



Florida Boating Access Facilities Inventory and Economic Study

including a Pilot Study for Lee County

Executive Summary



**Florida Fish and Wildlife
Conservation Commission**
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Florida Boating Access Facilities Inventory and Economic Study including a Pilot Study for Lee County

Executive Summary

David Harding
Project Manager

Principal Investigators

Jack Wiggin
Edward Mahoney
Diane Bordner
Daniel Stynes
Michael Thomas
Frank Lupi

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This document may be obtained from the following offices:

FWC Law Enforcement
Office of Boating and Waterways
ATTN: Pat Harrell
620 South Meridian Street
Tallahassee, FL 32399-1600
Tel 850-410-0656, ext 17122
Patricia.Harrell@myfwc.com

FWC Fish and Wildlife Research Institute
ATTN: Librarian
100 8th Avenue SE
St. Petersburg, FL 33701-5020
Tel 727-896-8626 Fax 727-823-0166
<http://research.MyFWC.com>

Authors' Affiliations

David Harding, Ph.D.
Florida Fish and Wildlife
Conservation Commission
Fish and Wildlife Research Institute

Jack Wiggin
Director
Urban Harbors Institute
University of Massachusetts Boston

Edward Mahoney, Ph.D.
Co-Director
Recreational Marine Research Center
Michigan State University
East Lansing, Michigan

Diane Bordner, Ph.D.
Bordner Research, Inc.
Clearwater, Florida

Daniel Stynes, Ph.D.
Recreational Marine Research Center
Michigan State University
East Lansing, Michigan

Michael Thomas, Ph.D.
Environmental Economics, Inc.
Tallahassee, Florida

Frank Lupi, Ph.D.
Resource Economics Research, LLC
East Lansing, Michigan

Table of Contents

- 1** Project Summary
- 6** Boating Access Facilities Inventory
- 9** Economic Significance of Recreational Boating in Florida
- 17** Economic Value, Future Demand, and Capital Budgeting for Boat Ramps

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Project Summary



For many years, Florida has been among the fastest-growing states in the nation, which means that its resources, infrastructure, and facilities are continually under pressure. Maintaining the quality of the state's natural resources and access to its waters depends on making informed management decisions using the best data and analyses available.

The *Florida Boating Access Facilities Inventory and Economic Study including a Pilot Study for Lee County*, which was commissioned by the Florida Fish and Wildlife Conservation Commission (FWC) in 2005, produced data and tools essential for such improved decision-making. The project produced the following:

- A comprehensive inventory of recreational boating access facilities located along Florida's coastal and inland waters. The inventory includes boat launch ramps; marinas; dockminiums; private clubs; dry storage facilities; and boating facilities at hotels/restaurants, commercial establishments, and large residential developments (Table 1.1).
- An estimate of boating capacity available at private waterfront residential properties.
- Documentation of the economic significance of recreational boating in Florida based on trip and craft spending of registered boaters.
- A method for incorporating economics into site-suitability assessments for marinas and boat ramps. This complements and enhances the environmental, regulatory, and land-use and infrastructure screening criteria of Florida's FWC and Department of Community Affairs boat facility siting plan method employed by counties and municipalities.

- A process based on economic value to guide the planning of new and rebuilt recreational boating infrastructure. The process uses Random Utility Models (RUM, a type of economic model used to better understand concepts such as value and future demand) to provide estimates of economic value for new or rebuilt recreational boating infrastructure and the likely distribution of boating access site use for any policy question that involves the addition, deletion, or improvement of access sites.
- Case studies specific to Lee County using RUMs.
- Estimates of future boating demand.

Importantly, each of the products was developed using methods that can be replicated in future years in a cost-effective manner. This is essential because the value of the facilities inventory will diminish with time unless regularly updated, and the economic models and decision-making tools need current data and information.

The inventory of boating access facilities began with a pilot study in Lee County and then extended statewide to include all boating facilities and ramps on salt, brackish, and fresh waters. Data for each site were collected by a trained field team and supplemented, as necessary, with data from reliable sources and aerial photographs. The data are stored and maintained by FWC's Fish and Wildlife Research Institute (FWRI) for purposes of informing public and private planning and decision-making and for making information available to the boating public, public officials, and researchers through an interactive Web site. The data were gathered to generate a baseline inventory of all recre-

Boating Access Facility Type	In Database	
	n	%
Marina *	669	24.3
Dockminium *	56	2.0
Private Club *	129	4.7
Hotel / Restaurant *	352	12.8
Condominium	783	28.4
Other Residential	128	4.6
Boat Sales / Service	121	4.4
Commercial Business	33	1.2
Mobile Home Park / Campground	183	6.6
Docks only	26	0.9
Government only	10	0.4
Vacant	54	2.0
Unknown	211	7.7
Other	1	0.0
Total Boating Access Facilities	2756	
Boat Ramp Type	In Database	
	n	%
Government for Public Use *	1305	41.3
Private for Public Use *	314	9.9
Private for Private Use	719	22.7
Government for Government Use	50	1.6
Undetermined	773	24.5
Total Boat Ramps	3161	

Table 1.1 Types of boating access facilities and boat ramps in the database.

* Facility and ramp types of particular interest.

Note Because some ramps are located within boating access facilities, the total number of boating access locations in the database (ramps and facilities) cannot be calculated using this table.

ational boating facilities in Florida and to provide information for use in economic analyses.

In addition to the inventory, a method of estimating boat berthing capacity at private residential waterfront properties was developed and demonstrated.

For the first time, Florida boaters have a single source of information on the location, capacities, and services of all public boating access facilities in the state. Similarly, agencies and departments at all levels of government, as well as the private sector, have a source of data and new tools for informing and improving decisions on investments and permitting.

Given the rapid rate of land-use change along Florida's coastal and inland waterways, maintaining and updating the database is essential to preserving the

long-term value of the effort and investment made to date. A plan for updating and maintaining the data should be adopted and should begin immediately. Changes to Florida's boating facilities occur daily. The value of the existing inventory will deteriorate quickly without ongoing efforts to update and maintain the data.

The extensive information in the inventory includes very specific details of the infrastructure and amenities associated with each boating facility. This type of information, which was needed for the inventory itself and for the economic models that were based on the amenities and infrastructure (the RUM in particular), was mainly gathered visually on site or by using remote sources.

Updating the data would best be accomplished on a continuous basis, organized by data type or purpose, and every effort should be made to track when changes are made to which fields and who makes the changes. FWC should partner with county and municipal governments to provide periodic updates of the facilities they own and operate or the private facilities they permit. A system should be developed in which license data are fed directly into the database or in which state, county, or municipal staff are trained in data collection and equipped with hand-held devices that would be used to update the database while out in the field.

