Economic Impacts of Artificial Reefs *for* Six Southwest Florida Counties

Pinellas • Hillsborough • Manatee
Sarasota • Charlotte • Lee

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Florida

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Economic Impacts of Artificial Reefs, Manatee County (SGEF-180)
Economic Impacts of Artificial Reefs, Sarasota County (SGEF-181)
Economic Impacts of Artificial Reefs, Hillsborough County (SGEF-182)
Economic Impacts of Artificial Reefs, Pinellas County (SGEF-183)
Economic Impacts of Artificial Reefs, Charlotte County (SGEF-184)
Economic Impacts of Artificial Reefs, Lee County (SGEF-185)
Economic Impacts of Artificial Reefs, Southwest Florida (SGEF-186)

Economic Impacts of Artificial Reefs for Six Southwest Florida Counties

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1. EXECUTIVE SUMMARY

Florida's artificial reef program, in effect since 1982, is one of the most active among the Gulf and Atlantic states. Currently, there are more than 2,500 documented locations of artificial reefs in Florida's coastal waters and approximately one-third of them are in coastal waters of the six counties that are the subject of this study (Figure 1-1). The goal of the study was to determine the economic benefits, or contributions, that artificial reefs provided during 2009 to Pinellas, Hillsborough, Manatee, Sarasota, Charlotte, and Lee counties in southwest Florida. In addition, the demographic characteristics of those who use artificial reefs were derived.

The six-county study area is a region that plays an important role in Florida's economy. For example, in 2009 the region accounted for:

- 21% of the nearly one million boats registered in Florida's 67 counties. Pinellas, Lee, and Hillsborough ranked second, third and fourth in Florida, respectively;
- 24% of taxable sales by boat dealers in Florida, with Pinellas County as the state's second most important contributor;
- an estimated 29.4 million visitors with over $14 billion in expenditures;
- 18% of total taxable sales in Florida; and
- 19% of Florida's total population.

A hallmark of Florida's artificial reef program is the strong reciprocal partnership established between state and local county governments. The success of the program can be attributed to fishing clubs, businesses, non-profit corporations, tourism and economic development interests, and private individuals working through their local governments to provide input into public reef-building activity. The Marine Fisheries Management Section of the Florida Fish and Wildlife Conservation Commission's Division of Marine Fisheries Management administers the program for the state. At the county level, the organization or entity that administers and manages the artificial reef program varies from county to county.

To accomplish this study, telephone, mail, and e-mail/Internet surveys provided the relevant characteristics of the boat fleets that were used to visit artificial reefs and information about the passengers who were onboard. Information that was obtained or derived from the surveys included the number of days spent at reefs during the year; the number of people onboard during reef trips, including the number of residents and non-residents from each county; and how much money each person spent on reef-related items during trips to artificial reefs.

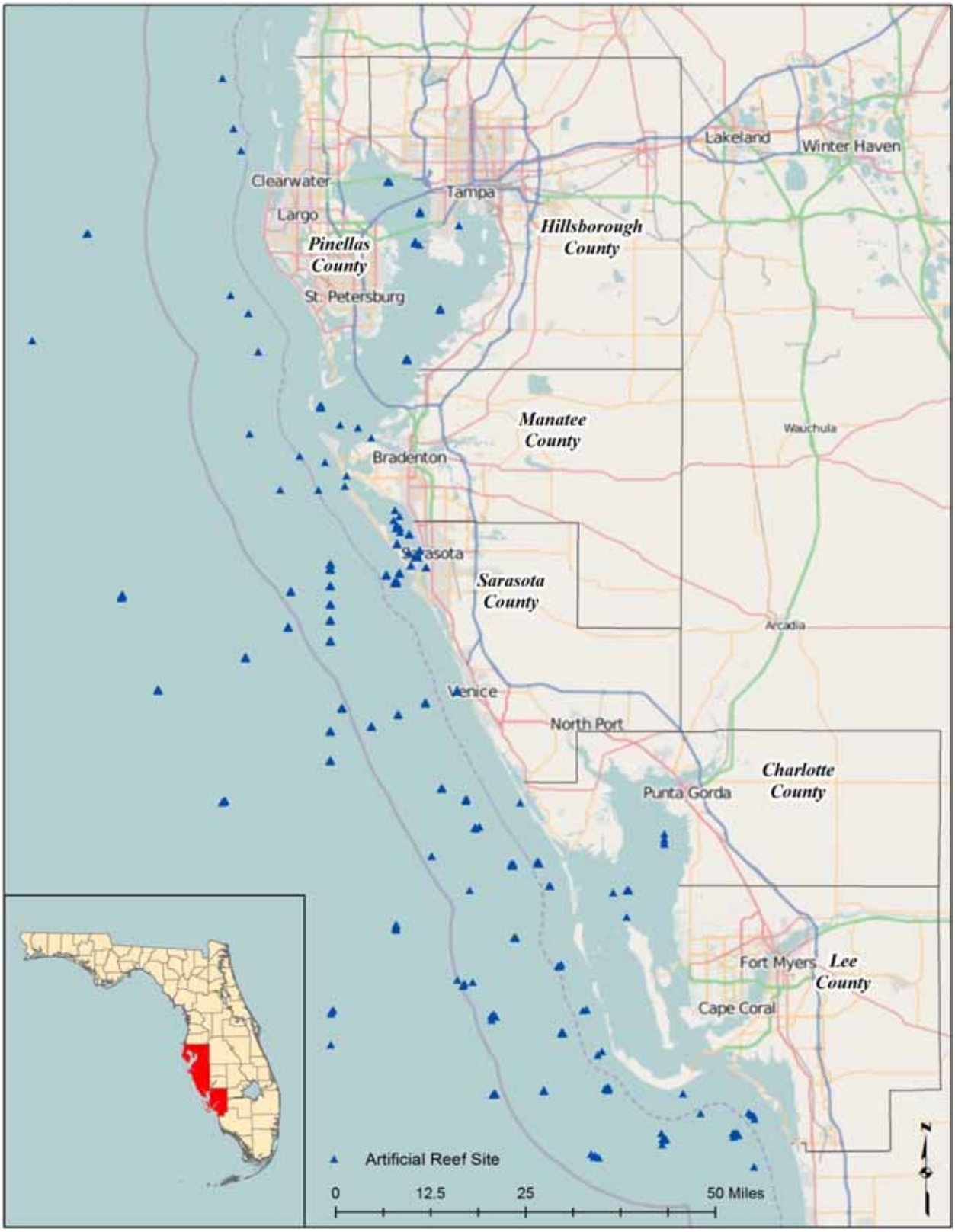

FIGURE 1-1. LOCATIONS OF ARTIFICIAL REEF SITES OFF THE COASTS OF PINELLAS, HILLSBOROUGH, MANATEE, SARASOTA, CHARLOTTE, AND LEE COUNTIES IN SOUTHWEST FLORIDA (SOURCE: COUNTY REEF PROGRAMS).

The telephone, mail, and e-mail/Internet surveys designed to collect information from owners of private pleasure boats, operators of for-hire vessels, and clients of for-hire businesses were conducted in the second half of 2009 and consisted of the following:

- A telephone survey completed by 1,529 owners of private pleasure boats who resided in the six-county study area.
- A mail survey sent to 20,000 owners of private pleasure boats who resided in southwest Florida that resulted in a return of 3,172 completed questionnaires.
- A mail and telephone survey of the 963 for-hire operators with businesses in the six-county study area that resulted in 225 completed questionnaires.
- An e-mail/Internet survey of for-hire clients e-mailed to 6,841,151 persons by a commercial firm (Expedite) that resulted in responses from 224 people who used reefs.

Figure 1-2 summarizes how survey information was used to calculate the amount of money that residents and visitors spent in each county in one year while visiting artificial reefs. As shown in step 1, it was first necessary to determine the sizes and characteristics of the for-hire vessel fleet and the private pleasure boat fleet that visited each county's artificial reefs during the 12-month study period. The fleet of private pleasure boats consists of (a) vessels registered to, and owned by, residents of each of the six study counties *and* (b) vessels registered to, and owned by, persons who were not residents of any of the six study counties but that were used to visit artificial reefs belonging to one or more of the study counties.

Information from Florida's Vessel Title Registration System (VTRS) provided the size of the private pleasure boat fleet in each study county. The VTRS information, in conjunction with a telephone survey of a randomly selected sample of local boat owners, was used to estimate the proportion of the private pleasure boat fleet that was used to visit artificial reefs in each study county. The number of private pleasure boats registered in each county in 2009 ranged from 18,416 in Manatee County to 50,116 in Pinellas County (Figure 1-3). On average, 17% of the private pleasure boats registered in each county were used to visit artificial reefs during the 12 months, ranging from 3,009 in Manatee County to 8,539 in Pinellas County.

Recreational boating characterizations provided information to determine the number of private pleasure boats from outside the study area that were used to visit artificial reefs belonging to each study county (Sidman *et al*., 2004, 2005, 2006). This was possible because public boating facilities throughout each county were visited on numerous occasions during the characterizations. On each visit, registration information for all boats at a facility was tallied and used to map the owner's address, thereby providing an estimate of the population of visiting boats that used artificial reefs. The number of private pleasure boats from outside the study area that visited a study county's artificial reefs during the year ranged from 490 for Sarasota County to 1,802 for Pinellas County (Figure 1-4).

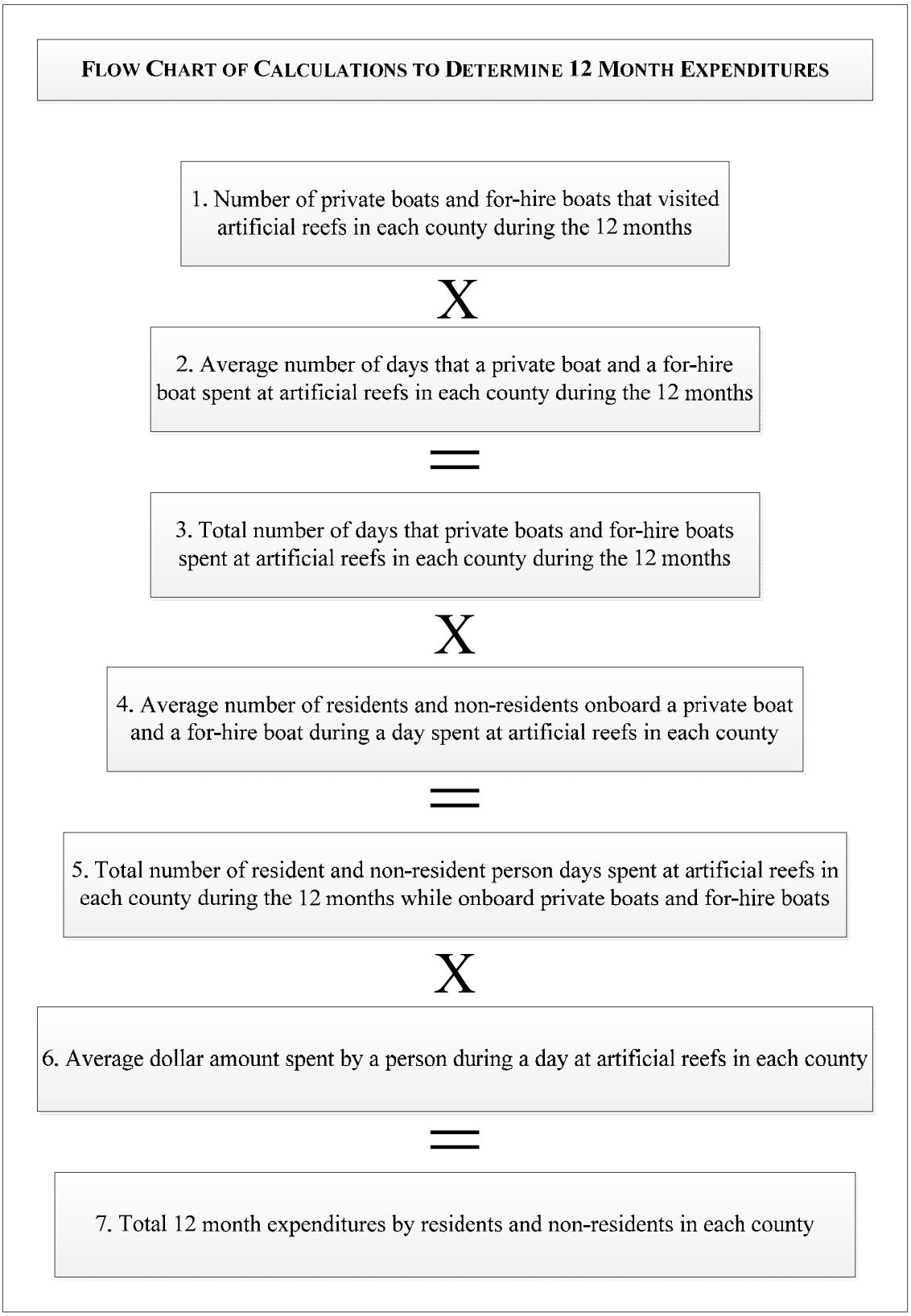

FIGURE 1-2. FLOWCHART OF CALCULATIONS TO DETERMINE ANNUAL EXPENDITURES BY PERSONS VISITING ARTIFICIAL REEFS.

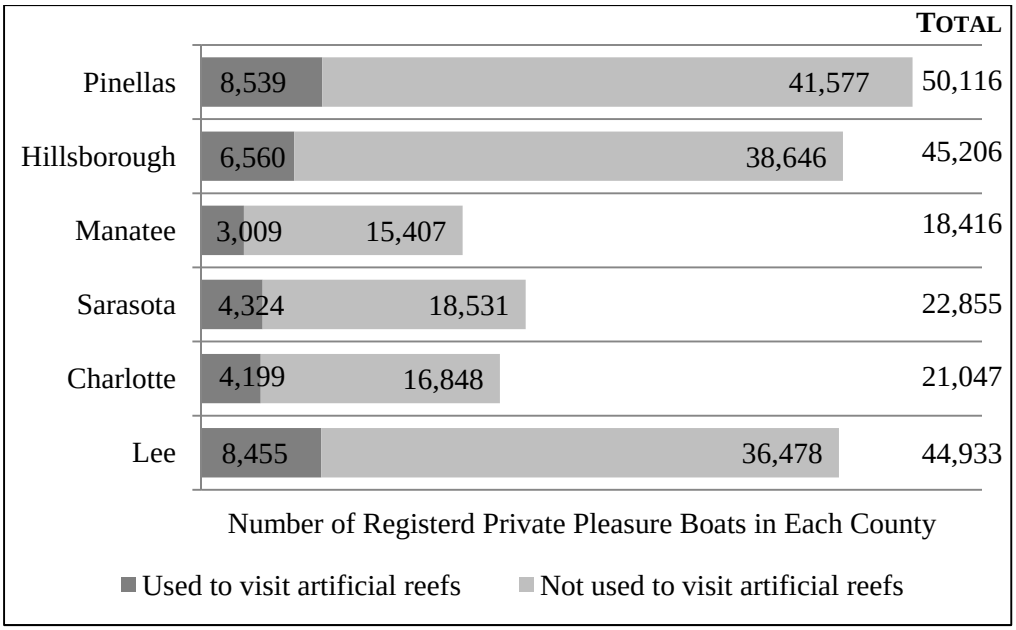

FIGURE 1-3. NUMBER OF PRIVATE PLEASURE BOATS REGISTERED IN EACH STUDY COUNTY IN 2009 AND THE NUMBER USED TO VISIT ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD.

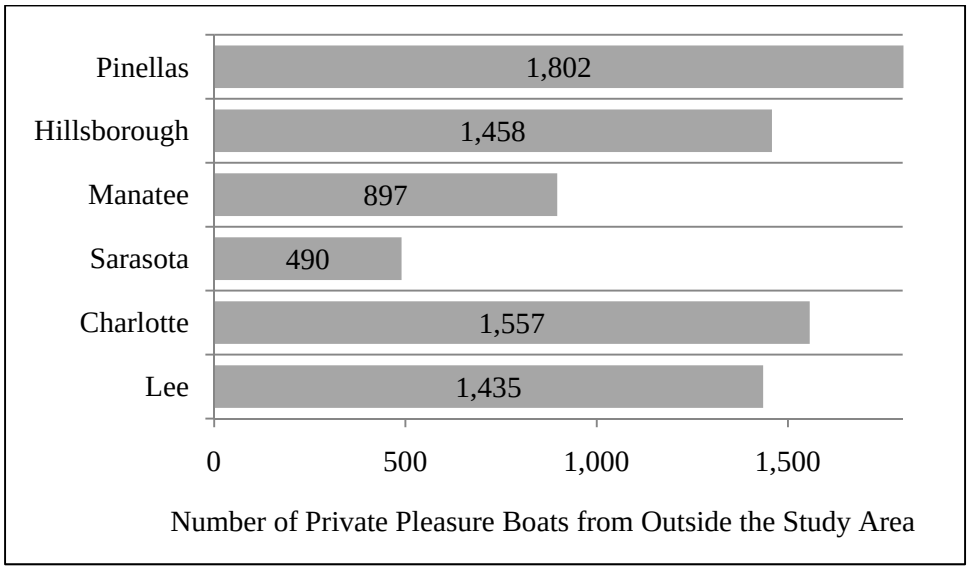

FIGURE 1-4. NUMBER OF PRIVATE PLEASURE BOATS FROM OUTSIDE THE SIX-COUNTY STUDY AREA THAT WERE USED TO VISIT ARTIFICIAL REEFS IN EACH STUDY COUNTY DURING THE 12-MONTH STUDY PERIOD.

The for-hire fleet consists of four types of operations (vessels), each of which is described as follows:

- Charter boats ("six-pack") normally are used for offshore trolling or deep-water bottom fishing, and are licensed to take no more than six paying passengers.
- Head ("party") boats typically are used for offshore bottom fishing, and are licensed to take more than 11 persons.
- Licensed dive boats accommodate multiple persons for scuba diving or snorkeling.

- Guide boats commonly are used for flats fishing and casting, and are licensed to take no more than four persons.

The size of each study county's for-hire fleet was determined from state and federal licensing databases and other sources, including Internet listings (Table 1-1).

TABLE 1-1. SIZE OF THE FOR-HIRE FLEET IN EACH STUDY COUNTY, BY BUSINESS TYPE.

Study County	Type of For-Hire Operation			
	Charter	Head	Dive	Guide
Pinellas	76	11	28	121
Hillsborough	13	2	10	93
Manatee	10	1	6	70
Sarasota	30	2	14	102
Charlotte	9	1	4	87
Lee	24	4	15	230

The average annual number of days spent at artificial reefs ranged from 12.84 days for a boat registered to a Hillsborough County resident to 16.47 days for one registered to a Sarasota County resident (Figure 1-5). The most days spent at a study county's artificial reefs by a typical private pleasure boat from outside the study area was an average of 12.91 days in Lee County, and the least average annual number of days (4.94) was spent at artificial reefs in Sarasota County (Figure 1-5).

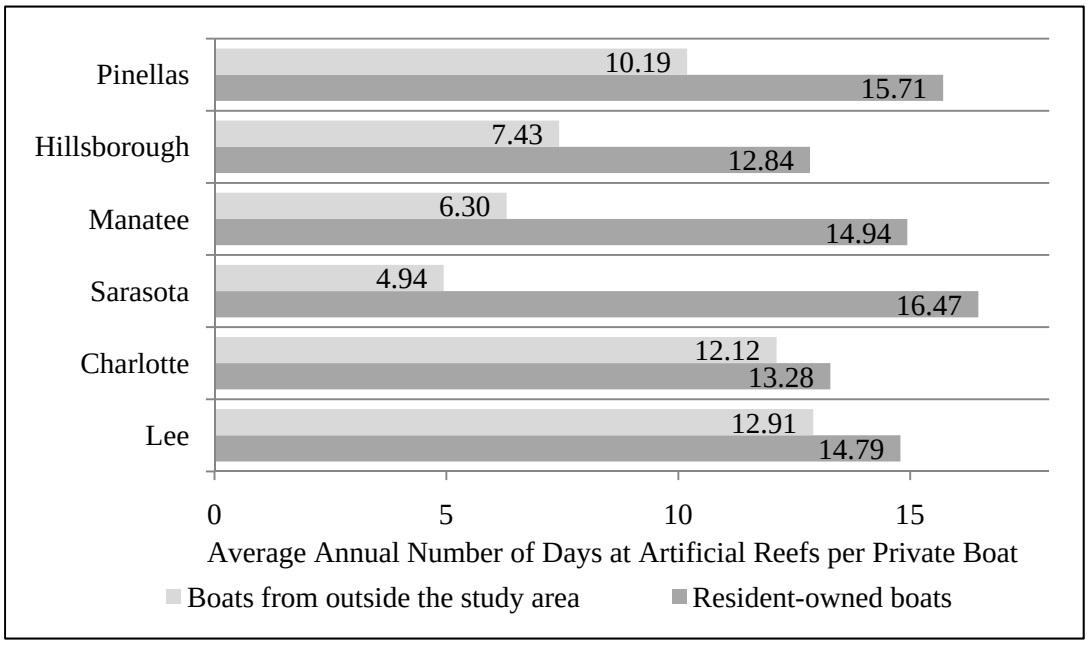

FIGURE 1-5. AVERAGE ANNUAL NUMBER OF DAYS SPENT AT ARTIFICIAL REEFS IN EACH COUNTY BY TYPICAL PRIVATE PLEASURE BOATS.

The average annual number of days spent at artificial reefs by for-hire vessels was 17.8 days by a guide boat, 27.8 by a charter boat, 63.3 by a head boat, and 76.2 by a dive boat (Figure 1-6).

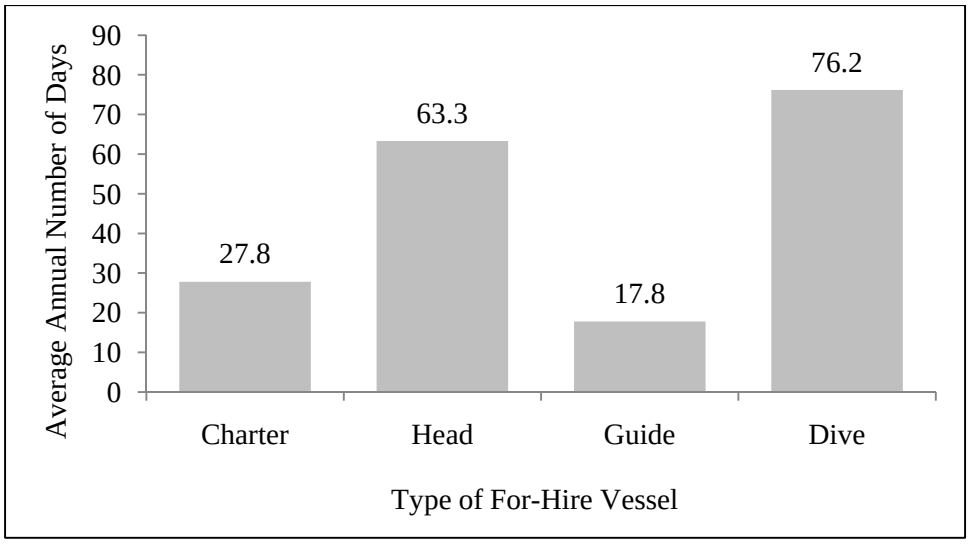

FIGURE 1-6. AVERAGE ANNUAL NUMBER OF DAYS SPENT AT ARTIFICIAL REEFS BY FOR-HIRE VESSELS.

Knowing the fleet sizes and the average annual number of days spent at artificial reefs allowed for the determination of the total number of days in a year that private boats and for-hire boats spent at each county's artificial reefs. These are termed 'boat days' or 'party days.' The least number of boat/party days were spent at artificial reefs in Manatee County (58,842) and the most at reefs belonging to Pinellas County (188,249) (Figure 1-7). Combined, there were 614,110 boat/party days during the year spent at artificial reefs in the six-county study area.

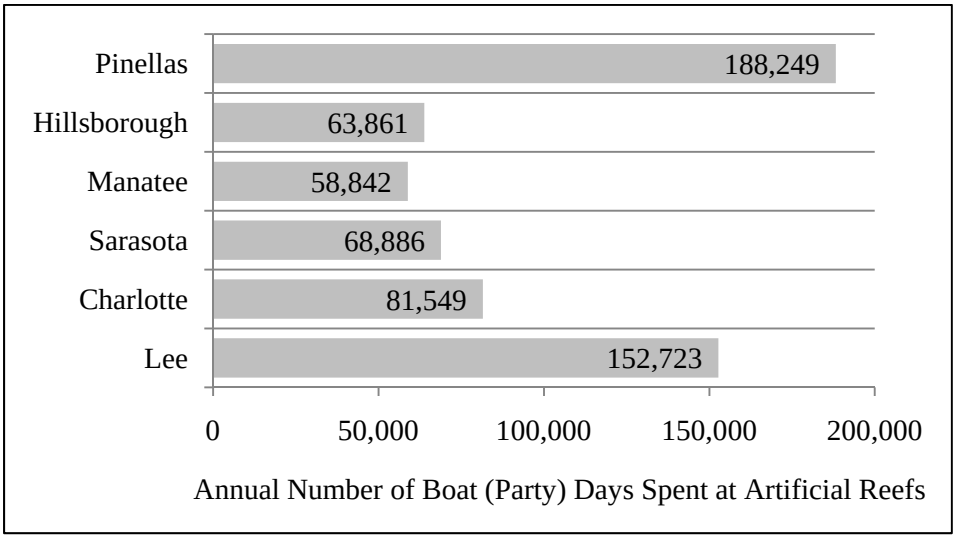

FIGURE 1-7. ANNUAL USE OF ARTIFICIAL REEFS IN EACH COUNTY: BOAT (PARTY) DAYS.

Person days were determined by multiplying the average number of people onboard during an artificial reef party day *times* the total annual number of party days (Figure 1-2). Person days at artificial reefs ranged from 197,522 in Hillsborough County to 666,857 in Pinellas County (Figure 1-8). These totals include residents and non-residents (visitors) onboard private pleasure boats and/or for-hire vessels.

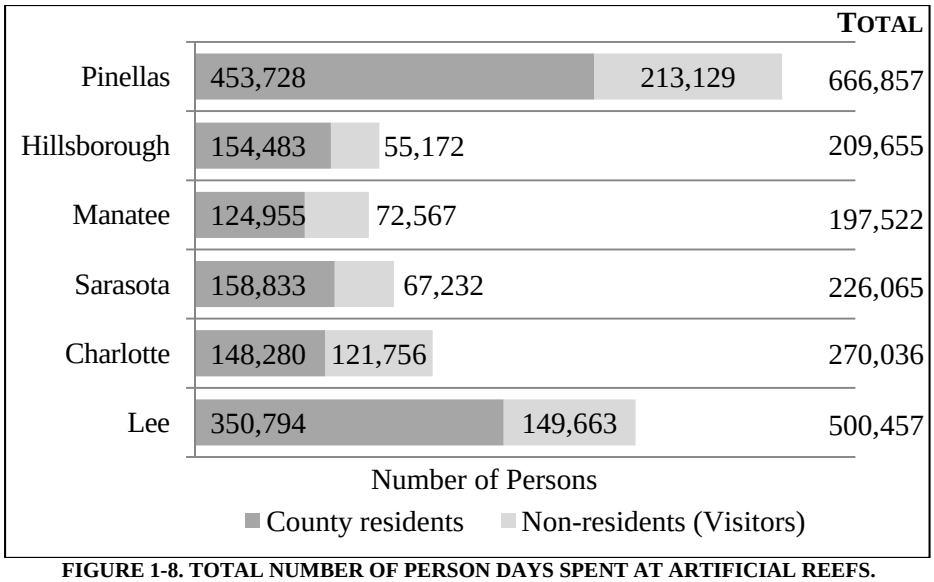

FIGURE 1-8. TOTAL NUMBER OF PERSON DAYS SPENT AT ARTIFICIAL REEFS.

For step 6 (Figure 1-2), the average per person expenditures were derived from the mail and Internet surveys of private boat owners and for-hire clients. This information was used in conjunction with the annual number of person days at reefs (step 5) to determine the total artificial reef-related expenditures that occurred in each study county during the year (step 7). Total annual expenditures related to the use of artificial reefs ranged from $23.18 million spent in Manatee County to $79.37 million spent in Pinellas County (Figure 1-9). Total annual expenditures for the six-county study area were $253.35 million.

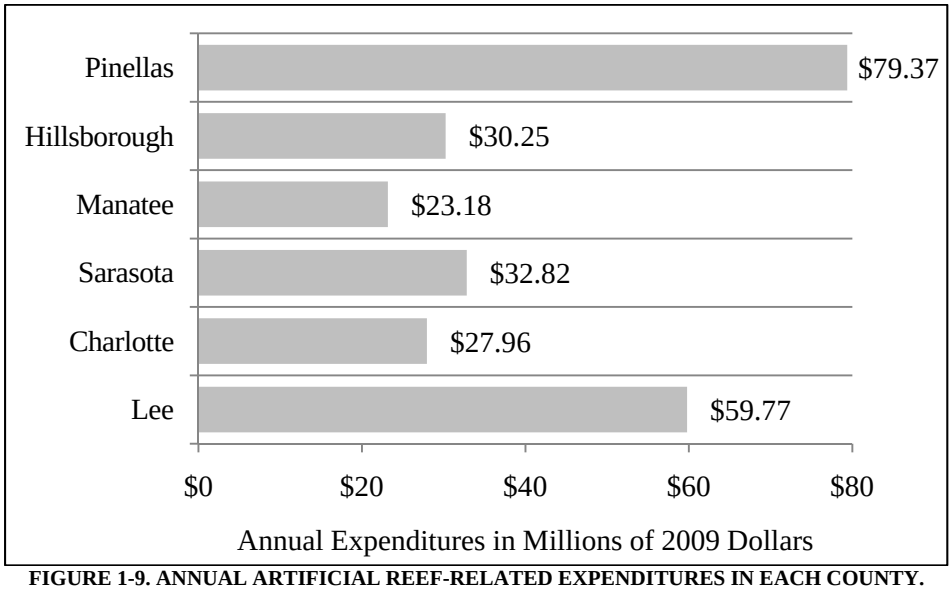

FIGURE 1-9. ANNUAL ARTIFICIAL REEF-RELATED EXPENDITURES IN EACH COUNTY.

Figure 1-10 shows artificial reef-related expenditures in each county made by residents and non-residents, and by private boaters and for-hire clients. Total annual expenditures in the six-county study area were $135.77 million by residents and $177.58 million by non-residents. Expenditures were $163.61 million by private boaters and $89.74 million by for-hire business clients.

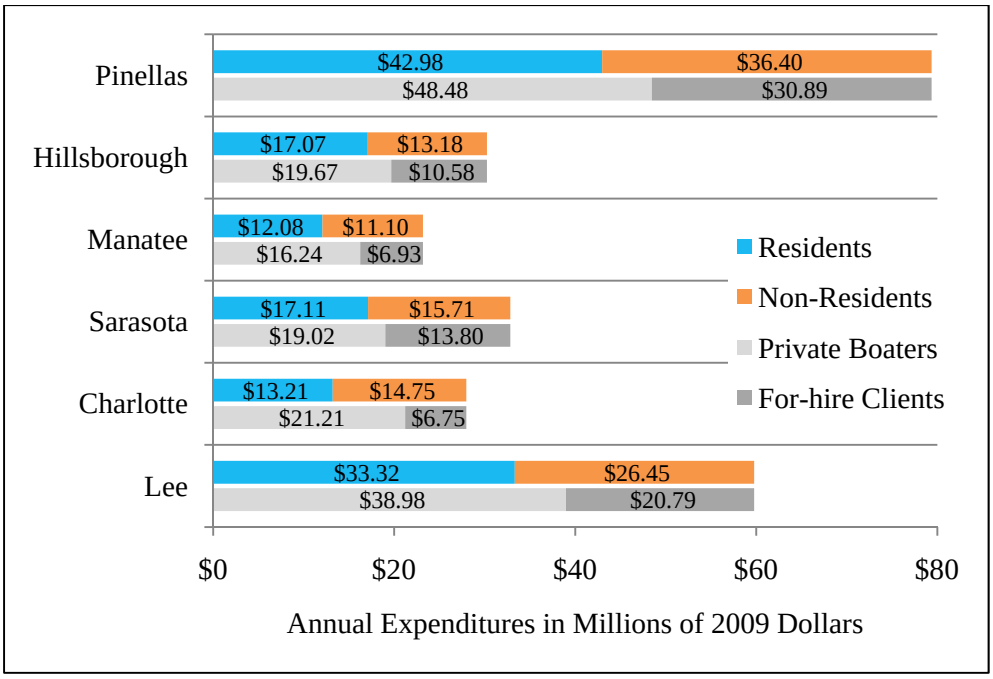

FIGURE 1-10. ARTIFICIAL REEF RELATED EXPENDITURES IN EACH COUNTY BY RESIDENTS AND NON-RESIDENTS, AND BY PRIVATE BOATERS AND FOR-HIRE BUSINESS CLIENTS.

Once the total annual expenditures were known, they were used to determine the economic contributions, or impacts, of artificial reef use to each study county. Economic contributions were determined using input-output analysis, which is a standard technique that uses input-output models to estimate economic impacts resulting from economic activity in one or more industry sectors. For the purposes of this project, the reef-related expenditures constituted economic activity that resulted in contributions such as economic output (revenue), total income, business taxes, and employment.

Economic output equals the total revenues or expenditures of local businesses and residents affected by the activity (in this case artificial reef use). Economic output also is equal to the total value of intermediate inputs plus the total value-added, where value-added is the sum of employee compensation, proprietor earnings, corporate profits, and business taxes. The economic output for the year ranged from $19.47 million in Manatee County to $75.84 million in Pinellas County (Figure 1-11). For the six counties combined, economic output (revenue) for the year totaled $226.93 million.

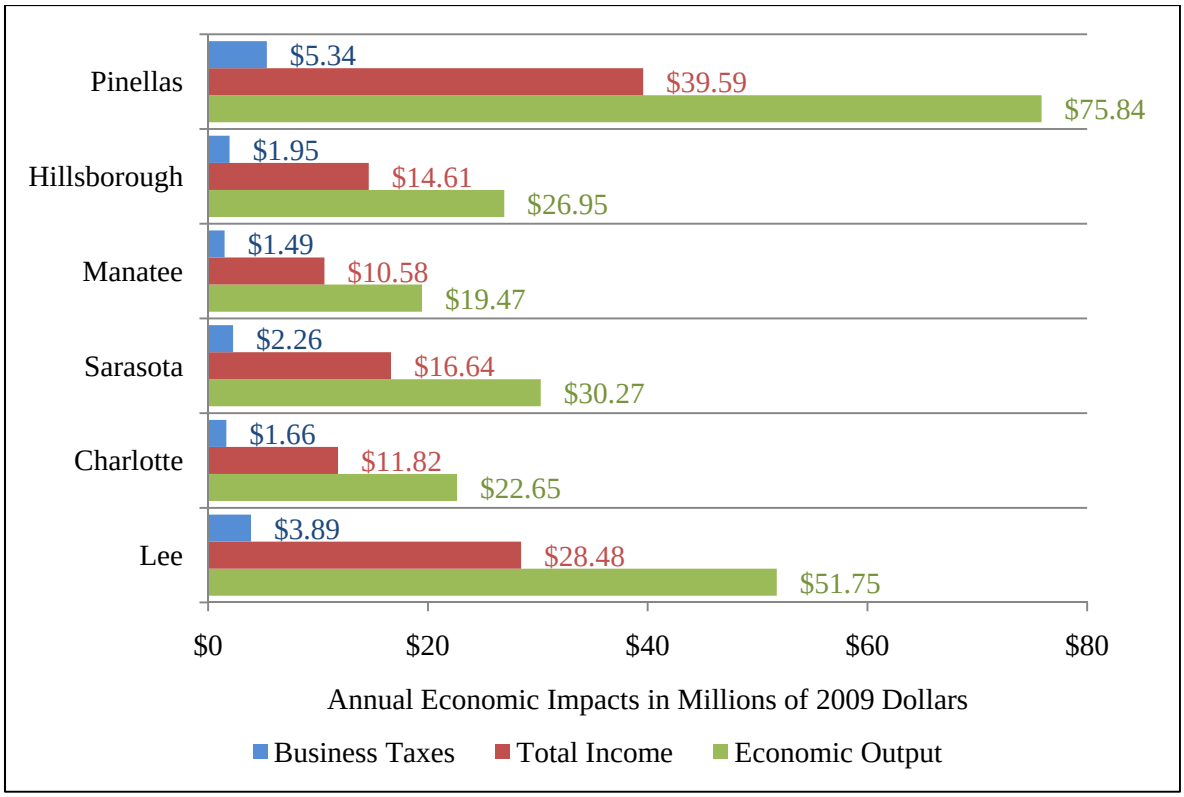

FIGURE 1-11. ANNUAL ECONOMIC IMPACTS IN MILLIONS OF 2009 DOLLARS.

