



Economic Analysis of the District Waterways 2023 Update Final Report Broward



The Balmoral Group
165 Lincoln Ave
Winter Park, FL 32789



Prepared by:



The Balmoral Group
Web - www.balmoralgroup.us

Head Office
165 Lincoln Avenue
Winter Park
Florida, 32789, USA
Phone 407 629 2185

Sydney Office
Suite 1, Level 10
70 Phillip St
Sydney, NSW, 2000, Australia
Phone +61 2 9051 2490

Prepared for:



Florida Inland Navigational District

Tallahassee Office
113 S Monroe Street
Tallahassee
Florida, 32301, USA
Phone 850 201 7165

Brisbane Office
Level 14, 167 Eagle St
Brisbane NSW 4000
+61 432 862 714
Phone +1 407 629 2185

Report Authors –Cortney Cortez, Valerie Seidel, Elizabeth Mandell

Contact
Valerie Seidel
President
407-629-2185
vseidel@balmoralgroup.us

Suggested citation:

The Balmoral Group. 2023. Economic Analysis of the District Waterways: Broward County, Florida. The Balmoral Group, Winter Park, FL.

Executive Summary

The Atlantic Intracoastal Waterway extends 25 miles in Broward County, entering at mile 1050 and ending around mile marker 1075, where the Intracoastal Waterway enters Miami Dade County. The Florida Inland Navigation District (District) is the state sponsor for Federal navigation projects along the Atlantic Intracoastal Waterway (“the Waterways”). The District has invested nearly \$54 million in Broward County’s Waterways in the past 35 years, generating significant economic impact. In addition, Industry has capitalized on these substantial investments through the change in the mega yacht industry which has supplied more than 110,000 jobs to the region, the leading economic sector of the area.

This report provides an estimate of the economic impact of the Florida Inland Navigation District (District)’s navigation projects in Flagler County as of March 2023.¹ Continued investments and ongoing operations of the waterway benefit the public, marine businesses and recreational users, the twelve-member counties, and other government agencies. To estimate total benefits, a series of impacts were evaluated:

1. Spending by recreational boaters and their effects on local businesses and wage creation
2. Spending by tourists, including both Floridians and out-of-state visitors
3. Proximity effects of the ICW and its navigable tributaries on real estate, and
4. Specialty sectors including the luxury boat market and boat building, dredging activities, and commercial fish landings.

The indirect and induced economic impacts generated from each of the spending categories were estimated using IMPLAN, an econometric modelling application that generates regional economic impact multipliers. **Table 1** provides a summary of the economic impacts:

¹ For purposes of the estimate, the District’s 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.

Table 1. Estimated Economic Impacts of the ICW in Broward County

Impact Type	Employment	Labor	Value	Output
		Income	Added	
(in Millions \$)				
Local Recreational Boaters	1,936	\$68	\$116	\$178
Floridian Tourists	890	\$32	\$58	\$91
Out-of-State Tourists	67,905	\$2,339	\$4,729	\$7,392
Specialty Sectors	491	\$32	\$45	\$109
Total Annual Impacts	71,222	\$2,472	\$4,948	\$7,771
Property Value Impacts, Annualized**				\$755
Estimated Annual Economic Impacts Including Property Amenity Values				\$8,526

*The total contribution of the ICW to 2022 property values of \$12.6 billion, was annualized at 6% discount rate and this annual value is \$755 million.

Source: TBG Work Product, from Surveys, published FWC data, and Broward Property Appraiser data

Property amenity values are estimated at \$12.6 billion, out of the county’s total reported Just Value of \$372.7 billion, broken down as shown in **Table 2**. Premiums extend to tributaries that connect to the ICW; more than 8,390 single family homes are located on tributaries, and over 65,000 non-single-family units.

Table 2. Estimated Property Value Premiums

	Waterfront to ICW	Non-Waterfront	Waterfront – non ICW (Access)	Total
Premium % of Market Value	49%	3 – 15%	47%	33%
Estimated Premium (in Millions \$)	\$2,527	\$1,581	\$8,472	\$12,580

Source: TBG Work Product

The economic benefits of district activities include the generation of tax revenues for local, state and federal governments. **Table 3** provides a breakdown of calculated tax impacts totalling about \$1.2 billion in annual revenues.

Table 3. Estimated Tax Revenues of District Waterways in Broward County

Impact Type	State & Local	Federal	Total
	(In millions \$)		
Local Recreational Boaters	\$23.39	\$33.23	\$56.62
Floridian Tourists	\$5.99	\$8.76	\$14.75
Out-of-State Tourists	\$461.93	\$675.94	\$1,137.87
Specialized Sectors	\$2.39	\$6.23	\$8.62
Total Annual Impacts	\$493.70	\$724.16	\$1,217.86

Source: TBG Work Product, IMPLAN

Finally, a series of benchmarks to assist local marine resource managers was compiled. The metrics capture trends in the number of boat registrations, available boat slips, etc. to understand whether marine assets can be better utilized or where resource allocation may be improved. The metrics are provided in the final section of the report, and provide a baseline for evaluation of trends going forward.

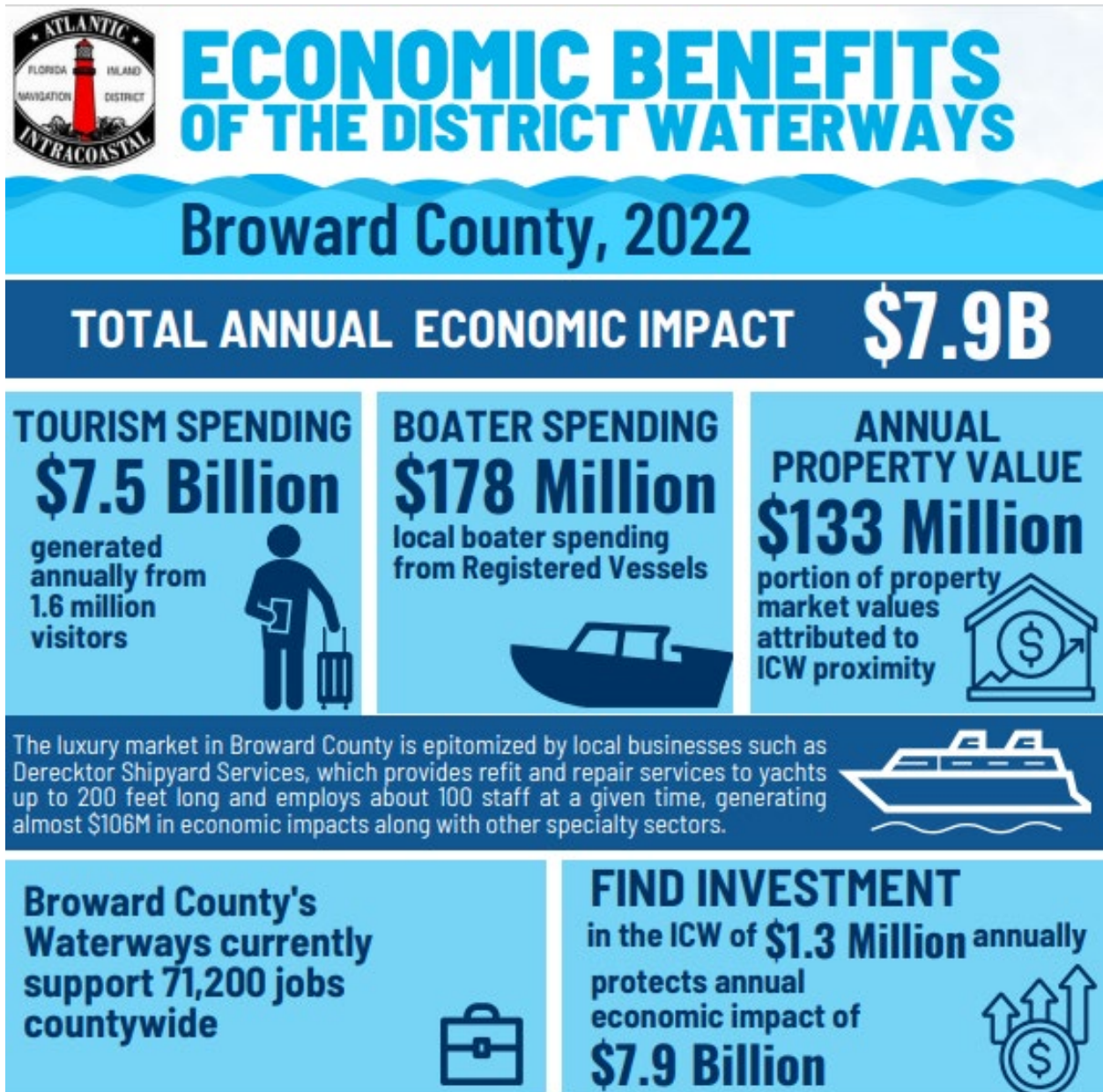


Table of Contents

Executive Summary.....	2
Introduction	8
I. Direct impacts of commercial businesses and recreational users of the Waterways	9
Recreational Users.....	9
Local/Florida Boat Owners.....	9
Tourists.....	10
II. Specialty Sectors	10
Luxury Yachts	10
Dredging Expenditures.....	12
Commercial Fishing.....	12
III. Property Values.....	13
Amenity Values of the Waterways	13
IV. Total Economic Impact of the Waterways in Broward County.....	17
Recreational Boaters Registered in Broward County	18
Tourist Spending by In-State Visitors.....	19
Tourist Spending by Out-of-State Tourists.....	19
Specialty Sectors	20
Luxury Yachts	20
Dredging.....	20
Commercial Fishing.....	21
V. Tax Revenues	22
VI. Changes to the District’s Economic Impact under Increased Maintenance Scenarios.....	23
VII. Metrics	24
1. Boat Registrations.....	24
2. Business Establishments and Employment in Marine Activities	26
3. Taxable Sales from Marine Industry Establishments.....	27
4. Commercial Fish Landings.....	28
5. Inventory of Boat Ramps and Marinas	29
Bibliography	36

