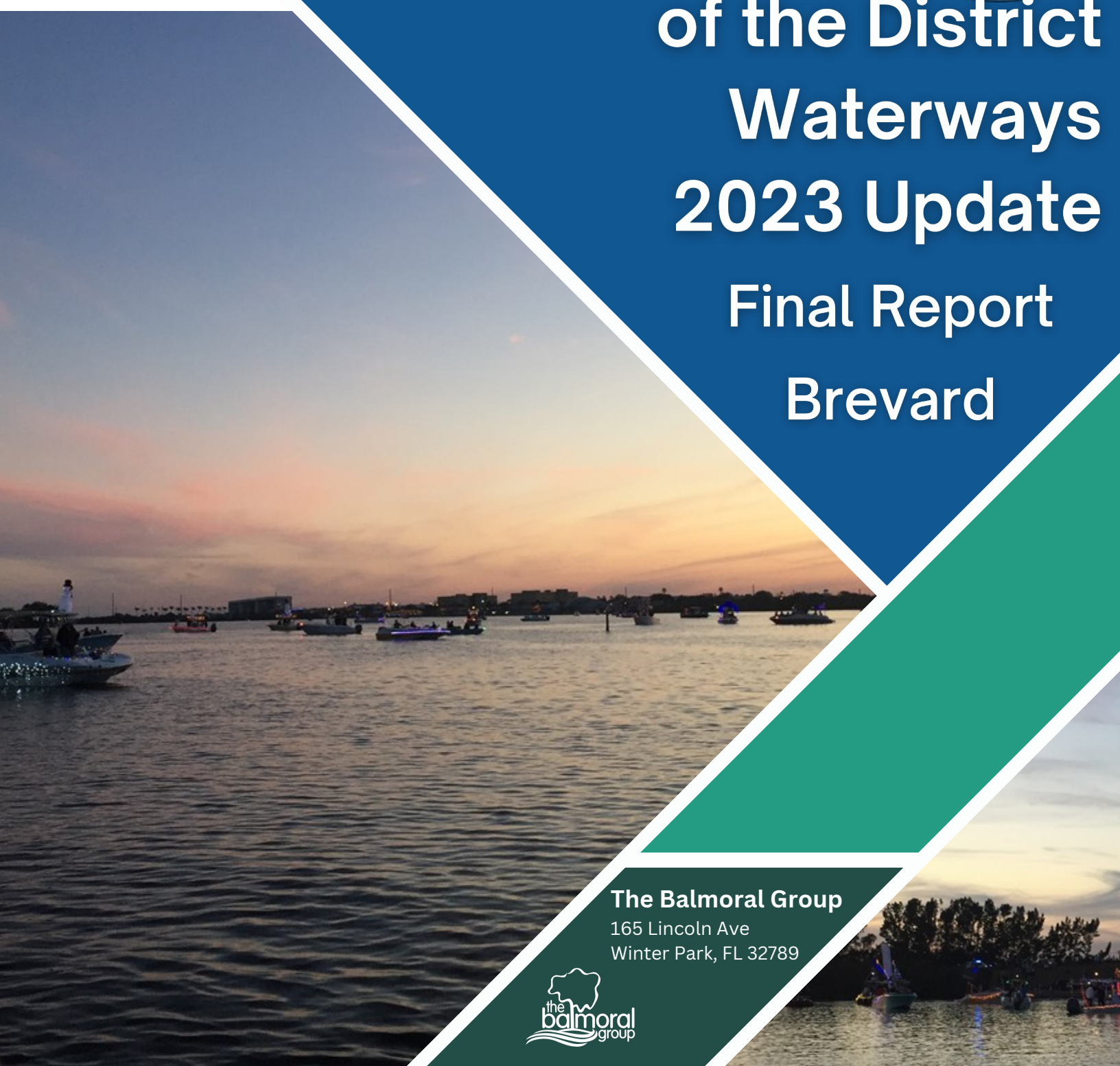




Economic Analysis of the District Waterways 2023 Update Final Report Brevard



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Executive Summary

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 more than \$6 million in Brevard Waterways in the past 10 years, generating significant economic impact. It is notable that within Brevard County, dredged material management plans include beach placement of material, subject to environmental conditions and compatibility. Brevard County is one of several counties that manage beach nourishment projects to retain beach width, and the availability of material is a constant battle.

This report provides an estimate of the economic impact of the Florida Inland Navigation District (District)’s navigation projects in Brevard County as of March 2023. 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, both Floridians and out-of-state visitors
3. Proximity effects of the Waterways on real estate
4. Spending by Specialized Sectors including maintenance dredging activities, and Commercial Fish landings.

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

Table 1. Estimated Economic Impacts of District Waterways in Brevard County

Impact Type	Employment	Labor Income	Value Added (in Millions \$)	Output
Local Recreational Boaters	1,486	\$44	\$75	\$120
Florida Tourists	185	\$5	\$9	\$16
Out-of-State Tourists	16,419	\$478	\$837	\$1,420
Specialized Sectors	40	\$1.8	\$3.0	\$4.5
Total Annual Impacts	18,130	\$529	\$924	\$1,562
Property Value Impacts, Annualized				\$346
Estimated Economic Impacts Including Property Amenity Values				\$1,908

*The total contribution of the Waterways to 2022 property values of \$5.7 billion, was annualized at 6% discount rate and this annual value is \$346 million.

Source: TBG Work Product, published FWC data, and Brevard Property Appraiser data

The share of property value that is attributable solely to the proximity to an amenity – in this case, the waterway is estimated using regression modelling approaches. By holding constant other factors such as lot size, number of bedrooms, etc., and using actual property sales over the prior two years, the

amenity value attributable to housing located on or very close to the waterway was estimated at \$5.8 billion. This premium is 5% of Brevard’s total property “just value”, reported by the property appraiser at just over \$107 billion.¹ By applying a capitalization rate of 6%, the annualized flow of regional income attributable to the amenity value in the local economy can be isolated. Properties directly along the Intracoastal enjoy a real estate premium of 46% and total \$3.3 billion. Additionally, properties fronting tributaries and waterways connected to the intracoastal contribute \$1.4 billion, a 40% premium (**Table 2**).

Table 2. Estimated Property Value Premiums (Single Family)

	Waterfront to ICW	Non-Waterfront	Canal/River Access to ICW
Premium % of Sales Price	46%	5% - 10%	40%
Estimated Premium (in Millions \$)	\$2,195	\$1,654	\$1,438

Source: TBG Work Product

The economic benefits of district maintenance include the generation of tax revenues for local, state and federal governments. **Table 3** provides a breakdown of calculated tax impacts totalling about \$261 million in annual revenues.

Table 3: Estimated Tax Revenues of District Waterways in Brevard County

Impact Type	State & Local	Federal	Total
	(In millions \$)		
Local Recreational Boaters	\$14.1	\$13.8	\$27.9
Floridian Tourists	\$1.2	\$1.4	\$2.6
Out-of-State Tourists	\$107.1	\$123.1	\$230.2
Specialized Sectors	\$0.1	\$0.2	\$0.3
Total Annual Impacts	\$122.5	\$138.5	\$261.0

Source: TBG Work Product, IMPLAN

In addition to status quo, an alternative maintenance scheme in which the channel depths experience increased maintenance through full implementation of the Long-Range District’s Dredged Material Management Plan (DMMP). This increase is estimated to result in an additional \$553,000 in spending for the small but important number of very large boats.

Finally, a series of benchmarks to assist local marine resource managers were 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.

¹FDOR, Statewide Summary Information by County, 2022 Report.



ECONOMIC BENEFITS OF THE DISTRICT WATERWAYS

Brevard County, 2022

TOTAL ANNUAL ECONOMIC IMPACT \$1.9B

TOURISM SPENDING

\$1.4 Billion

generated annually from 453,000 visitors



BOATER SPENDING

\$120 Million

local boater spending from Registered Vessels



ANNUAL PROPERTY VALUE

\$346 Million

portion of property market values attributed to ICW proximity



Brevard County is one of several counties that manage beach nourishment projects to retain beach width, and the availability of material is a constant battle. Material from dredging operations in Brevard County often go to beach placement, subject to environmental conditions and compatibility.



