UF IFAS Extension UNIVERSITY of FLORIDA

FE1100

UF/IFAS PEER REVIEWED

https://doi.org/10.32473/edis-fe1100-2021

Valuing Florida Water Resources: Summary by Regions[1]

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Introduction

As a part of the EDIS series "Economic Value of Florida Water Resources," this publication aims to help the interested public learn about the economic benefits associated with local water resources. It presents examples of the economic benefits of water resources in five Florida regions, which are generally defined based on the Water Management Districts' boundaries (Figure 1).

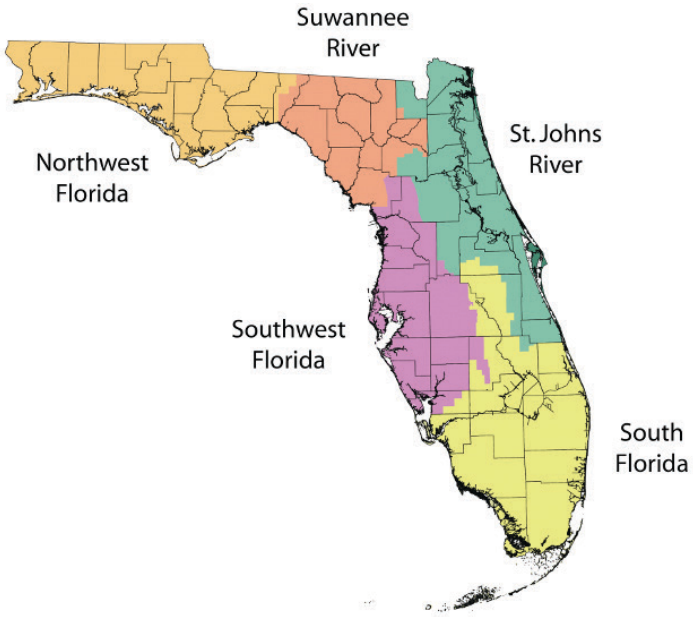

Figure 1. Florida Water Management Districts (FDEP 2017). Florida Water Management District boundaries.
Credits: Florida Department of Environmental Protection (FDEP), https://floridadep.gov/water-policy/content/water-management-district#SJR

How can we measure the economic benefits provided by water resources?

Economists use various approaches to estimate the benefits of natural resources. For example, consider state and national parks in Florida organized around springs, rivers, or coastal attractions. Tourists are drawn by water-based recreation opportunities, the chance to see manatees, or enjoy other activities directly or indirectly associated with water. These visitors spend money on lodging, meals, snacks, or diving equipment, thereby supporting local businesses. The studies that examine the visitor spending and the economic activities spurred by this spending are referred to as "the economic impact analyses." The Florida Department of Environmental Protection (FDEP) annually analyzes the state parks' visitation, visitor spending, and related economic contribution. The National Park Service also publishes analyses of economic contributions for the national parks. University of Florida's Economic Impact Analysis Program, as well as other Universities in the state, also examines economic contributions of visitor expenditures.

Another method to gauge the value assigned to water-related experiences is to ask visitors about their willingness to pay for various recreational experiences above their actual spending. Such an approach allows estimation of the values derived by visitors that are not captured in market transactions (referred to as "consumer surplus). Alternatively, this

1. This document is FE1100, one of a series of the Food and Resource Economics Department, UF/IFAS Extension. Original publication date July 2021. Visit the EDIS website at https://edis.ifas.ufl.edu for the currently supported version of this publication.

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value can be examined by looking at how far tourists travel for recreational activities. One can also assess the benefits of water quality improvements by considering riverfront house sale prices during periods with "good" or "bad" river water quality. These and other methods to valuing the benefits provided by water resources are described in the overview publication in this series, here.

Studies report different estimates for the same site. Can I add up these estimates?

Sometimes the same recreational site or the same water body is examined repeatedly, frequently because of high regional or national significance. Economists can employ different valuation methods, focus on different types of benefits (e.g., recreation vs. riverfront property amenities), and employ various metrics (e.g., total recreational visitor spending *vs.* spending by non-local visitors only). To avoid possible double counting of the benefits, it is generally recommended to refrain from adding up different values estimated for the same site (even though there are exceptions to this general rule).

Northwest Florida: State Parks and Visitors' Spring-Based Recreation

The Florida Panhandle (Figure 2) is recognized for its freshwater springs and rivers. Both coastal and inland state and national parks contribute significantly to the regional economy (Table 1). For example, the estimated economic contribution for Edward Ball Wakulla Springs State Park was $19.7 million in 2019, supporting 276 full- and part-time jobs.

Further, the value of recreational experiences to the visitors was estimated for recreation on Edward Ball Wakulla Springs State Park, Jackson Blue Springs County Recreation Area, and sites in the Apalachicola River Basin (Table 2). For example, cave diving trips to the Jackson Blue Springs County Recreation Area are valued by the visitors at $155 per person per trip (above the actual trip expenditures). These estimates illustrate the importance of protecting local water resources.