Total income comprises labor income and other property income. Labor income consists of all forms of employment income, including employee compensation (wages and benefits) and proprietor income. Other property income represents property income minus proprietor income. It includes corporate profits, capital consumption allowances, rent payments, dividends, royalties, and interest income. Total income for the year ranged from $10.58 million in Manatee County to $39.59 million in Pinellas County (Figure 1-11). For the six counties combined, their total income for the year totaled $121.72 million.

Business taxes consist of tax and nontax liabilities that are chargeable to business expenses when calculating profit-type incomes, and certain other business liabilities to government agencies that are treated like taxes. Thus, it includes taxes on sales, property, and production, but excludes employer contributions for social security insurance and taxes on income. Business taxes for the year ranged from $1.49 million in Manatee County to $5.34 million in Pinellas County (Figure 1-11). For the six counties combined, their business taxes for the year totaled $16.60 million.

Jobs (employment) comprise the number of full- and part-time jobs that are filled by persons who enter an agreement, which may be formal or informal, with an enterprise to work for the enterprise in return for remuneration in cash or in kind. Employment related to artificial reef use ranged from 234 jobs in Manatee County to 858 jobs in Pinellas County (Figure 1-12). For the six counties combined, their employment totaled 2,595 part- and full-time jobs.

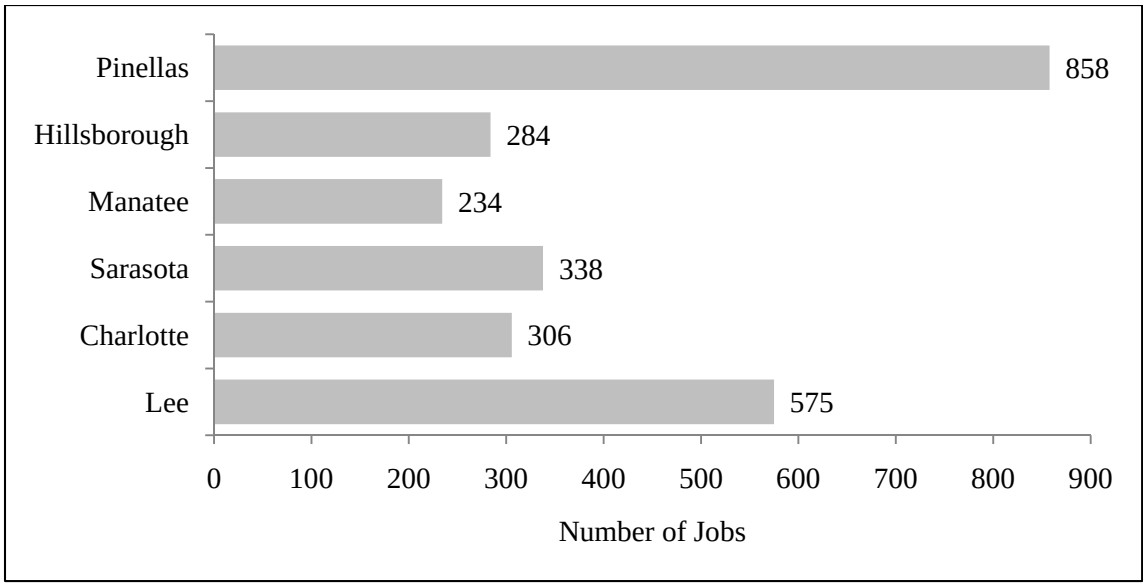

FIGURE 1-12. EMPLOYMENT: NUMBER OF FULL- AND PART-TIME JOBS.

It is useful to view this study's results in terms of the expenditures or investments made in support of artificial reef-related activities. In general, county government support of local artificial reef programs is highly variable. Estimates of the annual amount that each county in the study region spent on such activities in recent years range from $20,000 to $60,000. This amount can include dedication of staff time, reef program development activities like permitting, monitoring and grant development, or direct fiscal support of reef material deployment. County efforts are supplemented from other sources such as the Florida Fish and Wildlife Conservation Commission's artificial reef program and its boating improvement grants, the Sarasota Bay Estuary Program, and other grant programs. Of particular note are the substantial donations of time and materials that come from the private sector, such as local marine contractors, and from the public, including local fishing groups and boaters. This diversity of public and private support for artificial reefs is a measure of their value to local communities and to the state.

Finally, it is worth noting that both non-reef users and reef users expressed support for using public funds to provide and maintain artificial reefs in Florida's waters. Resident boaters of Pinellas County expressed the greatest level of support (71%) and those of Manatee County the least (61%). Not surprisingly, reef users in general were more supportive than were non-reef users. Residents of Sarasota County who used reefs expressed the most support (95%) and Charlotte County residents the least (83%).

2. INTRODUCTION

Florida's artificial reef program, in effect since 1982, is one of the most active among the Gulf and Atlantic states. Currently, there are more than 2,500 documented locations of artificial reefs in Florida's coastal waters, and approximately one-third of them are in the coastal waters of the six counties that are the subject of this study: Pinellas, Hillsborough, Manatee, Sarasota, Charlotte, and Lee counties in southwest Florida (see Figure 1-1 in Executive Summary).

A hallmark of Florida's artificial reef program is the strong reciprocal partnership established between state and local county governments. The success of the program can be attributed to fishing clubs, businesses, non-profit corporations, tourism and economic development interests, and private individuals working through their local governments to provide input into public reef-building activity. The Marine Fisheries Management Section of the Florida Fish and Wildlife Conservation Commission's Division of Marine Fisheries Management administers the state's artificial reef program. At the county level, the organization or entity that administers and manages the artificial reef program varies from county to county.

Artificial reefs are constructed and deployed in Florida's marine waters with one or more of the following objectives:

1. to enhance recreational and charter fishing and diving opportunities;
2. to provide socio-economic benefits to local coastal communities;
3. to increase reef-fish habitat;
4. to reduce user conflicts by providing more recreational opportunities; and
5. to facilitate reef-related research.

Expenditures to construct and maintain public artificial reefs off Florida's coasts have led the state and local governments to quantify the economic benefits derived from reef deployments. For this project, Pinellas, Hillsborough, Manatee, Sarasota, Charlotte, and Lee counties collaborated with the Florida Fish and Wildlife Conservation Commission (FWC) and the West Coast Inland Navigation District (WCIND) to determine the economic benefits of artificial reef activities to their respective counties and to the region. The specific goal of the project was to quantify the economic contributions and impacts of those who use artificial reefs in each of the six southwest Florida counties. In addition, the demographic characteristics of reef users were derived.

Chapter three provides a summary of general socio-demographic and economic information pertaining to the six-county study area. The chapter serves as a preamble to the more specific study goal, results for which are presented in subsequent chapters. Chapter four details the methods that were used to complete this study, including the telephone, mail, and e-mail/Internet surveys that provided the relevant characteristics of the boat fleets that were used to visit artificial reefs and information about the passengers who were onboard during trips to each

county's reefs. Chapters five and six explain how expenditures related to the use of each county's artificial reefs during the 12-month study period by residents and non-residents (visitors) were determined: chapter five for people onboard private pleasure (recreational) boats[1] and chapter six for clients of for-hire operations. Chapter seven details the economic impacts that were generated in each study county by the expenditures of reef users. Chapter eight presents the socio-demographic characteristics of reef users as derived from the surveys. Chapter nine lists the references of the sources that were consulted and/or used to accomplish the project. Appendices one through four contain the survey materials, including the questionnaires, which were used for the telephone, mail, and e-mail/Internet surveys. Appendix five contains detailed definitions of the input-output analysis terms used in chapter seven.

[1] A private pleasure (recreational) boat is one that the Florida Vessel Title Registration System designates as having been registered to an individual, not to a business, for the purpose of pleasure.

3. A REGIONAL OVERVIEW AND PROFILE OF EACH STUDY-AREA COUNTY

This chapter provides a summary of general socio-demographic and economic information pertaining to the six-county study area in southwest Florida. The information was obtained from national and county level economic surveys and censuses, and the specific sources are cited in the body of the text and their references are listed in chapter 9. The information in this chapter allows the results from the surveys that were implemented for this project to be placed in a larger context.

The study area is located in southwest Florida on the Gulf Coast, and it comprises six coastal counties with a combined area of 4,142 square miles (Figure 3-1). The study counties include Pinellas and Hillsborough in the north, Manatee and Sarasota in the middle, and Charlotte and Lee to the south. The area has a subtropical environment with a yearly average of 360 days of sunshine and a mean temperature of 62°F in January and 82°F in August (NOAA, 2010).

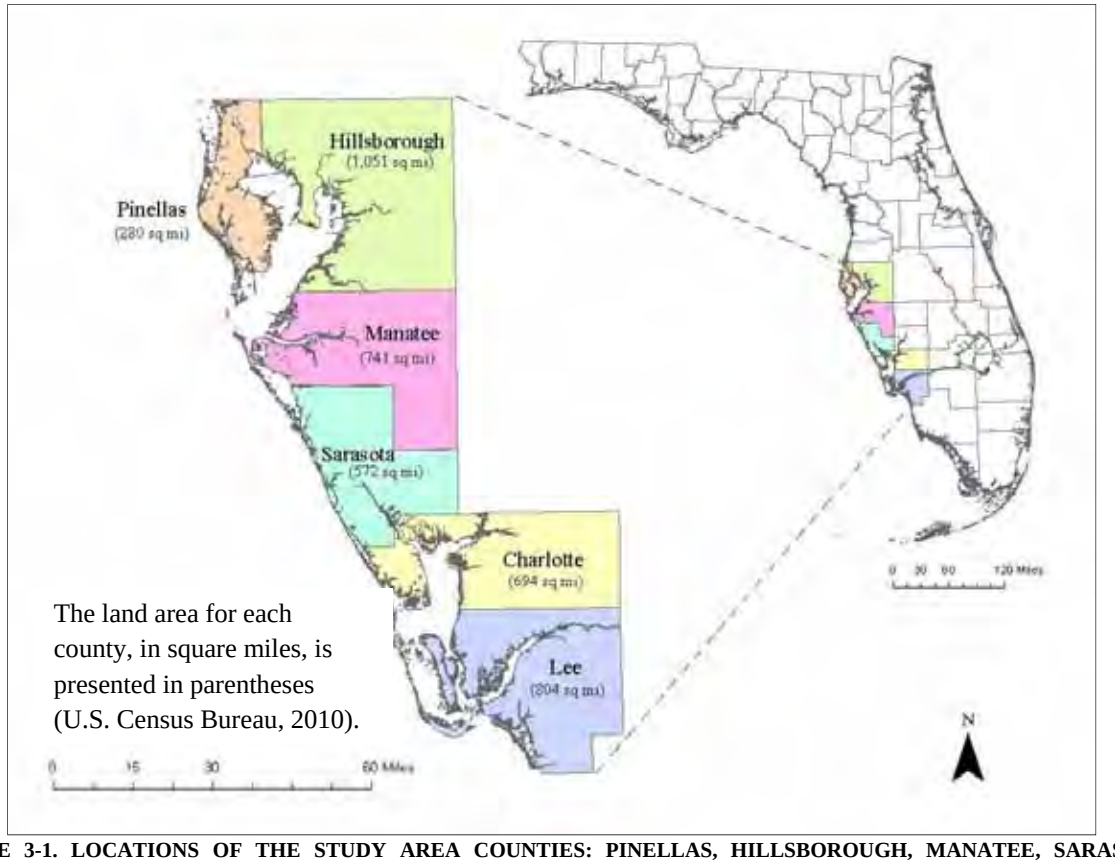

FIGURE 3-1. LOCATIONS OF THE STUDY AREA COUNTIES: PINELLAS, HILLSBOROUGH, MANATEE, SARASOTA, CHARLOTTE, AND LEE.

Combined, the six counties have more than 25 state parks (15% of Florida's state parks) – most of which offer saltwater access – and 164 public boat ramps, which constitute 10% of those in Florida (Florida Fish and Wildlife Conservation Commission, 2010). In 2009, the six counties accounted for 21% of the nearly one million vessels that were registered in one of Florida's 67 counties (Table 3-1). Pinellas, Lee, and Hillsborough ranked number 2, 3, and 4 in Florida, respectively. Furthermore, the Florida Fish and Wildlife Conservation Commission (2009) estimated that, as of 2010, over 850 artificial reef deployments had occurred in the study area, representing about one-third of deployments statewide (Table 3-1).

TABLE 3-1. REGISTERED PLEASURE BOATS AND ARTIFICIAL REEF DEPLOYMENTS IN THE STUDY AREA.

County	Number of registered pleasure boats (2009)[1]	Rank in Florida (2009)	Number of Artificial reef deployments (as of 2/2010)[2]
Pinellas	50,116	2	398
Hillsborough	45,206	4	75
Manatee	18,416	21	83
Sarasota	22,855	15	151
Charlotte	21,047	18	33
Lee	44,933	3	114
Florida	949,030	--	~2,587

[1]Florida DHSMV, 2010; [2]FWC, 2009.

3.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

Approximately 19% of Florida's total population in 2009 (18.5 million) lived in the six-county study area (Table 3-2). Hillsborough, Pinellas, and Lee counties were among Florida's most populous: they ranked fourth, sixth and eighth, respectively. Furthermore, Pinellas was the state's most densely populated county with more than three thousand people per square mile.

TABLE 3-2. POPULATION AND AGE ESTIMATES FOR EACH OF THE SIX STUDY AREA COUNTIES.

County (from north to south)	Estimated population 2009[1]	Percentage of Florida's total population[1]	Population change: 2000 to 2009[1]	Population density per square mile[1]	Median age of residents (years)[2]	Population older than 65 years[2]
Pinellas	909,013	4.9%	-1.4%	3,247	45	20.9%
Hillsborough	1,195,317	6.4%	19.7%	1,137	37	11.8%
Manatee	318,361	1.7%	20.6%	430	43	22.4%
Sarasota	369,765	2.0%	13.4%	647	50	29.9%
Charlotte	156,952	0.8%	10.8%	226	51	30.5%
Lee	586,908	3.2%	33.1%	730	43	22.5%
Florida	18,537,969	--	16.0%	344	40	17.1%
US	307,006,550	--	8.0%	87	37	12.6%

U.S. Census Bureau, 2009[1] and 2008.[2]

The six counties differed markedly with respect to changes in their number of residents between the years 2000 and 2009 (Table 3-2). Lee County's relative population increase of 33.1% was due to 146,000 additional residents; this represented an absolute increase in population that was

exceeded by only four other Florida counties. One of those counties, Hillsborough, experienced an increase of nearly 200,000 residents, a number that was only exceeded by Miami-Dade County. In contrast, Pinellas County was one of only two Florida counties that experienced a decrease in population (-1.4%), losing over 12,000 residents between 2000 and 2009. The relative change in population for Manatee (20.6%) exceeded the Florida average (16.0%), and resulted in over 54,000 additional residents. In contrast, the relative population changes in Sarasota (13.4%) and Charlotte (10.8%) counties were below that of Florida, and resulted in over 43,000 and 15,000 additional residents, respectively.

The median age of residents in 2008 for five of the study counties (Hillsborough was the exception) was higher than that of the state (40 years old) and the U.S. (37 years old) (Table 3-2). The median age of residents ranged from a low of 37 years old in Hillsborough County to highs of 51 years old in Charlotte and 50 in Sarasota (Table 3-2). Higher (and lower) median ages also were reflected in the percentage of people older than 65 in each of the six counties. For example, only in Hillsborough County was the percentage of people older than 65 (11.8%) lower than that of the state (17.1%) or the U.S. (12.6%). Charlotte and Sarasota had the highest percentage of people older than 65 (30.5% and 29.9%, respectively).

In terms of race, the six counties differed from patterns exhibited in 2008 by Florida and the U.S. as a whole (Table 3-3). Except for Hillsborough County, the percentage of whites in each county exceeded those for the U.S. (74.3%) and Florida (76.7%). The largest differences were in Sarasota and Charlotte counties with 14.7% and 13.1% more whites, proportionately, than Florida in general (Hillsborough had 1.2% fewer).

TABLE 3-3. PERCENTAGE OF POPULATION BY RACE, AND OF HISPANICS OR LATINOS OF ANY RACE.

County (from north to south)	Whites	Blacks or African American	American Indian & Alaska Native	Asian	Native Hawaiian & Other Pacific Islanders	Some other race	Two or more races	Hispanic or Latino (of any race)
Pinellas	84.2%	10.0%	0.3%	2.9%	0.1%	1.1%	1.5%	6.9%
Hillsborough	75.5%	15.8%	0.2%	3.0%	0.0%	3.5%	2.0%	22.3%
Manatee	83.6%	8.4%	0.3%	1.7%	0.1%	4.7%	1.3%	13.0%
Sarasota	91.4%	4.5%	0.1%	1.2%	0.0%	1.7%	1.0%	6.9%
Charlotte	89.8%	5.4%	0.2%	1.0%	0.0%	1.9%	1.6%	5.2%
Lee	84.6%	7.4%	0.3%	1.3%	0.0%	5.0%	1.3%	16.8%
Florida	76.7%	15.3%	0.3%	2.2%	0.1%	3.6%	1.8%	20.5%
US	74.3%	12.3%	0.8%	4.4%	0.1%	5.8%	2.2%	15.1%

U.S. Census Bureau, 2008.

The percentage of blacks (African Americans) in five of the counties was lower than that of Florida (15.3%), ranging from 10.8% lower in Sarasota County to 5.3% lower in Pinellas (Hillsborough's percentage was 0.5% higher than Florida). The percentage of Asians in four of the counties was lower than that for Florida in general (2.2%), and ranged from 1.2% lower in Charlotte to 0.5% lower in Manatee. The percentages for Pinellas and Hillsborough were 0.7%

and 0.8% higher, respectively, than Florida. The percentage of Hispanics/Latinos (of any race) was lower than Florida in five of the counties (Hillsborough's was 1.8% higher), ranging from 15.3% lower in Charlotte to 3.7% lower in Lee.

In all six counties, the percentage of the 2008 population (25 years of age or older) with a high school diploma or higher exceeded or equaled the Florida (84.9%) and U.S. averages (84.5%): the percentages ranged from 85.6% in Hillsborough to 89.9% in Sarasota County (Figure 3-2).

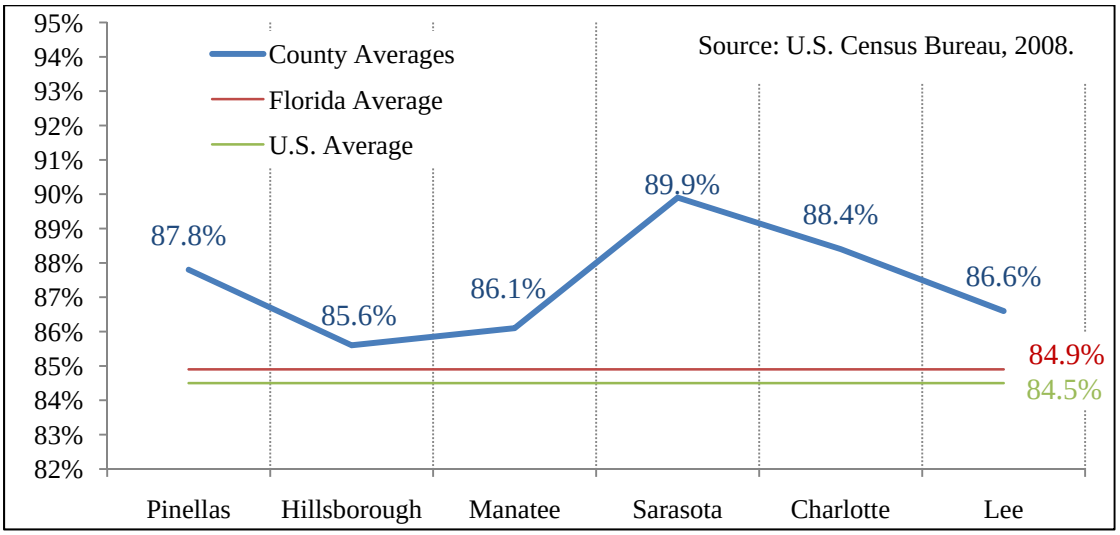

FIGURE 3-2. PERCENTAGE OF POPULATION WITH A HIGH SCHOOL DIPLOMA OR HIGHER.

The percentage of the population with a bachelor's degree or higher in Hillsborough (28.8%), Sarasota (28.4%), and Pinellas (26.8%) counties exceeded the Florida average (25.7%) (Figure 3-3). Hillsborough and Sarasota were the only study area counties to exceed the U.S. average (27.4%).

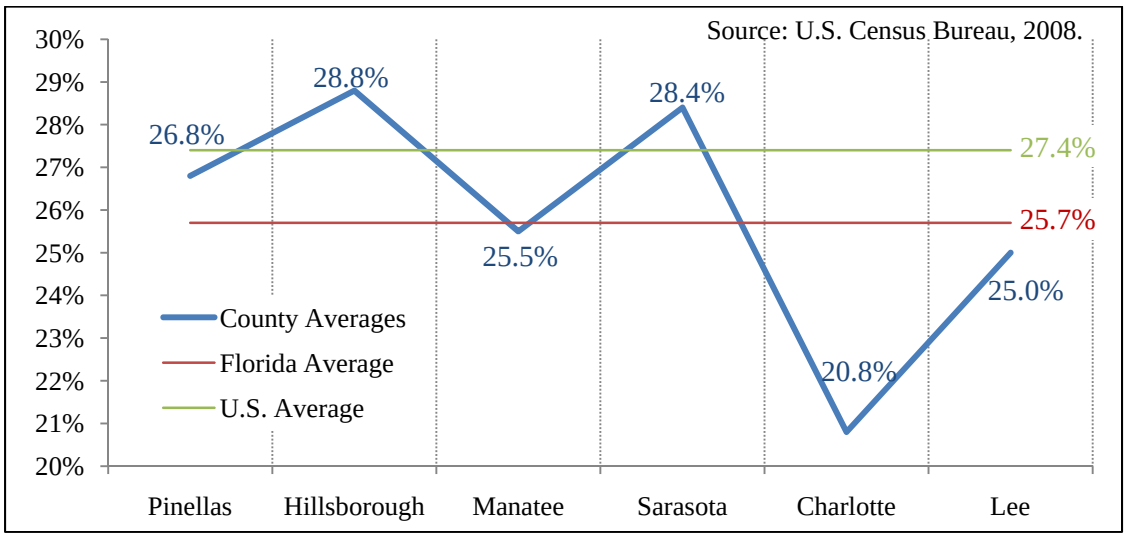

FIGURE 3-3. PERCENTAGE OF POPULATION WITH BACHELOR'S DEGREES OR HIGHER.

3.2. ECONOMIC CHARACTERISTICS

During 2009, the study area attracted more than 40 million visitors and their economic activity generated over $14 billion in expenditures. During the same period, the area accounted for 18% of Florida's Tourist Development Tax[2] (Table 3-4).

TABLE 3-4. SELECT TOURIST STATISTICS FOR 2009.

County	Estimated number of visitors (millions)	Expenditures (billions)	Tourist Development Tax (millions)[7]
Pinellas	5.0[1]	$3.3[1]	$24
Hillsborough	15.0[2]	$2.9[2]	$19
Manatee	0.45[3]	$0.3[3]	$5
Sarasota	4.0[4*]	$2.0[4*]	$10
Charlotte	0.3[5**]	$3.1[5**]	$2
Lee	4.7[6]	$2.6[6]	$22

*2007 estimates; **2008 estimates. [1]Klages, 2010; [2]Bonn Marketing Research Group, 2010; [3]Klages, 2010b; [4]Sarasota Convention & Visitors Bureau, 2010; [5]Charlotte Harbor Visitor & Convention Bureau, 2009; [6]Davidson Peterson Associates, 2010; [7]Florida Department of Revenue, 2010.

The study area accounted for 18% of taxable sales in Florida during 2009 ($277 billion) (Table 3-5). Hillsborough was the main contributor with $18.1 billion in sales, followed by Pinellas with $11.7 billion. The six counties were members of a group consisting of 32 Florida counties that reported taxable sales by boat dealers. Combined, the six counties accounted for 24% of the statewide total of taxable sales by boat dealers; Pinellas County was the second largest contributor in Florida and Lee County the sixth (Table 3-5; Figure 3-4).

TABLE 3-5. TAXABLE SALES IN 2009.

County	Taxable sales (billions)	Percentage of Florida	Boat Dealers taxable sales (millions)
Pinellas	$11.7	4.2%	$114
Hillsborough	$18.1	6.5%	$20
Manatee	$3.7	1.3%	$57
Sarasota	$5.4	1.9%	$38
Charlotte	$1.8	0.8%	$35
Lee	$8.9	3.2%	$81
Florida	$276.9	18%	$1,443

Florida Department of Revenue, 2010b and c.

[2] The Tourist Development Tax is a charge on the revenue from rentals of six months or less.

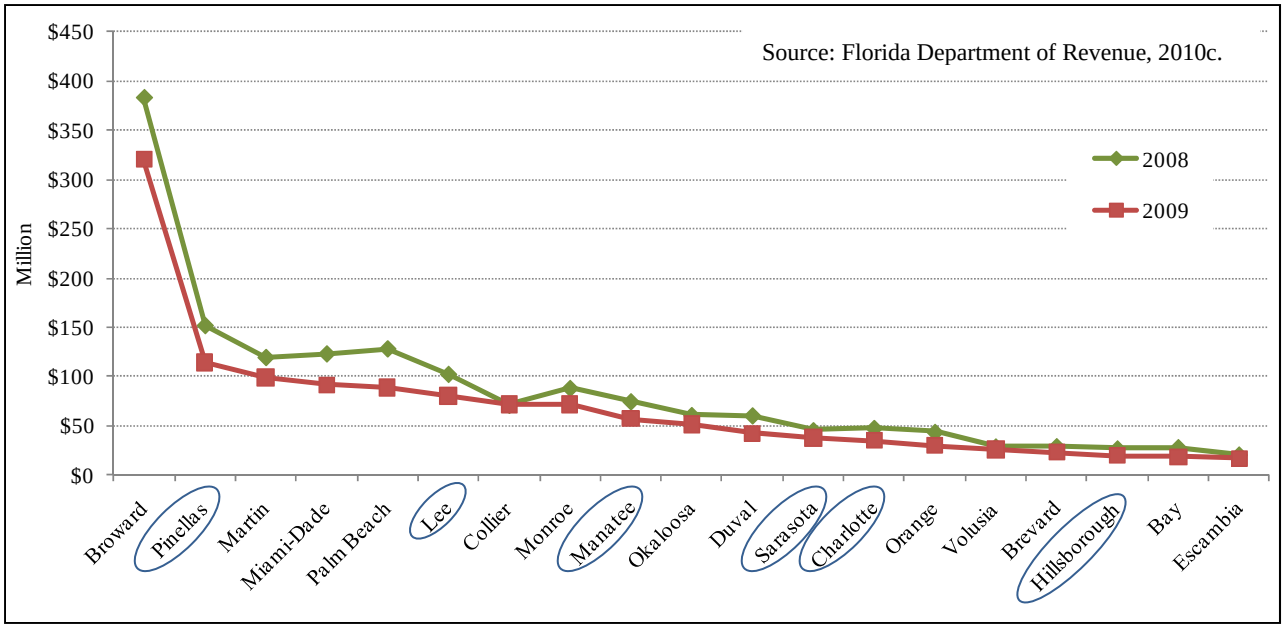

FIGURE 3-4. TWENTY COUNTIES IN FLORIDA WITH THE MOST TAXABLE SALES BY BOAT DEALERS.

The U.S. Census Bureau estimates that over 9 million residents were in Florida's labor force during 2008, representing 61.8% of the state's population (Table 3-6). Of the six study area counties, only Hillsborough had a greater percentage of its residents (67.1%) in the labor force than did Florida in general. Of the remaining five counties, Charlotte County's labor force was 51.4% of its population, which was 10.4% lower than that of Florida.

Occupation describes the type of work a person performs on the job. In general, the mix and relative proportions of occupation types in Florida and in the study area were similar (Table 3-6). In 2008, the largest block of occupations averaged 32% for the six counties combined and comprised management, professional, and related occupations. This block was followed by a six county average of 29% in sales and office occupations, 19% in service occupations, 11% in construction, extraction, maintenance and repair occupations, 9% in production, transportation and material moving, and, lastly, less than 1% in farming, fishing, and forestry occupations.

TABLE 3-6. LABOR FORCE COMPOSITION AND OCCUPATIONS.

County	In labor force (16 years and over)	Occupations					
		Management, professional, and related occupations	Service	Sales and office	Farming, fishing, and forestry	Construction, extraction, maintenance and repair	Production, transportation, and material moving
Pinellas	60.1%	35.4%	17.7%	30.6%	0.1%	8.1%	8.2%
Hillsborough	67.1%	37.2%	16.1%	28.1%	0.8%	8.4%	9.4%
Manatee	58.3%	32.3%	17.3%	28.6%	2.0%	10.3%	9.6%
Sarasota	54.1%	30.6%	21.9%	29.0%	0.2%	11.1%	7.2%
Charlotte	51.4%	27.0%	18.3%	27.0%	0.9%	16.4%	10.3%
Lee	57.3%	29.9%	19.9%	29.2%	0.5%	12.6%	7.8%
Florida	61.8%	32.8%	19.2%	28.3%	0.7%	10.0%	8.9%

(U.S. Census Bureau, 2008).

Of the six counties, the average per capita income between 2006 and 2008 for Sarasota County stands out since it was 44% higher than that of Florida (Figure 3-5). Furthermore, Sarasota County's per capita income for 2008 was the sixth highest in Florida. On average, the per capita income for Pinellas, Lee, and Manatee counties was higher than that of Florida, while that of Charlotte and Hillsborough was lower. Charlotte County had the lowest per capita income in the study area, and it ranked 23rd among Florida's 67 counties.

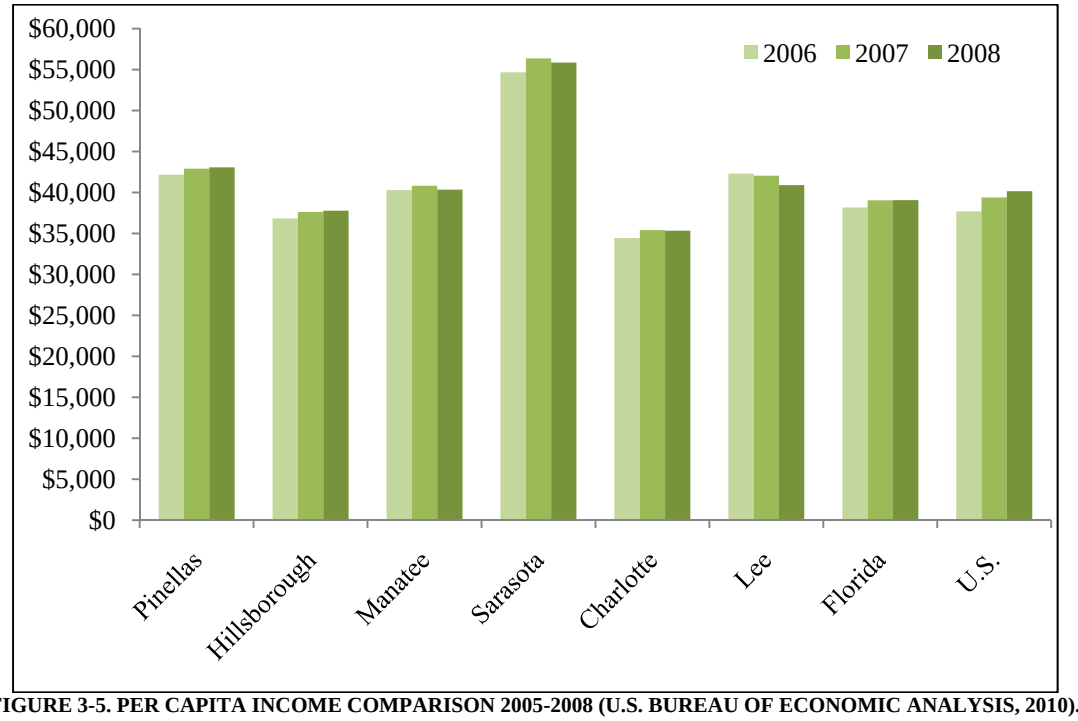

FIGURE 3-5. PER CAPITA INCOME COMPARISON 2005-2008 (U.S. BUREAU OF ECONOMIC ANALYSIS, 2010).

The next chapter details the methods that were used to complete this study, including the telephone, mail, and e-mail/Internet surveys that provided the relevant characteristics of the boat fleets that were used to visit artificial reefs and information about the passengers who were onboard during trips to each county's reefs.

4. METHODS

The study relied on surveys implemented in the second half of 2009 to derive estimates of the economic benefits of reef use and the demographic characteristics of those who use them. The survey sampling frames were based on lists of potential reef users. This approach provided the needed estimates by targeting the various user groups for questioning using a combination of mail, telephone, and e-mail/Internet surveys. To obtain estimates of the target populations, information from survey respondents was augmented with an analysis of data from: (a) previous boating studies in southwest Florida, (b) estimates of the reef-user population from private pleasure boat licenses, and (c) licensing of for-hire operations. The remainder of this chapter provides details of the procedures that were implemented.

An initial telephone survey of registered boaters who resided within the six-county study area was conducted to determine the proportion of saltwater recreational boaters who visit artificial reefs. Specific information provided by the survey included the proportion of respondents who took saltwater boating trips in the previous 12 months, the proportion of those trips that were to artificial reefs, the county from which reef trips originated and the vessel launch mode, and the types of activities conducted at reefs. The survey instrument is contained in Appendix 1.

To construct the sample frame for the telephone survey, registration information (VTRS[3]) for all vessels registered in Florida was obtained from the Florida Department of Highway Safety and Motor Vehicles (DHSMV). Registration records that met the following criteria were eliminated:

1. Boats less than 12 feet in length (deemed too small for artificial reef trips).
2. Boats with a registration use identified as commercial or government (i.e., non-recreational).
3. Vessel types identified as airboat, canoe, or houseboat.

Duplicate names and addresses were removed from the VTRS dataset and the resulting records were then geocoded. The geocode match rate to street addresses (with 9-digit or 5-digit ZIP codes) or to the centroid of a ZIP code (when no match was obtained for a street address) was 98 percent. VTRS records pertaining to the six-county study area were extracted to comprise the sample frame of registered boats in each county (Table 4-1).

[3] VTRS stands for the Vessel Title Registration System maintained by the Florida Department of Highway Safety and Motor Vehicles.

TABLE 4-1. TARGETED DISTRIBUTION OF SOUTHWEST FLORIDA PHONE SURVEY RESPONDENTS BY BOAT LENGTH.

