

The Economic Impact of Flats Fishing in The Bahamas



Prepared for:

The Bahamian Flats Fishing Alliance

BFFA Partners:

The Bahamas National Trust
Bonefish & Tarpon Trust
Fisheries Conservation Foundation

Prepared by:

Tony Fedler, Ph.D.
9707 SW 55th Road
Gainesville, Florida
tfedler@gru.net
352-339-2787

March 2010

Acknowledgements

This project has benefitted greatly from the support and assistance of a number of Bahamians who deserve more recognition than can be provided here. First, Vanessa Haley was instrumental in providing logistical support in Nassau and did the primary data collection from guides on several islands. She was also our primary liaison with The Bahamas National Trust.

Cindy and Buddy Pinder were invaluable in identifying and collecting information from Abaco guides. Cindy's dedication and persistence resulted in a comprehensive canvassing of the guides on Abaco along with the much needed information on their guiding businesses. Her historical accounts of island development and flats fishing on Abaco added much needed perspective to the recreational fishing industry there.

Phillip Rolle and Becky Sandstrom of North Andros Fly Fishing were wonderful hosts while I spent time on Andros contacting guides and learning about the diverse fishery. Phillip's knowledge of North Andros and Joulter Cays flats fishing provided many insights into the diverse fishery and history of the region.

Likewise, Bob Hyde and Karen Bentley of the Peace and Plenty Bonefish Lodge on Exuma were gracious hosts as well. Bob's long-time involvement in the lodge and guide business on Exuma and throughout The Bahamas provided great insights into the role flats fishing has played in island economies over the years.

This project could not have been completed without the interest and assistance of Mr. Gary Young, Director of Research and Development at the Bahamas Ministry of Tourism. The custom analysis and data he provided were essential for developing angler visitor night and expenditure estimates for the study. His cooperation and timely responses to my requests are greatly appreciated.

Finally, I would like to thank all the guides and lodge owners and managers throughout The Bahamas who supported this project by providing fishing information, insights on fishing in their region, and referrals to guides not on our initial lists. Their commitment and support were the backbone of the project.

TF

Table of Contents

Section	Page
Acknowledgements.....	ii
List of Tables.....	iii
Introduction.....	1
Project Objectives.....	1
Methods and Procedures.....	2
The Visitor Expenditure Survey.....	2
Bahamian Guide Survey.....	3
Economic Multipliers.....	3
Assumptions and Limitations.....	4
Results.....	6
Calculating Angler Nights.....	7
Angler and Visitor Expenditures.....	9
Discussion and Conclusions.....	13
References.....	16

List of Tables

Table	Page
Table 1: Output multipliers from economic impact related studies.....	5
Table 2: Number of active and inactive guides and days guiding by island.....	6
Table 3: Average visitor nights for general and angling visitors by island.....	7
Table 4: Visitor nights for guided and non-guided flats anglers.....	8
Table 5: Average expenditure per visitor and visitor night for general and angling visitors by island.....	9
Table 6: Estimated per person trip expenditures by type of expenditure for anglers.....	10
Table 7: Daily and total expenditures for guided and non-guided anglers.....	11
Table 8: Estimated Value Added impacts of guided and non-guided angler expenditures...	12
Table 9: Percentage of total tourist direct expenditures attributed to flats fishing.....	12

The Economic Impact of Flats Fishing in The Bahamas

Introduction

The Bahamas is known as a world-class bonefishing destination by anglers from around the world. This reputation is based on the perception of high quality fisheries resources and fishing experiences compared to other fishing destinations throughout the Caribbean, Central America and the world. The qualities of bonefishing in The Bahamas is based on a wide array of flats fishing opportunities on each of the islands, large populations of bonefish inhabiting the flats, crystal clear and unpolluted water, island accessibility, high catchability of bonefish on most flats, helpful and experienced guides, and a diversity of fishing experiences available that range from high-end exclusive all-inclusive fishing lodges in remote locations to wading flats in front of a hotel or bed and breakfast.

Although in many places people associate flats fishing specifically with bonefishing, flats anglers often encounter other species such as permit, tarpon, barracuda, and several species of sharks while pursuing bonefish. They often target these species as well by keeping a second rod rigged for one or more of these species. Within the context of this report, flats fishing will be used to describe anglers and angling for all species found on the flats, even though the vast majority of anglers in The Bahamas target bonefish.

Tourism is the major industry in The Bahamas and fishing is one of the top activities enjoyed by visitors. According to the 2008 Visitor Expenditure Survey (The Bahamas Ministry of Tourism, 2009), flats and offshore fishing were undertaken by 11% of all stopover visitors and accounted for 20% of the expenditures on all recreational activities. While this information is useful from a general fishing standpoint, it does not provide a detailed understanding of economic impact of flats fishing on the Bahamian economy.

Data from the Visitor Expenditure Survey (VES) can be used to estimate the total economic activity of fishing in The Bahamas. By combining VES data with other visitor survey data collected by the Ministry of Tourism on more specific types of activities undertaken by visitors, it is possible to approximate visitor expenditures for flats fishing on several of the major islands of The Bahamas and for the entire country. This information can be useful in helping guide government and industry decision making related to industry development, marketing, resource management and related environmental concerns.