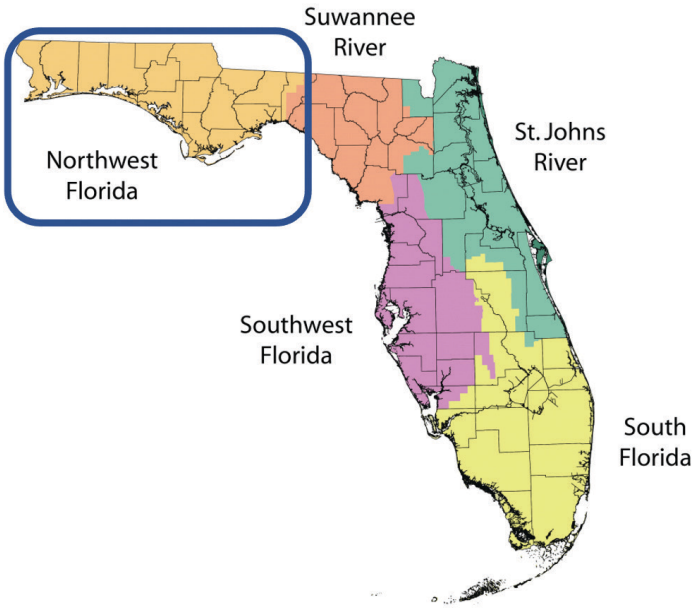

Figure 2. Northwest Florida Water Management District (NWFWMD).
Credits: Based on FDEP 2017

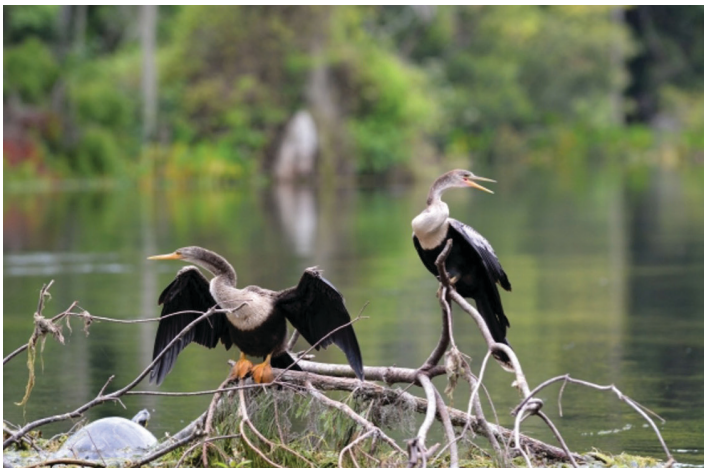

Figure 3. Edward Ball Wakulla Springs State Park
Credits: NWFWMD

Suwannee River Basin: Florida's Springs Region

Springs are unique natural landmarks in north Florida, attracting many recreational visitors and supporting local economies.The Suwannee River Water Management District (Figure 4) has one of the highest concentrations of large freshwater springs in the United States (SRWMD undated). These large springs are referred to as first- and second-magnitude springs for the large volumes of water they discharge—more than ten or even 100 cubic feet per second. For example, Figure 5 shows Blue Hole at Ichetucknee Springs, one of Florida's large springs, located in the District. Spring recreational and wildlife depend on the water flow and good water quality, and stakeholder groups and agencies are working on restoring or protecting this

unique natural resource. Reduction in spring water quality and flow is a concern for many.

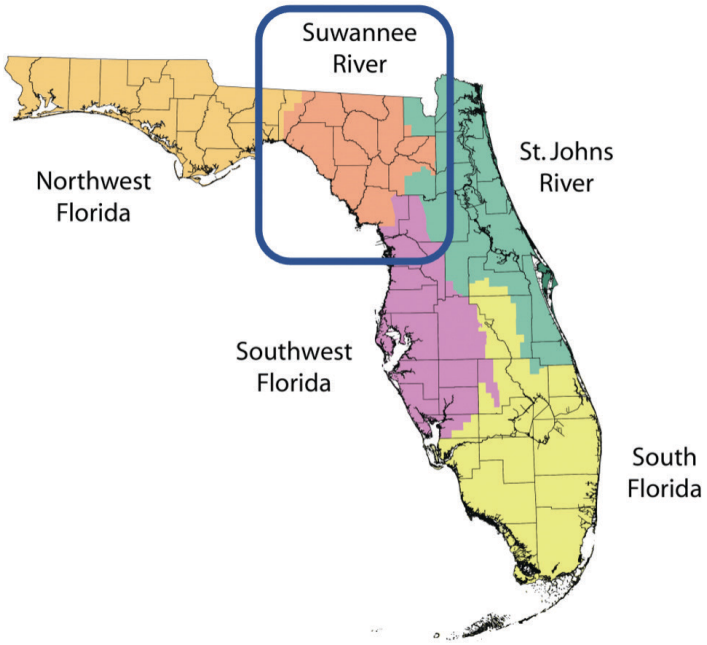

Figure 4. Suwannee River Water Management District (SWFWMD).
Credits: Based on FDEP 2017

Several studies estimated the spending of visitors to the springs and related this spending to regional economic activities. For example, 258,000 people attended Ichetucknee Springs State Park in 2019, contributing $21.7 million to the regional economy, and supporting 304 jobs (Table 3).

