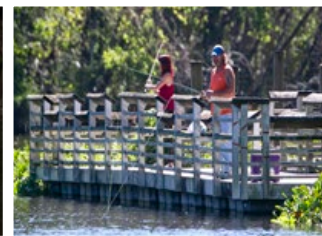


# Ocklawaha Restoration Briefing Book for Leaders 2019

## Ocklawaha Restoration Regional Working Group

Reconnecting the Silver, Ocklawaha and St. Johns Rivers to form a free-flowing blueway and ecological greenway of national significance.



### Presenting Scientists:

- **Jennifer Carr**  
Manager, UF Biosecurity Research & Extension Lab
- **Jim Gross**  
Professional Geologist & Executive Director, Florida Defenders of the Environment
- **Edgar F. Lowe, Ph.D.**  
Chief Scientist – Retired, St. Johns River Water Management District
- **Ken Sulak, Ph.D.**  
Retired U.S. Geological Survey Biologist

### Supporting Presenters:

- **Karen Chadwick**  
Owner and Operator of North Star Charter Services and Archeological and Environmental Exhibit Designer
- **Lisa Rinaman**  
St. Johns Riverkeeper
- **Margaret Hankinson Spontak**  
Non-profit Consultant & Corporate Philanthropy Manager



## Ocklawaha River Restoration Presenters

### Ocklawaha River Restoration Working Group Team Biographies

#### **Lisa Rinaman**

St. Johns River Keeper

The St. Johns Riverkeeper is the chief advocate and public's voice for the St. Johns River. Responsibilities include: supporting regulatory agencies to hold those polluting the river accountable; identifying and advocating for solutions that will protect and restore the river; working with government entities, businesses, community leaders and citizens to resolve problems that impact the river's health; and communicating with the media and the public to educate and raise awareness about important river-related issues.

As a former senior staff member for Jacksonville Mayor John Peyton, Lisa Rinaman has extensive experience building consensus around issues and helped implement numerous environmental initiatives and policies. Lisa was instrumental in leading the effort to develop and implement irrigation, fertilizer and Florida Friendly landscaping ordinances to better protect the St. Johns and local waterways. She also played a key role in securing state funding for water quality improvements, organizing the city's successful Manatee Protection Plan, and pushing for programs necessary to fulfill the River Accord restoration plan for the Lower St. Johns River.

#### **Edgar F. Lowe, Ph.D.**

Chief Scientist – Retired, St. Johns River Water Management District, Palatka, Florida.

Ed earned his bachelor's degree in Zoology from Ohio University, his master's degree in Biology from the University of South Florida, and his Ph.D. in Zoology from the University of Maine. After earning his Ph.D., Ed worked as a Senior Scientist with Applied Biology, Inc., where his work focused on assessment of power plant impacts on the Indian River Lagoon. In 1981, he joined the St. Johns River Water Management District as Environmental Scientist IV working on the large-scale restoration program for the Upper St. Johns River. In 1986, was promoted to Director of the Environmental Sciences Division of the St. Johns River Water Management District. In this position, he directed the efforts of a large, interdisciplinary group of scientists engaged in developing science-based, practicable solutions for protection, management, and restoration of wetlands, lakes, springs, rivers, and estuaries. In 2013, Ed was selected to be the District's first Chief Scientist. In this role, he assumed scientific leadership for all major resource programs.

During his 32-year career in water resource management in Florida, Ed has promoted the use of applied science as one of the pillars supporting sustainable use of Florida's water resources. Ed has an extensive record of published research in peer-reviewed scientific journals, and he has served on statewide committees to guide the development of Florida's water policy. In 2006, Ed received the Richard E. Coleman Aquatic Sciences Award of the Florida Lake Management Society in recognition of his efforts to



## Ocklawaha River Restoration Presenters

understand and restore Florida's aquatic resources. Ed presently serves as a Scientific Advisor for the Florida Defenders of the Environment and as an Environmental Representative on the Florida Coordinating Council for Mosquito Control.

### **Jim Gross**

Professional Geologist &  
Executive Director, Florida Defenders of the Environment

Jim Gross is a professional geologist with 43 years of experience in water resources. He is a native of California and earned his bachelor's degree in geology at the University of California at Santa Barbara. Jim worked in geothermal energy exploration across much of the western U.S. early in his career. He returned to graduate school to earn a master's in geology at New Mexico State University.

Jim has more than 20 years of experience in long-term regional water supply planning, including 18 years with the South Florida Water Management District and the St. Johns River Water Management District. As Assistant Director of Water Supply Management at the St. Johns River Water Management District Jim managed a unit of 35 professional scientists, engineers, and planners. This work involved developing long-term regional water supply plans, establishing minimum flows and levels, and implementing water-supply and water-resource development projects in collaboration with local governments throughout the 18 counties of the District.

Jim is a licensed professional geologist in California and Florida and certified as a Professional Geologist by the American Institute of Professional Geologists. He is currently the executive director of Florida Defenders of the Environment and an adjunct professor of Earth science at Santa Fe College in Gainesville.

### **Ken Sulak, Ph.D.**

Retired U.S. Geological Survey Biologist

Dr. Ken Sulak is retired from the U.S. Geological Survey, Gainesville, Florida, after 50 years of research and publication on deep-sea, coastal, estuarine, anadromous, and riverine fishes. Dr. Sulak has degrees in biology and marine science from Harvard University and the University of Miami. From 1985-1994 he was Director and Senior Fish Biologist at the Huntsman Marine Science Centre in Canada, and previously a NATO and U.S. National Academy of Sciences research fellow in England and Russia. His population and conservation research of the past 25 years has focused on the Gulf Sturgeon in the Suwannee River and deep reef fish communities in the Gulf of Mexico, including impacts from the 2010 BP oil spill.

Dr. Sulak is also a student of early Florida history and how early settlers and loggers exploited natural resources in the Suwannee watershed resulting in an irreversible and fundamental shift in terrestrial and aquatic ecosystems. He is currently working on three books on the life history of the Gulf Sturgeon, the life histories of deep-sea fishes, and the history of North Florida historical ferry and bridge crossings used by early settlers.



## Ocklawaha River Restoration Presenters

He also writes a continuing series of short natural history magazine articles on fishes, aquatic insects, spiders, microwasps, and other topics.

### **Jenny Carr**

Manager, UF Biosecurity Research & Extension Lab

Jennifer Carr received her bachelor's degree in Wildlife Ecology & Conservation and a master's degree in Sustainable Development Practice from the University of Florida. Jennifer was director of the Sarapiquí Conservation Learning Center in Costa Rica located within the San Juan-La Selva Biological Corridor in 2013 where she worked with the local community, stakeholders, and NGOs to promote conservation and sustainability. By signing an agreement with the National Library System of Costa Rica, Jennifer was able to bring essential library resources to the center.

Jennifer has been the manager of the Biosecurity Research and Extension lab for the last five years in the Entomology and Nematology Department at the University of Florida where she maintains educational websites about crop pests and rears colonies of insects to support the Doctor of Plant Medicine program. The Marjorie Harris Carr Cross Florida Greenway was named in honor of her grandmother.

### **Karen Chadwick**

Owner and Operator of North Star Charter Services and Archeological and Environmental Exhibit Designer

As a Florida native, Karen Chadwick spent a great deal of her childhood exploring and enjoying the woods and waterways of her home state. After receiving a BFA for sculpture and painting from the Ringling School of Art and Design, she worked with several environmental education centers and museums to fabricate exhibits which provide interpretation, illustration and display structures for various fields of study. Her primary areas of expertise include paleontology, archaeology, geology, and hydrogeology and historical events. Project dimensions range from an articulated Mammoth skeleton and a life size section of a sinkhole to small-scale dioramas including the depiction of a hunting scene from the Paleo-Indian Period in the Silver River Basin. Karen often works with experts in the field to assure her projects accurately convey information provided by state agencies. She has constructed three-dimensional, interactive aquifer exhibits requiring input from the Florida Geological Survey, Water Management Districts and the Florida Department of Environmental Protection.

Karen, a licensed boat captain, owns and operates North Star Charter Service, specializing in heritage tours. She navigates the rivers and lakes of north central Florida describing the many of the paleontological, archaeological and historical events that took place along the shorelines. [www.northstarcharters.net](http://www.northstarcharters.net)



## Ocklawaha River Restoration Presenters

### **Margaret Hankinson Spontak**

Non-profit Consultant & Corporate Philanthropy Manager

Margaret Spontak's conservation career includes director of development for Audubon Florida, director of policy and planning for SJRWMD, promotions manager for Silver Springs and co-author of *Protecting Paradise*. At SJRWMD, her team facilitated and wrote the first District Water Management Plan, prepared the district's strategic plan, provided technical assistance to local governments and reviewed comprehensive plans for 119 local governments identifying potential water resource issues.

Margaret's environmental communications work includes the branding and communication plan for Marion County "Pennies for Parks," a \$20 million land referendum, and the Silver River Society, the organization that lobbied for purchase of lands protecting the Silver River. Her facilitation work has included numerous river projects such as the St. Johns River Summit, American Heritage River designation, St. Mary's River Management Plan, and Palatka Water Works. Her volunteer focus is to create the Silver/Ocklawaha Blueway, a continuous blueway from Silver Springs to the St. Johns River.

She currently manages philanthropy in Florida for the Duke Energy Foundation. The Foundation awards approximately \$3 million in charitable contributions annually including conservation grants that restore habitat, conserve species and protect water resources. Through the Foundation's volunteer engagement program, employees have restored scrub habitat, removed exotic plants, cleaned Florida's waterways and enhanced Florida State Parks. Spontak has her MBA from Nova Southeastern University and a BS in Communications from Florida State University.



# Ocklawaha River Restoration Table of Contents

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# Ocklawaha River Restoration Project-at-a-Glance