Project Objectives

1. To quantify the number of active and inactive guides in The Bahamas.
2. To estimate the number of guided and non-guided flats anglers and the duration of their stays.
3. To estimate the direct expenditure impacts made by flats anglers in island economies.
4. To estimate the value added impacts of flats angler direct expenditures.

Methods and Procedures

Tourism data collected and reported by the Bahamas Ministry of Tourism are based on the number of nights that a visitor stays in The Bahamas. This “visitor night” metric is used to denote not only the visitor’s length of stay in The Bahamas, it is used for estimating visitor expenditures, nights spent in different types of lodging facilities, and daily expenditures on goods and services while in The Bahamas. Because this study relies heavily on data from the 2008 Visitor Expenditure Survey, it was necessary to use the same visitor night metric for identifying the number of flats fishing anglers, calculating their length of stay, and estimating their expenditures for products and services.

For purposes of this study, a differentiation is made between “visitor night” and “angler night” to avoid confusion in explanations of how various numbers and totals were derived. As noted above, a visitor night is one visitor staying one night in The Bahamas while an angler night is one angler staying one night in The Bahamas. Visitor and angler nights provide the basis for calculating total nights and total expenditures throughout the remainder of the report. Thus, the following discussion of the methods for establishing baseline visitor and angler nights is important for understanding the results.

Since there was interest in understanding the economic impact of both guided and non-guided flats fishing in The Bahamas, a procedure needed to be developed to partition guided anglers from non-guided anglers. This procedure involved using data from a survey of all flats fishing guides in The Bahamas and the Visitor Expenditure Survey (VES).

The Visitor Expenditure Survey

The following is a brief summary of the methods involved in collecting data and estimating visitor nights for the VES as presented in the 2008 report. Greater detail of these methods can be found in the Ministry’s report. The VES is an on-going exit survey of stopover visitors in The Bahamas. Upon leaving the country, visitors are asked to complete a comprehensive questionnaire recording their travel party expenditures while in the country. Stopover visitors make up the overwhelming portion of all visitor expenditures. The VES questionnaire covers most possible expenditures such as accommodations, meals, transportation, recreational activities, and other goods and services. Investment expenditures, such as real estate are excluded. Also recorded in the questionnaire are stopover visitor characteristics of home country, number in travel party by age group, number of times the respondent has been to The Bahamas, and whether the stopover visit was inspired by a cruise ship visit.

During 2008, the survey resulted in 7,961 usable responses for analysis. These respondents encompassed 21,085 visitors who spent 128,944 visitor nights during their stay. This sample size was 1.4% of all stopover visitors to The Bahamas and 1.3% of all stopover visitor nights. The number of stopover visitors declined from 1,527,800 in 2007 to 1,463,000 in 2008 for a 4.2% decline. Correspondingly, visitor nights declined from 10,054,100 in 2007 to 9,679,100 in 2008 for a 3.7% decline. These declines reflect the onset of a world-wide recession in late 2007 and early 2008 that significantly affected travel markets in most countries. Total visitors and

total visitor nights were derived from Department of Immigration statistics and were used to weight totals for each island and the country. The weighting of results is important because VES sample sizes were not proportional to visitors for each island.

To estimate the total number of angler nights for purposes of this study, any respondent that indicated participation in “fishing” on the activity list was considered an angler. According to the VES, 847 of the 7,961 respondents indicated that someone in their party participated in fishing. The type of fishing (bonefishing or offshore fishing) was not indicated on the survey. Based on survey responses, 10.6% of the parties participated in fishing. This equates to an estimated 1,029,759 angling visitor nights during 2008.

Bahamian Guide Survey

The Bahamian Guide Survey was undertaken to identify all guides working in The Bahamas and estimate the number of days guiding anglers during 2009. The survey involved contacting guides in person or by telephone. The identification of guides initially began by a search of the Internet and publications for Bahamian guides and fishing lodges. From this list, guides and lodge owners or managers were called and asked to provide three basic pieces of information: number of days guided during the previous 12 months, number of clients guided per day, and the average number of non-guided anglers observed during each day of guiding.

Additionally, interviewers asked guides to provide the names and phone numbers of other guides they knew that worked on their island. These referrals were added to the list and subsequently called at a later time. Guides were identified on all major populated islands. Some guides had not guided during the previous year. They were noted in the file as an “inactive” guide. Some guides were contacted at an October 16, 2009 guide’s workshop in Nassau where they were asked to provide the survey information. This opportunity not only allowed the collection of data, it afforded a chance to talk with guides about their businesses and impacts of the recession.

The research and guide surveys resulted in 313 guides being identified. Active guides during 2009 totaled 221 with 92 being classified as inactive. An active guide was identified if he or she has one or more paying customers during the previous year. Days guided ranged from five to 300. The primary reason for guides being inactive was the economy. In some cases, fishing lodges or resorts that booked guides were closed for the year or had gone out of business. In other cases, guiding was a secondary job and the individuals were pursuing other employment with some guides moving to other islands seeking alternative employment.

Economic Multipliers

Anglers traveling to The Bahamas to fish for bonefish and other flats species contribute to the Bahamian economy in two important ways. Some anglers hire independent guides and purchase lodging, meals, equipment, supplies, transportation, and other items separately. Others pay a “package price” to a fishing lodge which normally includes guided fishing, lodging, meals, and

transportation in The Bahamas. Both independent fishing guides and fishing lodges generate income and jobs for The Bahamas.

