

ECONOMIC IMPACT OF DANIA CUTOFF  
CANAL DREDGING

FINAL REPORT

*Prepared by:*

**THOMAS J. MURRAY & ASSOCIATES, INC.**

September 14, 2015

*On behalf of*

**FLORIDA INLAND NAVIGATION DISTRICT**

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*Contact Person and Project Manager*

**THOMAS J. MURRAY**

P.O. Box 1083 ♦ Gloucester Point, Virginia 23062 USA

**Table of Contents**

**EXECUTIVE SUMMARY ..... I**

**INTRODUCTION..... 1**

**Dania Cut Canal Boatyard Survey..... 1**  
Figure 1: Growth in Boat yard Service 2013-2015 (# projects) .....2  
Table 1: Growth in Dania Cut Boat Yard Activity (2013-2015) .....2

**DISCUSSION ..... 5**  
Figure 2. Broward County Gross Marine Sales Fiscal year 2013-2015 .....5  
Figure 3. Business Growth Index Broward County Compared to Dania Cut Canal (2013 Base Year).....6

**Economic Impact Estimation.....7**

**ECONOMIC IMPACT OF DANIA CUT CANAL DREDGING – 2015..... 8**  
Table 2: Summary of Estimated Annual Economic Impacts arising from the Dania Cut Canal Dredging on Broward County 2015 REGION — (\$ MILLIONS) .....9

**APPENDIX 1. GLOSSARY OF INPUT-OUTPUT TERMS ..... 10**

**REFERENCES CONSULTED ..... 12**

# Economic Impact of Dania Cutoff Canal Dredging

DRAFT REPORT

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## EXECUTIVE SUMMARY

In 2013, the Florida Inland Navigation District (“FIND”) completed dredging of the Dania Cutoff Canal located in Dania Beach, Florida. The deepening of the waterway has proven to be a clear enhancement to navigation and a significant inducement to Dania Cutoff Canal business growth and economic impact.

As a result of the dredging:

- Boat yards are servicing 54% more vessels in 2015, compared to the pre-dredging situation in 2013. The work includes more extensive refit and yacht repair and maintenance projects.
- Boat yard annual service revenues have increased an estimated 59% since 2013, the pre-dredging period.
- The duration of boat yard projects has increased from an average of 30 days in 2013 to 35 days in the current year. Most firms have experienced a qualitative improvement in the types of jobs including more “refit” projects in addition to periodic maintenance services.
- The majority of local boat yards are now reporting waiting lists for service, while none reported waiting lists in 2013, or other recent years prior to the dredging.
- Broward County has realized a \$23.4 million increase in economic output, as a result of the dredging.
- Associated with the Dania Cutoff Canal industries growth, 132 additional jobs, \$6.6 million in labor income, \$9.9 million in value added and nearly \$800k in additional tax revenue have been generated within Broward County.

## INTRODUCTION

In 2013, the Florid Inland Navigation (“FIND”) District completed dredging of the Dania Cutoff Canal located in Dania Beach, Florida. The deepening of the waterway was primarily justified as an enhancement to navigation, which would induce economic activity and within the local community and the State of Florida. The dredging of the Dania Cutoff Canal was funded by FIND with a 25% cost share from both Broward County and the City of Dania Beach. There was no project component that would address the actual economic impact of the project in the local area. To begin to evaluate the actual economic activity that grew from the dredging the FIND requested a follow-up assessment to begin to quantify what actually resulted from the investment. This report provides such an evaluation based upon both primary surveys of the project area water dependent businesses and secondary economic data collection and analysis.

### *Dania Cut Canal Boatyard Survey*

Primarily, the local boatyards are the main recipient of the direct impacts of the yacht activity relying on the Dania Cutoff Canal access. As such, they provide a reasonable basis for developing an estimate of any changes in yacht visitation and expenditures at local boatyards resulting from the channel deepening.

