

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

Monroe County Resident Recreation:
Selected Comparisons 1995-06 and 2008

October 2010

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National Oceanic and Atmospheric Administration
U.S. Department of Commerce



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Introduction

This study is part of the Socioeconomic Research & Monitoring Program for the Florida Keys National Marine Sanctuary. See the following url for details on this program:

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

The baseline study for Recreation-Tourism in the Florida Keys was done for year 1995-96. The study was adopted in the Socioeconomic Research and Monitoring Program for the Florida Keys National Marine Sanctuary at a workshop attended by 50 social scientists and stakeholders in 1998. Stakeholders at this workshop recommended the study be replicated approximately every 10 years. We attempted to implement the study as a 10-year replication, but delays in funding resulted in a 12-year replication. The study serves as a “Census” of recreation-tourism in the Florida Keys. The full study includes both visitors to the Florida Keys/Monroe County and residents of the Florida Keys/Monroe County. Here only some preliminary information from the resident portion of the study is reported.

For the full report on residents or visitors go to the following url:

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

Funding Partners: The funding partners included three offices within the National Ocean Service of the National Oceanic and Atmospheric Administration (NOAA): Office of National Marine Sanctuaries, Florida Keys, the National Centers for Coastal Ocean Science, and the Coral Reef Conservation Program. Local partners included the Monroe County Tourist Development Council and The Nature Conservancy, Florida Keys Program.

Working Partners: The Human Dimensions of Coastal and Marine Resources, University of Massachusetts-Amherst provided oversight of the conduct of the resident surveys and database development and documentation. They will also be assisting with data analyses and reports. However, David Loomis has now moved to East Carolina University and is starting a similar Human Dimensions Program there.

Resident Population for this Study. This study focuses on the permanent population of Monroe County that live in households. This eliminates those who live in group quarters and those who are seasonal visitors. Seasonal visitors are included in the “visitor” portion of the study on “recreation-tourism”.

For activity participation, we estimate the participation rate or the percent of all permanent residents that live in households of all ages that did a recreation activity in the Florida Keys/Key West over the 2008 year. Applying these participation rates to the estimated permanent resident population of all ages living in households (68,771, see Table 1), we derive estimates of the number of participants by type of activity and district (Key Largo, Islamorada, Marathon, Lower Keys and Key West). Using the estimated average number of days of activity, by type of activity and district for 39 selected activities, we estimate the total annual days of recreation activity by activity and district. Only the changes from 1995-96 to 2008 are reported here for greater detail

see the full resident report for 1995-96 (Leeworthy and Wiley, 1997) and for 2008 (Leeworthy and Morris, 2010).

For trip-related expenditures in Monroe County, we only use the “export sector” of the resident population. The “export sector” is that portion of the resident population that doesn’t earn their income within Monroe County. This avoids double-counting resident spending that would be accounted in deriving the economic impacts from spending in other “export” or “basic” industries that derive their demands from outside Monroe County (e.g. visitor/tourist industry, commercial fishing, the military, writers, artists, and some manufacturing). In both 1995-96 and 2008, we estimated the portion of recreation activity and spending associated with that activity attributed to the “export” sector of residents.

This Report. In this report, we selected key measurements in both the 1995-96 and 2008 surveys to compare over the 12-year period. In some cases, we have performed formal statistical tests of the differences between measurements over the 12-year period.

Table 1. Population, Households and Participation in Outdoor Recreation in the Florida Keys/Key West: Permanent Residents of Monroe County

	1995-96	2008	Change
Population in Households	79,380	68,771	-13.36%
Number of Households	35,437	30,839	-12.98%
Any Outdoor Recreation in the Florida Keys/Keys West			
a) Participation Rate (%) ¹	77.00	82.54	+5.54
b) Number of Households	27,286	25,455	-6.71%

1. Change in Participation rate is the absolute number of percentage points or share of households with permanent residents.

Key Findings:

- The Monroe County permanent resident population living in households declined over 13% over the 12-year period or a little over 1% per year.
- The percent of households with at least one household member that participated in at least one outdoor recreation activity in the Florida Keys/Key West increased by 5.5 percentage points over the 12-year period.
- The absolute number of households with a participant in outdoor recreation in the Florida Keys/Key West declined 6.7% over the 12-year period, thus the impact of total population decline more than offset the increase in the participation rate.