Estimating the total economic impact of flats fishing entails quantifying the relevant direct expenditures by fishermen and the “multiplier” or secondary effects related to these direct expenditures. Total economic impact is comprised of three components: direct effects, indirect effects and induced effects. **Direct Effects** are the on-site or immediate expenditures such as lodging, fishing tackle, meals, guide fees and taxes. **Indirect Effects** refer to the increase in economic activity that occurs when a contractor, vendor or manufacturer receives payment for goods or services and in turn is able to pay others who support their business. This includes payments to bankers, accountants, grocery store owners, marina operators, fuel suppliers and others. **Induced Effects** are changes in spending patterns that are caused by the increased wealth and income of those persons directly and indirectly employed by fishing lodges, hotels, or as independent fishing guides. This includes spending on food, clothing, housing or transportation by those directly or indirectly employed by the fishing-related businesses, including retail sales, medical services, insurance services, and much more. These Indirect and Induced Effects together are often referred to as **Value Added** effects. Value added effects are often represented by a “multiplier” that is applied to direct expenditures to yield a **Total Economic Effect**.

Estimating the value added effects of expenditures by anglers in The Bahamas is difficult in the absence of economic input-output models developed from extensive econometric studies specifically for The Bahamas. These types of studies have been performed in other countries to assess the economic effects of government policies, changes in economic activity, and private sector development. In many countries, these values have been estimated through the use of modeling programs such as IMPLAN (Minnesota IMPAN Group 2007) and RIMS II (Bureau of Economic Analysis 1997).

Given the unavailability of such models for The Bahamas, an output multiplier was approximated for this study based on values derived from four previous tourism-related studies in The Bahamas (Table 1). Multipliers from economic impact studies in other Caribbean countries are also included for reference. An average of the four Bahamian multipliers in the table (multiplier 1.02) was used to estimate the value added effects of bonefishing anglers for The Bahamas economy.

Assumptions and Limitations

The primary assumption underlying this report on the economic impact of flats fishing in The Bahamas is that the primary motivation for stopover visitors indicating they engaged in fishing while in The Bahamas was indeed the opportunity to go fishing. This assumption is supported by Departure Card data that showed 62% of the bonefishing respondents listed bonefishing as their only activity. Further, 32% indicated that their activities consisted of bonefishing and enjoying the beach. The remaining 6% of bonefish anglers enjoyed the beach in addition to deep sea fishing.

Table 1: Output multipliers from economic impact related studies

Location	Study Sector	Output Multiplier
Antigua ⁷	Tourism	.087
Belize ⁶	Tourism	1.11
Bermuda ⁵	Tourism	1.09
Bermuda ⁶	Tourism	1.66
Bermuda ⁷	Tourism	1.10
British Virgin Islands ⁶	Tourism	0.98
Cayman Islands ⁷	Tourism	0.65
Dominica ⁷	Tourism	1.20
Eastern Caribbean ⁷	Tourism	1.07
Puerto Rico ⁶	Tourism	1.08
The Bahamas ⁶	Tourism	1.25
The Bahamas ⁸	Tourism	0.78
The Bahamas ⁸	Tourism	0.89
The Bahamas ⁸	Tourism	0.87

⁵Batta (2000)

⁶Horvath & Frechtling (1999)

⁷Horvath (1981)

⁸Loutfi, Miscardini & Lawler (2000)

A second assumption was made that the decline in total visitors from 2008 to 2009 of 11.9% was the same for anglers as it was for the rest of the visitors. There were no data available to test this assumption but it seems likely that all segments of visitors have been affected similarly by the downturn in the economy. Similarly, we assumed that the length of visitor stays was the same in both years.

The final assumption involves expenditure patterns made by visitors during 2009. Although there are no data that can be used to test this assumption, guides and lodging facility operators interviewed as part of the Guide Survey generally indicated that visitors were staying about the same number of days, but that they were not serving as many visitors as in the past couple of years.

There were two limitations to this study that are important to note. First, the data used in this study was limited to party size, visitor night, and expenditure averages for anglers provided by the Ministry of Tourism in addition to the summary data contained in the VES report. Having the capability to analyze the primary VES data would have been very useful.

Likewise, the ability to analyze the Ministry of Tourism Departure Card data to achieve bonefish angling data for each of the Bahamian islands would have been very beneficial. The absence of this capability resulted in allocating non-guided bonefish angling to each island based on the proportion of guided angler days. There are some problems inherent with these procedures which are noted in the results section below.

Results

The economic impact estimates for flats fishing in The Bahamas is built around two separate data sources. The first involved the identification and survey of Bahamian guides throughout the islands. The second was the data from the Visitor Expenditure Survey conducted by the Ministry of Tourism. For the Guide Survey, guides were initially identified from various sources including the Internet advertising and articles, fishing lodges, fishing publications, and referrals from guides contacted during the interview process. Guides were contacted in person, at meetings, by e-mail, or by telephone and asked about the number of days they had guided during the previous 12 months and the average number of individuals they guided each day. All surveys were conducted from August 2009 through January 2010.