List of Figures

Figure 1. Safe Harbor Fort Lauderdale Marine Center	12
Figure 2. Average Premium for All Parcels Within 1,500m of the ICW, Broward County	16
Figure 3. Input-Output Model for Waterways Economic Impacts.....	17
Figure 4. Total Broward County Vessel Registrations.....	24
Figure 5. Reported Sales, Broward County Boat Dealers.....	28
Figure 6. Commercial Fish Landings, by Weight and Value, Broward County	29
Figure 7. Boat Ramps and Marina facilities, Broward County	30
Figure 9: Marine Facilities by Use Type	32
Figure 10. Boat Ramp Access by Use Type.....	35

List of Tables

Table 1. Estimated Economic Impacts of the ICW in Broward County	3
Table 2. Estimated Property Value Premiums	3
Table 3. Estimated Tax Revenues of District Waterways in Broward County	3
Table 4. Florida Recreational Boater Spending Categories by Boat Size, Broward	9
Table 5. Breakdown of Annual Average Tourist Spending on Recreational Boating, Broward County.....	10
Table 6. ICW-Fronting Property Value by Property Type, Broward County	13
Table 7. Single Family Residential Property Sales in 2021-2022 and ICW proximity, Broward County	14
Table 8. Amenity Value of the ICW in Broward County.....	15
Table 9. Estimated Regional Economic Impacts of the ICW in Broward County, by Source	18
Table 10: Spending by Impact Type	18
Table 11. Estimated Annual Economic Impacts of the ICW from Resident Boaters.....	18
Table 12. Total Annual Spending from Resident Boaters	19
Table 13. Estimated Annual Economic Impacts of the ICW, Florida Visitors, Broward County.....	19
Table 14. Estimated Annual Economic Impacts of the ICW from Out-of-State Visitors, Broward County.....	19
Table 15. Estimated Annual Economic Impacts of District Waterways, Specialty Sectors.....	20
Table 16. Estimated Annual Economic Impacts of the ICW on Specialized Business Revenues, Broward County.....	20
Table 17. Estimated Annual Economic Impacts of the ICW on Specialized Business Revenues, Broward County.....	21
Table 18. Estimated Annual Economic Impacts of the ICW in Broward County, Commercial Fishing	21
Table 19. State and Local Tax Revenues from District Waterways, Broward County - in million \$	22
Table 20. Federal Tax Revenues from District Waterways, Broward County – in millions \$.....	22
Table 21. Estimated Annual Economic Impacts of Higher Maintenance Scenario	23
Table 22. Annual Vessel Statistics – Broward County.....	25
Table 23. Vessel Registration Use	25
Table 24. Vessel Length Group	25
Table 25. Vessel Length Group owned by individuals excluding airboats	26
Table 26. Pleasure Vessel Counts by Boat Length, Adjusted for Non-Use of Waterways	26
Table 27. Local Business Establishments Engaged in Marine Activities, Broward County	27
Table 28. Commercial Fish Landings, Broward County.....	28
Table 29. Access Facility by Use Type, All of Broward County.....	29
Table 30. Detailed Description of Marina Facilities - Broward County.....	31

Table 31. Count of Marina Facilities by Water Access Type, Broward County..... 31

Table 32. Marina Facilities with Drystack Storage, Broward County..... 31

Table 30. Inventory of Boat Ramps for All of Broward County..... 33

Table 31. Boat Ramps on ICW on or connecting to ICW, Broward County 33

Table 32. Total Ramp Lanes by Use Type and Distance to ICW, Broward County..... 34

Introduction

The Balmoral Group was retained to estimate the economic impact of District investments in Broward County. The District operates four main programs:

- the Long Range Dredged Material Management Plan (DMMP), which provides for maintenance operations and improvements for the ICW and a permanent infrastructure of land for perpetual management of the ICW;
- the Waterways Assistance Program, which provides cost share resources for various public improvements such as public access, public safety, and inlet management;
- the Cooperative Assistance Program, which leverages Federal, State and Regional resources to implement public ICW improvements, and
- A Public Information Program.

To ensure continued public support and investment, the District requires accurate, current estimates quantifying the economic value of the District's continued maintenance and investment in the ICW. The information is used to explain the importance of investment and operations to the public, marine businesses and recreational users, and other government agencies. To achieve its objectives, the report contained herein includes the following sections:

- I. The value of properties influenced by the ICW in Broward County, and the specific amenity value of proximity to the ICW;
- II. The total economic impact of the ICW in Broward County, including indirect and induced impacts associated with sales, income, employment, and taxes, using an input-output model;
- III. The changes to the District's economic impact under an increased maintenance scenario; and
- IV. Metrics that have been identified as meaningful for tracking the impact of marine industry activity.

I. Direct Impacts of Commercial Businesses and Recreational Users of the Waterways

Recreational Users

To estimate the spending of recreational users of the ICW, and their impact on commercial businesses through spending, surveys were conducted of Florida boat owners and visitors to Florida who indicated that they used a boat in Broward County during the prior 12-month period.

Local/Florida Boat Owners

The population of Broward County has increased by 5% since the previous economic assessment in 2017. Currently, the Florida Office of Economic and Demographic Research estimates population at 1,969,099.² The vessel registration statistics suggest that of the total number of households in Broward, 2% use the ICW. Along with the increase in population, those that own a boat have also increased by 3%. The survey of local boat owners relied on boater registration data³. For purposes of economic modeling, data were aggregated to small (less than 16'), medium (16 – 26') and large (greater than 26') boats. **Table 4** shows a breakdown of reported annual expenditures by boat size.

Table 4. Florida Recreational Boater Spending Categories by Boat Size, Broward

	Less than 16'	16' to less than 26'	26' to 40'	40' or greater
Overall Annual Expenditure	\$15,143	\$853,325	\$73,566	\$182,070
Share of Total Expenditure	1%	76%	7%	16%
Average Annual Costs:				
Storage	\$684	\$1,507	\$3,225	\$24,820
Maintenance	\$552	\$787	\$2,586	\$7,735
Insurance	\$ -	\$1,095	\$3,319	\$7,413
Average Annual Trip Costs on the ICW:				
Food	\$278	\$1,777	\$1,439	\$5,479
Transportation & Accommodation	\$130	\$5,850	\$1,307	\$8,561
Fees & Recurring Costs	\$93	\$764	\$76	\$822
Gear or Specialized Equipment	\$139	\$1,349	\$757	\$4,795
Average Annual Trip Costs off the ICW:				
Food	\$65	\$1,144	\$568	\$1,712
Transportation & Accommodation	\$46	\$2,140	\$ 57	\$1,027
Fees & Recurring Costs	\$75	\$384	\$ 284	\$-
Gear or Specialized Equipment	\$93	\$484	\$189	\$1,027

Source: TBG Work Product, Surveys, Department of Highway Safety and Motor Vehicles

² Most recent available data from April 1st, 2017.

³ The survey data obtained from Florida-registered recreational boaters was used to estimate spending. Spending varied by boat size, with the highest average spending reported by owners of larger boats (exceeding 26').

Tourists

Tourists who use the ICW also contribute to the economic impact of the maintenance of the ICW. A 2017 survey of about 1000 visitors to Florida from across the US found that 15% identified Broward County as a destination they had visited at least once in the last 12 months to participate in activities using the ICW. Visit Florida provided data indicating that in 2022 (the most recent data available), 137.6 million tourists visited Florida, with 10.6 million visitors to Broward County. Of those, 15% would generate an estimate of nearly 1.6 million ICW-specific visitors. This number was used as a proxy for tourists from other U.S. States that were ICW users.

The average out of state visitor respondent reported spending approximately \$3,200 over the course of the last twelve months. Florida residents that visited Broward County reported spending approximately \$246 over the course of the last 12 months. The share of expenditures on fuel, food and other categories is shown in **Table 5**.

Table 5. Breakdown of Annual Average Tourist Spending on Recreational Boating, Broward County

Item	All Florida visitors	Out of state visitors
Food, Restaurants	\$74	\$832
Transportation & Lodging	\$83	\$1,577
Fees & Recurring expenses	\$46	\$455
Specialized Gear or Equipment	\$43	\$328
Total	\$246	\$3,192

Source: TBG Work Product, Surveys, FDEP

Total spending from in-state and out-of-state tourists' activities aggregates to \$5.1 billion annually.

II. Specialty Sectors

Recreational boaters are by far the greatest users of the ICW, and the spending by local (Broward County) and visiting boaters accounts for a substantial portion of the economic impact. There are other sectors that are not accounted for through either source, either because they are outside the normal regional input-output multipliers accounted for in regional flows, or because the entities generating the impact are not captured by traditional survey methods for locals or tourists. For purposes of economic impact modeling these are referred to as specialty sectors

In the case of Broward County, there is at least three hidden sectors of economic impact:

- The luxury yacht market, ship building and repair services, and boat building
- The dredging expenses themselves, and
- The commercial fishing industry in Broward County.

Luxury Yachts

The Fort Lauderdale area has continued to remain the capital of megayacht servicing, repair and refits. These services and yacht facilities produce substantial employment and value added to the local economy, but generates a large amount of its revenue from foreign customers and are located in the Foreign Trade Zone. As a result, the customer base would not have been participants in the recreational boater survey,

and its revenues are not included in state reports compiling sales by county. The luxury market is epitomized by local businesses such as Derecktor Shipyard Services, Bahia Mar Yachting Center, Safe Harbor Lauderdale Marine Center, which are top facilities in the yachting industry.

Derecktor’s Dania yard is recognized as one of the largest yacht facilities on the east coast providing refit and repair services to yachts up to 200 feet long and employs about 100 staff at a given time. While able to service boats up to 200 feet long, the majority of Derecktor Shipyard Services business come from boats from 150 to 160 feet which typically stay for three to four weeks. The service yard includes a 900-ton mobile hoist and the ability to provide almost any service or refit.

Bahia Mar Yachting Center provides luxury amenities and has 250 slips that can accommodate vessels up to 300 feet long. In addition to being a luxury marina, Bahia Mar also hosts the annual Fort Lauderdale International Boat Show, which brings an estimated \$1.79 billion in economic impacts with \$899 million in direct sales over the course of the show. In addition to the impacts, the Fort Lauderdale International Boat Show generates \$85.4 million in sales tax benefits to the state.⁴ The show runs five days and for 2022, it is estimated that the show attracted over 100,000 visitors and featured over 1,200 vessels⁵; some of this activity is expected to be captured within the recreation and yacht services spending estimated herein. In addition to the Bahia Mar Yachting Center, the Bahia mar hotel and upland property is adjacent to the yachting center; the hotel site is set for a massive expansion with a recently approved agreement with the City of Fort Lauderdale; The Bahia Mar project will add condo towers, a 23-story luxury hotel, additional restaurants and bars, as well as a 1.25-acre park along the ICW and a public promenade around the 39-acre site.