Brevard County's Waterways currently support over 18,000 jobs countywide



FIND INVESTMENT

in the ICW of **\$1 Million** annually protects annual economic impact of **\$1.9 Billion**



ANNUAL TAX BENEFITS

\$123M



FEDERAL TAX REVENUE

\$139M



STATE AND LOCAL TAX REVENUES



Registered vessels utilizing the ICW 25,420



Pleasure boating	11,480
Fishing	7,380
Sailing & other activities	4,510
Watersports	2,050



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Introduction

The Balmoral Group was retained to estimate the economic impact of District investments in Brevard County. This economic impact analysis updates the values from the 2017 study. The District operates four main programs:

- the Long Range Dredged Material Management, which provides for maintenance operations and improvements for the waterway and a permanent infrastructure of land for perpetual management of the Waterways;
- 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 Waterways 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 Waterways. 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. Specific economic impacts of recreational users of the Waterways;
- II. Specific economic impacts of specialty sectors, including the movement of fuels on barges through the ICW;
- III. The value of properties influenced by the Waterways, and the specific amenity value of proximity to the Waterway;
- IV. The total economic impact of the Waterways, including indirect and induced impacts associated with sales, income, employment, and taxes, using an input-output model;
- V. The generation of tax revenues for local, state and federal governments;
- VI. The changes to the District's economic impact under an increased maintenance scenario; and
- VII. 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 Waterways, and their impact on commercial businesses through spending, data on Florida boat owners and visitors to Florida who indicated that they used a boat in Brevard County is utilized. Spending data is derived from prior surveys, adjusted to 2022 dollars.

Local/Florida Boat Owners

The population of Brevard County has increased by 9% since the previous economic assessment in 2017. Currently, the Florida Office of Economic and Demographic Research (EDR) estimates population at 627,544. The vessel registration statistics suggest that of the total population in Brevard, 6% use the waterways. Despite the moderate increase in population, Brevard County has observed a 7% decrease in the number of boat owners. Survey data obtained from Florida-registered recreational boaters was used to estimate spending.² **Table 4** shows a breakdown of reported annual expenditures by boat size.

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

	Less than 12'	12' to 16'	16' to 26'	26' or greater
Overall annual expenditure	\$2,600	\$72,438	\$93,467	\$26,390
Share of total expenditure	1%	37%	48%	14%
Average Annual Costs:				
Storage	\$51	\$54	\$519	\$1,238
Maintenance	\$667	\$265	\$632	\$2,071
Insurance	\$0	\$150	\$416	\$740
Average Annual Trip Costs on the ICW:				
Food	\$250	\$578	\$602	\$1,200
Transportation & Accommodation	\$500	\$474	\$697	\$889
Fees & Recurring Costs	\$13	\$116	\$64	\$74
Gear or Specialized Equipment	\$13	\$2,118	\$650	\$481
Average Annual Trip Costs off the ICW:				
Food	\$250	\$383	\$360	\$383
Transportation & Accommodation	\$250	\$420	\$362	\$160
Fees & Recurring Costs	\$13	\$216	\$110	\$74
Gear or Specialized Equipment	\$13	\$1,176	\$364	\$217

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

² For purposes of economic modelling, the survey data was aggregated to small (less than 16'), medium (16 – 26') and large (greater than 26') boats. It should be noted that a high degree of correlation existed between storage and maintenance costs, indicating some respondents may have answered the questions as related, rather than independent, costs. Both coefficients were statistically significant at the 1% and 5% level, respectively, and considered valid.

Tourism

Tourists who use the Waterways also contribute to the economic impact of the maintenance of the Waterways. A 2017 survey of more than 983 visitors to Florida from across the US found that 20% identified Brevard County as a destination they had visited at least once in the last 12 months to participate in activities using the Intracoastal Waterway. Visit Florida data indicates that in 2022 (the most recent data available), 137.6 million tourists visited Florida, with 1.4 million visitors to Brevard County. Of those, 31% would generate an estimate of 453,385 Waterway-specific visitors. This number was used as a proxy for tourists from other U.S. States that were Waterway users. Total spending from in-state and out-of-state tourists' activities within Brevard County aggregates to \$1.2 billion annually.

II. Specialty Sectors

Recreational boaters are by far the greatest users of the Waterways, and the spending by local (Brevard 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 Brevard County, there are at least three sources of specialty sector economic impacts:

- The movement of fuel imports through the Intracoastal waterway to utilities
- The dredging expenses themselves are outside the normal trade flows that would be generated by recreational boater spending.
- The commercial fishing industry.

Tank Farms and Fuel Barges

The Florida Department of Transportation identifies the Atlantic Intracoastal Waterway as essential to waterborne commerce. The US Army Corps of Engineers Waterborne Commerce Statistics shows that for calendar year 2019, 2.2 million short tons travels the AIWW. Chemicals has been the main commodity to travel the AIWW, but in Brevard County it was noted that fuel shipments and barge traffic related to the Kennedy Space Center and related industry were identified as sectors that have previously utilized the waterway.

Port Canaveral approved a plan in 2006 with Vitol S.A. Inc to construct a fuel tank farm in the port with a projected cargo revenue of \$7.3 million. Much of the influx from this project travels throughout the state, and local utilities previously received fuel shipments from barges through the port; this method of fuel commodities movement has not been observed since the utilities converted to alternative fuel sources. Port Canaveral indicated that infrastructure remains in place to support any increases in demand for barge shipments through to the Intracoastal.

Expenditures by Army Corps of Engineers and Florida Inland Navigation District

Dredging and other maintenance expenses for the Intracoastal Waterway occur sporadically and are federally and state funded. Local support and coordination is managed by the District, which also implements a Dredged Material Management Plan. 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. \$21 million in has been invested in navigation or dredging-related projects in Brevard County for an annualized value of \$656,000 over 34 years, which includes spending by FIND and the US Army Corps of Engineers. Accordingly, for Brevard County, \$435,850 in annualized average expenditures by the District for funding additional waterway related projects such as new boat ramps, dock extensions and marina expansions.

Commercial Fishing

Commercial fisheries impact the economic sector differently than any of the listed categories. Using the value of all Commercial Landings in Palm Beach County in 2022, the industry contributes spending of \$9.9 million. This number is close to that of the ex-vessel values of landings, resulting in the direct effects of the spending totaling about \$2 million. The shrimping industry in Brevard is significant. In 2022, Brevard County harvested 2.1 million pounds of rock shrimp, a 90% increase from 2017. Additionally, Brevard County brought in 52% less white shrimp in 2022 than the 2017 harvest season; however white shrimp still add 12% to the commercial shrimping industry value. Additionally, pink shrimp landings have grown by 353% since 2017.

III. Property Values

Property values associated with the District’s Waterways were compiled for contextual analysis. Market values for the more than 10,000 Brevard County properties directly fronting the ICW total more than \$6.9 billion, of which nearly \$4.8 billion was generated by residences fronting the ICW in 2022. Commercial properties add another \$198 million and Government adds \$962 million. **Table 5** provides a breakdown of the property values of properties fronting the ICW by property type.

Table 5. ICW-Fronting Property Value by Property Type, Brevard County

DOR Category	Count	Average Just Value, 2022 (in dollars)	Total Just Value, 2022 (in Millions \$)
Commercial	182	\$1,089,909	\$198.4
Government	106	\$9,075,473	\$962.0
Industrial/ Institutional	22	\$2,975,571	\$65.5
Miscellaneous/Vacant	1,064	\$881,713	\$938.1
Residential – Multifamily/Condo	5,788	\$260,914	\$1,510.2
Residential – Single Family	3,761	\$883,239	\$3,321.9
Totals	10,923	\$640,484	\$6,996.0

Source: Brevard 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 Waterways - 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. Brevard County records show that residential properties overall average \$326,000 in market value, based on sales during the past 24 months. By comparison, properties that are within one mile of the ICW average \$442,000. Removing beach premium reduces nearby property values to \$381,000, which is still 17% more than the value of the average Brevard county home sale. **Table 6** provides details.

Table 6. Single Family Residential Property Sales in 2021-2022 and ICW proximity, Brevard County

Distance	Count	Average Sale Price (in dollars)	Total Property Sales (in Millions \$)
Brevard County Overall	26,334	\$326,155	\$8,589
Within 1 Mile of the Intracoastal	7,841	\$441,904	\$3,465
Beach Front	83	\$2,002,122	\$166
Within 1 mile, not Beachfront	7,758	\$425,212	\$3,299
Within 500 Meters of the Beach	970	\$645,343	\$626
W/in 1 mile, not in Proximity to Beach	5,529	\$381,737	\$2,111

Source: TBG Work Product, Brevard 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 (0.93 miles or 4,921 feet). Hedonic modeling found that the real estate premium value enjoyed by Brevard County that is specifically attributable to ICW frontage or proximity totaled \$2.2 billion for single family residences in 2022.