Table 2 shows the results of the Guide Survey by island. Guides were identified on all islands of The Bahamas, but as shown in the table, they were not distributed with any uniformity. Andros and Abaco contain over half of the guides in The Bahamas and a majority of guided fishing as well. Guides from Bimini, Berry Islands, Cat Island, Rum Cay, Long Island, San Salvador, Crooked Island, Ragged Islands, Acklins Island, Mayaguana, and Great Inagua were aggregated into the “Other Island” category because of their small numbers and to coincide with the data presented in the Visitor Expenditure Survey.

Guides were classified as active or inactive based on whether or not they had guided any paying customers during the past 12 months. As shown in Table 2, 221 or 71% of the guides contacted were listed as active. This percentage varied considerably across the islands.

Nearly every guide contacted reported they took two anglers in their boats each day they guided. A few guides indicated they occasionally took three anglers or a single angler on a trip, but these occurrences were very limited. Thus, for purposes of this study, each guided day included two anglers for analysis purposes which results in nearly 29,000 days of fishing by guided anglers.

Table 2: Number of active and inactive guides and days guiding by island

Island	Active Guides	Inactive Guides	Total Guides	Days Guiding	Total Guided Fishing Days
Abaco	56	9	65	2,907	5,814
Andros	80	31	111	5,017	10,034
Grand Bahama	15	23	38	1,065	2,130
Eleuthera	19	3	22	1,685	3,370
Exuma	11	3	14	725	1,450
Nassau/New Providence	3	0	3	700	1,400
Other Islands	37	23	60	2,249	4,498
Total	221	92	313	14,348	28,696

Data from the VES was used to calculate average visitor nights for anglers and general visitors to The Bahamas (Table 3). Overall, anglers stayed about one and a half nights more than non-anglers. The difference in stays between the two groups was greatest for Grand Bahama and Nassau/New Providence. The shorter stays on Andros by anglers likely is influenced by a higher percentage of anglers staying at all-inclusive fishing lodges which tend to include five or six nights lodging in the package anglers purchase.

Table 3: Average visitor nights for general and angling visitors by island

Island	General Visitor	Angler	Percent Difference
Abaco	8.50	8.88	4.5%
Andros	6.01	5.67	-5.7%
Grand Bahama	5.63	8.15	44.8%
Eleuthera	7.71	8.60	11.5%
Exuma	6.21	7.72	24.3%
Nassau/New Providence	5.47	7.19	31.4%
Other Islands	7.25	8.58	18.3%
Total	6.08	7.83	28.8%

Calculating Angler Nights

The first step in calculating total angler nights involved expanding the number of visitor nights identified in the VES (128,944) to obtain the total number of visitor nights in The Bahamas with the weight provided by the Immigration Department (75.06). This calculation resulted in 9,679,100 total stopover visitor nights for 2008. The VES found that 10.6% of the stopover visitor parties engaged in some form of fishing. So, this percentage was applied to total visitor nights to yield the gross number of angling visitor nights (1,029,700).

Through discussions with guides, fishing lodge owners, and resort owners/managers it was determined that about 75% of the individuals in a party went fishing during their stay. This observation was a combination of estimates for guided parties and non-guided parties from across all islands. This adjustment resulted in 772,275 visitor nights being allocated to fishing.

Fishing in The Bahamas generally falls into two categories, deep sea fishing and flats fishing. A survey conducted by the Ministry of Tourism using an arrival-departure card for all visitors asks if the visitor participated in a number of activities including deep sea fishing and bone/fly fishing. Data from this survey was used to split the fishing visitor nights into two groups, flats fishing (bone/fly) and deep sea fishing. According to the results of this survey, one percent of all individuals departing The Bahamas fished for bonefish or with a fly, while 1.15% indicated they went deep sea fishing. Dividing bonefish anglers by the total of deep sea and bonefish anglers results in 46.5% of fishermen engaging in bonefishing and 359,108 of the 772,275 angler visitor nights being allocated to bonefishing.

Since the VES data was for 2008, an adjustment needed to be made to bonefishing visitor nights to reflect changes in visitation during 2009. The Ministry of Tourism estimates that total visitation to The Bahamas in 2009 was down about 11.6% from 2008. Thus, a downward adjustment of 42,734 from bonefish angler nights was needed to correct for this decline in visitation. Subtracting the number of guided angler visitor nights (62,070) from the adjusted number of bonefishing angling nights of 316,374 results in an estimate of 254,304 non-guided bonefishing nights (Table 4). This same procedure was used to calculate total angler nights for each island except that non-guided angler nights were allocated to each island based on the percentage of overall guided angling nights for the individual island. This was necessary because we were unable to obtain data on the proportion of bonefish anglers to deep sea anglers for each island. This is an inherent weakness in the study from an island standpoint, but is not an issue for calculation of the total of bonefish angling nights and expenditures for the entire country.

The most popular islands for flats fishing are Andros and Abaco. Angling on these two islands accounted for 44% of all guided flats fishing in The Bahamas (Table 4). The remaining guided fishing was distributed relatively evenly across Eleuthera, Nassau/New Providence, and the remaining islands, excluding Exuma which accounted for about four percent of all guided angler visitor nights.