In addition, Wu et al. (2018) examined the visitors' willingness to pay for their recreational experiences in addition to the expenses incurred. For example, for Ichetucknee Springs, Wu et al. (2018) estimated that the value of the visitors' recreational experiences was $14.66 million above the actual trip expenditures (Table 4).

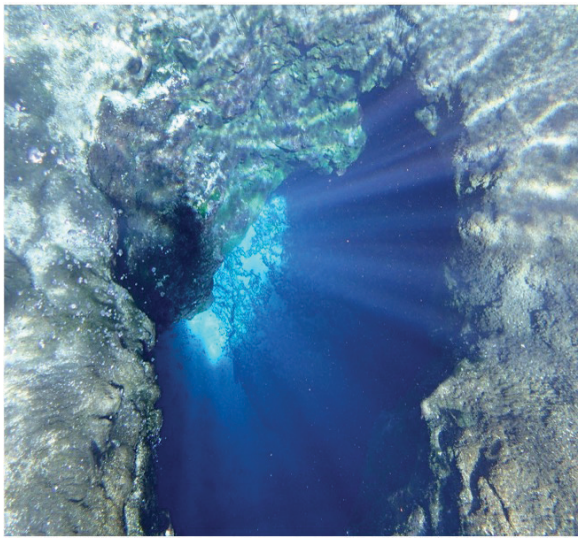

Figure 5. Ichetucknee Springs
Credits: Tyler Jones, UF/IFAS

Overall, these studies imply that deteriorating quality and reducing flows of the springs may result in a significant reduction in springs-related expenditures and thereby economic activity in the region and the loss of recreational opportunities and related benefits highly valued by the visitors.

East Florida: Diverse Water Resources and Related Benefits

Diverse water resources in east Florida, broadly defined as the area of St. Johns River Water Management District (SJRWMD, see Figure 6), provide residents and visitors with various recreational opportunities (Figure 7), waterfront amenities, and other benefits. The studies focusing on the economic impact of recreational benefits specifically are summarized in Table 5. For example, Blue Spring State Park was visited by more than 560,000 visitors in 2019, contributing almost $49 million to the regional economy, and supporting 572 full-time and part-time jobs. In addition to the actual expenditure for the recreational trips (and related contribution to state economy), the value derived by the visitors to all inland water recreation sites in the region was estimated at $208.9 million per year (Table 6).

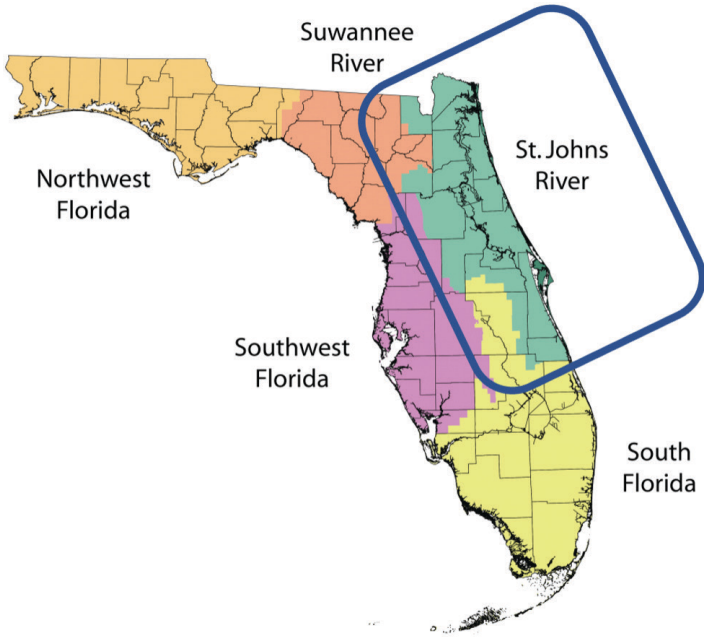

Figure 6. St. Johns River Water Management District (SJFWMD)
Credits: Based on FDEP 2017

One of the largest cities in Florida and the United States, Jacksonville, is located in SJRWMD. It is not surprising that several economic studies conducted in this region focused on the value of clean water to residential households in Jacksonville and the surrounding area. Studies showed that improving river or lake water quality increases waterfront

homes' prices, reflecting the worth of the enhanced amenity benefits provided by the water bodies (Table 7). Two other studies found that households are willing to pay for improved water quality for domestic use (Table 8). Overall, protecting and improving water quality and availability in rivers, lakes, and aquifers ultimately impacts locals' and visitors' well-being.

