20	0.88871978
Air	93,128	5.88	20	8.16	0.72082636
Cruise Ship	448,456	28.34	16	6.53	4.33890594
Ferry	53,624	3.39	37	15.10	0.22435609
Total	1,582,653	100.00	245	100.00	

Table A.2.9. Sample Weights for the Auto-Air-Cruise Ship-Ferry Expenditure Survey: Jun. - Nov. 2008

Mode of Access	Person-trips	Population Distribution (%)	Sample Distribution Sample Size	Sample Distribution (%)	Sample Weight WTJU_NO2
Auto	1,079,148	75.74	100	52.08	1.454184439
Air	63,719	4.47	47	24.48	0.182687813
Cruise Ship	258,532	18.14	9	4.69	3.870885091
Ferry	23,430	1.64	36	18.75	0.087701752
Total	1,424,829	100.00	192	100.00	

Table A.2.10. Sample Weights for the Auto-Air-Cruise Ship-Ferry Expenditure Survey: Dec. 07 - Nov. 08

Mode of Access	Person-trips	Population Distribution (%)	Sample Distribution Sample Size	Sample Distribution (%)	Annual Adjustment Factor ¹
Dec. 07 - May 08	1,582,653	52.62	245	56.06	0.93863776
June - Nov. 08	1,424,829	47.38	192	43.94	1.07830078
Annual	3,007,482	100.00	437	100.00	

1. Annual on-site weight is WDC_NO2 which is equal to WTDC_MA2*0.93863776 for the Dec. 07 - May 08 season observations, and is equal to WTJU_NO2*1.07830078 for the June - November 2008 season observations.

Table A.2.11. Sample Weights for the Auto-Air-Cruise Ship-Ferry Satisfaction Survey: Dec. 07 - May 08

Mode of Access	Person-trips	Population Distribution (%)	Sample Distribution Sample Size	Sample Distribution (%)	Sample Weight WDCMASA3
Auto	987,445	62.39	174	69.88	0.892847544
Air	93,128	5.88	27	10.84	0.542662928
Cruise Ship	448,456	28.34	14	5.62	5.039708822
Ferry	53,624	3.39	34	13.65	0.248138373
Total	1,582,653	100.00	249	100.00	

Table A.2.12. Sample Weights for the Auto-Air-Cruise Ship-Ferry Satisfaction Survey: Jun. - Nov. 2008

Mode of Access	Person-trips	Population Distribution (%)	Sample Distribution Sample Size	Sample Distribution (%)	Sample Weight WJUNOSA3
Auto	1,079,148	75.74	119	58.33	1.298378963
Air	63,719	4.47	42	20.59	0.217213635
Cruise Ship	258,532	18.14	8	3.92	4.626917335
Ferry	23,430	1.64	35	17.16	0.095845486
Total	1,424,829	100.00	204	100.00	

Table A.2.13. Sample Weights for the Auto-Air-Cruise Ship-Ferry Satisfaction Survey: Dec. 07 - Nov. 08

Mode of Access	Person-trips	Population Distribution (%)	Sample Distribution Sample Size	Sample Distribution (%)	Annual Adjustment Factor ¹
Dec. 07 - May 08	1,582,653	52.62	249	54.97	0.95737377
June - Nov. 08	1,424,829	47.38	204	45.03	1.05202908
Annual	3,007,482	100.00	453	100.00	

1. Annual on-site weight is WDCNOSA3 which is equal to WDCMASA3*0.95737377 for the Dec. 07 - May 08 season observations, and is equal to WJUNOSA3*1.05202908 for the June - November 2008 season observations.

Table A.2.14. Sample Weights for the CUSTOMER On-site Sample: Dec. '07 - May '08

Mode of Access	Number of Completed Interviews	Sample Distribution %	Population Distribution %	Sample Weight WT_DCMA1
Auto	775	94.17	62.39	0.66252522
Air	36	4.37	5.88	1.345537757
Cruise Ship	0	0.00	28.34	0
Ferry	4	0.49	3.39	6.918367347
Other	8	0.97	0.00	1
Total	823	100.00	100.00	

Table A.2.15. Sample Weights for the CUSTOMER On-site Sample: Jun. '08 - Nov. '08

Mode of Access	Number of Completed Interviews	Sample Distribution %	Population Distribution %	Sample Weight WT_JUN01
Auto	1,053	92.37	75.74	0.819963192
Air	57	5.00	4.47	0.894
Cruise Ship	8	0.70	18.14	25.91428571
Ferry	11	0.96	1.64	1.708333333
Other	11	0.96	0.00	1
Total	1,140	100.00	100.00	

Table A.2.16. Sampling Weight Names for All Auto, Air, Cruise ship, and Ferry Surveys and the CUSTOMER Onsite Surveys

Survey	Winter	Summer	Annual
Auto, Air, Cruise Ship, and Ferry			
On-site	WTDC_MA1	WTJU_NO1	WDC_NO1
Expenditure Mailback	WTDC_MA2	WTJU_NO2	WTDCNO2
Satisfaction Mailback	WDCMASA3	WJUNOSA3	WDCNOSA3
CUSTOMER On-site			
On-site	WT_DCMA1	WT_JUN01	
Demographics	WT_DCMA1	WT_JUN01	

Chapter 3. Non-response Bias Analyses for the Mailback Surveys

Chapter 2 described the various survey samples and mailback surveys used and the sample weighting methods applied to each sample. Here the focus is on analyses conducted to address the issue of non-response bias resulting from the use of mailback surveys. Nonresponse bias occurs when the group that responds to the mailback survey is different from the population for which you want to estimate certain measurements. The group that responds is different in that they have significantly different responses. For example, respondents to the mailback survey might have higher average expenditures per person per trip for lodging. Applying the higher average to all visitors would result in an overestimate of lodging expenditures. This overestimation would be referred to as non-response bias.

The approach used here for non-response bias had two steps. In step one, survey response rates were related to various socioeconomic factors. The research question is ‘Are the visitors that responded to the mailback survey any different from those that did not respond?’ Step two determines whether there is a relationship between socioeconomic factors and mailback question responses. For non-response bias to exist requires not only that respondents to the mailback survey are different but that the same factors related to whether the visitor responded to the mailback are also related to mailback question responses. It is shown here that there is some potential for non-response bias in all the mailback surveys, but that the extent of non-response bias would appear to be minimal. The expenditure mailbacks had the most potential for non-response bias. The sample weighting employed and described in Chapter 2 adjusts for the non-response bias by weighting the mailback samples to be representative of the population of all visitors. At the end of this Chapter, weighted and unweighted means for selected measurements from each sample are compared to indicate the possible extent of non-response bias.

Expenditure Mailback: December 2007 – November 2008

Although we did separate samples by season (winter and summer), for addressing non-response bias we combined seasons and use season as an explanatory variable of estimated expenditures.

Response Rates and Socioeconomic Factors. Two approaches were used to evaluate the relationship between socioeconomic factors and response rates to the mailback survey. First, univariate statistics were used to test for differences. Cross-tabulations were run on response rates by season, mode of access, age and gender of the person interviewed, household income, race/ethnicity and origin of the visitor (see Table A.3.1). Then univariate nonparametric tests were performed on each socioeconomic factor. The Kolmogorov-Smirnov two-sample test was used. This test tests for differences in the distributions of the socioeconomic factors between respondents and non-respondents. Statistically significant differences were found for season, age, and length of trip (see Table A.3.2).

The second approach used was a set of multivariate tests. In this approach all socioeconomic factors are regressed against the response variable (variable that represents whether the person responded to the survey 1=yes 0=no). Table A.3.3 defines each of the variables used in the analysis along with the arithmetic means of each variable. Three equations were estimated: ordinary least squares, probit and logit. All three equations identify the same set of factors as being statistically significant in explaining mailback survey response rates. The three equations use dummy variables for several of the socioeconomic factors. For season, summer is in the constant term. For mode of access, cruise ship visitors are in the constant term. For household income, those with incomes under \$20,000 (INC20K) are in the constant term, and for race/ethnicity, Black/Native American are in the constant term. Season and mode of access were the most important factors with winter season visitors having lower response rates and auto, air and ferry visitors had higher response rates than cruise ship visitors. Age of the respondent and whether the visitor was a domestic visitor were positively related meaning that older and domestic visitors had higher response rates. Also, White visitors had higher response rates. The results of the multivariate tests confirm the findings from the univariate tests for season and age, but not for mode of access. Mode of access is correlated with the length of trip (measured in number of days) leading to the problem of heteroskedasticity with the resultant increase in variance and the inability to identify separate effects of these two factors. Another factor was included in the multivariate test that was not discussed in the univariate tests. The number of people the person was paying for (NUMPPL). This variable was

important because it would be related to the amount of expenditures. We estimated the expenditures per person per trip. Thus the number of people and the number of days are important in this process and we wanted to ensure that there was no bias in that either visitor that took longer or shorter trips did not have higher or lower response rates or that respondents did not have smaller or larger groups that they were paying for. Neither one of these variables were significant factors in explaining response rates. But as noted above, length of trip and mode of access are correlated. In sample weighting, we dealt with this by weighting for both factors then testing for consistency with estimates for the estimates of different expenditure items for which we have sales revenue data for Monroe County/Florida Keys and determined that weighting for mode of access and season was the best estimate.

Question Responses and Socioeconomic Factors. Step one above showed that there is a relationship between several socioeconomic factors and survey response rates. In this step, it is shown that there is also a relationship between some of these factors and the level of question responses (i.e., the amount of expenditures per person per trip). Table A.3.5 shows the expenditure items for which relationships were estimated between expenditures and socioeconomic factors. Simple linear regressions were estimated between each expenditure category and the various socioeconomic factors. Again, because of the use of dummy variables interpretation is with respect to what is in the constant term. For season, again we use summer in the constant term. For mode of access, cruise ship visitors were in the constant. For gender, females were in the constant term. For household income, visitors with incomes under \$20,000 are in the constant, and for race/ethnicity, all Non-Whites are in the constant. For origin of the visitor foreign visitors and non-Florida residents were in the constant term.

Again, we had the problem of heteroskedasticity due to the correlation between mode of access and length of stay. Cruise ship passengers are all on day trips and so don't have lodging expenditures. Males who were paying for the trip had higher lodging expenditures than females (Table A.3.6). None of the factors that were related to response rates were significant here suggesting that non-response bias is not a problem for lodging expenditures.

For expenditures on food & beverages (FOODPPC) and transportation (TRANPPC), only the air mode of access and length of trips (DAYS) were significant. For boating, only age was significant, while fishing (FISHPPC) and diving (DIVPPC), and Other Activity (OTHACPPC) expenditures did not differ by any of the factors.

For Miscellaneous expenditures (MISCPPC), age, length of trip and number of people paying for were significant factors, while for Service (SERVPPC) expenditures only length of trip was significant. For total variable trip expenditures and the air mode of access, length of trip, and number of people paying for were significant. Our cut-off for statistical significance was the 0.05 level of 95 percent confidence level (Table A.3.6).

Conclusion for Non-response Bias and the Expenditure Mailback

For factors where we had over or under representation in the samples and for which there were significant differences between expenditures per person per trip, the problem was limited to length of trip and mode of access, but as we noted, there is high correlation between these two factors. In addition, there is correlation between season and length of trip. So our approach was to weight the samples by mode of access and season.

Satisfaction Mailback: December 2007 – May 2008

For the Satisfaction mailbacks, we estimated separate scores by season for both importance and satisfaction, so our tests for non-response bias were done separately by season.

Response Rates and Socioeconomic Factors. Cross-tabulations between socioeconomic factors and response rates are presented in Table A.3.7. The univariate tests are summarized in Table A.3.8. The univariate tests indicate that there were significantly different response rates only by mode of access.

Table A.3.9 provides the definitions of the variables used in the multivariate tests and Table A.3.10 summarizes the results of the multivariate tests. The multivariate tests indicate that none of the factors identified in the univariate tests are significant factors when controlling for other factors. Older visitors had higher response rates as did day use visitors.

Question Responses and Socioeconomic Factors. The satisfaction mailback included both importance and satisfaction ratings for 25 items along with ratings on satisfactions for 10 items five years ago and certain special issue questions. Here a selected set of importance ratings were used to test for the existence of non-response bias. The items selected are enough to demonstrate that the potential for non-response bias does exist. As will be demonstrated at the end of this chapter, the extent of non-response bias appears to be minimal.

Table A.3.11 defines the variables for the importance ratings for which relationships between socioeconomic factors were tested. All the importance factors were rated on a scale from one to five with one being not important and five being extremely important. Table A.3.12 summarizes the results of regressions relating socioeconomic factors to 11 items. Number of people in the party (NUMPPL) was only significant in 2 of the 11 importance ratings tested (IMPTRANS and IMPSERV). Age was a significant factor in explaining only 3 of the 11 importance ratings tested (IMPCORAL, IMPVIEW and IMPREST). Younger visitors had higher importance ratings for IMPCORAL and IMPVIEW and older visitors had higher importance ratings for IMPREST. Household Income was a significant factor for the higher income categories for 5 of the 11 importance ratings tested (IMPTRANS, IMPPARK, IMPSERV, IMPHIST and IMPREST). Mode of access was only significant for one of the 11 importance ratings tested (IMPREST) and only for one of the modes (Air). Air visitors had lower ratings than cruise ship visitors for IMPREST. Only three of the 11 equations were significant overall (IMPTRANS, IMPPARK and IMPVIEW) and only one factor (AGE) had different mailback response rates, while also having a significant relationship with three of the importance ratings tested. Given these results, we conclude the potential for non-response bias is minimal in the winter satisfaction mailback survey.

Satisfaction Mailback: June – November 2008

Response Rates and Socioeconomic Factors. Cross-tabulations between socioeconomic factors and response rates are presented in Table A.3.7. The univariate tests are summarized in Table A.3.13. The univariate tests indicate that only age was significantly related to response rates. Table A.3.14 provides the definitions of the variables used in the multivariate tests and Table A.3.15 summarizes the results of the multivariate tests. The multivariate tests indicate that only one factor that was identified as significant in the univariate tests (AGE) was a significant factor when controlling for other factors. Older visitors had higher response rates. But, the multivariate tests also indicated that mode of access, gender (MALE), race/ethnicity (WHITE), origin of the visitor (DOMESTIC), and day trip visitors (DAYUSE) were also significant factors. Auto and Air visitors had higher response rates than ferry and cruise ship visitors. Whites had higher response rates than other race/ethnic groups, and domestic visitors had higher response rates than foreign visitors. Day trippers (DAYUSE) also had higher response rates than those on multiple-day trips.

Question Responses and Socioeconomic Factors. Table A.3.16 defines the variables for the importance ratings for which relationships between socioeconomic factors were tested. All the importance factors were rated on a scale from one to five with one being not important and five being extremely important. Table A.3.17 summarizes the results of regressions relating socioeconomic factors to 11 items.

Male was a significant factor for 2 of the 11 importance ratings (IMPPARK and IMPCATCH) with females having higher importance ratings for IMPPARK and males higher scores for IMPCATCH. Florida residents (FLDUM=1) was an important factor for 2 of the 11 importance ratings (IMPCATCH and IMPRAMP) with Florida residents having higher scores for both of these items. Mode of access was only significant for one importance rating (IMPHIST). Auto and ferry visitors had significantly higher scores than cruise ship visitors. Air visitors also had higher scores than cruise ship visitors for IMPHIST but this was not significant at the 0.05 level. U.S. residents (DOMESTIC=1) was a significant factor for only 1 of 11 importance ratings (IMPCATCH). U.S. residents had higher scores for IMPCATCH than foreign visitors. Only four of 11 equations were significant in explaining the importance ratings (IMPTRANS,

IMPCATCH, IMPRAMP, and IMPHIST). We conclude that non-reponse bias is minimal for the summer season satisfaction mailback.

Weighted and Unweighted Estimates: A Comparison for Expenditures

Here we estimated mean expenditures per person per trip and the aggregated population estimate of total expenditures for total expenditures and lodging expenditures. We did this for the unweighted sample, the sample weighted by mode of access and season (ones used in our application), and the sample weighted for all factors that were significant in explaining differences in expenditures. We do consistency checks for our estimates of total expenditures and the economy of Monroe County and for estimated lodging expenditures compared with reported lodging expenditures for Monroe County. In both consistency check comparisons, the sample weighting presented in chapter 2 and used as making our final estimates, were consistent while the unweighted estimates and the estimated weighted by all factors were not consistent. We are therefore highly confident in our estimates and our strategy for addressing non-response bias.

Although not fully discussed in Chapter 2, we did construct sample weights adjusting for all factors identified as statistically significant in explaining expenditures. Besides mode of access and season, other factors were length of trip, number of people person was paying for on the trip, and demographic factors (Race/ethnicity, age and whether domestic or foreign visitor). See Table A.3.6 for factors that were significant in explaining expenditures.

The weights by mode of access and season were explained in chapter 2. The weights for other factors were first constructed for length of trip and number of people person was a paying for. Length of trip was first created as a categorical variable with six categories (1, 2, 3, 4-7, 8-14 and 15 or more days). Weights were then created equilibrating the on-site sample distribution to the expenditure mailback distribution. For number of people person was paying for on the trip, we created a categorical variable with six categories (1, 2, 3, 4, 5, and 6 or more people). Again, weights equilibrated the on-site sample distribution to the expenditure mailback distribution.

For demographic variables, we created a multivariate weight across the three factors (age, race/ethnicity and whether domestic or foreign visitor). First age was made into a categorical variable with two categories (those 16-46 and those older than 46). Race/ethnicity was reduced to a two category variable (White and non-white). Whether a visitor was a foreign or domestic visitor (from the U.S.) was a two category variable. So for demographic variables, we have a eight cell matrix for creating a sample weight. Again, we created a sample weight that equilibrates the sample distributions in the eight cell matrix from the mailback survey to the on-site survey distribution (Table A.3.18).

The final sample weight for all factors is a multiplicative weight by taking the base weight for mode of access and season and multiplying by the day's weight, the number of people weight and the demographic weight.

Table A.3.19 shows the unweighted and weighted estimates of sample total annual expenditures and lodging expenditures per person per trip. For total and lodging expenditures, the unweighted and weighted for all factors estimates of mean expenditures were higher than those using the weights for mode of access and season. The estimates using the weights for all factors were the highest estimates.

Consistency Checks for Expenditure Estimates. We have the reported sales/output estimates for Monroe County and the total lodging revenues corresponding to our sample estimating period of December 2007 – November 2008. We multiply the mean or average estimated expenditures by the estimate of total person-trips and then compares them with the actual reported for Monroe County (Table A.3.). For lodging, the estimates for the unweighted sample and the sample weighted for all factors are not consistent with Monroe County totals. Both of these estimates exceed 100% of what is reported. Remember, our estimates are for “recreating visitors only”. Non-recreating visitors account for 7.9% of all visitor person-trips. Thus our estimate for lodging expenditures is the most consistent with the reported lodging expenditures for Monroe County accounting for 93.82% of the reported total lodging expenditures for Monroe County.

