

Appendix I

UPDATE OF THE ECONOMIC BENEFITS OF THE DISTRICT'S WATERWAYS IN INDIAN RIVER COUNTY

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I. INTRODUCTION

The economic benefits of marine-related activities on the Florida Inland Navigation District's (the District) Waterways in Indian River County were estimated in *An Economic Analysis of the District's Waterways in Indian River County*, dated June 2001 (referred to as the original analysis). Benefits were estimated for existing conditions and two Waterways maintenance scenarios, one assuming a cessation of maintenance and another assuming a higher state of maintenance. The purpose of this analysis is to update the economic benefits of the Waterways in Indian River County, as presented in the original analysis, to current values using industry accepted methods. Fuel taxes and sales tax revenues attributable to activities associated with the Waterways, which were not estimated in the original analysis, are estimated in this analysis. The impact of the 2007-2009 U.S. economic recession on marine-related businesses in the county could not be estimated due to anomalies in Florida Department of Revenue (FDOR) reported gross sales data for the county. For the purpose of this report, the District's Waterways (the Waterways) are defined as all navigable waterways within the District's boundaries, including the Intracoastal Waterway and all waterways that are physically connected to it.

The purpose of the original analysis was twofold: (1) to identify and quantify the total economic benefits of the Waterways in the county; and (2) to estimate the influence of the Waterways on property values in the county. The original analysis included an explanation of economic benefits, a literature review of economic benefits of marine activities in Florida and in other states, an explanation of the methods used in estimating economic benefits, details of the data collection and manipulation required for the analysis, quantification of direct marine-related business purchases, and estimation of the economic benefits of the Waterways under existing conditions, assuming a cessation of maintenance, and assuming a higher state of maintenance. For this updated analysis, the estimation of the influence of the Waterways on property values in the county will not be addressed.

As the local sponsor of the Waterways, the District shares in the responsibility for the operation and maintenance of the Waterways. With reduced federal funding, the local sponsors of the nation's inland navigation systems are being required to shoulder a larger portion of the maintenance costs. The District has made a decision not to let the Waterways deteriorate by deferring maintenance projects and has elected instead to fund this budgetary shortfall. To meet

these responsibilities, the District may invest up to \$800 million in maintaining and operating the Waterways over the next 50 years. With such a large potential investment, the District needs to inform the general public as well as federal, state, and local public officials regarding the economic importance of expending these monies to meet the new needs of the Waterways. This update is intended to address that need.

This analysis is divided into three sections: (1) this introduction; (2) a summary of the findings of the original analysis; and (3) the update of the economic benefits of the Waterways under four scenarios. Section I includes an introduction to the report, a summary of the findings, and a description of the Intracoastal Waterway in Indian River County.

Section II summarizes the findings of the original analysis as presented in *An Economic Analysis of the District's Waterways in Indian River County*, dated June 2001. Economic benefits are estimated for each of the three scenarios evaluated: (1) prior existing conditions (at the time of the original analysis in 1999); (2) assuming a cessation of maintenance; and (3) assuming a higher state of maintenance. The benefits are presented as measured by changes in business volume, personal income, and jobs.

Section III presents the methodology and findings of the update of the economic benefits of the Waterways. Updated impacts for three scenarios are presented: (1) current existing conditions (which have been affected by the recession); (2) assuming a cessation of maintenance; and (3) assuming a higher state of maintenance. Impacts are measured as changes in business volume, personal income, jobs, and tax revenues. The anomalies in the FDOR reported gross sales data for the county that prevented the estimation of the benefits of the Waterway assuming that the 2007-2009 U.S. economic recession did not occur are also presented.

Summary of Findings

A summary of the findings of the economic benefits of the three scenarios evaluated are presented in Table I-1. Current updated benefits in 2010 dollars include \$44.1 million in business volume, \$10.1 million in personal income, 242 jobs, and \$1.2 million in tax revenues. Compared to the findings in the original analysis, this is a decrease of \$64.8 million in business volume, \$19.2 million in personal income, and 943 jobs. The decrease in benefits is primarily due to decreased spending on marine-related activities in response to the 2007-2009 U.S. economic recession. Tax revenues were not estimated in the original analysis. The economic

benefits of the Waterways assuming decreased maintenance of the Waterways include \$29.8 million in business volume, \$7.0 million in personal income, 165 jobs, and \$0.7 million in tax revenues. This is a 26 to 32 percent decrease in benefits compared to existing conditions. The economic benefits of the Waterways assuming a higher state of maintenance of the Waterways include \$45.3 million in business volume, \$10.5 million in personal income, 254 jobs, and \$1.2 million in tax revenues. This is an approximately three to five percent increase in benefits compared to existing conditions.

Table I-1. Summary of Total Economic Benefits of the Waterways in Indian River County

Activity	Business Volume (Millions)				Personal Income (Millions)				Employment			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Current Existing Impacts	\$34.31	\$5.22	\$4.58	\$44.11	\$6.79	\$1.89	\$1.44	\$10.12	164	40	38	242
Three-Foot Draft Restriction Impacts	\$22.94	\$3.67	\$3.16	\$29.77	\$4.67	\$1.33	\$0.99	\$6.99	110	28	26	165
Twelve-Foot Draft Restriction Impacts	\$35.13	\$5.39	\$4.74	\$45.26	\$7.04	\$1.95	\$1.49	\$10.47	173	42	40	254

The Intracoastal Waterway

The Intracoastal Waterway is a 2,640-mile federally and locally maintained system of natural waterbodies and connecting canals paralleling the Atlantic and Gulf coasts of the United States that encompasses the Atlantic Intracoastal Waterway (AIWW) and the Gulf Intracoastal Waterway (GIWW). The purpose of the waterway is to provide a protected environment for vessels moving coastwise, particularly shallow-draft commercial and recreational vessels.

The Gulf Intracoastal Waterway is a 1,100-mile channel between Brownsville, Texas, and St. Marks, Florida, south of Tallahassee. The channel is 150 feet wide and 12 feet deep and runs mainly behind barrier beaches.

The Atlantic Intracoastal Waterway is a 1,391-mile channel between Trenton, New Jersey, and Miami, Florida. A southward extension from Miami to Key West was authorized but never constructed. The channels from Trenton to Indian River River in Florida, on which Jacksonville is located, are 12 feet deep, 90 feet wide through land areas, and generally 150 or 300 feet wide in open water areas. The section from the Georgia-Florida line to Indian River River is 125 feet wide. The channel south from Indian River River was constructed as an independent project under the title *Intracoastal Waterway, Jacksonville to Miami, Florida*. An early authorization called for a 12-foot by 125-foot channel throughout, but was modified to a 10-foot depth from Fort Pierce south to Miami. The project, which was completed in its

modified form in 1965, is 370 miles long and follows coastal rivers and lagoons past numerous tourism-oriented communities.

The Intracoastal Waterway in Indian River County

The Intracoastal Waterway extends for 23 miles through Indian River County. The waterway enters the county at Sebastian Inlet, the only waterway access to the Atlantic Ocean in the county. The entire length of the waterway in the county proceeds through Indian River. The dredged channel is fairly straight from the northern county line, past the town of Sebastian to the vicinity of Wabasso. The channel then winds along the eastern shoreline of Indian River to Vero Beach. South of Vero Beach the river widens and the dredged channel begins to straighten out for the 13 miles south to Fort Pierce in St. Lucie County.