The boating facilities Web site being developed by FWC provides another efficient means of updating some information. Operators of facilities included on the Web site will have an incentive to help maintain the accuracy of the data that the public can view regarding their facilities. Facility operators could provide updated information via this Web site either through password-protected access to their records in the database or by providing information to the database manager.

The inventory, together with the sampling of boating access opportunities at waterfront residences, provides a reliable approximation of the current supply of recreational boating facilities in Florida. Additional research was conducted to provide the basis for estimating boating

access demand in Florida for the next 20 years, for modeling the change in social benefit resulting in the addition and/or improvement of boating access facilities at the county or regional level, and for examining the economic significance of recreational boating in Florida.

As decision-makers consider where to build new launch sites, repair existing launch sites, or add new amenities to existing sites, it is essential to understand how those decisions impact existing and potential users. Using a set of RUMs of consumer choice developed for this study, decision-makers can now estimate the dollar change in social benefit resulting in the addition and/or improvement of boat ramps. Specifically, these models were designed to estimate the economic benefits of the demand for access to boat launching sites and are suitable for valuing the characteristics of such sites.

These models provide new tools for efficient planning and budgeting of future boating access opportunities and remediation of existing sites. The models allow policy-makers to project the future use and economic value of potential ramps and/or site enhancements. Knowing the potential benefits of a new or enhanced site before construction begins will permit policy-makers to better plan for future boating-related capital projects.

The model parameters can also be used for estimating the value of changes in the site characteristics at one or more sites. Additionally, the model parameters can be used to determine the county values for freshwater and marine access. These access values represent economic benefits



to boaters who use publicly accessible ramps that are above and beyond their boating expenditures.

The RUM models and a model of future launches per county were used to forecast public launches per county for the years 2010, 2015, 2020, and 2025. Projecting future demand for both saltwater and freshwater boating access enables one to estimate the likely capital investments that would be needed to accommodate future use. In order to maintain freshwater and marine boating access at 2006 levels, capital investments of between \$68 and \$111 million will be needed over the next 16 years.

The RUM model has applications beyond identifying preferences in launch sites, water destinations, and per-trip value. The model can also be used in real-world situations to help determine whether or not to build a new site, improve an existing site, close an existing site, or take other actions with regard to launch facilities, as is demonstrated in three case studies in Lee County. Although each county will probably have its own criteria for how to site a new facility, the Lee County case study shows how the model can be used, in conjunction with siting guidelines, to help weigh the costs and benefits of an action at a single launch site as well as how it can be used to compare the costs and benefits of different actions at several launch sites. In the case of public-access site closures, the model can be helpful in determining the economic value lost because of the closure.

In addition to knowing the supply of and demand for recreational boating, and the impact of making site-specific decisions to add, eliminate, or augment an access





facility, this study also examined the overall economic significance of recreational boating in Florida. More specifically, the purpose of this economic analysis was to identify spending and the related direct and indirect sales, employment, and wages and salaries, effects (within regions and the state as a whole) that stem from recreational boating activity among Florida's registered boaters.

The study also included regional trip numbers and economic impacts and found that most boating activity and spending takes place within a boater's county and region of residence. Economic impacts at the county or facility level were determined by examining two hypothetical marinas in Lee County in which boats were distributed by size and type in the same proportions as they were represented in the overall state averages. The analyses yielded the economic impact of these two facilities on the various sectors of the economy. As a result, a model was created for other counties to use to determine their boating-related economic impacts at the county and facility levels.

Three Web-based models were also developed to allow users to estimate the economic effects of these factors:

- Changes in boat registrations
- Loss, reduction, or expansion of launch ramps
- Changes in marina supply (including conversions to nonmarina uses and increases or decreases in capacity)

The models were designed specifically to allow users to simulate spending, income, employment, and value-added effects of policy elements and management regimes and to evaluate alternative investments in boating facilities. For example, a user can simulate the effects of closing an existing marina or alternatively building a new marina. The models can also be used to assess the effects of an investment in a launch site that expands its launch capacity. The economic impact assessment information produced by the models can—in combination with demand projections, needs analysis, and environmental impact assessments—improve decisions relating to investments in boating facilities. The models are user-friendly and were developed so that they do not require sophisticated knowledge of economic impact assessment.

Observations and Recommendations

- Maintenance of the data from this study is a critical component of the future usefulness of this study for the citizens of Florida, stakeholders, and agency decision-makers.
- The key component of this study was the inventory of recreational boating access facilities. This component was critical to the development of all the economic data that this effort produced. The FWC should consider developing a process in which state and local governments can provide updates to the inventory database through a Web-based format.
- The boater survey should be conducted every four years to estimate the eco-



conomic significance of recreational boating, and the economic data should be available for review in year five.

- To estimate the demand for access to boating sites and the economic values, the RUMs should be conducted every five years. The data should be available for review in year six.
- Future demand should be estimated in conjunction with the RUM.
- The IMPLAN multipliers associated with the online economic impact models should be updated on a yearly basis.
- Participation in recreational boating is projected to change over the next 16 years and will require a change in the allocation of boating access investments.
- The public value and economic significance of recreational boating is substantial and widespread, which makes it essential that decisions related to future investments in public boating access be analytical and be based, at least in part, on economic information.
- The results of the survey of county and city boating access sites and many conversations with boating agencies and industry officials clearly indicate that Florida needs to implement a more comprehensive system for collecting, integrating, and analyzing data on boating access. The system should be linked to the grant process and to the access of monies from boating registration fees. The most cost-effective way to gather information related to boating access capital needs is to require counties and cities to annually report various types of information.
- FWC should consider developing and demonstrating cost-effective methods that government agencies can use to produce reliable and valid estimates of launch-site use. These methods might include sampling schemes, measures, and counting methods (*e.g.*, aerial photos, car counts, observing time to launch); approaches for expanding the results for sampling periods; and demonstrations and associated training materials for county and local units of government.

- FWC should consider requiring better estimates of the use of existing launch sites as part of grant applications for new or expanded launch sites. As part of its overall educational and outreach efforts to enhance access planning and decision-making, FWC should include training in developing valid and reliable use estimates.
- FWC should consider developing a Web-based boating access information system where counties, local units of government, FWC units, and other state agencies can update information on the public access sites that they manage, report annual spending on boating access capital improvements, provide information about maintenance and operations budgets, and identify and verify capital improvement and maintenance priorities.
- FWC should consider undertaking an outreach and educational effort to make members of the boating industry and appropriate state, county, and municipal personnel aware of the new tools that have been developed as part of this project and provide training in when and how they should be employed.





Boating Access Facilities Inventory

The cornerstone of the *Florida Boating Access Facilities Inventory and Economic Study* is a comprehensive statewide inventory of coastal and inland recreational boating access facilities. The inventory includes boat launch ramps (with a focus on publicly accessible ramps); marinas; dockominiums; private clubs; dry storage facilities; and hotels, restaurants, commercial establishments, and large residential developments with recreational boat dockage or infrastructure.

