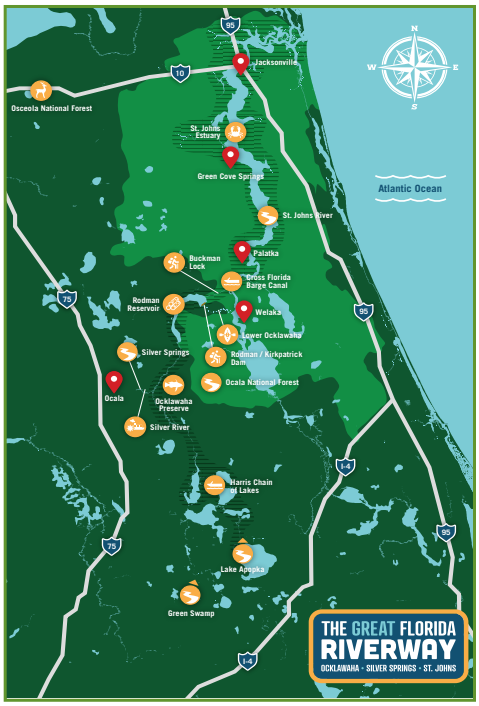
Ocklawaha River Green and Gold Report

Investing in North Florida Waters

A Stimulus-Ready Project

Three Rivers, 50+ Springs, One Solution

The Ocklawaha, the heart of the Great Florida Riverway, is part of a vast 217-mile system of rivers and springs that flow north from the Green Swamp near Lake Apopka, are fed by Silver Springs, and continue past Palatka to the Lower St. Johns River estuary ending at the Atlantic Ocean. The river was unnecessarily dammed in 1968 before the Cross Florida Barge Canal was halted. The Rodman/Kirkpatrick Dam devastated over 7,500 acres of wetland forest, 20 springs, and 16 miles of the Ocklawaha River. The destruction continues today. Water quality is declining, fueling blue-green algae events. Thousands of acres of forests are stressed and dying upstream and down. The 100-mile St. Johns River Estuary is being deprived of its full natural water flow. Massive, invasive aquatic weed blockages make the dammed river an unreliable recreation resource.



Removing a portion of the earthen Rodman/Kirkpatrick dam at the site of the historic river channel will allow access to essential habitat for hundreds of manatees and bring back migratory fish and shellfish to the Ocklawaha and Silver Springs. It will reconnect the historic blueway from Lake Apopka near Orlando to the Atlantic Ocean at Jacksonville for outdoor recreation. Partial restoration will help restore the St. Johns, Ocklawaha and Silver Rivers, 20 lost springs of the Ocklawaha and one of Florida's largest artesian springs – Silver Springs.

This stimulus-ready, water resource restoration project of state significance would create an economic lift to Central and Northeast Florida during this economic downturn by providing jobs and increasing tourism. The needed land is already in public ownership and a completed environmental impact statement and plan are in place. A variety of state, federal and private water restoration funding sources are available. The dam's 50-year life expectancy has come to an end. To pour millions of Florida taxpayer dollars into repairing and maintaining this relic dam does not make sense economically nor environmentally.

Ocklawaha Partial Restoration: Project-at-a-Glance

This Ocklawaha River Green and Gold Report provides a snapshot of the environmental and economic benefits of partial restoration of the Ocklawaha River. The projects' return on investment is extremely attractive for use of taxpayer dollars.

Projected Partial Restoration Project Costs Over 4 Years:

Option 1: Core Partial Restoration Project without plantings - $12.9 million
(1992 Greenway Management Plan, updated to 2020 dollars)

Option 2: Core Project plus plantings - $25.8 million
(2018 Marjorie Harris Carr Cross Florida Greenway Management Plan)