⁴ Thomas J. Murray & Associates, Inc. and University of Florida 2022. “Economic Impact of the 62th Annual Fort Lauderdale International Boat Show.” Prepared for Marine Industries Association of South Florida & Show Management Inc.

⁵ FLIBS, Press Release: https://www.flibs.com/en/press/2022_FLIBS_FinalPressRelease1.html

Safe Harbor Lauderdale Marine Center is a full-service marina with luxury amenities is another example of Broward’s yacht marines and centers for servicing. The Fort Lauderdale Marine Center is the largest yacht building and repair facility in the United States and employs an over 200 people. Highlighting the expansive waterway network throughout Broward County, the Safe Harbor Facility lies west of the ICW along the New River.

To estimate the impact generated by the luxury yacht sector, revenue estimates generated from private sources including proprietary data from

other luxury yacht servicing firms as a proxy for payroll share of revenues, and wage/employment data reported, revenues for the specialized sectors including yachts, boat building, and ship building and repair were calculated and used as direct inputs for purposes of modeling indirect and induced effects. In Broward County, these sectors employ

Figure 1. Safe Harbor Fort Lauderdale Marine Center



Dredging Expenditures

Dredging and other maintenance expenses for the ICW occur sporadically and are federally and state funded. Local support and coordination are managed by the District, which also implements a Long Range Dredged Material Management Plan (DMMP). While local efforts would be embedded in regional trade flows, federal transfers to the private sector on a sporadic basis would not be picked up by recreational boating activity.⁶ Accordingly, for Broward County, \$2 million in annualized average costs of dredging by FIND and the US Army Corps of Engineers and \$1 million in annualized average expenditures for funding additional ICW related projects such as new boat ramps, dock extensions and marina expansions, were used as input values.

Commercial Fishing

Commercial fishing impacts Broward County’s economic value as the county does have direct ocean access. The impact of economic sectors is different than any of the other listed categories. Using the value of all commercial landings in Broward County in 2022, the industry contributes spending \$2,154,367.

⁶ In fact, activities relating to the Ports sector, which includes support for transportation and harbor activities, was manually removed from multiplier effects on recreational boating so as not to improperly attribute Port Everglades cargo support revenues to recreational boating activities.

However, showing direct effects of the gain of only around \$91,000. A large amount of leakage occurs in this industry, seeing the majority of effects of this sector occur outside of Broward County.

III. Property Values

Property values associated with the ICW were compiled for contextual analysis. Market values for the more than 7,771 Broward County properties directly fronting the ICW total more than \$17 billion, of which nearly \$16 billion was generated by residences fronting the ICW in 2022. Commercial properties add another \$690 million. **Table 6** provides a breakdown of the property values of properties fronting the ICW by property type.

Table 6. ICW-Fronting Property Value by Property Type, Broward County

DOR Category	Count	Average Just Value, 2022 (In millions \$)	Total Just Value, 2022 (In Millions \$)
Commercial	88	\$7,834,768	\$689.5
Government	33	\$8,644,716	\$285.3
Industrial/ Institutional	9	\$14,365,890	\$129.3
Miscellaneous/Vacant	311	\$1,907,251	\$593.2
Residential – Multifamily/Condo	181	\$2,450,428	\$443.5
Residential - Single Family	7,149	\$2,146,374	\$15,344.4
Totals	7,771	\$2,250,050	\$17,485.1

Source: Broward County Property Appraiser, Florida Department of Revenue

Amenity Values of the Waterways

The premium associated with proximity to the ICW is substantial. Properties have value regardless of their location. Economic valuations that assess the value of specific attributes – in this case, proximity to the ICW - are known as hedonic models. Hedonic modeling involves using regression analysis to hold constant variables that affect housing prices – such as number of bedrooms or bathrooms, square footage, whether a property has a swimming pool, etc. In doing so, it is possible to statistically measure the value of “amenities,” such as proximity to beach access, a popular park, or “disamenities,” such as a landfill.

The value of proximity to the ICW can be quantified by comparing the value of properties close to the ICW with properties that are not in proximity. Property appraiser records show that Broward County residential properties overall average \$528,700 in market value, based on sales during the past 24 months. By comparison, properties that are within one mile of the ICW average \$1,048,087. Removing beach premium reduces nearby property values to \$910,000. **Table 7** provides details.

Table 7. Single Family Residential Property Sales in 2021-2022 and ICW proximity, Broward County

Distance	Count	Average Sale Price, 2022 (in dollars)	Total Property Sales, 2022 (in Millions \$)
Broward County overall	56,709	\$528,717	\$29,983
Within 1 Mile of the ICW	4,402	\$1,048,087	\$4,613
Beach Front	19	\$5,227,116	\$99
Within 1 mile, not Beachfront	4,383	\$1,029,971	\$4,514
Within 500 Meters of the Beach	519	\$1,161,128	\$602
Within 1 mile, not in Proximity to Beach	1,451	\$910,012	\$1,320

Source: TBG Work Product, Broward County Property Appraiser, Florida Department of Revenue

Published research by The Balmoral Group and others has found that proximity to waterways adds a premium to property values at distances of up to 1,500 meters (0.9 miles or 4,921 feet). Hedonic modeling found that the real estate premium value enjoyed by Broward County that is specifically attributable to ICW frontage or proximity totaled \$12.6 billion for single family residences in 2022.

The premium for frontage location on the ICW accounts for almost half of the market value for properties fronting the ICW and 11% of market values for properties within 1500 meters of the ICW. Additionally, the coefficient for tributary frontage, waterways connected to the ICW, accounts for 47% of the market values of properties that are waterfront but are not directly on the ICW.

Of the total \$37.4 billion in property values over the 24-month period covering calendar years 2021 and 2022, approximately \$5.2 billion in value is related to waterfront single family homes. Of the \$5.2 billion, about \$2.5 billion in value was attributable solely to ICW frontage, holding other factors constant such as size, number of bedrooms/bathrooms/garages and age.

The properties that are not waterfront to the ICW, but are directly located on a tributary or canal connecting to the ICW benefit from a 47% premium. This is significant to the value of properties within Broward County, as there are over 8,700 single-family residences on tributaries or canals connecting to the ICW. Of the \$18.1 billion in values related to these properties, about \$8.5 billion in value was attributable to tributary frontage.

Broward County has over 65,800 residences near the ICW that are not single-family units. Using similar share of value as indicative of proximity premiums, the amenity value attributable to ICW proximity for condominiums totals \$0 for waterfront and an additional \$244 million for near-ICW properties, resulting in a total \$244 million premium associated with the ICW. The premium resulting from ICW proximity for all properties is \$133 million annualized. For context, total property value in Broward County is about \$372.7 billion, according to the Florida Department of Revenue, and premiums associated with the ICW account for 3%.

The effects of this premium on the County can be calculated by extrapolating the ICW waterfront coefficient to the entire set of ICW-waterfront properties. **Table 8** provides a breakdown of the premium associated with current waterfront properties that is attributable solely to the ICW.

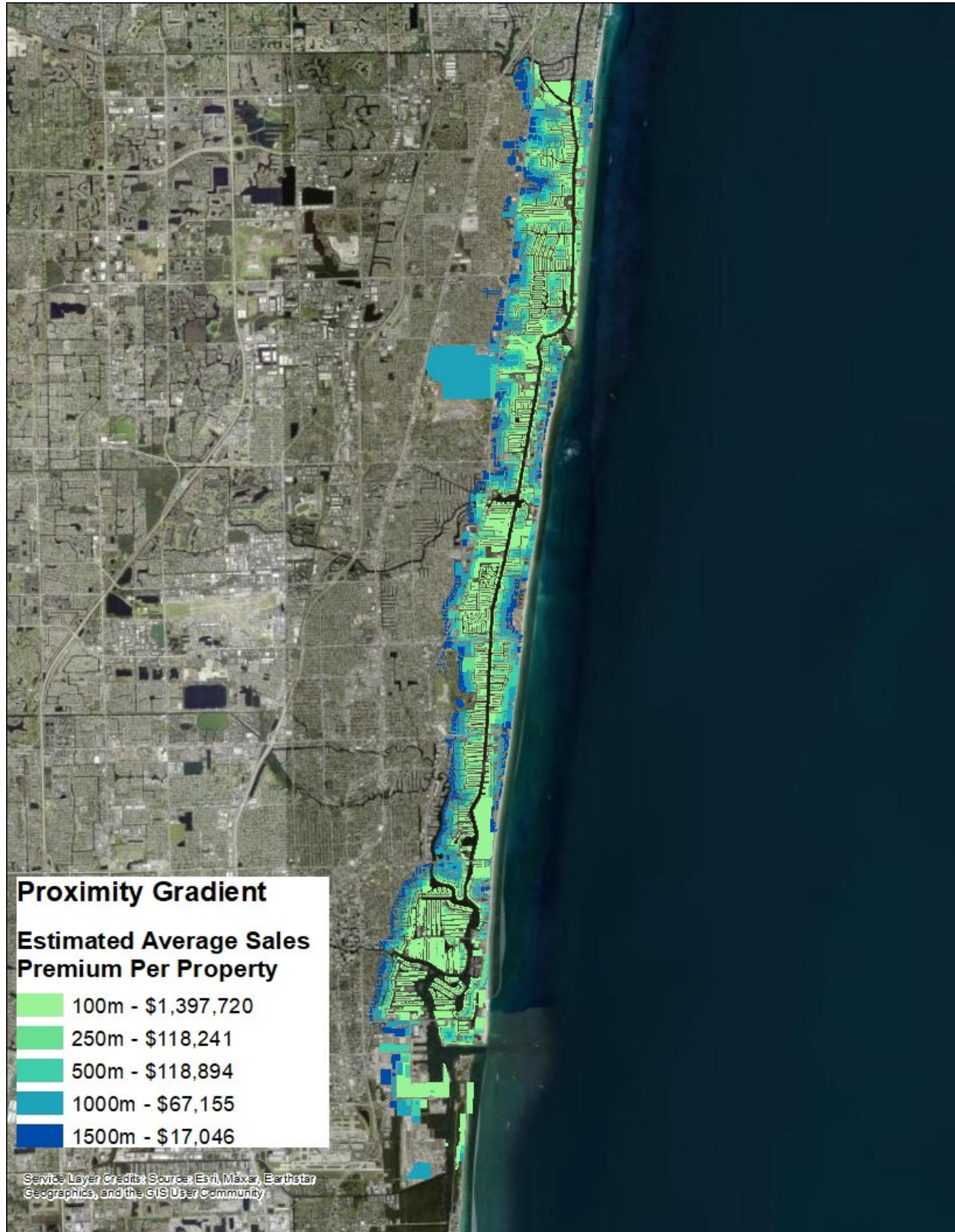
Table 8. Amenity Value of the ICW in Broward County