The coefficient for frontage location, on the Intracoastal Waterway, accounts for more than a 40% of the sales value for properties fronting the Waterways and 3% of sales values for properties within 1500 meters of the Waterways.

Of the total \$30.9 billion in market value related to homes within 1,500 meters of the waterway, about \$2.2 billion in value was attributable solely to ICW frontage, holding other factors constant such as size, number of bedrooms/bathrooms/garages and age.

Brevard County has more than 26,000 residences along the Waterways that are not single-family units. Using similar share of sales price as indicative of proximity premiums, the amenity value attributable to Waterway proximity for condominiums totals \$1 billion for waterfront and an additional \$340 million for near-Waterway properties, resulting in a total \$5.7 billion premium associated with the Waterways. The waterway premium associated with properties is \$346 million annualized. For context, total property value in Brevard County is about \$107 billion, according to the Florida Department of Revenue, and premiums associated with the waterway’s accounts for 5%.

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 7** provides a breakdown of the premium associated with current waterfront properties that is attributable solely to the Waterways.

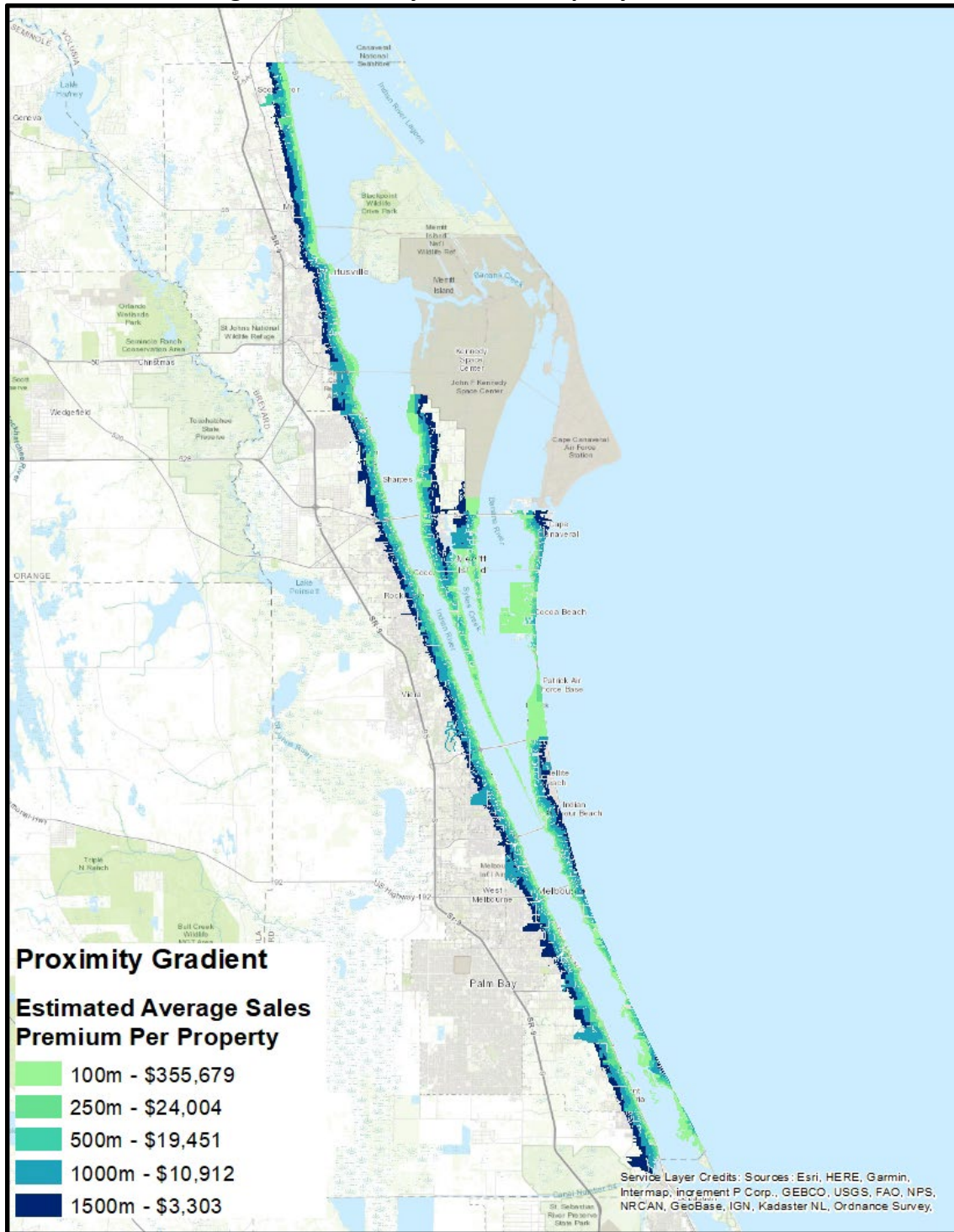
Table 7. Amenity Value of Brevard Waterways

	Waterfront	100m (Non- waterfront)	250m	500m	1,000 m	1,500 m	Tributaries with ICW Access
Premium % of Sales Price	46%	10%	10%	9%	7%	5%	40%
Waterway Amenity Value Single Family Residences (\$ millions)	\$2,195	\$98	\$255	\$386	\$537	\$378	\$1,438
Waterway Amenity Value Multi-Family/Condos (\$ millions)	\$1,088	\$44	\$86	\$116	\$84	\$14	\$0
Total Waterway Amenity Value (in \$ millions)	\$3,283	\$102	\$231	\$321	\$316	\$77	\$1,438

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

Figure 1 illustrates the proximity effect on property values for a selected stretch of the waterway. The legend shows the decline in property values that is reflected in each successive distance gradient from the Waterway.

Figure 1. Proximity Effect on Property Values



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

IV. Total Economic Impact of the Waterways in Brevard County

To estimate the overall economic impacts associated with the Waterways, The Balmoral Group used IMPLAN®, an econometric modelling application that generates regional economic impact multipliers. **Figure 2** describes how economic impact models, such as IMPLAN®, translates the investment in the Waterways (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.

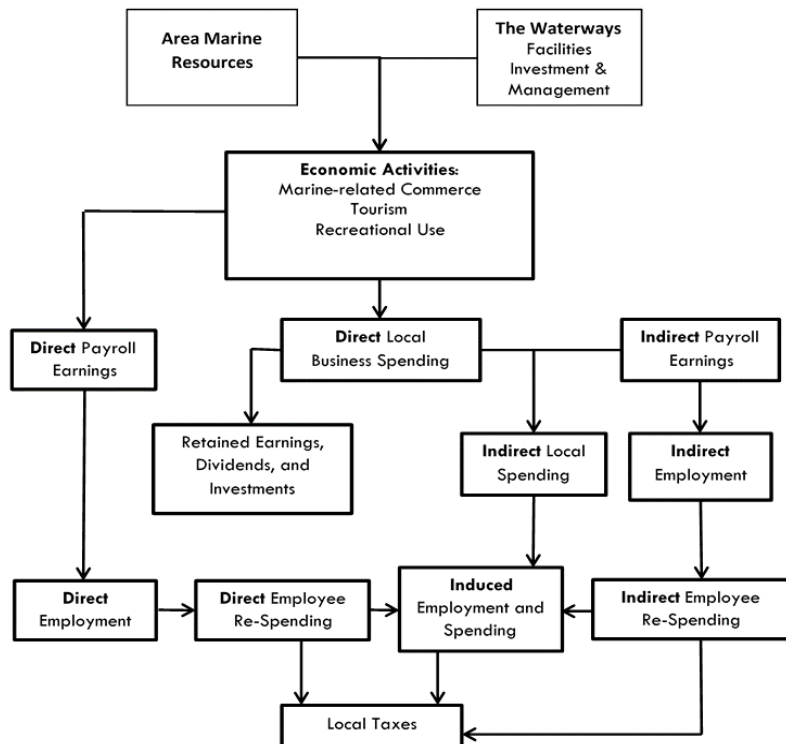
IMPLAN® estimates the flows of supply and demand between and within counties by industry sector, and converts this estimate of cash flows to economic impacts – measured through jobs, revenues, and personal income. An important element of input-output modeling is understanding these flows, and using appropriate 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.³

The spending associated with recreational boaters and tourists provide direct inputs for IMPLAN modeling, as do the hidden sectors and maintenance dredging.