County	Boats 12ft to <16ft		Boats 16ft to <26ft		Boats 26ft or Greater		Total Number Registered	Total Sample Size
	Number Registered	Sample Size	Number Registered	Sample Size	Number Registered	Sample Size		
Pinellas	8,727	50	26,737	152	7,317	42	42,781	244
Hillsborough	10,679	61	23,038	131	3,788	22	37,505	214
Manatee	4,039	23	9,948	57	2,216	13	16,203	93
Sarasota	4,315	25	12,826	73	3,070	18	20,211	116
Charlotte	3,461	20	12,314	70	2,772	16	18,547	106
Lee	6,954	40	27,766	158	6,607	38	41,327	236
Totals	38,175	219	112,629	641	25,770	149	176,574	1,009

A target of 1,000 responses to the telephone survey (from active boaters) was established, thus providing a confidence interval (margin of error) of ±3.09 at a confidence level of 95% (z=1.96). An active boater was defined as someone who had used his or her boat for saltwater boating in the six-county study area at least once during the previous year.

The telephone sample for the six-county study area was distributed proportionally, by county, according to the number of registered boaters within three length classes: 12ft to <16ft, 16ft to <26ft, and 26ft or greater (Table 4-1). This was done to assure adequate representation of the various boat lengths in the survey results. The calculated sample sizes were always rounded up. For example, the 8,727 boats, 12ft to <16ft in length, that were registered in Pinellas County accounted for 4.94% of the total number of boats (176,754). The calculated sample size for this Pinellas County length class is 49.42 (0.494 times 1000), but 50 was the sample size used for the survey. Due to rounding, a sample size of 1,009 was used for the six-county study area. Telephone numbers for the sample were obtained from Marketing Systems Group[4].

A total of 1,529 boat owners were contacted during the telephone survey and, of these, 73% (1,119) were active boaters. The other 27% (410) had not boated in saltwater during the previous 12 months and, therefore, were ineligible for the study. Twenty-seven percent of those who went saltwater boating in the previous 12 months (active boaters) reported visiting an artificial reef during one or more of their trips.

4.1. THE DAY-TRIPPER AND RESIDENT POPULATIONS OF RECREATIONAL BOATERS

Information from three recreational boating characterizations conducted by Florida Sea Grant (FSG) and the Florida Fish and Wildlife Conservation Commission (Sidman *et al*. 2004, 2005, and 2006) was used to determine the day-tripper[5] population of recreational boaters who used

[4] http://www.m-s-g.com

[5] *Day-tripper* is a reef user who travels to a launch facility in another county, but returns home on the same day. The geographic extent that encompasses the day-tripper population can be considered "a regional service area." Day-trippers are a subset of *Visitors*, which also includes reef users who travel to a launch facility from a location that is outside of the regional service area and, therefore, will likely overnight in the county where the reef trip originates.

artificial reefs in the six-county study area. Results from the boating characterization studies were based on approximately 5,000 questionnaire responses mailed to over 19,000 boaters observed at saltwater boating facilities throughout the six-county study area.

The sample frames developed for the boating characterizations were constructed by (1) surveying public boat ramps repeatedly over the course of a year and recording the tag numbers of parked vehicles and boat trailers and (2) recording the registration information of vessels at marinas and dry storage facilities. The tag numbers and registration information were used to obtain the names and mailing addresses of the owners' of the vehicles, trailers, and boats observed and recorded at each boat launch facility. The owners' mailing addresses also were used to obtain GIS coordinates, and map their landside origin (place of residence). GIS software (ArcGIS 9.x) and online commercial geocoding services, such as TeleAtlas (www.geocode.com), were used to geographically locate the homes of facility patrons.

Respondents to the characterization survey provided travel times from their residences to the boat launch facilities they used in the six counties. These travel times were used to define the geographic extent, or regional service area, from which boaters were willing to travel to launch facilities in the six study counties to partake in one-day boating excursions. In other words, the geographic area encompassed the population of day-trippers, from outside of the six-county study area, who accessed launch facilities in one of the six study counties.

The geographic extent of the regional service area determined from travel times, in conjunction with Geographic Information System (GIS) functionality, was used to extract records of registered boaters from the Florida VTRS. The sample frame for the mail survey was then drawn from the extracted records. Only a boater who owned a vessel that had a valid registration during any time of the 12-month study period was eligible to receive a survey for the project. Boaters with vessels that were not registered during any point of the previous 12 months were not included because it is unlikely that they used an unregistered boat to visit reefs during the period of interest.

The research team designed a survey instrument (Appendix 2) to ascertain from resident[6] and day-tripper reef users (and others who accompany them on trips to reefs): (1) expenditures associated with reef use, (2) demographic characteristics of reef users, and (3) temporal changes in reef use due to hurricanes and red tide. In addition, reef users were queried about their "willingness to pay" for improved reefs and/or the placement of additional reefs.

A sample of 10,000 names and addresses of boat owners who lived in the regional service area was drawn from VTRS records, and another 10,000 names and addresses were drawn for boat

[6] *Resident* is a reef user who travels to a launch facility (e.g., ramp, dry stack, wet slip, dock) that is located within his/her county of residence.

owners who lived in the six-county study area. The Florida Survey Research Center (FSRC) printed and mailed 20,000 survey instruments, and then entered the returns into a SAS dataset. FSRC also performed a thorough review of the data to insure its quality: for example, having numbers in correct/reasonable ranges and checking results for correctness. The project PI also performed an extensive check of the survey returns. Overall, 3,172 surveys were returned, which corresponds to a return rate of approximately 16 percent.

4.2. The For-Hire Fleet and its Client Population

The goal of the for-hire sector surveys was to obtain information from the population of industry members who operate in the six study area counties and from a sample of their clients. The objectives were to determine, for each for-hire vessel type, the annual number of for-hire trips taken to artificial reefs, the average number of clients (both resident and non-resident) onboard during a reef day, and the average trip expenditures incurred by resident and non-resident clients for an artificial reef trip aboard a for-hire vessel.

4.1.1 For-Hire Operators

The population and characteristics of for-hire boats in the study area, by vessel type, was constructed from lists that were obtained from the following sources:

1. National Marine Fisheries Service, Southeast Regional Office:
    a. Charter/party boat operators
    b. "Six-Pack" charter operations
2. Florida Division of Vessel Titling: Guide boat operators
3. A list of dive charter operators was developed from business directories, YellowPages.com, trade association lists, and various websites

The lists were assumed to contain the names and addresses of all for-hire operators in the six-county study area, thereby constituting the area's entire for-hire fleet. Information on artificial reef use and patronage was collected via a mail-out survey sent by the Florida Survey Research Center (FSRC) to the 963 persons that resulted from the sources listed above. The cover letter and the survey questionnaire are contained in Appendix 3.

The mail survey resulted in 138 questionnaires being completed and returned by for-hire operators. To boost the return, those operators who did not return a questionnaire were contacted by telephone and asked the same questions that were on the mailed instrument. The telephone survey resulted in 87 additional completions, for a final tally of 225 completed questionnaires and a final return rate of 23 percent. The information obtained from the survey of for-hire operators was used to estimate its total capacity, including the total number of days per year spent at reefs by the fleet and the total number of clients onboard.

4.1.2 FOR-HIRE CLIENTS

A commercial firm (Expedite[7]) was used to implement an e-mail/Internet survey to collect expenditure information from for-hire sector clients. This method was chosen because it had been used successfully by UF researchers (including co-author Hodges), and because the survey could be sent to a large number of e-mail recipients. The services provided by Expedite were rental of their e-mail list and the broadcast of, and reporting for, three sequential e-mail campaigns. The survey aim was to obtain a sufficient number of client responses (200-300) to provide adequate data on expenditures related to trips to artificial reefs. For each of the three campaigns, e-mails were sent to the same 6,841,151 potential respondents. Of these recipients, 1,689,152 viewed the e-mail, 1,495 clicked the link (URL) to the online survey, and 224 completed it. Appendix 4 contains the questionnaire designed to survey for-hire clients.

The estimates derived from this study are comparable to those generated for other regions of Florida and include estimates of boat- and person-days. This study relied on "bottom-up" estimates of reef use (i.e., identifying and targeting users from known waterway access points and using the total number of users, such as the number of licenses and registrations, to derive population and fleet estimates). The approach took advantage of existing data from recent boating studies in Southwest Florida and was feasible for this study due to the involvement of county personnel and well-defined user groups (e.g., fishers and divers).

[7] http://www.expedite-email-marketing.com/

5. ARTIFICIAL REEF-RELATED EXPENDITURES BY PEOPLE ONBOARD PRIVATE BOATS

This chapter explains how expenditures related to the use of artificial reefs were determined for residents and non-residents (visitors) onboard private pleasure (recreational) boats during the 12-month study period for each of the six study counties. To determine a county's economic impacts resulting from individuals on private pleasure boats using artificial reefs, it was necessary to apportion the reef-related expenditures made in each study county into two groups: those made by (a) residents and by (b) non-residents of the study county in which the expenditures occurred. To do so, each artificial reef party day reported by survey respondents was assigned to one of the following three cases:

> Case 1: The launch county (one of the six study-area counties) and the boat owner's county of residence were the same. For example, a boat owned by a Pinellas County resident was launched (or departed) from a boating facility located in Pinellas County.
>
> Case 2: The launch county (one of the six study-area counties) and the boat owner's county of residence were not the same; however, both the launch county and the boat owner's county of residence were one of the six study-area counties. For example, a boat owned by a Pinellas County resident was launched (or departed) from a boating facility located in one of the other five study-area counties (Hillsborough, Manatee, Sarasota, Charlotte, or Lee).
>
> Case 3: The launch county (one of the six study-area counties) and the boat owner's county of residence were not the same. Furthermore, the boat owner's county of residence was not one of the six study-area counties. For example, a boat owned by a Polk County resident was launched (or departed) from a boating facility located in Pinellas, Hillsborough, Manatee, Sarasota, Charlotte, or Lee.

Assigning each artificial reef party day to one of the three cases facilitated better estimates of the parameters needed to calculate total expenditures. The average number of residents and non-residents onboard during a typical artificial reef day are two examples of parameters that are critical to an accurate estimation of expenditures. The methods and results that follow demonstrate how these two parameters and others varied significantly among the three cases.

For each of the six study-area counties, it was necessary to estimate the number (population) of privately-owned pleasure boats (12 feet in length or longer) that were used to visit a study county's artificial reefs during the 12-month study period. Separate sources of information were used to determine (1) the number of pleasure boats registered to study county residents and (2) the number of pleasure boats registered to non-study county residents that were used to visit artificial reefs belonging to the study counties.

5.1. NUMBER OF PRIVATE BOATS USED TO VISIT ARTIFICIAL REEFS

The number of private pleasure boats owned by study county residents that could potentially be used to visit an artificial reef was extracted from Florida's VTRS using the criteria outlined in chapter 4. Table 5-1 (column a) shows, for each of the six counties, the population of private pleasure boats that were ≥12 feet in length and registered to residents of the county. The number of boats ranged from 16,203 in Manatee County to 42,781 in Pinellas County.

The next step was to estimate, from this subset, the number of boats that were used to visit an artificial reef during the 12-month study period. These estimates were based on phone survey responses from 1,529 private pleasure boat owners, each of whom was a resident of one of the six study counties.

Overall, about 73% of the telephone survey respondents said that they had used their boats in the previous 12 months. Approximately 27% of these *active* boaters reported that they also had used their boats to visit an artificial reef in one of the six study counties during that same period. These two percentages were used to estimate the number of resident-owned pleasure boats in each study county that had been used to visit an artificial reef at least once during the 12-month survey period (Table 5-1, column c).

For example, VTRS data showed that 42,781 pleasure boats (≥12 feet in length) were registered to (owned by) Pinellas County residents, which potentially could be used to visit an artificial reef (Table 5-1, column a). Based on the telephone survey results, approximately 73.8% of these boats (31,558) were used at least once during the 12-month survey period (Table 5-1, column b) and, of these, approximately 27.1% (8,539) were used to visit a reef (Table 5-1, column c).

The estimated number of resident-owned pleasure boats that were used to visit an artificial reef during the 12-month period ranged from 3,009 in Manatee County to 8,539 in Pinellas County (Table 5-1, column c). These are termed *active artificial reef boats* for the purposes of this study.

TABLE 5-1. POPULATION OF PRIVATE PLEASURE BOATS (≥12 FEET IN LENGTH) REGISTERED IN EACH STUDY COUNTY AND THE NUMBER OF PARTY DAYS AND ARTIFICIAL REEF PARTY DAYS DURING THE 12-MONTH STUDY PERIOD.

County Where Boat Registered/Owner's County of Residence	Registered Private Pleasure Boats (≥12 feet in length) Owned by Residents During 12-Month Study Period		
	a. Total number	b. Number with party days	c. Number with artificial reef party days
Pinellas	42,781	31,558	8,539
Hillsborough	37,505	24,244	6,560
Manatee	16,203	11,120	3,009
Sarasota	20,211	15,981	4,324
Charlotte	18,547	15,519	4,199
Lee	41,327	31,247	8,455
All Six Counties	176,574	129,668	35,088

NOTE: ***The results in Table 5-1 and all subsequent tables are based on spreadsheet calculations that involved several steps, with each step carried out to several significant digits (decimal places). Thus, the results the reader would obtain from calculations using the numbers in the text (which are rounded) will not equal those shown in the tables (which reflect results from the more precise spreadsheet calculations).***

Information from previous recreational boating studies conducted within the six study counties was used to estimate the number (population) of private pleasure boats (12 feet in length or longer) owned by non-study county residents and that were used to visit artificial reefs in each study county. The estimates were based on an analysis of tag (registration) numbers recorded for vessels, vehicles, and boat trailers observed at boating facilities – including ramps, marinas, and dry stacks – during three recreational boating characterizations conducted in Pinellas, Hillsborough, Manatee, Sarasota, Charlotte, and Lee counties (Sidman *et al*., 2004, 2005, 2006).

The vessel, vehicle, and trailer registration numbers observed at boating facilities during the three recreational boating characterizations were used to determine the proportions of facility users (individuals) that represented residents and non-residents of the county from which they departed (i.e., launched a boat). This was done by matching the vehicle, trailer, and vessel tag numbers to DHSMV records to obtain owner addresses.

Table 5-2 shows the distribution of the 13,739 unique observations[8] compiled from the field data sheets that were recorded at boat ramps, marinas, and dry stack facilities in each of the six study counties. On average, 68.3% of the boats that used a boating facility in one of the six counties were owned by residents of the county from which the boats departed (were launched), 18.1% were owned by residents of another study county, and the remaining 13.6% were owned by residents from a non-study county.

[8] Though a particular vessel, vehicle, or trailer may have been observed on more than one occasion in a study county, it was counted only once for the purpose of this study.

TABLE 5-2. THE GEOGRAPHIC DISTRIBUTION OF OWNERSHIP FOR PRIVATE PLEASURE BOATS THAT USED A BOATING FACILITY IN A STUDY COUNTY, AS DETERMINED FROM VESSEL, VEHICLE, AND TRAILER REGISTRATIONS.

County Where Vessel or Tow Vehicle/Trailer was Observed (Launch County)	Number (%) of Vehicles/Vessels Owned by Residents of:		
	a. Launch County	b. A Study County (not launch County)	c. A Non-Study County
Pinellas	1,554 (61.3%)	655 (25.8%)	328 (12.9%)
Hillsborough	657 (75.3%)	70 (8.0%)	146 (16.7%)
Manatee	869 (62.7%)	258 (18.6%)	259 (18.7%)
Sarasota	2,260 (70.3%)	698 (21.7%)	256 (8.0%)
Charlotte	952 (51.5%)	542 (29.3%)	353 (19.1%)
Lee	3,088 (79.5%)	270 (7.0%)	524 (13.5%)
All Six Counties	9,380 (68.3%)	2,493 (18.1%)	1,866 (13.6%)

Table 5-3 shows the numbers (target populations) of active private pleasure boats owned by non-study county residents that were used at (departed from) a boating facility in one of the six counties over the 12-month period to visit an artificial reef. Target populations of non-resident boats were determined using the proportions from Table 5-2 (columns a and c) in combination with the respective target populations of resident boats that were previously determined (Table 5-1, columns b and c).

For example, the target population (number) of active private pleasure boats owned by Pinellas County residents was determined to be 31,558 (Table 5-1). Since the population of active pleasure boats owned by Pinellas County residents represents 61% of *all* active private pleasure boats that used boating facilities in Pinellas County (Table 5-2), then the share of active pleasure boats from a non-study county (Case 3) is 6,661 (Table 5-3, column a) and the share of pleasure boats from a non-study county that used artificial reefs in Pinellas County is 1,802 (Table 5-3, column b). Overall, an estimated 28,229 pleasure boats from non-study counties used a boating facility in one of the six study counties and, of these, 7,639 visited an artificial reef located in one of the six counties (Table 5-3).

TABLE 5-3. POPULATION OF PRIVATE PLEASURE BOATS FROM OUTSIDE THE STUDY AREA THAT HAD PARTY DAYS AND ARTIFICIAL REEF PARTY DAYS IN A STUDY AREA COUNTY DURING THE 12-MONTH SURVEY PERIOD (CASE 3).

Launch County	Number of Private Pleasure Boats Owned by Non-Study County Residents During the 12-Month Study Period (Case 3)	
	a. With at least one party day in the launch county	b. With at least one artificial reef party day in the launch county
Pinellas	6,661	1,802
Hillsborough	5,388	1,458
Manatee	3,314	897
Sarasota	1,810	490
Charlotte	5,754	1,557
Lee	5,302	1,435
All Six Counties	28,229	7,639

5.2. AVERAGE NUMBER OF PARTY DAYS SPENT AT ARTIFICIAL REEFS

Next, it was necessary to estimate the average number of party days that an active private pleasure boat was used to visit artificial reefs (artificial reef party days) during the 12-month study period. For each study county, an estimate of the average number of artificial reef party days per private pleasure boat was derived for active artificial reef boats owned by county residents (Cases 1 and 2) *and* for boats that were used in the county but were owned by non-study county residents (Case 3). These estimates were derived from responses to question 6 on the survey questionnaire that was mailed to private pleasure boat owners residing in a study county and to owners residing in non-study counties (Appendix 2).

Table 5-4 shows the average number of party days that an active pleasure boat registered in the study county was used to visit an artificial reef during the 12-month study period for:

- Case 1: the boat was launched within the owner's county of residence (column a); and
- Case 2: the boat was launched from a county other than the owner's county of residence (column b).

Column c shows the average number of party days at artificial reefs during the 12-month period for all launches regardless of the launch county (in other words, the sum of columns a and b). Overall, an active pleasure boat that was registered to (owned by) a Sarasota County resident had the most artificial reef party days (16.47) during the 12-month study period and one registered in Hillsborough County had the fewest (12.84).

TABLE 5-4. AVERAGE ANNUAL NUMBER OF CASE 1 AND CASE 2 ARTIFICIAL REEF PARTY DAYS FOR AN ACTIVE PLEASURE BOAT OWNED BY (REGISTERED TO) A STUDY COUNTY RESIDENT.

County Where Boat Registered/Owner's County of Residence	Average Number of Artificial Reef Party Days per Active Pleasure Boat During 12-Month Study Period				
	a. Case 1: boat launched within owner's county	+	b. Case 2: boat launched outside owner's county	=	c. Regardless of launch county
Pinellas	14.97	+	0.74	=	15.71
Hillsborough	7.13	+	5.71	=	12.84
Manatee	12.47	+	2.47	=	14.94
Sarasota	12.47	+	4.00	=	16.47
Charlotte	11.74	+	1.54	=	13.28
Lee	14.00	+	0.79	=	14.79

Table 5-5 shows the average number of case 3 artificial reef party days during the 12-month study period that an active pleasure boat registered to (owned by) a non-study county resident was launched (departed) from a study county. The values ranged from a low of 4.94 days in Sarasota County to a high of 12.91 artificial reef party days in Lee County.

TABLE 5-5. AVERAGE ANNUAL NUMBER OF ARTIFICIAL REEF PARTY DAYS IN EACH STUDY COUNTY BY AN ACTIVE PLEASURE BOAT OWNED BY (REGISTERED TO) A NON-STUDY COUNTY RESIDENT (CASE 3).

County Where Boat was Launched	Average Annual Number of Artificial Reef Party Days per Active Boat Registered to a Non-Study County Resident
Pinellas	10.19
Hillsborough	7.43
Manatee	6.30
Sarasota	4.94
Charlotte	12.12
Lee	12.91

5.3. AVERAGE NUMBER OF PEOPLE ONBOARD DURING AN ARTIFICIAL REEF PARTY DAY

The next step was to use responses to questions 9d and 9e from the survey questionnaire to estimate the average number of people onboard a private pleasure boat during an artificial reef party day. This estimate includes the number of residents (column a) and non-residents (column b) of the study county from which the boat was launched. Table 5-6 shows the estimates for Case 1, which corresponds to artificial reef party days where the launch county and the boat owner's county of residence were the same; in other words, boat owners launched their vessels from facilities located within their own county of residence. The number of people onboard during an artificial reef party day (column c) ranged from 3.08 in Sarasota County to 3.44 in Pinellas County (Table 5-6).

TABLE 5-6. AVERAGE NUMBER OF PEOPLE ONBOARD DURING A CASE 1 ARTIFICIAL REEF PARTY DAY, INCLUDING RESIDENTS AND NON-RESIDENTS OF THE LAUNCH COUNTY (THE BOAT OWNER'S COUNTY OF RESIDENCE AND THE LAUNCH COUNTY ARE THE SAME).

County Where Boat was Launched and Registered/Owner's County of Residence	Average Number of People Onboard During a Case 1 Artificial Reef Party Day (The launch county and the boat owner's county of residence are the same)				
	a. Residents of launch/owner's county	+	b. Non-residents of launch/owner's county	=	c. All people onboard
Pinellas	2.98	+	0.46	=	3.44
Hillsborough	2.85	+	0.28	=	3.13
Manatee	2.74	+	0.38	=	3.13
Sarasota	2.68	+	0.40	=	3.08
Charlotte	2.47	+	0.79	=	3.26
Lee	2.69	+	0.53	=	3.21

Table 5-7 shows the average number of people onboard during an artificial reef party day when the launch county and the boat owner's county of residence were not the same; this situation corresponds to both Case 2 and Case 3. The number of people onboard ranged from 2.92 for Lee County to 4.04 for Sarasota County.

TABLE 5-7. AVERAGE NUMBER OF PEOPLE ONBOARD DURING CASE 2 AND CASE 3 ARTIFICIAL REEF PARTY DAYS, INCLUDING RESIDENTS AND NON-RESIDENTS OF THE LAUNCH COUNTY (THE BOAT OWNER'S COUNTY OF RESIDENCE AND THE LAUNCH COUNTY ARE DIFFERENT).

County Where Boat: Owner Lives (Case 2) Launched (Case 3)	Average Number of People Onboard During Case 2 and 3 Artificial Reef Party Days (The launch county and the boat owner's county of residence are the different)				
	a. Residents of launch county	+	b. Residents of boat owner's county	=	c. All people onboard
Pinellas	1.06	+	2.56	=	3.62
Hillsborough	1.20	+	1.99	=	3.19
Manatee	0.59	+	3.00	=	3.59
Sarasota	1.21	+	2.83	=	4.04
Charlotte	0.67	+	2.55	=	3.22
Lee	0.83	+	2.09	=	2.92

5.4. TOTAL NUMBER OF ARTIFICIAL REEF PARTY DAYS

Next, it was necessary to calculate the total number of artificial reef party days that boat owners launched their boats in each study county over the 12-month study period:

- from a facility located within their own county of residence (Case 1); or
- from a facility located in a study county other than their own county of residence (Cases 2 and 3);

For each study county, the total number of Case 1 artificial reef party days was the product of the number of private pleasure boats owned by study county residents that were used to visit an artificial reef during the 12-month study period (Table 5-1, column c) *and* the average annual number of days an active reef boat registered to (owned by) a study county resident was launched to visit an artificial reef from a study county boating facility (Table 5-4, column a).

For example, an estimated 8,539 private pleasure boats owned by Pinellas County residents were used to visit artificial reefs during the 12-month study period (Table 5-1, column c). When these private pleasure boats were launched from a facility located in Pinellas County, each boat spent an average of 14.97 days at artificial reefs during the same period (Table 5-4, column a). This resulted in Pinellas County residents using their pleasure boats for 127,805 party days at Pinellas County artificial reefs (Table 5-8, column a). The total number of artificial reef party days for Case 1 ranged from 37,509 in Manatee County to 127,805 in Pinellas County (Table 5-8, column a).

For each study county, the total number of Case 2 artificial reef party days was the product of the number of private pleasure boats owned by study county residents that were used to visit an artificial reef during the 12-month study period (Table 5-1, column c) *and* the average number of party days that an active boat registered to (owned by) a study county resident was launched to visit an artificial reef from a boating facility located in a study county other than owner's county of residence (Table 5-4, column b).

For example, the estimated 8,539 pleasure boats owned by Pinellas County residents that were used to visit artificial reefs during the 12-month study period (Table 5-1, column c) each spent, on average, 0.74 party days at artificial reefs when launched from a county other than Pinellas (Table 5-4, column b). This resulted in 6,297 Case 2 artificial reef party days when Pinellas County residents launched their boats from a facility located in one of the other five study counties (Table 5-8, column b). The estimated total number of Case 2 artificial reef party days ranged from 6,297 in Pinellas County to 37,442 in Hillsborough County (Table 5-8, column b).

TABLE 5-8. TOTAL NUMBER OF CASE 1 AND CASE 2 ARTIFICIAL REEF PARTY DAYS DURING THE 12-MONTH STUDY PERIOD BY BOATS OWNED BY RESIDENTS OF EACH STUDY COUNTY.

County Where Boat Registered/Owner's County of Residence	Number of Artificial Reef Party Days During 12-Month Study Period	
	a. Case 1: boat launched from owner's county of residence	b. Case 2: boat launched in another study county (not owner's)
Pinellas	127,805	6,297
Hillsborough	46,775	37,442
Manatee	37,509	7,419
Sarasota	53,904	17,298
Charlotte	49,297	6,451
Lee	118,376	6,679
All Six Counties	433,666	81,586

Table 5-9 shows the number of artificial reef party days in each study county by boats that were owned by residents of the other study counties (Case 2). Note that the totals in Table 5-9 and Table 5-8 (column b) are equal (81,586) because they both are the sum of all Case 2 artificial reef party days in the six-county study area. However, the number of days listed for each study county differs in each table. This is because Table 5-8 (column b) shows, for each study county, the number of days its residents spent elsewhere, whereas Table 5-9 shows the number of days spent in the county by residents from the other five counties.

TABLE 5-9. TOTAL NUMBER OF CASE 2 ARTIFICIAL REEF PARTY DAYS IN EACH STUDY COUNTY DURING THE 12-MONTH STUDY PERIOD BY BOATS OWNED BY RESIDENTS OF OTHER STUDY COUNTIES.

Study County Where Boat Was Launched	Number of Artificial Reef Party Days in the Launch County During 12-Month Study Period by Boats Owned by Residents of Other Study Counties
Pinellas	34,997
Hillsborough	3,348
Manatee	13,642
Sarasota	8,719
Charlotte	11,214
Lee	9,666
All Six Counties	81,586

For each study county, the total number of Case 3 artificial reef party days during the 12-month study period was the product of the number of private pleasure boats owned by non-study county residents that were used to visit an artificial reef in the study county (Table 5-3, column b) *and* the average number of party days that an active reef boat registered to (owned by) a non-study

county resident was launched to visit an artificial reef from a boating facility located in the study county (Table 5-5).

For example, the estimated 1,802 private pleasure boats owned by non-study county residents that were launched from a Pinellas County boating facility to visit artificial reefs during the 12-month study period (Table 5-3, column b), each spent, on average, 10.19 party days at artificial reefs (Table 5-5). This resulted in 18,355 artificial reef party days during which non-study county residents launched their boat from a Pinellas County boating facility (Table 5-10). The estimated total number of Case 3 artificial reef party days ranged from 2,422 in Sarasota County to 18,873 in Charlotte County (Table 5-10).

TABLE 5-10. TOTAL NUMBER OF CASE 3 ARTIFICIAL REEF PARTY DAYS IN EACH STUDY COUNTY DURING THE 12-MONTH STUDY PERIOD FOR BOATS OWNED BY NON-STUDY COUNTY RESIDENTS.

County Where Boat was Launched	Total Number of Artificial Reef Party Days During 12-Month Study Period by Boats Registered to Non-Study County Residents (Case 3)
Pinellas	18,355
Hillsborough	10,834
Manatee	5,648
Sarasota	2,422
Charlotte	18,873
Lee	18,528
All Six Counties	74,660

5.5. TOTAL NUMBER OF PERSON DAYS SPENT AT ARTIFICIAL REEFS

Next it was necessary to calculate the total number of persons onboard, including residents and non-residents, during Case 1, 2, and 3 artificial reef party days for each study county during the 12-month period.

For each study county, the total number of Case 1 person days residents spent at their county's artificial reefs was the product of the average number of residents onboard a county resident-owned active reef boat that was launched from a county facility to visit an artificial reef (Table 5-6, column a) *and* the total number of Case 1 artificial reef party days for the county (Table 5-8, column a).

For example, during a typical Case 1 artificial reef party day on a pleasure boat launched from, and owned by a resident of, Pinellas County, there were 2.98 Pinellas County residents onboard (Table 5-6, column a). Furthermore, over the 12-month study period, an estimated 127,805 artificial reef party days involved private pleasure boats owned by Pinellas County residents that were launched from a Pinellas County facility (Table 5-8, column a). Thus, during the 12-month study period, Pinellas County residents spent a total of 380,307 person days at Pinellas County artificial reefs while onboard pleasure boats owned by Pinellas County residents (Table 5-11, column a). The estimated total number of Case 1 person days spent by residents at their county's

artificial reefs ranged from 102,903 in Manatee County to 380,307 in Pinellas County (Table 5-11, column a).

For each study county, the total number of Case 1 person days that non-residents spent at the county's artificial reefs was the product of the average number of non-residents onboard a county resident-owned active reef boat that was launched from a county facility to visit an artificial reef (Table 5-6, column b) *and* the total number of Case 1 artificial reef party days for the county (Table 5-8, column a).

For example, during a typical Case 1 artificial reef party day on a pleasure boat launched from, and owned by a resident of, Pinellas County resident, there were 0.46 non-residents onboard (Table 5-6, column b). Furthermore, over the 12-month study period, an estimated 127,805 artificial reef party days involved private pleasure boats owned by Pinellas County residents that were launched from a Pinellas County facility (Table 5-8, column a). Thus, during the 12-month study period, non-residents of Pinellas County spent a total of 58,916 person days at Pinellas County artificial reefs while onboard pleasure boats owned by Pinellas County residents (Table 5-11, column b). The estimated total number of Case 1 person days spent by non-residents at each study county's artificial reefs ranged from 13,132 in Hillsborough County to 62,204 in Lee County (Table 5-11, column b).

TABLE 5-11. TOTAL NUMBER OF CASE 1 PERSON DAYS SPENT BY RESIDENTS AND NON-RESIDENTS AT EACH STUDY COUNTY'S ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD WHEN ONBOARD A BOAT OWNED BY A COUNTY RESIDENT.

County Where Boat Registered/Owner's County of Residence	Total Number of Case 1 Person Days Spent at Artificial Reefs in Each Study County During the 12-Month Study Period	
	a. By residents of county	b. By non-residents of county
Pinellas	380,307	58,916
Hillsborough	133,274	13,132
Manatee	102,903	14,313
Sarasota	144,547	21,381
Charlotte	121,812	39,120
Lee	318,184	62,204
All Six Counties	1,201,027	209,066

For each study county, the total number of Case 2 person days that its residents spent at another study county's artificial reefs was the product of the average number of its residents onboard an active reef boat owned by one its residents that was launched from a different study county facility to visit an artificial reef (Table 5-7, column b) *and* the total number of Case 2 artificial reef party days for the county (Table 5-8, column b).

For example, during a typical Case 2 artificial reef party day on a private pleasure boat owned by a Pinellas County resident that was launched from another county, there were 2.56 Pinellas County residents onboard (Table 5-7, column b). Furthermore, over the 12-month study period, an estimated 6,297 artificial reef party days involved pleasure boats owned by Pinellas County

residents that were launched from a facility located in a county other than Pinellas (Table 5-8, column b). Thus, during the 12-month study period, Pinellas County residents spent a total of 16,145 person days at another county's artificial reefs while onboard pleasure boats owned by Pinellas County residents (Table 5-12, column a). The estimated total number of Case 2 person days spent by residents at another county's artificial reefs ranged from 13,933 for Lee County to 74,353 for Hillsborough County (Table 5-12, column a).

For each study county, the total number of Case 2 person days that non-residents spent onboard residents' boats while at artificial reefs was the product of the average number of non-residents onboard an active reef boat owned by one of its residents that was launched from another study county's facility to visit an artificial reef (Table 5-7, column a) *and* the total number of Case 2 artificial reef party days for the county (Table 5-8, column b).

For example, during a typical Case 2 artificial reef party day on a private pleasure boat owned by a Pinellas County resident that was launched from another county, there were 1.06 non-Pinellas County residents onboard (Table 5-7, column a). Furthermore, over the 12-month study period, an estimated 6,297 artificial reef party days involved pleasure boats owned by Pinellas County residents that were launched from a facility located in a county other than Pinellas (Table 5-8, column b). Thus, during the 12-month study period, non-Pinellas County residents spent a total of 6,691 person days onboard pleasure boats owned by Pinellas County residents that were launched in another county (Table 5-12, column b). The estimated total number of Case 2 person days spent by non-residents (of boat owner's county) at another county's artificial reefs ranged from 4,338 for Charlotte County to 45,019 for Hillsborough County (Table 5-12, column b).

TABLE 5-12. TOTAL NUMBER OF CASE 2 PERSON DAYS SPENT BY RESIDENTS AND NON-RESIDENTS AT EACH STUDY COUNTY'S ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD WHEN ONBOARD A BOAT OWNED BY A COUNTY RESIDENT.

County Where Boat Registered/Owner's County of Residence	Total Number of Case 2 Person Days Spent at Artificial Reefs in Another Study County During the 12-Month Study Period	
	a. By residents of boat owner's county	b. By non-residents of boat owner's county
Pinellas	16,145	6,691
Hillsborough	74,353	45,019
Manatee	22,258	4,364
Sarasota	49,010	20,901
Charlotte	16,462	4,338
Lee	13,933	5,530
All Six Counties	192,162	86,843

Table 5-13 shows the total number of person days spent at each study county's artificial reefs by residents and non-residents while onboard boats owned by residents from the other five study counties.

TABLE 5-13. TOTAL NUMBER OF CASE 2 PERSON DAYS SPENT BY RESIDENTS AND NON-RESIDENTS AT EACH STUDY COUNTY'S ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD WHEN ONBOARD BOATS OWNED BY RESIDENTS OF THE OTHER STUDY COUNTIES.

County Where Boat was Launched (not boat owner's county)	Total Number of Case 2 Person Days Spent at Artificial Reefs in Each Study County During the 12-Month Study Period	
	a. By residents of the launch county	b. By residents of a study county other than the launch county
Pinellas	40,761	72,503
Hillsborough	3,090	8,898
Manatee	16,075	33,735
Sarasota	6,109	23,875
Charlotte	11,360	27,130
Lee	9,448	26,021
All Six Counties	86,843	192,162

For each study county, the total number of Case 3 person days that its residents spent at the county's artificial reefs was the product of the average number of its residents onboard an active reef boat owned by a non-study county resident that was launched from a study county boating facility (Table 5-7, column a) *and* the total number of Case 3 artificial reef party days in the study county (Table 5-10).