For total expenditures, we have to take estimated total expenditures and multiply by our sales/output multiplier of 1.12 to get our estimated total impact of recreating visitors on the Monroe County economy (Table A.3.). Here again we find that the unweighted estimates and the estimates based on the sample weighted for all factors overestimate the contribution of recreating visitors accounting for too high a percent of the total Monroe County economy. Other basic industries such as commercial fishing, the military, the Keys as a Retirement Community, and the Keys as a bedroom community for South Florida should account for close to 40% of the Monroe County economy and the only estimates consistent with this is our estimates using the weights for mode of access and season. Given the results of these consistency checks, we are highly confident in our estimates and our strategy for addressing the issue of non-response bias.

Weighted and Unweighted Estimates: Comparisons for the Satisfaction Mailbacks

The satisfaction mailback estimated both importance and satisfaction ratings for 25 items. Here we tested 11 of the 25 importance ratings for non-response bias. We do this separately for the winter and summer season samples. We tested the differences between unweighted and weighted estimates. We did two weighted estimates of the mean importance scores: estimates weighted by mode of access and estimates weighted by all factors that there were significantly different response rates and these factors also explained significant differences in importance scores, thus suggesting the existence of non-response bias. For the winter age and whether a visitor was a day use visitor or on a multiple-day trip were the only factors that could potentially result in non-response bias other than mode of access. For the summer, male visitors and domestic versus foreign visitors were the only factors that could potentially result in non-response bias other than mode of access. We created sample weights for each season for these factors (Table A.3.20). For both seasons, these additional weights were based on a matrix of four cells. We then multiply these weights by the mode of access weights used in our published estimates. We then test for differences between the unweighted and weighted estimates using a T-test with significance at the level of 0.05.

Winter Season. There were no significant differences between the unweighted and weighted estimates for all 11 importance ratings tested (Table A.3.21). Thus, we conclude that non-response bias is minimal to nonexistent.

Summer Season. There were no significant differences between the unweighted and weighted estimates for all 11 importance ratings tested (Table A.3.22). thus, we conclude that non-response bias is minimal to nonexistent.

Table A.3.1. Response Rates by Socioeconomic Factors: Dec. 07 - Nov. 08
Expenditure Mailback

Socioeconomic Factor	Response Rate (%)	On-site Sample Size	Mailback Sample Size
Season			
Winter (Dec. 07 - May 08)	13.56	1,807	245
Summer (June - November 08)	18.34	1,047	192
Mode of Access			
Auto	16.40	1,659	272
Air-Key West	14.41	465	67
Cruise Ship	8.77	285	25
Ferry	16.40	445	73
Age			
16-25	6.87	131	9
26-35	12.61	349	44
36-45	13.21	492	65
46-60	18.02	1,060	191
Over 60	16.45	754	124
Missing	5.88	68	4
Gender			
Male	14.67	1,765	259
Female	16.43	1,065	175
Missing	12.50	24	3
Household Income			
Under \$20,000	16.83	101	17
\$20,000 - \$39,999	11.25	160	18
\$40,000 - \$59,999	15.29	399	61
\$60,000 - \$100,000	17.66	640	113
Over \$100,000	14.43	1,351	195
Missing	16.26	203	33
Race/Ethnicity			
White Non Hispanic	16.34	2,558	418
Black Non Hispanic	1.52	66	1
Native American Non Hispanic	0.00	2	0
Asian Non Hispanic	9.52	21	2
Native Hawaiian Non Hispanic	0.00	2	0
Hispanic	8.33	120	10
Missing	7.06	85	6
Origin of Visitor			
Domestic	15.95	2,433	388
Foreign	11.57	415	48
Florida	16.57	712	118
Missing	16.67	6	1
Total Sample	15.31	2,854	437

Table A.3.2. Univariate Non-parametric Test for Response Rates and Socioeconomic Factors: Dec. 07 - Nov. 08 Expenditure Mailback¹

Socioeconomic Factor	Statistical Significance of KS (Kuiper) Tests ²	Significant ³
Season	0.0088 (0.0868)	YES (NO)
Mode of Access	0.3470 (0.8583)	NO (NO)
Age	0.0025 (0.0089)	YES (YES)
Gender	0.8521 (0.9998)	NO (NO)
Race/Ethnicity	0.2294 (0.7703)	NO (NO)
Household Income	0.8794 (0.9584)	NO (NO)
Party Size	0.7263 (0.8719)	NO (NO)
Length of Trip	0.0242 (0.0476)	YES (YES)
Origin of Visitor		
Domestic of Foreign	0.5307 (0.9754)	NO (NO)
Florida	0.9771 (1.000)	NO (NO)

1. The tests used were the Kolmogorov-Smirnov Two-sample Test and the Kuiper Two-sample Exact Test, which tests the differences in the distributions of socioeconomic factors between YES and NO response groups.
2. Statistical significance of .01 means that the distribution of the socioeconomic factor for respondents to the mailback survey was different from those that did not respond at the 99 percent confidence level. Similarly, .05 significance corresponds to the 95 percent confidence level and .10 corresponds to the 90 percent confidence level.
3. YES indicates distributions are different at the .10 significance or the 90 percent confidence level. First answer is Kolmogorov-Smirnov and second in parentheses is the Kuiper test.

Table A.3.3. Variable Definitions for Multivariate Tests of Response Rates and Socioeconomic Factors: Dec. 07 - Nov. 08 Expenditure Mailback

Variable	Definition	Mean ¹
ERESPOND	Responded to the mailback 1=yes 0=no	0.1531
WINTER	Dummy Variable for Season 1=Winter 0=Summer	0.1356
AUTO	Dummy Variable for Mode of Access 1=Auto 0=other	0.1640
AIR	Dummy Variable for Mode of Access 1=Air 0=other	0.1441
CRUISE	Dummy Variable for Mode of Access 1=Cruise Ship	0.0877
FERRY	Dummy Variable for Mode of Access 1=Ferry	0.1640
AGE	Age of Respondent	50.75
MALE	Dummy Variable for Gender of Respondent 1=male	0.1467
WHITE	Dummy Variable for Race/Ethnicity 1=White 0=Other	0.1634
BLACK	Dummy Variable for Race/Ethnicity 1=Black 0=Other	0.0152
NATIVE	Dummy Variable for Race/Ethnicity 1=Native American	0
ASIAN	Dummy Variable for Race/Ethnicity 1=Asian,Pac. Isl.	0
HISPANIC	Dummy Variable for Race/Ethnicity 1=Hispanic Origin	0.0833
INC2MISS	Dummy Variable for Household Income 1=Missing	0.1626
INC20K	Dummy Variable for Household Income 1=<20k	0.1683
INC40K	Dummy Variable for Household Income 1=20-39.999k	0.1125
INC60K	Dummy Variable for Household Income 1=40-59.999k	0.1529
INC100K	Dummy Variable for Household Income 1=60-99.999k	0.1766
INC150K	Dummy Variable for Household Income 1=100k and over	0.1443
DOMESTIC	Dummy Variable for Origin of Visitor 1=Domestic 0=Foreign	0.1595
FLDUM	Dummy Variable for Origin of Visitor 1=Florida Resident	0.1660
DAYS	Length of Interview Trip in Days	5.04
NUMPPL	Number of People in Traveling Party	2.56

1. Total sample size was 2,854, but there was item non response for variables AGE (68), Race/Ethnicity (85), Gender (24), and Origin of Visitor (6). Number of missing in parentheses.

Table A.3.4. Multivariate Tests of Response Rates and Socioeconomic Factors
Dec. 07 - Nov. 08, Expenditure Mailback

Socioeconomic Factor	OLS	Probit	Logit
Constant	-0.07614 (-1.13)	-2.6656 (-5.74)***	-5.0683 (-4.64)***
WINTER	-0.07591 (-4.72)***	-0.3233 (-4.74)***	-0.5883 (-4.79)***
AUTO	0.09077 (-3.68)***	0.4437 (3.74)***	0.8206 (3.59)***
AIR	0.05423 (1.85)*	0.282 (2.03)**	0.5325 (2.02)**
FERRY	0.04613 (-1.60)	0.256 (1.91)*	0.4687 (1.84)*
AGE	0.00205 (3.88)***	0.0091 (3.95)***	0.0161 (3.87)***
MALE	-0.01755 (-1.20)	-0.0654 (-1.05)	-0.1289 (-1.15)
WHITE	0.13873 (2.97)**	1.1605 (2.85)**	2.4602 (2.43)**
HISPANIC	0.02573 (0.45)	0.597 (1.35)	1.391 (1.30)
ASIAN	0.08997 (0.98)	0.9416 (1.70)*	1.9589 (1.55)
INC40K	-0.06895 (-1.43)	-0.325 (-1.53)	-0.5273 (-1.36)
INC60K	-0.02435 (-0.57)	-0.1053 (-0.58)	-0.1606 (-0.49)
INC100K	-0.01143 (-0.28)	-0.0577 (-0.33)	-0.0711 (-0.23)
INC150K	-0.05266 (-1.34)	-0.2283 (-1.35)	-0.3852 (-1.26)
INC2MISS	-0.03427 (-0.73)	-0.1517 (-0.76)	-0.2346 (-0.66)
DAYS	-0.00106 (-1.40)	-0.0053 (-1.40)	-0.0097 (-1.36)
NUMPPL	-0.00531 (-1.19)	-0.0247 (-1.14)	-0.0492 (-1.19)
DOMESTIC	0.0528 (2.49)**	0.2347 (2.47)**	0.4351 (2.45)**
FLDUM	0.01087 (0.59)	0.0368 (0.48)	0.0617 (0.45)
Dependent Var ERESPOND (mean)	0.1585	0.1585	0.1585
Adjusted R-square	0.0224	N/A	N/A
F - Significance	0.0001	N/A	N/A
Restricted Log-likelihood	N/A	-1172.167	-1172.167
Chi-squared of Significance	N/A	0.0000	0.0000
N	2,681	2,681	2,681

1. T-values are in parentheses. * means the coefficient is significant at .10, ** means at .05, and *** means coefficient is significant at .001.

Table A.3.5. Variable Definitions for Relationship Between Expenditures and Socioeconomic Factors: Dec. 07 - Nov. 08 Expenditure Mailback

Variable	Definition	Mean ¹
LODGEPPC	Expenditures on lodging per person-trip in Monroe County	\$250.40
FOODPPC	Expenditures on food & beverages per person-trip in Monroe County	\$253.91
TRANSPCC	Expenditures on transportation per person-trip in Monroe County	\$77.98
BOATPPC	Expenditures on boating per person-trip in Monroe County	\$29.19
FISHPPC	Expenditures on fishing per person-trip in Monroe County	\$29.28
DIVPPC	Expenditures on diving per person-trip in Monroe County	\$28.19
SIGHPPC	Expenditures on sightseeing per person-trip in Monroe County	\$21.52
OTHACPPC	Expenditures on other activities per person-trip in Monroe County	\$15.84
MISCPCC	Expenditures on miscellaneous items per person-trip in Monroe County	\$55.59
SERVPPC	Expenditures on services per person-trip in Monroe County	\$2.78
TOTVPPC	Total Trip Related Expenditures per person-trip in Monroe County	\$764.69
WINTER	Dummy Variable for Season 1=Winter 0=Summer	0.5606
AUTO	Dummy Variable for Mode of Access 1=Auto 0=other	0.6224
AIR	Dummy Variable for Mode of Access 1=Air 0=other	0.1533
CRUISE	Dummy Variable for Mode of Access 1=Cruise Ship	0.0572
FERRY	Dummy Variable for Mode of Access 1=Ferry	0.1670
AGE	Age of Respondent	52.70
MALE	Dummy Variable for Gender of Respondent 1=male	0.5968
WHITE	Dummy Variable for Race/Ethnicity 1=White 0=Other	0.9698
BLACK	Dummy Variable for Race/Ethnicity 1=Black 0=Other	0.0023
NATIVE	Dummy Variable for Race/Ethnicity 1=Native American	0
ASIAN	Dummy Variable for Race/Ethnicity 1=Asian,Pac. Isl.	0.0046
HISPANIC	Dummy Variable for Race/Ethnicity 1=Hispanic Origin	0.0232
INC2MISS	Dummy Variable for Household Income 1=Missing	0.0755
INC20K	Dummy Variable for Household Income 1=<20k	0.0389
INC40K	Dummy Variable for Household Income 1=20-39.999k	0.0412
INC60K	Dummy Variable for Household Income 1=40-59.999k	0.1396
INC100K	Dummy Variable for Household Income 1=60-99.999k	0.2586
INC150K	Dummy Variable for Household Income 1=100k and over	0.4462
DOMESTIC	Dummy Variable for Origin of Visitor 1=Domestic 0=Foreign	0.8899
FLDUM	Dummy Variable for Origin of Visitor 1=Florida Resident	0.2706
DAYS	Length of Interview Trip in Days	4.81
QPPL	Number of People in Traveling Party Paying for	2.24

1. Total sample size was 437 but there was item non response for variables AGE (4), Race/Ethnicity (6), Gender (3), and Origin of Visitor (1).

Table A.3.6. Tests of Relationships between Expenditures and Socioeconomic
Factors: Dec. 07 - Nov. 08

Independent Variables	LOGDEPPC	FOODPPC	TRANSPPC	BOATPPC	FISHPPC	DIVPPC
Constant	98.6622 (0.40)	185.9817 (1.24)	-35.0738 (-0.41)	-103.0231 (-0.99)	-7.0237 (-0.10)	11.2059 (0.17)
WINTER	73.8587 (1.29)	-9.8201 (-0.28)	-12.5227 (-0.64)	-43.7438 (-1.84)*	-31.3801 (-1.86)*	-25.9672 (-1.68)*
AUTO	96.5150 (0.86)	116.1556 (1.72)*	33.7133 (0.88)	37.9184 (0.81)	23.5828 (0.71)	20.5789 (0.68)
AIR	201.7781 (1.56)	285.3362 (3.66)***	199.027 (4.48)***	86.9164 (1.61)	61.0138 (1.60)	53.0716 (1.52)
FERRY	-28.5323 (-0.23)	57.7859 (0.77)	14.5561 (0.34)	2.8704 (0.06)	0.8457 (0.02)	-1.9622 (-0.06)
AGE	1.4441 (0.70)	-1.3342 (-1.08)	0.578 (0.82)	1.8656 (2.18)**	0.0251 (0.04)	-0.2842 (-0.51)
MALE	-111.0498 (-2.09)**	52.4356 (1.63)	18.197 (1.00)	31.5641 (1.42)	22.9381 (1.46)	1.5383 (0.11)
WHITE	-99.1175 (-0.64)	-129.6626 (-1.38)	22.8515 (0.43)	-27.7547 (-0.43)	22.6292 (0.49)	28.223 (0.67)
INC2MISS	91.4000 (0.54)	-5.1591 (-0.05)	-11.9704 (-0.21)	2.5726 (0.04)	-43.2672 (-0.87)	-14.071 (-0.31)
INC40K	-130.8814 (-0.70)	30.0691 (0.27)	43.6154 (0.68)	-24.3351 (-0.31)	-35.2251 (-0.64)	-13.4478 (-0.27)
INC60K	94.3410 (0.62)	117.5319 (1.28)	-12.6141 (-0.24)	77.9078 (1.23)	-14.8909 (-0.33)	-20.7554 (-0.50)
INC100K	62.9957 (0.43)	44.1092 (0.49)	-18.3666 (-0.36)	11.4234 (0.19)	-19.304 (-0.44)	-15.3101 (-0.40)
INC150K	86.003 (0.60)	78.4812 (0.91)	-1.98835 (-0.04)	-11.8385 (-0.20)	-6.4105 (-0.15)	10.9274 (0.28)
DOMESTIC	-105.5409 (-1.26)	78.0251 (1.54)	20.6155 (0.72)	22.1447 (0.63)	26.9726 (1.09)	15.3101 (0.67)
FLDUM	-15.0389 (-0.24)	-64.0749 (-1.66)*	-22.2314 (-1.01)	28.4021 (1.07)	0.2747 (0.01)	-29.8395 (-1.73)*
DAYS	47.353 (11.57)***	26.3752 (10.68)***	7.1944 (5.12)***	2.2994 (1.35)	1.4718 (1.22)	0.3534 (0.32)
QPPL	-38.9923 (-1.80)*	-58.4154 (-4.47)***	-16.9521 (-2.28)**	-7.5673 (-0.84)	-10.2641 (-1.60)	-2.2785 (-0.39)
Adj. R-SQ	0.3053	0.3368	0.1965	0.0273	0.013	0.0147
F-signif	0.0001	0.0001	0.0001	0.0366	0.1637	0.1404
N	425	425	425	425	425	425

1. T-values in parentheses. * means statistically significant at .10, ** means statistically significant at .05, and *** means statistically significant at .001.

Table A.3.6. Tests of Relationships between Expenditures and Socioeconomic Factors: Dec. 07 - Nov. 08 (Continued)

Independent Variables	SIGHPPC	OTHACPPC	MISCPPC	SERVPPC	TOTVPPC
Constant	22.8439 (1.12)	19.6657 (0.64)	90.4063 (1.86)*	-3.5963 (-0.28)	280.0489 (0.67)
WINTER	0.7216 (0.15)	-4.301 (-0.61)	-15.4678 (-1.39)	-0.6055 (-0.21)	-69.2279 (-0.73)
AUTO	-0.4306 (-0.05)	2.7821 (0.20)	-28.1729 (-1.29)	0.0836 (0.01)	302.7263 (1.62)
AIR	14.4713 (1.37)	8.7219 (0.55)	-36.9312 (-1.46)	-4.3151 (-0.65)	869.0901 (4.03)***
FERRY	14.0366 (1.39)	5.8056 (0.38)	7.823 (0.32)	-2.1629 (-0.34)	71.0727 (0.34)
AGE	-0.19033 (-1.13)	-0.1614 (-0.64)	-0.8877 (-2.22)**	0.0648 (0.61)	1.1198 (0.33)
MALE	-4.5222 (-1.04)	-8.0728 (-1.23)	9.293 (0.90)	-0.1663 (-0.06)	12.1549 (0.14)
WHITE	2.0779 (0.16)	0.4497 (0.02)	-14.6021 (-0.48)	0.184 (0.02)	-194.7215 (-0.75)
INC2MISS	1.0839 (0.08)	8.5635 (0.41)	-18.7232 (-0.57)	-3.2547 (-0.37)	7.1744 (0.03)
INC40K	19.1369 (1.25)	21.5148 (0.93)	-1.8559 (-0.05)	-3.9256 (-0.41)	-95.3347 (-0.31)
INC60K	12.7621 (1.02)	6.6308 (0.35)	17.077 (0.57)	1.8294 (0.23)	279.8196 (1.10)
INC100K	-2.6776 (-0.22)	13.2397 (0.73)	0.1204 (0.00)	2.0736 (0.27)	77.8016 (0.32)
INC150K	7.1621 (0.61)	11.0245 (0.63)	14.6351 (0.53)	-2.4831 (-0.34)	185.5128 (0.78)
DOMESTIC	1.275 (0.19)	6.2324 (0.60)	17.5876 (1.07)	1.8009 (0.42)	84.423 (0.60)
FLDUM	-3.9199 (-0.75)	-2.0549 (-0.26)	-17.9313 (-1.44)	-1.1781 (-0.36)	-127.5922 (-1.20)
DAYS	0.8084 (2.41)**	0.5801 (1.15)	11.0553 (13.84)***	1.0209 (4.83)***	98.5121 (14.43)***
QPPL	-1.7935 (-1.01)	-4.8197 (-1.80)*	-8.6116 (-2.04)**	-0.5654 (-0.50)	-150.26 (-4.15)***
Adj. R-SQ	0.0412	-0.0093	0.3217	0.0418	0.4455
F-signif	0.0065	0.7353	0.0001	0.006	0.0001
N	425	425	425	425	425

1. T-values in parentheses. * means statistically significant at .10, ** means statistically significant at .05, and *** means statistically significant at .001.

