



## The Economic Impact of Recreational Tarpon Fishing in the St. Lucie River and Treasure Coast Region of Florida



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## Executive Summary

Tarpon fishing on Florida's Treasure Coast is not as well known as that which occurs in other areas such as the Florida Keys, the Everglades and Charlotte Harbor. Over 10,000 local anglers pursue tarpon throughout the Treasure Coast region. These tarpon anglers spend 81% of their total fishing days within the region which underscores the quality of fishing within the region. They spend about 15% of their fishing days targeting tarpon with the remainder focused on snook, redfish and spotted seatrout.

The average Treasure Coast tarpon angler spends \$1,043 per year on tarpon trip and equipment related products and services. This is a significant portion of their annual fishing expenditures of \$5,443. Slightly less than half of these annual expenditures are comprised of boat purchases, maintenance, insurance, fuel and equipment which total \$35 million overall and \$5 million for tarpon fishing. It is evident that the boating industry benefits significantly from tarpon anglers.

Overall, tarpon anglers spend \$59 million for their local saltwater fishing. Of this amount, \$11 million can be attributed directly to tarpon fishing. The impact of angler expenditures for tarpon fishing is enhanced by the additional spending providers of goods and services make to purchase products and services that support their businesses. This supplemental spending, or indirect expenditures, adds another \$8 million to the effects of angler expenditures for tarpon fishing to yield an overall economic impact of \$19 million from tarpon fishing.

Part of these economic impacts from tarpon fishing can be attributed to the St. Lucie River. Nearly 7,400 local anglers annually fish for tarpon in the St. Lucie River system. Collectively they are on the water about 58,000 days chasing tarpon in the river and spend \$8 million doing so. These direct expenditures reverberate in the regional economy to produce an overall economic impact of \$13 million.

Expenditures for tarpon fishing in the region also supports many jobs in the local economy. An estimated 331 full-time equivalent jobs are attributable to tarpon fishing in the region, with 233 accruing to tarpon fishing in the St. Lucie River.

All this economic activity associated with tarpon fishing generates substantial tax revenues for federal, state and local governments. Sales and fuel taxes resulting from tarpon fishing were estimated to be \$4 million. More than \$3 million in tax revenues were collected as a result of tarpon fishing in the St. Lucie River.

The economic impact estimates of tarpon fishing in this report should be considered very conservative. Because of the limitations of the study, important groups of tarpon anglers were not included. For example, many resident anglers from within the state travel to the Treasure Coast of Florida to pursue tarpon during the spring and summer months. These anglers either

trailer their boats to the area or utilize one of many of local guides in pursuit of tarpon. All these anglers spend money in the local economy on food, lodging, and other goods and services during their trips. Further, non-resident anglers also travel to the region to fish. Expenditures by non-resident tarpon anglers also were not accounted for in this study.

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## The Economic Impact of Recreational Tarpon Fishing in the St. Lucie River and Treasure Coast Region of Florida

Tarpon are probably the most glamorous and widely revered inshore species of fish in the world. Anglers seek tarpon for their spectacular leaping ability, their gargantuan size and dogged fighting ability. When 200 pound fish mingle with their smaller 80 or 120 pound kin, anglers become hopeful of landing a memorable fish. Knowledgeable and successful tarpon guides build their businesses on these hopes and can charge a thousand dollars or more per day to help anglers fulfill their dreams of catching a trophy sized fish during the migratory season.

Mention tarpon to any angler and they will point to the Florida Keys, Boca Grande Pass, The Everglades and Homosassa as worthy destinations for any angler seeking the Silver King. But, tarpon can be found seasonally anywhere along the entire breadth of the Florida coastline. Inlets, river mouths, bays and estuaries from Amelia Island to the Gulf Islands are home to tarpon throughout the spring, summer and early fall months. However, beyond the more publicized destinations, tarpon fishing is enjoyed primarily by local anglers. This is the case and the focus of this study of the economic impact of tarpon fishing in the St. Lucie River area of Florida.