Table 4: Visitor nights for guided and non-guided flats anglers

	Guided Angler Days	Days Fished per Angler	Guided Anglers	Mean Nights Stayed	Total Guided Angler Nights	Percent of Total Nights	Total Non-Guided Angler Nights	Total Angler Nights
Abaco	5,814	3.50	1,661	8.88	14,751	23.8%	60,435	75,186
Andros	10,034	4.50	2,230	5.67	12,643	20.4%	51,798	64,441
Grand Bahama	2,130	2.50	852	8.15	6,944	11.2%	28,449	35,393
Eleuthera	3,370	3.50	963	8.60	8,281	13.3%	33,926	42,206
Exuma	1,450	4.50	322	7.72	2,488	4.0%	10,192	12,679
Nassau/New Providence	1,400	1.20	1,167	7.19	8,388	13.5%	34,367	42,756
Other Islands	4,498	4.50	1,000	8.58	8,576	13.8%	35,137	43,713
Total All Islands	28,494	3.48	8,194	7.57	62,070	100.0%	254,304	316,374

The inability to accurately allocate non-guided flats fishing to individual islands is exemplified by the number of non-guided angler nights for Nassau/New Providence in Table 4. According to the local guides, who are actively guiding nearly every day of the year, few non-guided anglers are observed throughout the year. This is due to the limited number of flats surrounding this area and the difficult walk-in access. This is likely different on other islands where many flats are accessible by foot. Thus, the 34,000 non-guided days quite likely over-estimates non-guided anglers on Nassau/New Providence while under-estimating non-guided nights on other islands.

Angler and Visitor Expenditures

Angler expenditures were obtained from the VES data by selecting anglers by island and then calculating their expenditures for five categories of purchases: accommodations, meals, activities, popular purchases and other purchases. Accommodation expenditures included hotel, rented condominium or house, private house, marina and offshore boat. Activity expenditures included those for sightseeing, museums, movies, day cruises, SCUBA and snorkeling, fishing, golf, water sports, sailing and sporting activities. Popular purchases included straw work, jewelry, crafts, luggage, souvenirs, bottled alcoholic beverages and other items. Other expenditures included those for transportation; retail purchases such as fuel, groceries; services like telephone and Internet, laundry; personal services like hair dressers, barber, and massages; and others. For a full list of expenditures for each of these categories, see the VES report.

Expenditures within each of the above five categories were summed for each category and a mean expenditure per visitor night calculated. Expenditure per visitor night was used for the economic analysis because it can be directly related to the way the Ministry of Tourism tracks visitor stays. Expenditure comparisons were made between angling visitors and general tourist (which included anglers) to determine if angler spending differed from general tourist expenditures.

As seen in Table 5, angling visitors spent much more per visit and per visitor night than general visitors. Anglers spend about 27% more than general visitors per visit and 17% more per visitor night. Although, to some degree these greater expenditures are influenced by the longer visits of anglers, the greater per night expenditures show that anglers spend more each day than visitors overall. The differences in per night expenditures would be somewhat greater since anglers and their expenditures are included in the general visitor group. Using the summary data from the VES report did not allow excluding anglers from the overall group of visitors to determine the true difference between the groups.

Table 5: Average expenditure per visitor and visitor night for general and angling visitors by island

Island	Average Expenditure per Visit			Average Expenditure per Visitor Night		
	General Visitors	Anglers	Difference	General Visitors	Anglers	Difference
Abaco	\$1,080	\$1,606	48.8%	\$127	\$181	42.5%
Andros	\$2,188	\$2,143	-2.0%	\$364	\$378	3.8%
Grand Bahama	\$859	\$1,280	49.0%	\$152	\$157	3.3%
Eleuthera	\$1,232	\$1,427	15.8%	\$158	\$166	5.1%
Exuma	\$1,770	\$1,963	10.9%	\$285	\$254	-10.9%
Nassau/New Providence	\$1,425	\$2,062	44.7%	\$260	\$278	6.9%
Other Islands	\$1,156	\$1,867	61.5%	\$200	\$218	9.0%
Total	\$1,387	\$1,764	27.2%	\$207	\$243	17.4%

Among the islands, the greatest differences in per visit expenditures were on Abaco, Grand Bahama and New Providence. Angler per visit expenditures on Andros were slightly less than those of the general visitor, although they were likely not statistically different. Overall, expenditures per visitor per night for anglers were slightly more than for general visitors with the exception of those made by Abaco anglers, which were 42% greater and Exuma anglers which were almost 11% less.

Average spending by anglers on goods and services in the five categories of expenditures is shown in Table 6. These expenditures varied widely across the islands and are related to the types of experiences available on each island. For example, accommodation expenditures were very high on Andros while meal expenditures were much lower than average. This is due to the high prevalence of all-inclusive fishing packages used by anglers at many of the fishing lodges and other lodging facilities. Besides Andros, accommodation expenditures were the greatest by anglers staying on Exuma and Nassau/New Providence and lowest on Grand Bahama and the Other Islands. Food expenditures were also the highest on Exuma and Nassau/New Providence while lowest on Abaco and the Other Islands. Expenditures on popular activities were greatest on Abaco, Andros and the Other Islands. Anglers spent the least for popular activities on Nassau/New Providence, Eleuthera and Grand Bahama. Nassau/New Providence and the Other Islands saw the greatest amount spent by anglers in both Popular Purchases and Other Purchases categories. On some islands, such as Andros, the Other Islands and Eleuthera, spending in the Popular Purchases category was very low.