Table A.3.7. Response Rates by Socioeconomic Factors: Dec. 07 - Nov. 08 Satisfaction Mailback

Socioeconomic Factor	Response Rate (%)	On-Site Sample Size	Mailback Sample Size	Winter Mailback Sample Size	Summer Mailback Sample Size
Season					
Winter	13.78	1,807	249	249	0
Summer	19.48	1,047	204	0	204
Mode of Access					
Auto	17.66	1,659	293	174	119
Air-Key West	14.84	465	69	27	42
Cruise Ship	7.72	285	22	14	8
Ferry	15.51	445	69	34	35
Age					
16-25	6.87	131	9	2	7
26-35	13.18	349	46	16	30
36-45	13.82	492	68	31	37
46-60	18.30	1,060	194	104	90
Over 60	17.37	754	131	94	37
Missing	7.35	68	5	2	3
Gender					
Male	15.30	1,765	270	162	108
Female	16.90	1,065	180	87	93
Missing	12.50	24	3	0	3
Household Income					
Under \$20,000	18.81	101	19	8	11
\$20,000-\$39,000	15.00	160	24	17	7
\$40,000-\$59,000	14.79	399	59	30	29
\$60,000-\$100,000	17.97	640	115	77	38
Over \$100,000	15.25	1,351	206	106	100
Missing	14.78	203	30	11	19
Race/Ethnicity					
White Non Hispanic	16.54	2,558	423	240	183
Black Non Hispanic	4.55	66	3	3	0
Native American Non Hispanic	0.00	2	0	0	0
Asian Non Hispanic	9.52	21	2	2	0
Native Hawaiian Non Hispanic	0.00	2	0	0	0
Hispanic	12.50	120	15	4	11
Missing	11.76	85	10	0	10
Origin of Visitor					
Domestic	16.52	2,433	402	216	186
Foreign	12.29	415	51	33	18
Florida	17.56	712	125	43	82
Missing	0.00	6	0	0	0
Total Sample	15.87	2,854	453	249	204

Table A.3.8. Univariate Tests of Response Rates and Socioeconomic Factors:
Dec. 07 - May 08 Satisfaction Mailback

Socioeconomic Factor	Statistical Significance of	
	KS Test	Significant
Mode of Access	0.0029	YES
Age	0.5253	NO
Household Income	0.9398	NO
Origin of Visitor		
Domestic	1.0000	NO
Florida	1.0000	NO
Race/Ethnicity	1.0000	NO

Table A.3.9. Variable Definitions for Tests of Relationships Between Importance Ratings and Socioeconomic Factors: December 2007 - May 2008

Variable	Definition	N	Mean
RESPOND	Responded to the mailback 1=yes 0=no	249	0.1378
NUMPPL	Number of People in Party/Vehicle	249	2.3173
AGE	Age of Person Interviewed	247	56.1012
MALE	Dummy Variable 1=Gender is Male	249	0.6506
HISPANIC	Dummy Variable 1=Race/Ethnicity is Hispanic	249	0.0161
WHITE	Dummy Variable 1=Race/Ethnicity is White	249	0.9639
FLDUM	Dummy Variable 1=Florida Resident	249	0.1727
DAYUSE	Dummy Variable 1=Day Use Visitor	249	0.1446
INC2MISS	Dummy Variable 1=Household Income Missing	249	0.0442
INC40K	Dummy Variable 1=Household Income \$20,000 to \$39,999	249	0.0683
INC60K	Dummy Variable 1=Household Income \$40,000 to \$59,999	249	0.1205
INC100K	Dummy Variable 1=Household Income \$60,000 to \$100,000	249	0.3092
INC150K	Dummy Variable 1=Household Income over \$100,000	249	0.4257
AIR	Dummy Variable 1=Air Mode of Access	249	0.1084
AUTO	Dummy Variable 1=Auto Mode of Access	249	0.6988
FERRY	Dummy Variable 1=Ferry Mode of Access	249	0.1365
DOMESTIC	Dummy Variable 1=Domestic Visitor 0=Foreign Visitor	249	0.8675

Table A.3.10. Multivariate Tests of Response Rates and Socioeconomic Factors: Dec. 07 - May 08
Satisfaction Mailback

Socioeconomic Factor	Ordinary Least Squares	Probit	Logit
Constant	0.055675067 (-0.616)	-1.534899751 (-3.46) ***	-2.812663547 (-3.268) ***
NUMPPL	-0.003580594 (-0.55)	-0.02186268 (-0.651)	-0.033897031 (-0.552)
AGE	0.001352104 (2.198)**	0.006082406 (2.124)**	0.011266204 (2.146)**
MALE	0.003393624 (0.193)	0.013296024 (0.165)	0.022974003 (0.155)
HISPANIC	-0.036972227 (-0.458)	-0.190714916 (-0.461)	-0.295020188 (-0.362)
ASIAN	0.078792972 (0.666)	0.391830293 (0.734)	0.765812078 (0.764)
WHITE	0.011476342 (0.183)	0.068573384 (0.217)	0.18505519 (0.296)
FLDUM	0.000135274 (0.006)	-0.000667892 (-0.006)	0.008269755 (0.042)
DAYUSE	-0.061806917 (-2.3)**	-0.287462786 (-2.238) **	-0.530161318 (-2.158) **
INC2MISS	-0.057441217 (-0.933)	-0.294162459 (-1.042)	-0.479818036 (-0.914)
INC40K	-0.015265048 (-0.266)	-0.104488916 (-0.404)	-0.139069326 (-0.291)
INC60K	-0.04418439 (-0.86)	-0.239976102 (-1.021)	-0.390913446 (-0.885)
INC100K	0.015014362 (0.301)	0.023058473 (0.103)	0.085595738 (0.205)
INC150K	-0.037963812 (-0.789)	-0.193898735 (-0.888)	-0.31843236 (-0.78)
AIR	-0.021620174 (-0.515)	-0.018728503 (-0.087)	-0.001498559 (-0.004)
AUTO	0.053213508 (1.498) *	0.319650154 (1.734) *	0.627874252 (1.702) *
FERRY	0.026129929 (0.69)	0.210635028 (1.076)	0.424733362 (1.098)
DOMESTIC	0.020102911 (0.806)	0.091034766 (0.795)	0.158755278 (0.75)
Adjusted R-Square	0.01469	N/A	N/A
F - significance		N/A	N/A
Restricted Log-likelihood	-637.5	-710.17	-710.17
Chi-squared Significance	N/A	0.000302	0.000299
N	1,736	1,736	1,736

1. T-values in parentheses under the estimated coefficient and * means significant at the 0.10 level, ** means significant at the 0.05 level, and *** means significant at the 0.001 level.

Table A.3.11. Variable Definitions for Tests of Relationships Between Importance Ratings and Socioeconomic Factors: December 2007 - May 2008

Variable	Definition	N	Mean
NUMPPL	Number of People in Party/Vehicle	249	2.3173
AGE	Age of Person Interviewed	247	56.1012
MALE	Dummy Variable 1=Gender is Male	249	0.6506
HISPANIC	Dummy Variable 1=Race/Ethnicity is Hispanic	249	0.0161
WHITE	Dummy Variable 1=Race/Ethnicity is White	249	0.9639
FLDUM	Dummy Variable 1=Florida Resident	249	0.1727
DAYUSE	Dummy Variable 1=Day Use Visitor	249	0.1446
INC2MISS	Dummy Variable 1=Household Income Missing	249	0.0442
INC40K	Dummy Variable 1=Household Income \$20,000 to \$39,999	249	0.0683
INC60K	Dummy Variable 1=Household Income \$40,000 to \$59,999	249	0.1205
INC100K	Dummy Variable 1=Household Income \$60,000 to \$100,000	249	0.3092
INC150K	Dummy Variable 1=Household Income over \$100,000	249	0.4257
AIR	Dummy Variable 1=Air Mode of Access	249	0.1084
AUTO	Dummy Variable 1=Auto Mode of Access	249	0.6988
FERRY	Dummy Variable 1=Ferry Mode of Access	249	0.1365
DOMESTIC	Dummy Variable 1=Domestic Visitor 0=Foreign Visitor	249	0.8675
IMPWATER	Importance Rating Clear Water (Scores 1 to 5)	215	4.0279
IMPCORAL	Importance Rating Amount of Living Coral on Reefs	192	3.8646
IMPTRANS	Importance Rating Public Transportation	189	2.5979
IMPPARK	Importance Rating Parking	216	3.4352
IMPVIEW	Importance Rating Many Different Kinds of Fish and Sea Life to View	206	3.7039
IMPCATCH	Importance Rating Many Different Kinds of Fish and Sea Life to Catch	169	2.5444
IMPRAMP	Importance Rating Boat Ramps/Launching Facilities	144	2.1806
IMPMARIN	Importance Rating Marina Facilities	147	2.3946
IMPSEEV	Importance Rating Service and Friendliness of People	238	4.3571
IMPHIST	Importance Rating Historic Preservation (historic landmarks, houses)	232	3.9267
IMPREST	Importance Rating Availability of Public Restrooms	237	3.9747

Table A.3.12. Tests of Relationships Between Importance Ratings and Socioeconomic Factors:
December 2007 - May 2008

Independent Variables	IMPWATER	IMPCORAL	IMPTRANS	IMPPARK	IMPVIEW	IMPCATCH	IMPRAMP
Constant	3.8503 (5.10)***	5.7702 (5.72)***	2.5853 (2.20)**	2.3336 (2.33)**	5.4315 (6.06)***	0.8655 (0.56)	0.8656 (0.56)
Number of People	-0.0074 (-0.10)	-0.0664 (-0.67)	-0.2802 (-2.64)**	-0.0142 (-0.16)	-0.1326 (-1.62)	-0.1218 (-0.96)	-0.2456 (-1.90)
Age	-0.0071 (-1.32)	-0.0202 (-2.78)**	0.0059 (0.71)	0.0076 (1.19)	-0.0248 (-3.91)**	0.0079 (0.85)	0.0039 (0.41)
Male	-0.0455 (-0.33)	-0.0259 (-0.14)	-0.1776 (-0.82)	-0.4065 (-2.39)	-0.0409 (-0.25)	-0.0840 (-0.33)	-0.2869 (-1.19)
Hispanic	0.4426 (0.66)	-0.8306 (-0.98)	-0.2863 (-0.30)	-0.5224 (-0.64)	0.7831 (0.98)	0.5462 (0.39)	0.4866 (0.31)
White	-0.0337 (-0.07)	-0.3451 (-0.56)	-0.4223 (-0.60)	0.2723 (0.46)	0.0104 (0.02)	1.3570 (1.26)	0.5770 (0.42)
FLDUM	0.2593 (1.39)	0.3700 (1.43)	-0.0276 (-0.09)	0.0540 (0.23)	0.2653 (1.19)	0.6748 (2.03)**	0.6855 (2.12)
Day Visitor	-0.1217 (-0.49)	-0.5918 (-1.74)*	0.2775 (0.74)	0.2875 (1.00)	-0.4317 (-1.47)	-0.8061 (-1.82)*	0.0137 (0.04)
INC2MISS	0.7527 (1.53)	0.0849 (0.13)	1.7226 (2.18)**	1.6013 (-2.47)**	0.3077 (0.52)	0.1396 (0.15)	0.9223 (1.26)
INC40K	-0.0117 (-0.03)	0.3714 (0.58)	0.8963 (1.31)	0.6446 (1.06)	-0.2810 (-0.50)	0.7512 (0.86)	0.9300 (1.34)
INC60K	0.7721 (1.79)*	0.1940 (0.33)	1.2288 (1.96)**	1.3908 (2.42)**	-0.1437 (-0.27)	0.9487 (1.14)	0.7546 (1.20)
INC100K	0.4585 (1.12)	-0.1289 (-0.23)	1.2806 (2.17)**	1.1193 (2.06)**	-0.1484 (-0.30)	0.7019 (0.89)	0.9205 (1.61)
INC150K	0.4680 (1.16)	0.1024 (0.19)	0.9316 (1.60)	1.0912 (2.03)**	0.0534 (0.11)	0.7919 (1.02)	0.8514 (1.50)
Air	0.0491 (0.12)	-0.3338 (-0.59)	-0.0697 (-0.11)	-0.5058 (-0.95)	0.0358 (0.07)	-0.6362 (-0.78)	0.4250 (0.60)
Auto	-0.0388 (-0.11)	-0.4968 (-1.01)	-0.3223 (-0.57)	0.0020 (0.00)	-0.1120 (-0.26)	-0.3784 (-0.52)	0.9255 (1.52)
Ferry	-0.2273 (-0.58)	-0.7956 (-1.50)	0.7368 (1.25)	-0.4627 (-0.91)	-0.4870 (-1.08)	-0.7548 (-1.00)	0.2391 (0.38)
Domestic	0.2325 (1.19)	0.1869 (0.73)	-0.1147 (-0.39)	-0.3626 (-1.57)	0.1723 (0.79)	-0.0645 (-0.17)	-0.4568 (-1.31)
Adj. R-SQ	0.0146	0.0244	0.0770	0.0606	0.1032	-0.0106	0.0268
F-signif	0.2731	0.2046	0.0176	0.0263	0.0021	0.5813	0.2457
N	213	190	187	214	204	168	142

1. T-values in parentheses under the estimated coefficient and * means significant at the 0.01 level,
** means significant at the 0.05 level, and *** means significant at the 0.001 level.

Table A.3.12. Tests of Relationships Between Importance Ratings and Socioeconomic Factors:
December 2007 - May 2008 (Continued)

Independent Variables	IMPMARIN	IMPSEV	IMPHIST	IMPREST
Constant	0.2982 (0.18)	4.8717 (8.43)***	3.3574 (4.25)***	3.8495 (4.77)***
Number of People	-0.2013 (-1.52)	-0.1174 (-2.08)**	-0.0919 (-1.20)	-0.0785 (-0.99)
Age	0.0105 (1.04)	0.0011 (0.26)	0.0056 (1.01)	0.0125 (2.20)**
Male	-0.0529 (-0.21)	-0.1121 (-1.04)	-0.1452 (-1.00)	-0.2488 (-1.66)*
Hispanic	1.3810 (0.82)	-0.5399 (-1.04)	1.3331 (1.77)*	-0.5822 (-0.81)
White	0.9427 (0.65)	-0.2804 (-0.77)	0.0777 (0.16)	0.1266 (0.25)
FLDUM	0.4751 (1.39)	0.0220 (0.15)	-0.0544 (-0.27)	-0.0037 (-0.02)
Day Visitor	-0.1434 (-0.36)	-0.2268 (-1.25)	0.0009 (0.00)	-0.1898 (-0.73)
INC2MISS	1.0089 (1.29)	0.7993 (2.05)**	1.0729 (2.07)**	0.3335 (0.62)
INC40K	0.9409 (1.26)	0.3430 (0.93)	0.4255 (0.89)	0.5152 (1.02)
INC60K	1.3073 (1.99)**	0.6724 (2.03)**	0.9560 (2.17)**	0.8113 (1.77)*
INC100K	1.4057 (2.29)**	0.6187 (1.96)**	0.7700 (1.84)*	0.5087 (1.17)
INC150K	1.2036 (1.99)**	0.7299 (2.35)**	0.9939 (2.40)**	0.5360 (1.25)
Air	0.2839 (0.38)	-0.5715 (-1.73)*	-0.2929 (-0.66)	-0.9727 (-2.17)**
Auto	0.3438 (0.53)	-0.4652 (-1.60)	-0.2218 (-0.57)	-0.6001 (-1.53)
Ferry	0.2083 (0.31)	-0.1926 (-0.62)	0.0673 (0.16)	-0.3595 (-0.85)
Domestic	-0.5423 (-1.46)	-0.1757 (-1.15)	-0.2310 (-1.15)	-0.3142 (-1.50)
Adj. R-SQ	-0.0130	0.0144	0.0130	0.0407
F-signif	0.5893	0.2578	0.2794	0.0652
N	146	236	230	235

1. T-values in parentheses under the estimated coefficient and * means significant at the 0.01 level, ** means significant at the 0.05 level, and *** means significant at the 0.001 level.