Partial Restoration

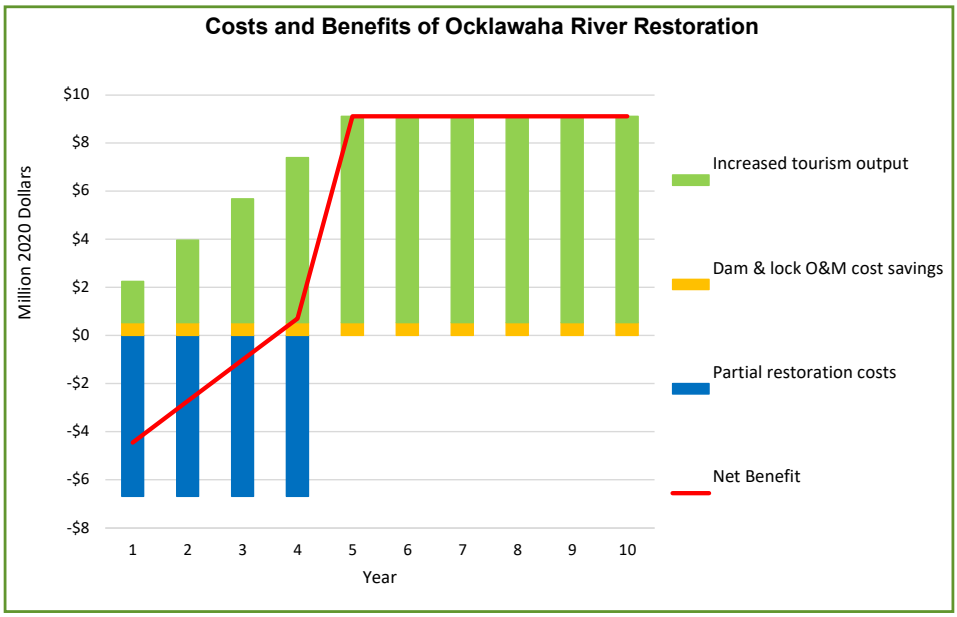
1. A phased drawdown of the reservoir over three years to restore the natural Ocklawaha river channel and floodplain
2. Removal of a portion of the Rodman/Kirkpatrick earthen dam to create a free-flowing river allowing for natural movement of fish, wildlife, and boats from Silver Springs to the Atlantic Ocean while improving water flow and quality.
3. Restoration of Deep Creek.
4. Restoration of Camp Branch channel and floodplain.
5. Closure and securing of Buckman Lock, filling west side of the canal and leaving east side open to the St. Johns River.
6. Partial filling of the spillway tailrace to natural grade to prevent future algae blooms or fish kills.
7. Restoration of 7,500 acres of floodplain forest upstream of the dam connecting a significant wildlife corridor. Revitalization of 8,000 plus other acres upstream and downstream.
8. Recovery of 20 freshwater springs and respective runs currently drowned by the waters of the dam.
9. Limited planting of native trees.
10. Limited removal of structures. Facilities and boat ramp at the dam will remain or be upgraded.

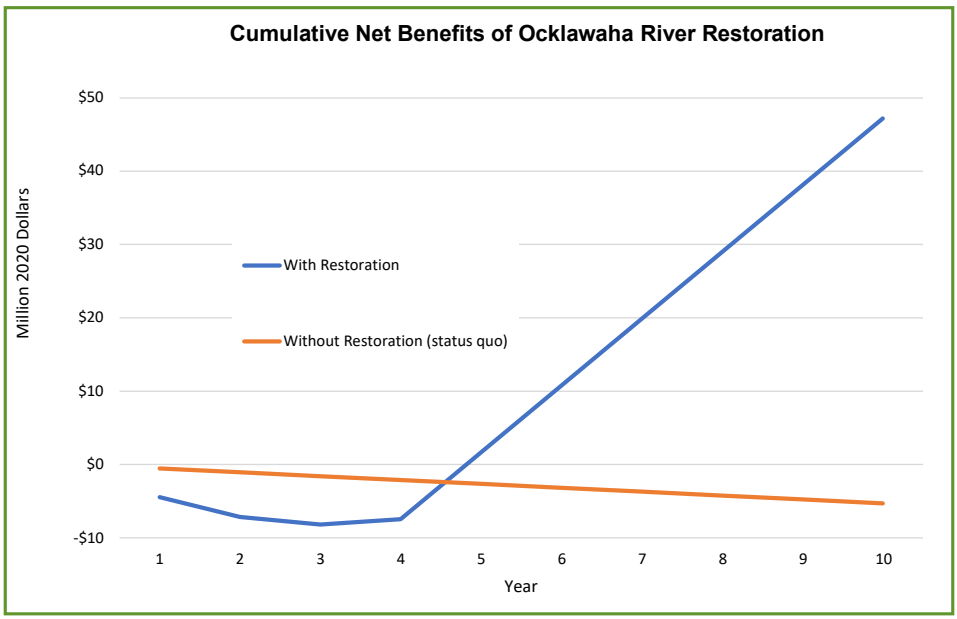
Adapted from FDEP's 2018 Marjorie Harris Carr Greenway Plan