Four IMPLAN models were prepared for the baseline analysis:

1. Recreational boater spending by Brevard County residents, varied by boat size;
2. Tourist spending by In-State Visitors to Brevard County;
3. Tourist spending by Out-of-State Visitors to Brevard County; and
4. Business revenues generated by specialized sectors.

Figure 2. Input-Output Model for Waterways Economic Impacts



³ The Bureau of Economic Analysis falls within the U.S. Department of Commerce.

Regional economic impacts generated by all five are summarized in **Table 8**. In addition to the \$1.6 billion in annual impacts, the estimated impact on property values totals \$346 million. Combined, the impact of the Waterways can be estimated at just over \$1.9 billion.

Table 8. Estimated Regional Economic Impacts of the Waterways in Brevard County, by Source

Impact Type	Employment	Direct Effect	Indirect Effect	Induced Effect	Output
					(in Millions \$)
Local Recreational Boaters	1,486	\$98.7	\$21.8	\$0.0	\$120.5
Floridian Tourists	185	\$10.5	\$2.6	\$2.9	\$16.1
Out-of-state Tourists	16,419	\$930.9	\$228.4	\$261.2	\$1,420.4
Specialized Sectors	40	\$3.06	\$0.49	\$0.94	\$4.49
Total Annual Impacts	18,130	\$1,043	\$253	\$266	\$1,562
Property Value Impacts (not annual)					\$346
Estimated Economic Impacts including Property Amenity Values					\$1,908

*The total contribution of the Waterways to 2022 property values of \$5.8 billion, was annualized at 6% discount rate and this annual value is \$346 million.

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

The overall economic impacts are generated by four categories:

1. Local boaters
2. Tourists from Florida
3. Out-of-State tourists
4. Specialized sectors

Table 9 shows a breakdown of the spending by each of the four categories.

Table 9: Spending by Impact Type

Categories by Size	Total Spending (in Millions \$)
Local Recreational Boaters	\$115
Floridian Tourists	\$13.8
Out-of-State Tourists	\$1,201
Specialized Sectors	\$25
Total	\$1,355

Source: TBG Work Product

Recreational Boaters Registered in Brevard County

Local boaters generate \$115 million in spending (**Table 9**), which results in a total economic contribution of nearly \$121 million, as shown in **Table 10**.

Table 10. Estimated Economic Impacts of Waterways from Resident Boaters (in millions \$)

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	1,291	\$37.4	\$64.1	\$98.7
Indirect Effect	195	\$6.8	\$11.2	\$21.8
Total Effect	1,486	\$44.2	\$75.3	\$120.5

Source: TBG Work Product, IMPLAN

Table 11 provides a breakdown of total spending by boat size.

Table 11. Total Spending from Resident Boaters

Categories by Size	Total Spending
Boats Less than 16'	\$50,489,638
Boats 16' to 26'	\$57,294,214
Boats 26' or greater	\$7,621,329
Total	\$115,405,181

Source: TBG Work Product, IMPLAN

Tourist Spending by In-State Visitors to Brevard County

Visitors to Brevard County from across the State generate annual spending of \$13.8 million, with total impacts of more than \$16.1 million as shown in **Table 12**.

Table 12. Estimated Economic Impacts of Waterways, Florida Visitors, Brevard County (in millions \$)

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	136	\$3.6	\$6.5	\$10.5
Indirect Effect	25	\$0.8	\$1.3	\$2.6
Induced Effect	25	\$0.9	\$1.6	\$2.9
Total Effects	185	\$5.3	\$9.4	\$16.1

Source: TBG Work Product, IMPLAN

Out-of-State Tourists

Tourists from out-of-state generate annual spending of about 1.2 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 \$930 million. Including indirect and induced effects, the total economic impact of the Waterways from out-of-state tourists aggregates to total impacts of \$1.4 billion as shown in **Table 13**. The total impacts generate about \$1.18 for each \$1.00 in spending (Overall output of about \$1.4 billion versus spending by out-of-state tourists of approximately \$1.2 billion).

Table 13. Estimated Economic Impacts of Waterways from Out-of-State Visitors, Brevard County (in millions \$)

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	12,067	\$323.0	\$572.5	\$930.9
Indirect Effect	2,141	\$72.4	\$117.9	\$228.4
Induced Effect	2,211	\$82.3	\$146.3	\$261.2
Total Effects	16,419	\$477.7	\$836.7	\$1,420.4

Source: TBG Work Product, IMPLAN

Specialty Sectors

Specialized Sectors include the maintenance dredging activities and commercial fishing; while the port has some benefits from the district's waterways, the portion that is directly attributable to shipments on the ICW are not readily available to be teased out. The value of the industries that reportedly use the ICW are noted, but their impacts are not quantified. **Table 14** summarizes the specialized sectors' impacts.

Table 14. Estimated Economic Impacts of Waterways in Brevard County, Specialized Sectors

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	30	\$1,343,809	\$2,214,088	\$3,058,796
Indirect Effect	4	\$190,614	\$251,174	\$490,220
Induced Effect	7	\$286,177	\$539,108	\$937,906
Total Effects	40	\$1,820,599	\$3,004,369	\$4,486,923

Source: TBG Work Product, IMPLAN

Tank Farms and Fuel Barges

As noted before, The US Army Corps of Engineers Waterborne Commerce Statistics shows that for calendar year 2019, 2.2 million short tons travels the AIWW. Chemicals has been the main commodity to travel the AIWW, but in Brevard County it was noted that fuel shipments and barge traffic related to the Kennedy Space Center and related industry were identified as sectors that have previously utilized the waterway.

Expenditures by the Florida Inland Navigation District and US Army Corps of Engineers

As noted earlier, 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. For Brevard County, an annualized value of \$656,000 in navigation or dredging-related projects and \$435,850 in annualized average expenditures by the District for funding additional waterway related projects such as new boat ramps, dock extensions and marina expansions, were used as input values for spending. **Table 15** summarizes the specialized sectors' impacts.

Table 15. Estimated Economic Impacts of Waterways in Brevard County, Dredging

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	11	\$867,263	\$785,619	\$1,091,850
Indirect Effect	2	\$102,784	\$122,497	\$222,129
Induced Effect	4	\$167,855	\$328,627	\$562,386
Total Effects	16	\$1,137,901	\$1,236,743	\$1,876,365

Source: TBG Work Product, IMPLAN

Commercial Fishing

Commercial fisheries, which are heavily dominated by the shrimping industry, impact the economic sector differently than any of the listed categories. Using the value of all Commercial Landings in Brevard County in 2022, the industry contributes spending of \$9.4 million. This number is close to that of the ex-vessel values of landings. **Table 16** provides a detailed breakout, showing that direct effects of the spending total about \$2 million.

The shrimping industry in Brevard is significant. In 2022, Brevard County harvested 2.1 million pounds of rock shrimp, a 90% increase from 2017. Additionally, Brevard County brought in 52% less white shrimp in 2022 than the 2017 harvest season; however white shrimp still add 12% to the commercial shrimping industry value. Additionally, pink shrimp landings have grown by 353% since 2017.

Table 16. Estimated Economic Impacts of Waterways in Brevard County, Commercial Fishing

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	19	\$476,546	\$1,428,469	\$1,966,946
Indirect Effect	2	\$87,830	\$128,677	\$268,091
Induced Effect	3	\$118,322	\$210,481	\$375,520
Total Effects	24	\$682,698	\$1,767,626	\$2,610,558

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 17** and **Table 18** 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 Brevard County. Overall, about \$261 million in annual revenues are generated.