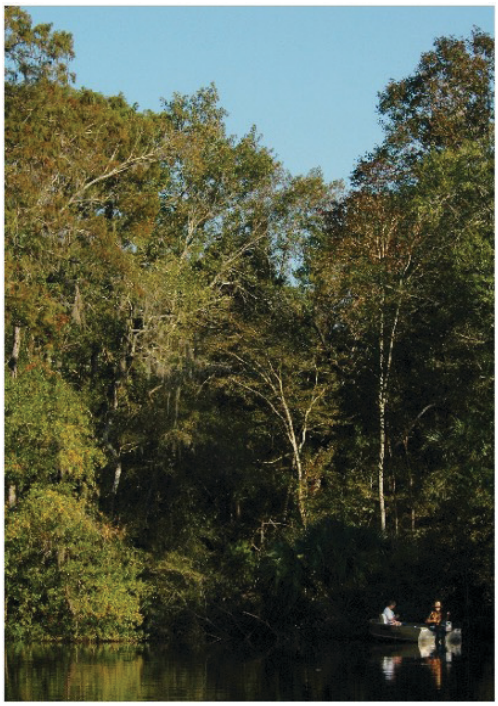

Figure 7. Two men fishing in the St. Johns River.
Credits: UF/IFAS

West-Central Florida: Visitation of Coastal and Inland State Parks

Inland springs and coastal areas in southwest Florida (Figure 9) attract many visitors annually, and visitors' spending is an important contributor to the region's economy. For example, more than 350 million people visited Rainbow Springs State Park in 2019, contributing $31.1 million to the economy and supporting 436 full- and part-time jobs (Table 9). Deterioration of water resources can result in a significant reduction in recreational activity and related economic contributions in the region. More studies are underway to measure these impacts. For example, in 2020, the National Center for Coastal Ocean Science awarded a grant to study the economic impacts of the historic harmful algal bloom (commonly referred to as "red tide") in 2017–2019. Economists from major Florida universities lead the study, and study results should become available soon (NCCOS 2020a, NCCOS 2020b).

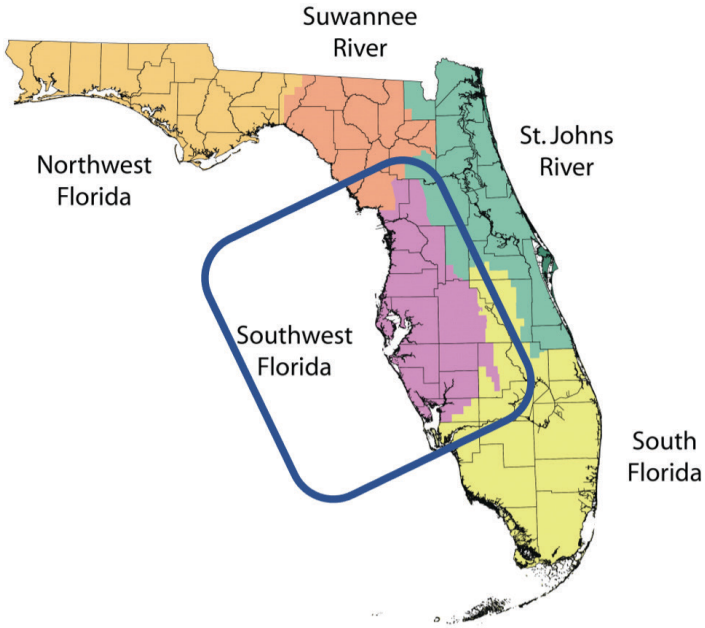

Figure 8. Southwest Florida Water Management District (SWFWMD).
Credits: Based on FDEP 2017

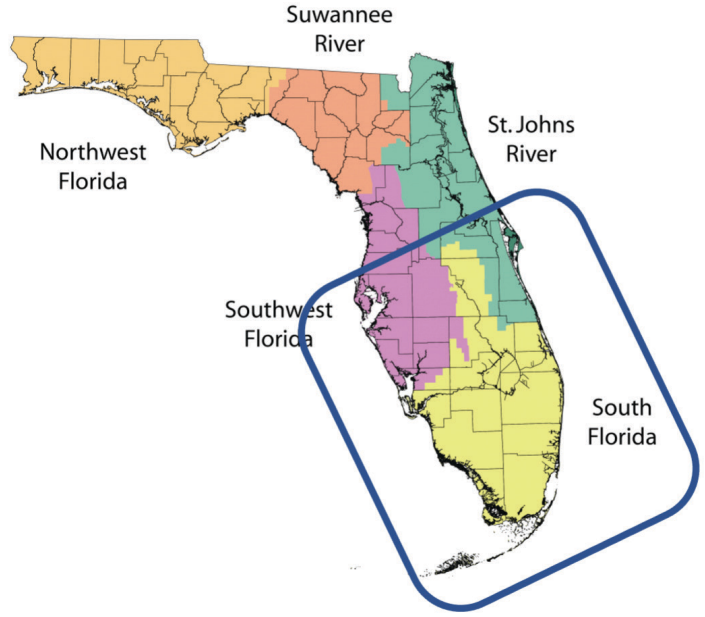

Figure 9. South Florida Water Management District (SFWMD).
Credits: Based on FDEP 2017

South Florida: The Everglades and Other State and National Parks

Wise management of water resources is crucial for the south Florida region (Figure 10). The studies conducted in the region focused on the following types of important "services" provided by natural resource sites: (a) recreation (with visitors' spending contributing to the regional economy, Table 10); (b) amenity provided by the waterfront properties, with the amenity impacted by river and estuary water quality changes (Table 11); and (c) variety of services

provided by the Everglades, such as wildlife habitat and ecosystem function support (Table 12).