For example, during a typical artificial reef party day on a boat that was launched from Pinellas County but owned by a non-study county resident, there were 1.06 Pinellas County residents onboard (Table 5-7, column a). Furthermore, over the 12-month study period, an estimated 18,355 artificial reef party days involved boats owned by non-study county residents that were launched from a Pinellas County facility (Table 5-10). Thus, during the 12-month study period, Pinellas County residents spent a total of 19,503 person days at Pinellas County artificial reefs while onboard a boat owned by a non-study county resident (Table 5-14, column a). The estimated total number of Case 3 person days spent by residents at their county's artificial reefs ranged from 2,927 in Sarasota County to 19,503 in Pinellas County (Table 5-14, column a).

For each study county, the total number of Case 3 person days that non-residents (i.e., residents of non-study counties) spent at a study county's artificial reefs was the product of the average number of non-residents onboard an active reef boat owned by a non-study county resident that was launched from a boating facility located within the study county (Table 5-7, column b) *and* the total number of Case 3 artificial reef party days in the study county (Table 5-10).

For example, during a typical artificial reef party day on a boat that was launched from Pinellas County but owned by a non-study county resident, there were 2.56 non-Pinellas County residents onboard (Table 5-7, column b). Furthermore, over the 12-month study period, an estimated 18,355 artificial reef party days involved boats owned by non-study county residents that were launched from a Pinellas County facility (Table 5-10). Thus, during the 12-month study period, non-residents of Pinellas County spent a total of 47,060 person days at Pinellas County artificial reefs while onboard a boat owned by a non-study county resident (Table 5-14, column b). The estimated total number of Case 3 person days spent by non-residents at each study county's

artificial reefs ranged from 6,863 in Sarasota County to 48,158 in Charlotte County (Table 5-14, column b).

TABLE 5-14. TOTAL NUMBER OF CASE 3 PERSON DAYS DURING THE 12-MONTH STUDY PERIOD SPENT AT ARTIFICIAL REEFS IN THE STUDY (LAUNCH) COUNTY WHILE ONBOARD BOATS OWNED BY NON-STUDY COUNTY RESIDENTS.

County Where Boat was Launched	Number of Case 3 Person Days Spent at Artificial Reefs Onboard Boats Owned by Non-Study County Residents During 12-Month Study Period	
	a. By residents of launch county	b. By non-residents of launch county
Pinellas	19,503	47,060
Hillsborough	13,027	21,516
Manatee	3,323	16,945
Sarasota	2,927	6,863
Charlotte	12,690	48,158
Lee	15,340	38,649
All Six Counties	66,810	179,191

5.6. AVERAGE REEF-RELATED EXPENDITURES PER PERSON DURING A TYPICAL REEF DAY

To estimate the total expenditures for all artificial reef party days that occurred during the 12-month study period, boaters who received a survey questionnaire were presented with 13 expense items (question 10) and asked to indicate how much their party spent on each item during their most recent boating day (party day). The survey recipients also were asked how many people were onboard during this last boating day (question 9d) and, of these, how many were residents of the county from which the boat was launched (question 9e), and if they had visited an artificial reef (question 9f).

The information about expenditures and the number of people onboard was used to calculate the average dollar amount that a person spent on each expense item during a typical boating day that included a trip to an artificial reef. Furthermore, average per person expenditures for each expense item were calculated for Case 1 (launch county and boat owner's county of residence were the same) and Cases 2 and 3 (launch county and the boat owner's county of residence were different). Per person expenditures were needed since those onboard during an average artificial reef party day included a mix of residents and non-residents and, as explained previously, the economic impacts to a county from expenditures by its residents differ from impacts stemming from non-resident expenditures within the county.

Table 5-15 lists the average per person expenditures for each of the thirteen expense items. On average, a person spent nearly $14 more during Case 2 and Case 3 artificial reef party days (boat was launched from a different county than where the boat owner resided) than during Case 1 artificial reef party days (boat was launched from the boat owner's county of residence). The higher amount for Case 2 and 3 artificial reef party days was due, largely, to diving-related costs, lodging, automobile fuel, and the purchase of food onshore (from stores). Average per person expenditures for boat fuel and oil and food taken onboard were higher during a Case 1 artificial reef party day as compared to Case 2 and 3 artificial reef party days.

TABLE 5-15. AVERAGE PER PERSON EXPENDITURES BY EXPENSE ITEM FOR CASE 1 (LAUNCH COUNTY AND BOAT OWNER'S COUNTY OF RESIDENCE ARE THE SAME) AND CASE 2 AND 3 (LAUNCH COUNTY AND BOAT OWNER'S COUNTY OF RESIDENCE ARE DIFFERENT) ARTIFICIAL REEF PARTY DAYS.

Expense Items	Average Per Person Expenditures During an Artificial Reef Party Day	
	a. Case 1	b. Cases 2 and 3
Automobile fuel	$4.15	$8.77
Hotel/motel, condo, campground, etc.	$0.98	$6.71
Boat fuel and oil	$32.82	$25.90
Ramp/marina/mooring/parking fees	$1.21	$2.28
Tackle (bought or rented)	$9.60	$10.27
Bait and ice	$7.11	$6.75
Diving-related equipment/costs	$3.77	$11.87
Food (taken onboard)	$9.81	$7.74
Other items taken onboard (sunscreen, etc.)	$3.98	$3.54
Food onshore (from stores)	$1.84	$4.66
Food onshore (restaurants)	$6.00	$5.72
Shopping (souvenirs, clothing, etc.)	$1.07	$1.72
Entertainment/entry fees (onshore)	$2.01	$2.02
Total Expenditure Per Person	$84.35	$97.97

5.7. TOTAL REEF-RELATED EXPENDITURES MADE BY PEOPLE WITHIN THEIR OWN COUNTY

The total dollar amount of artificial reef-related expenditures made in each study county by its residents was calculated for the 12-month study period (resident expenditures). To do so, it was necessary to determine for each study county what portion of the total expenditures occurred within the county during an artificial reef party day on a private pleasure boat. The information to calculate these 'portions' (average percentages) was reported in question 11 of the survey questionnaire, which asked boaters what percentage of the total cost of their last boating day was purchased within the county where they launched their boat.

On average, 93.3% of the total cost for a Case 1 party day was purchased within the boat owner's county of residence (Table 5-16). For the purpose of determining economic impact, the assumption was made that the remaining 6.7% (100% - 93.3%) of the total cost was purchased within other study counties and, thus, contributed to resident and non-resident expenditures within those counties. The proportions of artificial reef party days that residents of each study county spent in other counties, as reported in question 6 of the survey, was used to allocate the remaining 6.7% of expenditures.

During Case 2 and 3 party days, 70.1% of the expenditures, on average, occurred within the launch county. The remaining 29.9% were assumed to have occurred within the boat owner's county of residence.

TABLE 5-16. AVERAGE PERCENTAGE OF THE TOTAL PARTY DAY EXPENDITURES MADE IN THE BOAT OWNER'S COUNTY OF RESIDENCE (CASE 1).

County Where Boat Registered/Owner's County of Residence	Average Percentage of the Total Party Day Expenditures Made in the Boat Owner's County of Residence (Case 1)
Pinellas	93.0%
Hillsborough	93.7%
Manatee	93.8%
Sarasota	91.5%
Charlotte	89.3%
Lee	95.7%
All Six Counties	93.3%

Resident expenditures in each study county related to artificial reef use during the 12-month study period were totaled separately for each of the thirteen expense items, and for Case 1, 2, and 3 artificial reef party days.

For all Case 1 artificial reef party days that occurred within a study county during the 12-month study period, the total amount that the county's residents spent in their county for each expense item was the product of the number of Case 1 person days that residents spent at their county's artificial reefs (Table 5-11, column a), *times* the average amount a person spent on each expense item during a Case 1 artificial reef party day (Table 5-15, column a), *times* the average percentage (proportion) of total daily expenditures that occurred within the county during a Case 1 party day (Table 5-16).

For example, Pinellas County residents onboard pleasure boats owned by Pinellas County residents that were launched from Pinellas County boating facilities spent a total of 380,307 person days at artificial reefs over the 12-month study period (Table 5-11, column a). During a typical artificial reef party day, each Pinellas County resident spent an average of $32.82 for boat fuel and oil (Table 5-15, column a). Since an average 93.0% was spent within Pinellas County, then, for all Case 1 artificial reef party days over the 12-month study period, Pinellas County residents purchased a total of $11,608,146 in boat fuel and oil at businesses located within Pinellas County (Table 5-17).

Table 5-18 shows the allocation across the study counties for the 6.7% of expenditures that did not occur in the launch counties during Case 1 artificial reef party days. These are resident expenditures and, thus, would have been incurred by persons who were not residents of the launch counties (boat owners' counties of residence).

For Case 2 artificial reef party days that occurred during the 12-month study period, resident expenditures were determined (1) for the study counties *in which the participating boats were registered* and (2) for the study counties *from which the participating boats were launched*. For the first scenario, the total resident expenditures on each expense item in the boat owner's county of residence was the product of the number of person days that county residents spent at artificial reefs in another study county while onboard a boat owned by a resident of their own county

(Table 5-12, column a), *times* the average amount a person spent on each expense item during a Case 2 artificial reef party day (Table 5-15, column b), *times* the average percentage (proportion) of total daily expenditures that occurred within the boat owner's county of residence during a Case 2 party day (29.9%).

For example, Pinellas County residents onboard private pleasure boats owned by Pinellas County residents that were launched from a different study county spent a total of 16,145 person days at artificial reefs over the 12-month study period (Table 5-12, column a). During a typical Case 2 artificial reef party day, each Pinellas County resident spent an average of $25.90 on boat fuel and oil (Table 5-15, column b). Since an average 29.9% was spent within Pinellas County, then, for all Case 2 artificial reef party days that occurred over the 12-month study period, Pinellas County residents purchased a total of $125,166 in boat fuel/oil at businesses located within Pinellas County (Table 5-19).

Total resident expenditures on each expense item in the launch county for all Case 2 artificial reef party days was the product of the number of person days that launch county residents spent at artificial reefs while onboard a boat owned by a resident of another study county (Table 5-13, column a), *times* the average amount a person spent on each expense item during a Case 2 artificial reef party day (Table 5-15, column b), *times* the average percentage (proportion) of total daily expenditures that occurred within the launch county during a Case 2 party day (70.1%).

For example, Pinellas County residents onboard private pleasure boats owned by other study county residents that were launched from Pinellas County spent a total of 40,761 person days at artificial reefs over the 12-month study period (Table 5-13, column a). During a typical Case 2 artificial reef party day, each resident spent an average of $25.90 on boat fuel and oil (Table 5-15, column b). Since an average 70.1% was spent within Pinellas County (the launch county), then, for all Case 2 artificial reef party days that occurred over the 12-month study period, Pinellas County residents purchased a total of $739,891 in boat fuel/oil at businesses located within Pinellas County (Table 5-20).

For Case 3 artificial reef party days that occurred during the 12-month study period, the total amount that study county residents spent on each expense item in their own county was the product of the number of person days that residents spent at their county's artificial reefs while onboard a boat owned by a non-study county resident (Table 5-14, column a), *times* the average amount a person spent on each expense item during a Case 3 artificial reef party day (Table 5-15, column b), *times* the average percentage (proportion) of total daily expenditures that occurred within the launch county during a Case 3 party day (70.1%).

For example, Pinellas County residents onboard pleasure boats owned by non-study county residents that were launched from Pinellas County boating facilities spent a total of 19,503 person days at Pinellas County artificial reefs over the 12-month study period (Table 5-14, column a). During a typical Case 3 artificial reef party day, each resident spent an average of

$25.90 for boat fuel and oil (Table 5-15, column b). Since an average 70.1% was spent within Pinellas County, then, for all Case 3 artificial reef party days that occurred over the 12-month study period, Pinellas County residents purchased a total of $354,014 in boat fuel/oil at businesses located within Pinellas County (Table 5-21).

Table 5-22 lists the total artificial reef-related expenditures by residents of each county within their own counties, regardless of the launch county. Table 5-22 represents the sum of Tables 5-17, 5-18, 5-19, 5-20, and 5-21, and it contains the resident expenditures in thousands of 2009 dollars. Total estimated resident expenditures ranged from approximately $10.3 million in Manatee County to approximately $34.5 million in Pinellas County.

TABLE 5-17. CASE 1: TOTAL RESIDENT EXPENDITURES FOR ARTIFICIAL REEF PARTY DAYS THAT OCCURRED WITHIN THE BOAT OWNER'S COUNTY OF RESIDENCE (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Resident Expenditures in the Launch Counties (Thousands of 2009 Dollars) (Case 1: The boat owner's county of residence and the launch county are the same)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$1,468	$518	$401	$549	$452	$1,264	$4,651
Hotel/motel, condo, campground, etc.	$347	$122	$95	$130	$107	$299	$1,100
Boat fuel and oil	$11,608	$4,097	$3,168	$4,341	$3,571	$9,993	$36,778
Ramp/marina/mooring/parking fees	$430	$152	$117	$161	$132	$370	$1,361
Tackle (bought or rented)	$3,395	$1,198	$927	$1,269	$1,044	$2,923	$10,756
Bait and ice	$2,514	$887	$686	$940	$773	$2,165	$7,966
Diving-related equipment/costs	$1,332	$470	$364	$498	$410	$1,147	$4,221
Food taken onboard	$3,471	$1,225	$947	$1,298	$1,068	$2,988	$10,997
Other items taken onboard (sunscreen, etc.)	$1,407	$497	$384	$526	$433	$1,212	$4,459
Food onshore (from stores)	$651	$230	$178	$243	$200	$560	$2,062
Food onshore (restaurants)	$2,122	$749	$579	$794	$653	$1,827	$6,723
Shopping (souvenirs, clothing, etc.)	$378	$133	$103	$141	$116	$325	$1,197
Entertainment/entry fees (onshore)	$711	$251	$194	$266	$219	$612	$2,253
Total Expense	$29,834	$10,529	$8,143	$11,156	$9,177	$25,683	$94,523

TABLE 5-18. CASE 1: TOTAL RESIDENT EXPENDITURES IN STUDY COUNTIES (OTHER THAN LAUNCH COUNTIES) FOR ARTIFICIAL REEF PARTY DAYS THAT OCCURRED WITHIN THE BOAT OWNER'S COUNTY OF RESIDENCE (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Resident Expenditures in Study Counties (other than launch counties) (Case 1: The boat owner's county of residence and the launch county are the same)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$5	$6	$9	$13	$12	$15	$60
Hotel/motel, condo, campground, etc.	$1	$1	$2	$3	$3	$3	$14
Boat fuel and oil	$42	$50	$70	$100	$98	$116	$476
Ramp/marina/mooring/parking fees	$2	$2	$3	$4	$4	$4	$18
Tackle (bought or rented)	$12	$15	$20	$29	$29	$34	$139
Bait and ice	$9	$11	$15	$22	$21	$25	$103
Diving-related equipment/costs	$5	$6	$8	$11	$11	$13	$55
Food taken onboard	$13	$15	$21	$30	$29	$35	$142
Other items taken onboard (sunscreen, etc.)	$5	$6	$8	$12	$12	$14	$58
Food onshore (from stores)	$2	$3	$4	$6	$6	$7	$27
Food onshore (restaurants)	$8	$9	$13	$18	$18	$21	$87
Shopping (souvenirs, clothing, etc.)	$1	$2	$2	$3	$3	$4	$15
Entertainment/entry fees (onshore)	$3	$3	$4	$6	$6	$7	$29
Total Expense (Thousands of 2009 dollars)	$108	$128	$179	$256	$252	$299	$1,223

TABLE 5-19. CASE 2: TOTAL RESIDENT EXPENDITURES IN BOAT OWNER'S COUNTY OF RESIDENCE FOR ARTIFICIAL REEF PARTY DAYS THAT OCCURRED OUTSIDE OF THE BOAT OWNER'S COUNTY OF RESIDENCE (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Resident Expenditures in Boat Owner's County (Thousands of 2009 Dollars) (Case 2: The boat owner resides in a different study county than the launch county)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$42	$237	$58	$129	$43	$37	$546
Hotel/motel, condo, campground, etc.	$32	$181	$45	$98	$33	$28	$417
Boat fuel and oil	$125	$699	$173	$380	$128	$108	$1,612
Ramp/marina/mooring/parking fees	$11	$61	$15	$33	$11	$9	$142
Tackle (bought or rented)	$50	$277	$68	$151	$51	$43	$639
Bait and ice	$33	$182	$45	$99	$33	$28	$420
Diving-related equipment/costs	$57	$320	$79	$174	$58	$50	$739
Food taken onboard	$37	$209	$52	$114	$38	$32	$482
Other items taken onboard (sunscreen, etc.)	$17	$96	$24	$52	$17	$15	$221
Food onshore (from stores)	$23	$126	$31	$68	$23	$19	$290
Food onshore (restaurants)	$28	$154	$38	$84	$28	$24	$356
Shopping (souvenirs, clothing, etc.)	$8	$47	$11	$25	$8	$7	$107
Entertainment/entry fees (onshore)	$10	$54	$13	$30	$10	$8	$125
Total Expense	$473	$2,643	$653	$1,437	$483	$408	$6,097

TABLE 5-20. CASE 2: TOTAL RESIDENT EXPENDITURES IN LAUNCH COUNTIES FOR ARTIFICIAL REEF PARTY DAYS THAT OCCURRED OUTSIDE OF THE BOAT OWNER'S COUNTY OF RESIDENCE (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Resident Expenditures in the Launch Counties (Thousands of 2009 Dollars) (Case 2: The boat owner resides in a different study county than the launch county)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$251	$17	$99	$38	$70	$58	$532
Hotel/motel, condo, campground, etc.	$192	$13	$76	$29	$53	$44	$407
Boat fuel and oil	$740	$51	$292	$111	$206	$171	$1,571
Ramp/marina/mooring/parking fees	$65	$4	$26	$10	$18	$15	$138
Tackle (bought or rented)	$293	$20	$116	$44	$82	$68	$623
Bait and ice	$193	$13	$76	$29	$54	$45	$410
Diving-related equipment/costs	$339	$23	$134	$51	$95	$79	$720
Food taken onboard	$221	$15	$87	$33	$62	$51	$470
Other items taken onboard (sunscreen, etc.)	$101	$7	$40	$15	$28	$23	$215
Food onshore (from stores)	$133	$9	$53	$20	$37	$31	$283
Food onshore (restaurants)	$163	$11	$64	$25	$46	$38	$347
Shopping (souvenirs, clothing, etc.)	$49	$3	$19	$7	$14	$11	$105
Entertainment/entry fees (onshore)	$58	$4	$23	$9	$16	$13	$122
Total Expense	$2,798	$193	$1,104	$420	$780	$649	$5,942

TABLE 5-21. CASE 3: TOTAL RESIDENT EXPENDITURES IN LAUNCH (STUDY) COUNTIES FOR ARTIFICIAL REEF PARTY DAYS ON BOATS OWNED BY NON-STUDY AREA COUNTY RESIDENTS (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Resident Expenditures in the Launch Counties (Thousands of 2009 Dollars) (Case 3: The boat owner resides in a county that is not one of the six study area counties)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$120	$73	$20	$18	$78	$94	$403
Hotel/motel, condo, campground, etc.	$92	$56	$16	$14	$60	$72	$308
Boat fuel and oil	$354	$215	$60	$53	$230	$278	$1,191
Ramp/marina/mooring/parking fees	$31	$19	$5	$5	$20	$24	$105
Tackle (bought or rented)	$140	$85	$24	$21	$91	$110	$472
Bait and ice	$92	$56	$16	$14	$60	$73	$310
Diving-related equipment/costs	$162	$99	$28	$24	$106	$128	$546
Food taken onboard	$106	$64	$18	$16	$69	$83	$356
Other items taken onboard (sunscreen, etc.)	$48	$29	$8	$7	$32	$38	$163
Food onshore (from stores)	$64	$39	$11	$10	$41	$50	$215
Food onshore (restaurants)	$78	$48	$13	$12	$51	$62	$263
Shopping (souvenirs, clothing, etc.)	$24	$14	$4	$4	$15	$19	$79
Entertainment/entry fees (onshore)	$28	$17	$5	$4	$18	$22	$93
Total Expense	$1,339	$813	$228	$201	$871	$1,053	$4,505

TABLE 5-22. ALL CASES: TOTAL RESIDENT EXPENDITURES IN EACH STUDY COUNTY (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Resident Expenditures in the Study Counties (Thousands of 2009 Dollars)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$1,886	$851	$587	$746	$655	$1,467	$6,192
Hotel/motel, condo, campground, etc.	$664	$374	$233	$274	$256	$447	$2,247
Boat fuel and oil	$12,869	$5,112	$3,763	$4,984	$4,233	$10,667	$41,629
Ramp/marina/mooring/parking fees	$538	$238	$166	$212	$185	$423	$1,763
Tackle (bought or rented)	$3,890	$1,595	$1,155	$1,514	$1,297	$3,178	$12,629
Bait and ice	$2,841	$1,150	$838	$1,104	$942	$2,335	$9,210
Diving-related equipment/costs	$1,896	$918	$612	$759	$680	$1,416	$6,280
Food taken onboard	$3,848	$1,528	$1,125	$1,490	$1,266	$3,189	$12,446
Other items taken onboard (sunscreen, etc.)	$1,579	$635	$464	$613	$522	$1,302	$5,115
Food onshore (from stores)	$873	$406	$276	$347	$307	$667	$2,877
Food onshore (restaurants)	$2,399	$971	$708	$932	$795	$1,971	$7,777
Shopping (souvenirs, clothing, etc.)	$460	$199	$140	$181	$157	$366	$1,503
Entertainment/entry fees (onshore)	$809	$329	$239	$314	$269	$663	$2,623
Total Expense	$34,552	$14,307	$10,307	$13,470	$11,563	$28,093	$112,291

5.8. TOTAL REEF-RELATED EXPENDITURES MADE BY NON-RESIDENTS WITHIN EACH COUNTY

The total dollar amount of artificial reef-related expenditures made in each study county by non-residents was calculated for the 12-month study period. Non-resident expenditures in each study county were totaled separately for each of the thirteen expense items and for Case 1, 2, and 3 artificial reef party days.

For all Case 1 artificial reef party days that occurred within a study county during the 12-month study period, the total amount that non-residents spent in the county for each expense item was the product of the number of Case 1 person days that non-residents spent at the county's artificial reefs while onboard boats owned by county residents and that were launched from county facilities (Table 5-11, column b), *times* the average amount a person spent on each expense item during a Case 1 artificial reef party day (Table 5-15, column a), *times* the average percentage (proportion) of total daily expenditures that occurred within the county during a Case 1 party day (Table 5-16).

For example, non-Pinellas County residents onboard pleasure boats owned by Pinellas County residents that were launched from Pinellas County boating facilities spent a total of 58,916 person days at artificial reefs over the 12-month study period (Table 5-11, column b). During a typical Case 1 artificial reef party day, each resident spent an average of $32.82 for boat fuel and oil (Table 5-15, column a). Since an average 93.0% was spent within Pinellas County, then, for all Case 1 artificial reef party days that occurred over the 12-month study period, non-residents purchased a total of $1,798,296 in boat fuel and oil at businesses located within Pinellas County (Table 5-23).

Table 5-24 shows the allocation across the six study counties for the 6.7% of costs that were not spent in launch counties (boat owner's county of residence) during Case 1 artificial reef party days. These are non-resident expenditures and, thus, would have been incurred by persons who were not residents of the launch counties (boat owner's county of residence).

For Case 2 artificial reef party days that occurred during the 12-month study period, non-resident expenditures were determined (1) for the study counties *in which the participating boats were registered* and (2) for the study counties *from which the participating boats were launched*. For the first scenario, the total non-resident expenditures on each expense item in a study county were the product of the number of artificial reef person days that non-residents spent onboard boats owned by study county residents during Case 2 artificial reef party days (Table 5-12, column b), *times* the average amount a person spent on each expense item during a Case 2 artificial reef party day (Table 5-15, column b), *times* the average percentage (proportion) of total daily expenditures that occurred within the boat owner's county of residence during a Case 2 party day (29.9%).

For example, non-Pinellas County residents onboard private pleasure boats owned by Pinellas County residents that were launched from a county other than Pinellas spent a total of 6,691

person days at artificial reefs over the 12-month study period (Table 5-12, column b). During a typical Case 2 artificial reef party day, each non-resident spent an average of $25.90 on boat fuel and oil (Table 5-15, column b). Since an average 29.9% was spent within Pinellas County, then, for all Case 2 artificial reef party days that occurred over the 12-month study period, non-residents purchased a total of $51,872 in boat fuel/oil at businesses located within Pinellas County (Table 5-25).

Total non-resident expenditures on each expense item in the launch county for all Case 2 artificial reef party days was the product of the number of person days that residents of the boat owner's county spent at artificial reefs in the launch county (Table 5-13, column b), *times* the average amount a person spent on each expense item during a Case 2 artificial reef party day (Table 5-15, column b), *times* the average percentage (proportion) of total daily expenditures that occurred within the launch county during a Case 2 party day (70.1%).

For example, in the case of boats launched from Pinellas County, residents of the other five counties who were onboard private pleasure boats owned by residents of the other five counties spent a total of 72,503 person days at artificial reefs over the 12-month study period (Table 5-13, column b). During a typical Case 2 artificial reef party day, each resident spent an average of $25.90 on boat fuel and oil (Table 5-15, column b). Since an average 70.1% was spent within Pinellas County, then, for all Case 2 artificial reef party days that occurred over the 12-month study period, non-Pinellas County residents purchased a total of $1,316,080 in boat fuel/oil at businesses located within Pinellas County (Table 5-26).

For Case 3 artificial reef party days that occurred during the 12-month study period, the total amount that non-residents spent in each study county on each expense item was the product of the number of person days that non-residents spent at the county's artificial reefs while onboard a boat owned by a non-study county resident (Table 5-14, column b), *times* the average amount a person spent on each expense item during a Case 3 artificial reef party day (Table 5-15, column b), *times* the average percentage (proportion) of total daily expenditures that occurred within the launch county during a Case 3 party day (70.1%).

For example, non-Pinellas County residents onboard pleasure boats owned by non-study county residents that were launched from Pinellas County boating facilities spent a total of 47,060 person days at Pinellas County artificial reefs over the 12-month study period (Table 5-14, column b). During a typical Case 3 artificial reef party day, each resident spent an average of $25.90 for boat fuel and oil (Table 5-15, column b). Since an average 70.1% was spent within Pinellas County, then, for all Case 3 artificial reef party days that occurred over the 12-month study period, non-study area residents purchased a total of $854,230 in boat fuel/oil at businesses located within Pinellas County (Table 5-27).

Table 5-28 lists the total reef-related non-resident expenditures in each county by individuals onboard private pleasure boats. Table 5-28 represents the sum of Tables 5-23, 5-24, 5-25, 5-26,

and 5-27, and contains the non-resident expenditures in thousands of 2009 dollars. Total estimated non-resident expenditures ranged from approximately $5.4 million in Hillsborough County to approximately $13.9 million in Pinellas County.

TABLE 5-23. CASE 1: TOTAL NON-RESIDENT EXPENDITURES FOR ARTIFICIAL REEF PARTY DAYS THAT OCCURRED WITHIN THE BOAT OWNER'S COUNTY OF RESIDENCE (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Non-Resident Expenditures in the Launch County (Thousands of 2009 Dollars) (Case 1: The boat owner's county of residence and the launch county are the same)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$227	$51	$56	$81	$145	$247	$807
Hotel/motel, condo, campground, etc.	$54	$12	$13	$19	$34	$58	$191
Boat fuel and oil	$1,798	$404	$441	$642	$1,147	$1,954	$6,385
Ramp/marina/mooring/parking fees	$67	$15	$16	$24	$42	$72	$236
Tackle (bought or rented)	$526	$118	$129	$188	$335	$571	$1,867
Bait and ice	$390	$87	$95	$139	$248	$423	$1,383
Diving-related equipment/costs	$206	$46	$51	$74	$132	$224	$733
Food taken onboard	$538	$121	$132	$192	$343	$584	$1,909
Other items taken onboard (sunscreen, etc.)	$218	$49	$53	$78	$139	$237	$774
Food onshore (from stores)	$101	$23	$25	$36	$64	$110	$358
Food onshore (restaurants)	$329	$74	$81	$117	$210	$357	$1,167
Shopping (souvenirs, clothing, etc.)	$59	$13	$14	$21	$37	$64	$208
Entertainment/entry fees (onshore)	$110	$25	$27	$39	$70	$120	$391
Total Expense	$4,623	$1,038	$1,133	$1,650	$2,947	$5,021	$16,410

TABLE 5-24. CASE 1: TOTAL NON-RESIDENT EXPENDITURES IN COUNTIES NEIGHBORING THE LAUNCH COUNTY FOR ARTIFICIAL REEF PARTY DAYS THAT OCCURRED WITHIN THE BOAT OWNER'S COUNTY OF RESIDENCE (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Non-Resident Expenditures in the Neighboring Counties (Thousands of 2009 Dollars) (Case 1: The boat owner's county of residence and the launch county are the same)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$44	$40	$59	$58	$69	$62	$333
Hotel/motel, condo, campground, etc.	$10	$10	$14	$14	$16	$15	$79
Boat fuel and oil	$351	$320	$466	$458	$548	$493	$2,637
Ramp/marina/mooring/parking fees	$13	$12	$17	$17	$20	$18	$98
Tackle (bought or rented)	$103	$94	$136	$134	$160	$144	$771
Bait and ice	$76	$69	$101	$99	$119	$107	$571
Diving-related equipment/costs	$40	$37	$53	$53	$63	$57	$303
Food taken onboard	$105	$96	$139	$137	$164	$148	$788
Other items taken onboard (sunscreen, etc.)	$43	$39	$56	$56	$66	$60	$320
Food onshore (from stores)	$20	$18	$26	$26	$31	$28	$148
Food onshore (restaurants)	$64	$59	$85	$84	$100	$90	$482
Shopping (souvenirs, clothing, etc.)	$11	$10	$15	$15	$18	$16	$86
Entertainment/entry fees (onshore)	$22	$20	$29	$28	$34	$30	$162
Total Expense	$903	$823	$1,198	$1,177	$1,408	$1,268	$6,777

TABLE 5-25. CASE 2: TOTAL NON-RESIDENT EXPENDITURES IN BOAT OWNER'S COUNTY OF RESIDENCE FOR ARTIFICIAL REEF PARTY DAYS THAT OCCURRED OUTSIDE OF THE BOAT OWNER'S COUNTY OF RESIDENCE (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Non-Resident Expenditures in Boat Owner's County (Thousands of 2009 Dollars) (Case 2: The boat owner resides in a different study county than the launch county)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$18	$143	$11	$55	$11	$15	$253
Hotel/motel, condo, campground, etc.	$13	$110	$9	$42	$9	$11	$194
Boat fuel and oil	$52	$423	$34	$162	$34	$43	$747
Ramp/marina/mooring/parking fees	$5	$37	$3	$14	$3	$4	$66
Tackle (bought or rented)	$21	$168	$13	$64	$13	$17	$296
Bait and ice	$14	$110	$9	$42	$9	$11	$195
Diving-related equipment/costs	$24	$194	$16	$74	$15	$20	$343
Food taken onboard	$16	$126	$10	$48	$10	$13	$223
Other items taken onboard (sunscreen, etc.)	$7	$58	$5	$22	$5	$6	$102
Food onshore (from stores)	$9	$76	$6	$29	$6	$8	$135
Food onshore (restaurants)	$11	$94	$7	$36	$7	$9	$165
Shopping (souvenirs, clothing, etc.)	$3	$28	$2	$11	$2	$3	$50
Entertainment/entry fees (onshore)	$4	$33	$3	$13	$3	$3	$58
Total Expense	$196	$1,600	$128	$613	$127	$162	$2,827

TABLE 5-26. CASE 2: TOTAL NON-RESIDENT EXPENDITURES IN LAUNCH COUNTIES FOR ARTIFICIAL REEF PARTY DAYS THAT OCCURRED OUTSIDE OF THE BOAT OWNER'S COUNTY OF RESIDENCE (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Non-Resident Expenditures in Launch Counties (Thousands of 2009 Dollars) (Case 2: The boat owner resides in a different study county than the launch county)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$446	$50	$207	$147	$167	$160	$1,176
Hotel/motel, condo, campground, etc.	$341	$38	$159	$112	$128	$122	$899
Boat fuel and oil	$1,316	$147	$612	$433	$492	$472	$3,473
Ramp/marina/mooring/parking fees	$116	$13	$54	$38	$43	$42	$305
Tackle (bought or rented)	$522	$58	$243	$172	$195	$187	$1,377
Bait and ice	$343	$38	$160	$113	$128	$123	$905
Diving-related equipment/costs	$603	$67	$281	$199	$226	$216	$1,592
Food taken onboard	$393	$44	$183	$130	$147	$141	$1,038
Other items taken onboard (sunscreen, etc.)	$180	$20	$84	$59	$67	$65	$475
Food onshore (from stores)	$237	$26	$110	$78	$89	$85	$625
Food onshore (restaurants)	$291	$32	$135	$96	$109	$104	$767
Shopping (souvenirs, clothing, etc.)	$88	$10	$41	$29	$33	$31	$231
Entertainment/entry fees (onshore)	$102	$11	$48	$34	$38	$37	$270
Total Expense	$4,977	$555	$2,316	$1,639	$1,862	$1,786	$13,136

TABLE 5-27. CASE 3: TOTAL NON-RESIDENT EXPENDITURES IN LAUNCH (STUDY) COUNTIES FOR ARTIFICIAL REEF PARTY DAYS ON BOATS OWNED BY NON-STUDY AREA RESIDENTS (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Non-Resident Expenditures in Launch Counties (Thousands of 2009 Dollars) (Case 3: The boat owner resides in a county that is not one of the six study area counties)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$289	$120	$104	$42	$296	$238	$1,089
Hotel/motel, condo, campground, etc.	$221	$92	$80	$32	$226	$182	$833
Boat fuel and oil	$854	$355	$308	$125	$874	$702	$3,217
Ramp/marina/mooring/parking fees	$75	$31	$27	$11	$77	$62	$283
Tackle (bought or rented)	$339	$141	$122	$49	$347	$278	$1,275
Bait and ice	$223	$93	$80	$32	$228	$183	$838
Diving-related equipment/costs	$391	$163	$141	$57	$401	$322	$1,474
Food taken onboard	$255	$106	$92	$37	$261	$210	$961
Other items taken onboard (sunscreen, etc.)	$117	$49	$42	$17	$120	$96	$440
Food onshore (from stores)	$154	$64	$55	$22	$157	$126	$579
Food onshore (restaurants)	$189	$78	$68	$28	$193	$155	$711
Shopping (souvenirs, clothing, etc.)	$57	$24	$20	$8	$58	$47	$214
Entertainment/entry fees (onshore)	$66	$28	$24	$10	$68	$55	$250
Total Expense	$3,231	$1,343	$1,163	$471	$3,306	$2,653	$12,167

TABLE 5-28. ALL CASES: TOTAL NON-RESIDENT EXPENDITURES IN EACH STUDY COUNTY (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Resident Expenditures in the Launch County (Thousands of 2009 Dollars)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Automobile fuel	$1,024	$405	$438	$383	$688	$721	$3,659
Hotel/motel, condo, campground, etc.	$640	$261	$274	$219	$413	$388	$2,196
Boat fuel and oil	$4,372	$1,649	$1,860	$1,820	$3,095	$3,664	$16,460
Ramp/marina/mooring/parking fees	$275	$108	$117	$104	$186	$198	$988
Tackle (bought or rented)	$1,510	$578	$643	$607	$1,051	$1,198	$5,587
Bait and ice	$1,045	$398	$445	$426	$732	$847	$3,893
Diving-related equipment/costs	$1,265	$507	$541	$456	$836	$838	$4,444
Food taken onboard	$1,307	$493	$556	$544	$925	$1,095	$4,920
Other items taken onboard (sunscreen, etc.)	$565	$214	$240	$232	$397	$463	$2,111
Food onshore (from stores)	$521	$207	$223	$191	$347	$356	$1,845
Food onshore (restaurants)	$884	$337	$376	$360	$619	$716	$3,293
Shopping (souvenirs, clothing, etc.)	$218	$85	$93	$84	$148	$161	$789
Entertainment/entry fees (onshore)	$305	$116	$130	$123	$213	$245	$1,131
Total Expense	$13,928	$5,360	$5,937	$5,551	$9,651	$10,891	$51,317

6. ARTIFICIAL REEF-RELATED EXPENDITURES BY FOR-HIRE CLIENTS

This chapter explains how expenditures related to the use of artificial reefs by clients of for-hire operations during the 12-month study period were determined for each of the six study counties. To determine correctly the economic impacts to a county resulting from for-hire vessel clients using its artificial reefs, it was necessary to apportion the reef-related expenditures into two groups: those made by (a) residents and by (b) non-residents of the study county where the expenditures occurred.