The data in the inventory of boating facilities serve valuable purposes:

- Providing boaters with a statewide guide to boating facilities, berthing and launching opportunities
- Providing managers with information for long-term facility planning
- Guiding the allocation of funds to develop new or expanded boating opportunities at specific sites
- Providing a baseline for monitoring future changes in recreational boating facilities and infrastructure
- Providing information to feed into economic models

The facilities data are stored in a database maintained by FWC–FWRI. This centralized comprehensive database enables the sharing of data among agencies at the state, county, and municipal levels and with industry and the public.

The database contains records for over 3,100 boat ramps, of which 51% are open to the public. The majority of these publicly accessible ramps are managed by municipal, county, state, or federal entities.

Additionally, the database currently contains records for over 2,700 other types of boating access facilities. Of these, over 24% are commercial marinas, 28% are resi-

dential condominium developments with boating facilities, and almost 13% are hotels and restaurants with associated boating facilities.

In addition to the inventory of boating access facilities, a probability sampling method was developed to estimate the amount of berthing at waterfront residential properties including single family homes, apartment buildings, condominiums, and mobile home parks (both residential and recreational).

Project Purpose

The inventory data were gathered to create a baseline of characteristics for all recreational boating facilities in Florida and to collect information for use in economic analyses of recreational boating in Florida. The database represents the most comprehensive compilation of information on boating facilities in Florida and, perhaps, the nation.

The data will populate an online recreational boating guide so that boaters can access information on any boating facility in the state. The database can be used by industry or government to characterize and analyze the state's boating facilities for a wide variety of purposes. It is structured so that researchers can run queries to obtain specific information. For example, the database can be used to answer such questions as these:

- Which boat ramps in Lee County have parking, and how much do they have?
- How many private clubs have pumpout capabilities?
- Which county has the most boat slips?
- Where are the boat ramps on Lake Okeechobee, and are there any that do not have launch fees?

- Which boat ramps in Monroe County are in need of repair?

These data are essential for boater use surveys, for economic impact studies, and for conducting RUMs.

Boating Access Facilities Inventory Method and Results

The method for conducting the statewide inventory was developed and refined based on experiences gained during a pilot study in Lee County. As an initial step, lists and GIS maps of facilities were compiled on a county-by-county basis using existing facility information from government and industry sources, GIS data, aerial photographs, Web sites, and relevant publications. Trained field personnel then visited each facility to gather observational and interview-based information on a multitude of variables pertaining to the facility's location, size, boat storage options, amenities, and other characteristics. The data for each facility were entered into the centralized database via an online data entry system, and a protocol was implemented to ensure quality and accuracy of the data.

Figure 2.1 shows the range in number of publicly accessible boat ramp sites by county. Polk County has the highest number (96), followed by Lake County (67) and Monroe County (55).

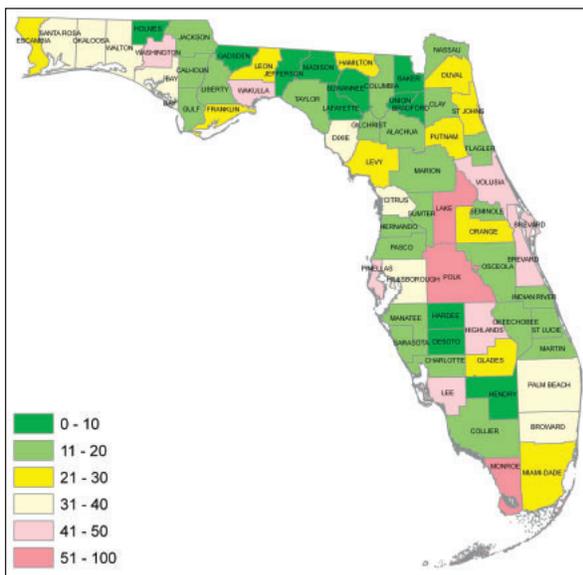


Figure 2.1 Total number of publicly accessible boat ramp sites by county.

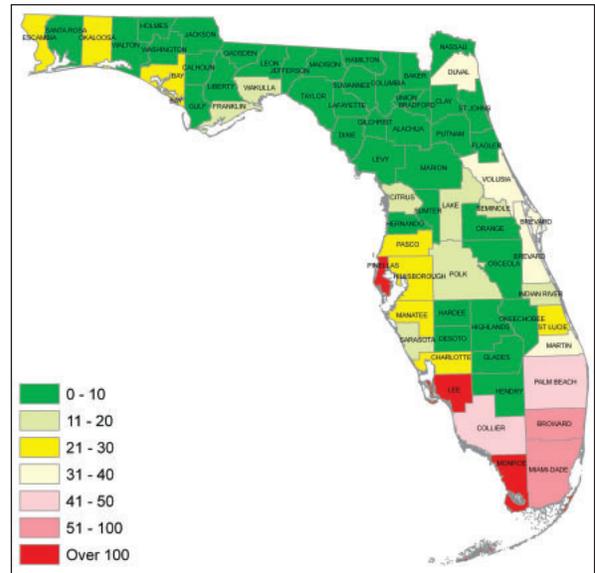


Figure 2.2 Total number of marinas, dockminiums, private clubs, hotels, and restaurants with boating facilities by county.

The inventory reveals that Monroe County has the highest total number of marinas, dockminiums, private clubs, hotels, and restaurants with associated boating facilities (195), followed by Lee and Pinellas counties (132 and 108 respectively), illustrated in Figure 2.2.

Figure 2.3 shows the range in number of wetslips (not including broadside berthing) at marinas, dockminiums, private clubs, hotels, and restaurants, by county. Pinellas had the highest number of wetslips (4,989), followed by Lee County (4,537).

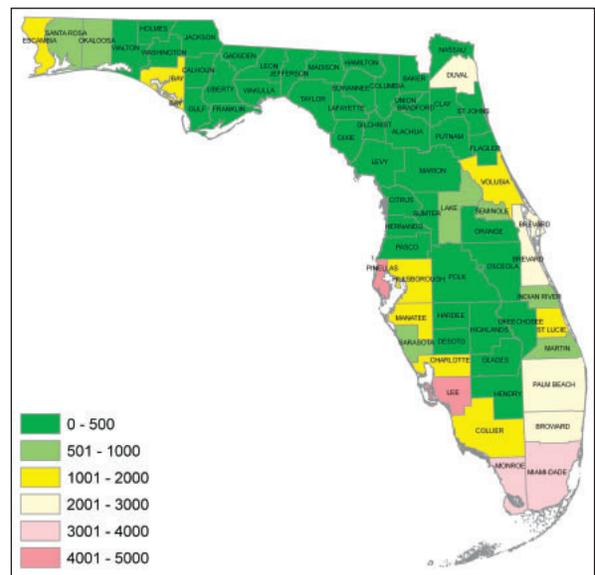


Figure 2.3 Total number of wetslips at marinas, dockminiums, private clubs, hotels, and restaurants. **Note** This study differentiates wetslips from broadside berthing.