Table A.3.13. Univariate Tests of Response Rates and Socioeconomic Factors:
June - November 2008 Satisfaction Mailback

Socioeconomic Factor	Statistical Significance of KS Test	Significant
Mode of Access	0.9699	NO
Age	0.0006	YES
Household Income	0.9987	NO
Origin of Visitor		
Domestic	0.2314	NO
Florida	0.9386	NO
Race/Ethnicity	0.3200	NO

Table A.3.14. Variable Definitions for Tests of Relationships Between Importance Ratings and
Socioeconomic Factors: June 2008 - November 2008

Variable	Definition	N	Mean
RESPONSE	Responded to the mailback 1=yes 0=no	204	0.1948
NUMPPL	Number of People in Party/Vehicle	204	2.7353
AGE	Age of Person Interviewed	201	48.2139
MALE	Dummy Variable 1=Gender is Male	201	0.5373
HISPANIC	Dummy Variable 1=Race/Ethnicity is Hispanic	194	0.0567
WHITE	Dummy Variable 1=Race/Ethnicity is White	194	0.9433
FLDUM	Dummy Variable 1=Florida Resident	203	0.4039
DAYUSE	Dummy Variable 1=Day Use Visitor	204	0.2157
INC2MISS	Dummy Variable 1=Household Income Missing	204	0.0931
INC40K	Dummy Variable 1=Household Income \$20,000 to \$39,999	204	0.0343
INC60K	Dummy Variable 1=Household Income \$40,000 to \$59,999	204	0.1422
INC100K	Dummy Variable 1=Household Income \$60,000 to \$100,000	204	0.1863
INC150K	Dummy Variable 1=Household Income over \$100,000	204	0.4902
AIR	Dummy Variable 1=Air Mode of Access	204	0.2059
AUTO	Dummy Variable 1=Auto Mode of Access	204	0.5833
FERRY	Dummy Variable 1=Ferry Mode of Access	204	0.1716
DOMESTIC	Dummy Variable 1=Domestic Visitor 0=Foreign Visitor	204	0.9118

Tablea.3.15. Multivariate Tests of Response Rates and Socioeconomic Factors: Jun. 08 - Nov. 08
Satisfaction Mailback

Socioeconomic Factor	Ordinary Least Squares	Probit	Logit
Constant	-0.279269848 (-2.344) **	-2.905938857 (-6.006) ***	-5.02003693 (-5.78) ***
NUMPPL	-0.003035812 (-0.464)	-0.011709176 (-0.423)	-0.017484617 (-0.364)
AGE	0.004365666 (4.208) ***	0.016445306 (4.19) ***	0.028057967 (4.104) ***
MALE	-0.057998863 (-2.138) **	-0.212318816 (-2.139) **	-0.363464755 (-2.114) **
WHITE	0.152985073 (3.619) ***	0.701174089 (3.637) ***	1.246578993 (3.432) ***
FLDUM	0.040246656 (1.307)	0.14606968 (1.303)	0.245850928 (1.278)
DAYUSE	0.094327109 (2.385) **	0.365285691 (2.613) **	0.610284621 (2.548) **
INC2MISS	-0.08366139 (-1.052)	-0.335374159 (-1.124)	-0.543764735 (-1.039)
INC40K	-0.044026091 (-0.476)	-0.189477721 (-0.535)	-0.267231385 (-0.431)
INC60K	-0.011964851 (-0.154)	-0.054074621 (-0.189)	-0.043241141 (-0.086)
INC100K	-0.05821925 (-0.79)	-0.216000922 (-0.79)	-0.348238956 (-0.724)
INC150K	-0.065746478 (-0.932)	-0.241461112 (-0.926)	-0.387104868 (-0.846)
AIR	0.177860084 (2.404) **	0.724355648 (2.534) **	1.249792687 (2.467) **
AUTO	0.175211383 (2.572) **	0.716682191 (2.694) **	1.225058263 (2.604) **
FERRY	0.048213843 (0.673)	0.225942432 (0.817)	0.375095586 (0.766)
DOMESTIC	0.095422364 (2.301) **	0.393156857 (2.386) **	0.688292539 (2.288) **
Adjusted R-Square	0.04658	N/A	N/A
F - significance		N/A	N/A
Restricted Log-likelihood	-485.9	-480.8	-480.8
Chi-squared Significance	N/A	0	0
N	944	944	944

1. T-values in parentheses under the estimated coefficient and * means significant at the 0.10 level, ** means significant at the 0.05 level, and *** means significant at the 0.001 level.

Table A.3.16. Variable Definitions for Tests of Relationships Between Importance Ratings and Socioeconomic Factors: June 2008 - November 2008

Variable	Definition	N	Mean
NUMPPL	Number of People in Party/Vehicle	204	2.7353
AGE	Age of Person Interviewed	201	48.2139
MALE	Dummy Variable 1=Gender is Male	201	0.5373
HISPANIC	Dummy Variable 1=Race/Ethnicity is Hispanic	194	0.0567
WHITE	Dummy Variable 1=Race/Ethnicity is White	194	0.9433
FLDUM	Dummy Variable 1=Florida Resident	203	0.4039
DAYUSE	Dummy Variable 1=Day Use Visitor	204	0.2157
INC2MISS	Dummy Variable 1=Household Income Missing	204	0.0931
INC40K	Dummy Variable 1=Household Income \$20,000 to \$39,999	204	0.0343
INC60K	Dummy Variable 1=Household Income \$40,000 to \$59,999	204	0.1422
INC100K	Dummy Variable 1=Household Income \$60,000 to \$100,000	204	0.1863
INC150K	Dummy Variable 1=Household Income over \$100,000	204	0.4902
AIR	Dummy Variable 1=Air Mode of Access	204	0.2059
AUTO	Dummy Variable 1=Auto Mode of Access	204	0.5833
FERRY	Dummy Variable 1=Ferry Mode of Access	204	0.1716
DOMESTIC	Dummy Variable 1=Domestic Visitor 0=Foreign Visitor	204	0.9118
IMPWATER	Importance Rating Clear Water (Scores 1 to 5)	195	4.0513
IMPCORAL	Importance Rating Amount of Living Coral on Reefs	177	3.9944
IMPTRANS	Importance Rating Public Transportation	180	2.4333
IMPPARK	Importance Rating Parking	185	3.2595
IMPVIEW	Importance Rating Many Different Kinds of Fish and Sea Life to View	186	4.0108
IMPCATCH	Importance Rating Many Different Kinds of Fish and Sea Life to Catch	166	2.7530
IMPRAMP	Importance Rating Boat Ramps/Launching Facilities	143	2.5594
IMPMARIN	Importance Rating Marina Facilities	149	2.6309
IMPSEEV	Importance Rating Service and Friendliness of People	202	4.2277
IMPHIST	Importance Rating Historic Preservation (historic landmarks, houses)	197	3.8832
IMPREST	Importance Rating Availability of Public Restrooms	201	4.0398

Table A.3.17. Tests of Relationships Between Importance Ratings and Socioeconomic Factors:
June 2008 - November 2008

Independent Variables	IMPWATER	IMPCORAL	IMPTRANS	IMPPARK	IMPVIEW	IMPCATCH	IMPRAMP
Constant	4.2045 (5.45)***	3.5987 (3.57)***	-0.0539 (-0.04)	2.3369 (2.14)**	2.9266 (3.27)***	1.5189 (1.15)	0.7804 (0.55)
Number of People	-0.0351 (-0.69)	-0.0834 (-1.31)	0.0436 (0.54)	-0.0079 (-0.12)	0.0225 (0.39)	-0.1637 (-1.71)*	0.0112 (0.12)
Age	-0.0016 (-0.28)	0.0001 (0.01)	0.0075 (0.88)	0.0122 (1.57)	0.0001 (0.01)	-0.0079 (-0.84)	0.0021 (0.23)
Male	-0.1900 (-1.37)	-0.0485 (-0.28)	-0.1534 (-0.71)	-0.4328 (-2.28)**	0.0537 (0.34)	0.8259 (3.50)***	0.3266 (1.39)
White	0.0565 (0.16)	0.2607 (0.64)	0.2181 (0.42)	-0.5943 (-1.35)	0.1419 (0.37)	0.0086 (0.01)	0.4262 (0.76)
FLDUM	0.0948 (0.57)	0.2153 (1.05)	-0.3192 (-1.21)	-0.2413 (-1.07)	0.0497 (0.26)	0.8278 (2.96)**	0.8601 (3.17)***
Day Visitor	0.0141 (0.07)	-0.1153 (-0.46)	-0.0638 (-0.20)	0.3258 (1.25)	0.2059 (0.88)	0.0006 (0.00)	0.3658 (1.10)
INC2MISS	-0.0964 (-0.22)	-0.1634 (-0.31)	1.3520 (2.10)**	0.5457 (0.97)	0.0389 (0.08)	0.2956 (0.42)	-0.3043 (-0.43)
INC40K	0.1780 (0.36)	-0.0247 (-0.04)	1.1016 (1.52)	0.3330 (0.52)	0.2377 (0.43)	-0.5552 (-0.70)	-1.1023 (-1.32)
INC60K	-0.0270 (-0.07)	-0.2234 (-0.47)	0.9494 (1.65)*	0.0163 (0.03)	-0.2273 (-0.51)	0.0602 (0.09)	-0.4038 (-0.60)
INC100K	-0.0709 (-0.19)	0.0830 (0.18)	0.7700 (1.41)	-0.2714 (-0.55)	-0.0726 (-0.17)	0.0852 (0.14)	-0.6122 (-0.95)
INC150K	-0.1034 (-0.28)	0.0439 (0.10)	0.7503 (1.43)	-0.0511 (-0.11)	-0.1017 (-0.25)	0.2497 (0.44)	-0.1047 (-0.17)
Air	-0.3826 (-0.88)	0.1229 (0.21)	0.5464 (0.73)	0.7321 (1.10)	0.3681 (0.74)	-0.0839 (-0.10)	0.2147 (0.28)
Auto	-0.1878 (-0.45)	0.3588 (0.62)	0.4549 (0.62)	1.3591 (2.13)	0.5119 (1.07)	0.2435 (0.31)	0.2527 (0.34)
Ferry	-0.0774 (-0.18)	0.2446 (0.40)	1.6095 (2.09)**	1.0423 (1.56)	0.4258 (0.83)	-0.0035 (0.00)	0.1886 (0.24)
Domestic	0.2941 (1.18)	0.0594 (0.19)	0.6127 (1.58)	0.0678 (0.21)	0.4419 (1.54)	1.0275 (2.42)**	0.7362 (1.58)
Adj. R-SQ	-0.0326	-0.0456	0.0806	0.0441	-0.0530	0.1677	0.1025
F-signif	0.8525	0.9226	0.0208	0.1020	0.9695	0.0003	0.0203
N	180	164	167	172	172	154	133

1. T-values in parentheses under the estimated coefficient and * means significant at the 0.01 level,
** means significant at the 0.05 level, and *** means significant at the 0.001 level.

Table A.3.17. Tests of Relationships Between Importance Ratings and Socioeconomic Factors:
June 2008 - November 2008 (continued)

Independent Variables	IMPMARIN	IMPSEV	IMPHIST	IMPREST
Constant	1.2603 (1.06)	4.3075 (5.92)***	1.7902 (2.06)**	3.3947 (4.47)***
Number of People	-0.0238 (-0.27)	0.0723 (1.48)	0.1008 (1.71)*	0.0754 (1.49)
Age	0.0058 (0.68)	0.0060 (1.09)	0.0103 (1.59)	-0.0027 (-0.47)
Male	0.4123 (1.92)*	-0.2058 (-1.54)	-0.2632 (-1.65)*	0.0522 (0.38)
White	-0.0628 (-0.13)	-0.5540 (-1.75)*	-0.5544 (-1.48)	-0.1053 (-0.32)
FLDUM	0.4549 (1.84)*	-0.2359 (-1.48)	-0.1889 (-1.00)	-0.1596 (-0.97)
Day Visitor	-0.0491 (-0.16)	0.0275 (0.15)	0.1502 (0.69)	0.1695 (0.90)
INC2MISS	0.1357 (0.21)	0.0193 (0.05)	1.5354 (3.24)	0.5660 (1.36)
INC40K	-0.6270 (-0.83)	0.0110 (0.02)	0.4513 (0.82)	0.8452 (1.73)
INC60K	-0.1570 (-0.27)	0.0383 (0.10)	0.7410 (1.70)	-0.0085 (-0.02)
INC100K	-0.2425 (-0.44)	-0.4510 (-1.27)	0.4030 (0.97)	0.0546 (0.15)
INC150K	-0.0984 (-0.19)	-0.2583 (-0.76)	0.9027 (2.28)**	-0.0023 (-0.01)
Air	0.0921 (0.14)	0.1751 (0.44)	0.9192 (1.93)*	0.0986 (0.24)
Auto	0.1285 (0.20)	0.1477 (0.39)	0.8966 (1.99)**	0.3580 (0.91)
Ferry	0.2854 (0.42)	0.4940 (1.24)	1.2382 (2.63)**	0.7323 (1.77)*
Domestic	0.8401 (1.77)	0.1753 (0.73)	0.3684 (1.30)	0.2644 (1.06)
Adj. R-SQ	0.0242	0.0210	0.0965	0.0203
F-signif	0.2610	0.2282	0.0057	0.2355
N	138	187	182	186

1. T-values in parentheses under the estimated coefficient and * means significant at the 0.01 level, ** means significant at the 0.05 level, and *** means significant at the 0.001 level.

Table A.3.18. Weights for Additional Factors for the Expenditure Mailback

	On-site Weighted (%)	Expenditure Sample (%)	Expenditure Sample Weight
Length of Interview Trip (Days)			
1	34.89	18.31	1.905516111
2	14.15	13.73	1.030589949
3	13.19	17.85	0.738935574
4 - 7	29.04	37.99	0.764411687
8 - 14	5.61	8.24	0.680825243
15 or more	3.12	3.88	0.804123711
Number of People Paying For			
1	7.84	20.59	0.380767363
2	59.41	57.44	1.034296657
3	10.14	9.38	1.081023454
4	13.13	7.09	1.85190409
5	4.38	2.29	1.912663755
6 or more	5.1	3.21	1.588785047
Multivariate Demographic			
Domestic/White/Age 16-46	23.59	24.26	0.972382523
Domestic/Non-White/Age 16-46	5.69	1.14	4.99122807
Foreign/White/Age 16-46	8.81	3.66	2.407103825
Foreign/Non-White/Age 16-46	0.37	0	1
Domestic/Non-White/Age 47 and older	44.96	59.5	0.755630252
Domestic/Non-White/Age 47 and older	3.18	1.6	1.9875
Foreign/White/Age 47 and older	7.25	7.32	0.990437158
Foreign/Non-White/Age 47 and older	0.2	0	1
Missing	5.95	2.52	2.361111111

Table A.3.19. Weighted and Unweighted Estimates of Expenditures Per Person-Trip and Total Aggregated Expenditures for All Recreating Visitors

Expenditure	Unweighted	Weighted by Mode of Access and Season	Weighted for All Factors
Lodging			
Per Person-trip (sample mean)	\$250.40	\$212.41	\$327.70
Estimated Aggregate total	\$753,073,493	\$638,819,464	\$985,551,851
Percent of Reported (Monroe County)	110.59%	93.82%	144.74%
Total Expenditures			
Per Person-trip (sample mean)	\$764.69	\$605.73	\$931.69
Estimated Aggregate total	\$2,591,156,266	\$1,994,893,549	\$3,073,195,482
Total estimated (with multiplier 1.12)	\$2,902,095,018	\$2,234,280,683	\$3,441,978,940
Percent of Reported (Monroe County)	77.75%	59.86%	92.21%

Table A.3.20. Sample Weights for Additional Factors for the Winter and Summer Satisfaction Mailbacks

Season/Demographic Factors	On-site (%)	Mailback (%)	Weight
Winter			
Age 16 - 48/Day Use	5.64	3.21	1.7570
Age 47 and older/Day Use	14.39	6.83	2.1069
Age 16 - 48/Multiple Day Use	22.30	18.01	1.2382
Age 47 and older/Multiple Day Use	53.46	69.48	0.7694
Missing	4.21	2.41	1.7469
Summer			
Male/Domestic	49.18	47.55	1.0343
Male/Foreign	11.37	5.39	2.1095
Female/Domestic	34.00	42.16	0.8065
Female/Foreign	3.82	3.43	1.1137
Missing	1.62	1.47	1.1020

Table A.3.21. Weighted and Unweighted Importance Ratings: Winter Satisfaction Mailback

Importance Item	Unweighted Mean	Mode of Access Weighted Mean	Statistically Significant Difference ¹	All Factors Weighted Mean	Statistically Significant Difference ²
IMPWATER	4.02	4.02	NO	4.02	NO
IMPCORAL	3.86	3.90	NO	3.90	NO
IMPTRANS	2.60	2.61	NO	2.65	NO
IMPPARK	3.43	3.54	NO	3.57	NO
IMPVIEW	3.70	3.67	NO	3.64	NO
IMPCATCH	2.54	2.55	NO	2.57	NO
IMPRAMP	2.18	2.06	NO	2.02	NO
IMPMARIN	2.39	2.28	NO	2.27	NO
IMPSERV	4.36	4.39	NO	4.41	NO
IMPHIST	3.93	3.93	NO	3.94	NO
IMPREST	3.97	4.07	NO	4.11	NO

1. Difference between unweighted and mode of access weighted means. T-test at 0.05 level of significance.
2. Difference between unweighted and all factors weighted means. T-test at 0.05 level of significance.

Table A.3.22. Weighted and Unweighted Importance Ratings: Summer Satisfaction Mailback

Importance Item	Unweighted Mean	Mode of Access Weighted Mean	Statistically Significant Difference ¹	All Factors Weighted Mean	Statistically Significant Difference ²
IMPWATER	4.05	4.07	NO	4.02	NO
IMPCORAL	3.99	3.96	NO	3.94	NO
IMPTRANS	2.43	2.18	NO	2.15	NO
IMPPARK	3.26	3.29	NO	3.30	NO
IMPVIEW	4.01	4.01	NO	3.98	NO
IMPCATCH	2.75	2.81	NO	2.76	NO
IMPRAMP	2.56	2.61	NO	2.57	NO
IMPMARIN	2.63	2.60	NO	2.57	NO
IMPSERV	4.23	4.19	NO	4.16	NO
IMPHIST	3.88	3.78	NO	3.77	NO
IMPREST	4.04	4.02	NO	4.03	NO

1. Difference between unweighted and weighted by mode of access. T-test at 0.05 level of significance.
2. Difference between unweighted and weighted for all factors. T-test at 0.05 level of significance.

Chapter 4. Methods of Estimating Activity Participation and Intensity of Use

This Chapter addresses the methods used for estimating activity participation and intensity of use. Participation includes estimates of participation rates (the percent of visitors who did an activity) and the number of visitors who did the activity. Estimates are made by activity, district and season. Intensity of use includes estimates of the number of different days of activity. As with participation, estimates are made by activity, district and season. The results of this estimation are presented in “Visitor Profiles: Florida Keys/Key West 2007-08” (Leeworthy, Loomis and Paterson, 2010). Here the methods used to derive those estimates are documented.

Activity Participation

For activity participation, information was obtained on the activities participated in by each person of a traveling/recreation group on their visit to the Florida Keys/Key West. So, although there were 2,854 visitors age 16 or older that were randomly chosen and interviewed in the Auto, Air, Cruise Ship, and Ferry Survey during the two sampling seasons (December 2007 – May 2008 and June – November 2008), information on activity participation was obtained on 7,291 visitors of all ages.

Participation in 71 activities (see Exhibit 15) in five districts (Key Largo, Islamorada, Marathon, Lower Keys, and Key West -- See Exhibit 17 for a map showing the district definitions) and for the two seasons was obtained. Two types of participation rates were calculated. The first was the percent of all visitors to the Florida Keys/Key West who did an activity in a district. This was calculated by summing across all visitors in the sample who did the activity in the district divided by the sum of all visitors in the sample. The sums in both cases are weighted sums (see Chapter 2 for sample weights). When this participation rate is multiplied by the number of all visitors to the Florida Keys/Key West (see Chapter 1 for the estimate of all visitors) an estimate is obtained for the number of visitors who did an activity in the district. Again, this was done for two seasons. The January – April 2008 sample was used for estimating the December 2007 – May 2008 season and the June – August 2008 sample was used for estimating the June – November 2008 season.