Table 2. Activity Participation Rates: 1995-96 versus 2008

Activity	%		
	1995-96	2008	Change ¹
Snorkeling	45.30	35.45	-9.85
SCUBA Diving	16.65	12.02	-4.63
Fishing	47.66	39.75	-7.91
Viewing Wildlife-Nature Study	36.00	32.93	-3.07
Beach Activities (including swimming)	38.26	26.77	-11.49
Sightseeing & Attractions (Paid & Unpaid)	21.80	22.06	0.26
Visiting Museums or Historic Areas	28.66	31.36	2.70
Cultural Events (Fairs, Concerts, Plays)	32.15	31.96	-0.19
All Camping	6.59	4.41	-2.18
Personal Watercraft Use ²	4.43	1.99	-2.44
Sailing	8.26	8.62	0.36
Outdoor Sports and Games	16.99	13.41	-3.58
SPA, Health & Wellness	N/A	12.05	N/A
Any Water-based Activities	69.71	60.41	-9.30
Any Land-based Activities	88.59	55.95	-32.64
Only Water-based Activities	8.95	10.49	1.54
Only Land-based Activities	3.76	5.14	1.38

1. Percent (%) change is a change in percentage points or the share of the total number of permanent residents of all ages.
2. Personal Watercraft Use in 1995-96 only measured rental boat use, so comparison here is only of this portion of Personal Watercraft Use. The percent of residents that used all Personal Watercraft was 7.10 in 2008.

Key Findings:

- Participation rates in all water-based activities, except “Sailing”, declined over the 12-year period.
- Two land-based activities gained market share over the 12-year period:
 1. Sightseeing & Attractions (Paid & Unpaid)
 2. Visiting Museums or Historic Areas
- Although participation rates in “Any Water-based Activities” and “Any Land-based Activities” declined over the 12-year period, participation rates in “Only Water-based Activities” and “Only Land-based Activities” increased.

Table 3. Number of Participants by Activity: 1995-96 versus 2008

Activity			%	
	1995-96	2008	Change	Change
Snorkeling	35,963	24,379	-11,584	-32.21
SCUBA Diving	13,219	8,266	-4,953	-37.47
Fishing	37,835	27,334	-10,501	-27.75
Viewing Wildlife-Nature Study	28,577	22,646	-5,931	-20.75
Beach Activities (including swimming)	30,369	18,412	-11,957	-39.37
Sightseeing & Attractions (Paid & Unpaid)	17,305	15,169	-2,136	-12.34
Visiting Museums or Historic Areas	22,753	21,568	-1,185	-5.21
Cultural Events (Fairs, Concerts, Plays)	25,519	21,981	-3,538	-13.86
All Camping	5,231	3,034	-2,197	-42.00
Personal Watercraft Use ¹	3,529	1,368	-2,161	-61.24
Sailing	6,555	5,928	-627	-9.57
Outdoor Sports and Games	13,486	9,220	-4,266	-31.63
SPA, Health & Wellness	N/A	8,288	N/A	N/A
Any Water-based Activities	55,338	41,542	-13,796	-24.93
Any Land-based Activities	70,324	38,476	-31,848	-45.29
Only Water-based Activities	7,104	7,212	108	1.52
Only Land-based Activities	2,986	3,533	547	18.32

1. Personal Watercraft Use in 1995-96 only measured rental boat use, so comparison here is only of this portion of Personal Watercraft Use. The number of residents that used all Personal Watercraft was 4,884 in 2008.

Key Findings:

- The Total Number of Participants declined for every major activity over the 12-year period. Thus, the decline in overall population dominated the effect of changes in participation rates, except for those doing “Only Water-based Activities” and “Only Land-based Activities”.
- The decline in “Land-based activities were greater than that in “Water-based Activities”.
- The number of residents using “Rental Personal Watercraft” showed the greatest decline over the 12-year period followed by “All Camping”.
- The Florida Keys/Key West has lost over 500 campsites over the 12-year period as land is being redeveloped to higher economic uses (condo and time share units). We hypothesize that for both visitors and residents those who live in condos and time shares participate less in water-based activities.