Table 17. State and Local Tax Revenues from District Waterways, Brevard County – in thousands \$

Description	Employee Compensation	Tax on Production and Imports	Households	Corporations	Total Annual Impacts
Local Recreational Boaters	\$0.0	\$0.0	\$13.8	\$0.3	\$14.1
In-State Visitors	\$0.0	\$0.0	\$1.2	\$0.0	\$1.2
Out-of-State Visitors	\$0.4	\$0.0	\$103.6	\$3.1	\$107.1
Specialized Sectors	\$0.0	\$0.0	\$0.1	\$0.0	\$0.1
Total Annual Impacts	\$0.5	\$0.0	\$118.6	\$3.4	\$122.5

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

Table 18. Federal Tax Revenues from District Waterways, Brevard County - in millions \$

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total Annual Impacts
Local Recreational Boaters	\$5.7	\$0.2	\$1.8	\$4.5	\$1.7	\$13.8
In-State Visitors	\$0.6	\$0.0	\$0.2	\$0.4	\$0.2	\$1.4
Out-of-State Visitors	\$49.7	\$1.8	\$13.7	\$40.0	\$17.9	\$123.1
Specialized Sectors	\$0.1	\$0.0	\$0.0	\$0.1	\$0.1	\$0.2
Total Annual Impacts	\$56.0	\$2.0	\$15.7	\$44.9	\$19.9	\$138.5

Source: TBG Work Product, IMPLAN

VI. Metrics

Florida Tax Watch, an independent nonpartisan nonprofit research entity, identified nine key performance indicators to gauge the health of the marine industries in Brevard 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 nine metrics were identified:

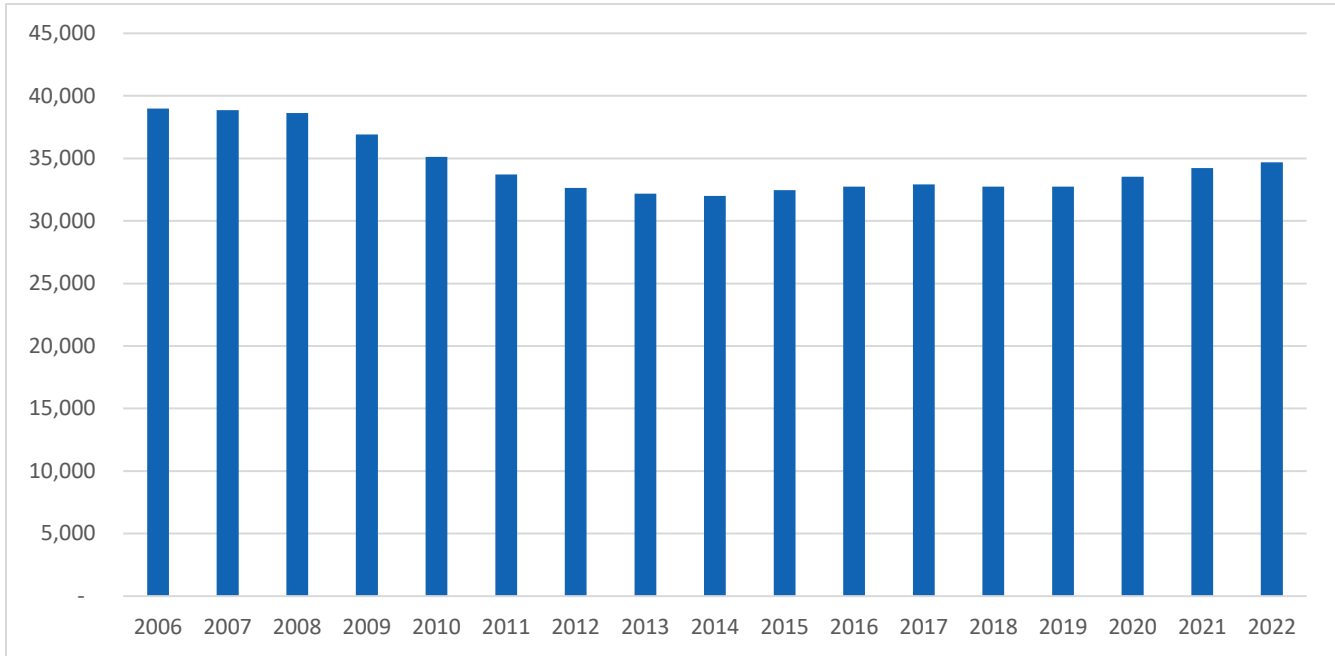
1. Boat registrations in Brevard County
2. Inventory of local businesses establishments engaged in marine activities, including marinas, boating, fishing, tours and water sports
3. Employment in the marine industry and related businesses (manufacturers, repair and service, retailers, and include lodging and food/beverage businesses located within a relatively short distance of beaches and marinas)
4. Taxable sales from marine industry establishments
5. Inventory of local marinas, including number of slips by size category
6. Inventory of boat ramps and available parking for vehicles and trailers

Each is addressed in turn.

Boat Registrations

Boat registration data were received from the Florida Department of Highway Safety and Motor Vehicles' (FHSMV) registration database. The total number of registrations since 2006 was steadily declining up until 2014. There has been a slight increase in total vessels registered as of 2022, with a modest increase of 5% since 2021 for Pleasure Vessels (**Figure 3**). The Department pulled all current registration records from Brevard County up to January 2023. There are 35,918 records in the database. The registrations reflect 97% Pleasure Vessels, 3% Exempt, Commercial Vessels and Government Vessels, as shown in **Table 19**.

Figure 3. Brevard County Total Vessel Registrations, 2006-2022



Source: Florida Department of Highway Safety and Motor Vehicles registration database

Table 19. Annual Vessel Statistics – Brevard County

Year	Pleasure	Dealer/ Commercial	Total	Annual Change
2010	35,130	1,367	36,497	
2011	33,712	1,378	35,090	-3.9%
2012	32,641	1,302	33,943	-3.3%
2013	32,185	1,271	33,456	-1.4%
2014	31,995	1,271	33,266	-0.6%
2015	32,448	1,283	33,731	1.4%
2016	32,731	1,268	33,999	0.8%
2017	32,911	1,235	34,146	0.4%
2018	32,734	1,237	33,971	-0.5%
2019	32,743	1,199	33,942	-0.1%
2020	33,524	1,165	34,689	2.2%
2021	34,219	1,177	35,396	2.0%
2022	34,678	1,240	35,918	1.5%

Source: FHSMV

A breakdown of counts by length categories used later in the analysis are shown in **Table 20**.

Table 20. Vessel Length Group by Registration Use

Length Group	Pleasure Vessels	Commercial/ Govt/ Other	Total
Under 16'	12,532	129	12,661
16' to 26'	18,435	462	18,897
26' to 40'	2,662	144	2,806
40' to 65'	394	20	414
Greater than 65'	20	5	25
Canoes	635	3	638
Dealers		477	477
Total	34,678	1,240	35,918

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. Data limitations have provided the values as estimates. The census of potential waterway users based on vessel types shows that about 87% of vessels would likely use the waterways. **Table 21** provides an estimated breakdown of the vessel length groups to estimate the population of 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.

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 22** provides a breakdown of the vessels adjusted for the total vessels in non-use of the waterways.

Table 21. Vessel Length Group owned by individuals excluding airboats

Length Group	Number of vessels
Under 16'	9,349
16' to 26'	16,090
26' and more	2,144
Total	27,583

Source: FHSMV

Table 22. Pleasure Vessel Counts by Boat Length, Adjusted for Non-Use of Waterways

Length Group	Number of vessels
Under 16'	8,601
16' to 26'	14,981
26' and more	1,837
Total	25,419

Source: FHSMV

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. **Table 23** provides a summary by North American Industry Classification System (NAICS) code of employment and number of establishments in Brevard County. Business level data was obtained from the Florida Department of Economic Opportunity for Quarter 2, 2022. 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. The list also includes estimations on employment for the marine-related businesses (manufacturers, repair and service, retailers, and related businesses) located in Brevard County.