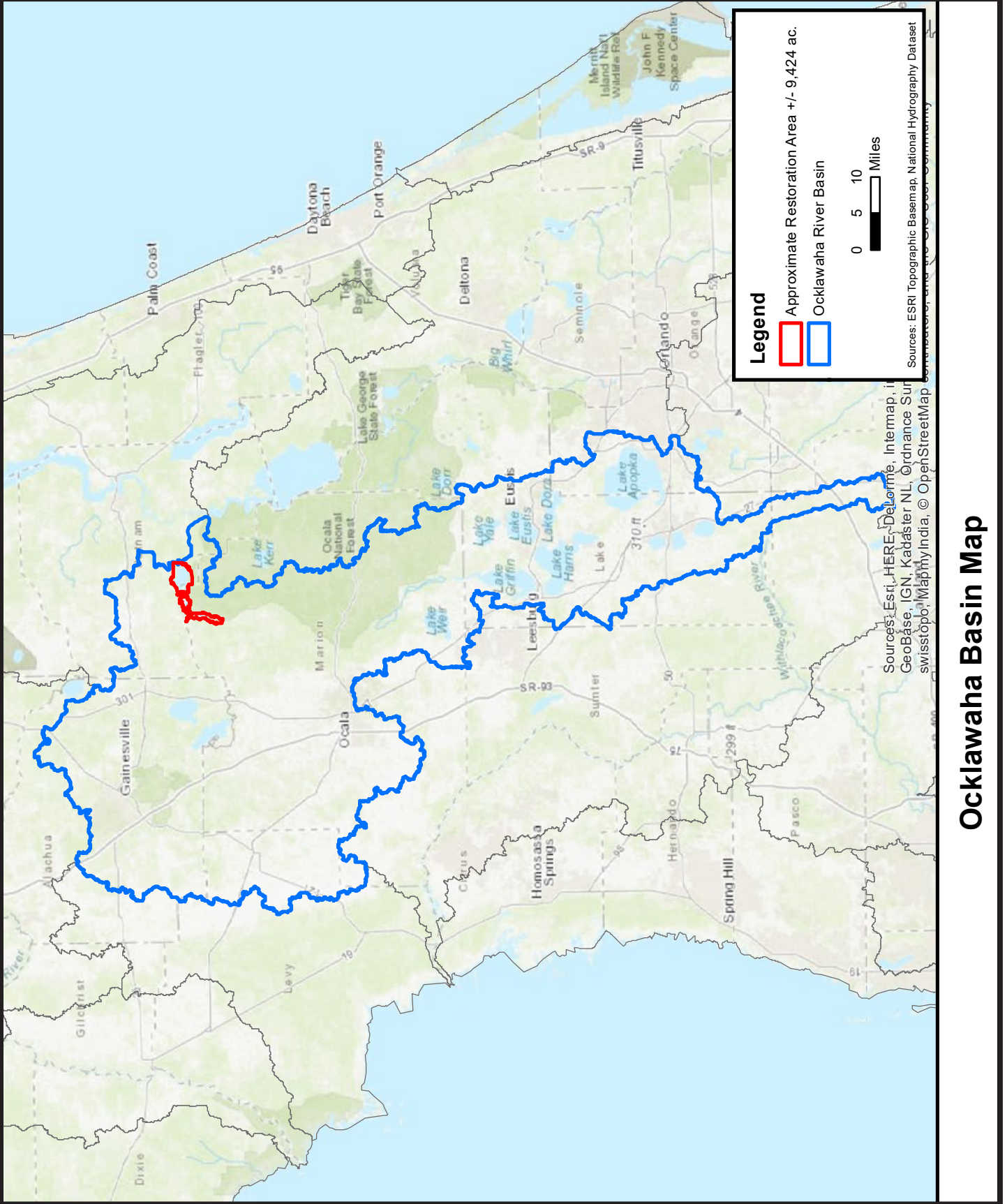
## About the Resource

- The Rodman Dam was constructed in 1968 as part of the Cross Florida Barge Canal project.
- The damming of the Ocklawaha River flooded more than 7,500 acres of forested wetlands, 16 miles of river and at least 20 springs.
- The Ocklawaha River flows north/northeast. It is joined by the Silver River near Ocala, continuing until reaching the St. Johns River in Putnam County. It is the largest tributary of the St. Johns River.
- Benefits of restoration extend well beyond Putnam County to the headwaters of the Ocklawaha in Lake County to the estuaries of the St. Johns River in Duval County and beyond.
- Restoration has been identified as one of three essential components of the Silver Springs Basin Plan and an essential action to improve water quality in the St. Johns River.
- One scientist called it “the Everglades of the north” but with a cost less than one Everglades restoration project. The economic and environmental return on investment would be unprecedented.
- The actual restoration area is in Putnam and Marion Counties.

## Key Benefits

- Restoration of 7,500 acres of valuable forested floodplains forest and wetlands destroyed
- Improvement of 8,000 acres of wetlands downstream of the dam to the St. Johns River
- Uncover most of the 20 natural springs now submerged under the reservoir (See tab 8)
- Increase water supply through reduction of 35 mg/d of evapotranspiration and yielding approximately 150 mg/d of increased flow to the St. Johns River (See tab 8)
- Reduce invasive and exotic aquatic plants due to increased water flow and velocity, reduced water temperatures and clarity (See tab 4)
- Re-establish tributary flows to the Ocklawaha from Orange and Deep Creeks
- Increase migratory fish populations, fish diversity and densities in the Ocklawaha and Silver Rivers with restored historic connection to the St. Johns River (See tab 7)
- Reconnect of the wildlife habitat to create contiguous wildlife corridor for bears and many other native vertebrates (See tab 5)
- Provide safe access and expanded manatee habitat along the Ocklawaha River and Silver Springs (See tab 7)
- Expand habitat for up almost a dozen state-listed plants (See tab 5)
- Improved economic resiliency of Putnam and Marion Counties (See tab 9)
- Provide more diverse and attractive recreational opportunities (See tab 10)
- Conserve and showcase the cultural heritage of this historic steamboat route (See tab 11)

# Ocklawaha River Restoration Project-at-a-Glance



**Legend**

- Approximate Restoration Area +/- 9,424 ac.
- Ocklawaha River Basin

0 5 10 Miles

Sources: ESRI Topographic Base map, National Hydrography Dataset, Esri, HERE, DeLorme, Intermap, iGeoBase, (GN, Kadaster NL, Ordnance Survey, swisstopo, MapmyIndia, © OpenStreetMap

**Ocklawaha Basin Map**





## Ocklawaha River Restoration Partial Restoration Plan

**KEY REFERENCE:** *“The Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, have an established policy that the Ocklawaha River should be “partially restored” with the FDEP as the lead agency. However, the Legislature has not appropriated funds for this purpose. If funds are made available and permits are issued, it is the intent of the FDEP to undertake this restoration.” - FDEP Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area Unit Management Plan (2017-2027)*

### A Consensus Plan for Partial Restoration

FDEP’s Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area Unit Management Plan (2017-2027) lays out the 11 major components for partial restoration of the Ocklawaha River. This plan is consistent with almost all scientific assessments of the Ocklawaha River Restoration Project, all agency recommendations (including two environmental impact statements), and conservation organizations across the state.

Partial restoration was the restoration alternative selected by the Governor and Cabinet in 1995 at the conclusion of the \$900,000 EIS completed by the United States Forest Service in 2001 (See list of supporting organizations and documents in the appendices). FDEP’s Greenway Plan states, “The Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, have an established policy that the Ocklawaha River should be “partially restored” with the FDEP as the lead agency. However, the Legislature has not appropriated funds for this purpose. If funds are made available and permits are issued, it is the intent of the FDEP to undertake this restoration.”

### Definition and Components of Partial Restoration

FDEP’s Greenway Plan says, “Partial restoration is intended to restore river hydrology and floodplain function to near preconstruction conditions through breaching the dam, with limited removal and/or alteration of structures and alteration of the topography. This alternative will retrieve National Forest System lands at the lowest cost while restoring river and floodplain hydrology.” The major components of partial restoration are:

1. Drawdown of the reservoir to be accomplished in three phases (three years to drop from 18 feet to four feet NGVD)
2. Limited construction of channel stabilization and erosion control structures in the Ocklawaha River
3. Limited planting of native plant species to provide for erosion control
4. Partial leveling of the exposed barge canal side-cast spoil berms
5. Restoration of the historic Ocklawaha River channel flow by filling the large barge canal where it intersects the river channel
6. Restoration of the historic Deep Creek channel flow by filling the barge canal where it intersects the creek channel
7. Restoration of the historic Camp Branch floodplain and channel flow by filling the barge canal where it intersects the creek channel
8. Closure and securing of the Buckman Lock
9. Removal of 2,000 feet of the Kirkpatrick Dam (earthen portion)
10. Partial filling and restoration of the spillway tailrace to natural grade
11. Development and implementation of a cultural resources operating plan



## Ocklawaha River Restoration History of the Rodman

*Compiled by Jim Gross, Florida Defenders of the Environment*

- **1800s** – Long history dating back to 1800s, Spanish and English colonial interests to find a navigation route across the Florida peninsula.
- **Great Depression** – Interest in a cross Florida canal project to create jobs (WPA)
- **1935** – USGS report finds the canal project would jeopardize Florida's fresh groundwater supplies. State Geologist agreed the canal posed a serious risk for groundwater supplies.
- **Late 1935** – Despite risks, initial construction began with a federal authorization of \$5M.
- **June 17, 1936** – Congress failed to approve further funding, therefore work stopped.
- **1940** – Canal boosters argued the canal was essential for national defense. To address groundwater concerns, project was redesigned from a deep ship canal (35 ft. deep) to a barge canal (12 ft. deep).
- **April 10, 1942** – An American oil tanker was sunk off Jacksonville by a German U-boat. This event provided support that the canal was needed for national defense.
- **June 1942** – Congress authorized approval of the project as a national security measure but did not allocate any funding.
- **December 1943** – The US Army Corps of Engineers released plans for the project that would eventually be built in the 1960s.
- **1950's** – Eisenhower administration saw no merit in the project and did not seek funding.
- **Early 1960's** – Cold war fears resurrected arguments for national defense.
- **December 31, 1963** – President Johnson signed legislation funding construction.
- **February 27, 1964** – President Johnson attended groundbreaking event in Putnam County.
- **September 1968** – Rodman Dam completed, closing off flow of the Ocklawaha River.
- **Summer 1969** – Florida Defenders of the Environment (FDE) formed to stop the project. FDE was a successor to an earlier organization (Citizens for Conservation).
- **September 15, 1969** – Environmental Defense Fund and FDE file suit against the U.S. Army Corps of Engineers calling for a halt to construction of the Cross Florida Barge Canal.
- **January 1971** – Judge Parker issues a preliminary injunction in the U.S. District Court in Washington D.C. to halt construction of the Cross Florida Barge Canal. President Nixon orders construction to stop "to prevent potentially serious environmental damages."
- **January 27, 1971** – Judge Parker issues written decision in Environmental Defense Fund Incorporated et al., v. Corps of Engineers of the United State Army et al, Civ. A. No. 2655-69, USDC, District of Columbia. Decision memorializes injunction to halt construction of the Cross Florida Barge Canal project.
- **March 1, 1971** – Florida Game & Freshwater Fish Commission recommends that the reservoir be drained, and the dam be breached to restore the river.
- **December 22, 1976** – Letter from the Florida Department of Natural Resources on behalf of Florida Governor Rueben Askew and the Florida Cabinet to the U.S. Army Corp of Engineers:
  - recommended that the project not be completed
  - requested U.S. Congress to deauthorize the project
  - recommended restoration of the Ocklawaha River and designation as a wild and scenic river.
- **March 10, 1978** – Addendum to the Cross Florida Barge Canal Restudy Report, Final EIS, by the U.S. Army Corps of Engineers: draining Rodman Pool and restoring the river would have no significant socioeconomic impacts (individually and cumulatively).
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## Ocklawaha River Restoration History of the Rodman

- **May 1990** – Florida legislation passed, consistent with pending federal legislation, to deauthorize the entire Cross Florida Barge Canal project.
- **November 28, 1990** – President George H. W. Bush signs federal legislation deauthorizing all portions of the Cross Florida Barge Canal project not previously deauthorized.
- **January 22, 1991** – Governor Lawton Chiles and the Florida Cabinet sign a state deauthorization bill that ended the Cross Florida Barge Canal project.
- **1991** – Florida legislature establishes a Canal Lands Advisory Committee (CLAC) to make recommendations concerning how to use the lands that had been acquired.
- **September 17, 1992** – The CLAC issues its final report and recommendations concerning the future of the Cross Florida Greenway. The report addresses a variety of issues, but fails to address the ultimate disposition of the Rodman Dam.
- **1993** – Florida legislature allocates \$900,000 for an examination of four possible scenarios: 1) full retention of reservoir, 2) partial retention of reservoir, 3) partial restoration of reservoir, 4) full restoration of reservoir. The study was managed by FDEP and subcontracted to the St. Johns River Water Management District (SJRWMD).
- **January 1995** – The 20-volume report assessing four scenarios was completed. It concluded that “efforts should be directed instead at restoration of the Ocklawaha River.”
- **June 16, 1995** – Governor Lawton Chiles directs FDEP in cooperation with SJRWMD to begin a phased drawdown of the Rodman Reservoir and to move forward with the partial restoration option to restore the Ocklawaha River.
- **1997** – FDEP submits an application to the SJRWMD for restoration of the Ocklawaha River.
- **May 1998** – Florida legislature commemorates Marjorie Carr by naming the Cross Florida Greenway after her.
- **1999** – The SJRWMD deems FDEP’s permit application complete. However, due to potential water quality issues with river restoration it cannot recommend approval of the permit at that time. FDEP requests that the District not act on the application but hold it in abeyance.
- **2002** –USFS completed an EIS in 2002 that called for restoring the Ocklawaha and removing the Rodman dam. The USFS has consistently supported the restoration of the Ocklawaha River. Shortly afterwards, they gave the state of Florida a special use permit to temporarily retain the Rodman dam and pool on USFS land based on the state’s commitment to complete the river restoration. The permit has lapsed, and the state of Florida is operating structures on USFS lands without a permit.
- **2016** – The SJRWMD publishes a report concluding that the temporary increase in total phosphorus due to reestablishing a free-flowing river "is in the range of other permitted TP loads to the LSJR, and within the realm of reduction achieved by projects currently functioning elsewhere in the basin." The report supports that river restoration is feasible and permissible.
- **April 2016** – Thomas Tidwell, Chief of the United States Forest Service, meets with a delegation representing FDE including former Lieutenant Governor and Governor Buddy MacKay, former Secretary of the Florida DER and former Administrator US EPA Carol M. Browner, and John Hankinson, the former U.S. EPA Region 4 Administrator. Chief Tidwell pledges full support to get river restoration going again.
- **September 1, 2017** – Thomas Tidwell is replaced by Tony Tooke as head of the U.S. Forest Service. Six months later, following claims of sexual misconduct, Tooke resigns from the USFS. Vicki Christiansen was appointed interim Chief, and in October 2018 was appointed Chief of the USFS.
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## Ocklawaha River Restoration History of the Rodman

- **October 9, 2017** – Florida Defenders of the Environment holds a press conference announcing its intent to file a lawsuit against the U.S. Forest Service for failure to restore the Ocklawaha River.
- **November 11, 2017** – UF Institute of Food and Agricultural Sciences publishes "Economic Importance and Public Preferences for Water Resources Management of the Ocklawaha River". The report concludes that an "analysis of visitors' expenditures shows that the activities on the natural stretches of the Ocklawaha River result in greater contributions to the regional economy, compared to the recreation on the Rodman Reservoir sites".