II. SUMMARY OF FINDINGS OF THE ORIGINAL ANALYSIS

Under existing conditions, the original analysis estimated that the 155 marine-related businesses in Indian River County generated direct sales of \$76.9 million in 1999. A regional economic impact model (IMPLAN) was used to estimate the direct, indirect, and induced (total) benefits of the marine businesses. The total benefits of marine-related businesses in 1999 were estimated as \$101.9 million in business sales, \$26.3 million in personal income, and 1,079 jobs. The direct business volume benefits from the original analysis, as presented in Table I-2, were adjusted to reflect the same basis as the direct business volume benefits presented in the updated analysis. In the original analyses conducted before 2007, only the margined portion (that portion that remains in the region to generate indirect and induced benefits) of the retail and wholesale trade business volume was reported in the final report. Subsequent to 2007, the total direct business volume benefit, including the portion that “leaks out” of the local economy, was reported. This change in method of reporting did not impact the indirect or induced business volume or the personal income or employment benefits.

Table I-2. Summary of 1999 Total Economic Benefits of the Waterways in Indian River County, as Presented in the Original Analysis

Waterway Maintenance Scenario	Business Volume (Millions)				Personal Income (Millions)				Employment			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
1999 Total Existing Impacts	\$81.16	\$13.23	\$14.48	\$108.87	\$18.91	\$4.98	\$5.39	\$29.28	814	163	208	1,185
1999 Three-Foot Draft Restriction Impacts	\$49.53	\$8.82	\$9.51	\$67.86	\$12.40	\$3.33	\$3.60	\$19.33	543	109	137	789
1999 Twelve-Foot Draft Restriction Impacts	\$83.81	\$13.76	\$15.01	\$112.58	\$19.57	\$5.18	\$5.59	\$30.34	844	171	216	1,231

Non-marine-related businesses also were shown to benefit from marine activities in the county. Boaters in the county purchased a total of \$14.7 million in gasoline, food, drinks, and ice for consumption on the county’s Waterways. These non-marine-related purchases resulted in a total benefit of \$7.0 million in business activity, \$3.0 million in personal income, and 106 jobs. The economic benefit of the Waterways under existing conditions (the benefit of marine-related businesses and purchases by recreational boaters) totaled \$108.9 million in business volume, \$29.3 million in personal income, and 1,185 jobs (see Table I-2). Tax revenues attributable to the Waterways were not estimated in the original analysis.

Marine-related businesses in Indian River County were estimated to generate direct sales of \$45.8 million in 1999, assuming cessation of maintenance of the Waterways. The total benefit of marine businesses in 1999 under this scenario was estimated as \$61.8 million in business sales, \$16.6 million in personal income, and 696 jobs. In addition, boaters in the county purchased a total of \$12.8 million in gasoline, food, drinks, and ice for consumption on the county's Waterways. These non-marine-related purchases resulted in a total benefit of \$6.1 million in business activity, \$2.7 million in personal income, and 93 jobs. The total combined economic benefits of the Waterways assuming three-foot vessel draft restrictions, as presented in the original analysis, were \$67.9 million in business volume, \$19.3 million in personal income, and 789 jobs.

In the original analysis it was estimated that in 1999, marine-related businesses in Indian River County would generate direct sales of \$79.5 million if vessel draft restrictions were increased to 12 feet MLW. The total benefits of marine-related business under this scenario were estimated as \$105.6 million in business sales, \$27.3 million in personal income, and 1,125 jobs. Boaters were estimated to purchase a total of \$14.7 million in gasoline, food, drinks, and ice for consumption on the county's Waterways, which resulted in a total benefit of \$7.0 million in business activity, \$3.0 million in personal income, and 106 jobs. The total combined economic benefits of the Waterways, assuming 12-foot vessel draft restrictions, totaled \$112.6 million in business volume, \$30.3 million in personal income, and 1,231 jobs.

III. UPDATED ECONOMIC BENEFITS OF THE WATERWAYS

Economic Benefits Under Current Existing Conditions

Marine-Related Business Activity

The original analysis stated that total direct business sales (as calculated from the survey-adjusted database of marine-related businesses) were estimated at \$76.9 million. The data presented in the original analysis that outlined the direct impact of marine-related businesses in Indian River County were updated to current values using the estimated increase in gross sales as recorded by the Florida Department of Revenue (FDOR) Kind Code 28. FDOR classifies businesses by type and reports the gross sales receipts and sales tax collections for each business type. Business types are classified as Kind Codes. Kind Code 28 consists of *Motorboats, Yachts, Marine Parts, Accessories, and Boat Dealers*. According to FDOR, in 1999, the year that the original analysis was conducted, the firms classified as Kind Code 28 reported \$18.8 million in gross retail sales. In 2009, the latest year that data is available, Kind Code 28 firms reported total gross sales of \$5.5 million. This constitutes a decrease of 71 percent in gross sales over the 10-year period. The percent change in reported Kind Code 28 gross sales was applied to the direct marine-related business activity (obtained from the original analysis) to estimate the direct current impact of marine-related businesses.

Table I-3 presents the 1999 and updated 2009 marine-related business volume, aggregated by business type. As a result of the recession, total marine-related business activity is estimated to have decreased from \$76.9 million in 1999 to \$22.5 million in 2009.

The original analysis included the distribution of business volume for each marine-related business type and is reproduced here as Table I-4. For this analysis, the business activity distribution (Table I-4) for each business type was applied to the 2009 updated marine-related business volume (Table I-3) to quantify the updated dollar value of sales of each business type generated by each type of activity. For instance, as illustrated in Table I-4, on average 74.9 percent of the business volume generated by a boat dealer would actually be retail trade, 2.7 percent would be used boat sales, 18.2 percent would be services, and 4.2 percent would be wholesale or financing activities. Applying the percent distribution by business type and activity in Table I-4 to the 2009 updated marine-related business volume of \$22.5 million in Table I-3

Table I-3. Total Direct Marine-Related Business Volume in Indian River County, Aggregated by Business Type, 1999 and 2009

Business Type	1999	2009
	Total Marine Business Volume	Total Marine Business Volume
Boat Dealers/Yacht Brokers	\$19,319,988	\$5,652,583
Marinas	\$15,946,929	\$4,665,703
Boat Yards	\$1,413,541	\$413,569
Canvas Products/Upholstery	\$1,536,391	\$449,513
Boat Repairs/Signs	\$1,690,505	\$494,603
Outboard Repairs	\$1,592,770	\$466,008
Marine Equip/Electronics	\$1,429,205	\$418,152
Marine Construction	\$2,888,969	\$845,246
Tackle/Dive Equip	\$5,530,708	\$1,618,158
Marine/Sporting Goods Retail	\$1,232,362	\$360,561
Wholesaler/Boat Manufacturer	\$11,843,460	\$3,465,123
Water Transportation/Business Services	\$4,413,285	\$1,291,225
Clubs/Associations	\$1,841,000	\$538,634
Government	\$474,103	\$138,712
Storage	\$279,444	\$81,759
Auto Repair	\$52,260	\$15,290
General Manufacturing	\$487,778	\$142,713
Charter Boats/Rentals	\$4,891,875	\$1,431,250
Total	\$76,864,573	\$22,488,801