The second type of participation rate calculated was the “within region participate rate”. These participation rates are the percent of visitors to a district who did an activity in the district. These participation rates were calculated by summing the number of sampled visitors who did the activity in the district by the sum of sampled visitors who visited the district. It is important to note that in deriving the estimates of activity participation rates that sample weights were used to ensure that the sample of visitors of all ages were representative of the population of visitors. Chapter 2 discussed the derivation of these sample weights.

Estimates for activity participation by season and district for the complete list of 71 activities can be found in the appendix of “Visitor Profiles: Florida Keys/Key West 2007-08” (Leeworthy, Loomis and Paterson, 2010). Also, presented in this report were participation rates for 42 Aggregated Activities formulated from the list of 71 activities. Estimates for the 42 aggregated activities were done ensuring against double-counting. One cannot add either participation rates or number of participants by activity because visitors can and do engage in multiple activities. Participation rates and number of participants were estimated for the 42 aggregated activities without double-counting.

Intensity of Use (Days)

Participation rates combined with estimates of the number of visitors allowed for the estimation of the number of visitors who did an activity, in a given district, during a given season. For some purposes, measurements of the intensity of activities are also needed; for example, assessing the need for recreation facilities. One measure of intensity of use was obtained from the CUSTOMER on-site survey: the number of separate days the person did the activity during the interview trip.

For the summer season (June – November 2008), there was under sampling in Key Largo, Islamorada and Marathon districts due to personnel problems. For these districts, past studies and judgment were used for estimating mean number of days per trip. For all districts, activities with low participation rates would in

our random samples have small numbers of observations resulting in relatively unreliable estimates. We eliminated outliers that significantly affected estimates of the mean number of days per trip and for activities with greater than zero participation rates (which were not affected by small sample sizes) we set the means to one (1.00). Thus the estimates of mean days per trip in Tables A.4.1 to A.4.6 will differ from estimates actually used in estimating total days of activity as appear in Table A.2.21 in Leeworthy, Loomis and Paterson (2010). This would result in lower bound estimates. However, past experience suggests that for the 39 activities where we estimated days of use, most people do not do more than one day of activity per trip for a specific activity. This is especially true for low participation rate activities.

The general approach used was to first estimate the average number of days of a given activity in each district during each season. The average number of days was then multiplied by the number of visitors who did the activity in the district during that season. Days were obtained from the on-site component of the CUSTOMER Survey. During the January – April 2008 sampling period, 823 visitors were interviewed and 1,140 were interviewed during the June – August 2008 sampling period. Days were asked for only 39 of the 71 activities for which participation was estimated. These 39 activities are identified by an “A” suffix attached to the activity number (see Exhibit 15).

Since the CUSTOMER Survey was a random sample of visitors at 200 sites stratified across the Florida Keys/Key West using local knowledge i.e., there is no information to properly ensure a truly stratified random sample. We used local knowledge, as we had done successfully in 1995-96, to pre-stratify the sample. As noted in chapter 2 on sample weighting, we weighted the CUSTOMER Survey using the Auto, Air, Cruise Ship, and Ferry Survey after adjusting for the fact that cruise ship visitors would not likely be sampled in the CUSTOMER Survey.

In the report “Visitor Profiles: Florida Keys/Key West 2007-08” (Leeworthy, Loomis and Paterson, 2010), estimates were provided for all 39 activities, by district and by season. Because of limited number of observations per district and season for a given activity, we had to make some judgments on “best” estimates. This involved eliminating outliers that had significant impacts on the mean number of days.

The sample averages, standard errors of the mean, and the number of observations for each of the 39 activities, for each district, and for each season are summarized in Tables A.4.1.to A.4.6. Table A.4.7 summarizes the total number of days by district and season and Table A.4.8 summarizes the total annual number of days by district.

Aggregation Issues. In adding days across activities, especially within districts, there may be a certain amount of double-counting. The problem of double-counting would also be expected to be less when adding within a given activity (e.g. snorkeling) across type of boat (e.g. charter/party, rental, and private). The problem would be even less when adding across districts for a given activity. And, the problem would be virtually nonexistent when adding across seasons. Where the problem of double-counting is greatest is when one attempts to add across entirely different activities. For example, attempting to add snorkeling and SCUBA diving days for a given district and in a given season may include a relatively high amount of double-counting. A good indication of this is activity participation numbers where comparisons can be made between the number of participants who did snorkeling and the number who did SCUBA diving for a given district during a given season with the number of participants who did either snorkeling or SCUBA diving but for which double-counting has been eliminated. This should provide a guide to the extent of possible double-counting.

Table A.4.1. Average Number of Days of Activity Per Trip: Key Largo and Islamorada: December 2007 - May 2008

Activity	Key Largo			Islamorada		
	Mean ¹	Std. Error	N	Mean ¹	Std. Error	N
Snorkeling Charter/Party Boat	1.07	0.0524	60	1.07	0.0714	14
Snorkeling Rental Boat	1.14	0.1429	7	1.00	0.0000	4
Snorkeling Private Boat	4.89	3.1686	9	1.70	0.3000	10
SCUBA Charter/Party Boat	1.53	0.2737	15	2.20	0.4899	5
SCUBA Rental Boat	0.00	0.0000	0	0.00	.	0
SCUBA Private Boat	4.00	.	1	7.00	.	1
Fishing Offshore Charter Boat	1.00	0.0000	5	1.08	0.0833	12
Fishing Offshore Party Boat	1.00	0.0000	3	1.63	0.4978	8
Fishing Offshore Rental Boat	1.50	0.2887	4	1.00	0.0000	3
Fishing Offshore Private Boat	12.60	7.0541	5	6.76	2.3987	17
Fishing Flats/Backcountry Guided	0.00	.	0	1.00	0.0000	3
Fishing Flats/Backcountry Rental Boat	1.00	.	1	4.00	.	1
Fishing Flats/Backcountry Private Boat	8.75	4.5738	8	6.67	2.4855	6
Other Fishing Charter Boat	0.00	.	0	2.00	.	1
Other Fishing Party Boat	0.00	.	0	0.00	.	0
Other Fishing Rental Boat	0.00	.	0	0.00	.	0
Other Fishing Private Boat	2.50	1.5000	2	2.67	1.6667	3
Glass Bottom Boat Rides	1.00	0.0000	55	1.00	0.0000	5
Backcountry Boating Excursions-not fish	1.60	0.6000	5	1.00	0.0000	3
View Nature/Wildlife Priv/Rental Boat	3.78	1.3673	23	2.86	0.8516	21
Personal Watercraft Rental	1.00	0.0000	5	1.00	0.0000	7
Personal Watercraft Private Boat	8.13	4.4176	8	4.50	1.3899	12
Sailing Charter/Party Boat	0.00	.	0	0.00	.	0
Sailing Rental Boat	1.00	.	1	1.00	0.0000	2
Sailing Private Boat	2.00	0.7071	4	3.00	2.0000	2
Other Boating Charter/Party	1.50	0.5000	2	1.00	0.0000	3
Other Boating Rental Boat	1.00	0.0000	3	1.00	.	1
Other Boating Private Boat	6.33	3.9299	3	3.00	2.0000	2
Snorkeling from shore	1.54	0.2078	46	2.12	0.3096	34
SCUBA Diving from shore	2.00	1.0000	3	3.50	1.5000	2
Fishing from shore	4.46	2.8230	13	3.81	1.0800	31
Swimming at Beaches (Not in Pool)	4.13	1.2077	64	6.02	1.4889	46
Swimming in Outdoor Pool	6.72	2.5748	32	4.23	1.3141	22
Windsurfing or Sailboarding	1.00	.	1	1.33	0.3333	3
Wildlife Observ/Photography from Land	1.96	0.3085	71	5.43	0.9970	56
Other Nature Study from Land	1.50	0.4096	22	3.80	0.7867	20
Visiting Historic Areas, Sites, Bldgs	1.22	0.0977	32	1.71	0.4402	24
Visiting Museum, Educ Fac, Info Center	1.81	0.5025	31	1.09	0.0627	22
All Beach Activities (Not Swimming)	7.06	2.9443	31	7.64	1.6671	42

1. Means may not be the same as those used in estimation of total days as presented in Table A.2.21 in Leeworthy, Loomis and Paterson (2010). Outliers and small sample sizes required judgement to alter estimates to use for estimation. When participation rates were greater than zero for an activity and sample sizes were extremely small, means were set to 1.00, which leads to lower bound conservative estimates of the means.

Table A.4.2. Average Number of Days of Activity Per Trip: Marathon and Lower Keys: December 2007 - May 2008

Activity	Marathon			Lower Keys		
	Mean ¹	Std. Error	N	Mean ¹	Std. Error	N
Snorkeling Charter/Party Boat	1.00	0.0000	4	1.25	0.2036	20
Snorkeling Rental Boat	0.00	.	0	1.00	.	1
Snorkeling Private Boat	5.00	3.0000	2	2.62	0.6154	13
SCUBA Charter/Party Boat	2.00	.	1	1.00	.	1
SCUBA Rental Boat	0.00	.	0	0.00	.	0
SCUBA Private Boat	0.00	.	0	1.00	0.0000	2
Fishing Offshore Charter Boat	1.00	0.0000	2	1.00	0.0000	4
Fishing Offshore Party Boat	1.20	0.2000	5	4.67	3.6667	3
Fishing Offshore Rental Boat	2.00	.	1	2.00	1.0000	2
Fishing Offshore Private Boat	3.25	1.1140	8	8.40	2.9997	15
Fishing Flats/Backcountry Guided	1.00	.	1	2.67	1.2019	3
Fishing Flats/Backcountry Rental Boat	0.00	.	0	0.00	.	0
Fishing Flats/Backcountry Private Boat	1.50	0.2887	4	10.29	5.2450	7
Other Fishing Charter Boat	1.00	.	1	0.00	.	0
Other Fishing Party Boat	1.00	.	1	0.00	.	0
Other Fishing Rental Boat	0.00	.	0	0.00	.	0
Other Fishing Private Boat	1.00	.	1	1.00	.	1
Glass Bottom Boat Rides	1.00	.	1	1.00	0.0000	3
Backcountry Boating Excursions-not fish	0.00	.	0	3.00	.	1
View Nature/Wildlife Priv/Rental Boat	2.13	0.5806	8	6.05	1.5545	21
Personal Watercraft Rental	4.00	.	1	1.50	0.5000	2
Personal Watercraft Private Boat	3.25	1.0308	4	5.62	2.7422	13
Sailing Charter/Party Boat	0.00	.	0	2.00	1.0000	2
Sailing Rental Boat	0.00	.	0	0.00	.	0
Sailing Private Boat	1.00	0.0000	2	1.00	0.0000	2
Other Boating Charter/Party	0.00	.	0	0.00	.	0
Other Boating Rental Boat	1.00	.	1	1.00	.	1
Other Boating Private Boat	4.25	3.2500	4	5.25	1.7017	4
Snorkeling from shore	1.78	0.2778	9	2.95	0.4665	59
SCUBA Diving from shore	1.00	.	1	2.33	1.3333	3
Fishing from shore	2.17	0.4051	12	7.18	1.4296	38
Swimming at Beaches (Not in Pool)	4.20	1.2270	35	4.70	0.4954	117
Swimming in Outdoor Pool	2.82	0.5638	17	2.65	0.3925	20
Windsurfing or Sailboarding	1.00	0.0000	2	0.00	.	0
Wildlife Observ/Photography from Land	4.20	1.0173	45	5.64	0.8220	105
Other Nature Study from Land	2.85	0.7989	20	6.74	1.8267	43
Visiting Historic Areas, Sites, Bldgs	1.39	0.1674	61	2.54	0.4849	69
Visiting Museum, Educ Fac, Info Center	1.38	0.2370	39	2.70	0.3882	54
All Beach Activities (Not Swimming)	4.36	1.0535	36	5.34	1.0138	67

1. Means may not be the same as those used in estimation of total days as presented in Table A.2.21 in Leeworthy, Loomis and Paterson (2010). Outliers and small sample sizes required judgement to alter estimates to use for estimation. When participation rates were greater than zero for an activity and sample sizes were extremely small, means were set to 1.00, which leads to lower bound conservative estimates of the means.

Table A.4.3. Average Number of Days of Activity Per Trip: Key West: December 2007 - May 2008

Activity	Key West		
	Mean ¹	Std. Error	N
Snorkeling Charter/Party Boat	1.24	0.1373	29
Snorkeling Rental Boat	0.00	.	0
Snorkeling Private Boat	1.50	0.5000	6
SCUBA Charter/Party Boat	1.15	0.1042	13
SCUBA Rental Boat	1.00	.	1
SCUBA Private Boat	1.00	.	1
Fishing Offshore Charter Boat	1.00	0.0000	14
Fishing Offshore Party Boat	3.27	2.0762	11
Fishing Offshore Rental Boat	1.00	0.0000	2
Fishing Offshore Private Boat	1.75	0.7500	4
Fishing Flats/Backcountry Guided	1.00	0.0000	4
Fishing Flats/Backcountry Rental Boat	0.00	.	0
Fishing Flats/Backcountry Private Boat	0.00	.	0
Other Fishing Charter Boat	1.00	.	1
Other Fishing Party Boat	1.00	0.0000	3
Other Fishing Rental Boat	0.00	.	0
Other Fishing Private Boat	1.00	.	1
Glass Bottom Boat Rides	1.00	0.0000	12
Backcountry Boating Excursions-not fish	4.00	.	1
View Nature/Wildlife Priv/Rental Boat	1.50	0.5000	6
Personal Watercraft Rental	1.18	0.1220	11
Personal Watercraft Private Boat	1.00	0.0000	3
Sailing Charter/Party Boat	1.15	0.1538	13
Sailing Rental Boat	1.00	.	1
Sailing Private Boat	2.00	1.0000	2
Other Boating Charter/Party	1.00	0.0000	8
Other Boating Rental Boat	1.00	0.0000	2
Other Boating Private Boat	0.00	.	0
Snorkeling from shore	1.73	0.3142	30
SCUBA Diving from shore	3.00	.	1
Fishing from shore	1.43	0.2020	14
Swimming at Beaches (Not in Pool)	1.92	0.1940	96
Swimming in Outdoor Pool	2.85	0.3497	97
Windsurfing or Sailboarding	1.00	0.0000	2
Wildlife Observ/Photography from Land	2.08	0.3521	73
Other Nature Study from Land	1.95	0.5640	22
Visiting Historic Areas, Sites, Bldgs	1.38	0.0615	269
Visiting Museum, Educ Fac, Info Center	1.29	0.0640	123
All Beach Activities (Not Swimming)	2.65	0.5128	82

1. Means may not be the same as those used in estimation of total days as presented in Table A.2.21 in Leeworthy, Loomis and Paterson (2010). Outliers and small sample sizes required judgement to alter estimates to use for estimation. When participation rates were greater than zero for an activity and sample sizes were extremely small, means were set to 1.00, which leads to lower bound conservative estimates of the means.

Table A.4.4. Average Number of Days of Activity Per Trip: Key Largo and Islamorada: June - November 2008

Activity	Key Largo			Islamorada		
	Mean ¹	Std. Error	N	Mean ¹	Std. Error	N
Snorkeling Charter/Party Boat	1.35	0.1500	40	2.09	0.5559	34
Snorkeling Rental Boat	1.00	0.0000	2	2.13	0.5489	8
Snorkeling Private Boat	3.50	1.5000	4	1.67	0.2357	9
SCUBA Charter/Party Boat	3.89	2.0375	9	3.43	1.2317	7
SCUBA Rental Boat	2.00	.	1	5.00	.	1
SCUBA Private Boat	4.50	0.5000	2	6.40	4.6540	5
Fishing Offshore Charter Boat	1.00	0.0000	3	1.82	0.5363	11
Fishing Offshore Party Boat	1.00	0.0000	3	1.80	0.4163	10
Fishing Offshore Rental Boat	0.00	.	0	2.00	0.7071	4
Fishing Offshore Private Boat	2.67	0.8819	3	3.58	0.8915	12
Fishing Flats/Backcountry Guided	1.00	.	1	1.00	.	1
Fishing Flats/Backcountry Rental Boat	0.00	.	0	1.00	.	1
Fishing Flats/Backcountry Private Boat	0.00	.	0	3.00	0.8944	5
Other Fishing Charter Boat	0.00	.	0	1.00	.	1
Other Fishing Party Boat	2.00	.	1	1.00	0.0000	3
Other Fishing Rental Boat	0.00	.	0	1.00	.	1
Other Fishing Private Boat	0.00	.	0	1.50	0.5000	2
Glass Bottom Boat Rides	1.17	0.0904	18	1.00	0.0000	4
Backcountry Boating Excursions-not fish	1.00	.	1	0.00	.	0
View Nature/Wildlife Priv/Rental Boat	1.29	0.1844	7	3.00	0.8165	6
Personal Watercraft Rental	1.00	.	1	1.50	0.2236	6
Personal Watercraft Private Boat	1.00	.	1	0.00	.	0
Sailing Charter/Party Boat	1.00	0.0000	4	1.80	0.8000	5
Sailing Rental Boat	0.00	.	0	1.67	0.3333	3
Sailing Private Boat	0.00	.	0	1.00	.	1
Other Boating Charter/Party	1.00	.	1	2.00	.	1
Other Boating Rental Boat	1.00	.	1	0.00	.	0
Other Boating Private Boat	2.00	.	1	2.50	0.5000	2
Snorkeling from shore	1.77	0.1854	39	2.03	0.2649	29
SCUBA Diving from shore	1.25	0.2500	4	2.00	.	1
Fishing from shore	1.50	0.2673	8	4.44	1.7959	9
Swimming at Beaches (Not in Pool)	2.03	0.2550	34	2.17	0.4840	24
Swimming in Outdoor Pool	3.70	0.9545	27	2.93	0.5115	15
Windsurfing or Sailboarding	3.00	2.0000	2	1.00	.	1
Wildlife Observ/Photography from Land	1.59	0.2574	27	2.00	0.7012	16
Other Nature Study from Land	1.57	0.4286	7	1.00	0.0000	11
Visiting Historic Areas, Sites, Bldgs	1.17	0.1124	12	3.00	1.8074	6
Visiting Museum, Educ Fac, Info Center	1.00	0.0000	6	4.00	2.7568	5
All Beach Activities (Not Swimming)	2.00	0.6794	14	2.80	0.8000	5

1. Means may not be the same as those used in estimation of total days as presented in Table A.2.21 in Leeworthy, Loomis and Paterson (2010). Outliers and small sample sizes required judgement to alter estimates to use for estimation. When participation rates were greater than zero for an activity and sample sizes were extremely small, means were set to 1.00, which leads to lower bound conservative estimates of the means.