### References:

Borisova, Tatiana; Bi, Xiang; Hodges, Alan; Holland, Stephen, 2017, Economic Importance and Public Preferences for Water Resource Management of the Ocklawaha River; University of Florida Institute of Food and Agricultural Sciences.

Hendrickson, John, 2016, Effects on Lower St. Johns River Nutrient Supply and TMDL Target Compliance from the Restoration of a Free-Flowing Ocklawaha River; St. Johns River Water Management District, Technical Publication SJ2016-.

Noll, Steven and Tegeeder, David, 2011, The Wicked Ditch Will Never Die: The On-Going Controversy over Rodman Reservoir; Journal of Florida Studies, V1, I1. <http://www.journaloffloridastudies.org/wickedditch.html>

National Public Radio, U.S. Forest Service Chief Resigns Amid Sexual Misconduct Allegations, 2018, <https://www.npr.org/sections/thetwo-way/2018/03/08/591807164/u-s-forest-service-chief-resigns-amid-sexual-misconduct-allegations>

Wikipedia: Cross Florida Barge Canal, [https://en.wikipedia.org/wiki/Cross\\_Florida\\_Barge\\_Canal](https://en.wikipedia.org/wiki/Cross_Florida_Barge_Canal)



## Ocklawaha River Restoration Surface Water Quality

**KEY REFERENCE:** *Despite the predicted increase in downstream nutrient load, the positive aspects related to the restoration of floodplain functions, increased unique habitat and migratory fish passage appeared to provide overall net environmental gain.* – John Hendrickson, SJRWMD

### Current Conditions

- Temperature at the Rodman Reservoir is higher than the natural river
- Velocity on the impounded portion of the Ocklawaha River is slower
- Stagnant water at the dam allows for sediment, nutrient and contaminant buildup
- Slower flow and elevated temperatures increase invasive aquatic plant blockages
- Contaminant buildup at the reservoir is triggering public health advisories for fish caught above and below the dam
- These conditions result in loss of fish and wildlife diversity

### Partial Restoration Benefits

- Temperature of a restored Ocklawaha is estimated to drop by almost 10 degrees
- Velocity of a free-flowing river will be greater
- Lower invasive aquatic weed growth due to reduced temperatures, velocity and nutrients
- Re-establishes approximately 7,500 acres of forested wetlands
- Restores more than 8,000 acres of existing floodplain forest that lies between the dam and the St. Johns River
- Forested wetlands provide added nutrient and contaminant filtering and natural flood protection

The destruction of the approximately 7,500 acres of forested wetlands replaced by the Rodman Reservoir removed the natural filtering of contaminants, and, therefore, the water in the lake and below the dam are especially high in contaminants and nutrients from fertilizers.

### Contaminant Buildup

The continuing buildup of organic muck sediment on the bottom of the impoundment is an issue. The muck, slowly filling the reservoir behind the dam, traps toxic mercury and other pollutants that bioaccumulate up the food chain. It has also impacted the quality of the fishery. The reservoir bottom accumulates synthetic contaminants from repetitive application of herbicides. Discontinuation, or significant decrease, of long-term application would present an overall environmental benefit.

### Downstream Water Quality Impacts

SJRWMD and USGS have conducted water quality monitoring along the Ocklawaha, Silver and St. Johns Rivers during the routine drawdowns. This data proved earlier assumptions about the potential downstream nutrient loading due to restoration to be in error.

In an updated analysis of the downstream water quality effects of Ocklawaha restoration, SJRWMD concluded that previous concerns about elevated nitrogen loads to the Lower St. Johns River from a free-flowing river were incorrect due to insufficient data and analysis. Successful



## Ocklawaha River Restoration Surface Water Quality

restoration greatly enhances the entire Lower St. Johns River as a result of flow increases and nitrogen load reductions.

SJRWMD scientist John Hendrickson stated, "The predicted Total Phosphorus (TP) load increase from a free-flowing lower Ocklawaha, while not insignificant, is in the range of other permitted TP loads to the Lower St. Johns River, and within the realm of reduction achieved by projects currently functioning elsewhere in the basin."

Hendrickson explained, "Despite the predicted increase in downstream nutrient load, the positive aspects related to the restoration of floodplain functions, increased unique habitat and migratory fish passage appeared to provide overall net environmental gain." (1)

"Should FDEP choose to pursue this restoration, and if a mitigation were deemed appropriate to offset potential harm based on the predicted TP load increase, it would likely be achievable through a combination of treatment project options directed elsewhere in the middle St. Johns, Lake George, or the freshwater LSJR. This fact, combined with the understanding of other adverse impacts that occur as a result of reservoir drawdowns, a necessary management action for the maintenance of the reservoir, appears sufficient such that a recommendation of denial, on the grounds of the detrimental impacts to downstream water quality, is no longer a certainty for this restoration permit." (1)

Hendrickson concludes that impacts from river restoration would be less impactful than periodic drawdowns that occur every three to four years. Drawdowns, although helpful in managing aquatic weeds and the fishery, can result in 1) concentrations of nitrogen and phosphorus downstream during the drawdowns, 2) potential alterations of down-estuary salinity patterns and 3) low dissolved oxygen levels in the river reaches below the dam during exceptionally dry years when the impoundment is refilling. (1)

The Lower St. Johns River (LSJR) Total Maximum Daily Loads (TMDL) was adopted in 2008 and calls for a 30% reduction from upstream sources. "In addition to the TMDL constraints, the designation of the LSJR as an impaired water, with nutrient-driven cultural eutrophication cited as the parameter of concern, could lead to a violation of a consumptive use permit condition (necessary to conduct the drawdown) under the anti-degradation provision of the State water quality standards (F.A.C. 62-302)." (1)

### Fish Advisories

The Florida Department of Health 2018 Fish Advisories indicates that pregnant women and children should not eat bass caught on the Ocklawaha below the dam and should only eat one bass a month for those caught in the section from Lake Griffin to the Rodman Reservoir. However, fishing the Rodman Pool is widely practiced by many low-income families in the region. (2)

### Nutrient Concentrations

Silver Springs has been a contributor to nutrients to the Ocklawaha River, since the river receives approximately 60 percent of its water from that source. Scientist Robert Knight explained, "The crystal-clear waters viewed by millions of tourists through glass-bottomed boats over the past 100 years now contains concentrations of nitrate-nitrogen more than 3,000 percent higher than the natural background." (4)



## Ocklawaha River Restoration Surface Water Quality

### Temperature and Flow

Experts have estimated that the restored river with increased velocities would result in a river temperature decline of approximately 10 degrees. A reduction in river temperature would potentially reduce the quantity of invasive, aquatic plants.

Velocity can play a part in reducing algal cover on submerged aquatic vegetation. A UF and SJRWMD joint study looked at whether reducing nitrogen in the Silver and Ocklawaha Rivers would restore important food producers, as essential part of the food chain. Scientists reported that, "Observations indicate that nitrogen reduction alone is unlikely to restore primary producer community structure (PPCS). The velocity of water movement strongly influences PPCS. Restoring higher velocities should reduce algal cover on submerged aquatic vegetation." (3)

### Natural Flood Protection

The Rodman Reservoir, an approximately 9,000-acre man-made impoundment, was not designed to provide flood protection. The acres of natural forested wetlands that were destroyed created natural flood protection. "Approximately 400 plus properties were shown to be in potential harm's way if the Kirkpatrick Dam failed and the impounded water in the reservoir flowed downstream in an uncontrolled discharge." (5) The lower water levels of a restored river will relieve pressure on the structures while the restored habitat will naturally absorb excess storm waters.

### Sources

1. SJRWMD Technical Publication SJ2016-1 by John Hendrickson – *Effects on Lower St. Johns River Nutrient Supply and TMDL Target Compliance from the Restoration of a Free-Flowing Ocklawaha River*
2. Florida Department of Health Fish Advisories
3. 2017 UF and SJRWMD CRISP Study, UF Contract #27789, p. 73 of 1085
4. Florida Silver Springs Conservation Plan, Howard T. Odum Florida Springs Institute, 2018, Principal Authors include Robert Knight, ED of the Institute and Heather Vick, professional hydrogeologist with Washington Dept. of Ecology
5. FDEP Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area Unit Management Plan (2017-2027)



## Ocklawaha River Restoration Natural Systems

**KEY REFERENCE:** "It is my opinion the restoring of the Ocklawaha River would have a significant habitat connectivity benefit for wide-ranging and landscape dependent focal species in Florida including the Florida panther and Florida black bear."

Thomas Hctor, Ph.D., Director, Center for Landscape Conservation Planning

### Current Conditions

- Impoundment is interrupting the ecological connectivity of the river system and the floodplain forests of the Cross Florida Greenway, fragmenting an important wildlife corridor.
- Degrading over 15,000 acres of forested wetlands by disrupting the distribution of water through the landscape, including approximately 600 acres in the Ocala National Forest

### Benefits of Partial Restoration

- Restore 7,500 acres of floodplain swamp, a diminishing habitat type
- Improve the food web in the Lower St. Johns River by reducing the cyanobacteria in the phytoplankton communities which will assist in meeting the TMDLs established for the freshwater reach.
- Link major conservation areas including Rice Creek Conservation Area 15 miles to the north and Ocala National Forest bordering the Ocklawaha River to the south
- Establish corridors for black bear, panthers and other wildlife
- Provide habitat for up to 12 of Florida's 37 rare and endangered birds and mammals, those found in cypress and mixed hardwood swamps (Ewel 1986)
- Increase in forest bird species such as warblers, vireos, and owls and mammals that frequent floodplain forests
- Increase habitat for 12 listed plant species that were identified in the USFS study
- Improve alligator habitat with the conversion of deeper water to shallow water and marsh

### References

<https://www.fnai.org/webmaps/ConLandsMap/>

[https://myfwc.com/media/5718/chapter3\\_sgcn.pdf](https://myfwc.com/media/5718/chapter3_sgcn.pdf)

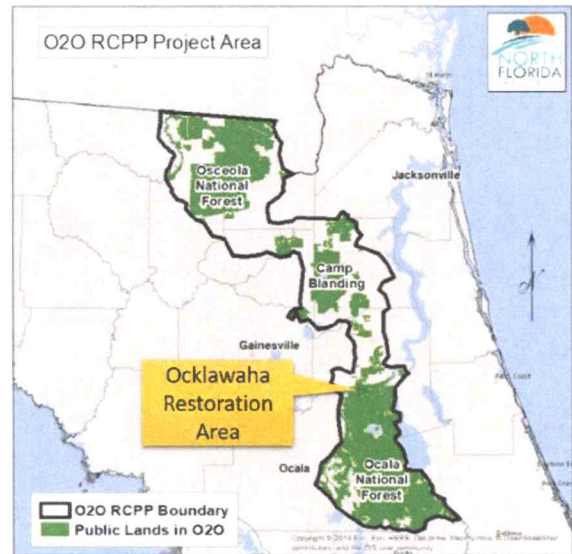
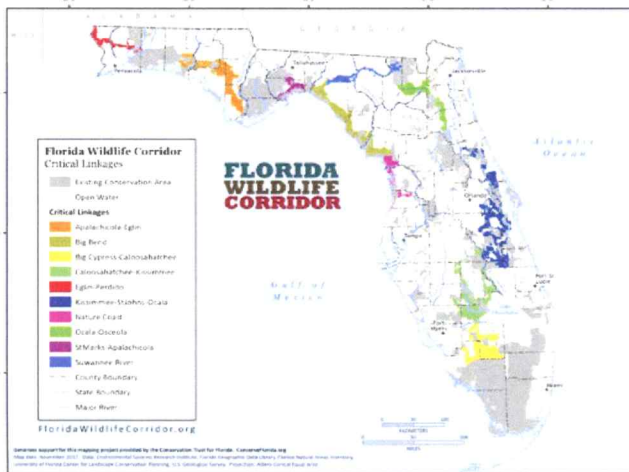




# Ocklawaha River Restoration Wildlife Corridor

by Jennifer Carr

The Ocklawaha River is located within the Ocala to Osceola critical linkage of the Florida Wildlife Corridor, known as O2O corridor (see O2O RCPP Project Area map) which runs from the Ocala National Forest north to the Osceola National Forest. According to the North Florida Land Trust, the O2O corridor is home to 34 federally threatened and endangered species.