Interviews with boatyards directly involved in building, maintaining, and refitting vessels of the mega yacht category were conducted to gain descriptive and financial information for use in the impact modeling.<sup>1</sup>

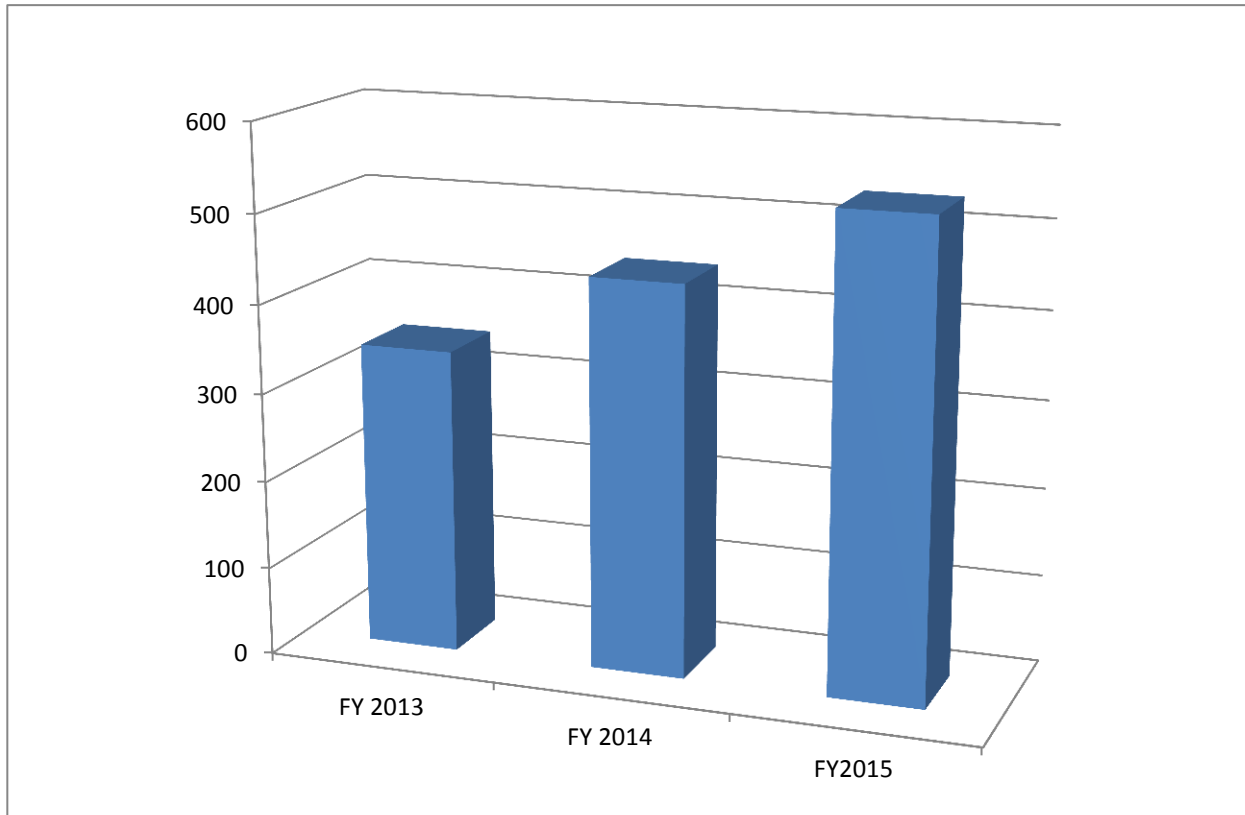
Because of the small number of such firms, information obtained from the boatyards interviewed is combined to insure against any disclosure of proprietary financial information. While perhaps not complete, the estimates are considered to be representative of yacht repair and mega yacht activity in the region and therefore useful for economic impact estimation.

As seen in Figure 1, the trend at the local boat yards has reportedly been quite positive following the dredging. Not only are the firms accommodating more yacht repair and maintenance projects, additionally the duration and size of those projects has grown from an average of 30 days to 35 days. For most firms the quality of the types of jobs has improved, as there are more “refit” projects in addition to typical maintenance services. They are now reporting waiting lists for service, whereas most did not report waiting lists in 2013 or other years prior to the dredging.

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<sup>1</sup> Generally the boatyards are classified as Standard Industrial Classification NAICS 3366612 ((SIC) #3732) “Boat Building and Repairing”, In general, the former classification applies to recreational boats of relatively small size while Ship Building (SIC 3731) includes firms primarily engaged in large commercial vessels such as cargo vessels, tankers, ships, etc.; yachts, either for commercial or recreational use, are also included in this sector. The economic modeling conducted herein relates to the smaller boat yard sector.