Waterway Amenity Value	Waterfront	100m (Non-waterfront)	250m	500m	1,000m	1,500m	Tributary frontage/ Access to ICW
Premium % of Value	49%	15%	13%	12%	8%	3%	47%
Single Family Residences (in millions \$)	\$2,527	\$286	\$291	\$372	\$298	\$89	\$8,472
Multi-Family/Condos (in millions \$)	\$0	\$94	\$26	\$54	\$53	\$17	\$0
Total Waterway Amenity Value (in \$ millions)	\$2,527	\$380	\$317	\$427	\$351	\$106	\$8,472

Source: TBG Work Product, Broward County Property Appraiser, Florida Department of Revenue

Figure 2 illustrates the proximity effect on property values for a selected stretch of the ICW. The legend shows the decline in average premium value per parcel in each successive distance gradient from the ICW.

Figure 2. Average Premium for All Parcels Within 1,500m of the ICW, Broward County



Source: TBG Work Product, Broward County Property Appraiser, Florida Department of Revenue

IV. Total Economic Impact of the Waterways in Broward County

To estimate the overall economic impacts associated with the ICW, The Balmoral Group used IMPLAN®, an econometric modelling application that generates regional economic impact multipliers. **Figure 3** describes how economic impact models, such as IMPLAN®, translates the investment in the ICW (including maintenance dredging) into business spending, employment, earnings, and taxes. To improve the level of public acceptance and appreciation of the I-O model output, The Balmoral Group understands the importance of explaining how economic impact multipliers are selected and applied.

IMPLAN® estimates the flows of supply and demand between and within counties by industry sector, and converts this estimate of cash flows to economic impacts – measured through jobs, revenues, and personal income. An important element of input-output modeling is understanding these flows, and using appropriate data to determine how much of a boat dealer’s stock, for example, was purchased from within the dealer’s county, versus from an adjacent county, or from elsewhere in the region or state. The local purchases generate indirect and induced impacts, while those that leave the area (which is defined by the scope of the analysis – in this case, regional or county) do not. The IMPLAN software calculates the specific margins based on data prepared by the Bureau of Economic Analysis.⁷

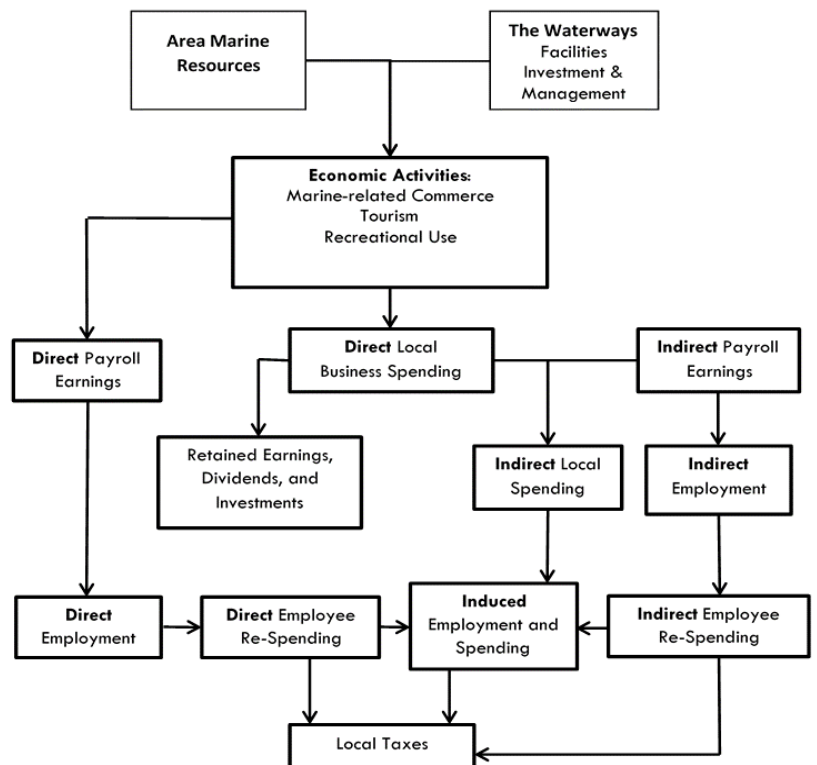
The spending associated with recreational boaters and tourists provide direct inputs for IMPLAN modeling.

Four IMPLAN models were prepared for the baseline analysis:

1. Recreational boater spending by Broward County residents;
2. Tourist spending by In-State Visitors to Broward County; and
3. Tourist spending by Out-of-State Visitors to Broward County
4. Specialty Sectors

Regional economic impacts generated by all four are summarized in **Table 9**. In addition to the \$7.7 billion in annual impacts, the annualized estimated impact on property values totals \$755 million. Combined, the impact of the ICW can be estimated at \$8.5 billion.

Figure 3. Input-Output Model for Waterways Economic Impacts



⁷ The Bureau of Economic Analysis falls within the U.S. Department of Commerce.

Table 9. Estimated Regional Economic Impacts of the ICW in Broward County, by Source

Impact Type	Employment	Direct Effect	Indirect Effect	Induced Effect	Output
(in Millions \$)					
Local Recreational Boaters	1,936	\$120	\$28	\$0	\$178
Floridian Tourists	890	\$55	\$16	\$20	\$91
Out-of-State Tourists	67,905	\$4,585	\$1,351	\$1,455	\$7,392
Specialized Sectors	491	\$68	\$25	\$16	\$109
Total Annual Impacts	71,222	\$4,829	\$1,420	\$1,492	\$7,771

Source: TBG Work Product from Surveys, FWC data and Broward County Property Appraiser data

The overall economic impacts are generated by four categories:

1. Recreational boaters registered in Broward County
2. Tourists from Florida
3. Out-of-State tourists
4. Specialized sectors

Table 10 shows a breakdown of the spending by each of the four categories.

Table 10: Spending by Impact Type

Impact Type	Total Spending (in Millions \$)
Local Recreational Boaters	\$247
Floridian Tourists	\$60.5
Out-of-State Tourists	\$5,049
Specialized Sectors	\$189
Total	\$5,546

Source: TBG Work Product

Recreational Boaters Registered in Broward County

Local boaters generate \$247 million in annual spending (**Table 12**), which results in a total economic contribution of \$178 million, as shown in **Table 11**.

Table 11. Estimated Annual Economic Impacts of the ICW from Resident Boaters

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	1,458	\$49	\$82	\$120
Indirect Effect	235	\$9	\$16	\$28
Total Effect	1,936	\$68	\$116	\$178

Source: TBG Work Product, IMPLAN

Table 12 provides a breakdown of total spending by boat size.

Table 12. Total Annual Spending from Resident Boaters

Categories by Size	Total Spending
Boats Less than 16'	\$ 5,554,404
Boats 16' to 26'	\$ 159,471,080
Boats 26' and more	\$ 82,170,502
Total	\$ 247,195,987

Source: TBG Work Product, IMPLAN

Tourist Spending by In-State Visitors

Visitors to Broward County from across the State generate annual spending of \$60.5 million. After adjusting the model to reflect spending that leaves the area, known as leakage, the effects of in-state tourists total \$91 million as shown in **Table 13**.

Table 13. Estimated Annual Economic Impacts of the ICW, Florida Visitors, Broward County

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	613	\$20	\$37	\$55
Indirect Effect	125	\$6	\$10	\$16
Induced Effect	152	\$6	\$12	\$20
Total Effects	890	\$32	\$58	\$91

Source: TBG Work Product, IMPLAN

Tourist Spending by Out-of-State Tourists

Tourists from out-of-state generate annual spending of about \$5 billion.

After adjusting the model to reflect spending that leaves the area, known as leakage, the direct effects of out-of-state tourists total about \$4.6 billion. Including indirect and induced effects, the total economic impact of the ICW from out-of-state tourists aggregates to total impacts of \$7.4 billion as shown in **Table 14**.

Table 14. Estimated Annual Economic Impacts of the ICW from Out-of-State Visitors, Broward County

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	46,158	\$1,409	\$3,078	\$4,585
Indirect Effect	10,635	\$464	\$798	\$1,351
Induced Effect	11,111	\$467	\$852	\$1,455
Total Effects	67,905	\$2,339	\$4,729	\$7,392

Source: TBG Work Product, IMPLAN

Specialty Sectors

As noted earlier in section II. Specialty Sectors, business revenues generated by luxury yacht services, boat building, and dredging costs through the Florida Inland Navigation District, and district funded projects including upgrades to marinas and boat ramps directly total \$68 million including 269 jobs. **Table 15** provides a detailed breakout, showing that direct effects of the spending total about \$68 million. A breakout of each sector follows.

Table 15. Estimated Annual Economic Impacts of District Waterways, Specialty Sectors

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	269	\$18.7	\$22.2	\$67.9
Indirect Effect	131	\$8.7	\$13.5	\$25.3
Induced Effect	92	\$4.9	\$9.7	\$16.2
Total Effects	491	\$32.3	\$45.4	\$109.5

Source: TBG Work Product, IMPLAN

Luxury Yachts

As noted earlier in section II. Specialty Sectors, business revenues generated by luxury yacht services, and boat building, totals \$65.7 million including 248 jobs. Cumulative impacts total \$106 million and additional employment effects add up to 213 jobs. The breakdown is provided in **Table 16**.