The St. Lucie River is the main eastern drainage from Lake Okeechobee. It enters the Atlantic Ocean in the middle of the Treasure Coast Planning Council region, a four county region including Indian River, St. Lucie, Martin and Palm Beach counties. The St. Lucie River is the only major freshwater outflow to the Atlantic Ocean in the region and thus provides a diversity of habitats that support a variety of fish species during some portion of their life cycle. In terms of tarpon, juvenile fish are found year-round in the river and estuary, while larger migratory fish are present May through November.

For years the popular press and local communities alike have extolled the economic benefits that saltwater fishing in Florida brings to shoreline communities. We know that saltwater fishing in Florida generates \$3 billion in angler expenditures each year and supports 52,000 jobs (Southwick Associates 2007). Yet, we do not know the value of one of the most visible and revered species of fish in South Florida. This lack of economic information becomes critical

when decisions on freshwater flows and habitat alterations that affect tarpon and other species are being made by water managers and governments as they are in South Florida.

The value of acquiring species-level economic impact data has been recognized by the Everglades Foundation through their funding of a grant to the Bonefish and Tarpon Trust. This grant focused on estimating the economic impact of tarpon fishing on the St. Lucie River and Treasure Coast area of southeast Florida. The St. Lucie River is the primary waterway flowing from Lake Okeechobee eastward to the Atlantic Ocean. The river and its adjacent coastal waters are host to resident and migratory tarpon that provide a flourishing fishery. However, it has been overshadowed by fisheries in the Florida Keys, The Everglades, Charlotte Harbor and Boca Grande Pass, and Homosassa.

Capturing the economic activity of this regional fishery involved several decisions related to the scope of the project. As mentioned above, tarpon fishing in Southeast Florida draws anglers from within the region as well as throughout the state, country and internationally. Contacting these diverse anglers to collect the needed data posed the greatest challenge to the project. The greater the distance from the region, the smaller the percentage of anglers traveling to the region to fish for tarpon. Further, many Florida resident and non-resident anglers are able to fish for tarpon without buying a saltwater fishing license if they fish with a licensed guide. This challenge of identifying tarpon anglers, coupled with the level of grant funding, necessitated restricting the scope of the study to saltwater anglers residing in a four-county Treasure Coast study area adjacent to the St. Lucie River.

### **Study Objectives**

- Estimate the number of study area anglers targeting tarpon during the 2010 fishing year.
- Identify the number of days anglers spend targeting tarpon and other species within the study area.
- Obtain angler annual saltwater fishing-related expenditures within the study area.
- Estimate annual angler expenditures for tarpon fishing within the study area.
- Estimate annual angler expenditures for tarpon fishing within the St. Lucie River system.

## **Study Methods**

Data for this study was collected from Florida saltwater fishing license holders with licenses valid for fishing during 2010. During 2010, all saltwater anglers were required to possess a saltwater fishing license issued by the Florida Fish and Wildlife Conservation Commission (FWC). Following the BP Deepwater Horizon oil spill, the FWC suspended the license fee for saltwater shoreline fishing licenses to stimulate fishing-related tourism but retained the requirement that all saltwater anglers possess a valid fishing license.

An electronic file of all saltwater license purchasers during 2010 was obtained from the FWC Licensing Division. License buyers residing in the four counties (St. Lucie, Martin, Palm Beach and Indian River) surrounding the St. Lucie River and estuary area were selected from the file. Anglers with licenses that permitted them to fish during the January 1, 2010 to December 31, 2010 study period were selected from the overall file of license buyers.

Data on each buyer in the FWC saltwater license file included name, address, date of birth, type of license purchased, date of license purchase, and e-mail address if voluntarily provided by the buyer. The license file was stratified into e-mail and non-email groups. A random sample of 2,000 license buyers was drawn from each group. The e-mail sample members were sent an e-mail message describing the project and asking them to click on an embedded survey link to take the survey. Any e-mail sample member whose message was bounced back as undeliverable was moved to the pool of sample members with no e-mail address. Sample members with no e-mail address were sent a postcard with a brief message about the project and a request to complete the Internet-based survey. The Internet address of the survey was provided on the postcard.