Table 6-1 contains the size of the for-hire fleet, by business type, in each of the six study area counties during the 12-month study period. As explained in chapter 4, the for-hire vessel counts were obtained from various sources, including state and federal licensing databases. The fleet sizes were used to extrapolate total artificial reef party days and client (person) days in each study county for each of the four for-hire sector types.

TABLE 6-1. THE DISTRIBUTION OF FOR-HIRE OPERATIONS (VESSELS), BY BUSINESS TYPE, IN THE SIX STUDY AREA COUNTIES DURING THE 12-MONTH STUDY PERIOD.

Study County	Fleet Size by For-Hire Business Type				Total
	Charter	Head	Dive	Guide	
Pinellas	76	11	28	121	236
Hillsborough	13	2	10	93	118
Manatee	10	1	6	70	87
Sarasota	30	2	14	102	148
Charlotte	9	1	4	87	101
Lee	24	4	15	230	273
Total	162	21	77	703	963

The mail and telephone survey of for-hire operators in southwest Florida provided the average number of days at reefs for each business sector, as well as the average number of people onboard, including launch county residents and non-residents. The average number of artificial reef party days in the 12-month period ranged from 17.8 for guide boats to 76.2 for dive boats, and the average number of clients ranged from 3.2 for guide boats to 21.7 for head boats (Table 6-2).

TABLE 6-2. AVERAGE NUMBER OF ARTIFICIAL REEF PARTY DAYS AND CLIENTS ONBOARD FOR EACH FOR-HIRE BUSINESS TYPE DURING THE 12-MONTH STUDY PERIOD.

For-Hire Sector (Business type)	Average Number of (during 12-month study period):			
	Reef days per vessel	Clients onboard	Residents onboard	Non-residents onboard
Charter	27.8	3.6	0.9	2.7
Head	63.3	21.7	6.1	15.6
Guide	17.8	3.2	0.7	2.5
Dive	76.2	8.7	2.7	6.0

Next it was necessary to calculate for the 12-month study period the number of artificial reef party days in each study county by each for-hire business type. For each study county and business type, the number of artificial reef party days was the product of the fleet size (Table 6-1) *and* the average annual number of days a boat visited an artificial reef during the 12-month study period (Table 6-2). For example, there were 76 charter boats in Pinellas County and a typical charter boat spent 27.8 days at artificial reefs. This resulted in charter boats spending 2,110 artificial reef party days in Pinellas County (Table 6-3).

NOTE: ***The results in Table 6-3 and all subsequent tables are based on spreadsheet calculations that involved several steps, with each step carried out to several significant digits (decimal places). Thus, the results the reader would obtain from calculations using the numbers in the text (which are rounded) will not equal those shown in the tables (which reflect results from the more precise spreadsheet calculations).***

TABLE 6-3. TOTAL NUMBER OF ARTIFICIAL REEF PARTY DAYS IN EACH STUDY COUNTY DURING THE 12-MONTH STUDY PERIOD BY FOR-HIRE BUSINESS TYPE.

Study County	Number of Artificial Reef Party Days During the 12-Month Study Period			
	Charter	Head	Guide	Dive
Pinellas	2,110	696	2,152	2,134
Hillsborough	361	127	1,654	762
Manatee	278	63	1,245	457
Sarasota	833	127	1,814	1,067
Charlotte	250	63	1,547	305
Lee	666	253	4,091	1,143

Next it was necessary to calculate the total number of persons, including residents and non-residents, onboard each of the for-hire business types during artificial reef party days that occurred over the 12-month study period. For each study county, the total number of person days that residents spent at artificial reefs was the product of the average number of residents onboard each for-hire business type (Table 6-2) *and* the total number of artificial reef party days for the for-hire type in the county (Table 6-3). For example, during a typical charter boat trip in Pinellas County there were 0.9 residents onboard (Table 6-2). Furthermore, over the 12-month study period, an estimated 2,110 artificial reef party days in Pinellas County involved charter boats (Table 6-3). Thus, during the 12-month study period, Pinellas County residents spent a total of 1,821 person days at Pinellas County artificial reefs while onboard a charter boat (Table 6-4).

TABLE 6-4. TOTAL NUMBER OF ARTIFICIAL REEF PERSON DAYS BY RESIDENTS DURING THE 12-MONTH STUDY PERIOD FOR EACH FOR-HIRE BUSINESS TYPE.

Study County	Number of Artificial Reef Resident Days During the 12-Month Study Period			
	Charter	Head	Guide	Dive
Pinellas	1,821	4,229	1,393	5,714
Hillsborough	311	769	1,071	2,941
Manatee	240	384	806	1,224
Sarasota	719	769	1,175	2,587
Charlotte	216	384	1,002	816
Lee	575	1,538	2,648	3,061

For each study county, the total number of person days that non-residents spent at artificial reefs was the product of the average number of non-residents onboard each for-hire business type (Table 6-2) *and* the total number of artificial reef party days in the county for the for-hire type (Table 6-3). For example, during a typical charter boat trip in Pinellas County there were 2.7 non-residents onboard. Furthermore, over the 12-month study period, an estimated 2,110 artificial reef party days in Pinellas County involved charter boats. Thus, during the 12-month study period, non-residents spent a total of 5,676 person days at Pinellas County artificial reefs while onboard a charter boat (Table 6-5).

TABLE 6-5. TOTAL NUMBER OF ARTIFICIAL REEF PERSON DAYS BY NON-RESIDENTS DURING THE 12-MONTH STUDY PERIOD FOR EACH FOR-HIRE BUSINESS TYPE.

Study County	Number of Artificial Reef Non-Resident Days During the 12-Month Study Period			
	Charter	Head	Guide	Dive
Pinellas	5,676	10,874	5,382	12,718
Hillsborough	971	1,977	4,136	4,542
Manatee	747	989	3,113	2,725
Sarasota	2,240	1,977	4,537	6,359
Charlotte	672	989	3,870	1,817
Lee	1,792	3,954	10,230	6,813

To estimate the total expenditures for all artificial reef party days that occurred during the 12-month study period, for-hire clients who received a survey questionnaire were presented with nine expense items and asked to indicate how much they (as an individual) had spent on each item during their most recent boating trip. The information about expenditures and the number of people onboard was used to calculate the average dollar amount that a person spent on each expense item during a typical for-hire trip. Per person expenditures were needed since those onboard during an average artificial reef party day included a mix of residents and non-residents and, as explained previously, the economic impacts to a county from expenditures by its residents differ from impacts stemming from non-resident expenditures. Table 6-6 lists the average per person expenditure for each of the nine expense items, and Table 6-7 shows the per person boat fee for each of the for-hire business types.

TABLE 6-6. AVERAGE PER PERSON EXPENDITURE BY EXPENSE ITEM DURING FOR-HIRE TRIPS.

Expense Items	Average Expenditure Per Person During a For-Hire Trip
1. Lodging	$115.39
2. Food & beverage – purchased at store	$57.40
3. Food & beverage – purchased at restaurants	$64.85
4. Auto transportation – rental	$9.55
5. Fuel – auto and boat	$65.68
6. Recreational supplies purchased at stores	$46.09
7. Parking fees and fishing/diving supplies	$12.95
8. Clothing and accessories bought at other stores	$31.85
9. Other items purchased at stores	$19.17
Total Average Expenditure Per Person	$603.93

TABLE 6-7. AVERAGE BOAT FEE PER PERSON FOR EACH FOR-HIRE BUSINESS TYPE.

For-Hire Sector (Business type)	Average Boat Fee Per Person
Charter	$181
Head	$66
Guide	$226
Dive	$108

Resident expenditures in each study county were totaled separately for each of the nine expense items and for the boat fee related to artificial reef use by for-hire vessels during the 12-month study period. shows expenditures by expense category and study county, in thousands of 2009 dollars, for clients who were residents of the launch county, while Table 6-9 shows expenditures for clients who were non-residents of the launch county. Table 6-10 is the summation of Table 6-8 and Table 6-9. Overall, in the 12-month period, launch county residents expended $23.5 million (Table 6-8) and non-residents expended $66.3 million (Table 6-9), for a total of $89.7 million in 2009 dollars (Table 6-10).

TABLE 6-8. FOR-HIRE EXPENDITURES MADE BY CLIENTS WHO WERE LAUNCH COUNTY RESIDENTS (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Resident Expenditures in the Launch County (Thousands of 2009 Dollars)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Boat Fee	$1,541	$570	$383	$755	$379	$1,135	$4,762
Lodging	$1,809	$576	$365	$759	$332	$1,076	$4,917
Food / Beverage @ Stores	$743	$237	$150	$312	$137	$442	$2,020
Food / Beverage @ Restaurants	$1,141	$364	$230	$479	$210	$679	$3,102
Auto (Rental)	$285	$91	$58	$120	$52	$170	$775
Fuel (Auto / Boat)	$1,289	$411	$260	$541	$237	$766	$3,503
Recreational Supplies @ Stores	$765	$244	$154	$321	$141	$455	$2,080
Parking fees and fish/dive supplies	$144	$46	$29	$61	$27	$86	$393
Clothing & Accessories @ Stores	$405	$129	$82	$170	$75	$241	$1,102
Other items @ Stores	$303	$96	$61	$127	$56	$180	$823
Total Expense	$8,426	$2,763	$1,772	$3,643	$1,644	$5,228	$23,477

TABLE 6-9. FOR-HIRE EXPENDITURES MADE BY CLIENTS WHO WERE NON-LAUNCH COUNTY RESIDENTS (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Non-Resident Expenditures in the Launch County (Thousands of 2009 Dollars)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Boat Fee	$4,335	$1,732	$1,198	$2,248	$1,258	$3,633	$14,404
Lodging	$4,764	$1,599	$1,041	$2,078	$1,010	$3,134	$13,626
Food / Beverage @ Stores	$1,957	$657	$428	$854	$415	$1,287	$5,597
Food / Beverage @ Restaurants	$3,006	$1,009	$657	$1,311	$637	$1,977	$8,596
Auto (Rental)	$751	$252	$164	$328	$159	$494	$2,148
Fuel (Auto / Boat)	$3,394	$1,139	$742	$1,480	$720	$2,232	$9,707
Recreational Supplies @ Stores	$2,016	$676	$441	$879	$427	$1,326	$5,765
Parking fees and fish/dive supplies	$380	$128	$83	$166	$81	$250	$1,088
Clothing & Accessories @ Stores	$1,068	$358	$233	$466	$226	$702	$3,054
Other items @ Stores	$797	$267	$174	$348	$169	$524	$2,280
Total Expense	$22,467	$7,816	$5,162	$10,157	$5,103	$15,559	$66,264

TABLE 6-10. TOTAL FOR-HIRE EXPENDITURES MADE BY RESIDENT AND NON-RESIDENT CLIENTS OF THE LAUNCH COUNTY (IN THOUSANDS OF 2009 DOLLARS).

Expense Category	Total Expenditures in the Launch County (Thousands of 2009 Dollars)						
	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Total
Boat Fee	$5,875	$2,301	$1,582	$3,003	$1,637	$4,768	$19,165
Lodging	$6,573	$2,175	$1,406	$2,837	$1,343	$4,209	$18,543
Food / Beverage @ Stores	$2,700	$893	$578	$1,165	$551	$1,729	$7,616
Food / Beverage @ Restaurants	$4,147	$1,372	$887	$1,790	$847	$2,655	$11,698
Auto (Rental)	$1,036	$343	$222	$447	$212	$664	$2,924
Fuel (Auto / Boat)	$4,682	$1,549	$1,002	$2,021	$956	$2,998	$13,209
Recreational Supplies @ Stores	$2,781	$920	$595	$1,200	$568	$1,781	$7,846
Parking fees and fish/dive supplies	$525	$174	$112	$226	$107	$336	$1,480
Clothing & Accessories @ Stores	$1,473	$487	$315	$636	$301	$943	$4,156
Other items @ Stores	$1,100	$364	$235	$475	$225	$704	$3,102
Expense Total	$30,893	$10,579	$6,934	$13,800	$6,747	$20,787	$89,741

7. ECONOMIC IMPACTS OF ARTIFICIAL REEF USE

7.1. OVERVIEW OF INPUT-OUTPUT ANALYSIS

The economic impacts (or contributions) generated by recreational activities at artificial reefs offshore of Pinellas, Hillsborough, Manatee, Sarasota, Charlotte, and Lee counties were evaluated using input-output analysis (Miller and Blair, 2009; Schaffer, 2010). Input-output analysis is a standard technique that utilizes input-output models to estimate regional economic impacts that may result from a change in the economic activity of one or more specific industry sectors or institutions in a geographic region. Input-output models use a large set of equations to mathematically represent the structure of a regional economy and the typical transactions that occur between industries, employees, households, and government institutions.

The input-output analysis was done using IMPLAN® (Minnesota IMPLAN Group, 2010), which is a commercial computer software package that consists of procedures and databases for building input-output models for any county, state, or set of counties and states in the United States. Once constructed, these models can be used to estimate detailed economic impacts for a wide variety of events or activities specific to the economy of a particular region. Since a project goal was to provide specific results for each county, separate economic models were constructed for each of the six study counties rather than a single model for the entire multi-county region.

IMPLAN data (at both the national and county levels) include output (sales), value added, employment, income, taxes, imports and exports, final demand by households and government, capital investment, business inventories, marketing margins, and inflation factors. Data on the mix of inputs and outputs for each producing sector are taken from detailed transaction tables that track the flow of goods and services between sectors within the national economy, which in turn are based on national economic surveys and censuses. The national coefficients and the county level data are the basis from which the IMPLAN software can be used to estimate input-output tables for specific regions. Inter-regional trade within the IMPLAN models is estimated from the balance of local commodity supply and demand, with any surplus amount treated as an export and any deficit amount imported.

The source and destination of revenues and/or expenditures associated with an economic activity in a particular region are important in accurately evaluating their economic impacts on that region. Direct economic impacts take place in a region when an economic activity results in sales, income, and/or employment for local or regional businesses and institutions (including households). When local goods, services, and employment are purchased for an activity with dollars that originate from outside that region, then multiplier effects from subsequent rounds of spending within that economy continue to contribute to the activity's economic impact. Indirect multiplier effects occur when directly affected local-businesses purchase locally produced supplies to carry out their activities. Induced multiplier effects occur when owners and employees of directly and indirectly affected local businesses and government entities spend

their earnings at other local businesses in the area. The total economic impacts of an event or activity equal the sum of these direct, indirect, and induced impacts. When some of the necessary business inputs (including labor) or consumer goods and services are not purchased locally, then dollars leak out of the local economy as these items are imported. As a result, primary and secondary economic impacts will be reduced. Economic impact analysis involves estimating the location, nature, and magnitude of these transactions.

The secondary (indirect and induced) economic impacts estimated with input-output analysis are derived from the backward linkages of an industry with its input suppliers, employees, proprietors, and associated government entities. The empirical coefficients for these linkages are based on national averages and the mix of industries located in the study area. Consequently, the accuracy of the estimated secondary impacts for this study depends on the economic relationships between businesses, employees, consumers, and institutions in each of the six counties being evaluated[9].

The impacts of local resident expenditures are determined differently than are those of non-resident expenditures. For example, indirect/induced multiplier effects are applied only to the non-resident expenditures, which represent new money in the region. Thus, each county model accounted for visitor (non-resident) expenditures from the other study area counties, as well as visitor expenditures from outside the study area.

The economic impact models only examine the positive impacts of an economic activity. They do not account for possible changes in prices, technology, supply, congestion, pollution, the cost of governance, or any quality of life issues. Furthermore, the models did not consider spending in the absence of artificial reefs. As such, the results for each county should be broadly construed as "economic contributions" rather than the narrower concept of "economic impacts"[10].

7.2. Economic Impacts in Each Study County

For this project, all monetary values were treated as 2009 dollars. The types of economic impacts estimated with the input-output models included output (revenue), value-added, labor (employee and proprietor) income, other property income, indirect business taxes, and employment. Output

[9] The models used "Type SAM" multipliers from IMPLAN, which include indirect effects of supply chain spending, as well as induced effects of spending by employee households and state/local/federal governments. This is equivalent to "Type II multipliers" in the parlance of RIMSII I-O modeling system (USDOC). The indirect/induced multipliers were applied only to non-resident spending.

[10] For a more thorough explanation of this distinction, see Watson, P., J. Wilson, D. Thilmany, and S. Winter. 2007. Determining Economic Contributions and Impacts: What is the difference and why do we care? Journal of Regional Analysis and Policy, Vol. 37 (2): 140-146; available at http://www.jrap-journal.org/pastvolumes/2000/v37/F37-2-6.pdf.

(revenue) impacts equal the total revenues or expenditures by local businesses and residents affected by the activity (in this case artificial reef use). Output also is equal to the total value of intermediate inputs plus the total value-added. Value-added impacts equal the sum of employee and proprietor (labor) income, other property income, and indirect business taxes generated by the activity. Appendix 5 contains more detailed definitions for each of these measures.

The number of full- and part-time jobs that resulted from reef-related activity totaled 2,595 for the six counties and ranged from 234 in Manatee County to 858 in Pinellas County (Table 7-1). Total output (revenue) for the six counties combined was $226.93 million dollars, ranging from $19.47 million in Manatee County to $75.84 million in Pinellas County. The value added for the six counties totaled $138.31 million and ranged from $12.07 million in Manatee County to $44.93 million in Pinellas County. The components of value added for the six counties were, in ascending order, $16.60 million in indirect business taxes, $36.89 million in other property income, and $84.83 million in labor income (Table 7-1).

TABLE 7-1. THE ECONOMIC IMPACTS IN EACH STUDY COUNTY DUE TO THE RECREATIONAL USE OF ARTIFICIAL REEFS BY PERSONS ONBOARD PRIVATE BOATS AND FOR-HIRE VESSELS DURING THE 12-MONTH STUDY PERIOD.

Study County	Jobs (full- & part-time)	Output (Revenue)	Value Added[1]	=	Labor Income	+	Other Property Income	+	Indirect Business Tax
		Millions of 2009 Dollars							
Pinellas	858	$75.84	$44.93	=	$27.63	+	$11.96	+	$5.34
Hillsborough	284	$26.95	$16.56	=	$10.28	+	$4.34	+	$1.95
Manatee	234	$19.47	$12.07	=	$7.35	+	$3.23	+	$1.49
Sarasota	338	$30.27	$18.90	=	$11.42	+	$5.22	+	$2.26
Charlotte	306	$22.65	$13.47	=	$8.32	+	$3.50	+	$1.66
Lee	575	$51.75	$32.38	=	$19.84	+	$8.65	+	$3.89
All Six Counties	2,595	$226.93	$138.31	=	$84.83	+	$36.89	+	$16.60

[1] Value Added is equivalent to Labor Income, plus Other Property Income, plus Indirect Business Taxes. Value Added also includes Capital Consumption: the depreciation of fixed assets. Capital Consumption is not shown since it is a very small amount.

Table 7-2 provides the same information as Table 7-1, but disaggregates it by vessel type (private boats and for-hire vessels) and user group (residents and non-residents). While Table 7-2 shows economic impacts in millions of dollars, Table 7-3 shows the proportional distribution of impacts among vessel types and user groups for each county. For all counties, except Charlotte, non-residents onboard for-hire vessels accounted for the largest portion of economic impacts (Table 7-3). This group accounted for the largest share in Sarasota County: 46% of jobs, 56% of output (revenue), and 54% of value added. In Charlotte County, non-residents onboard private pleasure boats accounted for the largest proportion of economic impacts: 41% of jobs, 39% of output, and 41% of value added. For all counties, labor income was the largest portion (~60%) of value added (Table 7-3).

TABLE 7-2. THE ECONOMIC IMPACTS IN EACH STUDY COUNTY DUE TO THE USE OF ITS ARTIFICIAL REEFS BY RESIDENTS AND NON-RESIDENTS ONBOARD PRIVATE BOATS AND FOR-HIRE VESSELS DURING THE 12-MONTH STUDY PERIOD (MILLIONS OF 2009 DOLLARS).

Study County	Vessel Type / User Group	Jobs (full- & part-time)	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
			Millions of 2009 Dollars				
Pinellas	For-hire / Non-residents	369	$39.21	$22.86	$13.96	$6.54	$2.36
	For-hire / Residents	61	$5.93	$3.14	$1.82	$0.85	$0.46
	Private boats / Non-residents	182	$15.54	$9.65	$6.02	$2.56	$1.07
	Private boats / Residents	245	$15.16	$9.28	$5.83	$2.02	$1.44
	Total	**858**	**$75.84**	**$44.93**	**$27.63**	**$11.96**	**$5.34**
Hillsborough	For-hire / Non-residents	114	$13.02	$7.88	$4.86	$2.23	$0.79
	For-hire / Residents	19	$1.97	$1.09	$0.63	$0.30	$0.16
	Private boats / Non-residents	61	$5.62	$3.61	$2.29	$0.93	$0.40
	Private boats / Residents	90	$6.34	$3.98	$2.49	$0.88	$0.61
	Total	**284**	**$26.95**	**$16.56**	**$10.28**	**$4.34**	**$1.95**
Manatee	For-hire / Non-residents	79	$7.92	$4.81	$2.88	$1.41	$0.52
	For-hire / Residents	12	$1.27	$0.72	$0.41	$0.21	$0.10
	Private boats / Non-residents	73	$5.73	$3.68	$2.27	$0.97	$0.44
	Private boats / Residents	70	$4.54	$2.87	$1.78	$0.64	$0.44
	Total	**234**	**$19.47**	**$12.07**	**$7.35**	**$3.23**	**$1.49**
Sarasota	For-hire / Non-residents	155	$16.91	$10.22	$6.11	$3.03	$1.08
	For-hire / Residents	24	$2.60	$1.46	$0.83	$0.42	$0.21
	Private boats / Non-residents	67	$5.39	$3.56	$2.20	$0.95	$0.41
	Private boats / Residents	92	$5.37	$3.66	$2.28	$0.81	$0.57
	Total	**338**	**$30.27**	**$18.90**	**$11.42**	**$5.22**	**$2.56**
Charlotte	For-hire / Non-residents	82	$7.53	$4.26	$2.58	$1.23	$0.45
	For-hire / Residents	13	$1.19	$0.60	$0.34	$0.17	$0.09
	Private boats / Non-residents	124	$8.85	$5.52	$3.46	$1.42	$0.64
	Private boats / Residents	87	$5.09	$3.09	$1.94	$0.68	$0.48
	Total	**306**	**$22.65**	**$13.47**	**$8.32**	**$3.50**	**$1.66**
Lee	For-hire / Non-residents	234	$25.05	$15.48	$9.39	$4.48	$1.62
	For-hire / Residents	35	$3.75	$2.14	$1.22	$0.62	$0.30
	Private boats / Non-residents	127	$10.68	$6.97	$4.36	$1.81	$0.80
	Private boats / Residents	180	$12.27	$7.78	$4.86	$1.74	$1.18
	Total	**575**	**$51.75**	**$32.38**	**$19.84**	**$8.65**	**$3.89**

TABLE 7-3. PROPORTIONAL ECOMONIC IMPACTS IN EACH STUDY COUNTY DUE TO THE USE OF ITS ARTIFICIAL REEFS BY RESIDENTS AND NON-RESIDENTS ONBOARD PRIVATE BOATS AND FOR-HIRE VESSESLS DURING THE 12-MONTH STUDY PERIOD.

Study County	Vessel Type / User Group	Jobs (full- & part-time)	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
			Millions of 2009 Dollars				
Pinellas	For-hire / Non-residents	43%	52%	51%	31%	15%	5%
	For-hire / Residents	7%	8%	7%	4%	2%	1%
	Private boats / Non-residents	21%	20%	21%	13%	6%	2%
	Private boats / Residents	29%	20%	21%	13%	4%	3%
	Total	100%	100%	100%	61%	27%	12%
Hillsborough	For-hire / Non-residents	40%	48%	48%	29%	13%	5%
	For-hire / Residents	7%	7%	7%	4%	2%	1%
	Private boats / Non-residents	21%	21%	22%	14%	6%	2%
	Private boats / Residents	32%	24%	24%	15%	5%	4%
	Total	100%	100%	100%	62%	26%	12%
Manatee	For-hire / Non-residents	34%	41%	40%	24%	12%	4%
	For-hire / Residents	5%	7%	6%	3%	2%	1%
	Private boats / Non-residents	31%	29%	30%	19%	8%	4%
	Private boats / Residents	30%	23%	24%	15%	5%	4%
	Total	100%	100%	100%	61%	27%	12%
Sarasota	For-hire / Non-residents	46%	56%	54%	32%	16%	6%
	For-hire / Residents	7%	9%	8%	4%	2%	1%
	Private boats / Non-residents	20%	18%	19%	12%	5%	2%
	Private boats / Residents	27%	18%	19%	12%	4%	3%
	Total	100%	100%	100%	60%	28%	14%
Charlotte	For-hire / Non-residents	27%	33%	32%	19%	9%	3%
	For-hire / Residents	4%	5%	4%	3%	1%	1%
	Private boats / Non-residents	41%	39%	41%	26%	11%	5%
	Private boats / Residents	28%	22%	23%	14%	5%	4%
	Total	100%	100%	100%	62%	26%	12%
Lee	For-hire / Non-residents	41%	48%	48%	29%	14%	5%
	For-hire / Residents	6%	7%	7%	4%	2%	1%
	Private boats / Non-residents	22%	21%	22%	13%	6%	2%
	Private boats / Residents	31%	24%	24%	15%	5%	4%
	Total	100%	100%	100%	61%	27%	12%

Table 7-4 (Pinellas), Table 7-5 (Hillsborough), Table 7-6 (Manatee), Table 7-7 (Sarasota), Table 7-8 (Charlotte), and Table 7-9 (Lee) show the direct, indirect, and induced effects of artificial reef use by non-residents onboard private boats and for-hire boats in each of the study counties during the 12-month study period.

TABLE 7-4. PINELLAS COUNTY: DIRECT, INDIRECT, AND INDUCED EFFECTS OF ARTFICIAL REEF USE BY NON-RESIDENTS ONBOARD PRIVATE BOATS AND FOR-HIRE VESSELS DURING THE 12-MONTH STUDY PERIOD.

VESSEL TYPE	Effect	Jobs (full- & part-time	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
			Millions of 2009 Dollars				
FOR-HIRE	Direct Effects	163	$15.90	$8.34	$4.85	$2.27	$1.23
	Indirect Effects	41	$4.98	$3.02	$1.87	$0.94	$0.22
	Induced Effects	165	$18.33	$11.49	$7.24	$3.33	$0.92
PRIVATE	Direct Effects	101	$6.34	$3.91	$2.43	$0.86	$0.62
	Indirect Effects	11	$1.41	$0.84	$0.50	$0.28	$0.07
	Induced Effects	70	$7.79	$4.90	$3.09	$1.42	$0.39
BOTH	Total Direct Effects	264	$22.24	$12.25	$7.28	$3.13	$1.84
	Total Indirect Effects	52	$6.39	$3.87	$2.37	$1.21	$0.28
	Total Induced Effects	236	$26.12	$16.39	$10.33	$4.75	$1.31

TABLE 7-5. HILLSBOROUGH COUNTY: DIRECT, INDIRECT, AND INDUCED EFFECTS OF ARTFICIAL REEF USE BY NON-RESIDENTS ONBOARD PRIVATE BOATS AND FOR-HIRE VESSELS DURING THE 12-MONTH STUDY PERIOND.

VESSEL TYPE	Effect	Jobs (full- & part-time	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
			Millions of 2009 Dollars				
FOR-HIRE	Direct Effects	52	$5.61	$3.08	$1.78	$0.87	$0.43
	Indirect Effects	14	$1.82	$1.11	$0.66	$0.36	$0.09
	Induced Effects	48	$5.59	$3.69	$2.42	$1.00	$0.27
PRIVATE	Direct Effects	35	$2.45	$1.55	$0.96	$0.34	$0.24
	Indirect Effects	4	$0.59	$0.35	$0.20	$0.12	$0.03
	Induced Effects	22	$2.58	$1.71	$1.12	$0.46	$0.13
BOTH	Total Direct Effects	87	$8.06	$4.63	$2.74	$1.21	$0.68
	Total Indirect Effects	18	$2.40	$1.46	$0.87	$0.48	$0.11
	Total Induced Effects	70	$8.17	$5.40	$3.54	$1.46	$0.40

TABLE 7-6. MANATEE COUNTY: DIRECT, INDIRECT, AND INDUCED EFFECTS OF ARTIFICIAL REEF USE BY NON-RESIDENTS ONBOARD PRIVATE BOATS AND FOR-HIRE VESSELS DURING THE 12-MONTH STUDY PERIOD.

VESSEL TYPE	Effect	Jobs (full- & part-time	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
			Millions of 2009 Dollars				
FOR-HIRE	Direct Effects	36	$3.73	$2.10	$1.20	$0.62	$0.29
	Indirect Effects	9	$0.90	$0.55	$0.34	$0.17	$0.04
	Induced Effects	35	$3.29	$2.16	$1.34	$0.63	$0.19
PRIVATE	Direct Effects	42	$2.70	$1.71	$1.06	$0.39	$0.27
	Indirect Effects	4	$0.49	$0.29	$0.17	$0.10	$0.02
	Induced Effects	27	$2.54	$1.67	$1.05	$0.48	$0.14
BOTH	Total Direct Effects	77	$6.43	$3.82	$2.26	$1.00	$0.56
	Total Indirect Effects	13	$1.39	$0.84	$0.51	$0.26	$0.07
	Total Induced Effects	61	$5.84	$3.83	$2.39	$1.11	$0.33

TABLE 7-7. SARASOTA COUNTY: DIRECT, INDIRECT, AND INDUCED EFFECTS OF ARTIFICIAL REEF USE BY NON-RESIDENTS ONBOARD PRIVATE BOATS AND FOR-HIRE VESSELS DURING THE 12-MONTH STUDY PERIOD.

VESSEL TYPE	Effect	Jobs (full- & part-time	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
			Millions of 2009 Dollars				
FOR-HIRE	Direct Effects	67	$7.29	$4.07	$2.23	$1.17	$0.58
	Indirect Effects	17	$2.08	$1.27	$0.77	$0.41	$0.09
	Induced Effects	71	$7.54	$4.89	$3.03	$1.45	$0.41
PRIVATE	Direct Effects	39	$2.29	$1.56	$0.96	$0.35	$0.24
	Indirect Effects	4	$0.45	$0.28	$0.16	$0.10	$0.02
	Induced Effects	25	$2.65	$1.72	$1.07	$0.51	$0.14
BOTH	Total Direct Effects	106	$9.59	$5.63	$3.28	$1.52	$0.82
	Total Indirect Effects	21	$2.54	$1.55	$0.93	$0.51	$0.11
	Total Induced Effects	96	$2.65	$6.61	$4.10	$1.96	$0.56

TABLE 7-8. CHARLOTTE COUNTY: DIRECT, INDIRECT, AND INDUCED EFFECTS OF ARTIFICIAL REEF USE BY NON-RESIDENTS ONBOARD PRIVATE BOATS AND FOR-HIRE VESSELS DURING THE 12-MONTH STUDY PERIOD.

VESSEL TYPE	Effect	Jobs (full- & part-time	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
			Millions of 2009 Dollars				
FOR-HIRE	Direct Effects	40	$3.71	$1.85	$1.06	$0.53	$0.26
	Indirect Effects	10	$0.95	$0.55	$0.35	$0.17	$0.03
	Induced Effects	32	$2.86	$1.86	$1.17	$0.54	$0.15
PRIVATE	Direct Effects	75	$4.38	$2.66	$1.66	$0.59	$0.42
	Indirect Effects	8	$0.72	$0.41	$0.25	$0.13	$0.03
	Induced Effects	32	$3.75	$2.44	$1.55	$0.70	$0.19
BOTH	Total Direct Effects	115	$8.09	$4.52	$2.72	$1.12	$0.68
	Total Indirect Effects	18	$1.67	$0.96	$0.59	$0.30	$0.03
	Total Induced Effects	73	$6.61	$4.30	$2.72	$1.24	$0.34

TABLE 7-9. LEE COUNTY: DIRECT, INDIRECT, AND INDUCED EFFECTS OF ARTIFICIAL REEF USE BY NON-RESIDENTS ONBOARD PRIVATE BOATS AND FOR-HIRE VESSELS DURING THE 12-MONTH STUDY PERIOD.

VESSEL TYPE	Effect	Jobs (full- & part-time	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
			Millions of 2009 Dollars				
FOR-HIRE	Direct Effects	103	$11.24	$6.39	$3.64	$1.87	$0.88
	Indirect Effects	26	$3.10	$1.88	$1.19	$0.55	$0.14
	Induced Effects	105	$10.71	$7.21	$4.56	$2.05	$0.60
PRIVATE	Direct Effects	71	$4.89	$3.11	$1.93	$0.70	$0.48
	Indirect Effects	8	$0.94	$0.58	$0.35	$0.18	$0.05
	Induced Effects	47	$4.85	$3.28	$2.08	$0.93	$0.27
BOTH	Total Direct Effects	174	$16.13	$9.50	$5.57	$2.57	$1.36
	Total Indirect Effects	34	$4.04	$2.46	$1.64	$0.74	$0.18
	Total Induced Effects	152	$15.56	$10.50	$6.64	$2.98	$0.87

The American workforce comprises jobs categorized into sectors defined by the North American Industry Classification System (NAICS) and identified by a 6-digit code that represents, in increasing detail, industry sectors (2 digits), industry sub-sectors (3 digits), industry groups (4 digits), and industries (5 digits). Table 7-10 (Pinellas),

Table 7-11 (Hillsborough), Table 7-12 (Manatee), Table 7-13 (Sarasota), Table 7-14 (Charlotte), and Table 7-15 (Lee) show the economic impacts in the 20 broad economic NAICS industry sectors (2-digit NAICS) resulting from the use of artificial reefs during the 12-month study period. About 60 percent of the jobs in all six counties were created in the retail trade sector and in the accommodation and food services sector. Between 55% and 62% of output (revenue) was concentrated in three sectors: accommodation and food services, retail trade, and transportation and warehousing.

TABLE 7-10. PINELLAS COUNTY: ECONOMIC IMPACTS BY ECONOMIC SECTOR RESULTING FROM THE USE OF ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD.