Table 16. Estimated Annual Economic Impacts of the ICW on Specialized Business Revenues, Broward County

Impact Type	Employment	Labor Income	Value Added	Output
in millions \$				
Direct Effect	248	\$17.0	\$20.6	\$65.7
Indirect Effect	128	\$8.5	\$13.2	\$24.9
Induced Effect	85	\$4.6	\$9.0	\$15.1
Total Effects	461	\$30.1	\$42.9	\$105.7

Source: TBG Work Product, IMPLAN

Dredging

As noted earlier in section II, Specialty Sectors, business revenues generated by dredging costs through the Florida Inland Navigation District, USACE and district funded projects including upgrades to marinas and boat ramps directly total \$2 million annually. Cumulative impacts total \$3.6 million and additional employment effects add up to 28 jobs. The breakdown is provided in **Table 17**.

Table 17. Estimated Annual Economic Impacts of the ICW on Specialized Business Revenues, Broward County

Impact Type	Employment	Labor Income	Value Added	Output
in millions \$				
Direct Effect	19	\$1,687,191	\$1,540,006	\$2,090,778
Indirect Effect	3	\$193,717	\$248,548	\$451,818
Induced Effect	6	\$331,449	\$652,296	\$1,095,304
Total Effects	28	\$2,212,357	\$2,440,850	\$3,637,900

Source: TBG Work Product, IMPLAN

Commercial Fishing

Commercial fisheries impact economic sectors differently than any of the other listed categories. Using the value of all Commercial Landings in Broward County in 2022, the industry contributes spending \$2,205,168. **Table 18** provides a detailed breakout, showing direct effects of the spending of \$93,000. This is a result of the large amount of leakage that occurs in this industry; most of the effects of this sector occur outside of Broward County.

Table 18. Estimated Annual Economic Impacts of the ICW in Broward County, Commercial Fishing

Impact Type	Employment	Labor Income	Value Added	Output
in millions \$				
Direct Effect	2	\$21,499	\$75,540	\$76,395
Indirect Effect	0	\$117	\$164	\$304
Induced Effect	0	\$5,298	\$9,700	\$16,531
Total Effects	2	\$26,914	\$85,404	\$93,230

Source: TBG Work Product, IMPLAN

V. Tax Revenues

The economic benefits of District maintenance include the generation of tax revenues for local, state and federal governments. **Table 19** and **Table 20** provide a breakdown of calculated tax impacts based on the five different sectors used in this report, showing contribution to various public revenue streams annually from navigable waterways in Broward County. Overall, about \$1.2 billion in annual revenues are generated.

Table 19. State and Local Tax Revenues from District Waterways, Broward County - in millions \$

Description	Employee Compensation	Tax on Production and Imports	Households	Corporations	Total Annual Impacts
Local Recreational Boaters	\$0.16	\$21.31	\$1.01	\$0.91	\$23.39
In-State Visitors	\$0.04	\$5.47	\$0.29	\$0.19	\$5.99
Out-of-State Visitors	\$3.24	\$419.72	\$20.81	\$18.16	\$461.93
Specialized Sectors	\$0.01	\$2.29	\$0.02	\$0.07	\$2.39
Total Annual Impacts	\$3.45	\$448.78	\$22.13	\$19.34	\$493.70

Source: TBG Work Product, IMPLAN. *Note: no local income tax hence \$0

Table 20. Federal Tax Revenues from District Waterways, Broward County – in millions \$

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total Annual Impacts
Local Recreational Boaters	\$11.87	\$0.62	\$2.72	\$10.42	\$7.60	\$33.23
In-State Visitors	\$3.35	\$0.17	\$0.70	\$2.94	\$1.60	\$8.76
Out-of-State Visitors	\$244.13	\$12.67	\$53.65	\$214.46	\$151.03	\$675.94
Specialized Sectors	\$3.57	\$0.06	(\$0.55)	\$2.81	\$0.34	\$6.23
Total Annual Impacts	\$262.91	\$13.52	\$56.53	\$230.64	\$160.56	\$724.16

Source: TBG Work Product, IMPLAN

VI. Changes to the District’s Economic Impact under Increased Maintenance Scenarios

The economic impact under current conditions assumes continued maintenance of the Waterways, but as funding sources shift over time, other scenarios are possible. Under a scenario of increased waterway maintenance, the District’s Dredge Material Management Plan for the Intracoastal Waterway is fully implemented and drafts are accommodated on a continuous basis that accommodate larger boats.

With full implementation, drafts are accommodated on a continuous basis that accommodate larger boats. The increase in depth allowance would permit deeper draft vessels to fully utilize the ICW in Broward County. The ICW section within Broward is a 25-mile segment maintained at 10 ft. depth and 125 ft. base width; the depth through Fort Lauderdale, a region known as the “yachting capital of the world,” was recently deepened to a 17ft depth and shortened to a 110ft. base width as of June 2017. Under a full implementation scenario, the entire channel depth would be deepened 17 ft.

As a proxy for initial changes in business activity, we can assume that if optimal drafts were maintained for the length of the county, business revenues derived from large boats would likely increase by a comparable amount to the increase in drafts. Using spending data from the

The increased business volume under the higher state of maintenance is estimated at \$14 million annually, including \$5.2 million in personal income and an additional 150 jobs in Broward County.

surveys and increasing spending by 14%, the revised spending totals \$93 million, an increase of \$12 million from the current state. The total impact after estimating indirect and induced effects is about \$113 million, resulting in an increase of \$14 million. **Table 21** shows the results by boat size in economic impact.

Table 21. Estimated Annual Economic Impacts of Higher Maintenance Scenario

Higher Maintenance	Net Employment Effects with Higher Maintenance	Net Labor Income Effects with Higher Maintenance	Net Value Added Effects with Higher Maintenance	Net Output Effects with Higher Maintenance
Direct Effect	126	\$4,161,155	\$7,411,815	\$10,808,891
Indirect Effect	24	\$1,040,754	\$1,824,362	\$3,098,878
Total Effect	150	\$5,201,909	\$9,236,177	\$13,907,769

Source: TBG Work Product, IMPLAN

VII. Metrics

Florida Tax Watch, an independent nonpartisan nonprofit research entity, identified nine key performance indicators to gauge the health of the marine industries in Broward County. The Balmoral Group was asked to assist with compilation of the metrics in the course of the data collection effort for the economic analysis. The following seven metrics were identified:

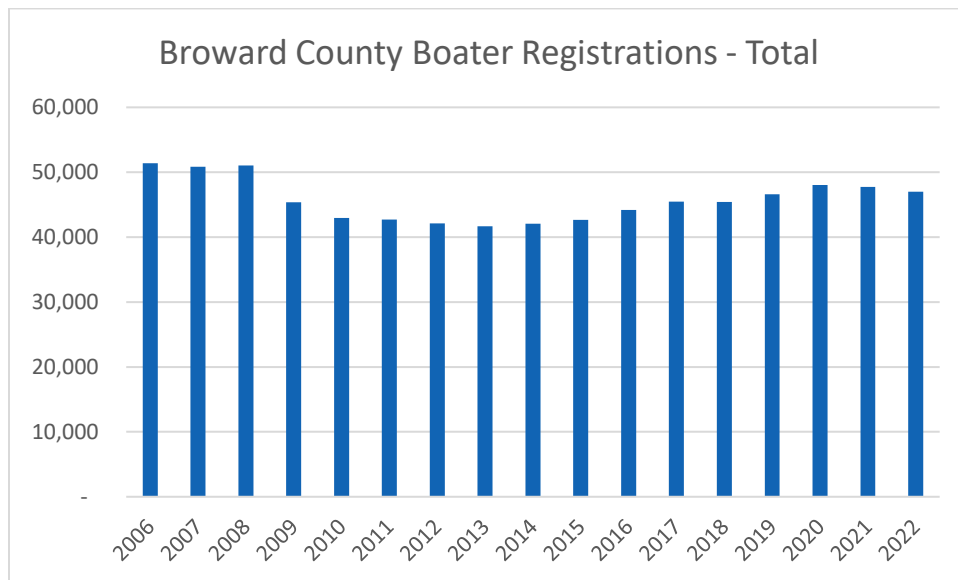
1. Boat registrations in Broward County
2. Inventory of local businesses establishments and employment engaged in marine activities, including marinas, boating, fishing, tours and water sports
3. Taxable sales from marine industry establishments
4. Inventory of local marinas and boat ramps, including number of slips by size category and inventory of boat ramps and available parking for vehicles and trailers and
5. Inventory of boat racks and storage capacity.

Each is addressed in turn.

1. Boat Registrations

Boat registration data were received from the Florida Department of Highway Safety and Motor Vehicles' (FHSMV) registration database. **Figure 4** details total vessel registration in Broward County.

Figure 4. Total Broward County Vessel Registrations



Source: FHSMV

Registration data was received for Broward County through year-end 2022. There are 45,235 records in the database. The registrations reflect 97% Pleasure Vessels, 3% Exempt/Government/Other Vessels or Commercial Vessels, as shown in **Table 22** and **Table 23**. A breakdown of counts by length categories used later in the analysis is shown in **Table 24**.