**FIGURE 1: GROWTH IN BOAT YARD SERVICE 2013-2015 (# PROJECTS)**



Typically the boatyard expenditures are of two types:

- Annual haul-out and routine maintenance.
- Periodic vessel haul-out and complete painting and overhaul.

Boatyards interviewed provided information on the numbers of vessels upon which work was completed at their facilities. A summary of the trends in boat yard activity appears below in Table 1.

<b>TABLE 1: GROWTH IN DANIA CUT BOAT YARD ACTIVITY (2013-2015)</b>			
	<b>2013</b>	<b>2014</b>	<b>2015<sup>2</sup></b>
<b>Number of Projects</b>	345	441	532
<b>Total Estimated Value</b>	\$22,996,665	\$29,395,737	\$35,461,524

<sup>2</sup> 2015 data is based on the survey estimates completed during August 2015. The estimate is considered reasonable based upon the 28% increase in actual business activity in the first full year following the dredging project completion. The average revenue per project (\$66,657) is based upon an average for the 6 yards interviewed.

Based on prior boat yard research conducted in the local area, the boatyards clearly experienced significant variability between vessels and each project.<sup>3</sup> For example, boatyards complete numerous annual “routine” haul outs for bottom cleaning, painting, etc. Annual repair and maintenance costs are quite difficult to show with “rules of thumb”. The average expenditures at boatyards for mega yacht work had declined since 1997. Managers consistently cited acute cost competition from competitive yards within the Tri-county area, as well as increased competition from outside the region.

Significantly adding to the boatyard’s large yacht activity, every three to four years large yachts are hauled and completely repainted. The cost to haul vessels clearly varies with size. For instance one 150 foot vessel was being hauled and painted during an interview with an estimated cost of \$200,000. Additionally, the vessel’s engines were to be overhauled, at a cost of approximately \$150,000. While in this process at the boatyard, additional central air-conditioning, electrical generator, hydraulic pump and miscellaneous refurbishing were also being conducted. Such related projects added approximately another \$200,000 to the mega yacht project’s cost.

Interior refurbishment on such vessels can cost from \$200,000 to in excess of \$1,000,000. A typical 12-week job at a boatyard in the region could cost \$2 million - \$3 million for a vessel requiring major work.<sup>4</sup>

Many of those interviewed pointed out the expense also for “bright work” and “rigging”. Interior decorating and refitting can be quite expensive particularly with vessels involved in charter markets. Such major overhauls conducted regularly, i.e. every 3-4 years over the life of a yacht, can take anywhere from a few months to a calendar year. Anecdotes around the region’s boatyards were sufficiently numerous to support the overall expenditures concluded here. There were a number of overhauls in various stages of completion at local boatyards at the time of this fieldwork, which will represent additional economic impacts beyond those calculated below.

As variable as the annual expenditures for “fixed” maintenance are to project universally, the operational expenditures of mega yachts also vary greatly. Perhaps the one “constant” in the ownership and operation of a mega yacht is continuation of the maintenance, repair and refitting expenditures associated with the vessel, irrespective of its use.<sup>5</sup>

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<sup>3</sup> The author has surveyed Dania Cut boatyards periodically since 1997 to obtain information on level of activity and trends in business overall. The surveys provide a reasonably consistent time series from which to evaluate the direct economic impacts of the channel deepening completed in 2013. The estimates of average expenditures at boatyards are derived from an earlier survey of Broward County boat yards which included the Dania Cut firms. (2) (4).

<sup>4</sup> U.S. Army Corps of Engineers. IWW Limited Reconnaissance Report Palm Beach County.

<sup>5</sup> In addition to hull and machinery upgrades, major refurbishments on mega yachts typically include such things as deck refurbishments, replacement of galley appliances, electronics, and air conditioning systems; rebuilding pumps and fuel transfer systems, often installing larger tenders and davits; dismantling, redesigning, and replacing all interior spaces from master suite to crew quarters, etc. For a well detailed account of such refurbishments see [ShowBoats International](#) Volume XV Number II, May 1997: “Feadship’s 142’ Cakewalk is Reborn in Florida”.