Economic Sector (2-digit NAICS)	Jobs (full- & part-time)	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
		Millions of 2009 Dollars				
11 Ag, Forestry, Fish & Hunting	82	$1.95	$1.30	$0.88	$0.39	$0.04
21 Mining	1	$0.14	$0.02	$0.01	$0.01	$0.00
22 Utilities	0	$0.19	$0.13	$0.04	$0.07	$0.02
23 Construction	13	$1.54	$0.70	$0.60	$0.10	$0.01
31-33 Manufacturing	9	$4.32	$0.92	$0.62	$0.28	$0.02
42 Wholesale Trade	8	$1.56	$1.02	$0.59	$0.21	$0.22
44-45 Retail Trade	277	$14.64	$12.30	$7.47	$2.26	$2.57
48-49 Transportation & Warehousing	33	$10.37	$3.44	$1.91	$1.26	$0.27
51 Information	4	$1.01	$0.51	$0.27	$0.20	$0.04
52 Finance & Insurance	16	$3.17	$1.70	$0.85	$0.76	$0.09
53 Real Estate & Rental	21	$6.04	$4.15	$0.50	$2.98	$0.67
54 Professional- scientific & tech svcs	20	$2.13	$1.44	$1.11	$0.29	$0.04
55 Management of companies	3	$0.63	$0.38	$0.32	$0.06	$0.01
56 Administrative & Waste Services	19	$1.17	$0.73	$0.56	$0.14	$0.02
61 Educational Services	5	$0.29	$0.18	$0.16	$0.02	$0.00
62 Health & Social Services	40	$3.85	$2.20	$2.04	$0.14	$0.03
71 Arts- entertainment & recreation	20	$1.45	$0.96	$0.63	$0.22	$0.11
72 Accommodation & Food Services	222	$16.81	$9.11	$5.81	$2.13	$1.16
81 Other Services	23	$1.10	$0.65	$0.59	$0.01	$0.05
92 Government & non NAICs	43	$3.50	$3.05	$2.68	$0.41	($0.05)
TOTAL	**858**	**$75.84**	**$44.93**	**$27.63**	**$11.96**	**$5.34**

TABLE 7-11. HILLSBOROUGH COUNTY: ECONOMIC IMPACTS BY ECONOMIC SECTOR RESULTING FROM THE USE OF ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD.

Economic Sector (2-digit NAICS)	Jobs (full- & part-time)	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
		Millions of 2009 Dollars				
11 Ag, Forestry, Fish & Hunting	18	$0.80	$0.53	$0.37	$0.15	$0.01
21 Mining	0	$0.00	$0.00	$0.00	$0.00	$0.00
22 Utilities	0	$0.30	$0.19	$0.05	$0.10	$0.03
23 Construction	5	$0.61	$0.30	$0.25	$0.04	$0.00
31-33 Manufacturing	3	$1.30	$0.25	$0.16	$0.08	$0.01
42 Wholesale Trade	3	$0.48	$0.31	$0.18	$0.06	$0.07
44-45 Retail Trade	102	$5.46	$4.59	$2.79	$0.84	$0.96
48-49 Transportation & Warehousing	12	$4.13	$1.71	$0.96	$0.63	$0.12
51 Information	1	$0.40	$0.21	$0.10	$0.09	$0.01
52 Finance & Insurance	4	$0.91	$0.50	$0.25	$0.23	$0.03
53 Real Estate & Rental	5	$1.77	$1.22	$0.16	$0.86	$0.20
54 Professional- scientific & tech svcs	7	$0.76	$0.52	$0.43	$0.08	$0.02
55 Management of companies	1	$0.18	$0.11	$0.09	$0.02	$0.00
56 Administrative & Waste Services	6	$0.41	$0.26	$0.20	$0.05	$0.01
61 Educational Services	2	$0.11	$0.06	$0.06	$0.00	$0.00
62 Health & Social Services	11	$1.07	$0.61	$0.57	$0.04	$0.01
71 Arts- entertainment & recreation	12	$0.55	$0.34	$0.22	$0.08	$0.04
72 Accommodation & Food Services	72	$5.92	$3.30	$2.09	$0.78	$0.43
81 Other Services	6	$0.31	$0.19	$0.17	$0.00	$0.02
92 Government & non NAICs	16	$1.47	$1.36	$1.17	$0.20	($0.01)
TOTAL	**284**	**$26.95**	**$16.56**	**$10.28**	**$4.34**	**$1.95**

TABLE 7-12. MANATEE COUNTY: ECONOMIC IMPACTS BY ECONOMIC SECTOR RESULTING FROM THE USE OF ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD.

Economic Sector (2-digit NAICS)	Jobs (full- & part-time)	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
		Millions of 2009 Dollars				
11 Ag, Forestry, Fish & Hunting	22	$0.67	$0.45	$0.31	$0.13	$0.01
21 Mining	0	$0.00	$0.00	$0.00	$0.00	$0.00
22 Utilities	0	$0.10	$0.06	$0.02	$0.03	$0.01
23 Construction	3	$0.38	$0.17	$0.14	$0.02	$0.00
31-33 Manufacturing	2	$0.94	$0.15	$0.11	$0.04	$0.00
42 Wholesale Trade	2	$0.34	$0.23	$0.13	$0.05	$0.05
44-45 Retail Trade	86	$4.36	$3.66	$2.23	$0.67	$0.77
48-49 Transportation & Warehousing	7	$2.91	$1.37	$0.73	$0.54	$0.10
51 Information	1	$0.21	$0.11	$0.06	$0.04	$0.01
52 Finance & Insurance	3	$0.36	$0.17	$0.09	$0.07	$0.01
53 Real Estate & Rental	5	$1.56	$1.07	$0.12	$0.78	$0.17
54 Professional- scientific & tech svcs	8	$0.52	$0.32	$0.24	$0.07	$0.01
55 Management of companies	1	$0.13	$0.07	$0.06	$0.01	$0.00
56 Administrative & Waste Services	4	$0.24	$0.15	$0.12	$0.03	$0.00
61 Educational Services	1	$0.05	$0.03	$0.03	$0.00	$0.00
62 Health & Social Services	9	$0.81	$0.46	$0.43	$0.03	$0.01
71 Arts- entertainment & recreation	6	$0.45	$0.30	$0.20	$0.07	$0.03
72 Accommodation & Food Services	57	$4.26	$2.30	$1.48	$0.53	$0.29
81 Other Services	6	$0.29	$0.17	$0.15	$0.00	$0.01
92 Government & non NAICs	11	$0.89	$0.81	$0.72	$0.10	($0.01)
TOTAL	**234**	**$19.47**	**$12.07**	**$7.35**	**$3.23**	**$1.49**

TABLE 7-13. SARASOTA COUNTY: ECONOMIC IMPACTS BY ECONOMIC SECTOR RESULTING FROM THE USE OF ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD.

Economic Sector (2-digit NAICS)	Jobs (full- & part-time)	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
		Millions of 2009 Dollars				
11 Ag, Forestry, Fish & Hunting	29	$0.77	$0.52	$0.35	$0.15	$0.01
21 Mining	0	$0.02	$0.00	$0.00	$0.00	$0.00
22 Utilities	0	$0.26	$0.17	$0.05	$0.09	$0.03
23 Construction	7	$0.80	$0.35	$0.30	$0.05	$0.00
31-33 Manufacturing	1	$0.29	$0.09	$0.06	$0.03	$0.00
42 Wholesale Trade	3	$0.47	$0.31	$0.18	$0.06	$0.07
44-45 Retail Trade	115	$5.95	$5.00	$3.05	$0.91	$1.04
48-49 Transportation & Warehousing	12	$4.76	$2.00	$1.06	$0.79	$0.15
51 Information	2	$0.48	$0.22	$0.12	$0.08	$0.02
52 Finance & Insurance	5	$1.07	$0.61	$0.31	$0.27	$0.03
53 Real Estate & Rental	9	$2.69	$1.84	$0.20	$1.34	$0.30
54 Professional- scientific & tech svcs	7	$0.78	$0.54	$0.41	$0.12	$0.02
55 Management of companies	1	$0.19	$0.13	$0.11	$0.02	$0.00
56 Administrative & Waste Services	8	$0.48	$0.29	$0.21	$0.06	$0.01
61 Educational Services	2	$0.12	$0.07	$0.07	$0.00	$0.00
62 Health & Social Services	17	$1.60	$0.91	$0.85	$0.05	$0.01
71 Arts- entertainment & recreation	8	$0.60	$0.40	$0.26	$0.09	$0.05
72 Accommodation & Food Services	86	$7.08	$3.98	$2.53	$0.94	$0.51
81 Other Services	9	$0.45	$0.27	$0.24	$0.00	$0.02
92 Government & non NAICs	17	$1.40	$1.19	$1.06	$0.15	($0.02)
TOTAL	**338**	**$30.27**	**$18.90**	**$11.42**	**$5.22**	**$2.26**

TABLE 7-14. CHARLOTTE COUNTY: ECONOMIC IMPACTS BY ECONOMIC SECTOR RESULTING FROM THE USE OF ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD.

Economic Sector (2-digit NAICS)	Jobs (full- & part-time)	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
		Millions of 2009 Dollars				
11 Ag, Forestry, Fish & Hunting	31	$0.86	$0.57	$0.39	$0.17	$0.02
21 Mining	0	$0.00	$0.00	$0.00	$0.00	$0.00
22 Utilities	0	$0.03	$0.02	$0.01	$0.01	$0.00
23 Construction	4	$0.39	$0.16	$0.14	$0.02	$0.00
31-33 Manufacturing	2	$1.03	$0.11	$0.08	$0.03	$0.00
42 Wholesale Trade	1	$0.19	$0.12	$0.07	$0.03	$0.03
44-45 Retail Trade	114	$5.32	$4.47	$2.73	$0.81	$0.93
48-49 Transportation & Warehousing	10	$3.32	$1.18	$0.64	$0.45	$0.09
51 Information	1	$0.25	$0.13	$0.07	$0.05	$0.01
52 Finance & Insurance	3	$0.46	$0.24	$0.12	$0.10	$0.01
53 Real Estate & Rental	8	$1.76	$1.21	$0.11	$0.90	$0.21
54 Professional- scientific & tech svcs	6	$0.45	$0.30	$0.22	$0.07	$0.01
55 Management of companies	0	$0.05	$0.03	$0.02	$0.00	$0.00
56 Administrative & Waste Services	7	$0.39	$0.22	$0.17	$0.05	$0.01
61 Educational Services	1	$0.03	$0.01	$0.01	$0.00	$0.00
62 Health & Social Services	13	$1.25	$0.70	$0.65	$0.04	$0.01
71 Arts- entertainment & recreation	9	$0.55	$0.36	$0.23	$0.08	$0.04
72 Accommodation & Food Services	72	$4.74	$2.41	$1.56	$0.55	$0.30
81 Other Services	8	$0.36	$0.20	$0.18	$0.00	$0.02
92 Government & non NAICs	15	$1.22	$1.02	$0.90	$0.14	($0.03)
TOTAL	**306**	**$22.65**	**$13.47**	**$8.32**	**$3.50**	**$1.66**

TABLE 7-15. LEE COUNTY: ECONOMIC IMPACTS BY ECONOMIC SECTOR RESULTING FROM THE USE OF ARTIFICIAL REEFS DURING THE 12-MONTH STUDY PERIOD.

Economic Sector (2-digit NAICS)	Jobs (full- & part-time)	Output (Revenue)	Value Added	Labor Income	Other Property Income	Indirect Business Tax
		Millions of 2009 Dollars				
11 Ag, Forestry, Fish & Hunting	42	$1.63	$1.09	$0.75	$0.31	$0.03
21 Mining	0	$0.01	$0.00	$0.00	$0.00	$0.00
22 Utilities	1	$0.42	$0.29	$0.09	$0.15	$0.05
23 Construction	12	$1.38	$0.60	$0.51	$0.08	$0.01
31-33 Manufacturing	4	$1.92	$0.25	$0.18	$0.06	$0.01
42 Wholesale Trade	6	$0.97	$0.63	$0.37	$0.13	$0.14
44-45 Retail Trade	213	$10.97	$9.22	$5.63	$1.67	$1.92
48-49 Transportation & Warehousing	19	$8.19	$3.83	$2.01	$1.52	$0.29
51 Information	4	$0.82	$0.39	$0.28	$0.08	$0.03
52 Finance & Insurance	6	$1.11	$0.57	$0.29	$0.25	$0.02
53 Real Estate & Rental	15	$4.08	$2.79	$0.32	$2.01	$0.46
54 Professional- scientific & tech svcs	11	$1.09	$0.76	$0.55	$0.18	$0.02
55 Management of companies	1	$0.32	$0.22	$0.18	$0.04	$0.00
56 Administrative & Waste Services	12	$0.75	$0.46	$0.35	$0.10	$0.02
61 Educational Services	3	$0.18	$0.11	$0.10	$0.01	$0.00
62 Health & Social Services	17	$1.61	$1.03	$0.95	$0.06	$0.02
71 Arts- entertainment & recreation	14	$1.16	$0.78	$0.51	$0.18	$0.09
72 Accommodation & Food Services	146	$11.42	$6.32	$4.06	$1.46	$0.80
81 Other Services	14	$0.75	$0.45	$0.40	$0.01	$0.04
92 Government & non NAICs	35	$2.96	$2.59	$2.29	$0.34	($0.04)
TOTAL	**575**	**$51.75**	**$32.38**	**$19.84**	**$8.65**	**$3.89**

8. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF SURVEY RESPONDENTS

8.1. RESIDENT SALTWATER BOATERS AND DAY-TRIPPERS (PRIVATE BOATS)

This chapter presents results from questionnaires returned by boaters who were residents of one of the six study counties or day-trippers from non-study counties who used boat launch facilities located within a study county. In both cases, the responses are in regard to use of the respondent's private boat. Questions related to the economic analysis presented in previous chapters do not appear below (for example, questions 9, 10, 11, and 12).

Eighty-nine percent of returns (2,812) were from members of the study's target audience: saltwater boaters (Table 8-1). The remaining 11% were from respondents who were ineligible for the study because they were either freshwater (4.9%) or commercial boaters (0.4%), had sold their boat (0.3%) or were a non-boater (0.2%), had died (0.9%), or the survey was returned blank (4.4%) or with derogatory comments (0.3%).

TABLE 8-1. NUMBER OF SURVEYS RETURNED BY RESPONDENT TYPE.

Respondent Type	Count	%
Saltwater Boater	2,812	88.7%
Freshwater Boater	157	4.9%
Commercial Boater	14	0.4%
Sold Boat	8	0.3%
Deceased	29	0.9%
Non-boater	6	0.2%
Survey returned blank	138	4.4%
Derogatory returns	8	0.3%
Total Returns	3,172	100%

The remaining results reported in this chapter are for the returns received from the 2,812 saltwater boaters. The results are presented in the same order as the questions on the questionnaire (see Appendix 2).

Question 1: What is the length of your vessel (or its replacement if you exchanged boats during the past year)?

Boats used to visit artificial reefs during the 12-month study period averaged 22.1 ft. in length and ranged from 8 ft. to 53 ft. in length (Table 8-2). Boats used in saltwater, but not to visit reefs, averaged 21.1 ft. in length and ranged from 6 ft. to 64 ft. in length. The average length of boats used to visit reefs was the longest (23.2 ft.) in Lee County, while those used in Hillsborough County were the shortest (20.9 ft.) – a difference of 2.3 ft. (Figure 8-1).

TABLE 8-2. VESSEL LENGTH BY SALTWATER USE DURING THE 12-MONTH SURVEY PERIOD.

Saltwater Boats Used During 12-Month Survey Period	Vessel Length (ft.)		
	Mean	Standard Deviation	Count
Used at Artificial Reefs	22.1	5.5	853
Not Used at Artificial Reefs	21.1	6.7	1,731
All Boats Used During 12-Month Period	21.4	6.3	2,584

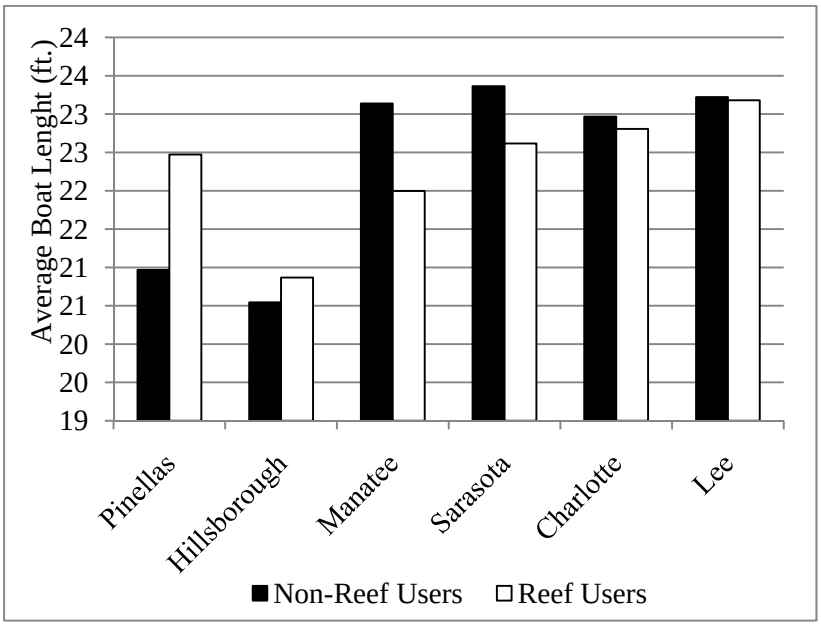

FIGURE 8-1. AVERAGE BOAT LENGTH OF REEF USERS AND NON-REEF USERS BY COUNTY.

Question 2: What type of launch facility did you use most often in the last 12 months?

Public boat ramps were used most often by both reef users (58%) and non-reef users (51%), followed by residential docks/ramps, which were used by 28% of reef users and 33% of non-reef users (Table 8-3).

TABLE 8-3. LAUNCH TYPE BY VESSEL USE.

Vessel Launch Type	Reef Users		Non-Reef Users		All Users	
	Count	%	Count	%	Count	%
Public Boat Ramp	495	58%	890	51%	1,385	54%
Dry Storage	59	7%	110	6%	169	7%
Marina Wet Slip	42	5%	115	7%	157	6%
Residential Dock/Ramp	242	28%	578	33%	820	32%
Other	15	2%	41	2%	56	2%
Total	853	100%	1,734	100%	2,587	100%

Launching from a public boat ramp predominated in all six counties, ranging from a high of 78% in Hillsborough County to 47% in Charlotte County (Figure 8-2). Departing from a residential dock was the second most frequent method, ranging from a high of 40% in Charlotte County to 14% in Hillsborough County.

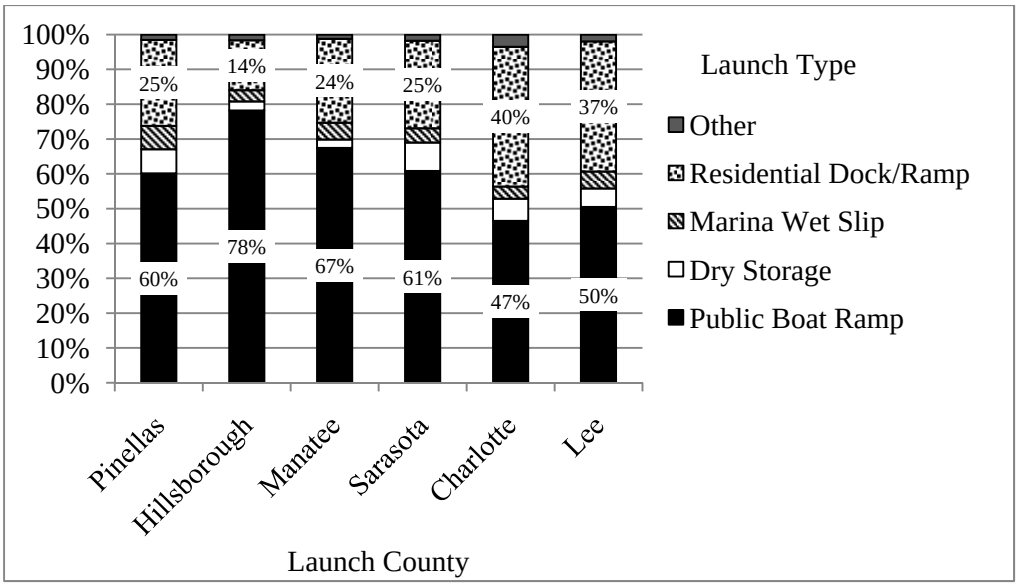

FIGURE 8-2. BOAT LAUNCH TYPE BY STUDY COUNTY.

Question 3: To the best of your memory, how many saltwater boating days did you lose – if any – during the past five years due to the following events?

Overall, boaters who used artificial reefs reported losing an average of 13 boating days to red tide events during the previous five years and 11 days to hurricanes and/or tropical storms (Table 8-4). Boaters who did not use artificial reefs reported losing an average of 11 days to red tide events and 20 days to hurricanes and/or tropical storms.

TABLE 8-4. AVERAGE NUMBER OF BOATING DAYS LOST DURING THE PAST FIVE YEARS TO RED TIDE EVENTS AND HURRICANES AND/OR TROPICAL STORMS.

User Type	Days Lost to a Red Tide Event		Days Lost to Hurricanes and/or Tropical Storms	
	Average	Responses	Average	Responses
Reef Boaters	13	826	11	834
Non-Reef Boaters	11	1,687	20	1,692
All Boaters	12	2,513	17	2,526

When comparing counties, Charlotte County stood out since 70% of all lost boating days in the previous five years were due to hurricane/tropical storm events (Table 8-5). This no doubt reflects the lingering influence of Hurricane Charley, a strong Category 4 hurricane that made landfall in Charlotte County in August of 2004. Also of note is that Sarasota County reef boaters reported losing 78% of all days to red tide versus 22% to hurricanes/tropical storms.

TABLE 8-5. AVERAGE NUMBER OF DAYS LOST BY REEF USERS IN THE PREVIOUS FIVE YEARS TO RED TIDE EVENTS AND HURRICANES/TROPICAL STORMS.

County	Days Lost to a Red Tide Event		Days Lost to Hurricanes and/or Tropical Storms		Days Lost to Both Types of Events	
	Average	%	Average	%	Average	%
Pinellas	10	48%	10	52%	20	100%
Hillsborough	14	60%	10	40%	24	100%
Manatee	11	49%	11	51%	23	100%
Sarasota	21	78%	6	22%	27	100%
Charlotte	10	30%	24	70%	34	100%
Lee	11	52%	10	48%	21	100%

Question 4A: Enter the number of saltwater recreational boating days on your vessel by season (count partial days as full days).

The more southerly the county, the greater the tendency that saltwater boating days were more evenly spread among the four seasons (Figure 8-3). Fifty-eight percent of all boating days occurred between April and September in Pinellas and Hillsborough, the two most northerly counties in the study. In contrast, these same months accounted for 51% of boating days in Charlotte and Lee counties.

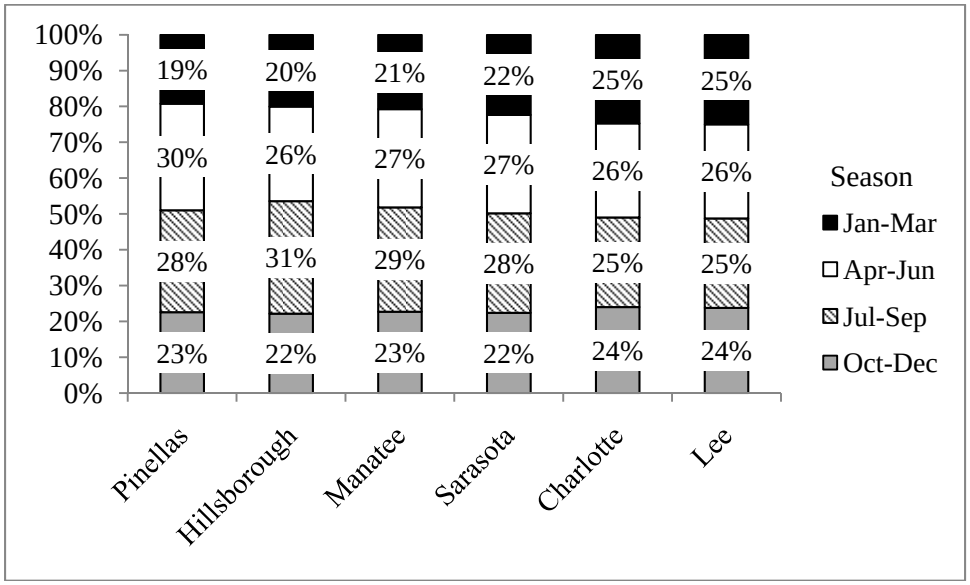

FIGURE 8-3. PERCENTAGE OF BOATING DAYS BY SEASON FOR EACH STUDY COUNTY.

In general, reef users in all six counties reported spending more time boating (whether at reefs or not) than did non-reef users (Figure 8-4). The average number of boating days for reef users ranged from 37 days for Hillsborough County residents to 52 days for Charlotte County residents. Non-reef users from Manatee County reported spending 14 fewer boating days than resident reef users. When compared to reef users, non-reef users from Sarasota County spent 13 less boating days, those in Pinellas 10 less, Hillsborough eight less, Lee five less, and Charlotte County three less.

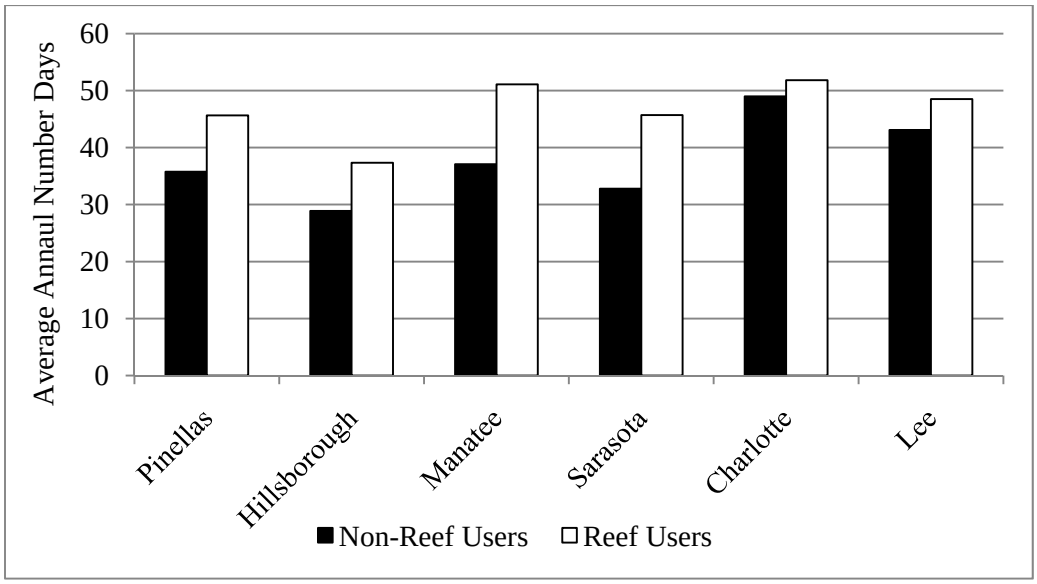

FIGURE 8-4. AVERAGE NUMBER OF BOATING DAYS IN THE 12-MONTH PERIOD FOR REEF USERS AND NON-REEF USERS.

Question 4B: Indicate the primary purpose of the trip for the boating days listed in 4a.

Fishing was the dominant activity for residents of all six counties, ranging from 59% participation in Pinellas County to 71% in Lee County (Figure 8-5). Miscellaneous activities were grouped under the "Other" category, and included cruising, pleasure, sightseeing, photography, racing, living aboard, and dining.

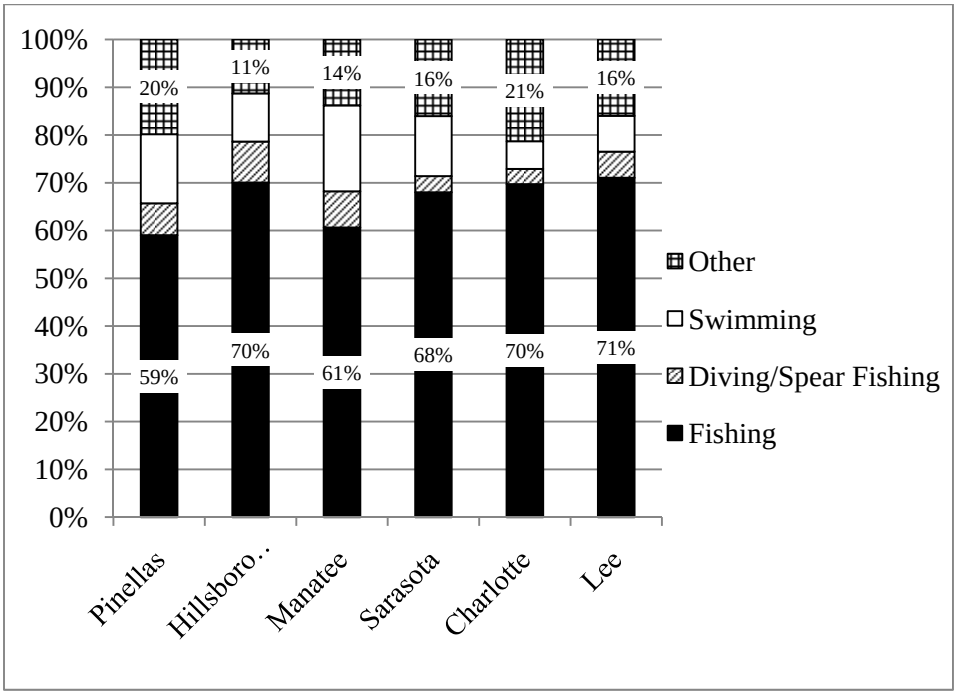

FIGURE 8-5. DISTRIBUTION OF ON-THE-WATER ACTIVITIES OF REEF USERS (REGARDLESS OF BOATING ACTIVITY).

Question 5: For each county, please indicate your total number of saltwater recreational boating days during the past 12 months using your vessel.

During the 12-month period, the most boating days occurred in Lee County, both for both non-reef users (28 days) and reef users (33 days) (Figure 8-6). The fewest boating days occurred in Hillsborough County, where non-reef users reported spending 16 days and reef users 18 days.

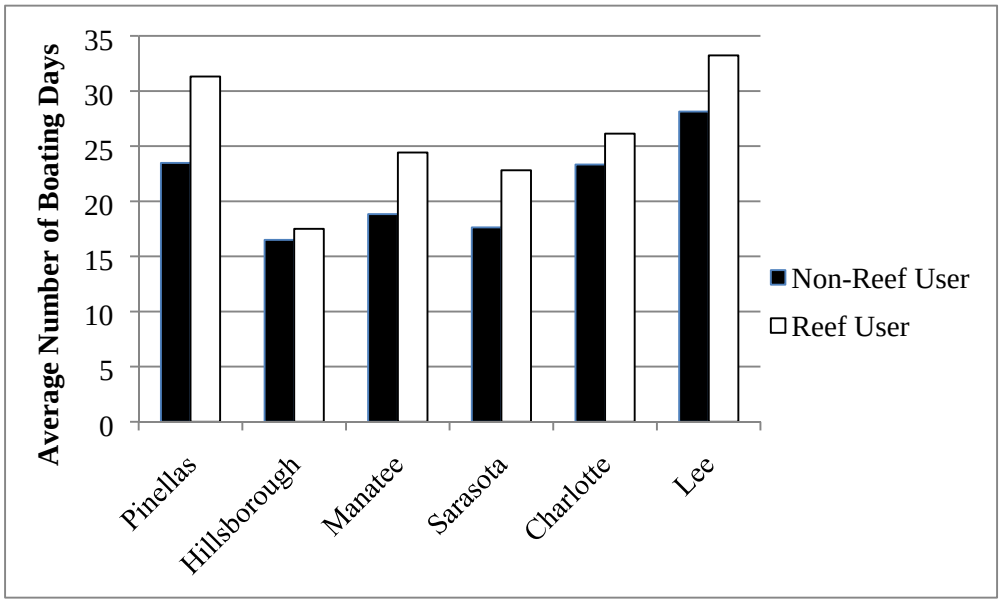

FIGURE 8-6. AVERAGE NUMBER OF BOATING DAYS IN STUDY AREA COUNTY BY RESIDENTS AND NON-RESIDENTS.

Question 6: How many of your saltwater recreational boating days from question 5 included a visit to an artificial reef? (count partial days as full days.)

Lee County had the highest number of reported non-reef boating days (21) and reef boating days (12) during the 12-month period, and Hillsborough County the fewest with 11 and six days, respectively (Figure 8-7).

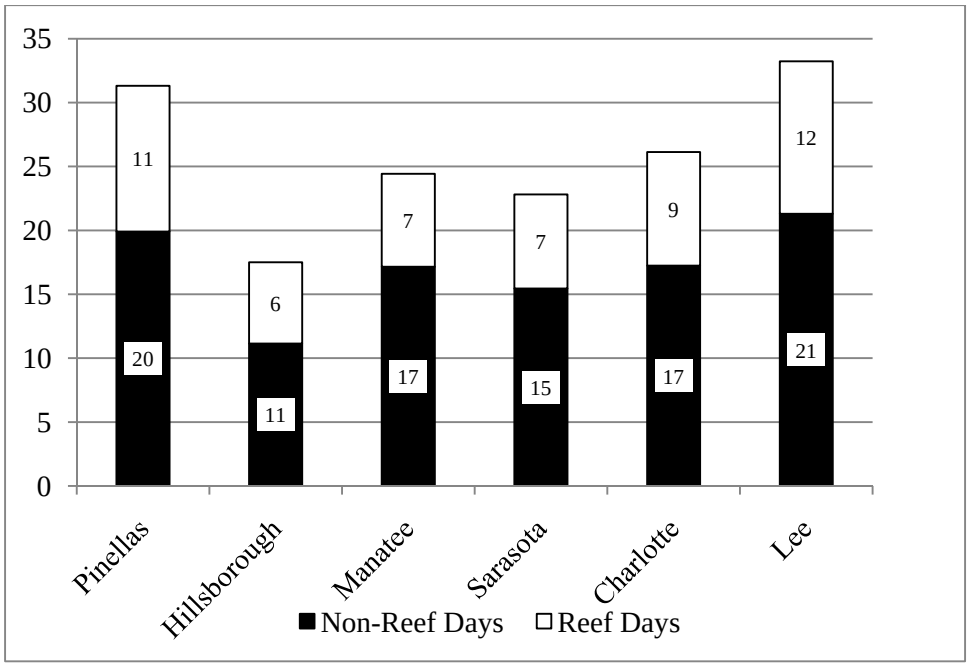

FIGURE 8-7. AVERAGE NUMBER OF REEF DAYS AND NON-REEF DAYS BY BOATERS WHO VISISTED AN ARTIFICIAL REEF DURING THE PREVIOUS 12 MONTHS.

Question 7: Over the past five years, how has your use of artificial reefs changed?

In general, artificial reef use among county residents over the previous five years remained the same, ranging from 58% among Sarasota County residents to 63% among Lee County residents (Table 8-6). In all counties except for Charlotte, more residents reported a decrease in their use of artificial reefs over the past five years as compared to an increase.

TABLE 8-6. CHANGE IN ARTIFICIAL REEF USE OVER THE PAST FIVE YEARS.

County	Change in Artificial Reef Use		
	Increased	Same	Decreased
Pinellas	13%	61%	17%
Hillsborough	10%	61%	17%
Manatee	6%	55%	22%
Sarasota	8%	58%	19%
Charlotte	14%	60%	10%
Lee	8%	63%	16%

Question 8: How familiar are you with the Artificial Reef Programs funded by Florida and its coastal counties?

Most resident boaters in all six counties had some familiarity, or were very familiar, with artificial reef programs, ranging from 58% of residents in Hillsborough and Charlotte counties to 64% in Manatee and Sarasota counties to Sarasota (Table 8-7).

TABLE 8-7. FAMILIARITY WITH ARTFICIAL REEF PROGRAMS.

County	Familiarity with Artificial Reef Program		
	Not	Somewhat	Very
Pinellas	35%	47%	15%
Hillsborough	38%	47%	11%
Manatee	34%	56%	8%
Sarasota	33%	51%	13%
Charlotte	40%	50%	8%
Lee	35%	52%	10%

<u>NOTE</u>: The results from questions 9 through 12 were compiled in chapters 5 and 6 for use with the economic analysis and, therefore, they are not reported here.