Table 22. Annual Vessel Statistics – Broward County

Year	Pleasure	Dealer/Commercial	Total	Annual Change
2006	49,287	2,088	51,375	
2007	48,766	2,057	50,823	-1.07%
2008	48,875	2,182	51,057	0.46%
2009	43,708	1,665	45,373	-11.13%
2010	41,572	1,404	42,976	-5.28%
2011	41,227	1,460	42,687	-0.67%
2012	40,668	1,463	42,131	-1.30%
2013	40,208	1,449	41,657	-1.13%
2014	40,618	1,454	42,072	1.00%
2015	41,201	1,470	42,671	1.42%
2016	42,773	1,439	44,212	3.61%
2017	44,096	1,370	45,466	2.84%
2018	44,018	1,400	45,418	-0.11%
2019	45,069	1,536	46,605	2.61%
2020	46,474	1,544	48,018	3.03%
2021	46,230	1,511	47,741	-0.58%
2022	45,493	1,483	46,976	-1.60%

Source: FHSMV

Table 23. Vessel Registration Use

Vessel Use	Number of vessels
Commercial, Dealer, Other	1,483
Pleasure	45,493
Total	46,976

Source: FHSMV

Table 24. Vessel Length Group

Length Group	Pleasure Vessels	Dealers/Other	Number of vessels
Under 16'	16,254	238	16,492
16' to 26'	19,127	475	19,602
26' to 40'	7,956	235	8,191
40' to 65'	1,609	80	1,689
Greater than 65'	289	16	305
Canoes	258	-	258
Dealers		439	439
Total	45,493	1,483	46,976

Source: FHSMV

Waterway-Users

It is expected that not all vessels within the county would use district waterways, with some providing operation on freshwater waterbodies. The dataset was further reduced to counts of vessels that exclude the vessel type “Airboat” as these users typically do not use the Intracoastal Waterway. **Table 25** provides an estimated breakdown of the vessel length groups into propulsion type, to estimate the population vessels using the District’s waterways, however it should be noted that of the total vessels within the county, a smaller portion will use the waterways on a regular basis. A large number of airboats were removed from the propulsion category “Air prop” – jet boats also fall into this category and does not represent airboat users.

Table 25. Vessel Length Group owned by individuals excluding airboats

Length Group	Number of vessels
Under 16’	12,045
16’ to 26’	15,759
26’ and more	6,981
Total	34,785

Source: FHSMV

Based on survey data regarding the use of district waterways and survey data from the 2017 DEP outdoor recreation use of saltwater boating for county residents, the vessel counts by boat length were adjusted to reflect the share of residents that use the waterway regularly. **Table 26** provides a breakdown of the vessels adjusted for the total vessels in non-use of the waterways.

Table 26. Pleasure Vessel Counts by Boat Length, Adjusted for Non-Use of Waterways

Length Group	Number of vessels
Under 16’	6,023
16’ to 26’	11,412
26’ and more	5,817
Total	23,252

Source: FHSMV

2. Business Establishments and Employment in Marine Activities

An inventory was prepared of local business establishments engaged in marine activities, including marinas, boating, fishing, tours and water sports. Employment was estimated for the marine industry and related businesses (manufacturers, repair and service, retailers, and related businesses) located in Flagler County.

Table 27 provides a summary by North American Industry Classification System (NAICS) code of employment and number of establishments in Broward County. Business level data was obtained from the Florida Department of Economic Opportunity. The data was sifted through for other businesses that might have been overlooked due to their NAICS code being unobvious such as “Other Household Goods Repair and Maintenance” which included businesses involved in fiberglass work, boatyard maintenance, boat detailing, etc. that was revealed upon reviewing the database.

Table 27. Local Business Establishments Engaged in Marine Activities, Broward County

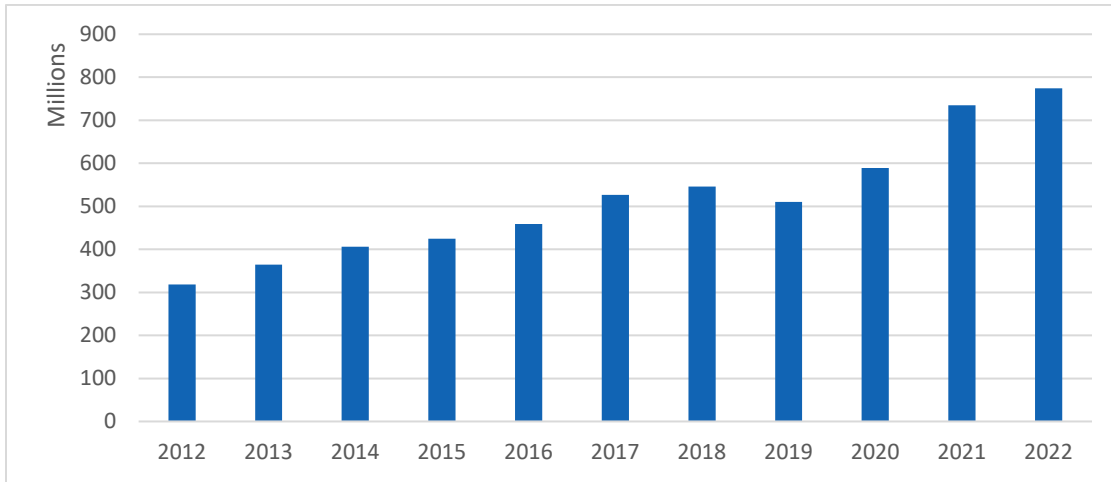
2-Digit NAICS	Description	Businesses	Employment	Total Annual Wages	Avg. Per Employee
11	Agriculture, Forestry, Fishing, and Hunting	19	41	\$3,142,976	\$76,658
23	Construction	64	395	\$24,250,680	\$61,394
31-33	Manufacturing	134	1,225	\$79,599,572	\$196,418
42	Wholesale Trade	124	979	\$65,450,176	\$66,854
44-45	Retail Trade	310	1,959	\$166,718,336	\$121,290
48-49	Transportation and warehousing	267	2,804	\$221,756,208	\$118,843
51	Information	8	33	\$2,349,928	\$71,210
52	Finance and investing	13	59	\$4,072,848	\$69,031
53	Real Estate and Rental and Leasing	17	65	\$3,834,708	\$58,996
54	Professional, Scientific, and Technical Services	118	296	\$23,828,540	\$80,502
55	Management of Companies	6	24	\$5,006,096	\$208,587
56	Administrative and Support and Waste Management and Remediation Services	67	369	\$21,887,384	\$59,315
61	Educational Services	**	**	**	**
71	Arts, Entertainment, and Recreation	102	1086	\$64,075,300	\$59,001
72	Accommodation and Food Services	5	43	\$1,229,192	\$28,586
81	Other Services (Except Public Administration)	226	784	\$46,029,644	\$58,711
99	Unclassified	26	17	\$926,412	\$54,495
Total		1,507	10,182	\$734,429,072	\$72,130

Source: QCEW. Note, the data are obtained from the Florida Department of Economic Opportunity, which compiles the QCEW data quarterly and reports annual averages. The data above was published Quarter 2, 2022.

3. Taxable Sales from Marine Industry Establishments

Taxable sales were compiled for Broward county boat dealerships (Kind Code 28), as reported by the Florida Department of Revenue. **Figure 5** reflects record boat dealership sales since 2022, and sales now exceed \$750 million annually.

Figure 5. Reported Sales, Broward County Boat Dealers



4. Commercial Fish Landings

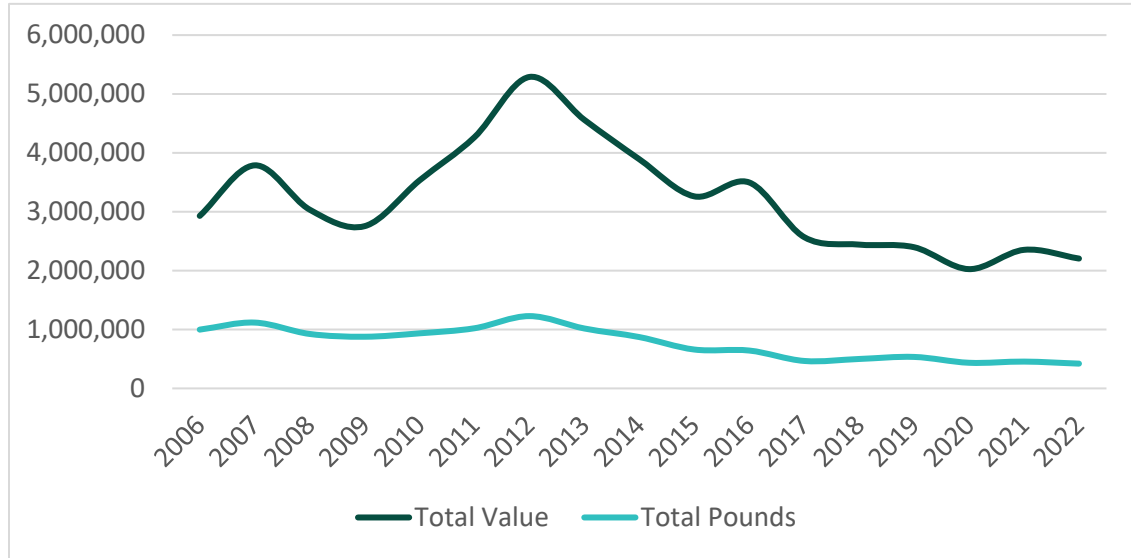
Landings data for Broward were obtained from Florida Fish & Wildlife Commission and are provided in **Table 28**.

Table 28. Commercial Fish Landings, Broward County

Year	Total Value	Total Pounds	Average Price
2006	\$ 2,929,967	998,388	\$ 3.75
2007	\$ 3,788,243	1,117,896	\$ 3.19
2008	\$ 3,036,209	924,848	\$ 3.35
2009	\$ 2,755,285	877,639	\$ 2.97
2010	\$ 3,532,865	935,519	\$ 3.51
2011	\$ 4,266,744	1,021,661	\$ 4.05
2012	\$ 5,289,394	1,227,834	\$ 3.26
2013	\$ 4,560,403	1,017,474	\$ 4.41
2014	\$ 3,891,117	871,772	\$ 4.26
2015	\$ 3,261,384	660,203	\$ 4.59
2016	\$ 3,497,078	642,997	\$ 5.86
2017	\$ 2,568,848	466,329	\$ 4.96
2018	\$ 2,442,115	500,030	\$ 4.36
2019	\$ 2,397,464	534,593	\$ 5.52
2020	\$ 2,025,698	435,358	\$ 4.81
2021	\$ 2,353,269	455,504	\$ 6.36
2022	\$ 2,205,168	420,807	\$ 6.26

Figure 6 provides a graphic representation of the trends in landings versus value.

Figure 6. Commercial Fish Landings, by Weight and Value, Broward County



Source: FWC

5. Inventory of Boat Ramps and Marinas

An inventory of boat ramps and marinas in Broward county and statewide was obtained from the Florida Boating Access Facilities Inventory and Economic Study (2016)⁸. **Table 29** provides a summary of access facilities by use type. **Figure 7** shows the location of boat ramps and marina facilities in Broward County.