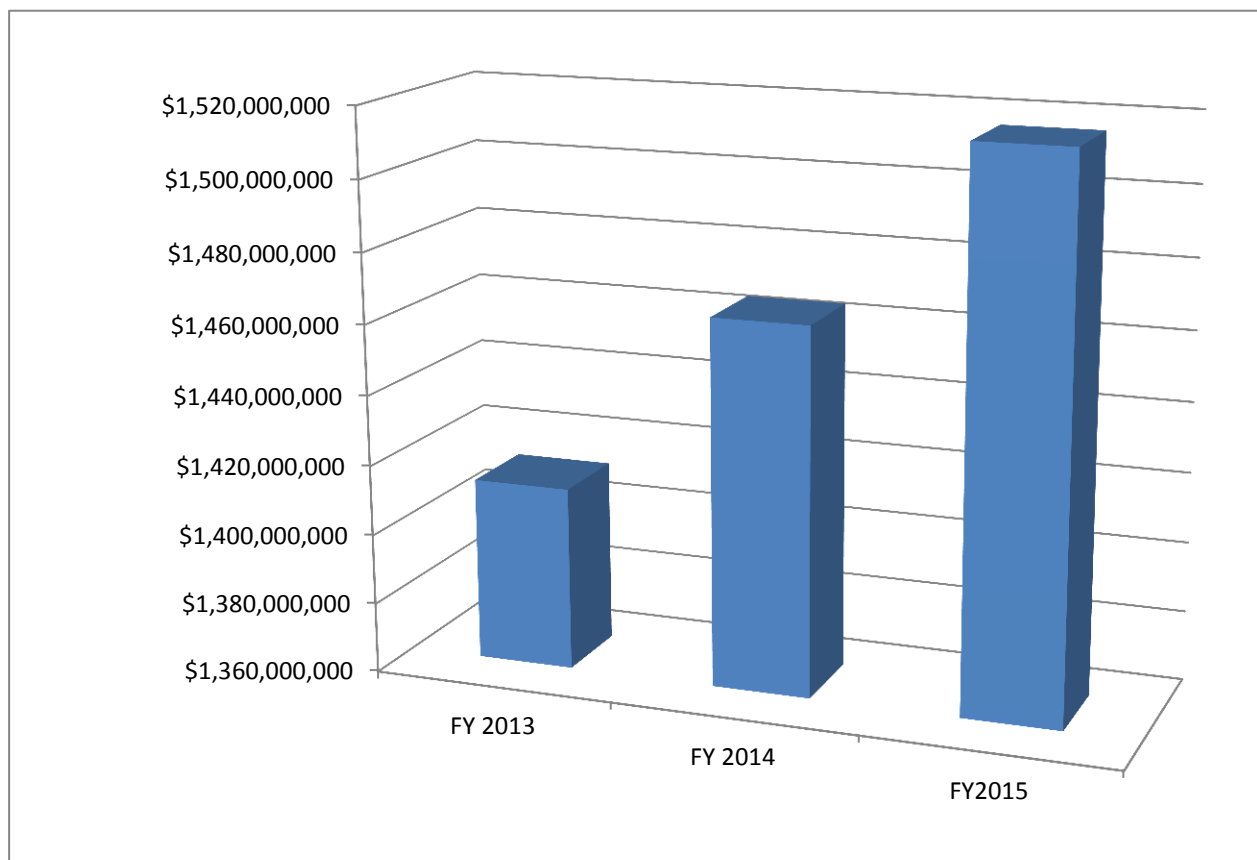
The Dania Cutoff Canal firms interviewed indicated that the dredging has been a “game changer” in the ability of local boat yards to serve larger yacht repair and maintenance demands. The improved ingress and egress “has helped business enormously”. Reportedly there are mega yacht captains who are now prepared to navigate the Canal who would not have done so pre-dredging.

The increase in business prompted by the dredging has further lead to significant increased *induced* investment by local firms to purchase new and larger boat lifts, complete additional privately funded dredging within the yard’s existing harbor, etc. As a result of the dredging one yard interviewed commented that they are seeing a significant increase of larger sailing yachts at their yard, whereby “they are no longer limited by controlling depth only mast height (reportedly 135’)”. Another reported that it is already a big improvement to the overall South Florida marine industry. They are seeing more deep draft larger vessels at the facility but more inquiries “now that the word is out”.