Table A.4.5. Average Number of Days of Activity Per Trip: Marathon and Lower Keys: June - November 2008

Activity	Marathon			Lower Keys		
	Mean ¹	Std. Error	N	Mean ¹	Std. Error	N
Snorkeling Charter/Party Boat	1.43	0.3588	14	1.53	0.1417	83
Snorkeling Rental Boat	1.17	0.1667	6	2.00	0.3416	25
Snorkeling Private Boat	2.25	0.6196	8	2.95	0.3472	57
SCUBA Charter/Party Boat	4.00	2.1213	4	1.95	0.3272	21
SCUBA Rental Boat	0.00	.	0	6.00	1.0000	2
SCUBA Private Boat	2.33	0.6667	6	2.36	0.5508	14
Fishing Offshore Charter Boat	1.33	0.3333	15	2.00	0.3899	19
Fishing Offshore Party Boat	1.33	0.3333	3	1.00	0.0000	2
Fishing Offshore Rental Boat	2.38	0.9808	8	2.00	0.3892	12
Fishing Offshore Private Boat	3.57	1.2317	7	3.70	0.7127	44
Fishing Flats/Backcountry Guided	1.00	.	1	1.00	0.0000	4
Fishing Flats/Backcountry Rental Boat	1.00	.	1	1.67	0.6667	3
Fishing Flats/Backcountry Private Boat	0.00	.	0	3.24	0.8468	17
Other Fishing Charter Boat	1.00	0.0000	2	2.80	1.1136	5
Other Fishing Party Boat	1.00	.	1	4.00	.	1
Other Fishing Rental Boat	0.00	.	0	2.00	.	1
Other Fishing Private Boat	2.50	1.5000	2	2.57	0.3689	7
Glass Bottom Boat Rides	2.50	1.5000	2	1.00	0.0000	2
Backcountry Boating Excursions-not fish	0.00	.	0	1.67	0.6667	6
View Nature/Wildlife Priv/Rental Boat	1.25	0.1637	8	1.32	0.1336	19
Personal Watercraft Rental	1.00	0.0000	3	1.44	0.3379	9
Personal Watercraft Private Boat	6.00	1.0000	2	3.00	0.6172	7
Sailing Charter/Party Boat	2.29	0.8371	7	2.54	0.5502	13
Sailing Rental Boat	2.00	0.0000	2	2.33	0.3333	3
Sailing Private Boat	1.00	0.0000	2	1.00	0.0000	4
Other Boating Charter/Party	1.00	.	1	1.50	0.2887	4
Other Boating Rental Boat	1.00	.	1	1.00	0.0000	3
Other Boating Private Boat	1.25	0.2500	4	2.20	0.3117	15
Snorkeling from shore	4.57	1.6454	7	2.29	0.2035	223
SCUBA Diving from shore	1.00	.	1	2.44	0.4444	9
Fishing from shore	4.00	1.0220	10	3.44	0.5145	62
Swimming at Beaches (Not in Pool)	2.26	0.3340	23	2.13	0.1279	401
Swimming in Outdoor Pool	4.96	0.5235	56	3.63	0.3792	70
Windsurfing or Sailboarding	0.00	.	0	0.00	.	0
Wildlife Observ/Photography from Land	2.12	0.4876	25	2.17	0.2531	139
Other Nature Study from Land	1.00	0.0000	6	2.03	0.3412	33
Visiting Historic Areas, Sites, Bldgs	2.00	0.7888	10	1.70	0.2246	43
Visiting Museum, Educ Fac, Info Center	1.14	0.1429	7	1.45	0.2473	11
All Beach Activities (Not Swimming)	2.40	0.7180	10	2.29	0.1988	97

1. Means may not be the same as those used in estimation of total days as presented in Table A.2.21 in Leeworthy, Loomis and Paterson (2010). Outliers and small sample sizes required judgement to alter estimates to use for estimation. When participation rates were greater than zero for an activity and sample sizes were extremely small, means were set to 1.00, which leads to lower bound conservative estimates of the means.

Table A.4.6. Average Number of Days of Activity Per Trip: Key West: June - November 2008

Key West			
Activity	Mean ¹	Std. Error	N
Snorkeling Charter/Party Boat	1.15	0.0592	161
Snorkeling Rental Boat	1.09	0.0909	11
Snorkeling Private Boat	6.44	3.9749	16
SCUBA Charter/Party Boat	1.28	0.2259	18
SCUBA Rental Boat	1.00	.	1
SCUBA Private Boat	2.29	0.8921	7
Fishing Offshore Charter Boat	1.21	0.1746	29
Fishing Offshore Party Boat	1.12	0.0438	161
Fishing Offshore Rental Boat	1.50	0.5000	2
Fishing Offshore Private Boat	1.67	0.3333	9
Fishing Flats/Backcountry Guided	1.00	0.0000	5
Fishing Flats/Backcountry Rental Boat	1.00	.	1
Fishing Flats/Backcountry Private Boat	2.50	0.5000	2
Other Fishing Charter Boat	1.00	0.0000	3
Other Fishing Party Boat	1.00	.	1
Other Fishing Rental Boat	0.00	.	0
Other Fishing Private Boat	0.00	.	0
Glass Bottom Boat Rides	1.00	0.0000	21
Backcountry Boating Excursions-not fish	1.20	0.2000	5
View Nature/Wildlife Priv/Rental Boat	1.38	0.1830	8
Personal Watercraft Rental	1.16	0.0887	38
Personal Watercraft Private Boat	1.00	0.0000	4
Sailing Charter/Party Boat	1.19	0.0767	95
Sailing Rental Boat	1.38	0.1830	8
Sailing Private Boat	17.00	16.0000	4
Other Boating Charter/Party	1.06	0.0453	49
Other Boating Rental Boat	1.12	0.1176	17
Other Boating Private Boat	10.63	7.7895	8
Snorkeling from shore	1.26	0.0668	112
SCUBA Diving from shore	1.00	0.0000	3
Fishing from shore	1.63	0.2069	24
Swimming at Beaches (Not in Pool)	1.25	0.0464	242
Swimming in Outdoor Pool	1.81	0.1001	210
Windsurfing or Sailboarding	1.00	0.0000	3
Wildlife Observ/Photography from Land	1.38	0.3146	204
Other Nature Study from Land	1.62	0.5880	109
Visiting Historic Areas, Sites, Bldgs	1.18	0.0323	552
Visiting Museum, Educ Fac, Info Center	1.28	0.1675	389
All Beach Activities (Not Swimming)	1.38	0.2407	269

1. Means may not be the same as those used in estimation of total days as presented in Table A.2.21 in Leeworthy, Loomis and Paterson (2010). Outliers and small sample sizes required judgement to alter estimates to use for estimation. When participation rates were greater than zero for an activity and sample sizes were extremely small, means were set to 1.00, which leads to lower bound conservative estimates of the means.

Chapter 5. Methods of Estimating the Economic Contribution to Monroe County

This Chapter provides the details on how we estimated the economic contribution that recreating visitors had on Monroe County. The results of this estimation are reported in “Economic Contribution of Recreating Visitors to the Florida Keys/Key West” (Leeworthy and Ehler, 2010a). In this report, estimates of the economic contribution of recreating visitors to the Florida Keys/Key West was reported for Monroe County and for the three South Florida counties (Miami-Dade, Broward, and Monroe). The IMPLAN input-output model was used for estimating the economic contribution for the South Florida economy. A more simplified approach was used for the Monroe County economy because the IMPLAN input-output model for Monroe County could not be properly calibrated due to the many interconnections with the larger South Florida economy. Here, the more simplified approach for Monroe County is documented.

The Use of Census Ratios. The simplified approach for Monroe County used several types of ratios on economic measurements for the Monroe County economy from the U.S. Department of Commerce, Census Bureau, Census of Business 2007 and from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 2008 in combination with Keynesian-type local multipliers derived by the Late Dr. Frederick W. Bell of the Economics Department of Florida State University using economic base theory and location quotients (Bell 1991).

Table A.5.1 shows the wages-to-sales and wages-to-employment ratios by North American Industry Classification system (NAICS) codes. Table A.5.2 shows the derivation of the total income to wages & salaries ratio and the proprietor’s income to proprietor’s employment ratios. These ratios are fundamental to estimating the direct income and employment impacts from visitor expenditures.

Direct Wages & Salaries and Employment. To estimate the direct wages & salaries and wages & salaries related employment impacts in Monroe County, first required estimating the total expenditures by spending category and then matching each spending category to the appropriate NAICS industries from Table A.5.1. Total expenditures are equal to total visitation (measured in person-trips or visits) times the average expenditure per person per trip. This was done for each category of spending using weighted average annual expenditures. There were 3,007,483 person-trips of visitation during the December 2007 – November annual visitor season (see Chapter 1).

Direct wages & salaries are first derived by multiplying total expenditures by category by the appropriate wages-to-sales ratio. Direct wages & salaries employment is then equal to the direct wages & salaries divided by the wages-to-employment ratios. Table A.5.3 shows these calculations for the December 2007 – November 2008 annual visitor season.

Total Output, Income and Employment. To estimate total output required two steps. In step one, the total expenditures from Tables A.5.3 and A.5.4 are multiplied by the percent of inputs purchased locally (.70). This percent was taken from the Monroe County IMPLAN input-output model tables and revised downwards from .77 to .70 using information about the percent of wages & salaries to nonresidents (commuter workers) to Monroe County. Total output was then equal to direct output times an output multiplier of 1.6 (Bell 1991). Table A.5.5 shows these calculations.

Total estimate total income also required two steps. In step one, the direct wages & salaries derived and reported in Tables A.5.3 and A.5.4 are multiplied by the total income-to-wages & salaries ratio (1.3658) from Table A.5.2. This yields an estimate of total direct income, that is, income to wages & salary workers and income to proprietors. In step two, total direct income was multiplied by an income multiplier of 1.6 to get the total income impact on Monroe County. These calculations are shown in Table A.5.5.

Finally, to estimate the total employment impact required several steps. First, direct wages & salaries employment from Tables A.5.3 and A.5.4 were multiplied by the employment multiplier of 1.3 to get the total wages & salaries employment. Second, direct proprietors income was divided by the proprietors income-to-employment ratio from Table 1.5.2 (12,321) to yield an estimate of direct proprietors employment. Direct proprietors employment was then multiplied by the employment multiplier of 1.3 to

get an estimate of the total proprietor's employment. Total wages & salaries employment was then added to the total proprietor's employment to get an estimate of the total employment impact. These calculations are all shown in Table A.5.6.

Percent of Monroe County Economy. The economic contribution of recreating visitors to Monroe County can be put into perspective by estimating the proportion of the economy dependent on recreating visitors. We obtained actual reported gross sales for Monroe County for the December 2007 – November 2008 visitor season from the Florida Department of Revenue. The percent of output/sales accounted for by recreating visitors is estimated by dividing the total output by the total reported gross sales in Monroe County. These calculations are presented in Table A.5.4.

For income, the latest available information for Monroe County was from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 2008. Our estimates of total income from visitor spending was then divided by these reported incomes to get estimates of the percent of Monroe County's income dependent on recreating visitors. These calculations are shown in Table A.5.4.

For employment, we obtained an estimate of total Monroe County employment from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 2008. The percent of Monroe County employment dependent on recreating visitors was then calculated as the total employment from visitor spending divided by the total Monroe County employment. These calculations are presented in Table A.5.5.

Multipliers for Monroe County and South Florida. Regional economic models have several types of multipliers. Some are at intermediate stages of the multiplier process and some are at the final stages of the process. Table A.5.6 shows the intermediate Type III multipliers and Type I final multipliers for Monroe County and the three-county South Florida economy.

One will notice the low multipliers for output/sales for Monroe County. This is due to the fact that not much is produced in Monroe County, so many of the inputs of production are imported (including much of labor—see Census of Intercounty Commuters). So for output/sales, only an additional 12 cents is generated for every dollar of visitor spending. As expected, as we increase the area of study we cover more of the inputs of production and the multipliers increase. So the South Florida multiplier for output/sales rises from 1.12 for Monroe County to 1.66 for South Florida. What this means is that for every dollar of visitor spending and additional 66 cents is generated in output/sales in the three-county South Florida area of Monroe, Miami-Dade and Broward counties.

Table A.5.1. Wages-to-Sales and Wages-to-Employment Ratios for Monroe County by Industry, Dec. 07 - Nov.08

Category	Wages to Sales Ratio	Wages to Employment Ratio	NAICS
Lodging			
<i>Publicly Owned</i>			
Hotel/motel/bed & breakfast/cabin, etc.	0.1964	17,715	721211 RV, park and recreation camps
Camping site (RV/tent/camper)	0.1964	17,715	721211 RV, park and recreation camps
<i>Privately Owned</i>			
Hotel/motel/bed & breakfast/cabin, etc.	0.2927	26,551	7211 Hotels and Motels (except casinos)
Rental home, cottage, cabin, condo	0.1540	33,884	53 Real estate and rental leasing
Camping site (RV/tent/camper)	0.1964	17,517	721211 RV, park and recreation camps
Food and Beverages			
Food & Drinks consumed at restaurants & bars	0.2662	17,461	722 Food Services and Drinking Places
Beverages purchased at a store for carry-out	0.1105	23,425	445 Food and Beverage Stores
Food purchased at a store for carry-out	0.1105	23,425	445 Food and Beverage Stores
Transportation			
Rental automobile, motor home, trailer, motorcycle, or other recreation vehicle	0.1477	31,533	532111 Passenger Car Rental
Gas & Oil - auto or RV	0.0716	19,848	447 Gasoline Stations
Repair & Services - auto or RV	0.2648	34,985	8111 Automotive repair and maintenance
Parking fees & tolls	0.3153	21,233	81293 Parking lots and garages
Taxi fare	0.1935	54,121	48531 Taxi services
Bus Fare			
a) Package tour	0.2638	25,388	4855 Charter bus services
b) Any other bus fare	0.2638	25,388	4855 Charter bus services
Airline Fares			
a) Package tours	0.3207	45,027	5615 Travel arrangements and reservations
b) Any other airline fares	0.3207	45,027	5615 Travel arrangements and reservations
Ferry Fare	0.2671	25,180	4872 Scenic and sightseeing trans-water
Boating			
Boat, jet ski, and wave runner rental	0.2414	24,248	71 Arts, entertainment, and recreation
Boat fuel and oil	0.0716	19,848	447 Gasoline stations
Boat repairs	0.2341	21,960	8114902 Boat Repair
Boat launch fees	0.1847	27,280	71393 Marinas
Boat slip or marina fees (this trip only)	0.1847	27,280	71393 Marinas
Sailing charters or sunset cruises	0.2414	24,248	71 Arts, entertainment, and recreation
Fishing			
Cut bait	0.2414	24,248	71 Arts, entertainment, and recreation
Live bait	0.2414	24,248	71 Arts, entertainment, and recreation
Daily or special fishing permits/licenses	0.2414	24,248	71 Arts, entertainment, and recreation
Fishing lines, fly lines, fish nets, traps	0.2414	24,248	71 Arts, entertainment, and recreation
Charter/party boat/guide fees	0.2414	24,248	71 Arts, entertainment, and recreation

Table A.5.1 Wages-to-Sales and Wages-to-Employment Ratios for Monroe County by Industry, Dec. 07 - Nov.08 (Continued)

Category	Wages to Sales Ratio	Wages to Employment Ratio	NAICS
Scuba Diving/Snorkeling			
Rental fee for equipment	0.2414	24,248	71 Arts, entertainment, and recreation
Charter/party boat/guide service	0.2414	24,248	71 Arts, entertainment, and recreation
Sightseeing			
Sightseeing tours	0.2414	24,248	71 Arts, entertainment, and recreation
Glass-bottom boat rides	0.2414	24,248	71 Arts, entertainment, and recreation
Backcountry excursions, kayak tours	0.2414	24,248	71 Arts, entertainment, and recreation
Park entrance fees	0.2414	24,248	71 Arts, entertainment, and recreation
Admission to tourist, amusement, festivals and other tourist attractions	0.2414	24,248	71 Arts, entertainment, and recreation
Other Activity Expenditures			
Rental fee for recreation equipment (bicycles, golf carts or others not listed above)	0.2178	17,994	532 Rental and leasing services
Guides service, tour, or outfitters (not listed above like parasailing)	0.2414	24,248	71 Arts, entertainment, and recreation
Admission to motion pictures, museums, etc.	0.2414	24,248	71 Arts, entertainment, and recreation
Admission to concerts or other musical	0.2414	24,248	71 Arts, entertainment, and recreation
Spa treatments	0.2414	24,248	71 Arts, entertainment, and recreation
Fitness activity fees	0.2414	24,248	71 Arts, entertainment, and recreation
Miscellaneous Expenditures			
Film purchases	0.1143	21,864	452 General Merchandise Stores
Film development	0.1143	21,864	452 General Merchandise Stores
Footware	0.1285	20,996	448 Clothing and clothing accessories
Clothing	0.1285	20,996	448 Clothing and clothing accessories
Souvenirs and gifts (not including clothing)	0.2152	23,344	45322 Gift, novelty, and souvenir stores
Other general merchandise	0.1143	21,864	452 General Merchandise Stores
Services			
Barber, laundry, and other personal services	0.2998	25,009	812 Personal and laundry services
Telephone, fax, other other business services	0.2638	26,284	81 Other services (except public admin)
Physician, dentist and other medical services	0.3183	40,541	62 Health care and social assistance
Annual Boat Storage/Marina	0.1847	27,280	71393 Marinas
Annual Condo/Time Share	0.1374	20,458	5311 Real estate and rental leasing
Annual RV/Trailer Park	0.1964	17,517	721211 RV, park and recreation camps

Table A.5.2. Reported Totals for Income and Employment and Key Ratios
 Monro County 2008

Measurement	
Employment by Place of Work	57,928
Wage and Salary Employment	40,642
Proprietor's Employment	17,286
Wages & Salaries and Other Labor Income	\$1,971,048,000
Proprietor's Income	\$243,096,000
Total Income by Place of Work	\$2,214,144,000
Total Income-to-Wages & Salaries Ratio	1.3658
Proprietor's Income-to-Proprietor's Employment	12,321

Source: Regional Economic Information System, Bureau of Economic Analysis,
 US Department of Commerce, Regional Economic Information System,
 April 2010, <http://www.bea.gov/regional/docs/footnotes.cfm?tablename=CA04>

Table A.5.3. Derivation of Direct Wages and Salaries Income and Employment for Monroe County, Dec. 07 - Nov.08