Table 23. Local Business Establishments Engaged in Marine Activities, Brevard County

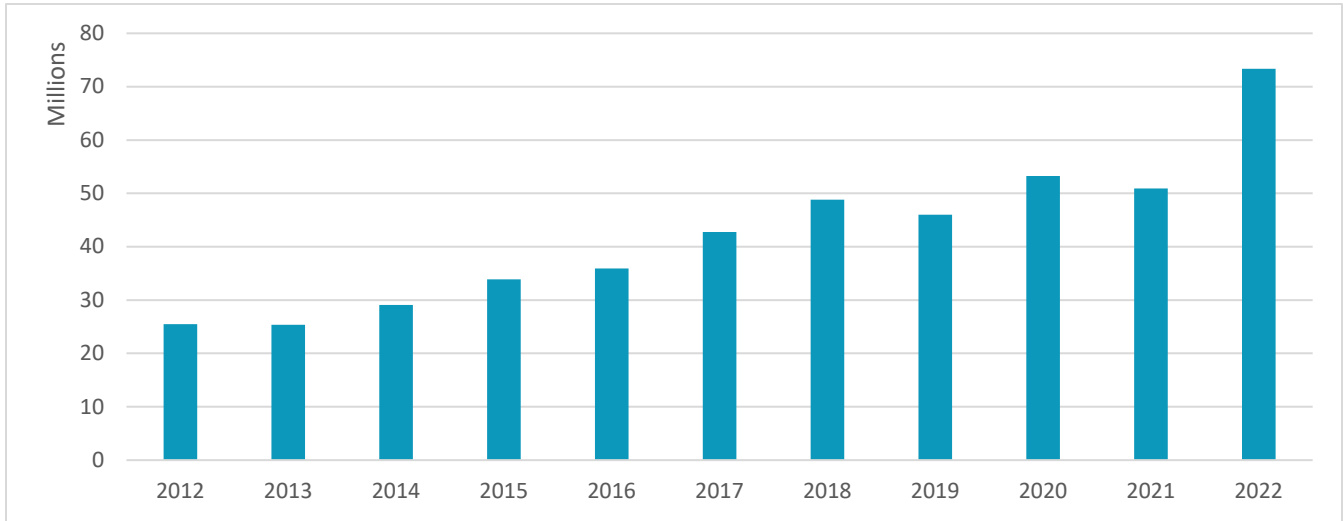
2-Digit NAICS	Description	Businesses	Employment	Total Annual Wages	Avg. Per Employee
11	Agriculture, Forestry, Fishing, and hunting	7	42	\$1,561,676	\$37,183
23	Construction	19	194	\$13,798,388	\$71,126
31-33	Manufacturing	37	809	\$39,925,456	\$121,648
42	Wholesale Trade	15	126	\$5,356,200	\$42,510
44-45	Retail Trade	30	344	\$19,627,132	\$86,628
48	Transportation and warehousing	39	562	\$23,461,556	\$41,747
52	Finance and investing	**	**	**	**
53	Real Estate and Rental and Leasing	**	**	**	**
54	Professional, Scientific, and Technical Services	7	399	\$22,132,220	\$55,469
56	Administrative and Support and Waste Management and Remediation Services	5	48	\$1,438,784	\$29,975
61	Educational Services	**	**	**	**
71	Arts, Entertainment, and Recreation	23	445	\$15,475,612	\$34,777
72	Accommodation and Food Services	4	107	\$2,651,680	\$24,782
81	Other Services (Except Public Administration)	16	40	\$1,414,548	\$35,364
	Total	205	3,155	\$147,082,264	\$46,619

Source: QCEW. Note, the data are obtained from the Florida Department of Economic Opportunity, which compiles the QCEW data quarterly and reports annual averages. **denotes confidentiality

Taxable Sales from Marine Industry Establishments

Taxable sales were compiled for Brevard county boat dealerships (Kind Code 28), as reported by the Florida Department of Revenue. **Figure 4** reflects record boat dealership sales through 2022; the boat dealerships in Brevard County have experience substantial growth since stabilizing during the pandemic with sales exceeding \$72 million annually.

Figure 4. Reported Sales, Brevard County Boat Dealers



Source: Florida Department of Revenue

Commercial Fish Landings

Landings data for Brevard were obtained from Florida Fish & Wildlife Commission and are provided in **Table 24**. 2022 has seen a 5% decrease in total value since 2017 despite more total pounds landed, however, over time the landings have remained relatively stable. There was a moderate increase in the total value landed and a 30% increase in total pounds over 2021.

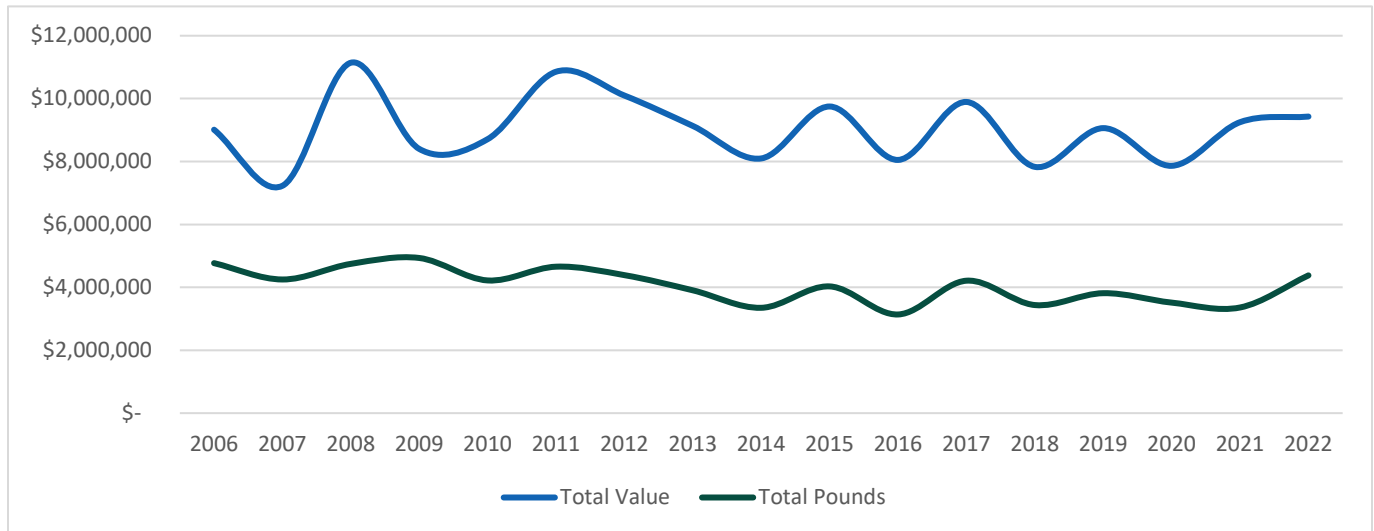
Table 24. Commercial Fish Landings, Brevard County

Year	Total Value	Total Pounds	Avg. Price
2006	\$9,012,203	4,769,360	\$1.89
2007	\$7,229,451	4,249,448	\$1.70
2008	\$11,141,539	4,746,063	\$2.35
2009	\$8,400,630	4,933,130	\$1.70
2010	\$8,711,666	4,219,086	\$2.06
2011	\$10,855,808	4,656,422	\$2.33
2012	\$10,097,394	4,387,449	\$2.30
2013	\$9,131,441	3,904,999	\$2.34
2014	\$8,098,480	3,349,341	\$2.42
2015	\$9,749,638	4,029,412	\$2.42
2016	\$8,051,176	3,137,124	\$2.57
2017	\$9,894,236	4,211,013	\$2.35
2018	\$7,830,246	3,436,419	\$2.28
2019	\$9,062,157	3,813,748	\$2.38
2020	\$7,863,507	3,514,071	\$2.24
2021	\$9,251,447	3,359,151	\$2.75
2022	\$9,429,254	4,379,644	\$2.15

Source: FWC

Figure 5 provides a graphic representation of the trends in landings versus value; 2022 showed a recovery in both landings and value. QCEW data shows that commercial fishing employs 42 people with total wages of \$1.5 million.

Figure 5. Commercial Fish Landings, by Weight and Value, Brevard County



Source: FWC

Inventory of Boat Ramps and Marinas

An inventory of boat ramps and marinas in Brevard county and statewide was obtained from the Florida Boating Access Facilities Inventory and Economic Study (2016).⁴ **Table 25** provides a summary of access facilities by use type. **Figure 6** shows the locations of boat ramps and marina facilities in Brevard County.