Waterfront Residential Property Sampling Method and Results

A goal of the study was to determine the amount of private berthing at residential properties. It was neither possible nor feasible to physically survey every waterfront residential property in the state, so a probability sampling method was developed to estimate the amount of berthing at residential properties. The method was developed in collaboration with a statistician with FWC–FWRI. The method is dependent on the availability of digital parcel data and aerial photographs. Because parcel data were available for only 63 of the 67 counties, estimates of berthing at private residential properties were developed for all but Citrus, Highlands, Martin, and Sumter counties.

Based on the results of the sampling, it is estimated that there are over 187,000 waterfront residential properties with boating-related structures (*i.e.*, slips or docks) in the 63 counties.

The sampling method was designed specifically to allow it to be repeated at intervals to monitor trends in dockage at residential properties.

Recommendations

The current inventory was finalized in 2008 and contains a wealth of information never before available in one place. However, given the rapid rate of land-use change along Florida's coastal and inland waterways, it is essential that a process for maintaining and regularly updating the

database be implemented to preserve the long-term value of the effort and investment made to date.

Although site visits were determined to be the best way to obtain accurate and complete information to create this initial comprehensive statewide inventory, less expensive and time-consuming options for updating are possible and recommended. Once the facility data are publicly viewable through the FWRI boating access Web site, public facility managers and private facility owners will have both an incentive and the means to keep their information current. Owners and managers could be provided with a secure way to access their records in the database, allowing them to update their facility information on a regular basis. Additionally, programs providing funds for public boating access facilities, as well as state, regional, and municipal agencies that issue permits for new or expanding boating facilities, could enter the relevant data into the database as projects are approved.

For this initial inventory, detailed data were sought on an exceptionally wide variety of variables to fulfill the study's ambitious goals. Future data gathering efforts can be less intensive and achieve equal or greater success by employing purpose-driven surveys seeking data on a narrower set of variables that serve specific needs of boating agencies, the industry, and the public. Data gathered for purposes other than updating the facility inventory itself, *e.g.*, economic studies, could be done effectively with sampling methods.



Economic Significance of Recreational Boating in Florida



The purpose of the economic impact analysis is to identify expenditure, revenue, and employment flows, along with employment in a particular region and the state, that are attributed to recreational boating. The economic impact analysis illustrates the economic contributions made to regional, local, or state economies by expenditures related to recreational boating.

In this study, the economic impact analysis estimated the expenditures made by recreational boaters who engaged in boating trips. As people go on boating trips or prepare for these trips, they typically spend money (*e.g.*, for gasoline, food, and safety equipment). These expenditures then become part of a revenue stream of the relevant businesses and industries in that community and eventually become part of the incomes and employment realized by the community.

Economic Significance

Statewide Economic Significance

The contribution of registered-boater spending to the Florida economy was estimated by applying the total trip and craft-related spending to an input–output model of the Florida economy. Multipliers for the key tourism and boating-related sectors of the Florida state economy were extracted from a 2006 I–O model estimated with the IMPLAN system and applied to estimates of total spending in each sector. Estimates were made of direct and secondary effects in terms of sales, jobs, labor income, indirect business taxes, and value added. Indirect business taxes are reported at the state level.

The \$3.38 billion in trip spending had a direct effect of \$697 million labor income, \$194 million in indirect business taxes, \$1.18 billion value added, and approximately 26,000 jobs. Including secondary effects, the total contribution was over 38,000 jobs, \$1.08 billion labor income, \$284 million in indirect business taxes, and \$2.04 billion value added. Sectors benefiting directly from trip-related spending were restaurants, lodging establishments, gas services, grocery stores, and other retail businesses.

The \$5.15 billion in craft-related boater expenses in 2007 directly supported over 39,000 jobs and \$1.9 billion value added. Including secondary effects, the total economic contribution from craft-related spending was almost 59,000 jobs, \$2.0 billion labor income, \$442 million indirect business taxes, and \$3.3 billion value added. Craft-related expenses directly support jobs in marine trades including marinas, repair shops, and retail establishments selling boating-related products and accessories. The combined contribution of trip and craft-related spending to the Florida economy is over 97,000 jobs, \$3.1 billion labor income, \$726 million indirect business taxes, and \$5.3 billion value added.

Regional Economic Significance

Multipliers for twenty economic sectors directly influenced by boater spending were estimated for the ten regions using the IMPLAN system with 2006 economic data. Sector-specific multipliers were applied to the regional spending totals to estimate direct and secondary impacts in terms of sales, income, jobs, and value added.

Economic impact of boat trips	
Estimated number of trips	21,686,000
Number of registered boats (2008)	932,153
Spending on boating trips	\$3,380,000,000
Jobs supported by trip spending	38,300
Indirect business taxes ^a generated by trip spending	\$284,000,000
Income produced by trip spending	\$1,080,000,000
Value-added ^b associated with trip spending	\$2,040,000,000
Economic impact of craft spending	
Craft spending	\$5,150,000,000
Jobs supported by craft spending	58,900
Indirect business taxes generated by craft spending	\$442,000,000
Income produced by craft spending	\$2,020,000,000
Value-added associated with craft spending	\$3,280,000,000
Economic impact of trips and craft spending	
Total trip and craft spending	\$8,530,000,000
Total number of jobs supported by trip and craft spending	97,200
Total amount of indirect business taxes generated by trip and craft spending	\$726,000,000
Total income produced by trip and craft spending	\$3,100,000,000
Total value-added associated with trip and craft spending	\$5,320,000,000

Table 3.1 Recreational boating-related spending in Florida and resultant economic contribution.

a Indirect business taxes include property taxes, excise taxes, severance taxes, fees, fines, licenses, and sales taxes paid by businesses to government.

b Value added is the sum of labor income, profits and rents, and indirect business taxes.

Because much of the boating activity and spending occurs within the boater’s region of residence, results should be interpreted as economic significance rather than impacts in a with-versus-without sense. That is, much of the spending does not constitute export activity or “new dollars” to the region, so a large proportion of the spending would be likely to stay in the region in the absence of boating, but it would shift to other sectors of the economy. The economic results demonstrate the contribution of boater spending to economic activity in the region and identify those sectors that benefit from it.

The South Florida region receives the greatest direct and total economic impacts from boater trip spending and craft spending. The second greatest impact is in Southwest Florida. The combined impact of trip and craft spending supports over 12,000 jobs in South Florida and over 18,000 jobs when secondary effects are included.

Boating Activity

Days of Use by Segment

Sixty-one percent of the boat owners responding to the boater survey each month had taken the boat out on the water at least once in the previous month. The sampled boat was used about four days per month; larger boats were used slightly longer than smaller boats. The overall patterns of use did not vary significantly from month to month. On an annual basis, the average registered boat was used about 30 days. Days of use per year varied from 45 days for power boats 41 feet or longer to 23 days for power boats under 16 feet.