Table 4. Annual Number of Days of Activity (Thousands of Days): 1995-96 versus 2008

Activity	1995-96	2008	Change	% Change
Snorkeling	746.5	358.0	-388.5	-52.04
SCUBA Diving	169.6	105.5	-64.1	-37.79
Fishing	889.8	756.5	-133.3	-14.98
Viewing Wildlife-Nature Study	528.5	488.3	-40.2	-7.61
Beach Activities (including swimming)	653.3	305.1	-348.2	-53.30
Visiting Museums or Historic Areas	180.0	161.9	-18.1	-10.04
Personal Watercraft Use ¹	9.7	2.2	-7.5	-76.91
Sailing	87.9	54.9	-33.0	-37.57
Other Boating	225.6	137.4	-88.2	-39.08

1. Personal Watercraft Use in 1995-96 only measured rental boat use, so comparison here is only of this portion of Personal Watercraft Use. The annual number of days of residents use of all Personal Watercraft was 53.57 thousand in 2008.

Key Findings:

- The Total Annual Number of Days of Activity declined for all activities over the 12-year period.
- In terms of absolute number of days, the greatest decline was in “Snorkeling” followed by “Beach Activities (including swimming)”.
- In terms of percentage declines, “Rental of Personal Watercraft” had the greatest decline followed by “Snorkeling” and “Beach Activities”.

Table 5. Spending Per Person Per Day in Monroe County - Export Sector: 1995-96 versus 2008¹

Category	1995-96	2008	% Change
Lodging	\$5.90	\$4.56	-22.76
Food and Beverages	\$33.01	\$29.02	-12.09
Transportation	\$6.11	\$4.19	-31.41
Boating	\$22.33	\$20.89	-6.43
Fishing	\$12.14	\$27.25	124.55
SCUBA diving/Snorkeling	\$0.16	\$4.90	2,881.19
Sightseeing	\$3.79	\$2.36	-37.80
Other Activity Expenditures	\$3.55	\$3.07	-13.46
Miscellaneous Expenditures	\$11.55	\$4.59	-60.25
Services	\$2.15	\$0.59	-72.56
Total	\$100.69	\$101.42	0.73

1. 1995-96 spending adjusted for inflation to 2008 dollars.

Key Findings:

- After adjusting for inflation, the average spending per person per day on trip-related items increased a little less than one percent over the 12-year period.
- For two sub-categories of spending (Fishing and SCUBA diving/Snorkeling), average spending per person per day actually increased over the 12-year period, all others declined.
- Although the absolute amount spent on SCUBA diving/Snorkeling is relatively low, the percentage increase over the 12-year period is extremely high since in 1995-96 spending in this category was extremely low.

Table 6. Total Annual Expenditures in Monroe County - Export Sector: 1995-96 versus 2008¹

Category	Thousands of 2008 Dollars		
	1995-96	2008	% Change
Lodging	\$7,574.22	\$5,123.95	-32.35
Food and Beverages	\$42,352.37	\$32,609.02	-23.01
Transportation	\$7,837.82	\$4,708.19	-39.93
Boating	\$28,644.96	\$23,473.55	-18.05
Fishing	\$15,570.22	\$30,620.12	96.66
SCUBA diving/Snorkeling	\$210.88	\$5,506.00	2,510.98
Sightseeing	\$4,867.89	\$2,651.87	-45.52
Other Activity Expenditures	\$4,551.57	\$3,449.68	-24.21
Miscellaneous Expenditures	\$14,814.54	\$5,157.66	-65.19
Services	\$2,759.06	\$662.97	-75.97
Total	\$129,183.52	\$113,963.01	-11.78

1. 1995-96 spending adjusted for inflation to thousands of 2008 dollars.

Key Findings:

- After adjusting for inflation, Total Annual Expenditures on trip-related items declined almost 12% over the 12-year period or almost 1% per year.
- Total spending declined for all but two expenditure categories:
 - 1) Fishing
 - 2) SCUBA diving/Snorkeling
- So for these two expenditure categories, the increase in spending per person per day more than offset the decline in the number of days of activity in these two activities. Fishing and Diving have become relatively more important to the local Monroe County economy from resident spending.