The small sample sizes for some islands likely resulted in some wide variations in spending by anglers and may be partially responsible for average expenditure of \$810 for Popular Activities in the Other Islands. By the same token, with many islands lacking some of the activities measured in the VES, guided fishing, which is relatively more expensive to undertake than other activities, may be more prevalent among visitors.

Table 6 Estimated per person trip expenditures by type of expenditure for anglers

Island	Mean Accommodation Expenditures	Mean Food Expenditures	Mean Popular Activity Expenditure	Mean Popular Purchase Expenditures	Mean Other Expenditures	Total Expenditure
Abaco	\$578	\$153	\$427	\$148	\$300	\$1,606
Andros	\$1,496	\$54	\$403	\$27	\$163	\$2,143
Grand Bahama	\$466	\$210	\$187	\$112	\$305	\$1,280
Eleuthera	\$654	\$249	\$184	\$47	\$293	\$1,427
Exuma	\$977	\$351	\$256	\$87	\$292	\$1,963
Nassau/New Providence	\$857	\$299	\$171	\$161	\$574	\$2,062
Other Islands	\$496	\$157	\$810	\$27	\$377	\$1,867

Table 7 shows the direct expenditures associated with guided and non-guided anglers. Guided angler expenditures were derived by multiplying angler nights by the mean angler per

night expenditure in Table 5. Non-guided angler expenditures were calculated multiplying the mean per visitor night expenditure for general visitors in Table 5 by visitor nights. As shown in Table 7, guided angler expenditures associated with fishing on Andros were nearly twice those of any other island. This was due to the high visitor night expenditure. Abaco, with more guided angler nights than Andros, had nearly half direct expenditures. Guided angler expenditures on the remaining islands were between \$1.3 and \$2.3 million with the exception of Exuma where guided anglers spent about \$631,000. Recall that these expenditures are not only for fishing, but encompass all spending the angler made during his or her visit. Direct expenditures for guided anglers totaled \$14.7 million in the Bahamian economy.

The distribution of non-guided angler expenditures followed that for guided anglers but at a much higher level (Table 7). This correspondence occurred because non-guided angler nights were allocated based on guided angler nights since offshore and flats anglers could not be partitioned in another more precise manner. Regardless, direct expenditures for all non-guided anglers should fairly represent those made by this group. Overall, non-guided flats anglers spent over \$55 million (Table 7). They directly contributed between \$3 and \$18 million to the economies of individual islands.

Direct expenditures for both guided and non-guided anglers were nearly \$70 million (Table 7). Guided anglers accounted for 21% of this total while non-guided angler spending comprised 79% of flats angler's direct spending in the Bahamian economy.

Table 7: Daily and total expenditures for guided and non-guided anglers

Island	Guided Anglers			Non-Guided Anglers			Total Direct Expenditures
	Angler Nights	Expenditure per Night	Direct Expenditures	Angler Nights	Expenditure per Night	Direct Expenditures	
Abaco	14,751	\$181	\$2,669,922	60,435	\$127	\$7,675,267	\$10,345,188
Andros	12,643	\$378	\$4,778,994	51,798	\$364	\$18,854,535	\$23,633,528
Grand Bahama	6,944	\$157	\$1,090,177	28,449	\$152	\$4,324,248	\$5,414,425
Eleuthera	8,281	\$166	\$1,374,575	33,926	\$158	\$5,360,276	\$6,734,851
Exuma	2,488	\$254	\$631,839	10,192	\$285	\$2,904,607	\$3,536,447
Nassau/New Providence	8,388	\$278	\$2,331,957	34,367	\$260	\$8,935,499	\$11,267,456
Other Islands	8,576	\$218	\$1,869,609	35,137	\$200	\$7,027,389	\$8,896,998
Total	62,070		\$14,747,071	254,304		\$55,081,822	\$69,828,893

Total economic impact was derived by multiplying direct expenditures in Table 7 by the value added multiplier of 1.02. Within the context of this study, the multiplier means that each dollar spent by flats anglers in the Bahamian economy results in an additional \$1.02 in spending by wage earners, businesses and manufacturers that support the recreational fishing industry. As seen in Table 8, the total economic impact of flats fishing in The Bahamas is nearly \$141 million annually. About one-fifth of this impact results from guided flats fishing and the remainder from non-guided anglers.