Figure 10. Tourists on a boardwalk at Everglades National Park. Credits: UF/IFAS

State parks and national preserves attract millions of people annually, and this visitation is essential for local business activities. Water quality in coastal waters can also significantly impact beachfront properties' attractiveness (and related tax collections). Preservation of wildlife habitat, water flow regulation, carbon sequestration, and other benefits provided by south Florida wetlands are also valued by many. Changes in these services will have an indirect but possibly significant influence on people's well-being. Future studies will provide additional estimates in support of this statement. For example, in 2020, the National Center for Coastal Ocean Science awarded a grant to study the economic impacts of the historic harmful algal bloom (commonly referred to as "red tide") in 2017–2019. Economists from major Florida universities lead the study, and study results should become available soon (NCCOS 2020a, NCCOS 2020b).

Acknowledgements

The authors acknowledge funding for the project "Water resources and human society: educating Floridians about the value of water resources" from UF Thompson Earth Systems Institute (TESI): Earth Systems Grants. TESI aims to support projects by UF students and postdoctoral scholars that communicate Earth systems research to the institute's audiences. See more at: TESI, https://www.floridamuseum.ufl.edu/earth-systems/blog/announcing-the-2018-ties-grant-recipients/. This work is also partially funded by USDA NIFA National Integrated Water Quality Program Award No. 2014-51130-22495 (PI: Kelly Grogan).

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Table 1. Economic studies examining recreational benefits provided by water resources in the NWFWMD.

Natural resource site and recreation type	County	Annual attendance	Economic impact indicator	Total jobs supported	Reference
Contribution to the regional economy for selected state and national parks					
National Park (2019 data)					
Gulf Islands National Seashore	Santa Rosa	5.6 million	$310 million total economic output[a]	3,305[a]	National Park Services (2020)
Selected State Parks (2019 data)					
Florida Caverns State Park	Jackson	44,215	$4.5 million DEI[b]	63[c]	FDEP (2020)
Ponce de Leon Springs State Park	Holmes	69,073	$6.3 million DEI[b]	89[c]	FDEP (2020)
Wakulla Springs State Park	Wakulla	218,735	$19.7 million DEI[b]	276[c]	FDEP (2020)
Grayton Beach State Park	Walton	212,050	$19.5 million DEI[b]	274[c]	FDEP (2020)
Henderson Beach State Park	Okaloosa	476,296	$41.3 million DEI[b]	578[c]	FDEP (2020)
St. Andrew State Park	Bay	650,335	$57 million DEI[b]	798[c]	FDEP (2020)
Perdido Key State Park	Escambia	215,257	$18.4 million DEI[b]	258[c]	FDEP (2020)
Recreation in the state parks listed above and the other state parks in District 1 of the Florida state park system[d]	-[d]	3,638,530	$331 million DEI[b]	4,637[c]	FDEP (2020)

[a] These indicators account for direct, indirect, and induced effects from visitor spending. Specifically, "economic output is a measure of the total estimated value of the production of goods and services supported by NPS visitor spending. Economic output is the sum of all intermediate sales (business to business) and final demand (sales to consumers and exports) … Jobs measure annualized full and part time jobs that are supported by NPS visitor spending" (p. 4, NPS 2020).
[b] This value focuses on direct impacts only, and it does not account for indirect and induced effects. Therefore, it is not directly comparable with the value reported for the national parks. Direct economic impact (DEI) is defined as the amount of new dollars spent annually in a local economy by non-local park visitors and park operations (FDEP 2020).
[c] It is assumed that 16 jobs are supported per $1 million in total expenditures in a given local area (FDEP 2020). It is not specified whether this value includes any indirect or induced effects from the spending.
[d] Note that District 1 of the Florida state park system covers Florida Panhandle, and it slightly exceeds the area of the NWFWMD (see FDEP 2019). The estimates reported in this row include the Edward Ball Wakulla Springs State Park.

Table 2. Visitors' willingness to pay (WTP) above the actual spending for recreational trips in the NWFWMD.

Natural resource site and recreation type	County	Average WTP	Aggregate annual WTP	Reference
Visitors' willingness to pay (WTP) above the actual spending for the trip				
Wakulla Springs, cavern and cave diving (if allowed)	Wakulla	$52–$83 per cave dive $9 per cavern dive (above the trip expenditures)	$0.50 million	Huth and Morgan (2011)
Jackson Blue Springs, cave diving	Jackson	$155 per person per trip (above the trip expenditures)	$0.58 million	Morgan and Huth (2011)
Nature-based recreation at five key recreation sites in the Apalachicola River Basin[a]	Gulf	$74.18 per visit-day (above the trip expenditures)	$484.56 million	Shreshta et al. (2007)

[a] This includes St. Vincent National Wildlife Refuge, Tate's Hell State Forest, Apalachicola River Wildlife and Environment Area, Apalachicola National Forest, and St. George Island State Park

Table 3. Economic studies examining recreational benefits provided by water resources in the SRWMD.