Table I-4. Distribution of Direct Marine-Related Business Revenue by Business Type and Business Activities

Business Type	Business Activities									
	Percent Construction	Percent Transportation	Percent Retail Trade	Percent Boat Sales	Percent Manufacturing	Percent Wholesale	Percent Finance	Percent Service		
Boat Dealers/Yacht Brokers	0.00%	0.00%	74.93%	2.72%	0.00%	0.60%	3.56%	18.19%		
Marinas	30.27%	0.00%	53.06%	0.00%	0.00%	1.68%	0.00%	14.99%		
Boat Yards	0.00%	0.00%	0.00%	0.00%	66.00%	0.00%	34.00%	0.00%		
Canvas Products/Upholstery	9.26%	0.00%	1.16%	0.00%	80.82%	2.36%	0.00%	6.40%		
Boat Repairs/Signs	0.00%	0.00%	22.65%	1.89%	5.68%	9.48%	0.00%	60.30%		
Outboard Repairs	0.00%	0.00%	5.85%	0.00%	0.00%	0.00%	0.00%	94.15%		
Marine Equip/Electronics	0.00%	0.00%	64.48%	0.00%	8.88%	8.88%	0.00%	17.76%		
Marine Construction	80.00%	0.00%	0.00%	0.00%	20.00%	0.00%	0.00%	0.00%		
Tackle/Dive Equip	0.00%	0.00%	91.23%	0.00%	0.00%	0.00%	0.00%	8.77%		
Miscellaneous Retail	0.00%	0.00%	29.00%	0.00%	0.00%	0.00%	0.00%	71.00%		
Wholesaler/Boat Manufacturer	0.00%	0.00%	2.40%	0.00%	32.30%	64.25%	0.00%	1.06%		
Water Transportation/Business Services	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%		
Clubs/Associations	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%		
Government	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%		
Storage	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%		
Auto Repair	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
General Manufacturing	0.00%	0.00%	44.44%	0.00%	0.00%	0.00%	0.00%	55.56%		
Charter Boats/Rentals	0.00%	0.00%	21.38%	0.00%	0.00%	0.00%	0.00%	78.62%		
Total	9.47%	0.00%	40.79%	0.72%	8.85%	10.82%	1.52%	27.82%		

results in the summary of updated business volume distributed by business activity, as presented in Table I-5.

The values presented in Table I-5 are the total business volume of marine-related businesses. For instance, the \$9.2 million in retail sales, the \$0.16 million in used boat sales, and the \$2.4 million in wholesale sales are the amounts that consumers paid (consumer prices) to businesses to purchase goods, rather than the total economic benefit of the retail sector. Regional impact models are developed using producer prices. In order to use the values in Table I-5 in a regional impact model, the consumer prices must be converted to producer prices. This is done within the model using margins that represent the difference between producer prices and consumer prices. When a product is purchased at the retail level, the consumer is paying for the manufacturing, distribution, transportation, and marketing of the product. For instance, if a consumer pays \$100 for an item, he may be paying \$50 for the manufacture of the product, \$5 for the transportation of the product to the wholesaler, \$15 to the wholesaler for his services, \$5 to transport the item to the retailer, and only \$25 to the retailer. If the manufacturer and wholesaler are located outside of the economy being evaluated, then only the retail portion or the retail margin (\$25) will result in an economic benefit to the local economy; the remaining portion of the sale (\$75) will “leak” out of the economy and actually result in economic benefits in another economy.

To illustrate, when a boat dealer in Indian River County sells a boat and motor for \$30,000, that total amount would appear in the marine-related database used in this analysis and in the gross retail sales as reported in FDOR’s Kind Code 28. But only a portion of the \$30,000, the retail margin (which for boat and automobile dealers is approximately 15 to 18 percent of the purchase price), will remain in the local economy and generate benefits. The boat dealer will use most of the proceeds from the sale to pay the manufacturer for the boat and motor. Because the boat and motor will probably be manufactured outside of the county, most of the proceeds of the sale will immediately leave the local economy. The money remaining after the retailer pays the manufacturer is the retail margin, which is used to pay for items such as wages, rent, utilities, business services, and retained profits. Only the retail margin, 15 to 18 percent of the purchase price in the case of boat dealers, will result in economic stimulus to the local economy. All retail and wholesale trade activity must be margined in this manner to accurately estimate the benefit to the county’s economy.

Table I-5. Total Updated Direct Marine-Related Business Revenue by Business

Business Type	Total Marine Business Volume	Construction Volume	Transportation Volume	Retail Trade Volume	Used Boat Sales Volume	Manufacturing Volume	Wholesale Trade Volume	Finance Volume	Service Volume
Boat Dealers/Yacht Brokers	\$5,652,583	\$0	\$0	\$4,235,553	\$153,703	\$0	\$33,660	\$201,271	\$1,028,394
Marinas	\$4,665,703	\$1,412,444	\$0	\$2,475,707	\$0	\$0	\$78,396	\$0	\$699,156
Boat Yards	\$413,569	\$0	\$0	\$0	\$0	\$272,956	\$0	\$140,614	\$0
Canvas Products/Upholstery	\$449,513	\$41,643	\$0	\$5,210	\$0	\$363,294	\$10,596	\$0	\$28,769
Boat Repairs/Signs	\$494,603	\$0	\$0	\$112,050	\$9,331	\$28,117	\$46,870	\$0	\$298,234
Outboard Repairs	\$466,008	\$0	\$0	\$27,271	\$0	\$0	\$0	\$0	\$438,737
Marine Equip/Electronics	\$418,152	\$0	\$0	\$269,628	\$0	\$37,131	\$37,131	\$0	\$74,262
Marine Construction	\$845,246	\$676,196	\$0	\$0	\$0	\$169,049	\$0	\$0	\$0
Tackle/Dive Equip	\$1,618,158	\$0	\$0	\$1,476,258	\$0	\$0	\$0	\$0	\$141,900
Marine/Sporting Goods Retail	\$360,561	\$0	\$0	\$104,556	\$0	\$0	\$0	\$0	\$256,005
Wholesaler/Boat Manufacturer	\$3,465,123	\$0	\$0	\$83,193	\$0	\$1,119,107	\$2,226,251	\$0	\$36,572
Water Transportation/Business Services	\$1,291,225	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,291,225
Clubs/Associations	\$538,634	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$538,634
Government	\$138,712	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$138,712
Storage	\$81,759	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$81,759
Auto Repair	\$15,290	\$0	\$0	\$15,290	\$0	\$0	\$0	\$0	\$0
General Manufacturing	\$142,713	\$0	\$0	\$63,421	\$0	\$0	\$0	\$0	\$79,291
Charter Boats/Rentals	\$1,431,250	\$0	\$0	\$305,945	\$0	\$0	\$0	\$0	\$1,125,307
Total	\$22,488,801	\$2,130,284	\$0	\$9,174,082	\$163,034	\$1,989,653	\$2,432,904	\$341,885	\$6,256,957

Economic Benefits Generated by Marine-Related Businesses

The 2009 updated estimates of direct marine-related business activity in the county were used in conjunction with the IMPLAN regional economic impact model to estimate the total (direct, indirect, and induced) benefits of the District’s Waterways in Indian River County. The benefits were measured as changes in business volume, personal income, employment, and tax revenues. As illustrated in Table I-6, sales to consumers (by marine-related businesses in Indian River County) generate a total of \$29.6 million in business volume (sales), \$6.5 million in personal income (wages), and 173 jobs. State and local tax revenues were estimated at \$1.2 million. Tax revenues were not presented in Table I-6, by business activity, because tax revenues generated by many of the individual business activities are fairly small, especially those generated by indirect and induced impacts, and as a result of rounding to two decimal places in the table, would have been displayed as zeros.