Funding Restoration in the Current Economy

With the current state of the economy, state leaders must look at diverse ways of funding the project. Paying for restoration can come from a variety of sources. In addition to state sources earmarked for conservation projects such as Amendment One, removal of antiquated, non-essential dams has become a national priority and several federal funding sources exist. In addition to federal and state sources, private/public partnership options are feasible.

The following two charts demonstrate that funding for this project is an investment, not an expense, and can be spread over multiple years.





Restoration of the Ocklawaha River was assumed to occur with average annual costs of $6.7 million over four years. Historic operating costs for repair and maintenance of the Rodman Dam, Buckman Locks and canal works were considered as potential avoided cost benefits associated with river restoration, with ongoing operating costs for the area around the dam and locks netted-out of the benefits. Increased regional economic contributions from recreational tourism were assumed to develop over a period of five years as wildlife populations recover and native vegetation matures along the river banks. Costs and benefits were estimated over a ten year period, with restoration costs treated as negative amounts, while dam/lock cost savings and recreational industry output are positive values for calculating annual net benefits. The net benefits are negative during the first three years, reflecting the large upfront restoration costs for four years, then net benefits rise to over $9 million in year five due to increased recreational tourism in the area (chart 1). Total cumulative net benefits over ten years are estimated at $16.4 million (chart 2).

Green Scorecard: Environmental Benefits of Ocklawaha Restoration

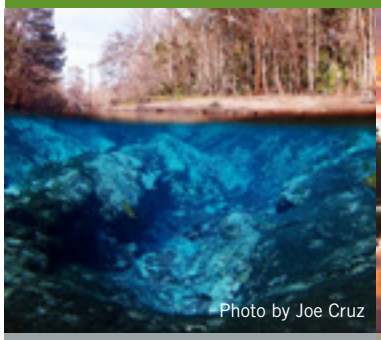


Photo by Joe Cruz

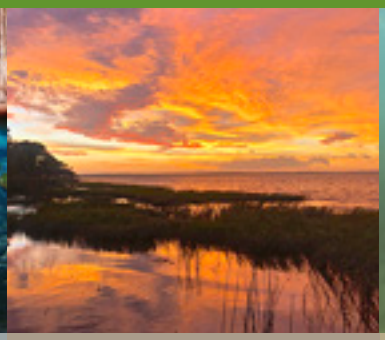



Photo by Reinier Munguia

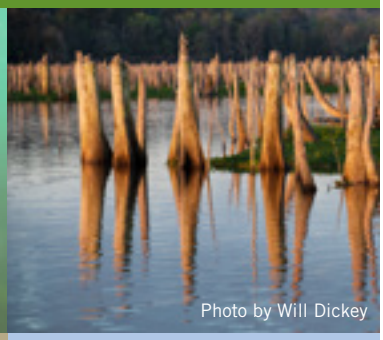


Photo by Will Dickey

150+ MGD Water Flow Restored

- Restores 150+ million gallons per day of natural water flow by uncovering 20 springs and reducing evapotranspiration off the reservoir.
- Improves water quality by reducing water temperature, increasing flow velocity, and adding wetlands water filtration through thousands of acres of restored wetlands forest
- Reduces invasive aquatic vegetation, contaminant buildup, nutrient load and harmful blue-green algal blooms

100 Mile St. Johns River Estuary Sustained

- Sustains one of the largest estuaries in Florida, the 100-mile St. Johns River Estuary.
- Re-establishes the historic migration path for fish and shellfish like the striped bass, American sturgeon, white and channel catfish, American shad and mullet from the Atlantic Ocean to Silver Springs
- Restores the critical balance of fresh and salt water in the St. Johns River Estuary increasing abundance of submerged aquatic vegetation that provides water quality filtration and important habitat for fresh and saltwater fisheries