Table 8: Estimated Value Added impacts of guided and non-guided angler expenditures

Island	Guided Anglers			Non-Guided Anglers			Total Economic Impact
	Direct Expenditures	Value Added	Total Impact	Direct Expenditures	Value Added	Total Impact	
Abaco	\$2,669,922	\$2,723,320	\$5,393,242	\$7,675,267	\$7,828,772	\$15,504,038	\$20,897,280
Andros	\$4,778,994	\$4,874,573	\$9,653,567	\$18,854,535	\$19,231,626	\$38,086,160	\$47,739,727
Grand Bahama	\$1,090,177	\$1,111,980	\$2,202,157	\$4,324,248	\$4,410,733	\$8,734,981	\$10,937,138
Eleuthera	\$1,374,575	\$1,402,066	\$2,776,641	\$5,360,276	\$5,467,482	\$10,827,759	\$13,604,400
Exuma	\$631,839	\$644,476	\$1,276,315	\$2,904,607	\$2,962,700	\$5,867,307	\$7,143,622
Nassau/New Prov.	\$2,331,957	\$2,378,596	\$4,710,552	\$8,935,499	\$9,114,209	\$18,049,709	\$22,760,261
Other Islands	\$1,869,609	\$1,907,001	\$3,776,610	\$7,027,389	\$7,167,937	\$14,195,327	\$17,971,936
Total	\$14,747,071	\$15,042,013	\$29,789,084	\$55,081,822	\$56,183,458	\$111,265,281	\$141,054,364

Table 9 shows the percentage of total tourism expenditures represented attributable to flats fishing. Total tourism direct expenditures for each island were obtained from the VES. Flats fishing comprises over three percent of all tourism spending in The Bahamas. When only the Family Islands are considered, flats fishing constitutes nearly 9% of these tourism economies. The contribution of flats fishing to individual island economies should be viewed with caution because of the way non-guided fishing trips were allocated to each island. The island percentages in Table 9 give a general indication of whether or not flats fishing contributes a lot or a little to an island's economy. It is clear that flats fishing-related tourism on Andros is a very large part of the island's economy, whereas it is a very small percentage on Nassau/New Providence and Grand Bahama where other forms of tourism flourish.

Table 9: Percentage of total tourist direct expenditures attributed to flats fishing

Island	Flats Angler Direct Expenditures	Total Tourism Direct Expenditures	Flats Angling Percentage
Abaco	\$10,345,188	\$122,200,000	8.5%
Andros	\$23,633,528	\$29,100,000	81.2%
Grand Bahama	\$5,414,425	\$249,900,000	2.2%
Eleuthera	\$6,734,851	\$53,900,000	12.5%
Exuma	\$3,536,447	\$77,400,000	4.6%
Nassau/New Providence	\$11,267,456	\$1,446,900,000	0.8%
Other Islands	\$8,896,998	\$130,600,000	6.8%
Total	\$69,828,893	\$2,110,000,000	3.3%

Discussion and Conclusions

Recreational fishing is one of the most popular outdoor activities among visitors to The Bahamas. A large part of fishing occurs in the clear waters and exceptional scenery of the flats surrounding each of the islands. Flats fishing generates \$141 million in total economic benefits to the Bahamian economy annually. These angling visitors spent nearly \$70 million directly in island economies and supported the equivalent of 2,500 full-time jobs from those direct expenditures. Additional jobs can be attributed to the \$126 million in value added impacts associated with direct angler expenditures. Further, flats anglers spend more money per visitor night and total visit than non-anglers. This makes anglers very desirable visitors.

The contribution of flats fishing to individual island tourism economies varied widely. It ranged from 81% of the Andros tourism expenditures to about 1% of the tourism expenditures in Nassau/New Providence Island. Overall, flats fishing accounted for slightly more than 3% of tourist expenditures throughout The Bahamas. This percentage grows to 9% when only the Family Islands are considered.

The Bahamian economy is inextricably tied to the U.S. economy. Over 80% of all stopover visitors to The Bahamas reside in the U.S. and visit the country to engage in gambling, nature, entertainment, and other activities. The recent downturn in the American economy beginning in 2007 has had a significant impact not only on fishing-related tourism, but all forms of tourism in The Bahamas. Among guides, fishing lodge owners, and other lodging facilities, there were consistent reports of 2009 business declining from 30% to 50% with a few reports exceeding a 50% decline from 2007. If fishing in 2009 was similar to 2007, direct expenditures for anglers on guided trips would approach \$20.6 million compared to about \$14.8 million. Non-guided angler expenditures may not be as great as those for guided anglers because of smaller trip costs. If non-guided angler numbers were reduced by 20% from 2007 levels, then their \$55.1 million in 2009 would equate to about \$66.1 million.

This dramatic drop in business has had its greatest impact on guides in two areas. First, guides on the margin (fishing less than 30 days per year and generally relying on referrals from other guides) reported the largest loss in business. These guides, in many cases, only guided a few days if any at all, in 2009. Relying on referrals and only a handful of clients garnered over several years, these guides did not have any way of attracting new business as they did no active marketing of their services. The second impact was on guides tied to fishing lodges and resorts. These businesses experienced substantially fewer anglers during 2008 and 2009 and thus were not able to employ local guides during 2009 to the extent they had in past years. Further, resorts on some islands had closed during 2008 or 2009, further reducing opportunities for local guides. Both occurrences were particularly notable on the smaller islands and underscore the dependence of guide businesses on fishing-related tourism.

Discussions with several fishing lodge owners revealed that many hoped to make enough money in 2009 and 2010 to at least break even financially each year. This was particularly prevalent among fishing lodges that are primarily dependent on anglers and which have not diversified into other eco-tourism activities like diving or touring. Some of the lodge owners were also working at outside jobs to make up shortfalls in personal income.