**Table I-6. Summary of Economic Benefits of
Marine-Related Businesses in Indian River County,
Under Current Existing Conditions**

Business Activity	Business Volume (Sales) (Millions of Dollars)				Personal Income (Wages) (Millions of Dollars)				Employment (Jobs)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Construction	2.21	0.61	0.52	3.34	0.74	0.25	0.16	1.15	17	5	4	26
Manufacturing	2.01	0.43	0.33	2.77	0.47	0.15	0.10	0.73	11	3	3	16
Transportation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Wholesale Trade	2.56	0.08	0.12	2.76	0.20	0.03	0.04	0.27	2	1	1	3
Retail Trade	9.81	0.54	0.78	11.13	1.30	0.17	0.24	1.71	49	4	6	59
Finance	0.35	0.08	0.09	0.52	0.14	0.03	0.03	0.20	2	1	1	3
Services	6.46	1.51	1.10	9.07	1.54	0.53	0.34	2.42	44	13	9	66
Total	23.40	3.26	2.93	29.60	4.40	1.16	0.92	6.48	123	26	24	173

The \$29.6 million in total business volume generated by marine-related businesses is distributed as a direct benefit of \$23.4 million, an indirect benefit of \$3.3 million, and an induced benefit of \$2.9 million. The \$6.5 million in personal income (wages) includes a direct benefit of \$4.4 million and indirect and induced benefits of \$2.1 million. The 173 man-years of employment generated by marine-related businesses include 123 direct jobs, 26 indirect jobs, and 24 induced jobs. The \$1.2 million in state and local tax revenues includes \$0.8 million generated by direct benefits, \$0.2 million generated by indirect benefits, and \$0.2 million generated by induced benefits.

The largest economic benefits are generated by the retail trade and services industries, including \$11.3 million in business sales, \$1.7 million in personal income, and 59 jobs in the retail trade sector and \$9.1 million in sales, \$6.5 million in personal income, and 66 jobs in the services sector.

Purchases of Non-Marine-Related Items

The direct economic benefits generated by marine-related businesses, as estimated above, do not take into account purchases by recreational boaters and fishermen who purchase non-marine-related items for consumption while using the Waterways. These impacts primarily include the purchase of gas for boats and vehicles and the purchase of food, drinks, and ice consumed during boating and fishing trips.

To estimate the economic benefits of non-marine-related items purchased from businesses not located on the Waterways, a randomly generated sample of 2,880 registered boat owners within the District, including 240 boat owners residing in Indian River County, was drawn from the Florida Department of Highway Safety and Motor Vehicles boat owner registration database and sent a questionnaire to determine their boating related spending and use patterns. A total of 784 completed questionnaires were returned by boaters residing within the District's boundaries, of which 31 indicated that they no longer own a boat, 122 indicated that they did not use their boat at all, or did not use their boat on the District's Waterways in the past 12 months, and 11 did not respond to certain questions, resulting in a total of 620 questionnaires with usable data. Indian River County boat owners returned a total of 74 completed questionnaires, of which one indicated that they no longer own a boat, six indicated that they did not use their boat at all, or did not use their boat on the District's Waterways in the past 12 months, and one did not respond to certain questions, resulting in a total of 66 questionnaires with usable data.

Results from the usable surveys were entered into a database and queried by boat size to determine frequency of use in Indian River County and spending patterns for such items as gas, food, drinks, ice, bait, hoist/launch, and other items. Respondents were also asked to differentiate the location of the purchase of these items as being either from establishments located on the Waterways or from establishments not located on the Waterways. This was intended to prevent double counting, because purchases made on the Waterways would have

been included in the estimated marine-related business benefits presented in the previous section. To ensure adequate response in each boat size classification, the responses from Nassau, Duval, and Indian River counties were combined when estimating the average number of trips on the Waterways that each boater takes per year and the average expenditures per trip for each boat size class.

These expenditures per trip, which were distributed by boat size, were applied to the number of registered pleasure boats in each boat size class in Indian River County. The number of trips taken per year, by boat size, as obtained from the survey of boat owners, was applied to the total expenditures per trip for each boat size class. The total expenditures for each boat size class were then summed to estimate the total expenditures for the county. The total expenditures on non-marine-related items at establishments not located on the Waterways include \$8.1 million for gasoline and \$2.9 million for food, drinks, and ice.

The regional impact model used in this analysis to estimate the total economic benefits margined the retail sales of gasoline, food, drinks, and ice to estimate the portion of sales that would be produced and distributed by companies located in Indian River County. This was accomplished by distributing the food, drinks, and ice expenditures to various commodities that would tend to be consumed on a boating or fishing trip.

Economic Benefits Generated by Purchases of Non-Marine-Related Items

The \$11.0 million in retail purchases (\$8.1 million for gasoline sales and \$2.9 million for food, drinks, and ice) by recreational boaters from establishments not located on the Waterways were estimated to generate total economic benefits of \$14.5 million in business volume, \$3.6 million in personal income, 69 jobs, and \$1.6 million in tax revenues. As illustrated in Table I-7, the sales generated by these purchases include \$10.9 million in direct benefits and \$3.6 million in indirect and induced benefits. The total personal income includes \$2.4 million in direct benefits and \$1.3 million in indirect and induced benefits. The 69 jobs include 41 direct jobs, and 29 indirect and induced jobs, each. State and local tax revenues include \$1.4 million generated by direct activities, \$0.08 million generated by indirect activities, and \$0.12 million generated by induced activities. The \$1.4 million in tax revenues generated by direct activities includes \$0.89 million in fuel taxes generated by the sale of \$8.1 million in gasoline. The fuel tax revenues were estimated outside of the IMPLAN model and were based on the amount of

gasoline sold, assuming an average price of \$2.70 per gallon, and the prevailing fuel tax per gallon. The Indian River County fuel tax in 2010 was \$0.296 per gallon, including \$0.16 per gallon in state levied taxes and \$0.136 per gallon in locally levied taxes. The state levied taxes include \$0.12 per gallon in retail sales tax. To avoid double counting of gasoline retail sales taxes that are included in the fuel tax, the sales taxes generated by direct activities estimated in the IMPLAN model were not incorporated into the tax revenue estimate.