In 1995, the Office of Greenways and Trails hired a research team at the University of Florida, including Peggy Carr, from the Department of Landscape Architecture and Dr. Tom Hctor from the Center for Landscape Conservation Planning. The research team used GIS to identify opportunities to develop both a statewide trail network and to protect large, intact landscapes integrated into a functionally connected network of conservation lands across Florida.

The Florida Greenways program became part of state law in 1997, and the ecological network portion of the plan was named the Florida Ecological Greenways Network (FEGN). The FEGN Critical Linkages were grouped together and named the "Florida Wildlife Corridor" to communicate the vision to wider audiences.

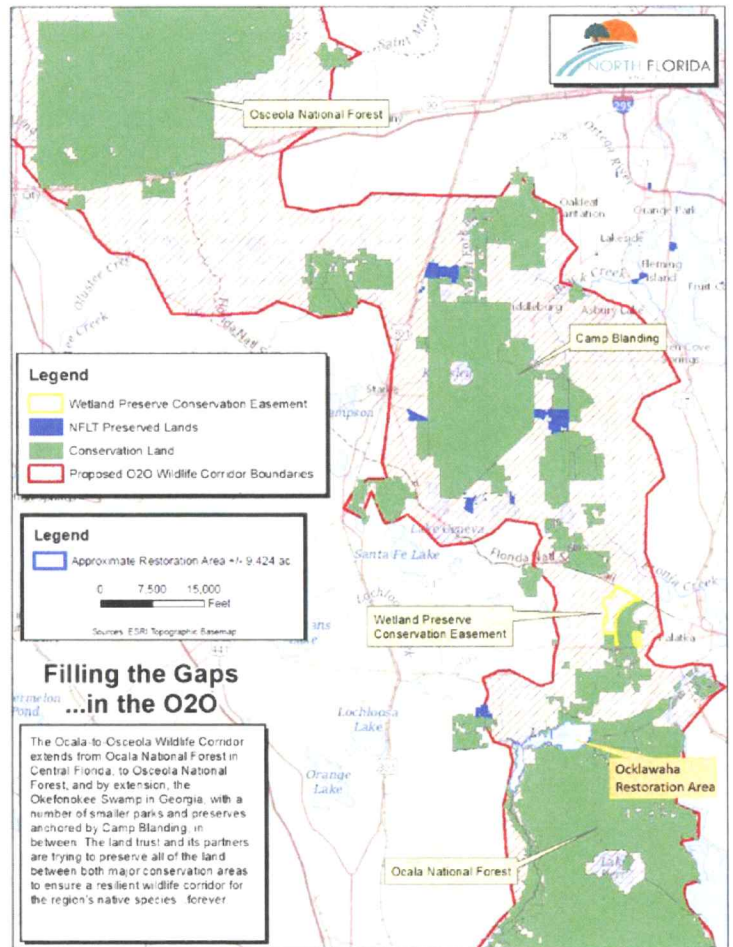
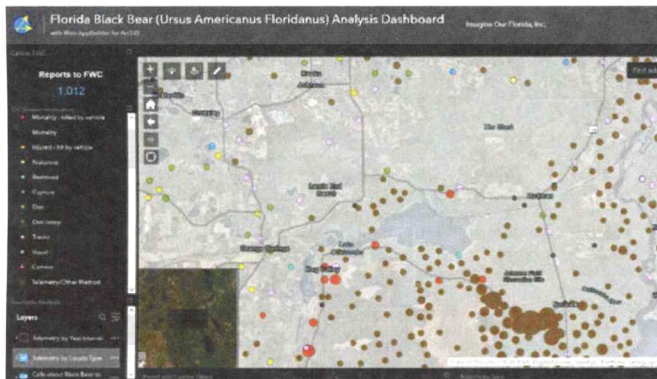
The artificial water body labeled as Lake Ocklawaha, besides inundating twenty springs, degrades over 15,000 acres of forested wetlands by disrupting the distribution of water through the landscape, including approximately 600 acres in the Ocala National Forest.

The Florida Ecological Greenways Network ArcGIS telemetry data available online shows the panther and black bear route east of the dam (see FEGN map). The Florida Ecological Greenways Network ArcGIS telemetry data available online shows the panther and black bear route east of the dam (see ArcGIS FEGN map).

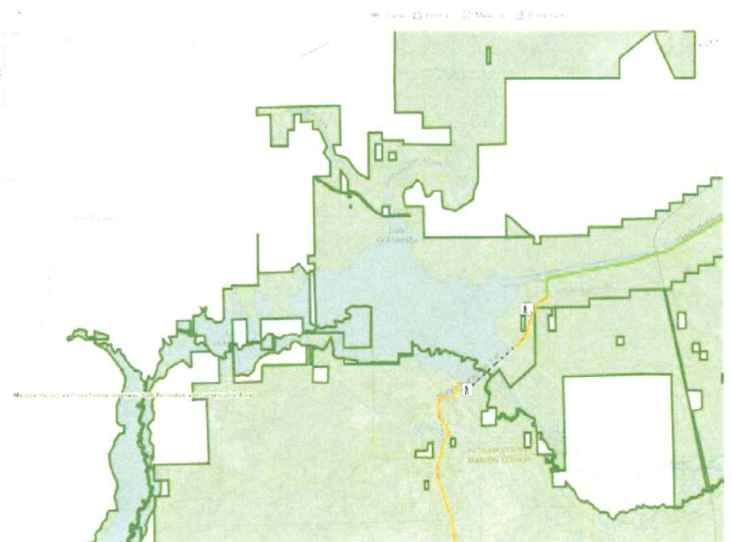


The Rodman pool functions as a barrier to movement of animals through the corridor by cinching off the route leading into the bottleneck of this corridor that connects up to the Rice Creek Conservation area and Wetland Preserve (see Filling the Gaps map by North Florida Land Trust, Ocklawaha Restoration area superimposed). The image below shows FWC black bear telemetry data.

Currently 8,000 acres of forested wetlands are stressed below the dam due to restricted flow and 7,500 acres of forested wetlands currently submerged above the dam. I recommend that the state of Florida continue filling in the gaps of the O2O critical linkage corridor by restoring the Ocklawaha River which would result in forest regeneration, increased habitat availability, and connectivity for wildlife passage.



It is also important to note from an ecotourism perspective that the Florida National Scenic Trail runs right over the Ocklawaha historic river channel next to the man-made pool (see FNST map). According to a 2017 UF study titled, Economic Importance and Public Preferences for Water Resource Management of the Ocklawaha River, the estimated total willingness to pay of visitors to the area is \$63.3 million per year.



**Chart from the Final Environmental Impact Study 2001 showing the anticipated Effects of Partial Restoration of the Ocklawaha River Upon Listed Species.**

“Restoration of the floodplain is expected to provide increased black bear habitat and provide a more direct north-south corridor through the Ocala National Forest”, Environmental Impact Statement, 2001.

Common Name	Status		Anticipated Effects
	State	Federal	
<b>Mammals</b>			
Black bears	T	N	Will increase suitable habitat
Florida panther	E	E	Will increase suitable habitat
West Indian manatee	E	E	Will reduce mortality risks
<b>Reptiles</b>			
American alligator	SSC	S/A	Excellent habitat
Eastern indigo snake	T	T	Will increase suitable habitat
Suwannee cooter	SSC	N	Unknown

State = State Listing by the Florida Department of Agriculture and Consumer Services, Division of Plant Industry  
 Federal = Federal Listing by the U. S. Fish and Wildlife Service; S = Forest Service Sensitive  
 E = Endangered; T = Threatened; C2, C1 – Candidate Species; N = Not listed; SSC = Species of Special Concern; T(S/A) = Threatened by similarity of appearance

In addition, “Removal of the Kirkpatrick will open a manatee access corridor via the lower Ocklawaha River to the rest of the Ocklawaha system”, Environmental Impact Statement, 2001.

**Fragmentation of the once contiguous Ocklawaha River and floodplain habitat has eliminated critical plant and wildlife dispersal corridors.** Floodplain forests provide important natural wildlife corridors because they link lowlands to uplands and aquatic food chains to upland food chains. Normal stream flow and periodic flood events coursing through the floodplain disperse plant propagules and facilitate animal movements across larger geographic areas. In addition, the contiguous aquatic habitat provided to migratory fishes, such as the striped bass, as well as the endangered West Indian manatee, by a free-flowing river has been hampered by the Kirkpatrick Dam.

Source: Environmental Impact Statement, 2001

**Partial Restoration of the Floodplain Forest**

“Under partial and full restoration conditions, characteristic floodplain forest species and densities are expected after 40 years. The existing seedbank includes 35 native species (Burks, 1996), which would dominate the earliest successional stages in the newly exposed floodplain.” - Environmental Impact Statement, 2001

“Under partial restoration, the reservoir and associated marsh would be replaced by a riverine system. The shift in aesthetics would be to a meandering river channel with overhanging trees and lake attractions would be replaced to riverine boating and fishing, camping, and hiking.” - Environmental Impact Statement, 2001

**Birds:** Twelve threatened and endangered species, species of special concern, and candidate species were identified as possible species occurring within the project area. There would be an increase floodplain-riverine edge available for bird to forage as a result of the change from the reservoir to a meandering river channel under partial restoration. Conversion to a floodplain forest would provide greater roosting and nesting habitat for wood storks (EIS, 2001).

**Chart of restoration impacts to wildlife from the Environmental Impact Statement 2001**

**Table 5-6a**

**Summary of Impacts to Wildlife**

<b>Positive</b>	<b>Negative</b>
Restoring wetland habitat, function and diversity	
Gain in habitat for migratory fish	Loss of habitat for reservoir-dependent fish
Restoration of historic connection of Deep Creek and Orange Creek with river channel	Decrease in numbers of fish due to smaller area of open water
Increase in fish characteristic of flowing water	
Increase in herpetofauna habitat, especially for eastern indigo snake	Decrease in alligator numbers due to decrease in open water and marsh
Increase in habitat for tree dwelling birds and neotropical migrants	Loss of open water and marsh habitat for aquatic birds
Increase in roosting and nesting habitat for colonial wading birds and woodstorks	Net loss of foraging habitat for wading birds
No impacts to regional eagle populations	Relocation of existing eagle nest
Decrease in potential manatee deaths and/or injuries due to Buckman Lock	Possible increase in manatee/boat collisions due to decrease in channel width
Restoring manatee habitat conducive to historic migratory patterns	
Restoration of North-South terrestrial wildlife corridor through Ocala National Forest	
Decrease in invasive and exotic plants	
Increased floodplain forest available for listed plant species	



## Ocklawaha River Restoration Fish Habitat

KEY REFERENCE: "Fish biomass estimates conducted by visual surveys in the 1950s, 1979-80, and 2004-05 found that abundance of at least three dominant fish species (striped mullet, channel catfish, and gizzard shad) were reduced by about 92% over the fifty-year period of record in Silver Springs." (Doug Munch et al. 2007).