Day Versus Overnight Trips

The average number of trips per year was estimated based on the average number of days on the water for each boat segment, along with the percentage of day versus overnight trips, and the average number of

Sector/Spending category	Sales \$millions	Jobs	Labor income \$millions	Indirect business taxes \$millions	Value added \$millions
Direct effects					
Lodging	410	4,642	150	39	264
Marina services	616	6,642	214	50	381
Restaurant	479	8,758	170	25	242
Recreation/entertainment.	99	1,064	34	8	61
Repair/maintenance	1,062	13,765	372	80	486
Insurance and credit	460	3,383	198	5	382
Gas service ^a	345	4,130	107	50	236
Other retail trade ^a	1,100	19,025	473	156	670
Wholesale trade ^a	534	3,104	202	82	360
Local manufacturers	150	466	19	0	24
Total direct effects	5,254	64,980	1,940	494	3,106
Secondary effects	3,758	32,132	1,157	232	2,215
Total effects	9,012	97,112	3,097	726	5,321

Table 3.2
Overall contribution of boater spending to Florida state economy, 2007.

^a Margins on goods purchased by boaters.

Note Direct sales are less than total trip spending because the cost of goods sold to retail establishments are not included unless the goods are locally made. That is, only retail and wholesale margins are captured if the goods are not made in Florida. IMPLAN Regional Purchase Coefficients were used to estimate the percentage of goods that were manufactured in Florida.

days that boats were taken out on the water on overnight trips.

The overall average of 30 days on the water per boat in 2007 breaks down into almost 21 days on day trips and about 9 days on overnight trips. Larger power boats and sailboats were more likely to take overnight trips (49% of all their trips). Overall, 10% of boat trips on the water

were overnight. Boats were used an average of 3.7 days on a typical overnight trip.

Origin-Destination Patterns

To estimate flows of spending around the state, day and overnight boating trips were divided into three categories: (1) trips within the county of registration, (2) trips within the region of registration but out-

Segment	Monthly average		Annual average	
	Boat taken out	Days on water ^a	Days on water ^b	Trips on water
Power boats < 16'	50%	3.8	22.8	18.8
Power boats 16-19'	65%	3.9	30.6	25.8
Power boats 20-22'	66%	4.2	33.3	26.7
Power boats 23-28'	69%	4.1	33.3	25.4
Power boats 29-40'	70%	4.6	38.3	19.3
Power boats ≥ 41'	69%	5.5	44.9	14.1
Sailboats < 23'	51%	4.1	25.0	20.2
Sailboats ≥ 23'	60%	5.0	36.6	14.3
PWCs	54%	4.8	31.1	25.2
Canoes/Kayaks	58%	3.9	27.5	20.6
Total	61%	4.1	29.9	23.0

Table 3.3 Monthly and annual average boat days and trips by segment.

^a Average days for boats that were taken out at least once. Trips outside the US are excluded.

^b Estimated as 12 * Pct taken out each month * average days on the water per month.

Segment	Trips in 2007	Percent overnight trips	Average annual boat days		
			On day trips	On overnight trips	Total
Power boats < 16'	18.8	8%	17.3	5.5	22.8
Power boats 16-19'	25.8	6%	24.2	6.4	30.6
Power boats 20-22'	26.7	8%	24.7	8.6	33.3
Power boats 23-28'	25.4	10%	22.8	10.5	33.3
Power boats 29-40'	19.3	28%	13.9	24.4	38.3
Power boats ≥ 41'	14.1	49%	7.2	37.7	44.9
Sailboats < 23'	20.2	8%	18.7	6.3	25.0
Sailboats ≥ 23'	14.3	39%	8.8	27.9	36.6
PWCs	25.2	6%	23.6	7.5	31.1
Canoes/Kayaks	20.6	11%	18.2	9.3	27.5
Total	23.0	10%	20.7	9.2	29.9

Table 3.4 Annual average day and overnight trips by boat segment.

Note Trips do not include trips to visit the boat when the boat was not taken out on the water or trips outside the US.

side the county of registration, and (3) trips outside the region of registration.

Statewide, 92% of day trips stayed within the region of origin (registration), 73% stayed within the county of origin, and 8% involved travel outside the home region. Fifty-four percent of overnight trips stayed in the home region, 29% stayed within the home county, and 46% went outside the home region.

Total Boating Trips

Florida-registered boats logged an estimated 21.7 million boating trips in 2007 in which the boat was taken out on the water. Ten percent of these trips were overnight.

The greatest number of trips were generated in the East Central region (Brevard, Flagler, Lake, Orange, Seminole, and Volusia counties). This region also has the greatest number of registered boats.

Boater Spending

Trip Spending Averages

The monthly trip surveys asked the respondents to report spending on their most recent trip during the previous month. Expenditures were divided between spending within 20 miles of home and spending en route or near the boating destination. For trips of less than 20 miles, all of the spending was reported as being

within 20 miles of home. Spending was reported within 10 spending categories.

The average spending was reported separately for day trips and overnight trips within the 10 boat size/type segments. Within a given boat segment, the spending averages did not vary significantly across regions; but the averages did vary considerably between boat segments, by trip types (day or overnight), and by the length of the trip.

Spending on the average boating trip was \$156. Thirty-five percent of trip spending was for boat fuel, 14% for restaurant meals, 13% for groceries, 12% for lodging on overnight trips, and 10% for auto fuel. Spending per trip varied across the ten segments from a high of \$936 for the largest power boats to \$46 for smaller sailboats and \$95 for canoes. However, because most canoes are not registered, the sample of canoe trips was small and the spending average may be unreliable.

The average spending on day trips was \$90, and almost half of this spending was on boat fuel. Day trip spending varied from \$42 per trip for the smallest power boats to \$381 for the largest power boats.