Table I-7. Summary of Economic Benefits of Non-Marine-Related Items Purchased by Boaters in Indian River County, Under Current Existing Conditions

Activity	Economic Impacts			
	Direct	Indirect	Induced	Total
Business Volume (Millions)	\$10.91	\$1.95	\$1.64	\$14.51
Personal Income (Millions)	\$2.40	\$0.73	\$0.52	\$3.64
Employment	41	15	14	69
Tax Revenues (Millions)	\$1.43	\$0.08	\$0.12	\$1.62

Combined Economic Benefits

The total economic benefits of the Waterways include the benefits generated by marine-related businesses in Indian River County (presented in Table I-6) and the purchase of non-marine-related items for consumption on the Waterways (presented in Table I-7). A summary of these benefits is presented in Table I-8. Total benefits consist of \$44.1 million in business volume, \$10.1 million in personal income, 242 jobs, and \$2.8 million in tax revenue. Total business volume benefits consist of \$34.3 million in direct sales and \$9.8 million in indirect and induced sales. Total personal income benefits consist of \$6.8 million in direct wages and \$3.3 million in indirect and induced wages. Total employment benefits consist of 164 direct jobs and 78 indirect and induced jobs. State and local tax revenues include \$2.2 million generated by direct activities, \$0.25 million generated by indirect activities, and \$0.3 million generated by induced activities. The \$2.8 million generated by direct activity includes \$0.89 million in fuel taxes generated by gasoline sales.

Table I-8. Summary of Total Economic Benefits of the Waterways in Indian River County, Under Current Existing Conditions

Activity	Total Economic Impacts			
	Direct	Indirect	Induced	Total
Business Volume (Millions)	\$34.31	\$5.22	\$4.58	\$44.11
Personal Income (Millions)	\$6.79	\$1.89	\$1.44	\$10.12
Employment	164	40	38	242
Tax Revenues (Millions)	\$2.21	\$0.25	\$0.32	\$2.78

These benefits represent about a 60 percent decrease from the values presented in the original analysis in business volume, a 65 percent decrease in personal income, and an 80 percent decrease in employment. The decrease is mainly due to the overall decrease in economic activity resulting from the 2007-2009 U.S. economic recession. The overall marine-related economy, or the direct benefit, was estimated to have decreased by 70 percent, based on FDOR tax data.

As can be seen, when the current benefits are compared to the benefits from the original analysis, the percent decreases in personal income and employment benefits are greater than the percent decrease in business volume benefits. This is due to several factors, namely inflation and updates to the IMPLAN model software. Business volume and personal income benefits are presented in current values. The values in the original analysis are presented in 1999 dollars and the values in the current analysis are presented in 2010 dollars. The influence of inflation between the two periods was not included. The inflation rate, as measured by the Consumer Price Index (CPI) for all wage earners, from 1999 to 2010 was 30.9 percent. In other words, all other factors being held constant, the reported business output would have had to increase by approximately 30.9 percent, from 1999 to 2010, in order to maintain the same personal income and employment levels as reported in 1999. In addition, the total compensation costs for all civilian employees have increased. The exact increase in total compensation costs of employees cannot be estimated for 1999 because the data are only available starting in 2001. Because the change since 2001 is 29.9 percent, the change since 1999 would apparently be greater than 29.9 percent. In other words, employee compensation increased at a faster rate than inflation to the point that, in 2010, employees were paid approximately in excess of 29.9 percent more than they were paid in 1999. Therefore, business output and personal income would have to increase

in excess of 29.9 percent just to maintain the 1999 employment level. Another reason for the disparity between changes in business volume and employment is the change in output per person. For instance, from 1999 to 2010, output per person in the manufacturing industry experienced a 45.4 percent increase. In other words, in the amount of time it took an employee to produce \$1.00 of output in 1999, approximately \$1.45 of output could be produced in 2010.

The IMPLAN model is periodically updated to increase the accuracy of estimating economic benefits associated with indirect and induced activities. Each update results in slight changes to how the direct impacts are distributed to industry sectors in the model and how the indirect and induced benefits are estimated. Since the conduct of many of the original analyses, the IMPLAN model has been updated several times; therefore, the impact of each update cannot be traced through the results of each analysis. In general, the latest update had the greatest impact on the method of calculating benefits. One update to the model included adjusting the number of sectors evaluated in the model. Previous versions of IMPLAN included 509 sectors or industries to which direct impacts could be assigned. The updated version of the software includes 440 sectors or industries. As result, several industry sectors in the older version were combined, or industries were divided between two or more of the sectors in the updated version. Consequently, the direct impacts in the current analysis had to be assigned to the new sectors. In most instances, the assignments were straightforward because the industry or sector did not change between the two versions. However, for some direct impacts, the assignment to industries in the updated version of IMPLAN required the direct impacts to be assigned to sectors that differed, by varying degrees, to the sectors used in the older versions of IMPLAN. As a result, the indirect and induced benefits, as calculated by the new version of IMPLAN, could differ from the benefits developed using the old version of the model.

In addition, the economic multipliers used to generate total economic benefits have been decreasing over time, due in part to increased imports. The total economic benefit of an action is a function of the direct benefit and the total effect multiplier. Due to an increase in the importation of goods and services into the U.S., the multiplier effect may have decreased since the conduct of the original analyses. When domestic income rises, consumers typically purchase more goods and services, some of which are imports. The purchase of imports lowers the demand for U.S. goods and services and allows money to “leak out” of the economy, resulting in fewer “rounds” of spending and thereby less indirect and induced benefits.

For instance, in Duval County, the output multiplier for the IMPLAN Sector “Boat Building” decreased from 1.88 in 2001 to 1.52 in 2008, a decrease of 19 percent, due to changes in the structure of the economy. This decrease is primarily due to the change in imports over this time period. On the other hand, in Broward County, for which the original analysis was conducted more recently, the change in the output multiplier for the Boat Building sector increased from 1.65 in 2006 to 1.7 in 2008, an increase of three percent.

Economic Benefits Assuming a Cessation of Maintenance

If maintenance of the Waterways in Indian River County was to cease, it is believed that shoaling would eventually result in an effective vessel draft limitation of three feet. This, in turn, would result in a reduction of marine-related business generated by vessels drafting in excess of three feet.

Expected Marine-Related Business Volume

The original analysis estimated total marine-related business volume assuming three-foot draft restrictions (as calculated from the survey-adjusted database of marine-related businesses) at \$45.8 million. For this analysis, total business volume assuming three-foot draft restrictions was updated to current values by applying the percent of business sales, by business type, that are expected to be retained under the three-foot draft scenario (as obtained from the original analysis) to the 2009 updated current total business volume as presented in Table I-3. The resulting updated total business volume, by business type, was distributed to individual business activities using the distribution established in the original analysis.

Table I-9 presents the total 2009 marine-related business volume for each business type, the percent of existing business that would be retained if vessel drafts were limited to three feet MLW on the Waterways (as presented in the original analysis), and the resulting total business volume that would be retained with three feet of vessel draft, distributed by business activity.

As can be seen from Table I-9, 59.6 percent of all business activity would be retained by marine-related businesses if vessel drafts were limited to three feet MLW. Total marine-related business revenue is expected to be \$13.4 million if vessel drafts were reduced to three feet MLW, a reduction of \$9.1 million from the \$22.5 million in current business activity.