Two follow-up e-mails or postcards reminding recipients about the importance of the survey and encouraging them to complete the survey were sent at one week and two week intervals following the initial e-mail survey participation request. Likewise, follow-up postcards were sent to the postcard group, at one-week and two-week intervals, reminding them of the importance of the survey and asking them to complete the survey.



There were 57,353 licensed saltwater anglers in the four county study area identified in the FWC license file during the study period (Table 1). Slightly more than 35% of these license buyers had provided an e-mail address at the time of their license purchase. The initial survey requests were sent out in two stages. The first stage consisted of sending an e-mail request to the 2,000 sample members with e-mail addresses. There were 332 e-mails that were bounced back as non-deliverable. These 332 license buyers were added to the postcard sample and received the postcard survey request along with the 2,000 original sample members. The result was 58% of the sample receiving a postcard request and 42% receiving an e-mail request.

**Table 1: Saltwater angler population and sample numbers for the Treasure Coast study area**

	Total Licenses	Percent	Sample n	Percent	Sample n after initial E-mail	Percent
Postcard	36,930	64.4%	2,000	50.0%	2,332	58.3%
E-mail	20,423	35.6%	2,000	50.0%	1,668	41.7%
<b>Total</b>	<b>57,353</b>	<b>100.0%</b>	<b>4,000</b>	<b>100.0%</b>	<b>4,000</b>	<b>100.0%</b>

The online survey questionnaire consisted of three sections. The first section asked about the angler’s fishing activity during the past 12 months. This included the number of days fishing saltwater in Florida and within the study region, and the percentage of days spent targeting various fish species. The second section focused on tarpon fishing activity throughout the state and within the study area, and specifically within the St. Lucie River area. The final section asked anglers to estimate their annual spending for ten trip-related and nine equipment-related expenditure categories.

***Economic Impact Analysis***

Effective planning for public- and private-sector projects and programs at the state and local levels requires a systematic analysis of the economic impacts of the projects and programs on affected regions. In turn, systematic analysis of economic impacts must account for the inter-industry relationships within regions because these relationships largely determine how regional economies are likely to respond to project and program changes. Thus, regional input-output (I-O) multipliers, which account for inter-industry relationships within regions, are useful tools for regional economic impact analysis.

The RIMS II methodology is the Regional Input-Output Modeling System (Bureau of Economic Analysis 2006) used in this study. This system was developed and published by the U.S. Department of Commerce and is one of the primary ways in which to conduct a systemic analysis of the economic impacts of projects and programs on affected regions. The conceptual framework of the RIMS II approach is well described by the Community Research Institute at Grand Valley State University, Department of Economics:

*Each economic transaction can be compared to the ripples in a pond. When an individual trades money for goods or services the value of that money passes to the recipient like a stone thrown into a pond. That merchant then uses the money to purchase other goods or services adding a ripple to the pond. This (ripple effect) process continues many times and the value of the original money continues to grow.*

*In economic terms, the use and reuse of funds in the economy produces a multiplying effect. As monetary transactions are conducted over and over again, the value of a dollar has the potential to be multiplied many times as it moves through the economy from transaction to transaction. This multiplying effect is generated both directly by organizations purchasing goods and services and at a degree of separation by the employees of those organizations spending their paychecks. An additional benefit of the multiplier effect is seen in job creation to provide the goods and services being purchased. This multiplier effect applies to all economic activity by all organizations and individuals, whether that activity takes place in the for-profit, nonprofit or governmental sectors. The U.S. Department of Commerce estimates the multiplication effect on both dollars and employment as part of the Regional Input-Output Modeling System (RIMS II).*

RIMS II was originally developed in the 1980s by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce, based on the Department of Commerce's input-output table of the national economy. It breaks out almost 500 separate U.S. industries, many directly involved in providing goods and services to anglers. RIMS II is widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS II to estimate the regional impacts of military base closings, and state departments of transportation use RIMS II to estimate the regional impacts of airport construction and expansion. In the private sector, analysts, consultants, and economic development practitioners use RIMS II to estimate the regional impacts of a variety of projects, such as the development of theme parks and

shopping malls. RIMS II measures the economic impact of an industry by accounting for three elements of potential economic impacts:

**Direct impacts** include employment, payroll, and revenue generated by services and goods purchased by anglers.

**Indirect impacts** are what users and employees of the fishing-related businesses spend in the local and regional economy as a result of their involvement in the recreational fishing industry.