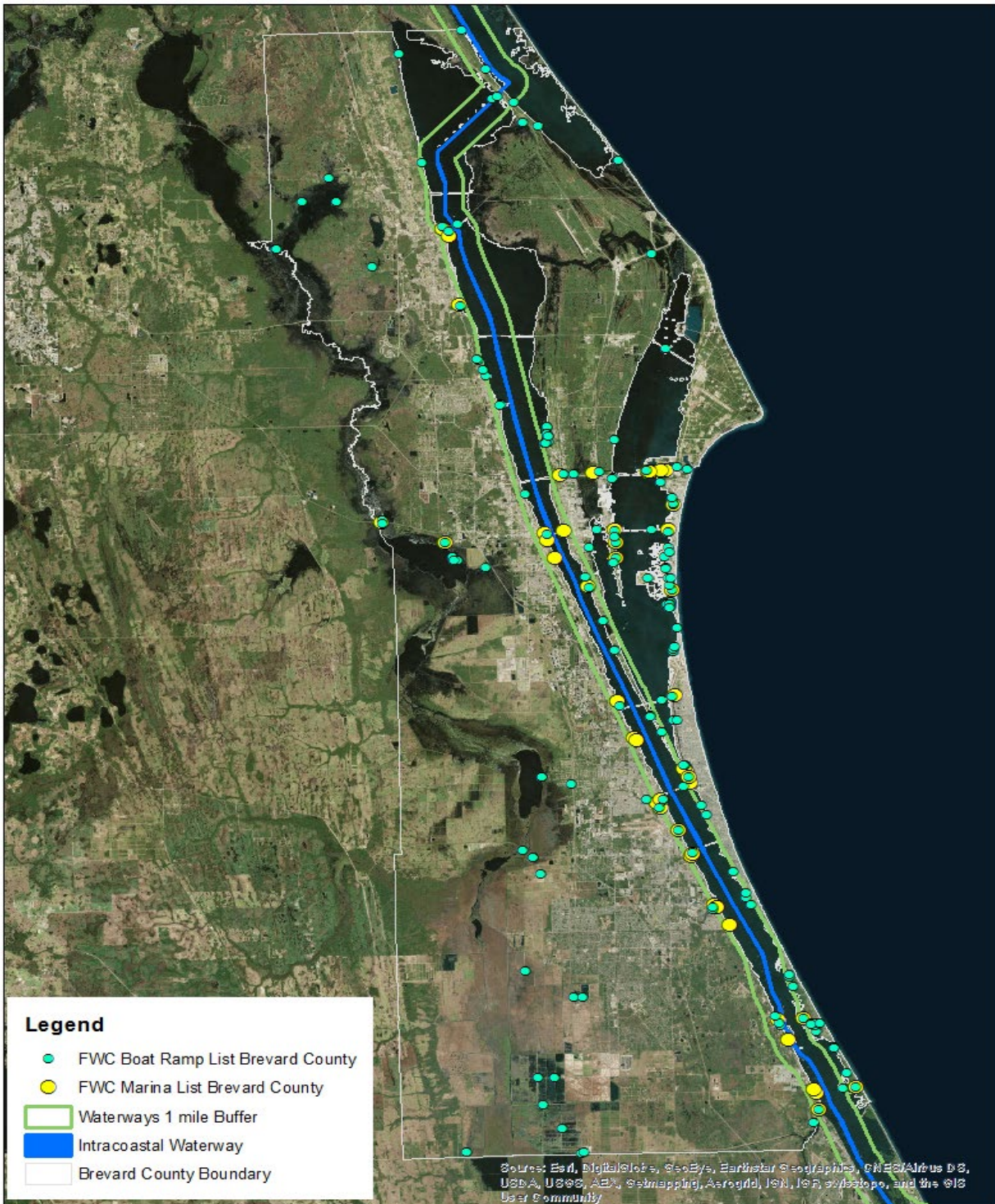
Table 25. Access Facility by Use Type, All of Brevard County

Type	Facility Access Use Type	Boat Ramp Count	Marina Count	Total Access Facilities
Commercial	Commercially Owned for Business Use Only	9	1	10
Government	Government Owned for Government Business Only	11	0	11
Private	Community Association for Residents Only	24	8	32
Private	Private Club	2	4	6
Private	Single Family Residence	52	0	52
Public	Commercially Owned for General Public Use	5	1	6
Public	Commercially Owned for Restricted Public Use	6	33	39
Public	Government Owned for General Public Use	55	3	58
Public	Undetermined	3	1	4
Totals		167	51	218

Source: FWC Boat Ramp Inventory Database, May 2022

⁴ 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 2022.

Figure 6. Boat Ramps and Marina facilities, Brevard County

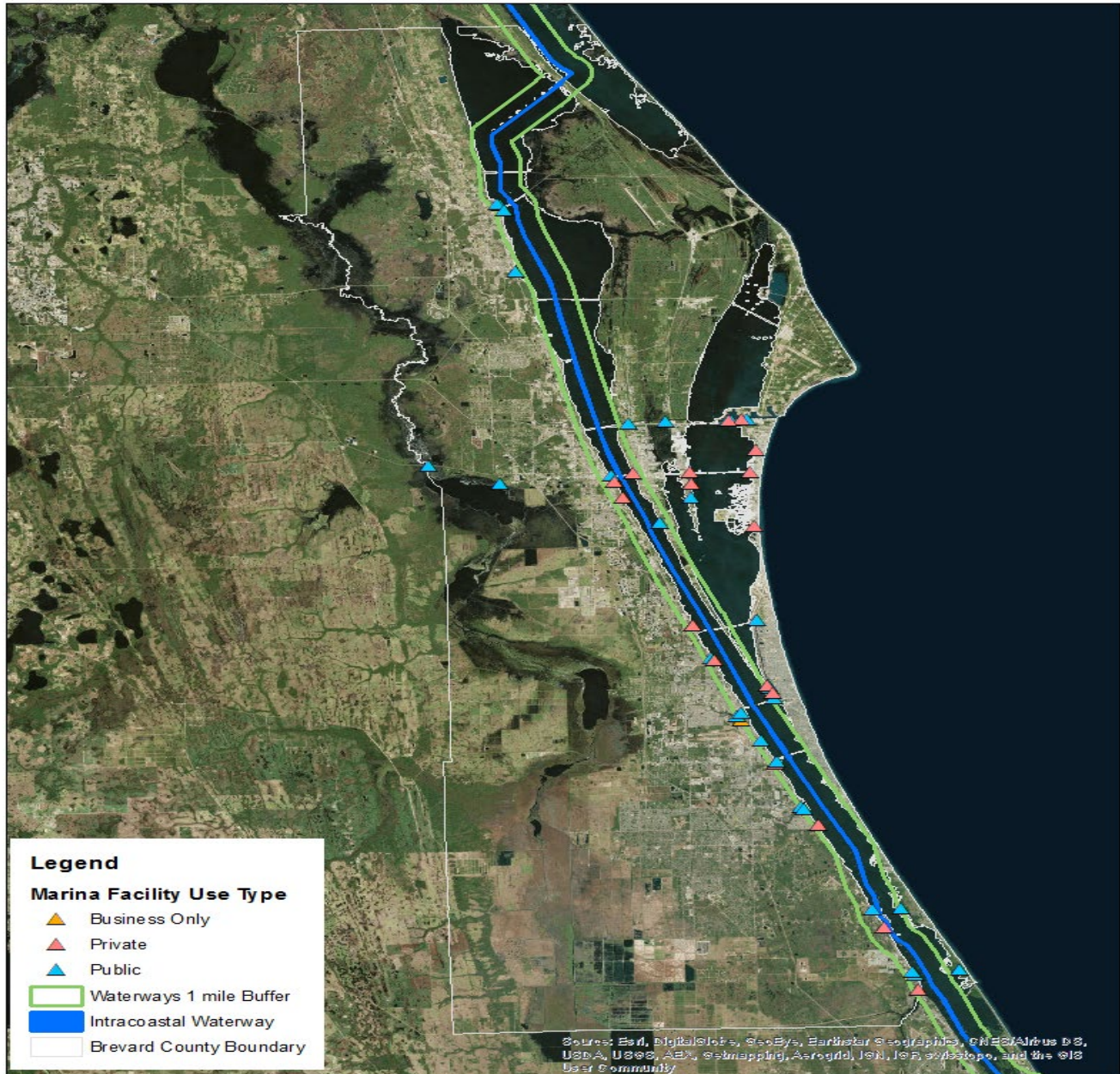


Source: FWC Boat Ramp Inventory Database, May 2022

Inventory of Marinas

Brevard County has the seventeenth highest number of marina facilities in the state, and the eighth largest number of slips. All except two marina facilities have direct access to the Intracoastal Waterway. The two without direct ICW access are located along the St. Johns River. **Table 26** provides a summary of marina facilities with wetslips, and **Table 27** provides a count of marina facilities with wet slips disaggregated by the type of water access. **Figure 7** shows marinas by use type.