Category	Expenditures		Wages		Wages to	
	Per Person Per Trip	Total Expenditures	to Sales Ratio	Total Wages	Employment Ratio	Total Employment
Lodging	\$212.41	\$638,819,464		\$160,870,587		6,104.14
<i>Publicly Owned</i>						
Hotel/motel/bed & breakfast/cabin, etc.	\$16.40	\$49,322,721	0.1964	\$9,686,982	17,715	546.82
Camping site (RV/tent/camper)	\$0.27	\$812,020	0.1964	\$159,481	17,715	9.00
<i>Privately Owned</i>						
Hotel/motel/bed & breakfast/cabin, etc.	\$143.57	\$431,784,334	0.2927	\$126,383,275	26,551	4,760.02
Rental home, cottage, cabin, condo	\$48.42	\$145,622,327	0.1540	\$22,425,838	33,884	661.84
Camping site (RV/tent/camper)	\$3.75	\$11,278,061	0.1964	\$2,215,011	17,517	126.45
Food and Beverages	\$190.63	\$573,316,484		\$135,127,147		7,557.81
Food & Drinks consumed at restaurants & bars	\$153.28	\$460,986,994	0.2662	\$122,714,738	17,461	7,027.93
Beverages purchased at a store for carry-out	\$12.28	\$36,931,891	0.1105	\$4,080,974	23,425	174.21
Food purchased at a store for carry-out	\$25.07	\$75,397,599	0.1105	\$8,331,435	23,425	355.66
Transportation	\$50.25	\$151,126,021		\$27,417,526		877.00
Rental automobile, motor home, trailer, motorcycle, or other recreation vehicle	\$13.56	\$40,781,469	0.1477	\$6,023,423	31,533	191.02
Gas & Oil - auto or RV	\$17.14	\$51,548,259	0.0716	\$3,690,855	19,848	185.96
Repair & Services - auto or RV	\$2.02	\$6,075,116	0.2648	\$1,608,691	34,985	45.98
Parking fees & tolls	\$3.38	\$10,165,293	0.3153	\$3,205,117	21,233	150.95
Taxi fare	\$1.36	\$4,090,177	0.1935	\$791,449	54,121	14.62
Bus Fare						
a) Package tour	\$0.15	\$451,122	0.2638	\$119,006	25,388	4.69
b) Any other bus fare	\$0.60	\$1,804,490	0.2638	\$476,024	25,388	18.75
Airline Fares						
a) Package tours	\$8.03	\$24,150,088	0.3207	\$7,744,933	45,027	172.01
b) Any other airline fares	\$3.33	\$10,014,918	0.3207	\$3,211,784	45,027	71.33
Ferry Fare	\$0.68	\$2,045,088	0.2671	\$546,243	25,180	21.69

Table A.5.3. (continued)

Category	Expenditures		Wages		Wages to	
	Per Person Per Trip	Total Expenditures	to Sales Ratio	Total Wages	Employment Ratio	Total Employment
Boating	\$26.89	\$80,871,218		\$16,360,106		724.25
Boat, jet ski, and wave runner rental	\$4.28	\$12,872,027	0.2414	\$3,107,307	24,248	128.15
Boat fuel and oil	\$5.41	\$16,270,483	0.0716	\$1,164,967	19,848	58.69
Boat repairs	\$13.38	\$40,240,123	0.2341	\$9,420,213	21,960	428.97
Boat launch fees	\$0.28	\$842,095	0.1847	\$155,535	27,280	5.70
Boat slip or marina fees (this trip only)	\$0.34	\$1,022,544	0.1847	\$188,864	27,280	6.92
Sailing charters or sunset cruises	\$3.20	\$9,623,946	0.2414	\$2,323,220	24,248	95.81
Fishing	\$24.02	\$72,239,742		\$17,438,674		719.18
Cut bait	\$1.70	\$5,112,721	0.2414	\$1,234,211	24,248	50.90
Live bait	\$1.46	\$4,390,925	0.2414	\$1,059,969	24,248	43.71
Daily or special fishing permits/licenses	\$0.92	\$2,766,884	0.2414	\$667,926	24,248	27.55
Fishing lines, fly lines, fish nets, traps	\$3.88	\$11,669,034	0.2414	\$2,816,905	24,248	116.17
Charter/party boat/guide fees	\$16.06	\$48,300,177	0.2414	\$11,659,663	24,248	480.85
Scuba Diving/Snorkeling	\$23.38	\$70,314,953		\$16,974,030		700.02
Rental fee for equipment	\$5.72	\$17,202,803	0.2414	\$4,152,757	24,248	171.26
Charter/party boat/guide service	\$17.66	\$53,112,150	0.2414	\$12,821,273	24,248	528.76
Sightseeing	\$17.51	\$52,661,027		\$12,712,372		524.26
Sightseeing tours	\$7.86	\$23,638,816	0.2414	\$5,706,410	24,248	235.34
Glass-bottom boat rides	\$1.71	\$5,142,796	0.2414	\$1,241,471	24,248	51.20
Backcountry excursions, kayak tours	\$1.09	\$3,278,156	0.2414	\$791,347	24,248	32.64
Park entrance fees	\$2.04	\$6,135,265	0.2414	\$1,481,053	24,248	61.08
Admission to tourist, amusement, festivals and other tourist attractions	\$4.81	\$14,465,993	0.2414	\$3,492,091	24,248	144.02

Table A.5.3. (continued)

Category	Expenditures		Wages		Wages to	
	Per Person Per Trip	Total Expenditures	to Sales Ratio	Total Wages	Employment Ratio	Total Employment
Other Activity Expenditures	\$12.03	\$36,180,020		\$8,536,542		378.15
Rental fee for recreation equipment (bicycles, golf carts or others not listed above)	\$2.78	\$8,360,803	0.2178	\$1,820,983	17,994	101.20
Guides service, tour, or outfitters (not listed above like parasailing)	\$4.79	\$14,405,844	0.2414	\$3,477,571	24,248	143.42
Admission to motion pictures, museums, etc.	\$2.21	\$6,646,537	0.2414	\$1,604,474	24,248	66.17
Admission to concerts or other musical	\$0.02	\$60,150	0.2414	\$14,520	24,248	0.60
Spa treatments	\$1.80	\$5,413,469	0.2414	\$1,306,812	24,248	53.89
Fitness activity fees	\$0.43	\$1,293,218	0.2414	\$312,183	24,248	12.87
Miscellaneous Expenditures	\$45.99	\$138,314,143		\$22,095,845		998.77
Film purchases	\$0.64	\$1,924,789	0.1143	\$220,003	21,864	10.06
Film development	\$0.07	\$210,524	0.1143	\$24,063	21,864	1.10
Footware	\$2.96	\$8,902,150	0.1285	\$1,143,926	20,996	54.48
Clothing	\$24.23	\$72,871,313	0.1285	\$9,363,964	20,996	445.99
Souvenirs and gifts (not including clothing)	\$16.89	\$50,796,388	0.2152	\$10,931,383	23,344	468.27
Other general merchandise	\$1.20	\$3,608,980	0.1143	\$412,506	21,864	18.87
Services	\$2.62	\$7,879,605		\$2,447,673		72.97
Barber, laundry, and other personal services	\$0.85	\$2,556,361	0.2998	\$766,397	25,009	30.64
Telephone, fax, other other business services	\$0.08	\$240,599	0.2638	\$63,470	26,284	2.41
Physician, dentist and other medical services	\$1.69	\$5,082,646	0.3183	\$1,617,806	40,541	39.91
Total Trip	\$605.73	\$1,821,722,678		\$419,980,502		18,656.55
Annual Boat Storage/Marina	\$1.50	\$4,511,225	0.1847	\$833,223	27,280	30.54
Annual Condo/Time Share	\$55.80	\$167,817,551	0.1374	\$23,058,132	20,458	1127.10
Annual RV/Trailer Park	\$0.28	\$842,095	0.1964	\$165,388	17,517	9.44
Total Annual Expense Items	\$57.58	\$173,170,871		\$24,056,742		1,167.08
Total All	\$663.31	\$1,994,893,549		\$444,037,244		19,823.63

Table A.5.4. Derivation of Total Output and Income for Monroe County, Dec. 07 - Nov. 08

Person-trips	3,007,483
x	
Expenditures per person-trip	\$663.31
=	
Total Expenditures (Table A.5.3)	\$1,994,893,549
x	
Percent of inputs purchased locally	0.7
=	
Direct Output	\$1,396,425,484
x	
Output Multiplier	1.6
=	
Total Output	\$2,234,280,775
Reported Gross Sales (Dec. 07 - Nov. 08)	\$3,732,762,683
Percent of Gross Sales	59.86
Wages & Salaries Income (Direct) (from Table 5.5.3)	\$444,037,244
x	
Total Income-to-Wages & Salaries	1.3658
=	
Direct Income	\$606,466,068
x	
Income Multiplier	1.6
=	
Total Income	\$970,345,709
Reported Income 2008	\$2,214,144,000
Percent of Income	43.82

Table A.5.5. Derivation of Total Employment in Monroe County, Dec. 07 - Nov. 08

Type of Employment	Number Full and Part-time
Wages & Salaries	19,824
Employment Direct (from Table A.5.3)	
x	
Employment Multiplier	1.3
=	
Total Wages & Salaries Employment	25,771.20
Proprietor's Employment	
Proprietor's Income to Wages & Salaries Ratio	0.1333
x	
Direct Wages & Salaries	\$444,037,244
=	
Proprietor's Income (Direct)	\$59,192,102
divided by	
Proprietor's Income-to-employment ratio	12,321
=	
Proprietor's Direct Employment	4,804.16
x	
Employment Multiplier	1.3
=	
Total Proprietor's Employment	6,245.41
Total Direct Employment	24,628.16
Total Employment	32,016.61
Total Monroe County Employment 2008	57,928
Percent of Monroe County Employment	55.27

Table A.5.6. Economic Impact Multipliers

Type of Multiplier	Monroe County	3-County S. Florida
Total/Direct (Type III)		
Total Output	1.6	1.79
Total Income	1.6	1.80
Value Added	n/a	1.77
Employment	1.3	1.54
Total Output/Spending (Type I)	1.12	1.66

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EXHIBITS

Exhibit 2

Recreation/Tourist Activities

Snorkeling

Scuba diving

Fishing

Swimming

Boating (including personal watercraft – jet skis, wave runners, etc.)

Nature Study or Viewing Wildlife

Windsurfing, Parasailing or Hang gliding

Beach Activities

Visiting Museums and Historic Areas

Sightseeing or Tourist Attractions

Attending Outdoor Festivals and Events

Camping, Picnicking, Hiking

Horseback Riding, Bicycling

Participation in Outdoor Sports (Tennis, Golf, or other sports)

Sunset Cruises

Spa, Fitness, Wellness activities

Exhibit 3: Tally Sheet for Highway Lanes on U.S. 1

Date	Time Period	Lane	Cars	Cars	Pickups, vans, SUVs, Motor homes, Non-commercial		Tour Buses	Gov't or Commercial pick-ups, SUVs and Vans	Gov't or Commercial Trucks	School Buses	Motorcycles
			With Trailer	Without Trailer							
			With Trailer	Without Trailer							
		Left									
		Right									

Periodically (i.e. 10 minutes of tallying, 10 minute break, 10 minute of tallying, etc) tally vehicles in the lanes that do not get pulled over- (first tally right lane and then tally left lane-make tally marks on sheet provided).

		January	2008	Auto	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	22	23 9:00 – 11:30 am Thom Thumb	24 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	25	26
27 2:00 – 4:30 pm Thom Thumb	28	29 9:00 – 11:30 am Thom Thumb	30	31		

		February	2008	Auto	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	2 9:00 – 11:30 am Thom Thumb
3	4 9:00 – 11:30 am Thom Thumb	5	6 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	7 9:00 – 11:30 am Thom Thumb	8	9
10 9:00 – 11:30 am Thom Thumb	11	12 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	13	14	15 9:00 – 11:30 am Thom Thumb	16 2:00 – 4:30 pm Thom Thumb
17	18 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	19	20 9:00 – 11:30 am Thom Thumb	21 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	22	23
24 2:00 – 4:30 pm Thom Thumb	25	26 9:00 – 11:30 am Thom Thumb	27	28	29	

		March	2008	Auto	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 2:00 – 4:30 pm Thom Thumb
2 9:00 – 11:30 am Thom Thumb	3	4	5 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb cancelled	6 9:00 – 11:30 am Thom Thumb	7	8
9	10 9:00 – 11:30 am Thom Thumb	11 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	12	13	14 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	15 9:00 – 11:30 am Thom Thumb
16 2:00 – 4:30 pm Thom Thumb	17	18	19 9:00 – 11:30 am Thom Thumb cancelled	20 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	21	22
23	24 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	25 9:00 – 11:30 am Thom Thumb cancelled	26	27	28 9:00 – 11:30 am Thom Thumb	29
30	31					

		April	2008	Auto	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	3 9:00 – 11:30 am Thom Thumb	4	5
6 9:00 – 11:30 am Thom Thumb	7	8	9	10	11 1:00 – 2:30 pm 3:30 – 4:30 pm Thom Thumb	12 9:00 – 11:30 am Thom Thumb
13	14	15	16	17	18 9:00 – 11:30am Thom Thumb	19 2:00 – 4:30 pm Thom Thumb cancelled
20	21	22	23	24	25	26
27	28	29	30			

		June	2008	Auto	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
					9:00 – 11:30 am Tom Thumb	2:00 – 6:00 pm Tom Thumb
22	23	24	25	26	27	28
	2:00-6:00 pm Tom Thumb		9:00 – 11:30 am Tom Thumb Cancelled	2:00-6:00 pm Tom Thumb		
29	30					
2:00 – 6:00 pm Tom Thumb						

		July	2008	Auto	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 9:00 – 11:30 am Tom Thumb	2	3	4 2:00-6:00 pm Tom Thumb cancelled	5 9:00 – 11:30 am Tom Thumb
6	7 9:00 – 11:30 am Tom Thumb	8	9 2:00-6:00 pm Tom Thumb	10 9:00 – 11:30 am Tom Thumb	11	12
13 9:00 – 11:30 am Tom Thumb	14	15 2:00-6:00 pm Tom Thumb	16	17	18 9:00 – 11:30 am Tom Thumb Cancelled	19 2:00 – 6:00 pm Tom Thumb
20	21 2:00-6:00 pm Tom Thumb	22	23 9:00 – 11:30 am Tom Thumb	24 2:00-6:00 pm Tom Thumb	25	26 2:00-6:00 pm Tom Thumb
27 2:00 – 6:00 pm Tom Thumb	28	29 9:00 – 11:30 am Tom Thumb	30 2:00-6:00 pm Tom Thumb	31		

		August	2008	Auto	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 2:00-6:00 pm Tom Thumb	2 9:00 – 11:30 am Tom Thumb
3	4 9:00 – 11:30 am Tom Thumb	5	6 2:00-6:00 pm Tom Thumb	7 9:00 – 11:30 am Tom Thumb	8	9
10 9:00 – 11:30 am Tom Thumb Cancelled	11	12 2:00-6:00 pm Tom Thumb	13	14	15 9:00 – 11:30 am Tom Thumb	16 2:00 – 6:00 pm Tom Thumb
17	18	19 2:00-6:00 pm Tom Thumb	20 9:00 – 11:30 am Tom Thumb Cancelled	21 2:00-6:00 pm Tom Thumb Cancelled	22	23
24 2:00 – 6:00 pm Tom Thumb Cancelled	25 9:00 – 11:30 am Tom Thumb	26 9:00 – 11:30 am Tom Thumb	27	28	29 2:00-6:00 pm Tom Thumb Cancelled	30 9:00 – 11:30 am Tom Thumb Cancelled
31						

Exhibit 5
 Florida Department of Transportation
 Traffic Counts
 Hourly Continuous Counts
 January 2008

County Name: Monroe Station: 0164 Direction: North
 Description: SR 5/US 1, 800 Feet South of JCT CR 905 in Key Largo

BEGDATE	HR1	HR2	HR3	HR4	HR5	HR6	HR7	HR8	HR9	HR10	HR11	HR12
1/1/2008	185	182	93	115	103	106	149	241	421	605	1030	1015
1/2/2008	72	30	30	52	105	224	309	469	701	958	1133	1252
1/3/2008	81	51	29	35	85	189	276	447	599	763	943	1046
1/4/2008	73	35	31	49	82	191	249	415	556	721	872	963
1/5/2008	74	59	47	63	69	126	214	321	516	653	756	871
1/6/2008	81	53	71	43	70	84	137	214	370	541	705	840
1/7/2008	55	36	27	30	105	235	312	449	582	664	736	776
1/8/2008	0	0	0	0	0	0	0	0	0	0	0	0
1/9/2008	0	0	0	0	0	0	0	0	0	0	0	0
1/10/2008	46	40	24	44	70	225	324	503	622	652	691	700
1/11/2008	67	48	32	42	96	191	324	449	616	670	674	781
1/12/2008	77	57	48	48	81	130	198	363	564	629	686	801
1/13/2008	125	76	67	43	68	91	159	232	446	530	744	910
1/14/2008	48	44	23	45	92	246	348	520	624	718	750	794
1/15/2008	44	25	20	33	76	193	321	503	648	700	732	720
1/16/2008	42	23	29	34	80	194	321	435	668	673	707	559
1/17/2008	58	37	43	25	83	241	301	450	639	649	734	793
1/18/2008	72	39	32	41	95	199	297	465	606	675	736	814
1/19/2008	92	68	70	58	98	122	219	343	532	674	813	810
1/20/2008	144	89	66	66	69	89	138	235	463	639	920	1021
1/21/2008	63	42	32	38	93	193	289	421	628	830	961	1072
1/22/2008	38	28	25	39	79	212	356	426	659	726	763	813
1/23/2008	49	40	33	38	80	189	317	472	613	696	765	711
1/24/2008	61	37	25	38	82	188	322	450	605	661	761	797
1/25/2008	63	33	31	30	89	186	341	466	667	728	776	821
1/26/2008	85	48	34	60	64	139	209	339	554	664	787	854
1/27/2008	122	83	84	66	71	123	163	262	444	605	835	928
1/28/2008	42	32	28	40	101	234	352	465	660	763	825	838
1/30/2008	36	32	19	25	67	195	333	501	618	676	733	770
1/31/2008	49	39	28	24	81	202	348	473	693	786	793	824

Exhibit 5 (continued)
 Florida Department of Transportation
 Traffic Counts
 Hourly Continuous Counts
 January 2008

County Name: Monroe Station: 0164 Direction: North
 Description: SR 5/US 1, 800 Feet South of JCT CR 905 in Key Largo

BEGDATE	HR13	HR14	HR15	HR16	HR17	HR18	HR19	HR20	HR21	HR22	HR23	HR24	TOTVOL
1/1/2008	1147	1343	1215	1171	1170	1043	944	706	577	403	231	166	14361
1/2/2008	1206	1171	1097	1055	995	1017	685	426	391	313	216	151	14058
1/3/2008	971	1045	981	1020	978	911	629	435	314	262	192	120	12402
1/4/2008	978	985	888	961	989	1029	718	539	382	312	239	176	12433
1/5/2008	931	835	817	845	844	825	634	388	340	357	444	202	11231
1/6/2008	860	960	899	910	1053	899	835	630	444	340	211	153	11403
1/7/2008	723	713	685	767	795	771	537	384	249	210	165	90	10096
1/9/2008	0	0	0	0	0	0	0	0	0	0	0	0	0
1/10/2008	0	0	0	0	0	0	0	0	0	0	0	0	0
1/10/2008	716	565	726	955	876	883	632	413	311	210	177	130	10535
1/11/2008	804	785	781	1029	942	920	673	457	366	281	189	187	11404
1/12/2008	801	709	748	754	751	788	630	551	397	314	256	250	10631
1/13/2008	863	835	968	986	1073	1038	892	647	512	342	194	169	12010
1/14/2008	805	642	660	851	772	820	518	387	261	176	157	91	10392
1/15/2008	750	713	713	809	872	792	536	362	227	184	131	109	10213
1/16/2008	694	876	759	812	793	842	601	372	257	190	155	113	10229
1/17/2008	780	732	722	811	878	893	620	381	264	205	206	138	10683
1/18/2008	748	811	795	1021	1016	1027	775	569	387	292	245	166	11923
1/19/2008	753	785	838	902	938	1025	788	591	432	411	371	282	12015
1/20/2008	1069	1064	966	948	873	813	681	501	398	301	268	165	11986
1/21/2008	1057	1048	1079	960	1009	887	587	394	319	193	151	113	12459
1/22/2008	831	833	734	777	843	825	570	323	221	186	159	117	10583
1/23/2008	719	731	677	775	910	906	627	367	285	209	171	129	10509
1/24/2008	768	779	685	925	910	910	661	413	270	236	178	131	10893
1/25/2008	810	800	766	997	934	984	756	513	366	326	234	173	11890
1/26/2008	796	825	802	854	775	881	665	628	439	343	302	247	11394
1/27/2008	1003	1008	1098	1040	1062	1056	945	678	506	301	211	134	12828
1/28/2008	819	787	721	851	857	805	528	364	269	198	143	120	10842
1/30/2008	763	757	719	856	870	878	637	404	288	225	182	99	10683
1/31/2008	784	821	779	900	926	925	613	452	308	266	189	137	11440

Exhibit 6: Auto, Air, Cruise Ship, Ferry On-site Survey

On-site Survey Number: _____

Screening Criteria: 1) NOT a resident of Monroe County
(See Tally Sheet) 2) Visiting Keys and did some recreation/tourist activity _____

Auto: U.S. 1

Time of interview:

Air: Key West
Marathon

Month Day Time

Cruise Ship: Mallory Square
Truman Annex
Navy Mole

Number of People in Vehicle or Party:

People

1. How many people in your vehicle (party) are age 16 or older? _____ (# People)

(b) How many people in your vehicle (party) are under 16? _____ (# People)

2. Where is your primary residence?

City or Nearest City County State Zipcode

Country: _____

- U.S.A
- Canada
- Mexico
- Central Am./South Am.
- Australia/Oceania
- Japan
- Other Far East
- United Kingdom
- Other Europe
- Middle East
- Africa
- Other

3. On this trip to the Florida Keys, when did you first arrive? _____
Month Day Time

4. Including this trip, how many times have you visited the Florida Keys for all recreation/tourist activities in the last 12 months, that is since (date last year)?