Table 7. Total Impact of Recreating Permanent Residents on the Monroe County Economy
1995-96 versus 2008

Measurement	1995-96	2008	% Change	% of Monroe County Economy	
				1995-96	2008
Total Spending Export (Millions 2008 Dollars)	129.190	113.963	-11.79		
Total Sales/Output ¹ (Millions 2008 Dollars)	144.681	127.639	-11.78	4.79	3.42
Total Income ¹ (Millions 2008 Dollars)	42.283	47.688	12.78	2.75	2.15
Total Employment ¹ (Number of full and part-time jobs)	2,414	1,622	-32.81	5.14	2.80

1. Includes multiplier or ripple effects of spending from export sector of resident spending.

Key Findings:

- After adjusting for inflation, Total Spending by the “Export Sector” of permanent residents decreased almost 12% over the 12-year period.
- The Economic Impact or Contribution to the Monroe County Economy of this spending, including multiplier or ripple effects of this spending include the following:
 1. Total Sales/Output – an approximately 12% decline.
 2. Income to Monroe County Residents – an almost 13% increase.
 3. Employment – an almost 33% decline.
- As a share of the total Monroe County Economy, the “export” sector of permanent residents accounted for a lower share of “Total Sales/Output”, “Income” and “Employment” in 2008 compared to 1995-96.

Table 8. Comparison of Resident's Importance Ratings 1995-96 versus 2008

Item	1995-96 Mean ¹	2007-08 Mean ¹	Increase/ Decrease	Statistically Significant ²
Natural Resources				
Clear Water (high visibility)	4.40	4.28	decrease	NO
Amount of living coral on reefs	4.47	4.34	decrease	NO
Many different kinds of fish and sea life to view	4.22	4.24	increase	NO
Many different kinds of fish and sea life to catch	3.55	3.54	decrease	NO
Large numbers of fish	4.17	4.06	decrease	NO
Opportunity to view large wildlife (manatees, whales, dolphins, sea turtles)	3.77	3.84	increase	NO
Quality of beaches	4.26	4.29	increase	NO
Natural Resource Facilities				
Parks and specially protected areas	4.06	4.00	decrease	NO
Shoreline access	3.76	3.80	increase	NO
Designated swimming/beach areas	3.69	3.62	decrease	NO
Mooring buoys near coral reefs	4.31	4.06	decrease	YES
Marina facilities	3.04	3.07	increase	NO
Boat ramps/launching facilities	2.95	2.82	decrease	NO
Other Facilities				
Historic preservation (historic landmarks, house, etc.)	3.92	3.83	decrease	NO
Parking	3.12	3.07	decrease	NO
Public transportation	2.42	2.36	decrease	NO
Directional signs, street signs, mile markers	3.50	3.26	decrease	YES
Condition of bike paths and sidewalks	3.95	3.96	increase	NO
Conditions of roads and streets	3.78	3.66	decrease	NO
Availability of public restrooms	3.68	3.77	increase	NO
Cleanliness of streets and sidewalks	3.99	4.05	increase	NO
Uncrowded conditions	3.93	3.89	increase	NO
Services				
Maps, brochures, and other tourist information	2.87	2.63	decrease	YES
Customer Service and Friendliness of people	4.21	4.16	decrease	NO
Value for the price	4.14	4.08	decrease	NO
All Items	3.77	3.71	decrease	NO

1. Mean scores. Scores 1 to 5 with 5 meaning extremely important.

2. Yes means statistically significant difference in mean scores at 0.05 level of significance or 95% confidence. Test using proc ttest in SAS.