Spending on overnight trips averaged \$841 across all registered boats. With an average overnight trip lasting about 4 days, per-day spending on overnight trips is about double that of day trips. This is principally due to extra lodging expenses and

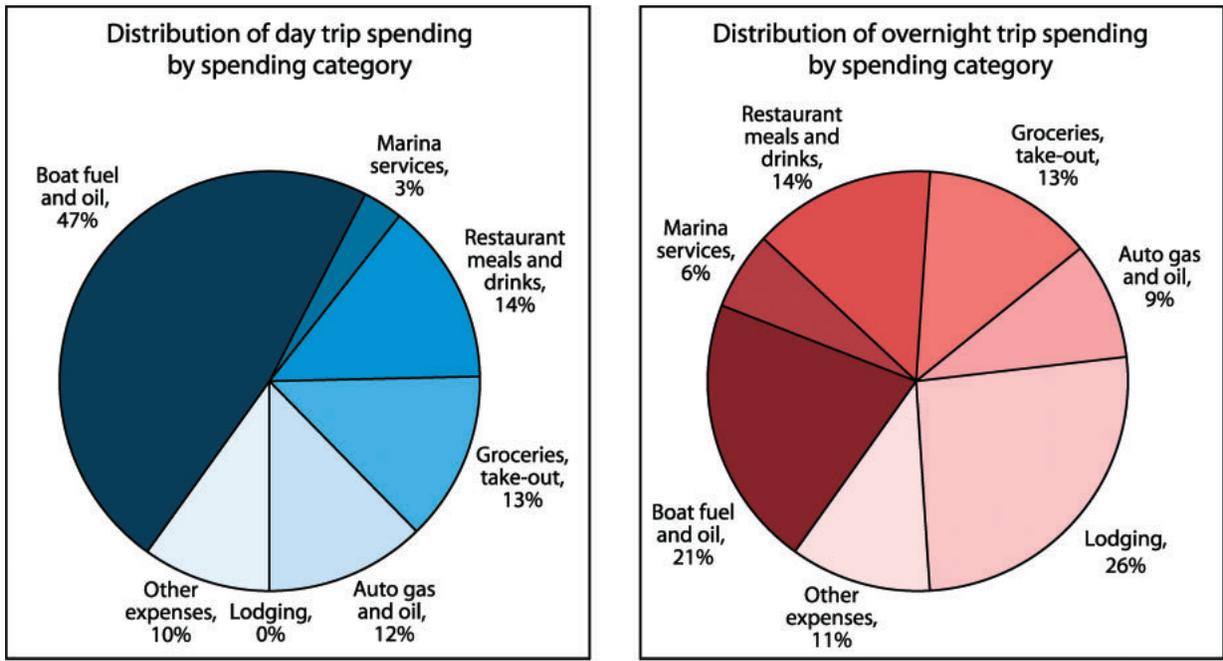


Figure 3.1 Distribution of day trip and overnight trip spending.

additional fuel associated with longer trips. Lodging accounted for 26% of over-night trip expenses; the largest lodging expenses were associated with smaller boats.

Averages were also estimated for three categories of trips based on distance traveled: (1) trips within the home county, (2) trips outside the home county but within the region, and (3) trips outside the home region. The statewide averages for day and overnight trips by segment and trip types were applied to all regions.

Trip spending increases with distance from home. The average trip spending on day trips varied from \$79 per trip for trips within the county to \$114 for trips within the region but outside the county to \$131 for trips outside the home region.

Spending on overnight trips varied from \$498 per trip for trips within the county to \$698 for trips within the region to \$1,161 for trips outside the region. Two-thirds of the spending on overnight trips outside the region of origin occurred en route or near the destination.

Craft Spending Averages

The trip surveys captured expenses only on boating trips. Boat owners also incur other expenses during the year on mainte-

nance, repairs, insurance, equipment, accessories, and other items. These expenses are not associated with any particular trip.

All but 4% of registered boat owners spent something on their boat in 2007. Over 80% of the owners spent money for insurance, fuel, and maintenance. Less than 5% reported purchases of new motors or trailers.

On average, boaters spent \$5,530 on their boats in 2007. Spending varied from a high of almost \$48,000 for power boats 41 feet or longer to \$700 for canoes, \$1,771 for smaller sailboats, and \$2,231 for power boats less than 16 feet long. Owners of personal watercraft reported expenses of \$2,571 to operate and maintain their boat.

The majority of owners' craft-related expenses were for equipment and repairs. Spending figures excluded purchases of boats but included purchases of new outboard motors, trailers, accessories, and safety and other equipment. Combined, these items accounted for 45% of craft-related spending. Maintenance, repairs, and installations accounted for 21% of the spending. Other expenses included boat loan payments (15%), insurance (8%), storage (9%), and taxes (2%).

Trip and Craft Spending by Boat Storage Segments

There are some significant differences in boater trip patterns and spending across distinct boat storage types. Marinas and waterfront homes provide boating access for larger boats, whereas launch ramps serve smaller, trailerable boats. Boats kept in the water tend to be used more often than boats that must be trailered to access sites. Boats kept at marinas and dry-stack facilities incur additional storage costs.

Boaters with boats stored at marinas spent \$267 per trip in 2007, split about evenly between spending within 20 miles of home and spending en route or near the destination. Boat fuel accounted for \$110 of this spending.

Annual craft spending for boats stored at marinas averaged almost \$14,000 in 2007, including \$3,255 on storage, \$3,086 on accessories, and \$2,028 on boat loan payments. Boaters with boats in other storage categories spent between \$3,000 and \$7,000 in annual craft expenses.

Although almost half of all registered boats were stored at nonwaterfront homes, these boats account for 37% of all trip spending and only 30% of annual craft spending. The 9% of registered boats stored at marinas accounted for 16% of all trip spending and 28% of annual craft spending.

Expanding Results to All Registered Boats

Total spending statewide and for individual regions and counties was estimated by



applying statewide averages of boating activity and spending from the survey to the 2007 Florida boat registrations. Because the majority of boating trips occur near home, the registration statistics captured where most boating activity occurred.

The ten boat segments were used to capture differences in the number and types of trips and spending across boat type and size categories. The number of boat days generated in each county was estimated by multiplying the numbers of boats of each type registered in a given county or region by the statewide average of boat days for that segment. Summing across segments yielded county and regional total boat days.

Total Spending

In total, Florida registered boat owners spent \$3.38 billion on trips in 2007. Thirty-five percent of the trip spending was for boat fuel and oil. Restaurant meals and drinks accounted for 14%, groceries for 13%, and lodging and auto fuel each accounted for about 11% of the total. Total spending on day trips was \$1.8 billion compared to \$1.6 billion on overnight trips. The South Florida region received the most spending (18% of the total), followed by Southwest Florida, East Central Florida, and West Central Florida.

Registered boat owners spent a total of \$5.15 billion on craft-related expenses in 2007. The largest total expenditures were for boating accessories and products (25%) and boat loan payments (15%). The regions with the greatest total craft-related spending were South and Southwest Florida.

Total boater expenditures, including trip





and craft-related spending, in 2007 was \$8.5 billion. Forty percent of the spending was for trip-related expenses, 60% for craft-related ones.

Florida Online Economic Impact Model

This study also produced a system of three Web-based models that allows users to estimate boater spending and the associated economic impacts in terms of jobs, sales, income, and value added resulting from the ownership (*e.g.*, craft spending) and use (*e.g.*, trip spending) of recreational boats of different sizes and types in Florida. The models can be accessed at www.floridaboatingeconomics.com. The economic impact models use distinct spending profiles for boats of different types and sizes that are registered in counties and regions, kept at marinas, and trailered to launch sites. The annual craft-related spending is analyzed in eight categories and trip spending in ten categories. Employment and income effects are reported for a dozen economic sectors. Economic impacts are estimated by applying estimates of annual craft and trip spending to county or regional multipliers representing the structure of the county or region where registered boat owners reside and where marinas or boat access and launch sites are located.