## DISCUSSION

During the interview and survey process the overall economic situation and outlook was discussed with the Dania Cutoff Canal boatyards and related maritime businesses. Generally it was agreed that in addition to the significant boost in activity that arose and continues to grow from the dredging project, the overall marine business economy has been on the upswing. Figure 2 reflects that overall trend in marine business in Broward County as measured by boating related retail sales. (FDOR)

**FIGURE 2. BROWARD COUNTY GROSS MARINE SALES FISCAL YEAR 2013-2015**



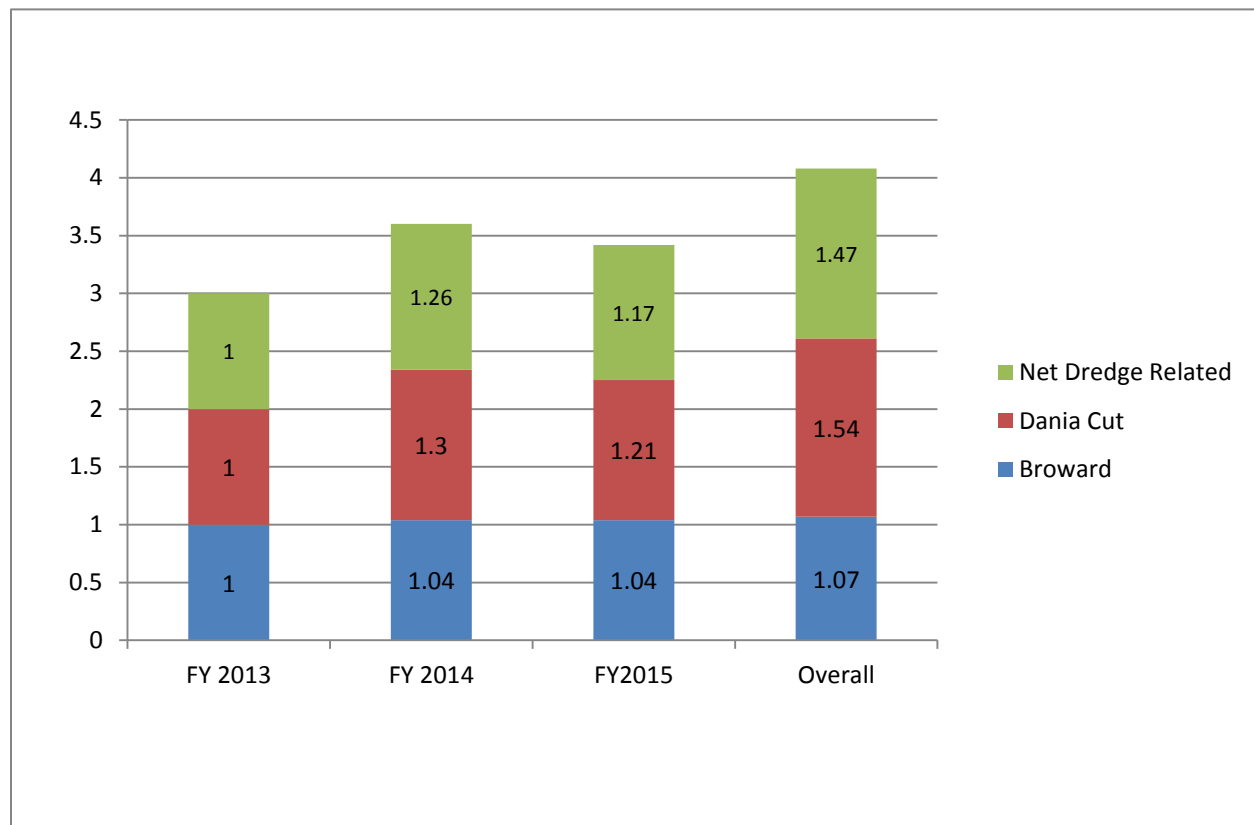
In order to better discern how much of the increase in the Dania Cutoff Canal business activity was actually a “share” of the overall demand a part of the regional economic trend vs. a “shift” in growth which has arisen from the canal deepening, secondary fiscal data was brought into the analysis to develop an adjusted estimate (index) of the dredging related growth.

Figure 3 reflects the trend in overall marine industry activity as evidenced by gross marine industry sales in contrast to the overall Dania Cut growth. The index compares the level of



activity (sales) for the period 2013-2015. The simple index shows the change in overall marine sales in Broward County to the estimated change in sales by boatyards on the Dania Cutoff Canal.<sup>6</sup> The overall growth reported by the boatyards as a group was 54% over the period. For the Broward marine industry overall the growth is estimated to have been 7% for the same period. For the sake of assessing the dredge impact it is reasonable to attribute 47% of the increase in economic activity as a shift in demand attributable to the channel deepening.