Table 9. Comparison of Resident's Satisfaction Ratings 1995-96 versus 2008

Item	1995-96 Mean ¹	2008 Mean ¹	Increase/ Decrease	Statistically Significant ²
Natural Resources				
Clear Water (high visibility)	3.50	3.55	increase	NO
Amount of living coral on reefs	3.23	3.06	decrease	YES
Many different kinds of fish and sea life to view	3.49	3.60	increase	NO
Many different kinds of fish and sea life to catch	3.39	3.59	increase	YES
Large numbers of fish	3.22	3.25	increase	NO
Opportunity to view large wildlife (manatees, whales, dolphins, sea turtles)	3.21	3.52	increase	YES
Quality of beaches	3.00	3.06	increase	NO
Natural Resource Facilities				
Parks and specially protected areas	3.51	3.62	increase	NO
Shoreline access	3.01	3.20	increase	YES
Designated swimming/beach areas	3.17	3.34	increase	YES
Mooring buoys near coral reefs	3.63	3.69	increase	NO
Marina facilities	3.66	3.39	decrease	YES
Boat ramps/launching facilities	3.28	3.21	decrease	NO
Other Facilities				
Historic preservation (historic landmarks, house, etc.)	3.64	3.76	increase	YES
Parking	3.03	3.08	increase	NO
Public transportation	2.61	3.16	increase	YES
Directional signs, street signs, mile markers	3.53	3.76	increase	YES
Condition of bike paths and sidewalks	3.02	3.18	increase	NO
Conditions of roads and streets	3.15	3.17	increase	NO
Availability of public restrooms	2.96	3.11	increase	YES
Cleanliness of streets and sidewalks	3.06	3.16	increase	NO
Uncrowded conditions	2.92	3.27	increase	YES
Services				
Maps, brochures, and other tourist information	3.63	3.96	increase	NO
Customer Service and Friendliness of people	3.46	3.99	increase	NO
Value for the price	2.84	2.94	increase	NO
All Items	3.25	3.39	increase	NO

1. Mean scores. Scores 1 to 5 with 5 meaning extremely important.

2. Yes means statistically significant difference in mean scores at 0.05 level of significance or 95% confidence. Test using proc ttest in SAS.

Table 10. Relative Importance-Satisfaction Changes 1995-96 to 2008

	1995-96 Quadrant ¹	2008 Quadrant ¹	Change ²
Natural Resources			
Clear Water (high visibility)	2	2	
Amount of living coral on reefs	1	1	
Many different kinds of fish and sea life to view	2	2	
Many different kinds of fish and sea life to catch	3	4	+
Large numbers of fish	3	1	-
Opportunity to view large wildlife (manatees, whales, dolphins, sea turtles)	3	2	+
Quality of beaches	1	1	
Natural Resource Facilities			
Parks and specially protected areas	2	2	
Shoreline access	3	1	-
Designated swimming/beach areas	3	3	
Mooring buoys near coral reefs	2	2	
Marina facilities	4	4	
Boat ramps/launching facilities	3	3	
Other Facilities			
Historic preservation (historic landmarks, house, etc.)	2	2	
Parking	3	3	
Public transportation	3	3	
Directional signs, street signs, mile markers	4	4	
Condition of bike paths and sidewalks	1	1	
Conditions of roads and streets	3	3	
Availability of public restrooms	3	1	-
Cleanliness of streets and sidewalks	1	1	
Uncrowded conditions	1	1	
Services			
Maps, brochures, and other tourist information	4	4	
Customer Service and Friendliness of people	2	2	
Value for the price	1	1	
All Items			

1. Quadrants: 1=Relatively High Importance - Relatively Low Satisfaction - Concentrate Here

2=Relatively High Importance - Relatively High Satisfaction - Keep up the Good Work

3=Relatively Low Importance - Relatively Low Satisfaction - Low Priority

4=Relatively Low Importance - Relatively High Satisfaction - Possible Overkill

2. + means an improvement in status and – means a decline in status.

Key Findings for Importance-Satisfaction Ratings:

- Three (3) items significantly decreased in importance:
 1. Mooring buoys near coral reefs
 2. Directional signs, street signs, mile markers
 3. Maps, brochures, and other tourist information

- Two (2) items significantly decreased in satisfaction:
 1. Amount of living coral on the reefs
 2. Marina facilities

- Nine (9) items significantly increased in satisfaction
 1. Many different kinds of fish and sea life to catch
 2. Opportunity to view large wildlife (manatees, whales, dolphins, sea turtles)
 3. Shoreline Access
 4. Designated swimming/beach areas
 5. Historic Preservation (historic landmarks, houses, etc.)
 6. Public transportation
 7. Directional signs, street signs, mile markers
 8. Availability of public restrooms
 9. Uncrowded conditions

- Two (2) items increased in relative status:
 1. Many different kinds of fish and sea life to catch moved from “Low Priority” to “Possible Overkill”.
 2. Opportunity to view large wildlife moved from “Low Priority” to ‘Keep Up the Good Work”.

- Three (3) items decreased in relative status:
 1. Large Numbers of fish moved from “Low Priority” to “Concentrate Here”.
 2. Shoreline Access moved from “Low Priority” to “Concentrate Here”.
 3. Availability of public restrooms moved from “Low Priority” to “Concentrate Here”.

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