**Induced impacts** include the value of goods and services purchased by money generated by direct and indirect impacts throughout the regional economy -- goods and services not associated with fishing and which would otherwise not be available.

The summation of direct, indirect and induced impacts produces **total economic output** and is expressed as a multiplier that is applied to retail sales associated with an activity, program or project.

RIMS II multipliers are intended to show the total regional effects on industrial output, personal earning, and employment for any county or group of contiguous counties in the United States resulting from any industry activity. Industry descriptions are defined according to the BEA's 2005 national input-output tables. Induced impacts for fishing-related businesses can be estimated by applying the RIMS II multipliers to activities within the appropriate industrial sector. RIMS II multipliers are given in three tables.

The **output** multiplier measures the total economic output created by the original retail sale.

The **earnings** multiplier measures the total salaries and wages generated by the original retail sale.

The **employment** multiplier estimates the number of jobs supported by the original retail sale.

Each fishing-related business is assigned a Standard Industrial Classification (SIC) code. The fishing-related business is identified by a corresponding RIMS II code, which identifies the multiplier factor to be applied to that business. Business activities that are most likely encountered in fishing-related economic studies are represented by the categories used to measure angler expenditures. To apply the RIMS II model, angler expenditures are each matched

to the appropriate output, earnings and employment multipliers. For example, dollars attributed to gasoline purchases are multiplied separately by the earnings, output and employment multipliers specific to gasoline refinement. The resulting estimates describe the salaries and wages, total economic effects, and jobs supported by the refining industry as a result of fuel purchases made by anglers. This same process is repeated for all reported expenditures. Finally, the total output, income and jobs estimated for each expenditure type are summed to produce the total effect for each impact category.

Federal and state **tax revenues** are also included in this report and represent separate estimates from the RIMS II multipliers for state sales tax and federal income tax revenues. For fishing estimates, sales tax revenues are only associated with original retail sales as it is not possible to track the appropriate tax rates through the subsequent rounds of spending. Sales tax estimates also include fuel tax receipts. Federal income tax receipts are based on the total economic activity created by the original retail sale.

## **Results**

### ***Survey Response***

Survey response rates are summarized in Table 2. The initial sample sizes of 2,000 for the E-mail and Postcard groups were both diminished by non-deliverables. As shown in the table, 13% of the postcards sent to the Postcard sample were returned by the U.S. Postal Service. By comparison, 19.9% of the e-mail addresses in the E-mail sample were invalid. These latter invalid addresses (n=332) were tracked separately to determine if their postcard undeliverable rate would be different than the Postcard only group. This was indeed the case as nearly 24% of the postcards sent to the E-mail/Postcard group were not delivered successfully.

<b>Table 2: Survey response rates by survey request delivery method</b>						
	Sample n	Non-Deliverable	Percent Non-Deliverable	Net Sample	Respondents	Percent
Postcard	2,000	262	13.1%	1,738	567	32.6%
E-mail	1,668	332	19.9%	1,336	510	38.2%
E-mail / Postcard	332	79	23.8%	253	72	28.5%
<b>Total</b>	<b>4,000</b>	<b>673</b>	<b>16.8%</b>	<b>3,327</b>	<b>1,149</b>	<b>34.5%</b>

Response rates for both Postcard and E-mail groups were similar, however, the e-mail group responded at a slightly higher rate (38%) than the Postcard group (32%). The E-mail/Postcard group had the lowest response rate at 28 percent.

Table 3 shows the distribution of license holders and percentage of survey respondents by county. The percentage of survey respondents from each county was relatively evenly distributed compared to the population of licensed anglers. About half of the licensed anglers resided in Palm Beach County and one-fifth in St. Lucie County.