### Current Conditions

- Declining diversity and biomass across all fish species due to loss of natural riparian and seasonally inundated floodplain habitat.
- Upstream migrations of once-abundant native anadromous fish species (American Shad, River Herring, Hickory Shad, Atlantic Sturgeon, Shortnose Sturgeon, Striped Bass) and catadromous American Eel, now essentially blocked, with only rare passage through the Buckman Lock.
- Connectivity broken between upstream migratory fish freshwater spawning habitat (above impoundment) and downstream low salinity estuarine nursery and transitional feeding habitat.
- Ecosystem connectivity broken and energy-transfer between estuary and river lost for additional transient freshwater-tolerant coastal-estuarine fishes and mobile invertebrates (e.g., Striped Mullet, Atlantic Needlefish, Sheepshead, Hogchoker, Blue Crab, etc.)
- Essential riverine fish habitat attributes of uninterrupted flow, oxygenation, and natural river level fluctuations negatively altered by dam and artificial impoundment.
- Original character of dynamic free-flowing river altered to a sluggish, weed-filled lacustrine impoundment.

### Partial Restoration Benefits

- Potential restoration of originally-abundant anadromous and catadromous fish populations via access to upriver spawning and trophic habitat.
- Nutrient enrichment of the upper river via energy transfer (spawned fish eggs, larvae, excreted nutrients, and migratory and transient fish biomass available to predators (predatory fishes, alligator, osprey, eagle, otter)
- Restoration of naturally connectivity and functionality between free-flowing riverine reaches and downstream estuarine larval and juvenile fish nursery habitat and mixing zone feeding habitat, and for now-fragmented adult populations (e.g., White Catfish, Channel Catfish).
- Restoration of fish diversity and abundance in the upper Ocklawaha River and Silver Spring.
- Expanded high-quality sportfishing opportunities for Striped Bass and American Shad in the overall river.

- Potential increase in stream habitat for State-listed Species of Concern (e.g., Bluenose Shiner and Southern Tessellated Darter) via re-establishment of tributary flows river from Orange and Deep creeks.
- Expanded ecotourism for boaters, paddlers, and snorkelers interested in viewing and photographing fishes, including large charismatic sturgeons in the clear waters of the restored river and re-emerged springs.

## Improving Fisheries through Dam Removal

As America addresses the backlog of dam maintenance needs and the growing public interest in water resource conservation and fisheries improvements, there has been growing support to remove dams where the costs outweigh the public benefits or where the dam no longer serves a valuable purpose. Since 1912, an estimated 1,605 dams have been removed in America with 91 of the dams being removed in 2017 alone (source – American Rivers).

Many dams have outlived their original purpose – hydropower, irrigation, water supply or flood protection. The Rodman Dam is unique because it was never used for its intended economic purpose. After the Cross Florida Barge Canal project was halted, the impoundment behind the dam evolved into a Largemouth Bass sportfishing area. In the early years, bass fishing in the impoundment peaked, contributing significantly to the local economy. However, as is typical in the evolution of artificial impoundments, once carrying capacity is reached, maximum fish size decreases over time. Today, the fishery has declined. Now, trophy bass are more frequently caught by anglers using the St. Johns River proper. As is also typical for impoundments, there is progressive over-vegetation and siltation, requiring repeated expensive maintenance. The reservoir is choked with exotic vegetation and requires constant manipulation to avoid fish kills. Nutrients and contaminants tend to accumulate in the impoundment. A health warning has been issued for fish consumption by pregnant women and children.

The removal of dams in various states in recent decades have provided numerous examples of how migratory fish species have naturally and successfully repopulated natal rivers (Bangor Daily News, 2009), (Hit et al. 2012). Restoration of natural ecosystem functioning has been documented to promote strong year-classes in resident fish species (Hill et al. 2018). Re-establishment of native fishes in the river and connectivity with estuaries also boosts overall fish diversity, abundance, and biomass. Often this results in high quality sportfishing, boating, and ecotourism opportunities, attracting visitors, and boosting the economies of nearby communities. Additionally, restoring free water flow may reduce pooling and concentrations of environmental contaminants. (Davis et al. 2017,) Indeed, multiple ecosystem benefits accompany dam removal and associated habitat restoration. (U.S. EPA)

## Restoring Migration Routes and Connectivity in the Ocklawaha Ecosystem

Removing the dam would restore ancient habitat and migration routes for fish and mammals. Restored access to the upper river would attract American Eel, American Shad, Hickory Shad, River Herring, and endangered Atlantic Sturgeon and Shortnose Sturgeon. Access for the Florida-strain of Striped Bass to their primary spawning area – the Ocklawaha and the Silver Rivers – would be restored. Now the only Striped Bass in the entire St. Johns are stocked non-reproducing, northern-strain hatchery fish. Over 20 million Striped Bass have been stocked since 1972 (FWCC), with no appreciable population restoration. Fragmented and depleted

Channel Catfish and White catfish populations would be reconnected, facilitating repopulation of Silver Spring.

Striped Bass require about 50 unobstructed stream miles for reproduction. The Rodman Dam is most likely responsible for the loss of naturally reproduction in the St. Johns River due to denial of access to upstream spawning grounds. The Florida Fish and Conservation Commission and the US Fish and Wildlife Service stocked 22,440 striped bass fingerlings into the Ocklawaha River system upstream of the Rodman Dam during May 2015. In order to keep the recover a naturally reproducing and expanding population, the Rodman Dam should be breached providing a swift, unfragmented, 56-mile long Ocklawaha River. (Nosca, 2017)

### Projected Improvements for Fish and Wildlife

“Removing the Kirkpatrick Dam on the Ocklawaha River deserves the highest priority to provide open passage for aquatic wildlife between the Atlantic Ocean and St. Johns River and Silver Springs. The Eureka Lock and Dam on the Ocklawaha River downstream of the Silver River are not impassable, as the dam itself was never completed. However, the existing structures at Eureka are still an impediment to some fish and wildlife use and should also be removed. Breaching or removing these dams would predictably increase the diversity and dominance of fish and other aquatic wildlife species within the river ecosystem. In addition, dam breaching will increase the forage fish food base for many larger fish, wading and water-birds, reptiles and mammals that utilize the Silver Springs System.” (Restoring Silver Springs: An Action Plan, 2014).

“Faunal studies conducted at Silver Springs indicate that macroinvertebrate (aquatic insects, snails and crayfish) communities, while abundant in numbers, are not diverse and are declining in productivity. Fish counts over the last 50 years indicate relatively high diversity but a substantial loss in fish numbers and biomass”, (Florida Springs Conservation Plan, 2018).

Fish abundance and biomass has declined substantially in Silver Springs versus baseline 1954 numbers. In a census conducted in 2019, fish biomass had declined 39% from Odum’s 1954 data. A comparable 2005 study conducted by University of Florida revealed the lowest biomass yet measured, although methods used may have differed versus 1954, (Rogers et al. 2005). Compared to the Odum data, the average reduction in total estimated fish biomass determined across all studies is ca. 67%. “Fish biomass estimates conducted by visual surveys in the 1950s, 1979-80, and 2004-05 found that abundance of at least three dominant fish species (striped mullet, channel catfish, and gizzard shad) were reduced by about 92% over the fifty-year period of record in Silver Springs”, (Munch et al. 2007).

### References

Bangor Daily News (Kevin Miller reporting). 7 January 2009. Success on Kennebec bodes well for dam removal on Penobscot [www.bangordailynews.com](http://www.bangordailynews.com).

Borisova, T., Bi, X., Hodges, A., Holland, S. Economic Importance and Public Preferences for Water Resource Management of the Ocklawaha River, 2017, University of Florida, IFAS

Davis, R. P., S. M. P. Sullivan, and K. C. Stefanik. 2017. Reductions in fish-community contamination following lowhead dam removal linked more to shifts in food-web structure than sediment pollution. Environ Pollutants. <https://www.ncbi.nlm.nih.gov/pubmed/28850935>

Florida Fish and Wildlife Conservation Commission. Online. Striped Bass Stockings in the St. Johns River. <https://myfwc.com/research/freshwater/sport-fishes/striped-bass/st-johns-stripers/>

Hill, M. J., E. A. Long, and S Hardin, 2018. Effects of dam removal on Dead Lake, Chipola River, Florida: Proceedings of the Forty-Eighth Conference of the Southeastern Association of Fish and Wildlife Agencies. pp. 512-523. <https://www.sciencebase.gov/catalog/item/5053acb3e4b097cd4fceb189>

Hitt, N. P., S. Eyler and J. E. B. Wofford. 2012. Dam Removal Increases American Eel Abundance in Distant Headwater Streams. Transactions of the American Fisheries Society 41(5):  
Online: <https://www.tandfonline.com/doi/abs/10.1080/00028487.2012.675918>

Knight, Robert, H. Vick, Florida Springs Conservation Plan, 2018, Howard T. Odum Florida Springs Institute and Washington Dept. of Ecology

Miller, Matthew. L. 2018. After 250 Years of Dams, Rhode Island River Restored for Migratory Fish. March 13, 2018. [HTTPS://BLOG.NATURE.ORG/SCIENCE/2018/03/13/AFTER-250-YEARS-OF-DAMS-RHODE-ISLAND-RIVER-RESTORED-FOR-MIGRATORY-FISH/](https://blog.nature.org/science/2018/03/13/after-250-years-of-dams-rhode-island-river-restored-for-migratory-fish/)

Munch, DA, DJ Toth, C. Huang, JB Davis, CM Fortich, WL Osburn, EJ Philips, EL Quinlan, MS Allen, MJ Woods, P Cooney, RL Knight, RA Clarke, SL Knight, 2007, Fifty-Year Retrospective Study of the Ecology of Silver Springs, Florida, SJRWMD

The Nature Conservancy 2017. The Comeback - Restoring free-flowing rivers in Maine. <https://www.nature.org/en-us/about-us/where-we-work/united-states/maine/stories-in-maine/the-comeback-alewives-return-to-maine-rivers/> (accessed 24 Sept 2019).

New York Times. 11 June 2012. Editorial: Saving a River, and Its Species [dam removal]. [http://www.nytimes.com/2012/06/12/opinion/saving-a-river-and-its-species.html?\\_r=2](http://www.nytimes.com/2012/06/12/opinion/saving-a-river-and-its-species.html?_r=2).

News Center, Milford, ME, (reported by Shawna Newcomb). 4 August 2016. Sturgeon return to Milford after nearly 200 years. <https://www.newscentermaine.com/article/news/local/sturgeon-return-to-milford-after-nearly-200-years/99-287707111>

Nosca, P. 2017. "Striped bass of the Ocklawaha River, Florida" webpage report. "Ocklawahaman Paul Nosca reports" website. Paul Nosca, Eureka, FL.