Question 13: In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

In general, both non-reef users and reef users expressed support for using public funds to provide and maintain artificial reefs in Florida's waters (Table 8-8). Resident boaters of Pinellas County expressed the greatest level of support (71%) and those of Manatee County the least (61%). Not surprisingly, reef users in general were more supportive than were non-reef users. Residents of Sarasota County who used reefs expressed the most support (95%) and Charlotte County residents the least (83%). Of note, 17% percent of Charlotte County residents who used reefs were neutral, as compared to 4% to 9% of residents from the other counties.

TABLE 8-8. DEGREE OF SUPPORT FOR USING PUBLIC FUNDS FOR COUNTY ARTIFICIAL REEF PROGRAMS.

	Non-Reef Users			Reef Users		
County	Oppose	Neutral	Support	Oppose	Neutral	Support
Pinellas	3%	26%	71%	2%	9%	89%
Hillsborough	3%	31%	66%	5%	5%	90%
Manatee	7%	32%	61%	1%	6%	93%
Sarasota	5%	27%	68%	1%	4%	95%
Charlotte	7%	30%	63%	0%	17%	83%
Lee	7%	24%	69%	5%	9%	86%

Question 14: To support the maintenance and deployment of new artificial reefs, the state could establish an Artificial Reef Trust fund. One way to fund the program would be a mandatory add-on fee for all vessel registrations. Would you support a [$3/$6/$12/$24] annual fee for a new Artificial Reef Trust Fund?

Respondents received one of four versions of the questionnaire that differed in the amount of the annual add-on fee included in the wording for question 14. Table 8-9 shows the percentage of non-reef users and reef users who supported the add-on fee at the various levels.

TABLE 8-9. RESPONDENT SUPPORT FOR AN ANNUAL ADD-ON FEE TO MAINTAIN AND DEPLOY ARTIFICIAL REEFS.

County	Non-Reef Users Add-on Fee				Reef Users Add-on Fee			
	$3	$6	$12	$24	$3	$6	$12	$24
Pinellas	48%	49%	24%	33%	73%	57%	54%	37%
Hillsborough	64%	45%	49%	25%	74%	61%	57%	44%
Manatee	78%	33%	33%	19%	86%	56%	60%	26%
Sarasota	81%	57%	36%	11%	75%	75%	35%	50%
Charlotte	56%	34%	23%	20%	55%	84%	50%	21%
Lee	55%	57%	39%	22%	65%	53%	51%	38%

Question 15: In what county is your primary Florida household located?

Table 8-10 shows, by county of residence, the number of survey returns from respondents who boated at least once in the previous 12 months: both for those who visited an artificial reef and for those who did not. The counties are listed in descending order of total returns.

TABLE 8-10. NUMBER OF SURVEY RETURNS BY COUNTY OF RESIDENCE.

Resident County	Non-Reef Users Count	Reef Users Count	Total Returns Count
Pinellas	205	179	384
Pasco	293	88	381
Collier	327	41	368
Lee	209	119	328
Hillsborough	190	123	313
Sarasota	104	86	190
Manatee	91	73	164
Charlotte	94	69	163
Polk	94	49	143
Hernando	83	9	92
Desoto	18	12	30
Hardee	8	8	16
Hendry	14	2	16
Other[1]	11	1	12
Unknown	6		6

[1] Brevard, Broward, Citrus, Duval, Glades, Highlands, Lake, Monroe, and Orange.

Question 17: In what year were you born?

The median age of residents for five of the study counties (Hillsborough was the exception) was higher than that of the state (40 years old) and the U.S. (37 years old), ranging from 37 years old in Hillsborough County to 51 years old in Charlotte County. The median age of resident boaters ranged from 53 years old in Hillsborough County to 64 years old in Charlotte and Pinellas County (Table 8-11). On average, respondents who had used an artificial reef in the previous 12 months were two to five years younger than respondents who had boated but not used a reef.

TABLE 8-11. AVERAGE AGE OF REEF USERS AND NON-REEF USERS.

	Average Age	
County	Non-Reef Users	Reef Users
Pinellas	56	52
Hillsborough	54	52
Manatee	58	52
Sarasota	60	55
Charlotte	63	61
Lee	58	54

Question 18: What is the highest level of education that you have completed?

Table 8-12 shows the highest level of education completed for both non-reef users and reef users. In both cases, most respondents were college graduates.

TABLE 8-12. HIGHEST LEVEL OF EDUCATION COMPLETED.

County	User Type	Less than High School	High School / GED	Technical / Vocational	Some College	College Grad	Graduate / Professional Degree
Pinellas	Non-Reef Users	1%	14%	9%	22%	47%	6%
	Reef User	1%	12%	9%	26%	48%	5%
Hillsborough	Non-Reef Users	3%	17%	8%	28%	40%	5%
	Reef User	1%	17%	8%	20%	51%	3%
Manatee	Non-Reef Users	0%	12%	12%	23%	48%	5%
	Reef User	1%	16%	11%	24%	44%	5%
Sarasota	Non-Reef Users	1%	14%	12%	20%	46%	6%
	Reef User	1%	12%	8%	25%	51%	5%
Charlotte	Non-Reef Users	4%	15%	7%	24%	44%	6%
	Reef User	2%	15%	7%	25%	46%	4%
Lee	Non-Reef Users	0%	16%	6%	23%	51%	4%
	Reef User	0%	12%	8%	26%	51%	2%

Question 19: Which of the following categories includes your household's total yearly income before taxes?

Table 8-13 shows the household yearly income, by county, for both non-reef users and reef users.

TABLE 8-13. HOUSEHOLD YEARLY INCOME BEFORE TAXES.

County	User Type	<$30,000	$30,000 to $59,999	$60,000 to $89,999	$90,000 to $119,999	$120,000 to $150,000	>$150,000
Pinellas	Non-Reef Users	7%	23%	24%	17%	13%	17%
	Reef User	5%	18%	29%	22%	10%	17%
Hillsborough	Non-Reef Users	9%	21%	24%	18%	11%	18%
	Reef User	7%	16%	35%	19%	8%	15%
Manatee	Non-Reef Users	6%	25%	24%	14%	8%	23%
	Reef User	6%	22%	23%	23%	10%	15%
Sarasota	Non-Reef Users	6%	24%	23%	17%	6%	24%
	Reef User	6%	24%	26%	19%	10%	15%
Charlotte	Non-Reef Users	9%	22%	27%	20%	7%	15%
	Reef User	3%	28%	27%	18%	9%	15%
Lee	Non-Reef Users	4%	26%	26%	15%	10%	20%
	Reef User	5%	24%	26%	18%	10%	16%

Question 20: Including yourself, how many adults (age 18 and over) live in your household?

Table 8-14 shows the average number of adults per household for reef users and non-reef users. There is no significant variation among the counties.

TABLE 8-14. AVERAGE NUMBER OF ADULTS IN THE HOUSEHOLD.

County	Adults in Household	
	Non-Reef User	Reef User
Pinellas	2.0	2.1
Hillsborough	2.0	2.2
Manatee	2.1	2.1
Sarasota	1.9	2.1
Charlotte	1.9	2.1
Lee	2.0	2.0

Question 21: How many children (under age 18) live in your household?

Table 8-15 shows the average number of children per household for reef users and non-reef users. There is no significant variation among the counties.

TABLE 8-15. AVERAGE NUMBER OF CHILDREN IN THE HOUSEHOLD.

County	Children in Household	
	Non-Reef User	Reef User
Pinellas	0.5	0.6
Hillsborough	0.6	0.6
Manatee	0.4	0.7
Sarasota	0.3	0.6
Charlotte	0.3	0.4
Lee	0.4	0.5

Question 22: Is anyone in your household involved in a fishing or boating-related job?

The percentage of non-reef users who reported that someone in the household had a fishing or boating related job ranged from 5% for respondents from Pinellas County to 8% for respondents from Manatee and Charlotte counties (Table 8-16). The percentage of reef users reporting as such ranged from 4% of those from Hillsborough County to 11% of those from Manatee County.

TABLE 8-16. PERCENTAGE OF HOUSEHOLDS WITH BOATING AND/OR FISHING RELATED JOB.

	% with Boating/Fishing Related Jobs	
County	Non-Reef User	Reef User
Pinellas	5%	8%
Hillsborough	6%	4%
Manatee	8%	11%
Sarasota	7%	9%
Charlotte	8%	9%
Lee	7%	8%

Question 22: Which of the following describes your race or ethnicity? (please mark all that apply.)

The percentage of White/Caucasian respondents ranged from 91% for Hillsborough County to 96% for Sarasota County (Table 8-17). In general, the next largest group of respondents consisted of Hispanics/Latinos, ranging from 1.8% for Charlotte and Sarasota counties to 4.9% for Hillsborough County. The high percentages for Native Americans are deemed to be errors; the authors suspect that many respondents marked this category if they were born in the U.S. (and not because they belonged to this ethnic group).

The ethnicity of boaters differed from that of the resident population in general (Table 8-17, Table 3-3). The proportion of Whites/Caucasians in the population ranged from 75.5% in Hillsborough County to 91.4% in Sarasota County. The proportion of White/Caucasian boaters was higher than that of the general population in all six counties, ranging from 4.2% higher in Charlotte County to 15.5% higher in Hillsborough County. The proportion of African Americans/Blacks in the general population ranged from 4.5% in Sarasota County to 15.8% in Hillsborough County. The proportion of African American/Black boaters was lower than that of the general population in all six counties, ranging from 14.5% lower in Hillsborough County to 4.2% lower in Sarasota County. The proportion of Hispanics/Latinos in the general population ranged from 5.2% in Charlotte County to 22.3% in Hillsborough County. The proportion of Hispanic/Latino boaters was lower than that of the general population in all six counties, ranging from 17.4% lower in Hillsborough to 3.4% lower in Charlotte County.

TABLE 8-17. ETHNICITY OF RESPONDENTS.

County	White / Caucasian	African American / Black	Asian / Pacific Islander	Native American	Hispanic / Latino	Other
Pinellas	93%	1.0%	0.7%	1.7%	2.9%	0.5%
Hillsborough	91%	1.3%	1.5%	1.5%	4.9%	0.2%
Manatee	94%	0.6%	0.3%	2.4%	2.1%	0.3%
Sarasota	96%	0.3%	0.3%	1.5%	1.8%	0.5%
Charlotte	94%	0.8%	0.8%	2.0%	1.8%	0.8%
Lee	94%	0.6%	0.2%	2.6%	2.5%	0.6%

8.2. FOR-HIRE OPERATOR SURVEY

Question 1: Which one of the following best characterizes your for-hire business using this vessel?

The majority of for-hire businesses were charter boats (67%) followed by guide boats (23%) (Table 8-18).

TABLE 8-18. BUSINESS TYPES OF FOR-HIRE RESPONDENTS.

Business Type	Count	%
Charter (6-pack) Fishing	149	67%
Party (head) Boat Fishing	5	2%
Guide Boat Fishing	51	23%
Diving / Snorkeling tours	15	7%
Other	2	1%
Total	222	100%

Question 2: Which Florida county do you consider to be the home port for this vessel?

Lee County was the home port for the most respondents (28%), followed by Pinellas (21%), Charlotte (16%), Sarasota (15%), Manatee (10%), and Hillsborough (7%). Citrus, Collier, and Monroe counties accounted for the remaining 2.7 percent.

Question 3: What is the length of this vessel?

The average vessel length for each for-hire business type, in ascending order, were Party (55 ft.), Dive/Snorkeling (33 ft.), Charter (32 ft.), and Guide boats (21 ft.).

Question 4: Which range below contains the approximate total amount you pay annually for all of the federal and state vessel license/titling fees, permit fees, and endorsements that you need for this vessel?

Most business types paid $300 or more in fees and endorsement, ranging from 67% of guide boat respondents to 100% of party boat respondents (Table 8-19).

TABLE 8-19. DISTRIBUTION OF FOR-HIRE RESPONDENTS BY ANNUAL PAYMENTS FOR VESSEL.

Business Type	Amount Per Year		
	Less than $100	$100 to $299	$300 or more
Charter (6-pack) Fishing	1%	14%	84%
Party (head) Boat Fishing	0%	0%	100%
Guide Boat Fishing	2%	31%	67%
Diving / Snorkeling tours	8%	15%	77%

Question 5: Please complete the table with information about your for-hire trips during the past 12 months.

Respondents conducting diving/snorkeling tours reported the most number of boat trips, averaging 183 for the year (Table 8-20). Party (head) boats followed with 172 trips, then charter boats with 97 trips, and lastly guide boats with an average of 94 trips for the year.

TABLE 8-20. AVERAGE NUMBER OF BOATING TRIPS BY FOR-HIRE BUSINESS TYPE AND SEASON.

	Average Number of Boat Trips				
Business Type	Winter	Spring	Summer	Fall	Total
Charter (6-pack) Fishing	26	32	20	20	97
Party (head) Boat Fishing	42	62	37	32	172
Guide Boat Fishing	28	32	16	19	94
Diving/Snorkeling tours	36	50	65	32	183

The largest percentage of trips by charter, party, and guide boat businesses occurred in the spring followed by the winter season (Table 8-21). In contrast, diving/snorkeling trips were more frequent in the summer followed by the spring.

TABLE 8-21. AVERAGE PERCENTAGE OF BOATING TRIPS BY FOR-HIRE BUSINESS TYPE AND SEASON.

Business Type	Winter	Spring	Summer	Fall	Total
Charter (6-pack) Fishing	27%	33%	21%	21%	100%
Party (head) Boat Fishing	24%	36%	22%	19%	100%
Guide Boat Fishing	30%	34%	17%	20%	100%
Diving/Snorkeling tours	20%	27%	36%	17%	100%

Question 6: What percentage of your total for-hire trips to artificial reefs in this vessel were launched from each southwest Florida county listed below?

For all counties except Hillsborough, over 90% of trips to artificial reefs launched (departed) from the homeport county of the for-hire vessel, ranging from 92.6% for vessels with homeports in Charlotte County to 97.7% for those with homeports in Pinellas County (Table 8-22). Respondents for vessels with home ports in Hillsborough County reported that 65.7% of their artificial reef trips were launched (departed) from Hillsborough County and 27.1% from Pinellas County.

TABLE 8-22. PERCENTAGE OF FOR-HIRE TRIPS TO ARTIFICIAL REEFS BY HOMEPORT AND LAUNCH COUNTY.

Vessel	County From Which Artificial Reef Trips Were Launched							
Homeport	Pinellas	Hillsborough	Manatee	Sarasota	Charlotte	Lee	Other	Total
Pinellas	97.7%	2.1%	0.1%	0.03%			0.03%	100%
Hillsborough	27.1%	65.7%	2.9%		2.9%	1.4%		100%
Manatee	0.2%	0.5%	97.1%	1.9%	0.2%			100%
Sarasota			0.4%	98.7%	1.0%			100%
Charlotte					92.6%	7.4%		100%
Lee					0.3%	96.5%	3.2%	100%

Question 7: What percentage of your total for-hire trips to artificial reefs in this vessel were partial days, full days, or multi-days?

The majority (99% or more) of trips for all four business types were one day in duration or less (Table 8-23).

TABLE 8-23. DURATION OF REEF TRIPS BY BUSINESS TYPE.

Business Type	Partial Day	Full Day	Multi-Day
Charter (6-pack) Fishing	54%	45%	1%
Party (head) Boat Fishing	100%	0%	0%
Guide Boat Fishing	63%	36%	1%
Diving / Snorkeling tours	89%	11%	0%

Question 8: When you consider the total number of clients that you served during the past 12 months using this vessel, what percentage of them would you estimate were residents and non-residents of its homeport?

The majority of for-hire clients were non-residents, ranging from 69% of clients for diving/snorkeling tours to 79% of clients for guide boats (Table 8-24). Thirty-nine percent of diving/snorkeling tour clients lived more than a few hours drive from the vessels' homeports, while 55% of clients of charter and guide boats lived more than a few hours away.

TABLE 8-24. ORIGINS OF FOR-HIRE CLIENTS BY BUSINESS TYPE.

Business Type	Resident of Home Port	Non-Resident of Homeport / Live Within a Few Hours Drive	Non-Resident of Homeport / Live More Than a Few Hours Drive
Charter (6-pack) Fishing	24%	21%	55%
Party (head) Boat Fishing	28%	27%	45%
Guide Boat Fishing	21%	24%	55%
Diving/Snorkeling tours	31%	30%	39%

Question 9: To the best of your memory, how many for-hire trips in this vessel have you lost, if any, during the past five years due to the following events?

On average, for-hire businesses reported losing 18 days due to red tide events and 17 days due to hurricane and/or tropical storm events during the previous five years. The number lost to red tide events ranged from 13 days by businesses in Charlotte and Lee counties, to 28 days by businesses in Sarasota County (Table 8-25). The number lost due to hurricanes and/or tropical storms ranged from 10 days by businesses in Hillsborough County to 19 by businesses in Hillsborough County. The total number of days lost in the previous five years ranged from 26 by businesses in Hillsborough County to 45 by businesses in Sarasota County (Table 8-25).

TABLE 8-25. AVERAGE NUMBER OF TRIPS LOST BY FOR-HIRE OPERATORS IN EACH STUDY COUNTY TO RED TIDE AND HURRICANE AND/OR TROPICAL STORM EVENTS DURING THE PAST FIVE YEARS.

	Average Days Lost to Events		
County	Red Tide Events	Hurricanes / Tropical Storms	Total
Pinellas	22	19	42
Hillsborough	16	10	26
Manatee	21	16	36
Sarasota	28	16	45
Charlotte	13	15	28
Lee	13	18	31

Question 10: How familiar are you with the Artificial Reef Program in your homeport county?

The majority of for-hire operators were either somewhat familiar of very familiar with the artificial reef program in their homeport county, ranging from 80% of those in Charlotte County to 100% of those in Sarasota County (Table 8-26). The percentage that was very familiar ranged from 31% in Hillsborough County to 67% in Sarasota County.

TABLE 8-26. FOR-HIRE OPERATORS' DEGREE OF FAMILIARITY WITH THE ARTIFICIAL REEF PROGRAM IN THEIR HOME PORT COUNTY.

	Familiarity With Reef Program		
Homeport County	Not Familiar	Somewhat Familiar	Very Familiar
Pinellas	4%	38%	56%
Hillsborough	6%	63%	31%
Manatee	4%	48%	48%
Sarasota		33%	67%
Charlotte	20%	43%	37%
Lee	14%	56%	30%

Question 11: Over the past 5 years, how has your use of artificial reefs changed, if at all?

Fifty-six percent of respondents said that their use of artificial reefs had not changed during the past five years, 23% said that it had increased, and 18% said it had decreased.

Question 12: To support the maintenance of existing reefs and deployment of new artificial reefs, the state could establish an Artificial Reef Trust Fund. One way to fund the program would be a mandatory add-on fee for all license holders. Would you support an [$8/$16/$24/$32] annual add-on fee for a new Artificial Reef Trust Fund?

A majority (59%) of respondents who received the questionnaire with a proposed $8 add-on fee said that they would support the additional annual fee (Table 8-27). However, the results for the $16, $24, and $32 add-on fees are not so clear since a larger percentage of respondents opposed the $16 and $24 add-on fees but 51% supported the $32 add-on fee. Of the 112 respondents who said they would support the proposed add-on fee, 4% were not at all sure of their decision to

support it, 39% were somewhat sure, and 55% very sure. Of the 101 who said that they would not support an add-on fee at the proposed amount, 61% said that they would not pay any amount and 34% said that they would something.

TABLE 8-27. FOR-HIRE SUPPORT FOR AN ADD-ON FEE FOR ARTIFICIAL REEF PROGRAMS.

Add-on Amount	Add-On Support	
	No	Yes
$8	38%	59%
$16	48%	44%
$24	50%	45%
$32	46%	51%

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APPENDIX 1: INITIAL TELEPHONE SURVEY OF RESIDENT BOATERS IN SIX STUDY COUNTIES

May I please speak with %VESSELOWNER?
[If owner not available, schedule CB]

My name is %name and I am calling from the Florida Survey Research Center at the University of Florida. Researchers at the University of Florida are calling recreational boaters to ask about boat use in Southwest Florida.

This is not a sales call, and your answers will be confidential. You may stop the interview at any time. The survey should only take about 5 minutes to complete.

[If respondent asks for more information on the nature of the survey: "We're trying to measure artificial reef use in southwest Florida."]

First, we'd like to ask you a few questions about saltwater recreational boating trips you may have taken in the past 12 months.

1. During the past 12 months, did you take any saltwater boating trips in Florida for recreation using your own boat? [YNDR]

   IF NO, DK, R: [Terminate, SAVE] "At this time, we're only speaking with people who have taken saltwater recreational boating trips in Florida on their own boats in the past 12 months. Thank you for you time. Have a nice evening (day)."

   IF YES: Continue

2. Did you visit an artificial reef during any of those boating trips? [Prompt if needed: "An artificial reef is a man-made object that has been placed on the ocean floor."] [YNDR]

   IF NO, DK, R: [Terminate, SAVE] "At this time, we're only speaking with people who have visited artificial reefs on boating trips in Florida in the past 12 months. Thank you for you time. Have a nice evening (day)."

   IF YES: Continue

3. I'll read you a short list of counties in Southwest Florida. For each, please tell me if you ever launched your boat from that county during a trip that you visited an artificial reef: [INT: If respondent is unsure of the county, but knows the city, check the lists provided. Do NOT read list of cities.]

A. Hillsborough [*Includes: Tampa, Davis Island, Apollo Beach, Ruskin, Sun City*]: [YNDR]
B. Pinellas [*Includes: St. Petersburg, Clearwater, Tarpon Springs, Belleair Bluffs, Tierra Verde, Palm Harbor, Indian Shores, Safety Harbor, Ft. Desoto, Treasure Island, Indian Rocks*]: [YNDR]
C. Manatee [*Includes: Anna Maria, Bradenton, Bradenton Beach, Cortez, Holmes Beach, Ellenton, Palmetto, Ruskin*]: [YNDR]
D. Sarasota [*Includes: Sarasota, Siesta Key, Venice, Lido Key, Englewood, North Port, Nokomis*]: [YNDR]
E. Charlotte [*Includes: Punta Gorda, El Jobean, Port Charlotte, Harbor Heights, Placida*]: [YNDR]
F. Lee [*Includes: Ft. Myers, North Ft. Myers, Ft. Myers Beach, Bonita Springs, Cape Coral, Captiva Island, Boca Grande, Sanibel, Bokeelia, Matlacha, St. James City, Pineland, Estero*]: [YNDR]

IF "REFUSE" to ALL: [Terminate SAVE] "Thank you for your time. Have a nice evening (day)."

FOR EACH "YES":
Q3A1. During the past 12 months, how many of your boating trips launched from [county name] included a visit to an artificial reef? [INT: Please prompt for a number, not a percentage of trips.] [#, DR]

Q3A2. On any of your boating trips to visit an artificial reef, when you launched from [county name], did you launch your boat from: [READ List; Mark ALL that apply.]
[checkbox
A boat ramp
A dry storage facility
A marina wet slip
A home dock
A location I haven't mentioned (describe)
DK
R]

4. On any of your boating trips to visit an artificial reef, did anyone on board your boat: [READ List; Mark all that apply.]
[checkbox
Fish
Scuba dive
Snorkel
DK
R]

5. When you visit artificial reefs, how many people, including yourself, typically travel on your boat? [#, DR]

6. When you visit artificial reefs, what is the length of the boat, in feet, that you typically use? [Enter to nearest foot] [#, DR]

7. In two months, we will conduct a follow-up survey to determine total artificial reef use.

    A. Would you be willing to answer additional questions if we mailed you a questionnaire? [YNDR]
    B. We are also considering an Internet survey. Would you complete the follow-up survey on-line if we emailed you a link to the questionnaire? [YNDR]

    IF YES:
    7B1. May I please have your email address, in case we choose to do an on-line survey? [text, R]

8. Do you have any questions regarding this study or your rights as a research participant? [YNDR]

    IF YES:
    For questions regarding this study, you may contact Dr. Michael Scicchitano at the Florida Survey Research Center toll-free at 866-392-3475. For questions regarding your rights as a research participant, you may contact the University of Florida Institutional Review Board at 352-392-0433.

That concludes our survey. Thank you very much for your time and participation.

APPENDIX 2: MATERIALS FOR SURVEY OF RESIDENTS AND DAY-TRIPPERS

UF UNIVERSITY of FLORIDA

Florida Sea Grant College Program
Boating and Waterway Management Program

Bldg 803 McCarty Drive
PO Box 110400
Gainesville, FL 32611-0400
352-392-6233
352-392-5113 Fax

Dear Boater:

The State of Florida and local agencies invest significant funding to maintain and upgrade facilities that support recreational boating. Recent budget shortfalls, however, threaten the continuation of some of the activities of these agencies.

By answering a few questions, you will help to ensure that future funding decisions consider the economic benefits that recreational boating generates for Southwest Florida's local economies and businesses. It is very important that we receive your answers because you are one of a selected few that have been randomly chosen to participate.

This survey is designed to estimate the recreational activities and contributions of registered boat owners using their own boat. *Even if you have used your vessel for commercial or for-hire use, please do not consider it when answering the questions in the survey* because we are also sending a similar questionnaire to other user groups, such as people who use for-hire vessels.

Your identity will remain anonymous. We are only interested in the total and average responses. The survey should take less than 10 minutes to complete. There are no direct benefits or risks to you for completing the survey and you will not be compensated. Participation is voluntary, so you do not have to answer any questions that you do not wish to answer. If you have any questions about this survey, please feel free to contact me or Dr. Michael Scicchitano (352-846-2874; mscicc@ufl.edu).

Thanks in advance for your time.
Sincerely,

Robert A. Swett
Program Coordinator

Please answer today and mail using the self-addressed, postage paid envelope, even if you are not a frequent boater.

P.S. If by some chance we made a mistake and you are not a boater, please return the survey. It is important that we receive every survey that we mailed.

Florida Sea Grant College Program
Boating and Waterway Management Program

Bldg 803 McCarty Drive
PO Box 110400
Gainesville, FL 32611-0400
352-392-6233
352-392-5113 Fax

Dear Florida Boater:

We recently sent you a survey being conducted by the University of Florida's Florida Sea Grant College Program about maintaining and upgrading facilities that support recreational boating. If you have already completed this survey and returned it to us, we thank you for your time and participation. There is no need to return another survey.

However, if you have not yet completed this survey, please a take a few minutes to do so. By answering a few questions, you will help to ensure that future funding decisions consider the economic benefits that recreational boating generates for Southwest Florida's local economies and businesses. It is very important that we receive your answers because you are one of a selected few that have been randomly chosen to participate.

This survey is designed to estimate the recreational activities and contributions of registered boat owners using their own boats. *Even if you have used your vessel for commercial or for-hire use, please do not consider it when answering the questions in the survey* because we are also sending a similar questionnaire to other user groups, such as people who use for-hire vessels.

Your identity will remain anonymous. We are only interested in the total and average responses. The survey should take less than 10 minutes to complete. There are no direct benefits or risks to you for completing the survey and you will not be compensated. Participation is voluntary, so you do not have to answer any questions that you do not wish to answer. If you have any questions about this survey, please feel free to contact Dr. Michael Scicchitano (352-846-2874; mscicc@ufl.edu) or me.

Thanks in advance for you time.

Sincerely,

Robert A. Swett
Program Coordinator

If you have not yet returned a survey, please answer today and mail using the self-addressed, postage-paid envelope, even if you are not a frequent boater.

P.S. If by some chance we made a mistake and you are not a boater, please return the survey. It is important that we receive every survey that we mailed.

For this survey, please only consider your recreational saltwater boating trips in the last 12 months using your own vessel.

INFORMATION ABOUT YOUR SALTWATER RECREATIONAL VESSEL

1. What is the length of your vessel (or its replacement if you exchanged boats during the past year)? *If you own or owned more than one vessel, please answer about the vessel you used most often.*

feet

2. What type of launch facility did you use most often in the last 12 months? *Please mark ONE type.*

O Public boat ramp	O Dry storage facility
O Marina wet slip	O Residential dock / ramp
O Other (please describe):	

INFORMATION ABOUT YOUR SALTWATER RECREATIONAL BOATING ON YOUR VESSEL

3. To the best of your memory, how many saltwater boating days did you lose - if any - during the past five years due to the following events? *If none, please enter "0."*

Red tide: days lost	Hurricanes/Tropical Storms: days lost

4. Please complete the two tables below with information about your saltwater recreational boating in the last 12 months using your vessel. If you did not go saltwater boating during the past 12 months, *please enter "0" in the **Total Boating Days** box for Question 4A and then skip to Question 8.*

4A. Enter the number of saltwater recreational boating days on your vessel *by season*.
Count partial days as full days.

SEASON	NUMBER OF BOATING DAYS
January to March 2009	days
October to December 2008	days
July to September 2008	days
April to June 2008	days
Total Boating Days	**days**

4B. Now indicate the primary purpose of the trip for the boating days listed in 4A.
Total Boating Days should be the same in 4A and 4B.

PRIMARY PURPOSE	NUMBER OF BOATING DAYS
Fishing	days
Diving / Spear Fishing	days
Swimming	days
Other	days
Total Boating Days	**days**

5. For each county listed below, please indicate your total number of saltwater recreational boating days during the past 12 months using your vessel. Then, for your last trip, indicate the total number of people onboard and, of those, the number who were residents of the launch county.

SOUTHWEST FLORIDA COUNTY WHERE BOAT WAS LAUNCHED	YOUR NUMBER OF RECREATIONAL BOATING DAYS IN PAST 12 MONTHS	TOTAL NUMBER OF PEOPLE ON BOARD DURING YOUR LAST TRIP	NUMBER ON BOARD THAT WERE RESIDENTS OF LAUNCH COUNTY
Pinellas County (Tarpon Springs to St. Pete Beach)			
Hillsborough County (Tampa, Apollo Beach to Ruskin)			
Manatee County (Anna Maria, Bradenton to Palmetto)			
Sarasota County (Sarasota, Venice to Englewood)			
Charlotte County (Port Charlotte, Punta Gorda to Placida)			
Lee County (Bokeelia, Ft. Myers area to Bonita Beach)			
Total Boating Days			

YOUR RECREATIONAL USE OF ARTIFICIAL REEFS ON YOUR VESSEL

The following questions are about "artificial reefs," which are man-made materials that have been placed on the sea floor. In Florida, public funds have been used to establish and maintain artificial reefs to enhance fish stocks and provide recreational opportunities.

6. How many of your saltwater recreational boating days from Question 5 included a visit to an artificial reef? *Count partial days as full days.*

COUNTY WHERE BOAT WAS LAUNCHED	NUMBER OF DAYS THAT INCLUDED A VISIT TO AN ARTIFICIAL REEF
Pinellas County	days
Hillsborough County	days
Manatee County	days
Sarasota County	days
Charlotte County	days
Lee County	days
Total Boating Days	**days**

7. Over the past 5 years, how has your use of artificial reefs changed?

O It has increased | O It has stayed the same | O It has decreased

8. How familiar are you with the Artificial Reef Programs funded by Florida and its coastal counties?

O Not at all familiar | O Somewhat familiar | O Very familiar

YOUR MOST RECENT SALTWATER RECREATIONAL BOATING DAY ON THIS VESSEL

9. Please complete the table below about your most recent saltwater recreational boating day when you launched from one of the following six counties: Pinellas, Hillsborough, Manatee, Sarasota, Charlotte, or Lee.

a. From which of the six counties was this boat trip launched?	County:		
b. In what month and year did this trip take place?	Month:	Year:	
c. How many days and hours were you away from home?	Days:	Hours:	
d. Including you, how many people were onboard?	Total People:		
e. Of those, how many were residents of the launch county?	Residents:		
f. Did you visit an artificial reef on this trip?	O Yes	O No	O Don't know
g. Was this most recent boating day a typical boating day for you?	O Yes	O No	O Don't know

10. Next, please estimate the costs for this boating day for each of the expense categories in the table below. *This information is very important since it allows us to estimate the total value of all trips taken.*

EXPENSE CATEGORIES	TOTAL BOATING DAY EXPENSE BY CATEGORY
TRANSPORTATION EXPENSE:	
Automobile Fuel	$
LODGING EXPENSES:	
Hotel/motel, condo, campground, etc.	$
BOATING EXPENSES:	
Fuel and oil	$
Ramp/marina/mooring/parking fees	$
Tackle (bought or rented)	$
Bait and ice	$
Diving-related equipment/costs	$
Food (taken onboard)	$
Other items taken onboard (sunscreen, etc.)	$
OTHER EXPENSES:	
Food on shore (from stores)	$
Food on shore (restaurants)	$
Shopping (souvenirs, clothing, etc.)	$
Entertainment/entry fees (on shore)	$

11. What percentage of the total cost of this boating day was spent within the launch county?

    ____ %

12. How many times in the in the past 12 months have you paid to go on a boat for saltwater recreational purposes?

    ____ times

YOUR LEVEL OF SUPPORT FOR ARTIFICIAL REEF PROGRAMS

13. In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

O Oppose	O Neutral/don't care much	O Support

14. To support the maintenance and deployment of new artificial reefs, the state could establish an *Artificial Reef Trust Fund*. One way to fund the program would be a mandatory add-on fee for all vessel registrations. Would you support a $3 annual add-on fee for a new *Artificial Reef Trust Fund*?

O Yes	O No
14A. If yes, how sure are you of this decision?	*14B.* If no, is there an amount you would pay?
O Not at all sure	O Yes, I would pay $_____
O Somewhat unsure	O No
O Somewhat sure	*If no,* why not?
O Very sure	
If very sure, what is the maximum that you would be willing to pay? $ _____	

DEMOGRAPHIC INFORMATION (TO BE SUMMARIZED FOR STATISTICAL PURPOSES ONLY)

15. In what county is your primary Florida household located? _____
16. What is the 5-digit postal ZIP code where this residence is located? _____

17. In what year were you born? 1 9 _ _

18. What is the highest level of education that you have completed?

O Less than high school	O High school graduate/GED	O Technical/Vocational
O Some college	O College graduate	O Graduate/Professional Degree

19. Which of the following categories includes your household's total yearly income before taxes?

O Less than $30,000	O $30,000 to $60,000	O $60,001 to $90,000
O $90,001 to $120,000	O $120,001 to $150,000	O More than $150,000

20. Including yourself, how many adults (age 18 and over) live in your household? _____
21. How many children (under age 18) live in your household? _____

22. Is anyone in your household involved in a fishing or boating-related job? O Yes O No

23. Which of the following describe your race or ethnicity? Please mark all that apply.

O White / Caucasian	O African American / Black	O Asian / Pacific Islander
O Native American	O Hispanic / Latino	O Other:

Thank you for representing recreational boaters in Southwest Florida by completing this survey.
Please return your survey to us using the postage-paid envelope included in your packet.

APPENDIX 3: MATERIALS FOR SURVEY OF FOR-HIRE OPERATORS

Florida Sea Grant College Program
Boating and Waterway Management Program

PO Box 110400
Gainesville, FL 32611

June 2009

Dear for-hire vessel operator:

The State of Florida and local agencies invest significant funding to deploy and maintain artificial reefs in Florida's nearshore waters. Recent budget shortfalls, however, threaten the continuation of many artificial reef programs.

By answering a few questions about your artificial reef use, you will help to ensure that future funding decisions consider the economic benefits that artificial reefs generate for Southwest Florida's local economies and businesses. It is very important that we receive your answers because you are one of a selected few that have been randomly chosen to participate.

This survey is designed to estimate reef use only within the for-hire sector. *Even if you have used a vessel for recreational use, please do not consider it when answering the questions in the survey* because we are also sending a similar questionnaire to recreational boat owners.