<b>Table 3: Survey response by county</b>				
County	Licensed Anglers	Percent of Anglers	Respondents	Percent of Respondents
Indian River	7,147	13.4%	263	22.9%
Martin	7,777	14.6%	347	30.2%
St. Lucie	10,462	19.7%	251	21.9%
Palm Beach	27,847	52.3%	288	25.0%
<b>Total</b>	<b>53,233</b>	<b>100.0%</b>	<b>1,149</b>	<b>100.0%</b>

Survey response rates by are shown in Table 4. Similar rates were seen for Martin and St. Lucie counties, the closest counties to the St. Lucie River and estuary. The response rates for Indian River and Palm Beach counties were substantially lower. Overall, the response rate was 34 percent.

<b>Table 4: Survey sample size and response rate by county</b>					
County	Total Anglers	Sample Size	Adjusted Sample Size	Respondents	Response Rate
Indian River	7,147	1,000	843	263	31.2%
St. Lucie	10,462	1,000	831	326	39.2%
Martin	7,777	1,000	856	347	40.5%
Palm Beach	27,847	1,000	797	213	26.7%
<b>Total</b>	<b>53,233</b>	<b>4,000</b>	<b>3,327</b>	<b>1,149</b>	<b>34.5%</b>

Because the samples sizes were fixed and not proportional to each county and because the response rates varied substantially across the four counties, it was necessary to weight each

response by county based on the probability of being selected and the response rate. This weighting procedure was the basis for calculating angler days and expenditures for each county and for specific groupings of anglers, such as St. Lucie River anglers and tarpon anglers. This weighting is reflected in the data in the following tables.

***Number of Anglers and Days Fishing***

Weighting of survey responses showed that three-quarters of the licensed saltwater anglers residing in the four-county Treasure Coast region fished in the region during 2010 (Table 5). Of these Treasure Coast anglers, nearly 60% fished the St. Lucie River area. About 27% of Treasure Coast resident saltwater anglers fished for tarpon within the region and 18% fished for tarpon within the St. Lucie River estuary..

Among saltwater anglers fishing the Treasure Coast, those residing in Martin County had the highest percentage of tarpon anglers (39%) followed by Indian River County with 30% and St. Lucie and Palm Beach Counties with 22% each (Table 5). Martin County had the highest percentage of its resident anglers fishing the St. Lucie River and estuary (34%) and Indian River County the lowest percentage (9%).

<b>Table 5: Number of Treasure Coast saltwater anglers by county and type of fishing</b>					
County	Fished Florida	Fished Treasure Coast	Fished St. Lucie River	Fished Treasure Coast Tarpon	Fished St. Lucie Tarpon
Indian River	7,147	6,984	1,949	2,112	650
St. Lucie	10,462	10,213	6,975	2,242	1,744
Martin	7,777	7,777	5,766	3,084	2,682
Palm Beach	27,847	15,664	9,282	3,480	2,321
<b>Total</b>	<b>53,233</b>	<b>40,638</b>	<b>23,972</b>	<b>10,918</b>	<b>7,397</b>

The fishing activity of Treasure Coast tarpon anglers is shown in Table 6. Tarpon anglers averaged nearly 49 days of saltwater fishing in Florida each year. They averaged 39 days fishing the Treasure Coast and nearly 19 days fishing the St. Lucie River. About two-thirds of the Treasure Coast tarpon anglers fished the St. Lucie River and had similar saltwater fishing patterns.

**Table 6: Number of Treasure Coast tarpon anglers and days saltwater fishing by location**

Angler Type and Location	Number	All Florida Saltwater Fishing		Treasure Coast Saltwater Fishing		St. Lucie River Saltwater Fishing	
		Total Days	Mean Days	Total Days	Mean Days	Total Days	Mean Days
Tarpon anglers fishing the Treasure Coast	10,918	529,433	48.49	430,971	39.47	148,804	18.74
Tarpon anglers fishing the St. Lucie River	7,397	349,879	47.31	291,957	39.48	146,055	19.75

Treasure Coast tarpon anglers averaged seven and one-half days of tarpon fishing along the Treasure coast (Table 7). St. Lucie River tarpon anglers averaged nearly the same number of days tarpon fishing.