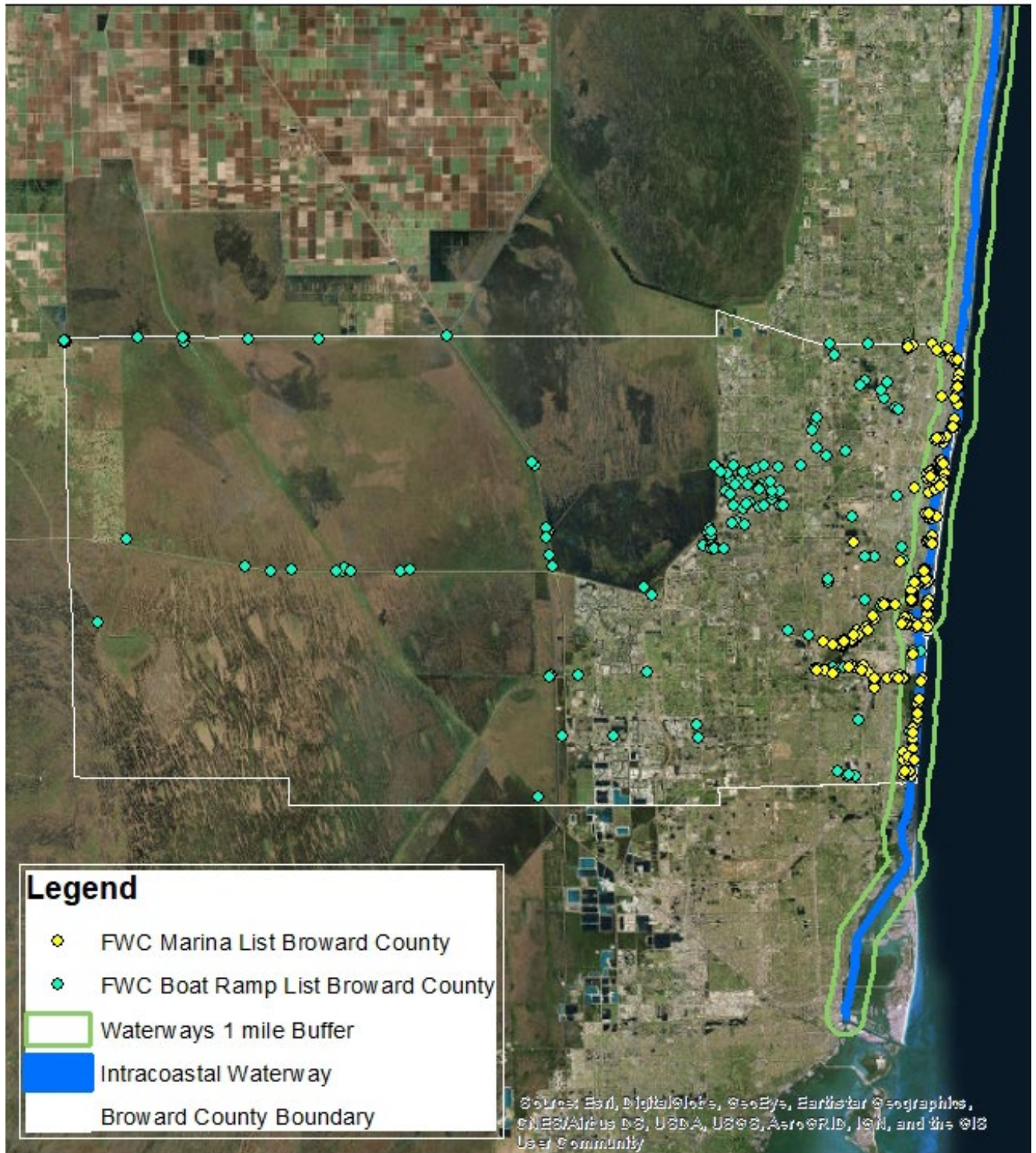
Table 29. Access Facility by Use Type, All of Broward County.

Type	Facility Access Use Type	Boat Ramp Count	Marina Count	Total Access Facilities
Commercial	Commercially Owned for Business Use Only	7	58	65
Gov't	Government Owned for Government Business Only	69	4	73
Private	Community Association for Residents Only	9	146	155
Private	Private Club	4	7	11
Private	Single Family Residence	7	-	7
Public	Commercially Owned for General Public Use	1	-	1
Public	Commercially Owned for Restricted Public Use	3	36	39
Public	Government Owned for General Public Use	50	-	50
Public	Undetermined	2	36	38
Total		152	287	439

Source: FWC Boat Ramp Inventory Database, May 2017

⁸ The marina inventory database was updated in 2016 although it appears that the data are identical to the 2009 data in the original study. Boat Ramp inventory database was updated May 2017.

Figure 7. Boat Ramps and Marina facilities, Broward County



Source: FWC Boat Ramp Inventory Database, May 2017

Inventory of Marinas

Table 30 provides a summary of marina facilities with wetslips, and **Table 31** provides a count of marina facilities with wet slips disaggregated by the type of water access.

Table 30. Detailed Description of Marina Facilities - Broward County

Use Type	Marina Facility Type	Count	Wet Slips	Rental Slips	Marina Operations Slips	Transient Slips
Commercial	Boat Dealer/Repair/Storage	19	0	0	0	0
Commercial	Commercial Marina	35	2033	1541	78	47
Commercial	Restaurant	4	14	1	13	0
Private	Apartment/Multi Family/MH Park	5	12	0	12	0
Private	Condominium	138	1135	300	25	19
Private	Private SF/Townhouse/Duplex	3	9	0	0	0
Private	Private Club	7	468	56	0	0
Public	Hotel/Motel/Resort/Camp/RV Park	36	254	142	0	0
Public	Other	36	123	2	11	0
Government	Public owned & oper/Government/Military	4	18	0	18	0
Total		287	4066	2042	157	66

Source: FWC. Note: Marina Operations Slips is the number of wet slips reserved for marina operations (including marina-owned rental and charter boats).

Table 31. Count of Marina Facilities by Water Access Type, Broward County

Water Access	Count
Canal	157
Intracoastal Waterway (ICW)	72
Lake	11
River/Creek/Bayou	47
Total	287

Source: FWC

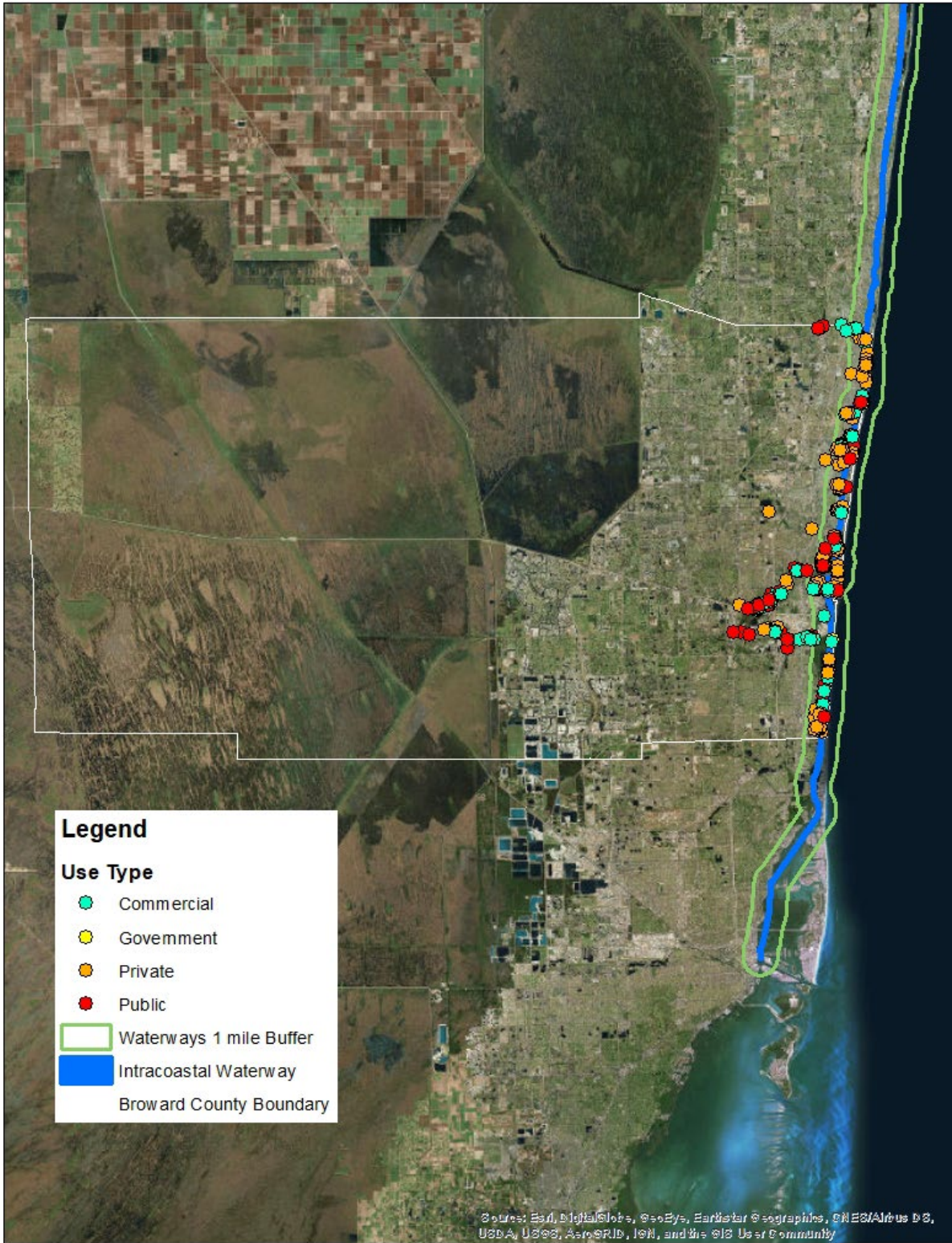
Table 32 provides an inventory of marina facilities with dry stack storage. Number of Racks (inside/outside) is the number of racks for boats in the inside of dry stack buildings/outside stacks. **Figure 9** shows marine facilities by use type in Broward County.