Your identity will remain anonymous. We are only interested in the total and average responses. The form is numbered only so that we can remove your name from our mailing list. The survey should take less than 10 minutes to complete. There are no direct benefits or risks to you for completing the survey and you will not be compensated. Participation is voluntary, so you do not have to answer any questions that you do not wish to answer. If you have any questions about this survey, please feel free to contact me or Dr. Michael Scicchitano (352-846-2874; mscicc@ufl.edu).

Thanks in advance for your time.

Sincerely,

Please answer today and mail using the self-addressed, postage paid envelope, even if you have not used artificial reefs.

Robert A. Swett
Program Coordinator
Telephone: 352-392-6233
Email: boatersurvey@ufl.edu

Survey #

Information about Your *For-Hire* Vessel

If you have more than one vessel that you use for commercial purposes, please consider your primary for-hire vessel in answering the questions in this survey.

1. Which ***one*** of the following ***best*** characterizes your for-hire business using this vessel?

O Charter (6-pack) fishing	O Party (head) boat fishing	O Guide boat fishing
O Diving / snorkeling tours	O Other (please describe):	

2. Which Florida County do you consider to be the home port for this vessel? _____

3. What is the length of this vessel? _____ feet

4. Which range below contains the approximate total amount you pay annually for all of the federal and state vessel license/titling fees, permit fees, and endorsements you need for this vessel?

O Less than $100 each year	O $100-$299 each year	O $300 or more each year

Information about Your *For-Hire* Trips in This Vessel

5. Please complete the table below with information about your *for-hire* trips during the past 12 months. Count all trips regardless of duration (i.e. partial day, full day, or multi-day). If you did not have any clients in the past year, please enter "0" in the total box for Question 4A and then skip to Question 8.

Season	**4A Total number of trips *for-hire* by season?**	**4B Of the total trips in 4A, how many were to artificial reefs?**	**4C Average number of clients per trip?**
Winter: Jan – Mar 2009	trips	trips	people
Fall: Oct – Dec 2008	trips	trips	people
Summer: Jul – Sep 2008	trips	trips	people
Spring: Apr – Jun 2008	trips	trips	people
TOTAL	**trips**	**trips**	

6. What percentage of your total ***for-hire trips to artificial reefs*** in this vessel were launched from each Southwest Florida county listed below:

%	from **PINELLAS** County
%	from **HILLSBOROUGH** County
%	from **MANATEE** County
%	from **SARASOTA** County
%	from **CHARLOTTE** County
%	from **LEE** County
%	from *other counties*
100 %	**For-hire trips to artificial reefs**

7. What percentage of your total ***for-hire trips to artificial reefs*** in this vessel were:

Partial day	%
Full (single) day	%
Multi-day	%
Total	**100 %**

8. When you consider the total number of clients that you served during the past 12 months (April 2008 through March 2009) using this vessel, what percentage of them would you estimate were:

Residents of your home port county identified in Question 2?	%
Not residents of your home port county, but within a few hours' drive?	%
Not residents of your home port county and more than a few hours' drive? (i.e. all remaining clients, including out of state and foreign visitors)	%
Total clients served in past year	**100 %**

9. To the best of your memory, how many for-hire trips in this vessel have you lost, if any, during the past 5 years due to the following events? [If none, please enter "0"]

Red tide:	trips lost
Hurricanes:	trips lost

Opinions about Funding & Artificial Reef Use

10. How familiar are you with the Artificial Reef Program in your home port county?

O Not at all familiar	O Somewhat familiar	O Very familiar

11. Over the past 5 years (approximately 2004 to the present), how has your use of artificial reefs changed, if at all?

O It has Increased	O It has Stayed the Same	O It has Decreased

12. To support the maintenance and deployment of new artificial reefs, the state could establish an *Artificial Reef Trust Fund*. One way to fund the program would be a mandatory add-on fee for all license holders. Would you support a $25 annual add-on fee for a new *Artificial Reef Trust Fund*?

O Yes

If yes, ↓

13A. How sure are you of this decision?

O Not at all sure
O Somewhat unsure
O Somewhat sure
O Very sure
If very sure, what is the maximum that you would be willing to pay? $ _____

O No

If no, ↓

13B. Is there any amount you would pay?

O Yes, I would pay $_____
O No
If no, why not?

Please add any other comments about your use of artificial reefs in the space below:

Thank you for representing your industry by completing this survey.
Please return your completed survey to us using the postage-paid envelope included in your packet.

APPENDIX 4: MATERIALS FOR SURVEY OF FOR-HIRE CLIENTS

Southwest Florida Marine Recreational Boating Survey

August 10th, 2009

Hello and Welcome!

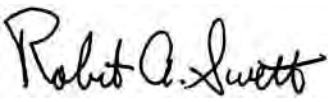
We need your help to estimate the recreational and economic benefits from saltwater fishing, diving, and related activities in Southwest Florida. Why? Recent budget shortfalls threaten many services provided by state and local governments. We want future funding decisions to consider the benefits that are generated by boating related activities.

The survey consists of five sections and should take less than 10 minutes to complete. You cannot save partial answers and return later so please complete this brief survey in one sitting. There are no direct benefits or risks to you for completing the survey and you will not be compensated by the University of Florida (UF).

If you have any questions about your rights as a participant in this survey, please contact UF's Institutional Review Board (IRB2@ufl.edu; 352-392-0433) and refer to protocol UF-09-0721.

Begin the Survey >>

Thank you for your time.



Robert A. Swett
Assistant Professor

Southwest Florida Marine Recreational Boating Survey

LOGIN PAGE

Please make up a 4-character code that contains at least two letters.

Your Code: [ ] (4-character code with at least 2 letters)

Proceed to Next Section >>

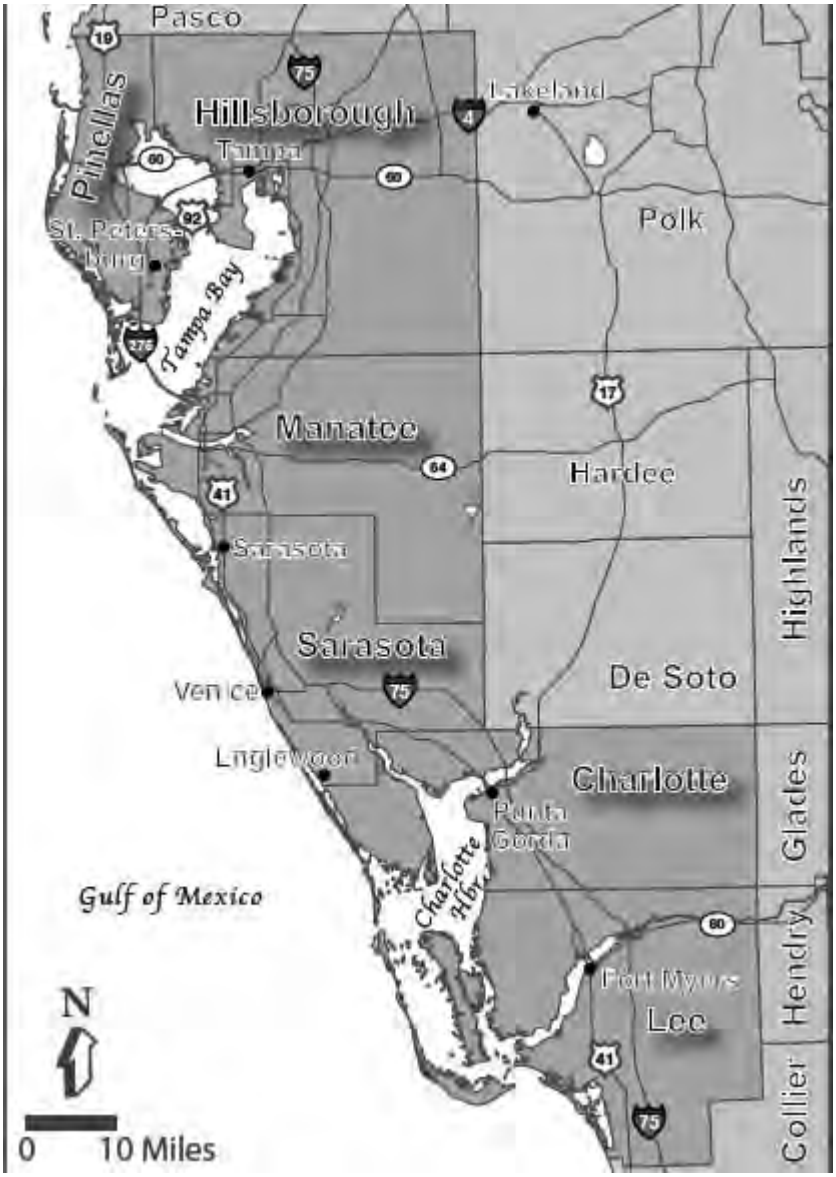
Southwest Florida Marine Recreational Boating Survey

SECTION I:

During the past 12 months, did you travel onboard any boat that launched from any of the six Southwest Florida coastal counties that are highlighted on the map?

(i.e., Pinellas, Hillsborough, Manatee, Sarasota, Charlotte, or Lee)

Yes	No



Southwest Florida Marine Recreational Boating Survey

SECTION II:

During the past 12 months, how many boating trips in Southwest Florida did you take onboard each vessel type listed below?

A "trip" is a single event that lasts either part of a day, a full day, or multiple days.

Type of Vessel	Description	Number of Trips	Were any to an artificial reef?	Fee paid on last trip
Charter (Six-pack) 	A for-hire vessel licensed to take no more than 6 paying passengers, usually for offshore trolling or deepwater bottom-fishing	Select one...	Select one...	$ _____ avg. per person
Party (Head) 	A for-hire vessel licensed to take more than 11 persons usually offshore for bottom-fishing	Select one...	Select one...	$ _____ per person
Guide 	A for-hire vessel licensed to take no more than 4 persons usually nearshore for flats-fishing and casting	Select one...	Select one...	$ _____ avg. per person
Dive 	A for-hire licensed vessel designed to accommodate multiple persons for scuba diving or snorkeling	Select one...	Select one...	$ _____ per person
Rental 	A for-hire vessel you would rent from a local marina or boat rental business, and operate yourself	Select one...	Select one...	$ _____ avg. per person
Private	A vessel owned by a family member or friend, not your own	Select one...	Select one...	N/A

Private	Your own vessel	Select one...	Select one...	N/A

Proceed to Next Section >>

Southwest Florida Marine Recreational Boating Survey

SECTION II (Continued):

How many of your planned recreational boating days in Southwest Florida were cancelled, if any, due to a red tide event over the past 5 years?

Select one...

How many of your planned recreational boating days in Southwest Florida were cancelled, if any, due to a tropical storm or hurricane over the past 5 years?

Select one...

Proceed to Next Section >>

Southwest Florida Marine Recreational Boating Survey

UNIVERSITY OF FLORIDA

SECTION III: Your Last For-Hire Trip

Please describe your last saltwater recreational boating trip in Southwest Florida on a for-hire vessel. This page focuses on for-hire trips only since we are surveying boat owners separately.

a) What type of boat were you on?	Select one...
b) From which of the six counties was this boat trip launched?	Select one...
c) Did you visit an artificial reef on this boating trip?	○ Yes ○ No ○ Not sure
d) What was your primary activity on the water?	○ Fishing ○ Diving ○ Swimming ○ Other
e) How long were you on the water?	○ Partial day (less than 4 hours) ○ Full day (4 hours or more) ○ Two days ○ Three days ○ More than three days

Please estimate your individual share of the costs for this boating trip for the categories listed below. If there was no expense, please enter a "0" so we know the category wasn't skipped. This information is very important since it allows us to estimate the total value of all boating trips taken by visitors to the study region.

Expense Category	Your individual share of costs for this boating trip
f) Lodging	$
g) Food & Beverage – purchased at stores	$
h) Food & Beverage – purchased at restaurants	$
i) Auto transportation – rental	$
j) Fuel - auto and boat	$

Fees and Supplies:	
k1) *Recreational supplies* purchased at stores before reaching launch site (tackle, fishing/diving equipment, air refills, etc.)	$
k2) *Parking fees and fishing/diving supplies* paid for at the launch site (e.g., bait, ice)	$
k3) *Clothing and accessories* (e.g., hats) bought at other stores	$
k4) *Other items* purchased at stores (e.g., sunscreen, souvenirs)	$
l) Portion of all expenses that were paid for in the launch County (#b above)	Select one...

Proceed to Next Section >>

Southwest Florida Marine Recreational Boating Survey

SECTION IV: Random selection for reef question on next page.

In what month were you born?

January, Feburary, March
April, May, June
July, August, September
October, November, December

Southwest Florida Marine Recreational Boating Survey

SECTION IV (Continued):

In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

○ Oppose	○ Neutral/don't care much	○ Support

To support the maintenance and deployment of new artificial reefs, the state could establish an Artificial Reef Trust Fund. One way to fund the program would be a mandatory surcharge on all for-hire fees. Would you support a 10% surcharge on the for-hire fee you pay to help fund this new program?

Select one...

If the surcharge is too high or too low, is there any amount you would pay?

Yes, I would pay _____ % or $ _____ per person per rental

Proceed to Last Section >>

Southwest Florida Marine Recreational Boating Survey

SECTION V:

We need to know about you so that we can characterize our overall sample when we combine responses.

a) What is the 5-digit ZIP code of your permanent residence? [ ]

b) In what year were you born? Select one...

c) What is your gender? ○ Male ○ Female

d) What is the highest level of education that you have completed?

Select one...

e) Which of the following categories includes your household's current total yearly income before taxes?

Select one...

f) Which of the following describes your race or ethnicity? Please check all that apply.

- ☐ White / Caucasian
- ☐ African American / Black
- ☐ Asian / Pacific Islander
- ☐ Native American
- ☐ Hispanic / Latino
- ☐ Other

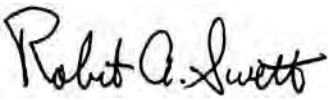
g) How did you hear about this study? ○ Email invitation ○ Postcard

Proceed to Final Page >>

Southwest Florida Marine Recreational Boating Survey

Thank You for Your Assistance with this UF Study!

If you have any questions or concerns regarding this survey, please contact me directly. Thank you for your time,



Robert A. Swett
Assistant Professor (Email: boating@agsurveys.org)

APPENDIX 5: DEFINITIONS OF INPUT-OUTPUT ANALYSIS TERMS

The following definitions are from the glossary at Implan.com.

Jobs (Employment): The number of full- and part-time jobs filled by persons who enter an agreement, which may be formal or informal, with an enterprise to work for the enterprise in return for remuneration in cash or in kind.

Output (Revenue): Output, or revenue, represents the value of industry production. In IMPLAN, these are annual production estimates of the dataset and are in producer prices. For manufacturers, this would be sales plus/minus the change in inventory. For service sectors, production equals sales. For retail and wholesale trade, output equals gross margin and not gross sales.

Value Added: Value added is the difference between an industry's or an establishment's total output and the cost of its intermediate inputs. It equals gross output (sales or receipts and other operating income, plus inventory change) minus intermediate inputs (consumption of goods and services purchased from other industries or imported). Value added consists of compensation of employees (Labor Income), taxes on production and imports less subsidies (Indirect Business Taxes), gross operating surplus (Other Property Income), and depreciation of fixed assets (Capital Consumption). Value added is a measure of the contribution to Gross Domestic Product (GDP) made by an individual producer, industry, or sector.

Labor Income: Labor income consists of all forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income. Labor income is a component of Value Added.

Other Property Income: Other property income represents "property income" minus "proprietor income." It includes corporate profits, capital consumption allowance, payments for rent, dividends, royalties and interest income. Other property income is a component of Value Added.

Indirect Business Taxes: Indirect business taxes consist of tax and nontax liabilities that are chargeable to business expenses when calculating profit-type incomes and of other certain business liabilities to government agencies that are treated like taxes. Thus, it includes taxes on sales, property, and production, but it excludes employer contributions for social insurance and taxes on income. Indirect business taxes are a component of Value Added.

Indirect Effects: The impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to value added. The impacts are calculated by applying Direct Effects to the Type I Multipliers.

Induced Effects: The economy's response to an initial change (direct effect) that occurs through re-spending of income received by a component of value added. IMPLAN's default multiplier recognizes that labor income (employee compensation and proprietor income components of value added) is not a leakage to the regional economy. This money is recirculated through the household spending patterns causing further local economic activity.

Direct Effects: The set of expenditures applied to the predictive model (i.e., I/O multipliers) for impact analysis. It is a series (or single) of production changes or expenditures made by producers/consumers as a result of an activity or policy. These initial changes are determined by an analyst to be a result of this activity or policy. Applying these initial changes to the multipliers in an IMPLAN model will then display how the region will respond economically to these initial changes.

APPENDIX 6: ECONOMIC IMPACTS OF ARTIFICIAL REEFS BY COUNTY

ECONOMIC IMPACTS OF ARTIFICIAL REEFS

Manatee County, FL

These are findings from a recent study of economic benefits associated with artificial reef programs in a six-county region of Southwest Florida (Pinellas, Hillsborough, Manatee, Sarasota, Charlotte and Lee counties). The full report, *Economic Impacts of Artificial Reefs for Six Southwest Florida Counties*, TP 178, is available from Florida Sea Grant, flseagrant.org.

At a glance:

- The results from a recent survey of the economic impact of artificial reefs show extensive use of the Manatee County artificial reef system by residents, visitors, private boaters and for-hire clients.
- On a daily basis, an average of more than 540 persons in Manatee County – residents and visitors included – use artificial reefs.
- Fishermen and divers who use Manatee County's 13 artificial reef sites spend over $23 million in the county annually.
- Survey results document that artificial reefs help support the for-hire fishing sector (guides, charter and party boats) with clients spending nearly $7 million on artificial reef-related trips.
- Visitors bring new money into the local economy ($11.10 million), accounting for almost half of artificial reef expenditures.
- Expenditures on artificial reef-related activities generate over $19 million in net economic impacts annually that support 234 full- and part-time jobs.
- Manatee County government dedicates approximately $50,000 annually for artificial reef construction projects. Supplemental grant funding is provided by the Florida Fish and Wildlife Conservation Commission statewide artificial reef program and the Sarasota Bay Estuary Program.
- With 43 recreational parks, 5 area marinas with over 500 total slips, and 27 miles of white sand beaches, Manatee County is an important tourist destination on Florida's West Coast.

Public Support for Artificial Reefs

In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

Reef Users		Non Reef Users	
Support	93%	Support	61%
Neutral	6%	Neutral	32%
Oppose	1%	Oppose	7%

Annual Use of Artificial Reefs

58,842
Boat Days

197,522
Person Days

Annual Artificial Reef Related Expenditures By Users

$23.18
Million

$12.08 Million (residents)	$11.10 Million (non-residents)

-- OR --

$16.24 Million (private boaters)	$6.93 Million (guide, party, charter clients)

Annual Economic Impacts

Economic Output	$19.47 Million
Total Income	$10.58 Million
Business Taxes	$1.49 Million
Full/Part-time Jobs	234

The study was conducted by Florida Sea Grant and University of Florida researchers with funding provided by the U.S. Fish and Wildlife Service Federal Aid in Sport Fish Restoration Program through a grant to the Florida Fish and Wildlife Conservation Commission; the West Coast Inland Navigation District; and by participating counties. Information was collected using a variety of survey techniques that asked private boater and for-hire operators and clients about their artificial reef use during 2009. For more information, contact: John Stevely, Manatee County Sea Grant Extension, (941) 722-4524, jsmarine@ufl.edu.

SGEF 180

ECONOMIC IMPACTS OF ARTIFICIAL REEFS

Sarasota County, FL

These are findings from a recent study of economic benefits associated with artificial reef programs in a six-county region of Southwest Florida (Pinellas, Hillsborough, Manatee, Sarasota, Charlotte and Lee counties). The full report, *Economic Impacts of Artificial Reefs for Six Southwest Florida Counties*, TP 178, is available from Florida Sea Grant, flseagrant.org.

At a glance:

- The results from the survey show extensive use of the Sarasota County artificial reef system by residents, visitors, private boaters and for-hire clients.
- On a daily basis, an average of more than 600 persons in Sarasota County – residents and visitors included – use artificial reefs.
- Fishermen and divers who use Sarasota County's 39 artificial reef sites spend nearly $33 million in the county annually.
- Survey results document that artificial reefs help support the for-hire fishing sector (guides, charter and party boats) with clients spending nearly $13.8 million on artificial reef-related trips.
- Visitors bring new money into the local economy ($15.71 million), accounting for almost half of artificial reef expenditures.
- Expenditures on artificial reef-related activities generate over $30 million in net economic impacts annually that support 338 full- and part-time jobs.
- Sarasota County government receives approximately $60,000 annually in artificial reef construction grants. Supplemental funds are provided by the Florida Fish and Wildlife Conservation Commission statewide artificial reef program, the Sarasota Bay Estuary Program and donations of time and material from artificial reef manufacturing companies.
- With more than 35 marinas, the world-renowned white sand beaches of Siesta Key, and more than 109,000 acres of publicly-owned parks and conservation lands, Sarasota County is an important tourist destination on Florida's West Coast.

Public Support for Artificial Reefs

In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

Reef Users		Non Reef Users	
Support	95%	Support	68%
Neutral	4%	Neutral	27%
Oppose	1%	Oppose	5%

Annual Use of Artificial Reefs

68,886
Boat Days

226,065
Person Days

Annual Artificial Reef Related Expenditures By Users

$32.82
Million

$17.11 Million (residents)	**$15.71** Million (non-residents)

-- OR --

$19.02 Million (private boaters)	**$13.80** Million (guide, party, charter clients)

Annual Economic Impacts

Economic Output	$30.27 Million
Total Income	$16.64 Million
Business Taxes	$2.26 Million
Full/Part-time Jobs	338

The study was conducted by Florida Sea Grant and University of Florida researchers with funding provided by the U.S. Fish and Wildlife Service Federal Aid in Sport Fish Restoration Program through a grant to the Florida Fish and Wildlife Conservation Commission; the West Coast Inland Navigation District; and by participating counties. Information was collected using a variety of survey techniques that asked private boater and for-hire operators and clients about their artificial reef use during 2009. For more information, contact: John Stevely, Sarasota County Sea Grant Extension, (941) 722-4524, jsmarine@ufl.edu.

SGEF 181

ECONOMIC IMPACTS OF ARTIFICIAL REEFS
Hillsborough County, FL

These are findings from a recent study of economic benefits associated with artificial reef programs in a six-county region of Southwest Florida (Pinellas, Hillsborough, Manatee, Sarasota, Charlotte and Lee counties). The full report, *Economic Impacts of Artificial Reefs for Six Southwest Florida Counties*, TP 178, is available from Florida Sea Grant, flseagrant.org.

At a glance:

- The results from a recent survey of the economic impact of artificial reefs show extensive use of the Hillsborough County artificial reef system by residents, visitors, private boaters and for-hire clients.
- On a daily basis, an average of more than 570 persons in Hillsborough County – residents and visitors included – use artificial reefs.
- Fishermen and divers who use Hillsborough County's 8 artificial reef sites spend more than $30 million in the county annually.
- Survey results document that artificial reefs help support the for-hire fishing sector (guides, charter and party boats) with clients spending over $10.5 million on artificial reef-related trips.
- Visitors bring new money into the local economy ($13.18 million), accounting for almost half of artificial reef expenditures.
- Expenditures on artificial reef-related activities generate nearly $27 million in net economic impacts annually that support 284 full- and part-time jobs.
- The Environmental Protection Commission of Hillsborough County uses approximately $20,000 annually in Pollution Recovery Funds to operate the artificial reef program. Supplemental funds have been provided by the Florida Fish and Wildlife Conservation Commission statewide artificial reef program and the vast majority of materials and construction services have been donated by local marine contractors.
- As one of Florida's most popular tourist destinations, Hillsborough County is home to Tampa Bay, Florida's largest open-water estuary that stretches nearly 400 square miles and provides some of the state's top fishing grounds and wildlife habitat.

Public Support for Artificial Reefs

In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

Reef Users		Non Reef Users	
Support	90%	Support	66%
Neutral	5%	Neutral	31%
Oppose	5%	Oppose	3%

Annual Use of Artificial Reefs

63,861
Boat Days

209,655
Person Days

Annual Artificial Reef Related Expenditures By Users

$30.25
Million

$17.07 Million (residents)	$13.18 Million (non-residents)

-- OR --

$19.67 Million (private boaters)	$10.58 Million (guide, party, charter clients)

Annual Economic Impacts

Economic Output	$26.95 Million
Total Income	$14.61 Million
Business Taxes	$1.95 Million
Full/Part-time Jobs	284

The study was conducted by Florida Sea Grant and University of Florida researchers with funding provided by the U.S. Fish and Wildlife Service Federal Aid in Sport Fish Restoration Program through a grant to the Florida Fish and Wildlife Conservation Commission; the West Coast Inland Navigation District; and by participating counties. Information was collected using a variety of survey techniques that asked private boater and for-hire operators and clients about their artificial reef use during 2009. For more information, contact: John Stevely, Hillsborough County Sea Grant Extension, (941) 722-4524, jsmarine@ufl.edu.

SGEF 182

ECONOMIC IMPACTS OF ARTIFICIAL REEFS

Pinellas County, FL

These are findings from a recent study of economic benefits associated with artificial reef programs in a six-county region of Southwest Florida (Pinellas, Hillsborough, Manatee, Sarasota, Charlotte and Lee counties). The full report, *Economic Impacts of Artificial Reefs for Six Southwest Florida Counties*, TP 178, is available from Florida Sea Grant, flseagrant.org.

At a glance:

- The results from a recent survey of the economic impact of artificial reefs show extensive use of the Pinellas County artificial reef system by residents, visitors, private boaters and for-hire clients.
- On a daily basis, an average of more than 1800 persons in Pinellas County – residents and visitors included – use artificial reefs.
- Fishermen and divers who use Pinellas County's 12 artificial reef sites spend more than $79 million in the county annually.
- Survey results document that artificial reefs help support the for-hire fishing sector (guides, charter and party boats) with clients spending nearly $31 million on artificial reef-related trips.
- Visitors bring new money into the local economy ($36.40 million), accounting for more than 40% of artificial reef expenditures.
- Expenditures on artificial reef-related activities generate nearly $76 million in net economic impacts annually that support 858 full- and part-time jobs.
- Pinellas County budgets $60,000 annually for artificial reef-related activities. Supplemental funds are provided by the Florida Fish and Wildlife Conservation Commission statewide artificial reef program.
- With 588 miles of coastline, 35 miles of white sand beaches, numerous and productive ramps and piers, and the state's largest city marina, Pinellas County is an important tourist destination on Florida's West Coast.

Public Support for Artificial Reefs

In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

Reef Users		Non Reef Users	
Support	89%	Support	71%
Neutral	9%	Neutral	26%
Oppose	2%	Oppose	3%

Annual Use of Artificial Reefs

188,249
Boat Days

666,857
Person Days

Annual Artificial Reef Related Expenditures By Users

$79.37
Million

$42.98 Million (residents)	**$36.40** Million (non-residents)

-- OR --

$48.48 Million (private boaters)	**$30.89** Million (guide, party, charter clients)

Annual Economic Impacts

Economic Output	$75.84 Million
Total Income	$39.59 Million
Business Taxes	$5.34 Million
Full/Part-time Jobs	858

The study was conducted by Florida Sea Grant and University of Florida researchers with funding provided by the U.S. Fish and Wildlife Service Federal Aid in Sport Fish Restoration Program through a grant to the Florida Fish and Wildlife Conservation Commission; the West Coast Inland Navigation District; and by participating counties. Information was collected using a variety of survey techniques that asked private boater and for-hire operators and clients about their artificial reef use during 2009. For more information, contact: John Stevely, Pinellas County Sea Grant Extension, (941) 722-4524, jsmarine@ufl.edu.
SGEF 183

ECONOMIC IMPACTS OF ARTIFICIAL REEFS
Charlotte County, FL

These are findings from a recent study of economic benefits associated with artificial reef programs in a six-county region of Southwest Florida (Pinellas, Hillsborough, Manatee, Sarasota, Charlotte and Lee counties). The full report, *Economic Impacts of Artificial Reefs for Six Southwest Florida Counties*, TP 178, is available from Florida Sea Grant, flseagrant.org.

At a glance:

- The results from a recent survey of the economic impact of artificial reefs show extensive use of the Charlotte County artificial reef system by residents, visitors, private boaters and for-hire clients.
- On a daily basis, an average of nearly 700 persons in Charlotte County – residents and visitors included – use artificial reefs.
- Fishermen and divers who launch from Charlotte County to use artificial reef sites spend almost $28 million in the county annually.
- Survey results document that artificial reefs help support the for-hire fishing sector (guides, charter and party boats) with clients spending nearly $7 million on artificial reef-related trips.
- Visitors bring new money into the local economy ($14.75 million), accounting for more than half of artificial reef expenditures.
- Expenditures on artificial reef-related activities generate nearly $23 million in net economic impacts annually that support 306 full- and part-time jobs.
- Charlotte County government's artificial reef development activities rely entirely on annual grant funding provided by Local Boating Improvement Funds. Supplemental construction funds are provided by the Florida Fish and Wildlife Conservation Commission statewide artificial reef program and other grant programs.
- With over 830 miles of shoreline, including mangrove-lined aquatic preserves, river passages and white sand beaches, and 270 square miles of protected marine estuary, Charlotte County possesses some of the most pristine and productive coastal areas in the state.

Public Support for Artificial Reefs

In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

Reef Users		Non Reef Users	
Support	83%	Support	63%
Neutral	17%	Neutral	30%
Oppose	0%	Oppose	7%

Annual Use of Artificial Reefs

81,549
Boat Days

270,036
Person Days

Annual Artificial Reef Related Expenditures By Users

$27.96
Million

$13.21
Million
(residents)

$14.75
Million
(non-residents)

-- OR --

$21.21
Million
(private boaters)

$6.75
Million
(guide, party, charter clients)

Annual Economic Impacts

Economic Output	$22.65 Million
Total Income	$11.82 Million
Business Taxes	$1.66 Million
Full/Part-time Jobs	306

The study was conducted by Florida Sea Grant and University of Florida researchers with funding provided by the U.S. Fish and Wildlife Service Federal Aid in Sport Fish Restoration Program through a grant to the Florida Fish and Wildlife Conservation Commission; the West Coast Inland Navigation District; and by participating counties. Information was collected using a variety of survey techniques that asked private boater and for-hire operators and clients about their artificial reef use during 2009. For more information, contact: Betty Staugler, Charlotte County Sea Grant Extension, (941) 764-4346, staugler@ufl.edu.
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ECONOMIC IMPACTS OF ARTIFICIAL REEFS

Lee County, FL

These are findings from a recent study of economic benefits associated with artificial reef programs in a six-county region of Southwest Florida (Pinellas, Hillsborough, Manatee, Sarasota, Charlotte and Lee counties). The full report, *Economic Impacts of Artificial Reefs for Six Southwest Florida Counties*, TP 178, is available from Florida Sea Grant, flseagrant.org.

At a glance:

- The results from a recent survey of the economic impact of artificial reefs show extensive use of the Lee County artificial reef system by residents, visitors, private boaters and for-hire clients.
- On a daily basis, an average of more than 1350 persons in Lee County – residents and visitors included – use artificial reefs.
- Fishermen and divers who use Lee County's 23 artificial reef sites spend nearly $60 million in the county annually.
- Survey results document that artificial reefs help support the for-hire fishing sector (guides, charter and party boats) with clients spending nearly $21 million on artificial reef-related trips.
- Visitors bring new money into the local economy ($26.45 million), accounting for more than half of artificial reef expenditures.
- Expenditures on artificial reef-related activities generate nearly $52 million in net economic impacts annually that support 575 full- and part-time jobs.
- Lee County government spends approximately $30,000 annually on artificial reef. Construction funds are provided by the Florida Fish and Wildlife Conservation Commission statewide artificial reef program and other grant programs.
- With 50 miles of white sand beaches, more than 97 parks, beaches and national wildlife refuges, and more than 50,000 registered boats (4th highest in the state), Lee County is one of the premier visitor destinations on Florida's West Coast.

Public Support for Artificial Reefs

In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

Reef Users		Non Reef Users	
Support	86%	Support	69%
Neutral	9%	Neutral	24%
Oppose	5%	Oppose	7%

Annual Use of Artificial Reefs

152,723
Boat Days

500,457
Person Days

Annual Artificial Reef Related Expenditures By Users

$59.77
Million

$33.32 Million (residents)	**$26.45** Million (non-residents)

-- OR --

$38.98 Million (private boaters)	**$20.79** Million (guide, party, charter clients)

Annual Economic Impacts

Economic Output	$51.75 Million
Total Income	$28.48 Million
Business Taxes	$3.89 Million
Full/Part-time Jobs	575

The study was conducted by Florida Sea Grant and University of Florida researchers with funding provided by the U.S. Fish and Wildlife Service Federal Aid in Sport Fish Restoration Program through a grant to the Florida Fish and Wildlife Conservation Commission; the West Coast Inland Navigation District; and by participating counties. Information was collected using a variety of survey techniques that asked private boater and for-hire operators and clients about their artificial reef use during 2009. For more information, contact: Joy Hazell, Lee County Sea Grant Extension, (239) 533-7518, jhazell@ufl.edu.

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ECONOMIC IMPACTS OF ARTIFICIAL REEFS
Southwest Florida

These are findings from a recent study of economic benefits associated with artificial reef programs in a six-county region of Southwest Florida (Pinellas, Hillsborough, Manatee, Sarasota, Charlotte and Lee counties). The full report, *Economic Impacts of Artificial Reefs for Six Southwest Florida Counties*, TP 178, is available from Florida Sea Grant, flseagrant.org.

At a glance:

- The results from a recent survey of the economic impact of artificial reefs show extensive use of the Southwest Florida artificial reef systems by residents, visitors, private boaters and for-hire clients.
- On a daily basis, an average of more than 5,600 persons in Southwest Florida – residents and visitors included – use artificial reefs.
- Fishermen and divers who use Southwest Florida's artificial reefs sites spend over $253 million in the region annually.
- Survey results document that artificial reefs help support the for-hire fishing sector (guides, charter and party boats) with clients spending nearly $90 million on artificial reef-related trips.
- Expenditures on artificial reef-related activities generated almost $227 million in economic outputs that supported over 2,500 full- and part-time jobs.
- Visitors bring new money into local economies ($117.58 million), accounting for almost half of artificial reef expenditures.

Public Support for Artificial Reefs

In general, what is your opinion regarding the use of public funds to provide and maintain artificial reefs for recreation in Florida's waters?

County	Non-Reef Users			Reef Users		
	Oppose	Neutral	Support	Oppose	Neutral	Support
Pinellas	3%	26%	71%	2%	9%	89%
Hillsborough	3%	31%	66%	5%	5%	90%
Manatee	7%	32%	61%	1%	6%	93%
Sarasota	5%	27%	68%	1%	4%	95%
Charlotte	7%	30%	63%	0 %	17%	83%
Lee	7%	24%	69%	5%	9%	86%

Annual Use of Artificial Reefs

614,110
Boat Days

2,070,592
Person Days

Annual Artificial Reef Related Expenditures By Users

$253.35
Million

$135.77 Million (residents)	$117.58 Million (non-residents)

-- OR --

$163.61 Million (private boaters)	$89.74 Million (guide, party, charter clients)

Annual Economic Impacts

Economic Output	$226.93 Million
Total Income	$121.72 Million
Business Taxes	$16.60 Million
Full/Part-time Jobs	2,595

The study was conducted by Florida Sea Grant and University of Florida researchers with funding provided by the U.S. Fish and Wildlife Service Federal Aid in Sport Fish Restoration Program through a grant to the Florida Fish and Wildlife Conservation Commission; the West Coast Inland Navigation District; and by participating counties. Information was collected using a variety of survey techniques that asked private boater and for-hire operators and clients about their artificial reef use during 2009. For more information, contact: Bob Swett, Florida Sea Grant Extension, (352) 392-6233, rswett@ufl.edu.
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