**Table 7: Tarpon fishing activity by Treasure Coast tarpon anglers and location**

Angler Type and Location	Anglers	Days Tarpon Fishing	Mean Days Tarpon Fishing
Tarpon anglers fishing the Treasure Coast	10,918	82,549	7.56
Tarpon anglers fishing St. Lucie River	7,397	58,075	7.85

***Species Targeted***

Table 8 shows the percentage of days Treasure Coast and St. Lucie River anglers spent targeting specific species. Each group of anglers spend similar amounts of time targeting each species. Snook were the most frequently targeted species for each group. Snook, along with redfish, seatrout, snapper comprised over half of the fishing of these anglers. Treasure Coast and St. Lucie River anglers targeted tarpon on only 3.7 and 4.1 percent, respectively, of their fishing days. Fishing for species found offshore comprised about one-quarter of their fishing. Tarpon anglers, on the other hand, spent about the same percentage of time targeting snook, snapper, seatrout and redfish as all other anglers, but they targeted tarpon about three times as frequently and fished for offshore species with much less frequency than other anglers.

**Table 8: Percent of days anglers target specific species by angler group**

Species	Type of Angler Group			
	Treasure Coast	St. Lucie River	Treasure Coast Tarpon	St. Lucie River Tarpon
Snook	18.3	21.1	24.4	26.9
Snapper	15.2	11.3	8.3	5.9
Seatrout	10.8	12.9	9.9	9.9
Redfish	9.2	10.0	13.1	10.6
Cobia	4.1	3.7	5.2	5.1
Tarpon	3.7	4.3	11.3	11.9
Jacks	2.8	3.8	3.6	4.2
Permit	1.6	2.2	2.8	2.6
Sheepshead	1.4	1.8	1.4	1.2
Sharks	0.7	0.8	1.3	1.3
Inshore	5.2	5.7	2.9	3.6
Offshore	26.9	22.6	15.8	16.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

### *Treasure Coast Angler Expenditures and Impact*

Tarpon anglers were asked to estimate their annual expenditures for each of the 18 trip and equipment expenditure categories shown in Table 9. These anglers spent an average of \$6,687 annually for their saltwater fishing in Florida. To estimate tarpon angler expenditures for their general fishing and for their Treasure Coast, St. Lucie River and tarpon fishing, it was necessary to first calculate a mean expenditure per day of fishing. Using the per day average could then be multiplied by the mean number of days fishing and the number of anglers to produce total expenditures for various types of fishing.

As shown in Table 9, the average Treasure Coast tarpon angler expenditure for all Florida saltwater fishing was \$6,687. This figure was then divided by the mean number of days fished in saltwater (48.49) to produce an average daily expenditure for saltwater fishing of \$137.91. Multiplying the average daily fishing cost by the number of tarpon anglers results in the total annual spending of \$73 million for saltwater fishing by Treasure Coast tarpon anglers.



**Table 9: Annual and total saltwater fishing expenditures by Treasure Coast tarpon anglers**

	Annual Expenditures for Florida Saltwater Fishing	Mean Saltwater Fishing Days	Mean Expenditure Per Day	Number of Anglers	Total Annual Expenditures
Food	\$399.51	48.49	\$8.24	10,918	\$4,361,895
Lodging	\$313.31	48.49	\$6.46	10,918	\$3,420,687
Public Transportation	\$4.11	48.49	\$0.08	10,918	\$44,850
Private Transportation	\$310.79	48.49	\$6.41	10,918	\$3,393,183
Guide Services	\$731.84	48.49	\$15.09	10,918	\$7,990,182
Fishing Licenses & Tags	\$59.41	48.49	\$1.23	10,918	\$648,597
Bait	\$253.65	48.49	\$5.23	10,918	\$2,769,379
Boat Rental	\$203.24	48.49	\$4.19	10,918	\$2,218,982
Moorage	\$970.89	48.49	\$20.02	10,918	\$10,600,176
Boat Fuel	\$1,165.22	48.49	\$24.03	10,918	\$12,721,858
Rods & Reels	\$602.38	48.49	\$12.42	10,918	\$6,576,830
Lines	\$174.22	48.49	\$3.59	10,918	\$1,902,099
Hooks	\$119.78	48.49	\$2.47	10,918	\$1,307,779
Lures	\$166.51	48.49	\$3.43	10,918	\$1,817,919
Tackle Boxes	\$134.42	48.49	\$2.77	10,918	\$1,467,598
Nets	\$64.30	48.49	\$1.33	10,918	\$701,990
Electronics	\$606.75	48.49	\$12.51	10,918	\$6,624,550
Boat Payments	\$341.92	48.49	\$7.05	10,918	\$3,733,045
Tournament Fees	\$65.19	48.49	\$1.34	10,918	\$711,720
<b>Mean Annual Expenditure</b>	<b>\$6,687.43</b>	<b>48.49</b>	<b>\$137.91</b>	<b>10,918</b>	<b>\$73,013,321</b>