Table I-9. Total Marine-Related Business Revenue by Business Type, Distributed by Business Activity, Assuming Three-Foot Vessel Draft Restrictions on the Waterways

Business Type	Total Existing Marine Business Volume		Percent of Business to Remain	Total Marine Business Volume With 3' Drafts		Construction Volume	Transportation Volume	Retail Trade Volume	Used Boat Sales Volume	Manufacturing Volume	Wholesale Trade Volume	Finance Volume	Service Volume
	Volume	Volume		Volume	Volume								
Boat Dealers/Yacht Brokers	\$5,652,583	\$2,543,846	45.00%	\$0	\$0	\$1,836,629	\$85,032	\$0	\$14,811	\$0	\$118,175	\$489,199	
Marmas	\$4,665,703	\$1,771,093	37.96%	\$554,138	\$0	\$896,294	\$0	\$0	\$33,011	\$0	\$0	\$287,651	
Boat Yards	\$413,569	\$413,569	100.00%	\$0	\$0	\$0	\$0	\$0	\$0	\$272,956	\$0	\$140,614	
Canvas Products/Upholstery	\$449,513	\$365,245	81.25%	\$37,931	\$0	\$3,592	\$0	\$0	\$293,073	\$10,066	\$0	\$20,584	
Boat Repairs/Signs	\$494,603	\$319,853	64.67%	\$0	\$0	\$76,793	\$7,294	\$0	\$15,274	\$29,333	\$0	\$191,159	
Outboard Repairs	\$466,008	\$466,008	100.00%	\$0	\$0	\$27,271	\$0	\$0	\$0	\$0	\$0	\$438,737	
Maine Equip/Electronics	\$418,152	\$418,152	100.00%	\$0	\$0	\$269,628	\$0	\$0	\$37,131	\$37,131	\$0	\$74,262	
Marme Construction	\$845,246	\$422,623	50.00%	\$338,098	\$0	\$0	\$0	\$0	\$84,525	\$0	\$0	\$0	
Tackle/Dive Equip	\$1,618,158	\$1,380,484	85.31%	\$0	\$0	\$1,262,225	\$0	\$0	\$0	\$0	\$0	\$118,260	
Marme/Sporting Goods Retail	\$360,561	\$360,561	100.00%	\$0	\$0	\$104,556	\$0	\$0	\$0	\$0	\$0	\$256,005	
Wholesaler/Boat Manufacturer	\$3,465,123	\$2,073,161	59.83%	\$0	\$0	\$36,158	\$0	\$0	\$741,683	\$1,270,450	\$0	\$24,869	
Water Transportation/Business Services	\$1,291,225	\$1,071,511	82.98%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,071,511	
Clubs/Associations	\$538,634	\$494,748	91.85%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$494,748	
Government	\$138,712	\$138,712	100.00%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$138,712	
Storage	\$81,759	\$81,759	100.00%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$81,759	
Auto Repair	\$15,290	\$15,290	100.00%	\$0	\$0	\$15,290	\$0	\$0	\$0	\$0	\$0	\$0	
General Manufacturing	\$142,713	\$142,713	100.00%	\$0	\$0	\$63,421	\$0	\$0	\$0	\$0	\$0	\$79,291	
Charter Boats/Rentals	\$1,431,250	\$920,523	64.32%	\$0	\$0	\$209,644	\$0	\$0	\$0	\$0	\$0	\$710,881	
Total	\$22,488,801	\$13,399,850	59.58%	\$930,168	\$0	\$4,801,501	\$92,326	\$0	\$1,394,801	\$1,444,640	\$258,789	\$4,477,627	

Economic Benefits Generated by Marine-Related Businesses

Assuming vessel draft restrictions of three feet MLW on the Waterways, the \$13.4 million of marine-related business revenue in Indian River County would be expected to generate total benefits of \$17.8 million in business volume (sales), \$4.0 million in personal income (wages), and 108 jobs (Table I-10). State and local tax revenues are estimated at \$0.7 million. The \$17.8 million in business volume expected to be generated by marine-related business includes a total direct benefit of \$31.9 million and combined indirect and induced benefits of \$3.9 million. The \$4.0 million in personal income includes a direct benefit of \$2.7 million and combined indirect and induced benefits of \$1.3 million. The 108 jobs generated by marine-related businesses include 76 direct jobs, 16 indirect jobs, and 15 induced jobs. State and local tax revenues are estimated to be distributed as \$0.5 million generated by direct activities, \$0.1 million generated by indirect activities, and \$0.1 million generated by induced activities.

Table I-10. Summary of Economic Benefits of Marine-Related Businesses in Indian River County, Assuming Vessel Draft Restrictions of Three Feet

Business Activity	Business Volume (Sales) (Millions of Dollars)				Personal Income (Wages) (Millions of Dollars)				Employment (Jobs)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Construction	0.96	0.27	0.23	1.46	0.32	0.11	0.07	0.50	7	2	2	11
Manufacturing	1.45	0.31	0.23	1.99	0.33	0.11	0.07	0.51	8	2	2	12
Transportation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Wholesale Trade	1.47	0.05	0.07	1.58	0.11	0.02	0.02	0.15	1	0	1	2
Retail Trade	5.14	0.30	0.42	5.87	0.70	0.10	0.13	0.93	27	2	3	33
Finance	0.27	0.06	0.07	0.40	0.11	0.02	0.02	0.15	1	0	1	2
Services	4.62	1.07	0.79	6.49	1.12	0.38	0.25	1.75	31	9	7	47
Total	13.91	2.07	1.81	17.79	2.69	0.73	0.57	3.99	76	16	15	108

Comparing current economic benefits to economic benefits expected to occur if vessel drafts were restricted to three feet MLW indicates that the county would realize a total decrease in business volume of nearly \$11.8 million, a decrease in personal income of \$2.5 million, a decrease of 66 jobs, and a decrease of \$0.5 million in tax revenues.

Expected Purchases of Non-Marine-Related Items

Vessel draft restrictions of three feet MLW will impact the sale of non-marine-related items to recreational boaters and fishermen. The extent of this impact was estimated based on

the survey of registered boat owners in Indian River County and the distribution of registered vessels by size. The current sales of non-marine-related items to recreational boaters were estimated at \$11.0 million (\$8.1 million for gasoline sales and \$2.9 million for food, drink, and ice). Vessel draft restrictions of three feet will prevent larger vessels from utilizing the Waterways. As a result, retail sales of non-marine-related items from businesses not located on the Waterways are expected to drop to \$9.0 million (including \$6.6 million for gasoline sales and \$2.4 million in food, drink, and ice sales), a reduction of \$2.0 million from existing conditions.

Economic Benefits Generated by Purchases of Non-Marine-Related Items

As illustrated in Table I-11, the expected \$9.0 million in retail sales of gas, food, drinks, and ice to recreational boaters from businesses not located on the Waterways would generate benefits of \$12.0 million in business volume, \$3.0 million in personal income, 57 jobs, and \$1.3 million in tax revenues. Compared to existing conditions, this is a reduction of about \$2.5 million in business volume, \$0.64 million in personal income, 12 jobs, and \$0.3 million in tax revenues. Tax revenues generated under this scenario include \$0.73 million in fuel taxes distributed as \$0.39 million in state levied taxes and \$0.33 million in locally levied taxes.

Table I-11. Summary of Economic Benefits of Non-Marine-Related Items Purchased by Boaters in Indian River County, Assuming Vessel Draft Restrictions of Three Feet

Activity	Economic Impacts			
	Direct	Indirect	Induced	Total
Business Volume (Millions)	\$9.02	\$1.60	\$1.35	\$11.98
Personal Income (Millions)	\$1.98	\$0.60	\$0.42	\$3.00
Employment	33	12	11	57
Tax Revenues (Millions)	\$1.17	\$0.07	\$0.10	\$1.34

Combined Economic Benefits

The total combined economic benefits expected to be generated with three-foot vessel draft restrictions on the Waterways by marine-related businesses and from the purchases of non-marine-related items from businesses not located on the Waterways are presented in Table I-12. The combined benefits include \$29.8 million in business volume, \$7.0 million in personal

income, 165 jobs, and \$2.1 million in tax revenues. The \$2.1 million in state and local tax revenues includes \$0.73 million in fuel taxes generated by gasoline sales to boaters. These benefits are a reduction of over \$14.3 million in business volume, \$3.1 million in personal income, 78 jobs, and \$0.7 million in tax revenues compared to existing conditions on the Waterways and account for 26 to 32 percent of the existing benefits of the Waterways.