One of the online models allows users to estimate the economic impacts of power boats and sailboats registered in different counties and regions of Florida.

Another online model can be used to estimate the economic impacts of existing and proposed marinas in Florida. The

model can be used to estimate the spending and direct and indirect economic impacts of an entirely new marina, the loss of a marina, or changes in the storage capacity (*e.g.*, number and sizes of slips) of marinas. For example, if a recreational harbor is not maintained by dredging or other means and a marina becomes inaccessible to larger sailboats and power boats or becomes inaccessible completely, the model can be used to estimate the loss in boater spending and associated direct and secondary effects on the local economy.

The third online economic model enables users to estimate the economic impacts of boating trips on which boats are trailered to launch sites. The model produces information including the average spending per launch, the total annual trip spending by boaters who launch at a site, and the economic impacts of this annual trip spending. This model can estimate the economic effects of developing a new launch site, increasing the capacity (*e.g.*, parking area, number of launch ramps, size of the ramps) of an existing launch site, or losing or decreasing the capacity of an existing launch site.

Survey Methods

Data for the economic impact analyses were obtained from a Web-based survey system that was used both to recruit registered Florida boaters to a panel and to conduct a monthly survey of the panelists. About 8,300 boat owners joined the panel





Marina: Input

1. Name of the marina for which the analysis is being conducted:

2. Type of marina:

- Privately-owned/Commercial Marina
- Private Club
- Dockominium Marina
- Condominium Housing Marina
- Public-owned Marina



3. Type(s) of slips provided in the marina: **(Required)**

- Seasonal, annual, or condominium slips
- Transient rental-only slips
- Seasonal, annual, or condominium slips and transient slip rentals

4. County in which the marina is located: **(Required)**
 (Click [here](#) for a county map)

- County - ▾



and agreed to complete surveys concerning their boating activity and last boating trip each month.

The monthly survey employed state-of-the-art survey technology that included a sequence of HTML maps connected via hyperlinks that collected geographic information about boating trips. At the beginning of each month, panel members were sent an e-mail inviting them to complete their monthly (“last trip”) boating survey on the Web. The monthly survey asked whether panel members took their primary boat out on the water, and if so, how many days, and whether they visited or used the boat without taking it out on the water. If they did not take the primary boat out on the water, they exited the survey. Those who did take it out on the water were queried about their last boating trip. Questions included (1) the date it began; (2) whether it was a day or overnight trip; (3) number of persons aboard; (4) boating activities, including saltwater fishing; (5) spending on the trip; (6) origin of the trip; and (7) whether the boat was trailered,

and if so, what types of launch sites were used. To minimize panel member fatigue, the panel was divided into two groups, and each group was alternately surveyed each month between April and September.

The monthly “last trip” surveys produced 26,770 completed surveys over the course of ten months. Two-thirds of the boat owners reported taking their boat out on the water during the last month. Their answers yielded comprehensive data on about 17,313 boating trips, of which 84% were day trips and 16% involved an overnight stay.

Although the sample is reasonably representative of the regional distribution of registered boats, it intentionally overrepresented larger craft in order to obtain adequate sample sizes for the larger boat size classes. Weights were developed to adjust the sample to the fleet of registered boats based on the region of registration and boat segment. Monthly trip weights were developed to adjust the sample to the same number of boats each month (using March data as the baseline).

Economic Value, Future Demand, and Capital Budgeting for Boat Ramps



It was Oscar Wilde who said, “the cynic knows the price of everything and the value of nothing.” Over the years, many have replaced the word *cynic* with *economist*, perhaps with good cause. Yet today the good economist can also measure the value of most things and would agree with Wilde’s sentiment that value is more important than price.

To better understand the concept of economics and its relationship to boating, it is helpful to break economics into two basic components. Economics can provide an accounting of the **economic expenditures** made by boaters (covered in the full report, available at http://myfwc.com/About/About_economics.htm), permitting one to track the flow of money within the economy and the ripple effect of expenditures on jobs, taxes, and other businesses across the economy. Economics can also provide a measure of the **economic value** that boaters gain from the experience of boating, which provides critical insight

into their choices of boating access. Termed “consumer surplus” by economists, this information on the economic value of boating access is key to the efficient placement and/or improvement of boating infrastructure such as location of future ramps, number of lanes, inclusion of restrooms, and other site characteristics. Although information about expenditures is necessary for an assessment of the flow of money within an economy, by itself it provides only a part of the economic puzzle, reflecting the cost of producing goods or services but not their value to people.

Economic Models

The economic models developed for this project are models of demand for public access boat ramps across the state of Florida. Similar models have been widely used by economists across the country in the fields of boating, fishing, and outdoor recreation. In this study, the models are designed to determine the value of boating access, the basic characteristics of the boating access sites, and even the places people visit on the water. The models are capable of handling the many substitute boating sites that exist in Florida. Two economic models of boating site choice were developed, one for marine-access ramps and the other for freshwater-access ramps. The marine-access ramp selection included a water-site choice that was linked to the boater’s choice of ramp. The typical ramp provided boaters an average of 20 water-site choices, although some ramps accessed as many as 99 water-sites. Characteristics



East Coast - Marine Access		
Ramp Characteristic		
Size of Parking Lot		+
Condition of Parking Lot		+
Number of Launch Lanes		+
Condition of Launch Lanes		+
Overall Ramp Development		+
Marina Presence		+
Quality of Water Sites from Ramp		+
Travel Cost		-
Water-Site Characteristic		
Navigational Aids		+
Artificial Reefs		+
Marine Protection/Conservation Zone		+
Sea Grass Present		+
Nearest Boat Ramp		+
Travel Cost		-
West Coast - Marine Access		
Ramp Characteristic		
Size of Parking Lot		+
Number of Launch Lanes		+
Condition of Launch Lanes		+
Overall Ramp Development		+
Quality of Water Sites from Ramp		+
Travel Cost		-
Water-Site Characteristic		
Navigational Aids		+
Artificial Reefs		+
Marine Protection/Conservation Zone		+
Sea Grass Present		+
Mean Depth		+
Manatee Zone Present		-
Travel Cost		-
Freshwater Access Only		
Ramp Characteristic		
Number of Launch Sites in County		+
Size of Parking Lot		+
Condition of Parking Lot		-
Condition of Launch Lanes		+
Overall Ramp Development		+
Marina Presence		+
Travel Cost		-

Table 4.1 Ramp and water-site characteristics important to boating—marine access ramps.

+ or - indicates whether the effect is positive or negative

used in the models included ramp items such as number of launch lanes and parking lot size and water-site items such as average water depth and presence of reefs or seagrass.