Contribution to the regional economy—economic impact analysis for selected state parks					
Natural resource site and recreation type	**County**	**Annual attendance**	**Economic impact indicator**	**Total jobs supported**	**Reference**
Selected state parks (2019 data)					
Madison Blue Spring State Park	Madison	24,558	$2.2 million DEI [b]	31 [a]	FDEP (2020)
Lafayette Blue Springs State Park	Lafayette	17,671	$1.8 million DEI [b]	26 [a]	FDEP (2020)
Suwannee River State Park	Hamilton, Madison, Suwannee	45,465	$4.2 million DEI [b]	59 [a]	FDEP (2020)
Wes Skiles Peacock Springs State Park	Suwannee	11,118	$1.0 million DEI [b]	14 [a]	FDEP (2020)
Troy Spring State Park	Lafayette	6,450	$0.6 million DEI [b]	9 [a]	FDEP (2020)
Ichetucknee Springs State Park	Columbia	258,078	$21.7 million DEI [b]	304 [a]	FDEP (2020)
River Rise Preserve State Park	Alachua & Columbia	2,451	$0.2 million DEI [b]	3 [a]	FDEP (2020)
Gilchrist Blue Spring State Park	Gilchrist	138,015	$12.1 million DEI [b]	169 [a]	FDEP (2020)
Fanning Springs State Park	Levy	180,423	$15.7 million DEI [b]	220 [a]	FDEP (2020)
Manatee Springs State Park	Levy	256,631	$22.6 million DEI [b]	316 [a]	FDEP (2020)
Recreation in the state parks listed above and the other state parks in District 2 of the Florida state park system, including both beaches and inland state parks [c]	- [c]	4,702,985	$420 million DEI [b]	5,878 [a]	FDEP (2020)
Contribution to the regional economy—economic impact analysis for the sites including but not limited to state parks					
Natural resource site and recreation type	**County**	**Annual attendance**	**Economic impact indicator**	**Total jobs supported**	**Reference**
Fifteen publicly and privately owned springs in the Suwannee and Lower Santa Fe River Basins	Counties in SRWMD	1,012,066	Spending by local and nonlocal visitors: $84.19 million in Fiscal Year 2012–2013	1,160 [d]	Borisova et al. (2015)

[a] It is assumed that 16 jobs are supported per $1 million in total expenditures in local area (FDEP 2020). It is not specified whether this value includes any indirect or induced effects from the spending.
[b] Direct economic impact (DEI) is defined as the amount of new dollars spent annually in a local economy by non-local park visitors and park operations (FDEP 2020). This value does not account for indirect and induced effects of visitor spending.
[c] District 2 of the Florida state park system covers SRWMD (excluding Jefferson County and a part of Taylor County), as well as portions of SJRWMD and SWFWMD (see FDEP 2019). The estimates reported in this row include the Ichetucknee Springs State Park.
[d] This value includes jobs supported by direct, indirect, and induced effects of visitor spending, and therefore, this value is not directly comparable with the values reported for the state parks.

Table 4. Recreational benefits provided by water resources in the SRWMD: value beyond actual visitor spending.

Visitors' willingness to pay (WTP) above the actual spending for the recreational trip			
Natural resource site and recreation type	**County**	**Aggregate annual WTP**	**Reference**
Fanning Springs State Park	Levy, Gilchrist	$6.33 million (above the actual trip expenditures)	Wu et al. (2018)
Ichetucknee Springs State Park	Columbia	$14.66 million (above the actual trip expenditures)	Wu et al. (2018)
Blue Springs (Gilchrist)	Gilchrist	$2.24 million (above the actual trip expenditures)	Wu et al. (2018)
Madison Blue Spring	Madison	$1.39 million (above the actual trip expenditures)	Wu et al. (2018)

Table 5. Economic impact of water-based recreational in east Florida.

Contribution to the regional economy—selected state and national parks					
Natural resource site	**County**	**Annual attendance**	**Economic impact indicator**	**Total jobs supported**	**Reference**
National parks (2019 data)					
Timucuan Ecological & Historic Preserve	Duval	1.2 million	$100.5 million in economic output[a]	1,085[a]	NPS (2020)
Canaveral National Seashore	Brevard	1.9 million	$95.1 million in economic output[a]	937[a]	NPS (2020)
Selected state parks (2019 data)					
Blue Spring State Park	Volusia	561,219	$48.8 million DEI[b]	572[c]	FDEP (2020)
De Leon Springs State Park	Volusia	243,285	$21.4 million DEI[b]	300[c]	FDEP (2020)
Silver Springs State Park	Marion	399,465	$35.9 million DEI[b]	503[c]	FDEP (2020)
Wekiwa Springs State Park	Seminole, Orange, Lake	431,982	$38.2 million DEI[b]	535[c]	FDEP (2020)
Big Talbot Island State Park	Duval	337,068	$29 million DEI[b]	407[c]	FDEP (2020)
Anastasia State Park	St. Johns	967,489	$83.9 million DEI[b]	1,175[c]	FDEP (2020)
North Peninsula State Park	Volusia	249,751	$21.3 million DEI[b]	299[c]	FDEP (2020)
Sebastian Inlet State Park	Brevard	761,339	$66.5 million DEI[b]	931[c]	FDEP (2020)
Recreation in the state parks listed above and the other state parks in District 3 of the Florida state park system, including both beaches and inland state parks d	Counties central-eastern Florida[d]	8,377,974	$716 million DEI[b]	10,319[c]	FDEP (2020)
Contribution to the regional economy—sites potentially including but not limited to state and national parks					
Natural resource site	County	Annual attendance	Economic Impact Indicator	Total job supported	Reference
Indian River Lagoon	Volusia, Brevard, Indian River, St. Lucie, and Martin	7,400,000	Total annual economic output received in 2014 is $7.6 billion[e]	71,918[e]	ECFRPC and TCRPC (2016)