Table I-12. Summary of Total Economic Benefits of the Waterways in Indian River County, Assuming Vessel Draft Restrictions of Three Feet

Activity	Total Economic Impacts			
	Direct	Indirect	Induced	Total
Business Volume (Millions)	\$22.94	\$3.67	\$3.16	\$29.77
Personal Income (Millions)	\$4.67	\$1.33	\$0.99	\$6.99
Employment	110	28	26	165
Tax Revenues (Millions)	\$1.65	\$0.17	\$0.22	\$2.05

Economic Benefits Assuming a Higher State of Maintenance

The full implementation of the District’s Dredge Material Management Plan would result in a higher state of maintenance of the Waterways and an increase in vessel draft restrictions in Indian River County to 12 feet MLW. This increase in draft allowance would permit deeper draft vessels to fully utilize the Waterways in Indian River County. This, in turn, would increase the business volume of marine-related businesses in the county. The sale of non-marine-related items by businesses not located on the Waterways would not experience a significant impact under this maintenance scenario because deepening the Waterways would result in increased use by deeper draft vessels (drafting between 6.5 to 12 feet) that are typically stored in the water and tend not to be trailered. Owners of those vessels typically do not purchase many items from businesses not located on the Waterways, but rather purchase almost all of their supplies from businesses with waterway access.

Expected Marine-Related Business Volume

The original analysis estimated total marine-related business volume assuming 12-foot draft restrictions (as calculated from the survey-adjusted database of marine-related businesses) at \$79.5 million. Total business volume assuming 12-foot draft restrictions was updated to

current values by applying the expected percent increase in business sales, by business type, under the 12-foot draft scenario (as obtained from the original analysis) to the updated current total business volume as presented in Table I-3. The resulting updated total business volume, by business type, was distributed to individual business activities using the distribution established in the original analysis.

Table I-13 presents the total 2009 marine-related business volume for each business type, the expected percent increase in existing business that would result if vessel drafts were increased to 12 feet MLW on the Waterways (as presented in the original analysis), the resulting total business volume assuming 12-foot vessel drafts, and the business volume assuming 12-foot vessel drafts distributed by business activity.

As can be seen from the table, business activity would be expected to increase by 3.5 percent if vessel drafts were increased to 12 feet MLW. Total marine-related business revenue is expected to be \$23.3 million, an increase of \$0.8 million from the \$22.5 million in existing business activity.

Economic Benefits Generated by Marine-Related Business

If maintenance of the Waterways was increased to reflect the full implementation of the District's Dredge Material Management Plan, resulting in increased vessel drafts to 12 feet MLW, marine-related businesses in the county would be expected to generate a total of \$30.8 million in business volume, \$6.8 million in personal income, and 185 jobs (Table I-14). State and local tax revenues were estimated at \$1.2 million. The sales expected to be generated by marine-related businesses under this scenario include a direct benefit of \$24.2 million and combined indirect and induced benefits of \$6.5 million. The total personal income generated under this maintenance scenario includes a direct benefit of \$4.6 million and combined indirect and induced benefits of \$2.2 million. Total employment benefits include 132 direct jobs, 27 indirect jobs, and 26 induced jobs. The \$1.2 million in state and local tax revenues includes \$0.82 million generated by direct benefits, and \$0.2 million generated by indirect and induced benefits, each.

Table I-13. Total Marine-Related Business Revenue by Business Type, Distributed by Business Activity, Assuming 12-Foot Vessel Draft Restrictions on the Waterways

Business Type	Total Existing Marine Business Volume		Percent Increase in Business	Total Marine Business Volume With 10' Drafts		Construction Volume	Transportation Volume	Retail Trade Volume	Used Boat Sales Volume	Manufacturing Volume	Wholesale Trade Volume		Finance Volume	Service Volume
	Volume			Volume							Volume	Volume		
Boat Dealers/Yacht Brokers	\$5,652,583		2.67%	\$5,803,372		\$0	\$0	\$4,289,905	\$156,808	\$0	\$34,437	\$205,154	\$1,117,067	
Marinas	\$4,665,703		9.51%	\$5,109,338	\$1,548,792	\$0	\$0	\$2,705,016	\$0	\$0	\$86,391	\$0	\$769,140	
Boat Yards	\$413,569		0.00%	\$413,569	\$0	\$0	\$0	\$0	\$0	\$272,956	\$0	\$140,614	\$0	
Canvas Products/Upholstery	\$449,513		9.54%	\$492,375	\$43,597	\$0	\$0	\$6,276	\$0	\$398,375	\$10,875	\$0	\$33,112	
Boat Repairs/Signs	\$494,603		6.28%	\$525,651	\$0	\$0	\$0	\$117,540	\$9,693	\$29,563	\$48,316	\$0	\$320,539	
Outboard Repairs	\$466,008		0.00%	\$466,008	\$0	\$0	\$0	\$27,271	\$0	\$0	\$0	\$0	\$438,737	
Marine Equip/Electronics	\$418,152		0.00%	\$418,152	\$0	\$0	\$0	\$269,628	\$0	\$37,131	\$37,131	\$0	\$74,262	
Marine Construction	\$845,246		0.00%	\$845,246	\$676,196	\$0	\$0	\$1,492,649	\$0	\$169,049	\$0	\$0	\$0	
Tackle/Dive Equip	\$1,618,158		1.20%	\$1,637,585	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$144,936	
Marine/Sporting Goods Retail	\$360,561		0.00%	\$360,561	\$0	\$0	\$0	\$104,556	\$0	\$0	\$0	\$0	\$256,005	
Wholesaler/Boat Manufacturer	\$3,465,123		0.00%	\$3,465,123	\$0	\$0	\$0	\$83,193	\$0	\$1,119,107	\$2,226,251	\$0	\$36,572	
Water Transportation/Business Services	\$1,291,225		3.48%	\$1,336,161	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$13,361,161	
Clubs/Associations	\$538,634		0.00%	\$538,634	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$538,634	
Government	\$138,712		0.00%	\$138,712	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Storage	\$81,759		0.00%	\$81,759	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$81,759	
Auto Repair	\$15,290		0.00%	\$15,290	\$0	\$0	\$0	\$15,290	\$0	\$0	\$0	\$0	\$0	
General Manufacturing	\$142,713		0.00%	\$142,713	\$0	\$0	\$0	\$63,421	\$0	\$0	\$0	\$0	\$79,291	
Charter Boats/Rentals	\$1,431,250		3.65%	\$1,483,427	\$0	\$0	\$0	\$308,761	\$0	\$0	\$0	\$0	\$1,174,667	
Total	\$22,488,801		3.49%	\$23,273,675	\$2,268,585	\$0	\$0	\$9,483,507	\$166,501	\$2,026,179	\$2,443,401	\$345,768	\$6,539,593	