Most of the fishing-related advertising and marketing in The Bahamas is focused on fishing lodges and a few select guides who have developed their guiding businesses over several years and even generations. While this serves the segment of the fishing market that frequents inclusive lodges and a few guides well, it omits the smaller lodging facilities and less well-known guides from having a presence in the marketplace. This absence is due to a number of factors, such as limited availability of funds for marketing, lack of technology for an Internet presence, lack of understanding of how to use the Internet for marketing, lack of understanding of how to effectively market using print and electronic media, and other factors. Again, education, training and logistical support would be helpful for guiding business to develop and prosper throughout the islands.

Flats fishing in The Bahamas offers a variety of experiences for anglers. The most visible and heavily marketed is the inclusive fishing lodge alternative. Other anglers, however, seek a more “do-it-yourself” approach by booking their own lodging and guides, and using local food service options to meet their needs. This alternative requires that adequate lodging facilities and food service (grocery stores and restaurants) are in relatively close proximity to fishing opportunities. It also requires a sustainable flow of visitors to ensure long-term business continuity. Clearly, business development plans throughout the Family Islands need to tie all aspects of the tourism visitor base together to ensure sustainability.

The non-guided recreational fishery in The Bahamas also plays an important role in island economies. More numerous than guided anglers, these anglers directly support the small independent businesses that provide lodging, food and other services throughout the islands. Non-guided anglers often spend a few days fishing and additional time sightseeing or engaging in other nature-related activities, further extending the tourism benefits on the island. While these anglers may occasionally use guides during their visits, self-guided anglers are generally restricted to a few flats that have shoreline access near their lodging. While this may be viewed as competition by some guide businesses, non-guided fishing does play a significant role in many island economies and should be recognized for doing so.

Fishing quality is a concern raised by many guides and lodge owners providing fishing information for this study. Their concern focused on both the perception of The Bahamas as a premier bonefishing destination and the ability of Bahamian fisheries resources to maintain existing catch rates. There are many facets to maintaining existing catch rates. First is the issue of continually pressured fish which become “educated” to anglers and thus become like many other bonefish destinations where enticing fish to bite becomes a highly technical matter and catch rates tumble from 20 fish per day to five or six per day. Second, there is concern that large resorts, fishing lodges and other lodging facilities will be clustered in one area which will dramatically increase the pressure on surrounding fisheries resources. Finally, guides are concerned that if the industry is to expand, guides will become concentrated in various spots on an island and have to compete among themselves for clients instead of having guides spread more evenly across an island which will also spread angler effort across a wider area of fishable waters.

The other area of fishing quality relates to the sustainability of flats fishery resources. Here concern ranged from the impacts on water quality from waste disposal and runoff to fisheries habitat destruction from development. On this latter point, several examples were pointed to where resort construction cleared dozens of acres of mangrove forest and filled some wetlands areas before the venture closed, leaving the area partially or fully undeveloped and erosion problems for others to contend with. The promise of these large developments quickly turned to environmental and social concern for local residents.

The Bahamas competes with other Caribbean and Central American countries for flats fishing anglers from the United States and around the world. These other countries are beginning to recognize the economic benefits of flats fishing and the low impact it has on local fisheries resources. As a result these countries are giving increased attention to marketing their fishing opportunities by focusing on aspects of flats fishing experiences unique to their countries. In Belize, for example, the government recently passed catch-and-release only protection for bonefish, permit and tarpon. The fishing industry there is actively using this new legislation to underscore the country's commitment to conservation and the protection of these valuable species. Further, when relations between the U.S. and Cuba are normalized, an additional destination will be added to the mix of opportunities in the region.

To remain competitive in this very discriminating and competitive market, The Bahamas will need to ensure that the quality of the flats fishing products available remain competitive with those in other countries. This means that the perceived value of flats fishing in The Bahamas is at least equal to or exceeds those in other countries. The flats fishing industry in The Bahamas should begin identifying the unique qualities of their fishery and determining which of these characteristics differentiate The Bahamas from other fishing destinations. This would allow guides, fishing lodge owners, resorts and government to use the salient characteristics to strengthen the bonefishing brand in The Bahamas.

References

- Batta, R.N. 2000. *Tourism and the Environment: A Quest for Sustainability*. New Delhi: Indus Publishing.
- Bureau of Economic Analysis. 1997. *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II)*. Washington, DC: U.S, Government Printing Office.
- Horvath, E. and D.C. Frechtling. 1999. Estimating the multiplier effects of tourism expenditures on a local economy through a regional input-output model. *Journal of Travel Research*, 37(4): 324-332.
- Horvath Tourism & Leisure Consulting. 1981. *Tourism multipliers explained*. World Tourism Organization.
- Loutif, M., A.O. Moscardini, & K. Lawler. 2000. Using system dynamics to analyze the economic impact of tourism multipliers. In P. I. Davidsen, D. N.Ford & A. N. Mashayekhi (Eds.), *Proceedings of the 18th International Conference of the System Dynamics Society* (pp. 132-232). Albany, NY: System Dynamics Society.
- Minnesota IMPLAN Group. 2007. *IMPLAN*. Stillwater, MN.
- The Bahamas Ministry of Tourism. 2009. *The Bahamas Tourism Economy: 2008*. Nassau, The Bahamas: Research and Statistics Branch.