56-Miles of Wildlife Habitat Silver Springs to St. Johns River

- Reestablishes 377 miles of network connectivity upstream of the dam including rivers, tributaries, creeks, spring runs and springs including one of the largest artesian springs in America
- Strengthens major wildlife habitat corridor connecting the Ocala and Osceola National Forests for white-tailed deer, wild turkey, black bears, Florida panthers and other wildlife
- Provides essential natural, warm water habitat for 500+ manatees at Silver Springs and uncovered 20 springs of the Ocklawaha

15,000+ Acres Floodplain Forests Restored

- Restores 7500 acres of floodplain forest originally devastated by dam
- Revitalizes 8000 acres of downstream forest and thousands of acres of upstream forest that are currently stressed and dying
- Significantly reduces area available for invasive exotic aquatic plants resulting in improved navigation and reduction in use of herbicides

References: United States Forest Service Environmental Impact Statement, 2001. Florida Silver Springs Conservation Plan, Howard T. Odum Florida Springs Institute, 2018. Hendrickson, John, 2016, Effects on Lower St. Johns River Nutrient Supply and TMDL Target Compliance from the Restoration of a Free-Flowing Ocklawaha River; SJRWMD, Technical Publication SJ2016. Manatee Use of Ocklawaha and St Johns Rivers-Ross, Monica; Sea to Shore Alliance, 2013. Ocklawaha Restoration Ranks High in Southeast Aquatic Resources Partnership Assessment, Florida Specifier, July-August 2020, Gail Hankinson. Wycoff, R. L., 2010, Lower Ocklawaha River Basin Hydrologic Data Review and Discharge Analysis; SJRWMD, Special Publication SJ2010-SP10.

Gold Scorecard: Economic Benefits of Ocklawaha Restoration


Photo by Will Dickey

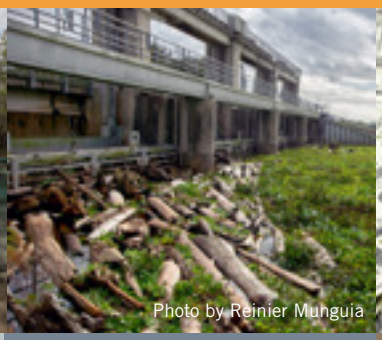


Photo by Reinier Munguia

+28% Change in Regional Visitation

- Tourism expected to increase over 5 years as restoration proceeds
- Restores a historic blueway for boaters from the Harris Chain of Lakes to the Atlantic Ocean, attracting more overnight visitors
- Increases local and nonresident visitor revenues and multi-use recreational opportunities across the river system
- Expands manatee viewing, increasing visitor revenues on the Ocklawaha and Silver Springs State Park
- Uncovers 20 springs attracting additional visitor revenues

$4-14+ Million Repair and Maintenance Savings

- Avoids spending an average of $363,741 per year in taxpayer funds (based on 2001-2019 expenditures) to maintain a dam that is past its 50-year life expectancy and never served its intended purpose
- Eliminates need to fund $4-14+ million in necessary repairs for Rodman Dam to meet safety standards
- Avoids potential of $57 million in property loss with dam failure

$8.1 Million Economic Output

- Increased business revenues in the local area of Putnam, Marion, Alachua Counties due to increased tourism, including indirect multiplier effects in supporting service industries and re-spending of household income

7.6% Annual Return on Investment

- Generates benefit-cost ratio of 1.76 on estimated partial restoration costs of $25.8 million over ten years.
- Realizes positive return in year five of restoration project
- Generates average annual rate of return on investment of 7.6%. Public works projects generally average less than 5%
- Cumulative net benefit of $47.2 million over 10 years under restoration; cumulative loss of $5.3 million for status quo alternative of no restoration

References: University of Florida economic study, 2019, X. Bi, T. Borisova, A. Hodges; 2007 and 2018 Margaret Harris Carr Cross Florida Greenway Management Plan; Economic benefits of Ocklawaha River restoration, Alan Hodges, June 2020. Emergency Action Plan, Kirkpatrick Dam and Rodman Reservoir, USR Corporation, February 2007. Dam Failure Flood Boundary Parcels Property Values, Putnam County Property Appraiser's Website, 2020.