Economic Value of Boat Ramps

The models were then estimated by using 12 months of actual ramp and water-site choices made by boaters for 3,442 marine trips and the actual ramp choices made by boaters for 1,061 freshwater trips. Looking first at the ramp and water-site characteristics (Table 4.1), the results show the importance of launch lanes, parking lots, and their overall condition as well as the area’s level of development (*i.e.*, the number of developed facilities, such as restrooms, at a ramp). Artificial reefs, seagrass, and management zoning are some of the more important characteristics in water-site selection for boaters using marine access ramps. The costs of traveling to the site (*i.e.*, gasoline costs, wear and tear on the car, etc.) also play a key role in the boater’s selection of ramp and water-site. As expected, all things considered, boaters preferred nearby ramps and closer water-sites to those located farther away.

The economic model can also estimate the value of changing the characteristics of either a water-site or a boat ramp and can estimate the value boaters would lose or gain by removing or adding a ramp or water-site. In the case of removing an



County Name	Total Ramp Access Value/2006\$/yr
Pinellas	83,255,000
Miami-Dade	57,655,000
Volusia	57,308,000
Hillsborough	53,868,000
Brevard	50,625,000
Monroe	49,161,000
Broward	48,455,000
Lee	45,099,000
Palm Beach	41,553,000
Citrus	36,849,000

Table 4.2 Total value from public access ramps—top ten counties.

existing ramp, this could be viewed as a measure of the consumer surplus or value that boaters derive from having access to this ramp. Because ramps and water-sites vary by their characteristics and distance from boaters, we would expect their value to boaters to vary as well. The economic model was used to estimate the value of each public access ramp within Florida, and this is reported as an appendix to the full report. Likewise, a county-level estimate of boating access value can also be found in the full report. When these ramp values are summed across boating trips, we see the top-valued counties in terms of public boating access (Table 4.2).

These counties include Pinellas, Miami-Dade, Volusia, Hillsborough, Brevard, Monroe Broward, Lee, Palm Beach, and Citrus. If one adds up the 67 county-level values, it is possible to determine a lower bound value for public access ramps in both freshwater and marine settings. Doing so reveals that the estimated consumer surplus (value) to boaters (*i.e.*, the value above and beyond expenditures) is at least \$232 million per year for access to freshwater ramps and at least \$788 million per year for access to marine ramps. Taken in total, public access ramps provide boaters over one billion dollars of value annually. That averages out to about \$82 of value for each marine ramp trip and \$77 for each freshwater ramp trip.

Estimates of ramp value can provide useful information to policy-makers. For example (see Case Study 3 in the full report), if officials were to evaluate the eco-

conomic effect of closing public boating access at the Hickory Bait and Tackle located at Weeks Landing in Lee County, they could use the ramp-level estimate of consumer surplus (\$0.36 per trip) times the number of boating trips (588,000) to estimate the annual loss (\$212,000) due to this action. When this loss to boaters is viewed as an indefinite and repeating occurrence (*i.e.*, it repeats annually), it translates into a large loss of value (\$7,066,000, based on a 3% discount rate). Similar estimates of economic benefits are possible for changing ramp characteristics, such as improving parking or adding a restroom, and even the opening of new ramps. Having this ability to determine the potential loss or gain in value for various policy scenarios adds an important evaluation tool to the planner’s tool chest.

Future Demand

Estimates of current boater demand are important. However, to paint a more complete picture of demand, one must also consider that demand may change over time, as is common for most goods and services. This can result from people changing their preferences and/or changes in the demographic composition of people in the economy. Although it is difficult to anticipate future preferences, it is possible to project changes in people by looking at demographic projections. Insofar as boating is



County	Projected Decrease in Demand
Broward	18.86%
Duval	17.42%
Monroe	16.83%
Palm Beach	12.49%
Gadsden	12.41%
Leon	11.66%
Wakulla	8.08%
Nassau	7.68%
Miami-Dade	7.01%
Baker	6.89%
County	Projected Increase in Demand
Sumter	10.96%
Lake	9.80%
Lee	8.96%
Marion	8.21%
Osceola	7.56%
Desoto	7.38%
Citrus	6.98%
Hendry	6.80%
Hernando	6.37%
Levy	5.48%

Table 4.3 Projected percentage changes in boating demand—ten counties with largest decreases and increases (present day–2025).

highly correlated to gender, race, and ethnicity (most commonly male, white, non-Hispanic), it is possible to predict future demand across the state by tracking projected demographic shifts. It is possible to predict county-level boating demand 16 years hence by integrating the results of the economic model with the statewide demographic projections up to the year 2025 that are provided by the Bureau of Economic and Business Research Unit at the University of Florida. Statewide, demand is expected to decrease by about 1.8%. In some counties, however, demand could fall by as much as 18% (Broward) while other counties could see increases in demand as high as 11% (Sumter). A list of the counties expecting the largest decrease and increase in boating demand can be found in Table 4.3.

Marine Access		
County	Lower Bound	Upper Bound
Lee	\$12,636,000	\$20,702,000
Collier	\$5,431,000	\$8,899,000
Citrus	\$4,279,000	\$7,011,000
Levy	\$3,234,000	\$5,299,000
St. Johns	\$3,079,000	\$5,087,000
Hernando	\$2,450,000	\$4,013,000
Charlotte	\$1,810,000	\$2,965,000
Flagler	\$1,770,000	\$2,925,000
Walton	\$1,663,000	\$2,709,000
Sarasota	\$1,347,000	\$2,206,000
Freshwater Access		
County	Lower Bound	Upper Bound
Lake	\$8,333,000	\$13,235,000
Osceola	\$2,568,000	\$4,080,000
St. Johns	\$2,389,000	\$3,914,000
Alachua	\$1,978,000	\$3,241,000
Sumter	\$1,265,000	\$1,955,000
Highlands	\$1,177,000	\$1,819,000
Walton	\$1,057,000	\$1,661,000
Marion	\$1,038,000	\$1,605,000
Glades	\$797,000	\$1,217,000
Washington	\$790,000	\$1,242,000

Table 4.4 Capital budget projections to 2025—top ten counties (freshwater and marine access).

Capital Budgeting

The projected changes in boating demand around the state make it possible to approximate the likely capital investments that will be needed to accommodate future use. Assuming that the desire is to maintain boating access capacity at 2006 levels, then capital investments for freshwater and marine access statewide would fall in the range of \$68 million to \$111 million over the next 16 years.

Counties with the largest marine access capital needs include Lee, Collier, and Citrus. For counties with ramps that have freshwater access only, the three largest projected capital needs are found in Lake, Osceola, and St. Johns counties. Table 4.4 lists the counties with the largest projected capital budget needs for both freshwater and marine access. St. Johns and Walton counties make the top-ten lists for both freshwater and marine access.