NOAA. 16 November 2015. After a Century, Shortnose Sturgeon Return to Historic Habitat. NOAA Fisheries – Greater Atlantic Region [online website]. [https://www.greateratlantic.fisheries.noaa.gov/stories/2015/november/16\\_after\\_a\\_century\\_shortnose\\_sturgeon\\_return\\_to\\_historic\\_habitat.html](https://www.greateratlantic.fisheries.noaa.gov/stories/2015/november/16_after_a_century_shortnose_sturgeon_return_to_historic_habitat.html)

Portland [ME] Press Herald. 27 September 2015. Two years after dams' removal, Penobscot River flourishes. <https://www.pressherald.com/2015/09/27/a-river-revived-the-penobscot-river-two-years-after-dams-removal/>

Rogers, Mark W., MS Allen, MD Jones, Relationship between River Surface Level and Fish Assemblage in the Ocklawaha River, Florida

Restoring Silver Springs: An Action Plan, 2014, Howard T. Odum Florida Springs Institute

U.S. Fish and Wildlife Service. October 2004. Response of American Shad and Striped Bass to Removal Of Quaker Neck Dam. USFWS Fact Sheet. <https://www.fws.gov/southeast/pdf/fact-sheet/response-of-american-shad-and-striped-bass-to-removal-of-quaker-neck-dam.pdf>

U.S. EPA. 2015. Dam Removal Provides Fish Passage, Water Quality Benefits. Stories of Progress in Achieving Healthy Waters. U.S. EPA Region 3 Water Protection Division  
Bishopville, Maryland, June 25, 2015. <https://www.epa.gov/md/dam-removal-provides-fish-passage-water-quality-benefits>





## Ocklawaha River Restoration

# Manatees

**KEY REFERENCE:** *“With the phasing out of existing power plants with warm water discharges, the best hope for maintaining today’s increasingly healthy manatee population in Florida is to facilitate access to springs including the removal of dams obstructing manatee access to major springs and river segments, particularly those along the Ocklawaha and Withlacoochee Rivers.”*

*2013 study by the Marine Mammal Commission and the Sea-to-Share Alliance*

### Current Conditions

- Manatees have lost much of their warm water winter refuge habitat in recent years
- Natural spring habitat has diminished due to reduced flows from groundwater pumping and impaired water quality, and many power plants with refuge sites are being retired
- With fewer alternatives available to them, more manatees are attempting to find a pathway to Silver Springs through the metal gates of the Rodman Dam.
- Manatees are congregating at many nearby sites such as Welaka, Salt Springs and the Buckman Locks. Sightings in the Buckman Locks area increased from 246 in 2014 to 454 in 2018.
- Habitat areas, such as Blue Springs State Park, are overcrowded

### Benefits of Partial Restoration

- Provide a gateway into the Ocklawaha and Silver Rivers by removing the dam and barriers obstructing manatee access to springs and river segments
- Expose 20 natural springs that have been drowned by the Rodman dam
- Create a haven for manatees at historic Silver Springs, increasing visitor counts
- Attract natural consumers of invasive aquatic vegetation, reducing the need for herbicides

### Warm Water Habitat for Manatees

Because of development impacts to natural historic habitat, approximately 60-70% of Florida’s manatee population currently relies on artificial warm water sources, many of which will be retired in the coming decades in favor of newer technologies. “With the phasing out of existing power plants with warm water discharges, the best hope for maintaining today’s increasingly healthy manatee population in Florida is to facilitate access to springs including the removal of dams obstructing manatee access to major springs and river segments, particularly those along the Ocklawaha and Withlacoochee Rivers.”(Marine Mammal Commission and the Sea-to-Share Alliance)

Second and third magnitude springs, connected to the Ocklawaha River in areas exposed due to a draw-down, but generally submerged under dammed water of the Rodman Reservoir, were assessed as possible thermal refuges for Manatees. The assessment identified numerous springs which had characteristics suitable for much-needed manatee warm water refugia. If the Ocklawaha River was restored allowing uninterrupted access to this system by manatees, Silver



## Ocklawaha River Restoration Manatees

Springs and the Silver River could provide warm water habitat for many hundreds of manatees. (*Jennings, Adimey, Know and Smith; FWC, USFW*)

“Wetlands scientist Robin Lewis predicted that anywhere from 200 to 300 manatees would migrate all the way to Silver ‘Springs’ headwaters once the dam is breached creating a new tourist draw rivaling that of Blue Springs State Park in Volusia County, where visitors wait in car lines outside the park to enter and see manatees each winter.” (Robin Lewis Study)

The Sea to Shore Alliance has conducted scientific research to assess the conditions and manatee use in the St. Johns River Basin. The scientists have studied nearby springs such as Welaka, Salt and Silver Glen Springs, all providing refuge for manatees. They tagged two manatees known to have used the Ocklawaha over the past ten years and documented their use of the springs. One manatee spent 95% of its time within the Ocklawaha system. This tracking data along with citizen science viewing data in the Buckman Locks underscore that manatees are attracted to the Ocklawaha. Manatee sightings in the Buckman Locks area increased from 246 in 2014 to 454 in 2018. Includes multiple sightings of the same manatee.

### **Volusia Blue Spring State Park: A Manatee Success Story**

“Conservation measures can produce astounding results. In 1970, two years before Blue Spring State Park was established, researchers tracked 14 manatees in the spring run. By 2005, after years of park impoundments and manatee protection efforts, wintering manatee numbers exceeded 200 and by 2018, that number skyrocketed to a record 485.”

“From mid-November to March, hundreds of manatees congregate in the spring run to seek shelter from the cold.”(Website: [Floridastateparks.org](http://Floridastateparks.org) – Blue Springs State Park)

New Silver Springs habitat for manatees would take pressure off Volusia Blue Springs and help Volusia county better achieve the established MFL for Blue Springs.

### **References**

Kosempa, M., J. Martin, F. Johnson, R. Mezich, B. Stith, C. Deutsch, M. Masi, and H. Edwards. 2014. Structured decision making for management of warm-water habitat for manatees. Final report to U.S. Fish and Wildlife Service. FWC/FWRI file F2852-10-14-F. 25 pp. plus appendices.

*A survey conducted by USFWS and FWC staff – Survey of Rodman Reservoir and middle-Ocklawaha River springs during spring 2008 draw-down conditions (Jennings, Adimey, Know and Smith)*

“A Survey of Florida Springs to Determine Accessibility to Florida Manatees (*Trichechus manatus latirostris*): Developing a Sustainable Thermal Network,” U.S. Marine Mammal Commission: <https://www.mmc.gov/wp-content/uploads/taylorFLspringsreport.pdf> (discussion of benefits to manatees from Ocklawaha restoration; search "Ocklawaha" in the document)

“Winter Habitat Preferences for Florida Manatees and Vulnerability to Cold:” <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0058978> - cites as a solution to manatee dependence on warm water from power plants – “removal of dams obstructing manatee access to major springs and river segments, particularly those along the Ocklawaha and Withlacoochee Rivers”

Manatee Use of Ocklawaha and St Johns Rivers-Ross, Monica; Sea to Shore Alliance, 2013



## Ocklawaha River Restoration Water Supply

**KEY REFERENCE:** *Ocklawaha River restoration would increase flows in the Lower Ocklawaha River by an estimated 150 to 412 cubic feet per second (cfs) due to uncovering more 20 or more springs flooded by the Rodman Pool and by approximately 8 to 16 cfs due to a net decrease in evapotranspiration.* - Tibbals, 1990; Wycoff, 2010

### Existing Conditions

- 5 to 10 million gallons per day (mgd) net loss of freshwater by evapotranspiration from the Rodman pool compared to a natural river corridor. This estimate does not include effects of water temperature and wind which increase the net loss of freshwater.
- 20 known springs are inundated by the impoundment of the Rodman pool.
- Silver River discharge has decreased by approximately 35 percent since the dam was put in place largely due to groundwater pumping.

### Benefits of Partial Restoration

- Net increase in freshwater flow of 5 to 10 mgd to the Lower Ocklawaha and St. Johns rivers just from reduction of evapotranspiration
- Additional inflow into Ocklawaha River from springs now drowned by the Rodman impoundment
- Increased flow, temperature reduction, improved clarity, and reduced use of herbicides would improve overall water quality

### Ocklawaha River Watershed & Sources of Water

The combined Silver and Ocklawaha watershed encompasses approximately 2,000 square miles in north central Florida. The Silver Springs Group is a first magnitude group of spring vents located near the center of Marion County.

Major flows into the Ocklawaha River can be subdivided into three general categories:

- Large karst lake regions: These include both 1) the southernmost areas starting in the Green Swamp through the Clermont chain of lakes and the Harris chain of lakes, and 2) the Orange Creek basin to the northwest (64% of drainage area, 14% of water)
- Watershed along the river (36% of drainage area, 20% of water)
- Silver River (negligible drainage area, 66% of water)

### Water Conservation Benefits of Restoration

Ocklawaha River restoration would increase flows in the Lower Ocklawaha River by an estimated 150 to 412 cubic feet per second (cfs) due to uncovering more 20 or more springs flooded by the Rodman Pool (Tibbals, 1990; Wycoff, 2010) and by approximately 8 to 16 cfs due to a net decrease in evapotranspiration.

### The Rodman Pool as a Water Supply Source

The Rodman Pool has been considered as an alternative water supply (AWS). Several older studies and plans evaluated the pool as a source. More recent information has cast doubt on



## Ocklawaha River Restoration Water Supply

the utility of using the Ocklawaha River as a source of water supply. Surface water sources are more expensive for production, treatment, and transmission compared to traditional sources. The unit production costs for potable water from the Rodman would potentially be two to four times more expensive than traditional source, the Floridan aquifer.

The value of a surface water reservoir is due to the availability of freshwater in storage when other sources are constrained by short-term variations in supply. However, because the Rodman pool is very broad and shallow, there is very little water in storage. For any likely rate of withdrawal that would justify the higher unit production costs for withdrawal, treatment, and transmission facilities, the duration of supply would be very limited. Moreover, managing the pool as a water supply reservoir would draw pool levels down to very low levels, adversely impacting both aquatic species and sport fishing.

Herbicides are used extensively to control aquatic vegetation in the Rodman impoundment and river reaches upstream of the dam. Hence, advanced surface water treatment facilities may be needed to achieve primary drinking water standards. Moreover, due to elevated concentrations of organic compounds, it is likely that disinfection byproducts would occur in the treated water supply. The USEPA has identified health risks, including cancer, from prolonged ingestion of disinfection byproducts. These risks may be more acute for pregnant women and their unborn children. Hence, additional and more expensive pretreatment processes would likely be needed prior to disinfection.

### References

Abbott, E. F., 1971, Twenty Springs of the Ocklawaha, An Occasional Paper prepared for Florida Defenders of the Environment; Department of Geology, University of Florida; Gainesville, FL.

Hendrickson, J., 2016, Effects on Lower St. Johns River Nutrient Supply and TMDL Target Compliance from the Restoration of a Free-Flowing Ocklawaha River; St. Johns River Water Management District, Palatka, Florida, 91 p. <ftp://secure.sjrwmd.com/technicalreports/TP/SJ2016-1.pdf>

Howard T. Odum Florida Springs Institute, 2018, Florida Springs Conservation Plan; High Springs, Florida; 108 p. <https://floridaspringsinstitute.org/wp-content/uploads/2018/11/Springs-Conservation-Plan-final-draft-FINAL.pdf>

St. Johns River Water Management District, 2017, Data Summary: Rodman Reservoir Drawdown, Technical Fact Sheet SJ2017-FS2, Palatka, FL. <ftp://secure.sjrwmd.com/technicalreports/FS/SJ2017-FS2.pdf>

Tibbals, C. H., 1990, Hydrology of the Floridan Aquifer System in East-Central Florida; U.S. Geological Survey Professional Paper 1403-E; United States Government Printing Office, Washington D.C. <https://pubs.usgs.gov/pp/1403e/report.pdf>

USEPA, National Primary Drinking Water Standards, <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>

Wetland Solutions, Inc., 2014, Silver Springs Restoration Plan; prepared for the Howard T. Odum Florida Springs Institute, High Springs, Florida, 144 p. [https://floridaspringsinstitute.org/wp-content/uploads/2018/07/Silver\\_Springs\\_Restoration\\_Plan.pdf](https://floridaspringsinstitute.org/wp-content/uploads/2018/07/Silver_Springs_Restoration_Plan.pdf)

Wycoff, R. L., 2010, Lower Ocklawaha River Basin Hydrologic Data Review and Discharge Analysis; St. Johns River Water Management District, Special Publication SJ2010-SP10, 76 p. <ftp://secure.sjrwmd.com/technicalreports/SP/SJ2010-SP10.pdf>



## Ocklawaha River Restoration Historic & Cultural Resources

The historic and cultural treasures of the Silver, Ocklawaha and St. Johns Rivers have not received the recognition that they deserve.

### **Archeological Sites**

There are many archeological sites along the Ocklawaha River many of which are inundated now due to the artificially high-water levels and some have already been looted.

### **The Pre-Columbians**

The Paleo Indians lived in the area 14,000 years ago and hunted mammoths and co-existed with the megafauna. Some of the artifacts from this era are on display in the Silver River Museum and there is current research going on focused on this important part of Silver Springs and Ocklawaha History. Native people continued to thrive in the region until Europeans began exploring the area.

### **Spanish Mission**

A Spanish mission, called San Blas Delabino, established in the 1600s, was located near Connor Landing. There were three missions in the various parts of the Ocklawaha. Spanish came into the area to convert the Timucua Indians. An archeological excavation was done, and the items found are in an exhibit at the Silver River Museum. A Spanish mission bell is part of that collection.