Figure 7. Marinas by Use Type



Source: FWC Marina Databases

Table 26. Detailed Description of Marina Facilities with Wetslips- Brevard County

Use Type	Marina Facility Type	Count	Wet Slips	Rental Slips	Marina Operations Slips	Transient Slips
Commercial	Boat Dealer/Repair/Storage	1	0	0	0	0
Commercial	Commercial Marina	5	334	187	5	3
Private	Condominium	2	62	0	0	0
Private	Private Club	1	50	0	0	0
Private	Restaurant	3	101	90	0	0
Public	Public owned & oper/Government/Military	3	407	187	0	20
Public	Public owned/Private operated	1	23	0	0	0
Total		16	977	464	5	23

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

Table 27. Count of Marina Facilities with Wetslips by Water Access Type, Brevard County

Water Access	Count
Canal	2
Harbor/Bay/Lagoon	7
Lake	1
River/Creek/Bayou	41
Total	51

Source: FWC

Table 28 and **Table 29** provide 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.

Table 28. Marina Facilities with Drystack Storage, Brevard County

Marina Facility Type	Count	# of Racks (Inside)	# of Racks (Outside)	Outside Storage
Boat Dealer/Repair/Storage	0	0	0	0
Commercial Marina	33	385	379	35
Condominium	12	0	0	10
Private Club	8	0	0	8
Restaurant	6	0	0	5
Hotel/Motel/Resort/Camp/RV Park	4	0	0	4
Other	0	0	0	1
Public owned /Government/Military	4	0	0	4
Public owned/Private operated	2	0	0	3
Totals	69	385	379	70

Source: FWC

Table 29. Marina Facilities with Drystack Storage, Saltwater Access, Brevard County

Marina Facility Type	Count	# of Racks (Inside)	# of Racks (Outside)	Outside Storage
Boat Dealer/Repair/Storage	0	0	0	0
Commercial Marina	7	205	150	6
Condominium	0	0	0	0
Private Club	2	0	0	2
Restaurant	4	0	0	3
Public owned /Government/Military	4	0	0	4
Public owned/Private operated	2	0	0	3
Total	19	205	150	18

Source: FWC

Inventory of Boat Ramps

An inventory of local boat ramps in Brevard County was conducted to identify ramps and available parking for vehicles and trailers. **Table 30** provides the results for all boat ramps within Brevard County and a breakdown of parking spaces available. **Table 31** provides the results for the boat ramps that are connected to or on the ICW. **Figure 8** is a map of boat ramps by use type.

Table 30. Inventory of Boat Ramps for All of Brevard County

Use Type	Description: Ramp Use Type	Count	Trailer	Handicap Trailer	Vehicle	Handicap Vehicle
Commercial	Commercially Owned for Business Use Only	9	-	-	-	-
Government	Government Owned for Government Business Only	11	10	-	12	2
Private	Community Association for Residents Only	24	24	-	98	2
Private	Private Club	2	21	-	-	-
Private	Single Family Residence	52	-	-	-	-
Public	Commercially Owned for General Public Use	5	74	-	60	1
Public	Commercially Owned for Restricted Public Use	6	37	-	116	3
Public	Government Owned for General Public Use	55	1,260	33	639	64
Public	Undetermined	3	6	-	-	-
Grand Total		167	1,432	33	925	72

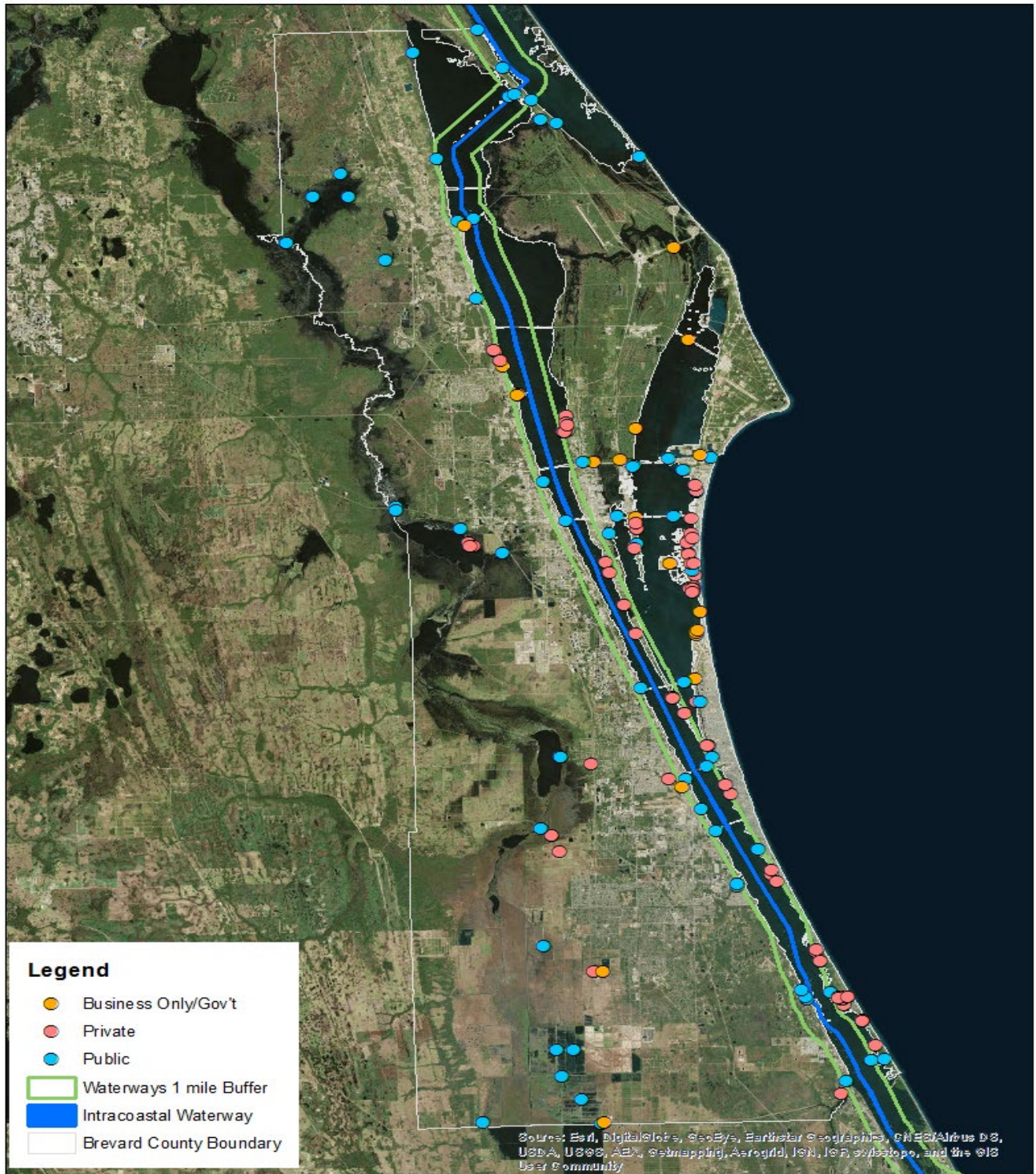
Source: FWC *hand launch dataset includes kayak launches

Table 31. Boat Ramps on Waterways on or Connecting to ICW, Brevard County

Use Type	Description: Ramp Use Type	Count	Trailer	Handicap Trailer	Vehicle	Handicap Vehicle
Commercial	Commercially Owned for Business Use Only	8	-	-	-	-
Government	Government Owned for Government Business Only	10	10	-	12	2
Private	Community Association for Residents Only	23	24	-	98	2
Private	Private Club	1	15	-	-	-
Private	Single Family Residence	48	-	-	-	-
Public	Commercially Owned for General Public Use	2	24	-	45	1
Public	Commercially Owned for Restricted Public Use	5	13	-	116	3
Public	Government Owned for General Public Use	39	792	15	572	49
Total		136	878	15	843	57

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

Figure 8. Boat Ramps by Use



Source: FWC Boat Ramp Databases

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