**FIGURE 3. BUSINESS GROWTH INDEX BROWARD COUNTY COMPARED TO DANIA CUT CANAL (2013 BASE YEAR)**



Adjusting the total 2015 estimated revenues shown in Table 1 for the share of the Dania cut dredging (95.4%) the estimated growth in business activity associated exclusively with the dredging enhancement was \$33.8 million. That represents a *direct* \$10.85 million increase in business at the Dania Cutoff Canal boatyards associated with the deeper controlling depth.

<sup>6</sup> The Recreational Marine Business Sales Tax data are provided by the Florida Department of Revenue for Fiscal Years 2013-2015.

### *Economic Impact Estimation*

The information collected is utilized in estimating the initial economic activities in the Fort Lauderdale economy associated with the Dania Cutoff Canal firms in boat maintenance and repair industry. These economic impacts take the form of initial expenditures, economic output, wages, salaries, and employment.

Values for each of these are estimated by employing the IMPLAN model, computer software and Database package designed for regional economic impact analysis in the United States at the county level (Minnesota Implan Group, Inc., 2013). The analytical framework for IMPLAN is the “input-output” economic modeling approach originally described by Leontief (1959). The model utilizes databases consisting of a set of social/economic accounts which describe the structure of the US economy in terms of transactions between households, governments, and over 500 standardized industry sectors classified on the basis of the primary commodity or service produced. This model utilized the IMPLAN economic data package for Broward County, Florida.

Regional models may be constructed in IMPLAN for any county, group of counties, state or Territory in the United States. Economic impacts for a given region are specified in IMPLAN as a change in final demand, output, or employment for a particular industry sector or social institution, (e.g., households, government). The aggregate economic impact of these changes is calculated by a matrix inversion procedure that develops economic multipliers, which reflect the direct, indirect and induced impacts. Direct, indirect, and induced impacts are set in motion within the County by changes in the supply and demand of boat yard services, which in turn affects the demand for the goods and services associated with conduct of repair and refitting.

## ECONOMIC IMPACT OF DANIA CUT CANAL DREDGING – 2015

Broward County and Dania Cutoff Canal boatyards represent a “basic” industry in that they produce a product for sale outside the local area. Dollars generated through these out-of-county sales (or consumption locally by non-residents), when re-spent in the community, produce additional countywide economic impacts. A “basic” industry directly affects economic activity in the region when its product is sold outside the local area. These *direct* activities produce additional *indirect* effects in the local economy, as dollars earned through the repair of vessels are re-spent locally.<sup>7</sup> Indirect effects represent purchases of local products by repair yards. All the indirect effects are additional economic activity in the community and are indicative of additional jobs and income generated by the boatyard businesses.

Direct and indirect activities associated with boatyards in Fort Lauderdale then produce additional (*induced*) local impacts. These impacts are associated with the spending of income earned in the direct and indirect activities. This spending translates into local retail sales, local bank deposits, and the purchase of a diverse mix of consumer goods. An assessment of the total economic impact of a basic industry, such as Dania Cut Canal boatyards, must consider the sum of the direct, indirect, and induced activities. In essence, the local boat yard sales to owners from outside the community trigger a chain of local spending, which generates income and leads to additional spending. This process, however, is not infinite in nature. At each round of spending, for example, some dollars are lost (leaked) from the local economy. Leakages are in the form of savings in non-local institutions, taxes/fees paid to the state and federal governments, and payments for goods and services used in the boat yard activity, which are initially purchased outside the local area. Thus, the true economic impact from non-local sales Dania Cut located businesses is represented by the new dollars remaining after accounting for the various “leaks” in the economy.

Thus, the total economic activities and impacts to the Broward County economy initiated by Dania Cut boatyard activity are estimated. The *direct*, *indirect*, and *induced* effects, are expressed in standard impact terms of economic output (sales of seafood), personal incomes, total value added (wholesale margin), and employment is estimated via the IMPLAN model. The estimates of business activity for 2013-2015 are used. .

As the increases in business activity accrues at Dania Cutoff Canal businesses the changes spread throughout Broward County as well. In order to capture the multiplication of the direct boat yard impacts an input output model is used here to quantify the growth using various traditional economic impact measures.