The Treasure Coast portion of tarpon angler saltwater fishing expenditures totaled \$59 million or 81% of all fishing expenditures during 2010 (Table 10). Fishing in the St. Lucie River area comprised 39% of all saltwater fishing expenditures by tarpon anglers. Tarpon fishing along the Treasure Coast accounted for \$11 million by tarpon anglers, while tarpon fishing in the St. Lucie River generated \$8 million in angler spending.

**Table 10: Total saltwater fishing expenditures of Treasure Coast anglers type of fishing**

Type of Fishing	Mean Expenditure per Day	Mean Number of Days	Number of Anglers	Total Direct Expenditures
Saltwater fishing in Florida	\$137.91	48.49	10,918	\$73,013,321
Treasure Coast fishing	\$137.91	39.47	10,918	\$59,431,548
St. Lucie River fishing	\$137.91	18.74	10,918	\$28,217,563
Treasure Coast tarpon fishing	\$137.91	7.56	10,918	\$11,383,393
St Lucie River tarpon Fishing	\$137.91	7.85	7,397	\$8,010,621

Calculating the total economic impact of Treasure Coast saltwater fishing consists of estimating the multiplier effects, salaries and wages, jobs, and federal and state tax revenues generated. To calculate the multiplier effects associated with angler direct expenditures for their fishing in the Treasure Coast region, a multiplier of 1.71 was used (Southwick 2007). Applying this multiplier resulted in the Total Economic Impact for all saltwater fishing expenditures in Florida by residents of the Treasure Coast equaling \$572 million (Table 11). Fishing in the Treasure Coast region totaled \$463 million and \$263 million for the St. Lucie River area.

The Total Economic Impact of all spending for saltwater fishing by tarpon anglers residing in the Treasure Coast region was \$124 million, with \$101 million for Treasure Coast fishing and \$48 million for the St. Lucie River (Table 11). The total impact of expenditures by tarpon anglers for their Treasure Coast tarpon fishing was \$10 million and nearly \$8 million for their tarpon fishing in the St. Lucie River.

All recreational fishing in Florida by Treasure Coast saltwater tarpon anglers generated \$65 million in salaries and wages in the Florida economy and supported 2,122 full-time equivalent jobs (Table 10). Salaries and wages attributed to the days fishing along the Treasure Coast accounted for \$53 million and 1,727 jobs. Fishing in the St. Lucie River and estuary was responsible for 47% of the wages and salaries and jobs generated by tarpon angler spending in the Treasure Coast region.

Wage and salary impacts of Treasure Coast tarpon fishing amounted to \$10 million or 19% of the salaries and wages generated by their overall Treasure Coast saltwater fishing. St. Lucie River tarpon anglers accounted for \$7 million or 13% of Treasure Coast wage and salary impacts. When looking specifically at the impact of spending for tarpon fishing in the Treasure Coast region, tarpon angler expenditures generated 331 full-time equivalent jobs. Angler days spent tarpon fishing in the St. Lucie River and estuary was responsible for 233 jobs.

Considerable federal and state tax revenues were also generated by saltwater fishing along the Treasure Coast (Table 11). These include taxes on sales, fuel, business and income, and excise taxes on boats and fishing equipment. For all saltwater fishing done in Florida by

Treasure Coast tarpon anglers, these federal and state taxes totaled more than \$28 million, with \$23 million attributable to Treasure Coast fishing and \$11 million to St. Lucie River fishing. Tarpon anglers were responsible for generating \$4 million in tax revenues for all their Treasure Coast tarpon fishing, with St. Lucie River tarpon fishing accounting for \$3 million of that total.