Table I-14. Summary of Economic Benefits of Marine-Related Businesses in Indian River County, Assuming Vessel Draft Restrictions of 12 Feet

Business Activity	Business Volume (Sales) (Millions of Dollars)				Personal Income (Wages) (Millions of Dollars)				Employment (Jobs)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Construction	2.35	0.65	0.55	3.56	0.79	0.26	0.17	1.23	18	5	5	27
Manufacturing	2.05	0.44	0.34	2.82	0.48	0.15	0.11	0.74	11	3	3	17
Transportation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Wholesale Trade	2.57	0.08	0.12	2.77	0.20	0.03	0.04	0.27	2	1	1	3
Retail Trade	10.14	0.60	0.85	11.59	1.41	0.19	0.27	1.87	54	5	7	66
Finance	0.36	0.08	0.09	0.53	0.14	0.03	0.03	0.20	2	1	1	3
Services	6.75	1.58	1.14	9.47	1.61	0.56	0.36	2.52	45	13	10	68
Total	24.22	3.44	3.09	30.75	4.64	1.22	0.97	6.83	132	27	26	185

Comparing current total economic benefits to expected benefits assuming a higher state of maintenance reveals that the county would realize an increase of \$1.2 million in business volume, \$0.4 million in personal income, 12 jobs, and \$0.1 million in tax revenues.

Economic Benefits Generated by Purchases of Non-Marine-Related Items

This maintenance scenario should not significantly impact the sale of non-marine-related items by businesses that are not located on the Waterways. These benefits should be equivalent to those under current Waterways conditions. Under this assumption, retail sales of non-marine-related items should generate total economic activity equal to \$14.5 million in business volume, \$3.6 million in personal income, and 69 jobs (Table I-15). The \$1.6 million in tax revenues generated under this scenario includes \$0.88 million in fuel taxes distributed as \$0.47 million in state levied taxes and \$0.41 million in locally levied taxes.

Table I-15. Summary of Economic Benefits of Non-Marine-Related Items Purchased by Boaters in Indian River County, Assuming Vessel Draft Restrictions of 12 Feet

Activity	Economic Impacts			
	Direct	Indirect	Induced	Total
Business Volume (Millions)	\$10.91	\$1.95	\$1.64	\$14.51
Personal Income (Millions)	\$2.40	\$0.73	\$0.52	\$3.64
Employment	41	15	14	69
Tax Revenues (Millions)	\$1.43	\$0.08	\$0.12	\$1.62

Combined Economic Benefits

The combined total benefits of marine-related businesses and purchases of non-marine-related items from businesses not located on the Waterways under this scenario are presented in Table I-16. Combined benefits include \$45.3 million in business volume, \$10.5 million in personal income, 254 jobs, and \$2.9 million in tax revenues. State and local tax revenues include \$0.88 million in fuel taxes generated by gasoline sales to boaters. These benefits are an increase of \$1.2 million in business volume, \$0.4 million in personal income, 12 jobs, and \$0.1 million in tax revenues compared to current existing conditions on the Waterways.

The combined business volume generated from the Waterways assuming 12-foot vessel draft restrictions includes a direct benefit of \$35.1million, an indirect benefit of \$5.4 million, and an induced benefit of \$4.7 million. Combined personal income generated under this scenario consists of \$7.0 million in direct benefits, \$2.0 million in indirect benefits, and \$1.5 million in induced benefits. Combined employment includes 173 direct jobs, 42 indirect jobs, and 40 induced jobs. State and local tax revenues include \$2.3 million generated by direct activities, and \$0.3 million generated by indirect and induced activities, each. The \$2.3 million in tax revenues generated by direct activity includes \$0.88 million in fuel taxes.

Table I-16. Summary of Total Economic Benefits of the Waterways in Indian River County, Assuming Vessel Draft Restrictions of 12 Feet

Activity	Total Economic Impacts			
	Direct	Indirect	Induced	Total
Business Volume (Millions)	\$35.13	\$5.39	\$4.74	\$45.26
Personal Income (Millions)	\$7.04	\$1.95	\$1.49	\$10.47
Employment	173	42	40	254
Tax Revenues (Millions)	\$2.27	\$0.26	\$0.33	\$2.86

The 2007-2009 U.S. Economic Recession

In December 2007, the U.S. economy entered a recession that would last 18 months, until June 2009, the longest recession since World War II. The impact of the recession was evident in the FDOR recorded gross sales throughout Florida and in the marine industries as measured by Kind Code 28. The downturn in the economy, as evidenced in the decrease in total gross sales in the State in general and specifically in the decrease in gross sales in Kind Code 28, indicated a

need to estimate the impact of the recession on marine-related businesses. The methodology developed for this analysis for estimating the impact of the recession on marine-related businesses in an individual county within the District was based on estimating the trend in gross sales of Kind Code 28 established over the 20-year period prior to the onset of the recession. This trend in gross sales was used as a proxy to estimate the theoretical gross sales in a county had the recession not occurred and gross sales had continued to increase at the rates experienced over the previous 20-year period. These gross sales, assuming the recession did not occur, were used to estimate the non-recession change in direct sales in the county and the total economic benefits of the Waterways assuming no recession. However, anomalies in the FDOR reported gross sales data for Indian River County prevented the development of an estimate of the recession.

Figure I-1 graphically illustrates the reported gross sales for Kind Code 28 available for Indian River County from 1986 through 2009. The FDOR reported gross sales for Kind Code 28 fluctuated widely, from \$6.5 million in 1986 to \$20.4 million in 1998 to \$5.4 million in 2009. The trend line of the gross sales from 1986 to 2009, based on polynomial equation, had an R^2 value of 0.44. The closer the R^2 value is to 1, the higher the correlation of the equation, or regression line, is to the data. An R^2 value of 0.44 indicates that for Indian River County, the equation did not correlate, or approximate, the historical gross sales values, and therefore would not generate a reliable estimate of gross sales in the out years (2009). Therefore, a reliable estimate of the recession on Indian River County could not be developed.

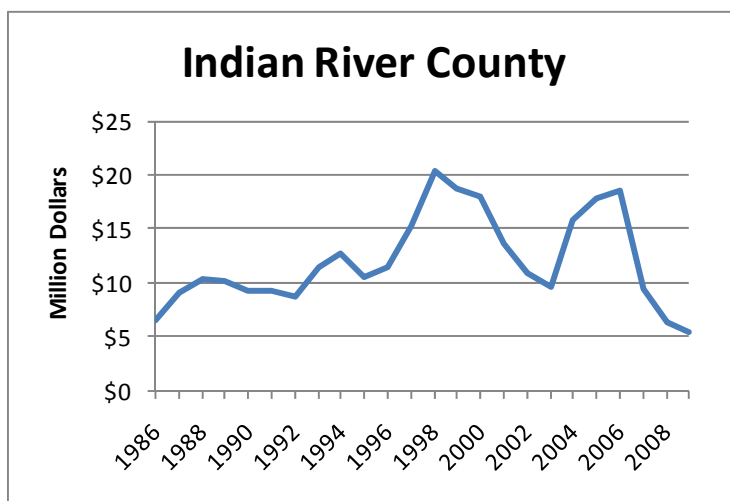


Figure I-1. Indian River County, FDOR Reported Gross Sales of Kind Code 28, 1986 Through 2009