Times

5. Including this trip, how many days have you spent in the Florida Keys where you did some recreation/tourist activity in the last 12 months?

Days

If overnight visitor, hand respondent map of Florida Keys. If not overnight visitor, skip to next section.

6. Looking at the map, could you tell me how many nights you spent **on this trip** to the Florida Keys in the

Upper Keys _____ Islamorada _____ Marathon _____ Lower Keys _____ Key West _____
nights # nights # nights # nights # nights

Interviewer: Make sure if answer to Q.4. is greater than one, that answer to Q.6. is not equal to Q.5.

Auto, Air and Cruise Ship Survey

We would like to collect some additional information on your (expenditures or satisfaction) with the Florida Keys during your trip. Please take this (satisfaction or expenditure) questionnaire and return it to us in the mail. The questionnaire has a business reply page, and postage is pre-paid. It will cost you nothing to return it to us. The information gained from these questionnaires is very important to all those responsible for making your trip to the Florida Keys an enjoyable experience. As an incentive to return your questionnaires, a sweepstakes has been organized by the local business community. **Hand brochure describing sweepstakes** By returning your questionnaire with your name and address, we enter you in the sweepstakes.

Reminder: Your name and address and all personal information collected in the project are protected under the Privacy Act. After the survey is completed and the sweepstakes prizes awarded, all name and address information will be destroyed. No one will be allowed to use this information for contacting you about any promotions.

19. Will you complete this questionnaire?

Yes

No → This concludes our interview. Thank you for your time. In appreciation for your participation we would like to offer you this gift.

Satisfaction

We suggest completing the satisfaction questionnaire on your way home while your thoughts about your trip to the Florida Keys are fresh.

Expenditure

The expenditure survey should be completed after your trip is over and you have returned home.

Interviewer: Code on-site survey number and location on mailback

Show example of mailback questionnaire, where to start, the types of questions that are asked, and how to seal it to mail it back

20. Please give us your name and address. In the event that we do not receive the take home questionnaire we will send you another.

Satisfaction name and address

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

21. If someone other than yourself paid for all your expenses on this trip to the Florida Keys, we would like that person to answer the questionnaire. Will you please give us the name and address of that person?

Expenditure name and address

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

This concludes our interview. Thank you for your time. In appreciation for your participation, we would like to offer you this gift.

		January	2008	Air	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
			Key West Morning			Key West Afternoon
27	28	29	30	31		
		Key West Morning		Key West Morning		

		February	2008	Air	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 Key West Afternoon	2
3 Key West Afternoon	4 Key West Morning	5	6	7	8	9
10	11	12	13 Key West Afternoon	14	15	16 Key West Morning
17	18	19 Key West Morning	20	21	22 Key West Morning	23
24 Key West Morning	25	26	27	28 Key West Afternoon	29	

		March	2008	Air	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5 Key West Morning	6	7 Key West Morning	8
9	10 Key West Morning	11	12	13	14	15 Key West Morning
16	17	18	19	20 Key West Afternoon	21	22
23 Key West Morning	24	25 Key West Afternoon	26	27	28 Key West Morning	29
30	31					

		April	2008	Air	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3 Key West Morning	4 Key West Afternoon	5
6	7 Key West Afternoon	8	9 Key West Afternoon	10	11	12
13 Key West Morning	14	15 Key West Morning	16	17	18	19
20	21 Key West Afternoon	22	23	24	25 Key West Afternoon cancelled	26 Key West Morning
27	28	29	30			

		June	2008	Airport	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19 Key West Airport – Morning	20	21
22	23 Key West Airport- Afternoon	24		26	27	28 Key West Airport Morning
29 Key West Airport Afternoon	30					

		July	2008	Airport	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2 Key West Airport Morning	3	4 Key West Airport Morning	5
6	7 Key West Airport Morning	8	9 Key West Airport Afternoon	10	11	12 Key West Airport Afternoon
13 Key West Airport Afternoon	14	15 Key West Airport Morning	16	17 Key West Airport Morning	18	19
20	21 Key West Airport Afternoon	22	23	24	25 Key West Airport Morning	26 Key West Airport Morning
27 Key West Airport Morning	28	29	30	31 Key West Airport Morning		

		August	2008	Airport	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 Key West Airport Morning	6 Key West Airport Morning	7	8 Key West Airport Morning	9 Key West Airport Afternoon
10 Key West Airport Afternoon	11 Key West Airport Morning	12	13	14	15	16
17	18	19 Key West Airport Morning	20	21 Key West Airport Afternoon	22	23 Key West Airport Morning
24 Key West Airport Morning	25	26	27 Key West Airport Morning	28	29	30
31						

Exhibit 9. Key West Airport Enplanements

Time Period	Monthly Totals
Dec. 07	19,984
Jan. 08	24,975
Feb. 08	24,991
Mar. 08	28,686
Apr. 08	24,252
May. 08	22,013
Jan. -April 08	102,904
Dec. 07 - May 08	144,901
Jan. 08 - May 08	124,917
Jun. 08	17,990
Jul. 08	15,762
Aug. 08	13,198
Sept. 08	8,417
Oct. 08	14,275
Nov. 08	18,429
Dec. 08	17,814
Jun. 08 - Aug. 08	46,950
Jun. 08 - Nov. 08	88,071
Jun. 08 - Dec. 08	105,885
Dec. 07 - Nov. 08	232,972
Jan. 08 - Dec. 08	230,802

Source: Key West Airport

		January	2008	Cruise Ship & Ferry	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	22 Fascination Outer Mole 730-1400	23 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	24	25 Enchantment Pier B 1200-1800	26
27 Costa Med Outer Mole 800-1700 cancelled	28 Celebration Mallory Square 630-1500	29	30	31 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami		

		February	2008	Cruise Ship & Ferry	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	5 Century Pier B 700-1700	6	7 Majesty Pier B 815-1800	8	9 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami
10 Costa Med Outer Mole 800-1700	11	12 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	13	14	15 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	16 SS Navigator Mallory Square 800-1700
17	18 Jewel Pier B 700-1500	19	20	21 N. Majesty Outer Mole 300-2200	22	23
24 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	25 Artemis Outer Mole 800-1800	26	27	28	29 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	

		March	2008	Cruise Ship & Ferry	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 MS Millenium Outer Mole 1000-2300	4 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	5 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	6	7 Imagination Outer Mole 730-1700	8
9 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	10 Radiance Pier B 700-1400	11	12 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	13 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	14	15 SS Marine Outer Mole 800-1700
16	17	18	19 Celebration Mallory Square 700-1500	20	21	22
23 Disney Pier B 1130-2200	24 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	25	26	27 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	28 Grandeur Pier B 1000-1500	29
30 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	31					

		April	2008	Cruise Ship & Ferry	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Century Pier B 700-1700	2 Celebration Mallory Square 700-1500	3	4	5
6	7	8	9	10 N. Majesty Outer Mole 300-2200	11 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	12 Enchantment Pier B 900-1800
13 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	14	15 Century Pier B 700-1700	16 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	17	18 Imagination Outer Mole 730-1400	19 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami
20 Disney Pier B 1130-2200	21	22 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	23	24	25 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami	26 Ferry 4:00 pm – 6:45Pm Marco Island Ft. Myers Beach Miami
27 Norwegian Dream Pier B 800-2000	28	29	30			

		June	2008	Cruise Ship & Ferry	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
				Majesty Pier B 815-1800	Ferry 4:00 – 5:45 pm	
22	23	24	25	26	27	28
		Fascination Outer Mole 730-1400	Ferry 4:00 – 5:45 pm		Imagination Outer Mole 730-14-00	Ferry 4:00 – 5:45pm
29	30					

		July	2008	Cruise Ship & Ferry	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Fascination Outer Mole 730-1400	2 Ferry 4:00 – 5:45pm	3 Majesty Pier B 815-1800	4 Ferry 4:00 – 5:45pm	5
6	7 Ferry 4:00 – 5:45pm	8 Enchantment Pier B 700 - 1400	9	10	11 Imagination Outer Mole 730-1400	12
13	14	15 Ferry 4:00 – 5:45pm	16 Ferry 4:00-5:45pm	17 Majesty Pier B 815-1800	18 Enchantment Pier B 900-1800	19
20	21	22 Fascination Outer Mole 730-1400	23	24 Ferry 4:00-5:45pm	25 Imagination Outer Mole 730-1400	26 Ferry 4:00-5:45pm
27 Ferry 4:00-5:45pm	28	29	30	31 Majesty Pier B 815-1800		

		August	2008	Cruise Ship & Ferry	Survey	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 Ferry 4:00-5:45pm	2
3	4	5 Enchantment Pier B 700-1400	6 Ferry 4:00-5:45pm	7	8 Imagination Outer Mole 730-1400	9
10 Ferry 4:00-5:45pm	11	12 Fascination Outer Mole 730-1400	13	14 Majesty Pier B 815-1800	15 Ferry 4:00-5:45pm	16
17 Ferry 4:00-5:45pm	18	19 Fascination Outer Mole 730-1400	20	21	22 Imagination Outer Mole 730-1400	23 Ferry 4:00-5:45pm
24 Ferry 4:00-5:45pm	25	26 Fascination Outer Mole 730-1400	27 Ferry 4:00-5:45pm	28 Majesty Pier B 815-1800	29	30 Ferry 4:00-5:45pm
31						

**Exhibit 11: Tally Sheet
Cruise Ship**

Sites

- Mallory Square (MS) Navy Mole (NM)
 Truman Annex (TA)

1. Are you a permanent resident of Monroe County
 Yes Thank you. We are only interviewing nonresidents of Monroe County. (Place tic mark in column 3)
 No →
 2. Will you participate in a short 5-10 minute survey about your visit to the Florida Keys?
 No Thank you. (Place tic mark in column 4)
 Yes (Place tic mark in column 5)
 Begin interview

1	2	3	4	5
Site	Date	Permanent Resident	Visitor Refusal or Language Barrier	Visitor Interviewed

Exhibit 12. Cruise Ship Passenger Counts¹

Time Period	MS	Pier B	OM	Anchorage	Total
Dec. 07	13,221	47,899	31,064	0	92,184
Jan. 08	9,039	43,602	33,612	0	86,253
Feb. 08	5,085	43,325	33,276	0	81,686
Mar. 08	5,633	42,728	33,784	0	82,145
Apr. 08	6,111	42,161	28,226	1,830	78,328
May. 08	0	28,195	16,027	0	44,222
Jan. -April 08	25,868	171,816	128,898	1,830	328,412
Dec. 07 - May 08	39,089	247,910	175,989	1,830	464,818
Jan. 08 - May 08	25,868	200,011	144,925	1,830	372,634
Jun. 08	0	20,863	15,047	0	35,910
Jul. 08	1,851	26,410	17,055	0	45,316
Aug. 08	0	20,870	12,647	0	33,517
Sept. 08	0	28,526	17,401	0	45,927
Oct. 08	97	41,224	9,041	0	50,362
Nov. 08	6,049	46,180	11,044	0	63,273
Dec. 08	9,322	51,349	30,560	1,128	92,359
Jun. 08 - Aug. 08	1,851	68,143	44,749	0	114,743
Jun. 08 - Nov. 08	7,997	184,073	82,235	0	274,305
Jun. 08 - Dec. 08	17,319	235,422	112,795	1,128	366,664
Dec. 07 - Nov. 08	47,086	431,983	258,224	1,830	739,123
Jan. 08 - Dec. 08	43,187	435,433	257,720	2,958	739,298

1. MS=Mallory Square, Pier B=Truman Annex Pier B, OM=Navy Outer Mole.

Source: Key West Port Authority

Exhibit 13. Ferry Passenger Counts

Time Period	Counts ¹	Passengers ²
Dec. 07	13,902	6,951
Jan. 08	13,676	6,838
Feb. 08	24,129	12,065
Mar. 08	26,848	13,424
Apr. 08	18,258	9,129
May. 08	13,095	6,548
Jan. -April 08	82,911	41,456
Dec. 07 - May 08	109,908	54,954
Jan. 08 - May 08	96,006	48,003
Jun. 08	11,947	5,974
Jul. 08	12,757	6,379
Aug. 08	8,700	4,350
Sept. 08	4,458	2,229
Oct. 08	8,734	4,367
Nov. 08	7,823	3,912
Dec. 08	9,544	4,772
Jun. 08 - Aug. 08	33,404	16,702
Jun. 08 - Nov. 08	54,419	27,210
Jun. 08 - Dec. 08	63,963	31,982
Dec. 07 - Nov. 08	164,327	82,164
Jan. 08 - Dec. 08	159,969	79,985

1. Counts are numbers of passengers to and from Key West.

2. Passengers are number of counts divided by two.

Sources: Key West Port Authority and Key West Chamber of Commerce.

ACTIVITIES LIST

Number	Activities Using Boats and Personal Watercraft
	Snorkeling
100A	Snorkeling from charter/party boat (pay operation)
101A	Snorkeling from a rental boat
102A	Snorkeling from private boat (your boat or friend or relatives boat)
	Scuba Diving
200A	Scuba diving from charter/party boat (pay operation)
201A	Scuba diving from a rental boat
202A	Scuba diving from a private boat (your boat or friend or relatives boat)
	Special Activities while Snorkeling or Scuba Diving
300	Diving for lobsters
301	Underwater photography
302	Wreck diving
303	Spear fishing
	Fishing – Offshore
400A	Fishing from charter boat (pay operation, usually six persons or less) - offshore
401A	Fishing from party or head boat (pay operation, charge per person) - offshore
402A	Fishing from a rental boat – off shore
403A	Fishing from a private boat (your boat or friend or relatives boat) – offshore
	Fishing – Flats or Back Country
404A	Fishing from charter/party boat or guide (pay operation) – flats or back country
405A	Fishing from rental boat – flats or back country
406A	Fishing from a private boat (your boat or friend or relatives boat) – flats or back country
	Other Fishing
407A	Other fishing from charter boat (pay operation, usually six persons or less)
408A	Other fishing from party or head boat (pay operation, charge per person)
409A	Other fishing from a rental boat
410A	Other fishing from a private boat (your boat or friends or relatives boat)
	Viewing Nature and Wildlife
500A	Glass bottom boat rides (pay operation)
501A	Back country boat excursions (pay operation/guided service/NOT FISHING)
502A	Viewing nature and wildlife from private or rental boat
	Personal Watercraft (jet skis, wave runners, etc.)
600A	Personal watercraft – rental
601A	Personal watercraft – Private (your boat or friend or relatives boat)
	Sailing
700A	Sailing charter/party boat (pay operation)
701A	Sailing rental boat
702A	Sailing private boat (your boat or friend or relatives boat)
	Other Activities NOT MENTIONED ABOVE (parasailing, hang gliding, water-skiing, sunset cruises)
800A	Other activities from a charter/party boat (pay operation)
801A	Other activities from a rental boat
802A	Other activities from a private boat (your boat or friend or relatives boat)

----- OVER -----

ACTIVITIES LIST (REEFS)**Number Activities Using Boats on Artificial and Natural Reefs****Snorkeling**

- 100A Snorkeling from charter/party boat (pay operation)
 101A Snorkeling from a rental boat
 102A Snorkeling from private boat (your boat or friend or relatives boat)

Scuba Diving

- 200A Scuba diving from charter/party boat (pay operation)
 201A Scuba diving from a rental boat
 202A Scuba diving from a private boat (your boat or friend or relatives boat)

Special Activities while Snorkeling or Scuba Diving

- 300 Diving for lobsters
 301 Underwater photography
 302 Wreck diving
 303 Spear fishing

Fishing on Artificial or Natural Reefs

- 407A Other fishing from charter boat (pay operation, usually six persons or less)
 408A Other fishing from party or head boat (pay operation, charge per person)
 409A Other fishing from a rental boat
 410A Other fishing from a private boat (your boat or friends or relatives boat)

Viewing Nature and Wildlife

- 500A Glass bottom boat rides (pay operation)
 502A Viewing nature and wildlife from private or rental boat

Number Other Water-Based Activities – NO BOATS – On Artificial or Natural Reefs**Snorkeling and Scuba Diving**

- 10A Snorkeling from shore
 11A Scuba diving from shore

Special Activities while Diving from Shore

- 12 Diving for lobsters
 13 Underwater photography

Exhibit 17: The Florida Keys