The High Costs of Status Quo

These are the high costs of not moving forward with Ocklawaha River restoration.

1. **Lost Opportunity for Economic Growth in North Central Florida**

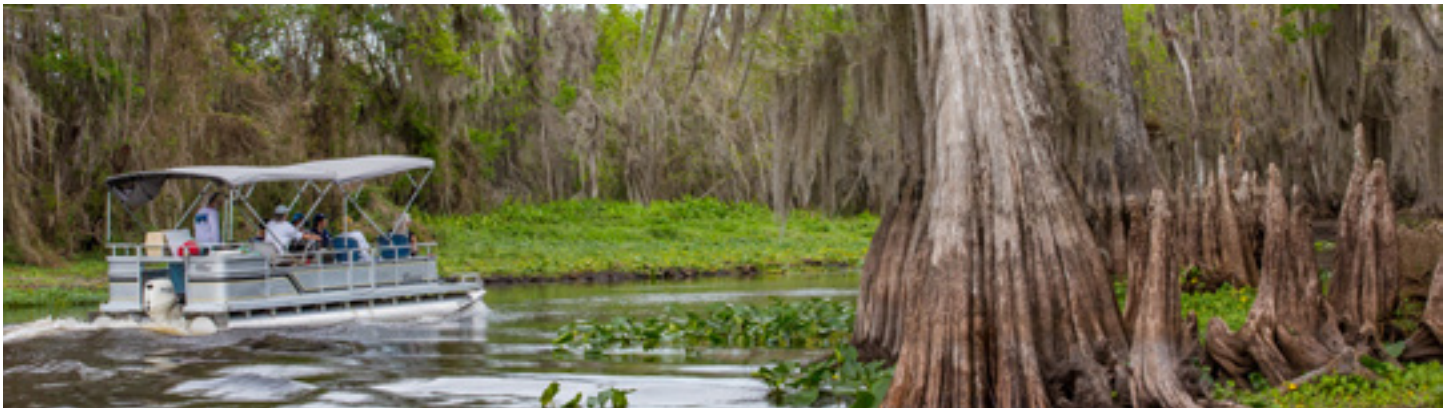
   The region is an area with chronic underinvestment, low income and high poverty. Putnam County is one of the poorest counties in the state. The area around Silver Springs has been deemed a blighted community redevelopment area.

2. **Loss of Tourists and Reduced Resident Use**

   The timing is right to capitalize on the rapidly growing ecotourism market in Florida and the U.S., and to invest in enhanced outdoor recreation opportunities supporting human health and well-being. Overall, use of the natural sections of the Ocklawaha River is going up and use of the impounded portions of the river is going down. Annual use of the reservoir recreation sites has been on a downward trend since 2010, declining by an average of 3,627 visitor parties per year. Annual use of the river sites has increased overall by an average of 508 visitor parties per year from 2010 to 2017. Diverse outdoor recreational opportunities provided by a restored river will increase visitation.

3. **Decline of Significant Fish, Shellfish and Aquatic Habitat**

   The 100-mile St. Johns River Estuary supports a diverse community of finfish and shellfish that have significant recreational and commercial economic value. Unfortunately, saltwater intrusion due to sea level rise, harbor dredging, hurricanes, drought and overuse of the Floridan Aquifer are contributing to the loss of aquatic vegetation (SAVs.) This loss of essential habitat is reducing estuary biological productivity like the adverse impacts in Apalachicola Bay. Loss of SAVs also decreases the St. Johns' ability to filter out nutrients increasing the risk of blue green algae outbreaks. Restoration of the Ocklawaha will increase freshwater flow into the St. Johns Estuary improving flow timing and delivery that are crucial to biological productivity, increased habitat, improved water quality and resiliency.