[a] These indicators account for direct, indirect, and induced effects from the visitor spending. Specifically, "economic output is a measure of the total estimated value of the production of goods and services supported by NPS visitor spending. Economic output is the sum of all intermediate sales (business to business) and final demand (sales to consumers and exports) … Jobs measure annualized full and part time jobs that are supported by NPS visitor spending" (p. 4, NPS 2020).
[b] This value focuses on direct impacts only, and it does not account for indirect and induced effects. Therefore, it is not directly comparable with the value reported for the national parks. Direct economic impact (DEI) is defined as the amount of new dollars spent annually in a local economy by non-local park visitors and park operations (FDEP 2020).
[c] It is assumed that 16 jobs are supported per $1 million in total expenditures in a given local area (FDEP 2020). It is not specified whether this value includes any indirect or induced effects from the spending.
[d] Note that District 2 of the Florida state park system also covers part of the SJRWMD. For the map of the districts, see FDEP 2018.
[e] This value includes direct, indirect, and induced effects, and therefore, it is comparable with metrics reported for the national parks in NPS (2020).

Table 6. Visitors' willingness to pay (WTP) above the actual spending for the recreational trip.

Visitors' willingness to pay (WTP) above the actual spending for the recreational trip			
Natural resource site	**County**	**Economic Estimate**	**Reference**
St. Johns River Basin	Counties in SJRWMD	Estimated value derived by the visitors to inland water recreation sites is $208.9 million per year (in addition to the actual expenditure for the recreational trips).	Ehrlich et al. (2017)
Springs in Ocala National Forest	Marion, Lake, Putnam, and Seminole	The willingness to pay: $1.0 to $2.5 million per year (depending on level of facilities provided at the site) in addition to the actual expenditure for the recreational trips	Shreshta et al. (2002)

Table 7. Economic studies focusing on amenity values provided by water resources in east Florida.

Amenity values provided by water resources in east Florida			
Area	**County**	**Economic Value**	**Reference**
St. Johns River	Duval, Clay, Putnam, and St. Johns	St. Johns River water quality improvements can increase the value of properties along the river by $346.1 million	Seidel et al. (2015)
Lakes in urban Orange County	Orange	An increase in transparency depth by one foot results in an increase in average home sale price by about 1.2% (or $6,900) for lakefront properties, and 0.3% ($880) for non-lakefront properties	Walsh et al. (2010)

Table 8. Economic studies focusing on the value of water quality Improvements in east Florida.

Willingness to pay for tap and well water quality improvements			
Area	**County**	**Economic Value**	**Reference**
Tap water supplied to Jacksonville	Duval	In total, customers of the Jacksonville Electrical Authority (JEA) are willing to pay $746,400 monthly for water quality improvements ($6.22 per person per month)	Chatterjee et al. (2017)
Well water in rural areas of Lake County	Lake	When total nitrate and nitrite concentration in well water exceeded the drinking water quality standards, the reduction in the home sale price was 7 to 15 percent.	Guignet et al. (2016)

Table 9. Economic studies examining recreational benefits provided by water resources in the SWFWMD.

Contribution to the regional economy—economic impact analysis					
Natural resource site and recreation type	**County**	**Annual attendance**	**Economic impact Indicator**	**Total jobs supported**	**Reference**
Selected state parks [a]					
Rainbow Springs State Park	Marion	353,764	$31.1 million DEI [b]	436 [c]	FDEP (2020)
Ellie Schiller Homosassa Springs Wildlife State Park	Citrus	228,044	$21.4 million DEI [b]	300 [c]	FDEP (2020)
Weeki Wachee Springs State Park	Hernando	284,470	$19.3 million DEI [b]	410 [c]	FDEP (2020)
Werner-Boyce Salt Springs State Park	Pasco	27,001	$2.5 million DEI [b]	36 [c]	FDEP (2020)
Honeymoon Island State Park	Pinellas	1,610,871	$140.3 million DEI [b]	1,965 [c]	FDEP (2020)
Caladesi Island State Park	Pinellas	288,445	$25.5 million DEI [b]	357 [c]	FDEP (2020)
Anclote Key State Park	Pinellas	226,846	$19.5 million DEI [b]	274 [c]	FDEP (2020)