To summarize Table 2 below; as a result of the Dania Cutoff Canal dredging Broward County has realized a \$23.4 million increase in economic output. Associated with this growth 132

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<sup>7</sup> See Appendix 1 for a Glossary of Economic Impact modeling definitions.

additional jobs, \$6.6 million in labor income, \$9.9 million in value added and nearly \$800k in additional tax revenue have been generated.

<b>TABLE 2: SUMMARY OF ESTIMATED ANNUAL ECONOMIC IMPACTS ARISING FROM THE DANIA CUT CANAL DREDGING ON BROWARD COUNTY 2015 REGION — (\$)</b>				
<b>Impact Type</b>	<b>Total</b>	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>
<i>Output</i>	\$23,448,462	\$10,852,971	\$4,596,081	\$7,999,410
<i>Employment (FTE Jobs)</i>	132	43	24	65
<i>Labor Income</i>	\$6,659,969	\$2,235,853	\$1,443,803	\$2,980,313
<i>Total Value Added</i>	\$9,926,290	\$2,815,120	\$2,285,505	\$4,825,665
<i>Business Taxes (sales, excise, etc.)</i>	\$790,292	\$140,937	\$256,239	\$393,116

The magnitude of the estimated economic impact is directly related to the number and size of work orders at the boat yards. In a real sense, the values reported herein also provide an estimate of the economic impact that would be lost to the local economy when vessels lose water access to Dania Cut and its working waterfront, often choosing alternatives out of the region.

Finally, it should be understood that the increase in economic activity directly resulting from the public investment in dredging the Dania Cutoff Canal will result in recurring annual impacts years after the project’s completion. In addition to the impact on the boat repair sector there will be growth in expenditures by yacht owners while their vessels are in the area. Travel and entertainment expenditures by high net worth yacht owners or their representatives will add additionally to the boat yard impacts estimated herein.

## APPENDIX 1. GLOSSARY OF INPUT-OUTPUT TERMS

**Direct effects/impacts:** Direct impacts represent the revenues, value-added, income, or jobs that result directly from an economic activity within the study area or a regional economy.

**Employment or Jobs:** Represents the total numbers of wage and salaried employees as well as self-employed jobs. This includes full-time, part-time and seasonal workers measured in annual average jobs.

**Indirect Business Taxes:** Include sales, excise, and property taxes as well as fees and licenses paid by businesses during normal operations. It does not include taxes on profits or income.

**Indirect effects/impacts:** Indirect effects occur when businesses use revenues originating from outside the region, or study area, to purchase inputs (goods and services) from local suppliers. This secondary, or indirect business, generates additional revenues, income, jobs and taxes for the area economy.

**Induced effects/impacts:** Induced effects or impacts occur when new dollars, originating from outside the study area, are introduced into the local economy. Induced economic impacts occur as the households of business owners and employees spend their earnings from these enterprises to purchase consumer goods and services from other businesses within the region. This induced effect generates additional revenues, income, jobs and taxes for the area economy.

**Input-Output Analysis:** The use of input-output models to estimate how revenues or employment for one or more particular industries, businesses or activities in a regional economy impact other businesses and institutions in that region, and the regional as a whole.

**Input-Output Models:** A mathematical representation of economic activity within a defined region using inter-industry transaction tables or matrices where the outputs of various industries are used as inputs by those same industries and other industries as well.

**Labor Income:** All forms of employment compensation, including employee wages and salaries, and proprietor income or profits.

**Local/ Resident revenues/expenditures:** Local revenues or spending represent simple transfers between individuals or businesses within a regional economy. These transactions do not generate economic spin-off or multiplier (indirect and induced) effects.

**Margins:** Represent the differences between retail, wholesale, distributor and producers prices.

**Non-resident /Non-local revenues/expenditures:** When outside or new revenues flow into a local economy either from the sale of locally produced goods and services to points outside the study area, or from expenditures by non-local visitors to the study area, additional economic repercussions occur through indirect and induced (multiplier) effects.

**Other Property Type Income:** Income in the form of rents, royalties, interest, dividends, and corporate profits.

**Output:** Revenues or sales associated with an industry or economic activity.

**Total Impacts:** The sum of direct, indirect and induced effects or economic impacts.

**Value-added:** Includes wages and salaries, interest, rent, profits, and indirect taxes paid by businesses.

In the IMPLAN results tables, Value-added equals the sum of Labor Income, Other Property Type Income, and Indirect Business Taxes.

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