### **The Creeks and Other Tribal Groups**

The Creek Indians and other tribes moved into the area after pressure from Europeans coming into the Carolinas, Georgia and Florida. The many tribes banded together to create the Seminole Tribe. In, 1823, the escaped slaves and the newly formed Seminole Tribe signed the Moultrie Creek Treaty with the Americans, giving them a large section of the interior including the Ocklawaha River.

### **Payne's Landing**

In 1832, the Payne's Landing treaty was signed by the Seminole Indians and US officials to move the Indians out to Oklahoma as part of the historic "Trail of Tears" or the Indian Removal Act.

### **The Steamboats of the Ocklawaha**

In the late nineteenth and twentieth centuries, the St. Johns and Ocklawaha Rivers were major steamboat lanes. The route from Palatka to Silver Springs, spanning 135 miles, had 96 steamboats of record. Steamboats began running in 1829 and ended in 1910.

The Hart Line, one of the most well-known steamboats, charged \$5.00 to take tourists from Palatka to Silver Springs and back, food and lodging included. It sank in 1921 and was demolished and removed in 1979. Remnants of the historic steamboat landings can be found in some parts of the Ocklawaha River.

Visitors and writers that traveled the steamboat route were the first Florida tourists and travel writers. Their letters, journals and writings introduced the area to the Ocklawaha River. Some of the most



## Ocklawaha River Restoration Historic & Cultural Resources

famous include Sydney Lanier and Marjorie Kinnan Rawlings and Harriett Beecher Stowe. Lanier referred to the Ocklawaha as the "sweetest water lane in the world."

Trains and automobiles slowly forced out the steamboats, but those legendary times could be captured today in historic markers, interpretive sites and visitor guides.

### **The Civil War**

During the Civil War, the Union controlled the St. Johns River. Some families were moved to Orange Springs via the Ocklawaha for safety. John William Pearson was a confederate captain who owned the Orange Springs Resort and he turned the cotton gin into a foundry to make cannons for the Civil War. This was also the site of Fort Brooks.

### **William Bartram's Travels**

Bartram walked from the St. John's River to Payne's Prairie and made mention of Deep Creek, a major tributary of the Ocklawaha. His travels have become a major focus for the Bartram Trails group in Palatka which attracts visitors and residents to hike, bike, paddle and boat along his route. A popular water taxi runs tours out of downtown Palatka for groups and scheduled events.

### **A Call to Action: Impacts to Significant Cultural Resources**

Maintaining the Rodman Pool at higher than necessary levels adversely affects historic and archaeological resources on USFS lands submerged by these waters (USFS). Drawdowns and water fluctuations in the reservoir are causing on-going, continuous impacts to known, significant cultural resources. DEP could potentially be in violation of 36 CFR 296-Protection of Archaeological Resources: Uniform Regulations.

### **References**

An expanded bibliography of historic and cultural resources is currently in development.

"Steamboats, Cypress, & Tourism: An Ecological History of the Ocklawaha Valley in the Late Nineteenth Century", 2004 Florida Historical Quarterly



## Ocklawaha River Restoration A View From The River

*From River Guide Karen Chadwick, NorthStar Charters*

The Kirkpatrick dam eliminated 16 miles of the natural, historic beauty of the Ocklawaha River. My passengers want to see a healthy natural state of the waterways and creatures that inhabit them and hear about the historic cultural events that occurred along the rivers.

### **Floating Aquatic Plant Blockages**

Floating aquatic blockages repeatedly block access to the Kenwood and Orange Springs ramps and the passageway through the barge canal under the highway 19 bridge to the Buckman Locks and St Johns River. I see Rodman "reservoir" as an unreliable recreational resource. Visitors, particularly in the summer, never know if the ramps will be free of aquatic vegetation blockages. Tournament organizers sometimes must relocate launch points due to aquatic blockages.

Sometimes the entire river channel south of Orange Creek is blocked for long distances. At one Florida Defenders of the Environment Listening Sessions in Palatka in 2018 a local resident said he thinks Rodman should stay like it is because it keeps people away. I agree with him. The blockages are repeatedly sprayed with herbicides which create a stinking mess that can damage boat motor impellers. One tournament organizer relocated the launch site from Kenwood to the Palatka public dock because it smelled like a cesspool and they didn't want to run their expensive motors through the dead vegetation.

### **Excessive Herbicide Spraying**

Greenway records show 748 acres in Rodman/Lake Ocklawaha were treated with herbicides for a cost of \$46,502 from 2018-2019. That is a lot of money spent and chemicals used when a free-flowing river would require much less treatment. Since a drawdown is designed to use less chemicals then I would think a free-flowing river would be a better long-term solution to dealing with aquatic blockages.

### **Declining Bass Fishing in the Rodman Pool**

Several bass tournaments a year launch into Rodman at the Kenwood ramp. Many of the anglers in these tournaments go through Buckman Locks to fish in the St Johns River. When the weigh in time approaches, they come back through the locks to the Kenwood ramp. After the weigh in, a release boat takes the bass down the Kenwood ramp run toward the open water where they release all of the fish that are still alive. None of the bass go back into the St Johns River. Rodman is promoted as a good tournament location but not all anglers stay in Rodman and catch their fish there. After restoration of the Ocklawaha River, a public ramp could be constructed on the east side of Buckman Locks to accommodate anglers wishing to fish in the St Johns River.

### **The Effects of Drawdown: What Restoration Would Look Like**

The best evidence of the potential for a thriving tourism industry is the number of visitors that access the Kenwood and Orange Springs ramps during a drawdown. The ramps often get very crowded all through the week. It's not just anglers that flock to the locations. Kayakers, canoeists, birding enthusiasts, and spring hunters travel many miles to visit the river while it is within its banks from Eureka to Marion Blue Springs. Shoreline anglers also line the banks at the Orange Springs ramp. At this time, I am booking tours with people from the Villages to High Springs that want to come see what the river has to offer while the water is down. I know people that used to swim in Cannon and Marion Blue and other springs across from the Kenwood ramp before the dam was constructed. They said it was the most beautiful place they had ever seen, and they still lament the loss of those "heaven bound" places. A daughter of the owner of Colby Landing near the highway 40 bridge remembers folks catching large striped bass and catfish "half as long as your boat" before the dam blocked the river.

If the restoration process had started in the 1990's like was planned, the historic travel path that made Palatka a major tourism destination would be open, the 20 submerged springs would be flourishing, and the surface evaporation rate would be much lower. Manatees could travel freely to access warm spring water in the winter in the Ocklawaha and all the way to Silver Springs. There would be more fish diversity upstream from where the dam is now, and striped bass could spawn in the Ocklawaha again. Floating aquatic blockages would be less of a problem and the 9500 acres of floodplain forest would be well on its way to regrowth and recovery. There are a lot of lakes but there is only one Ocklawaha River. Fishing would continue and tournaments could be held just like they are in other parts of the river.

### **Diverse Recreational Opportunities**

Bass anglers have been the predominant group opposed to Ocklawaha restoration. However, during the drawdowns when the river is within its banks and reliably navigable there are many bass anglers including guides that launch at Kenwood and Orange Springs ramps. Speckled perch are a very popular target as well. If thousands of acres of floodplain forest were restored more opportunities for camping and hiking would be possible. A visitor's center with interpretative exhibits near the location of Orange Springs Bluff, close to where Fort Brooks was or near Kenwood ramp would bring visitors to west Putnam County. The Ocklawaha River has a history of human habitation from Paleo-Indians that encountered megafauna to the historic period with Spanish missions and Seminoles on through the paddle boat era, Civil war, early settlers to the present. The area is rich in history.

The Silver River Museum has provided a fascinating education to children and adults alike for many years. Events such as Ocali Days bring many visitors to the Silver Springs area. Paddle Florida tried to establish an annual kayak trip from Silver Springs to the dam, camping along the way but the effort proved unsuccessful due to the blockages and hazards encountered during the flood level conditions caused by the dam. Aquatic blockages caused many difficulties and during the third year of planning the Greenway manager told Paddle Florida operators to cancel the attempt.

### **Restoring the Local Economy**

Putnam County is one of the poorest counties in Florida with a poverty rate of 44.7%. I have been to several economic development meetings in Palatka and attendees were told to think outside of the box to come up with solutions. This opportunity has been on the books for a long



time. The surrounding counties need this recreational economic stimulus that would expand during and after the restoration process.

I support the current 10-year Greenway plan as I did the last 10-year Greenway plan that states: "If funds are made available and permits are issued it is the intent of the FDEP to undertake this restoration." I urge this administration to stop spending large amounts of money on projects to maintain the dam and lock system that was never used for what it was intended for and undertake restoration as soon as possible.

To all concerned,

I have been a full-time river guide in North Florida for over 22 years and have been a nature & history writer for almost 30. Of all the tours I lead (72 Florida waterways) none are as unique and ecologically significant as the Ocklawaha. Because of its unique formation--formed along fault lines at the edge of a massive uplift and subsidence area thousands of years ago--the soils and geology are unlike any other. Sediments in the river have been dated to 17,000 years--far older than other rivers in the peninsula.

Before Rodman Reservoir was put in place, the free-flowing Ocklawaha was a well-travelled migration route for several species of fish as well as the threatened Florida manatee, which were drawn to the spring flow for over 20 springs now submerged under the reservoir. Like any living entity, a river must flow freely, from its head waters to its mouth, if it is to function as a healthy system.

Today, Rodman Reservoir serves no other purpose than fishing. While, the intact, flowing sections of the river, above and below the reservoir, have excellent fishing. Many winners of recent fishing tours in Rodman Reservoir were documented as having caught their fish outside of the reservoir. As the tournament began, many "locked-out" and went out into the St. Johns River, and it was there that they caught their trophy fish.

Ecotourism will benefit from a restored river, as well. My tours on Ocklawaha are very popular. During drawdowns in the reservoir, I lead tours to see the old river channel and to visit some of the 20+ springs that are otherwise submerged when the reservoir is full. My tours in the drawdowns are extremely popular and well-attended, however, they have a very different feel than regular tours. These have a somber tone, as the underlying theme of discussions is the travesty of this reservoir. Unanimously, my customers end this tour with hopeful comments about the day when this river will be allowed to flow freely again.

Restoring Ocklawaha River is an action long overdue. The taxpayers of Florida spend hundreds of thousands of dollars every year to maintain a water body that is nothing more than an artificial fishing hole--and one that no longer has the exceptional fishing that it did in its early years. It is time to remove Rodman (Kirkpatrick) Dam and restore the free-flowing Ocklawaha River. It makes ecologic sense and it makes economic sense. Please act now to remove Rodman Reservoir and allow the resurgence of the 20+ lost springs and local economy that are just waiting to happen! Allow this rare piece of our natural heritage to flow again.

Sincerely,

Lars Andersen

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*Adventure Outpost LLC*

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<http://riverguidesjournal.blogspot.com/>



## Ocklawaha River Restoration Economic Impact

**KEY REFERENCE:** *“The economic impact from eco-tourists who use the natural portions of the Ocklawaha River is twice that of the anglers and boaters at Rodman Reservoir. Annual use of the reservoir recreation sites has been on a downward trend since records began in 2004 while use of the river sites has remained steady and consistently increased over the past three years.” - UF Economic Study*

### Current Conditions: Reservoir Sites

- Annual direct visitor expenditures are estimated at \$6 million at the reservoir sites
- Annual use of the reservoir recreation sites has been on a downward trend since records began in 2004
- Estimated annual operating costs of the dam are \$198,000
- Estimated projections for bringing the Buckman Lock, Kirkpatrick Dam and Spillway, and the Eureka Lock and Dam up to latest standards for operation are \$4 million
- Short-term jobs continue to conduct maintenance activities and to fix deteriorating infrastructure
- Seven bait shops were closed in Putnam County and northeast Marion County during recent years with only one remaining in the area that services bass anglers
- Tournament fishermen often check-in at the Rodman and fish the St. Johns with many of the winning catches coming from outside the reservoir area
- River guides and paddling groups routinely report river blockages that create an unreliable recreational resource. One major paddling trip canceled this year.