[a] Economic impact estimates for the other state parks located in the SWFWMD are available in FDEP (2020). Note that the districts defined by the Florida state park system do not coincide with the SWFWMD boundaries. As a result, SWFWMD is split between Districts 2, 3, and 4.
[b] Direct economic impact (DEI) is defined as the amount of new dollars spent annually in a local economy by non-local park visitors and park operations (FDEP 2020). This value does not account for indirect and induced effects and therefore is not directly comparable with the value reported for the national park.
[c] It is assumed that 16 jobs are supported per $1 million in total expenditures in a given local area (FDEP 2020). It is not specified whether this value includes any indirect or induced effects from the spending.

Table 10. Economic value of services provided by water resources in the SFWMD.

Contribution to the regional economy—economic impact analysis					
Natural resource site and recreation type	**County**	**Annual attendance**	**Economic impact indicator**	**Total jobs supported**	**Reference**
National parks (2019 data)					
Big Cypress National Preserve	Collier	1,007,471	$117.1 million economic output [a]	1,080 [a]	NPS (2020)
Biscayne National Park	Miami-Dade	708,552	$64.7 million economic output [a]	606 [a]	NPS (2020)
Everglades National Park	Miami-Dade	1,118,300	$164.9 million economic output [a]	1,508 [a]	NPS (2020)
Selected state parks (2019 data)					
Delnor-Wiggins Pass State Park	Collier	539,633	$46.9 million DEI [b]	657 [c]	FDEP (2020)
Gasparilla Island State Park	Lee	281,241	$24.4 million DEI [b]	341 [c]	FDEP (2020)
Lovers Key State Park	Lee	806,978	$69.7 million DEI [b]	976 [c]	FDEP (2020)
Bahia Honda State Park	Monroe	438,179	$40.6 million DEI [b]	568 [c]	FDEP (2020)
Bill Baggs Cape Florida State Park	Miami-Dade	675,000	$58.9 million DEI [b]	824 [c]	FDEP (2020)
John Pennekamp Coral Reef State Park	Monroe	569,194	$50.3 million DEI [b]	704 [c]	FDEP (2020)
Dr. Von D. Mizell-Eula Johnson State Park	Broward	340,778	$30.3 million DEI [b]	424 [c]	FDEP (2020)
Wekiwa Springs State Park	Orange	431,982	$38.2 million DEI [b]	535 [c]	FDEP (2020)
All state parks in District 4 of the Florida state park system, d including both beaches and inland state parks	- [d]	6,572,231	$585 million DEI [b]	7,038 [c]	FDEP (2020)
All state parks in District 5 of the Florida state park system, e including both beaches and inland state parks	- [e]	6,154,633	$546 million DEI [b]	7,649 [c]	FDEP (2020)

[a] These indicators account for direct, indirect, and induced effects from the visitor spending. Specifically, "economic output is a measure of the total estimated value of the production of goods and services supported by NPS visitor spending. Economic output is the sum of all intermediate sales (business to business) and final demand (sales to consumers and exports) … Jobs measure annualized full and part time jobs that are supported by NPS visitor spending" (p. 4, NPS 2020).
[b] This value focuses on direct impacts only, and it does not account for indirect and induced effects. Therefore, it is not directly comparable with the value reported for the national parks. Direct economic impact (DEI) is defined as the amount of new dollars spent annually in a local economy by non-local park visitors and park operations (FDEP 2020).
[c] It is assumed that 16 jobs are supported per $1 million in total expenditures in a given local area (FDEP 2020). It is not specified whether this value includes any indirect or induced effects from the spending.
[d] District 4 of the Florida state park system covers parts of the SWFWMD and SFWMD. For the map of the districts, see FDEP 2018.
[e] District 5 of the Florida state park system covers part of the SFWMD. For the map of the districts, see FDEP 2018.

Table 11. Examples of amenity values provided by water resources.

Amenity values provided by water resources in south Florida			
Region	**County**	**Economic Value**	**Reference**
St. Lucie River Estuary and Loxahatchee Estuary	Martin	An increase in average water clarity by 1% results $36,070 increase in the property sale price, on average.	Bin and Czajkowski (2013)
St. Lucie Estuary and Loxahatchee Estuary	Martin	A 1% increase in water quality grade is valued at $2,614 by the property buyers on average	Bin et al (2017)

Table 12. Examples of the values of supporting and regulating ecosystem services provided by water resources.

Willingness to pay for supporting and regulating ecosystem services		
Region	**Economic Value**	**Reference**
Restoring the greater Everglades	Average household WTP is $81 per year. Extrapolation of these results to the total Florida population shows that the WTP is $468 million annually, or $4.7 billion over a ten-year period.	Milon and Scrogin (2006)
Ecosystem services provided by mangroves in the Everglades National Park	The total cost of preserving the natural habitat in the Everglades is calculated to be $18.3 billion.	Alongi (2012)