Table 32. Marina Facilities with Drystack Storage, Broward County

Marina Facility Type	Count	# of Racks (Inside)	# of Racks (Outside)
Commercial	58	1535	354
Private	153	0	0
Public	72	359	0
Government	4	0	0
Totals	287	1894	354

Source: FWC

Figure 8: Marine Facilities by Use Type



Source: FWC Marine Databases

Inventory of Boat Ramps

An inventory of local boat ramps in Broward County was conducted to identify ramps and available parking for vehicles and trailers. **Table 30** provides the results for all boat ramps within Broward County and a breakdown of parking spaces available. An inventory of ramp type and parking available for ramps within 1 mile of the ICW is summarized in **Table 31**.

Table 33. Inventory of Boat Ramps for All of Broward County

Use Type	Description: Ramp Use Type	Count	Trailer	Handicap Trailer	Vehicle	Handicap Vehicle
Commercial	Commercially Owned for Business Use Only	7	12	0	0	0
Gov't	Government Owned for Government Business Only	69	40	0	0	0
Private	Community Association for Residents Only	9	16	0	12	0
Private	Private Club	4	12	0	0	0
Private	Single Family Residence	7	0	0	0	0
Public	Commercially Owned for General Public Use	1	2	0	0	0
Public	Commercially Owned for Restricted Public Use	3	0	0	0	0
Public	Government Owned for General Public Use	50	1160	9	631	44
Public	Undetermined	2	0	0	0	0
Total		152	1242	9	643	44

Source: FWC *hand launch dataset includes kayak launches

Table 34. Boat Ramps on ICW on or connecting to ICW, Broward County

Use Type	Description: Ramp Use Type	Count	Trailer	Handicap Trailer	Vehicle	Handicap Vehicle
Commercial	Commercially Owned for Business Use Only	4	0	0	0	0
Gov't	Government Owned for Government Business Only	2	0	0	0	0
Private	Community Association for Residents Only	2	1	0	0	0
Private	Private Club	2	0	0	0	0
Private	Single Family Residence	3	0	0	0	0
Public	Commercially Owned for General Public Use	0	0	0	0	0
Public	Commercially Owned for Restricted Public Use	3	0	0	0	0
Public	Government Owned for General Public Use	13	436	17	225	6
Public	Undetermined	2	0	0	0	0
Total		31	437	17	225	6

Source: TBG Work Product, FWC *hand launch dataset includes kayak launches

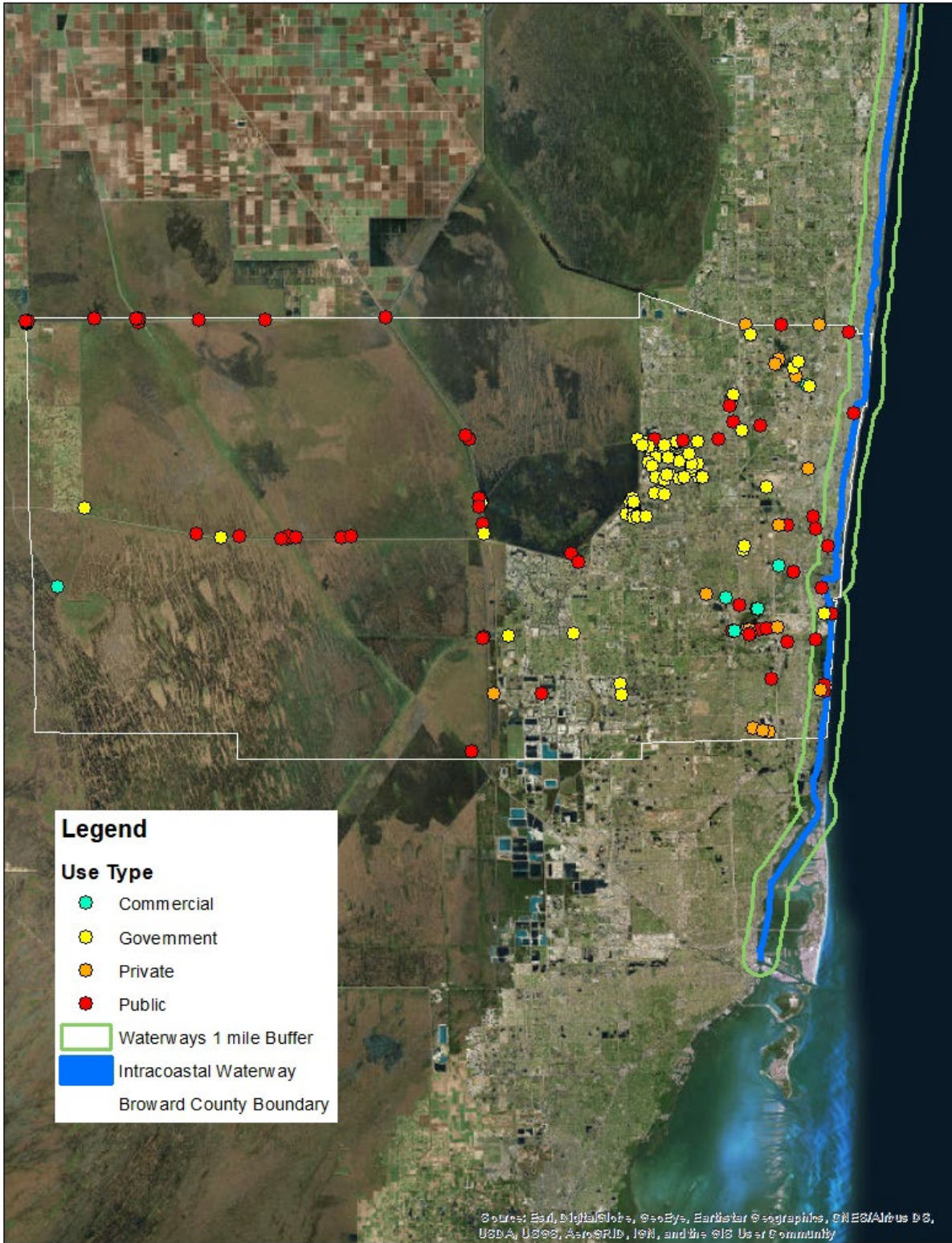
Table 32 shows an inventory of total ramp lanes for Boat Ramps either on the ICW or connecting to the ICW. **Figure 10** depicts Broward County boat ramps by use type.

Table 35. Total Ramp Lanes by Use Type and Distance to ICW, Broward County

Use Type	Description: Ramp Use Type	Connecting to ICW	All of Broward County
Commercial	Commercially Owned for Business Use Only	4	7
Gov't	Government Owned for Government Business Only	4	71
Private	Community Association for Residents Only	4	13
Private	Private Club	2	4
Private	Single Family Residence	3	7
Public	Commercially Owned for General Public Use	0	1
Public	Commercially Owned for Restricted Public Use	7	7
Public	Government Owned for General Public Use	38	96
Public	Undetermined	2	2
Total		64	208

Source: FWC Boat Ramp Database

Figure 9. Boat Ramp Access by Use Type



Source: FWC Boat Ramp Database

Bibliography

- Florida Department of Economic Opportunity, 2022. *Quarterly Census of Employment and Wages, Florida Establishments in Broward County, Quarter 2*. Received February, 2023.
- Florida Department of Environmental Protection, The Balmoral Group. 2017 Survey of Florida Outdoor Recreation, Working Paper.
- Florida Department of Highway Safety and Motor Vehicles, 2017. *Database of Registered Boat Owners in Broward County*. Received January, 2018.
- Florida Fish and Wildlife Conservation Commission, 2022. *FWC Florida Boat Ramp Inventory*. Retrieved from <http://geodata.myfwc.com/datasets/fwc-florida-boat-ramp-inventory?geometry=-98.499%2C24.371%2C-84.964%2C31.169>
- Florida Fish and Wildlife Conservation Commission, 2022. *Commercial Landings Data*. Retrieved from <http://myfwc.com/research/saltwater/fishstats/commercial-fisheries/landings-in-florida/>
- Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute, 2022. *Marinas in Florida – March 2016*. Received October, 2022.
- Florida Oceans & Coastal Resources Council. 2007. “Investing in Florida’s Coastal & Oceans Future: Annual Science Research Plan – FY 2007 - 2008.” Florida Department of Environmental Protection.
- Hazen & Sawyer. 2005. “Biscayne Bay Economic Study. Task 3 Report – Final Biscayne Bay Economic Baseline and Trend Report.” Prepared for South Florida Water Management District.
- Howie, Bob. 2017. “V3 Reference Manual.” Retrieved from http://oldsupport.implan.com/index.php?view=document&alias=31-v3-reference-manual-2&category_slug=internal-docs&layout=default&option=com_docman&Itemid=1764
- Schmit, ToddM., and Becca B.R. Jablonski and David Kay. 2013. “A Practitioner’s Guide to Conducting an Economic Impact Assessment of Regional Food Hubs using IMPLAN: a step-by-step approach.” Doi: 10.9752/ms145.09-2013.
- Taylor Engineering, Inc. 1993. “Long-Range Dredged Material Management Plan for the Intracoastal Waterway in Flagler County, Florida.” Prepared for Florida Navigation District
- The Balmoral Group. 2014. “Economic Impact of the St. Johns River and Water Quality on Property Values.” Prepared for St. Johns River Water Management District.
- Thomas J. Murray & Associates, Inc. and University of Florida 2022. “Economic Impact of the 62th Annual Fort Lauderdale International Boat Show.” Prepared for Marine Industries Association of South Florida & Show Management Inc
- Thomas J. Murray & Associates, Inc. 2015. “Economic Impact of Dania Cutoff Canal Dredging.” Prepared for Florida Inland Navigation District.
- Thomas J. Murray & Associates, Inc. 2016a. “Economic Significance of the Marine Industry in Florida.” Prepared for Marine Industries Association of Florida, Inc.
- Thomas J. Murray & Associates, Inc. 2016b. “Florida’s Recreational Marine Industry – Relative Growth and Economic Impact 2008 - 2015.” Prepared for Marine Industries Association of Florida, Inc.
- Thomas J. Murray & Associates, Inc. and University of Florida 2016. “Economic Impact of the 56th Annual Fort Lauderdale International Boat Show.” Prepared for Marine Industries Association of South Florida & Show Management Inc.