<b>Table 11: Total expenditures, multiplier effects and economic effects for Treasure Coast tarpon anglers</b>							
Expenditures for Treasure Coast Anglers for:	Direct Expenditure	Multiplier Effect	Total Economic Impact	Salaries, Wages & Owner Income	Jobs	Federal Tax Revenues	State and Local Tax Revenues
Saltwater fishing in Florida	\$73,013,321	\$51,797,237	\$124,810,558	\$65,304,943	2,122	\$15,776,836	\$12,960,531
Treasure Coast fishing	\$59,431,548	\$42,162,033	\$101,593,581	\$53,157,065	1,727	\$12,842,065	\$10,549,642
St. Lucie River fishing	\$28,217,563	\$20,018,153	\$48,235,716	\$25,238,495	820	\$6,097,297	\$5,008,875
Treasure Coast tarpon fishing	\$11,383,393	\$8,075,626	\$19,459,019	\$10,181,591	331	\$2,459,742	\$2,020,656
St Lucie River tarpon Fishing	\$8,008,148	\$5,681,154	\$13,689,303	\$7,162,688	233	\$1,730,414	\$1,421,519

## **Discussion and Conclusions**

Tarpon fishing on Florida’s Treasure Coast is not as well known as that which occurs in other areas such as the Florida Keys, the Everglades and Charlotte Harbor. Over 10,000 local anglers pursue tarpon throughout the Treasure Coast region. These tarpon anglers spend 81% of their fishing days within the region which underscores the quality of fishing within the region. They spend about 15% of their fishing days targeting tarpon with the remainder focused on snook, redfish and spotted seatrout.

The average Treasure Coast tarpon angler spends \$1,043 per year on tarpon trip and equipment related products and services. This is a very significant portion of their annual fishing expenditures of \$5,443. Slightly less than half of these expenditures are comprised of boat purchases, maintenance, insurance, fuel and equipment which total \$35 million overall and \$5 million for tarpon fishing. It is evident that the boating industry benefits significantly from tarpon anglers.

Overall, tarpon anglers spend \$59 million for their local saltwater fishing. Of this amount, \$11 million can be attributed directly to tarpon fishing. The impact of angler expenditures for tarpon fishing is enhanced by the additional spending providers of goods and services make to purchase products and services that support their businesses. This supplemental spending, or indirect expenditures, adds another \$8 million to the effects of angler expenditures for tarpon fishing to yield an overall economic effect of \$19 million from tarpon fishing.

Part of these economic impacts from tarpon fishing can be attributed to the St. Lucie River. Nearly 7,400 anglers annually fish for tarpon in the St. Lucie River system. Collectively they are on the water about 58,000 days chasing tarpon in the river and spend \$8 million doing so. These direct expenditures reverberate in the regional economy to produce an overall economic effect of \$13 million.

Expenditures for tarpon fishing in the region also supports many jobs in the local economy. An estimated 331 full-time equivalent jobs are attributable to tarpon fishing in the region, with 233 accruing to tarpon fishing in the St. Lucie River.

All this economic activity associated with tarpon fishing generates substantial tax revenues for federal, state and local governments. Sales and fuel taxes resulting from tarpon fishing were estimated to be \$4 million. More than \$3 million in tax revenues were collected as a result of tarpon fishing in the St. Lucie River.

The economic impact estimates of tarpon fishing in this report should be considered very conservative. Because of the limitations of the study, important groups of tarpon anglers were not included. For example, many resident anglers from within the state travel to the Treasure Coast of Florida to pursue tarpon during the spring and summer months. These anglers either trailer their boats to the area or utilize one of many of local guides in pursuit of tarpon. All these anglers spend money in the local economy on food, lodging, and other goods and services during their trips. Further, non-resident anglers also travel to the region to fish. Expenditures by non-resident tarpon anglers also were not accounted for in this study.

## References

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