What the Leaders are Saying

"There are good arguments for breaching the dam in 2021. For one, the reservoir is filling up with muck. To maintain the status quo, the state will have to start paying to dredge it out at some point, along with paying increasing maintenance costs for the dam, which is already past its life expectancy. As it is, the state has to draw down the reservoir every few years as part of measures to control the growth of invasive aquatic plants that flourish in the reservoir environment."

– Mark Howard, Florida Trend, June 2020

"Our lodge is across from the mouth of the Ocklawaha River. Welaka in the past was known for its many fish camps that lined the river. We are now one of the few, and I am proud to say doing very well. I welcome new development, and I am a firm believer that more business brings more business. Removing the dam would be a big boost to the St. Johns River economy especially in Welaka."

– Kevin Finch, Owner, Welaka Lodge & Resort

"Silver Springs will never be fully restored without the breaching of the Rodman/Kirkpatrick Dam on the Ocklawaha River. Migratory fish from the Atlantic Ocean and St. Johns River, including striped bass, channel catfish, striped mullet, American shad, American eels and Atlantic sturgeon, are critical to a productive Silver Springs ecosystem."

– Dr. Robert Knight, Executive Director, Florida Springs Institute

"When the river is restored to its natural level, there are about 20 known currently 'drowned' springs that will be restored to greater visibility. If two Ocklawaha river springs (say Marion Blue springs and Cannon springs) were to be opened to the public with some recreational facilities (signage, parking, bathrooms, picnic tables, boardwalks, etc.) it appears that about 30 thousand visitors and $3 million in economic impact due to expenditures by those visitors would be a reasonable estimate for the early years of their existence."

–Steven Holland PhD, University of Florida Professor Emeritus,
Dept. of Tourism, Recreation and Sport Management

"During the drawdown, the state of the Ocklawaha River and recreational opportunities along the river are expected to closely resemble the situation after dam breaching. During the peak of the reservoir drawdown from November 2019 through February 2020, visitation at Rodman reservoir access points increased by 81 percent compared to the same four-month period in 2017-18 and 2018-19."

Alan Hodges, UF Economics Professor Emeritus

Free the Ocklawaha River Coalition

The Free the Ocklawaha River Coalition includes 60 organizations representing thousands of members from across Florida and beyond. Its mission is to restore the Ocklawaha as a free-flowing River, reconnecting the Silver and St. Johns Rivers, and elevating the regional benefits for all.

Free the Ocklawaha River Coalition – For Everyone!

National, State, & Regional Organizational Members

Alachua Conservation Trust
Audubon Florida
BullSugar.org
Center for Biological Diversity
Defenders of Wildlife
Earth Ethics, Inc.
Earth Justice Florida
Florida Conservation Voters
Florida Defenders of the Environment
Florida Native Plant Society
Florida Springs Council
Florida Springs Institute
Florida Wildlife Federation
Friends of the Everglades
Friends of Lake Apopka
Ichetucknee Alliance
1000 Friends of Florida
Our Santa Fe River, Inc.
Paddle Florida
Public Trust Law
Rainbow River Conservation
Save the Manatee Club
St. Johns Riverkeeper
Sea Turtle Conservancy
Sierra Club Florida Chapter
Silver Springs Alliance

Local Organizations

Alachua County Audubon Society
Calusa Waterkeeper
Duval County Audubon Society
Marion County Aquaholics
Marion County Audubon Society
Matanzas Riverkeeper
Ocklawaha Valley Audubon Society
One Revolution Jacksonville
Orange Audubon
Putnam County Land Conservancy
Santa Fe Audubon Society
St. Johns County Audubon Society

Business Organizations

A Cruising Down the River
Adventure Outpost
Blazing Paddles
Chase Properties
Freshwater Journeys LLC
Geo Trippin' Adventure Company
Hell's Bay Marine
North Star Charters
Olsen Associates
Rebah Farm
Saturiba, Co.
Whitey's Fish Camp

Other Organizations

Aquiferous
Dommelvisrecht- Netherlands
Environmental Discussions Group Manatee County NAACP
Environmental Justice Committee Alachua County Springs
Eternal Project
Riverside Presbyterian Church Sustainability Committee
Gainesville Friends Meeting of Friends Religious Society

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