### Current and Projected Conditions: River Sites and Restored River

- Annual direct visitor expenditures were estimated at \$20 million at the river sites
- Annual use of the river sites has remained steady and consistently increased over the past three years
- The economic impact from visitors using the natural portions of the Ocklawaha River is twice that of the anglers and boaters at Rodman Reservoir
- Increased opportunities for commercial fishing and shellfish including shrimp, crabs and mullet.
- Estimated operating costs for the area after restoration are approximately \$234,000
- Restoration could provide multi-year jobs for residents conducting river restoration efforts including new bridge/road construction
- Improved river and recreational resources could translate to long-term jobs created for businesses with increased visitor counts using the Ocklawaha River and Silver Springs State Park due to improved fishing, more diverse recreational opportunities and manatee and wildlife viewing

## **An Economic Comparison of the Rodman Reservoir to the Natural Portions of the Ocklawaha River**

Elected officials and community leaders asked for economic data that would support restoration. The University of Florida Institute of Food and Agricultural Services was contracted to do a study on the: *Economic Importance of the Public Perceptions for Water Resource Management of the Ocklawaha River*. The primary findings were:

- The economic impact from eco-tourists who use the natural portions of the Ocklawaha River (Marion County) is twice that of the anglers and boaters at Rodman Reservoir (Putnam County)
- Overall visitor direct expenditures were estimated at \$6 million at the reservoir sites versus almost \$20 million at the river sites
- An estimated 1.8 million people visited these sites during the two-year study period

Annual use of the reservoir recreation sites has been on a downward trend since records began in 2004 while use of the river sites has remained steady and consistently increased over the past three years. (Robert Knight, Florida Silver Springs Conservation Plan)

This data supports the partial restoration option recommended in the Greenway Plan and widely endorsed by federal and state agencies, conservation organizations and many user groups.

### **Restoration and Maintenance Costs**

According to the latest Greenway Plan, "The projected cost for repairs and to bring the Buckman Lock, Kirkpatrick Dam and Spillway, and the Eureka Lock and Dam up to latest standards for operation is \$4 million. This estimate is based on the July 2015 inspection report and years of historical data from the Inglis Lock and Dam repair projects and assessment reports." (Greenway Plan, 2017-2027) Opponents of the dam suggest that investing \$4 million into a project that has no useful purpose is not in the best interest of taxpayers.

The Greenway Plan states that, "The estimated cost for restoration of the Ocklawaha River is \$25.8 million. The plan suggests that, "Annual operating costs for the dam components and activities and the operating costs for the area after restoration are approximately the same: \$198,000 and \$234,000, respectively."

Although routine operational costs produced by the FDEP Greenways staff seem to be similar between the current operation and the partially restored river, the Florida Department of Environmental Protection previously estimated that necessary repairs and improvements for the continued operation of Buckman Lock, Kirkpatrick Dam and Spillway and the Eureka Lock and Dam would cost approximately \$14.1 million (Greenway Plan 2007-2017), not the \$4 million now in the greenway plan 2017-2027. Other estimates indicate that over its 45-year life, it is estimated that more than \$20 million in funding has been spent for a de-authorized, antiquated project. Attempts to obtain and analyze this information through two public records requests were unsuccessful.

## Putnam and Marion County: Victims of the Rodman Dam

### The Silver Springs Economic Story

Florida's Silver Springs once attracted over a million visitors a year, today the former attraction and state park attracts 250,000 visitors annually (Silver Springs Restoration Plan, 2014). According to boat drivers who were employed for decades at the attraction, the glass-bottomed boat tour was shortened from an hour to 30 minutes during the 1980s because of the loss of fish and wildlife and degraded quality of the springs (Film: *The Silver River Story*). This was after the effects of the Rodman Dam were felt, along with increased nutrients in the river from runoff and septic tanks. Although nutrients dumped into the aquifer from septic tanks, lawns and other sources certainly have damaged the river, the dam led to the demise of migratory fish populations and reduced diversity of aquatic and terrestrial species.

The partial restoration of the dam would return a wide variety of migratory fish and is projected by manatee experts to become a haven for the manatee in search of warm water habitat in the winter and places of refuge.

A motel owner at the public hearing for the designation of the Silver Springs Community Development Area explained that he had instances where guest booked a week due to beautiful online historic photos of the springs, and then canceling after a day or two. A visual inspection of east SR40 in the areas around the state park vividly reveals the toll that declining tourism has taken on businesses.

### Designation of Silver Springs Community as Redevelopment Area

Because of this, in 2017, Marion County created a Silver Springs Community Redevelopment Area to revive the Silver Springs area through adopting architectural and site design standards for the State Road 40/Silver Springs Blvd. area. Although this effort has merit, reviving the economy of this area must include efforts to restore Silver Springs and the Ocklawaha River.

"The Silver Springs Community Redevelopment Area (CRA) recognizes the unique location of Florida's Silver Springs and the surrounding Silver Springs community. The area serves as a gateway to the heart of Marion County and the environmental crossroads formed by the Silver Springs State Park, Marjorie Harris Carr Cross Florida Greenway and Indian Lake State Forest."

The 3,574-acre area is comprised of 876 parcels, 217 vacant, and 43% of the area is state-owned property including Silver River State Park. "The CRA is intended to create opportunities to further environmentally aware economic growth and development, supporting and highlighting the relationships between Marion County's citizens, businesses, and the environmental features surrounding the community. The creation of the Community Redevelopment Agency to govern the redevelopment efforts within the area would provide opportunities to encourage new capital investments for residential, commercial, and tourism development. The key focus would be to encourage job-generating investments as part of the redevelopment initiative while at the same time enhancing the environmental quality of the area." (Silver Springs Community Redevelopment Plan, Marion County, 2013)

To establish the CRA, a study was conducted in 2012 by Real Estate Research Consultants. The study, which included Silver Springs State Park concluded, "When compared to Marion County as a whole, the conditions of the Proposed Redevelopment Area are indicative of blight."

This analysis outlined seven blighted conditions and one slum condition. "In combination, these conditions are retarding the immediate and longer term social, economic, and physical development of the Study Area." (Silver Springs Community Redevelopment Plan, Marion County, 2013)

### Putnam County Economic Story

Today, Putnam county's poverty level ranks 65 out of 67 Florida counties (www.welfareinfo.com) with an average household income of \$32,714, compared to the U.S. average of \$53,482. (www.bestplaces.net)

### A County Success Story

But all is not dismal, one of the city's recent success stories is its St. Johns Riverfront revitalization efforts including the St. Johns River Environmental Center and new Hampton Inn, as well as expanding nature-cultural tourist offerings. The Bartram Trails group is conducting St. Johns River tours and trail hikes, as well as producing a successful annual festival drawing hundreds of guests. Restoring the Ocklawaha River would complement these St. Johns River efforts.

### The County's Past and Future Projections

The county needs a boost to draw residents, new businesses, as well as visitors. Putnam County has seen their job market decrease by .3% over the last year. Future job growth over the next ten years is predicted to be 25.9% which is below the national average of 33.5%. On August 8, 2018, a Washington Post article by Robert Samuels entitled, *The help Trump promised hasn't come. So this 'dying city' is determined to save itself*, said "By 2013, local leaders were horrified to learn that an expert hired by the Florida League of Cities had found that Palatka was the state's only dying city. Opioid abuse is rampant, and 1 in 10 residents continue to live in public housing. The school system ranks among Florida's worst. And the city's pipes are so old that the water sometimes comes out the color rust."

### Keeping the County Economy Whole

With Putnam county's tenuous economic picture, it is understandable why some key leaders are holding onto the last great icon of booming bass fishing industry of the past – The Rodman Dam and Reservoir. As an Ocklawaha River partial restoration plan is being evaluated and funding sources are being identified, federal and state leaders need to consider incentives to make sure the county's economy is kept whole. Good examples exist where this has been done in the past. Legislation to create a water treatment and storage reservoir for Lake Okeechobee and the Everglades included state budget incentives for the surrounding area. Local leaders were concerned that the loss of agricultural lands would negatively impact nearby communities.

Discussions with Putnam County leaders when similar discussions occurred during the late 1990s indicated that the most sought-after incentives then were items such as workforce development assistance and stormwater improvements. Other creative strategies could involve enhanced amenities such as a visitor/history center at the Rodman Dam or other appropriate site, a new car/hiking bridge with wildlife viewing area over the Rodman Reservoir and other recreational enhancements along the river for Putnam and Marion counties.

Incentivizing the potentially locally effected communities is one strategy to move forward a project that would economically and environmentally benefit northeast Florida and beyond, while assuring local economies thrive. Although the economic research points to these areas thriving due to river restoration, some of those benefits may not be immediately achieved and in many cases perception and holding on to past ways of doing business can be a real barrier to forward progress.

### **References:**

Borisova, T., Bi, X., Hodges, A., Holland, S. Economic Importance and Public Preferences for Water Resource Management of the Ocklawaha River, 2017, University of Florida, IFAS

Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area Unit Management Plan (2007-2017), Florida Department of Environmental Protection, Office of Greenways and Trails

Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area Unit Management Plan (2017-2027) Florida Department of Environmental Protection, Office of Greenways and Trails

Real Estate Research Consultants, Silver Springs Redevelopment Plan, Marion County, Florida, February 2013, Draft 2.0

Wetland Solutions Inc., Silver Springs Restoration Plan, 2014, The Howard T. Odum Florida Springs Institute

### **Internet sources:**

<https://www.bestplaces.net/economy/county/florida/putnam>

<https://www.marioncountyfl.org/departments-agencies/departments-a-n/growth-services/community-redevelopment-areas/cras/silver-springs-cra>

<https://www.welfareinfo.org/poverty-rate/florida/putnam-county>



## Ocklawaha River Restoration Funding Strategies

### Potential Strategies to Fund Restoration and Gain Local Government Support

Putnam County has historically been one of Florida's most economically impoverished areas. The hope that the Rodman impoundment would become an economic engine to improve Putnam County's standing has not come to fruition over the past 40 years. However, some local leaders and residents fear the loss of the impoundment may further weaken Putnam County's poor economic picture. Any river restoration strategy needs to include new economic opportunities for the county. This could include incentives to offset perceived negative impacts of restoration to the community, as well as amenities or initiatives to support nature tourism, working lands, and the bass industry. Legislative examples exist where communities were afforded such incentives.

### Strategy #1: Land Acquisition Trust Fund and Local Government Land Incentive Package

Fund the restoration of the Ocklawaha River from the Land Acquisition Trust Fund (Amendment 1 Funding) and provide land as an economic incentive to Putnam County. Transferring a portion of the Cross Florida Greenway Lands to Putnam County would provide a substantial new prospect for industrial or commercial development, including the opportunity to incorporate a recreational sports fishing center with access to the St. John's River. Commercial heavy marine industry, or less intensive development uses, would become available in Putnam County with great access to the river via the old barge canal channel, and a strategic location having direct access to U.S. 19 just south of Palatka. Minor incentives may need to be identified for Marion County, too.

The advantage of this proposal is that it would be a simple approach. Its disadvantage is that it would require state funding and would give up some Cross Florida Greenway lands.

Prepare a two-part legislative bill to incorporate both the authority, funding and instructions to drain Rodman Reservoir, eliminate/replace the current center portion of the dam, and direct a land transfer for economic development purposes from the Cross Florida Greenway to Putnam County. This would be designed to offset economic losses from Rodman Dam removal. The bill would include restoration funding for the Ocklawaha River from the Land Acquisition Trust Fund. This would offer a "win-win" approach for both advocates of Ocklawaha River restoration and Putnam County economic development. Putnam County Commissioners would be encouraged to advance this bill as their own proposal.



## **Strategy #2: Land Acquisition Trust Fund and Local Government Incentive Package**

Fund the restoration of the Ocklawaha River from the Land Acquisition Trust Fund (Amendment 1 Funding) and provide direct appropriations to Putnam County to offset any adverse economic impacts of restoration.

Prepare a two-part legislative bill to incorporate both the authority, funding and instructions to drain Rodman Reservoir, eliminate/replace the current center portion of the dam, and direct budget expenditures to offset economic losses related to the bass fishing industry and Rodman Dam removal. Incentive funding could be additional funding for roads, housing or other needed infrastructure to improve the economic viability of Florida's poorest county. The bill would include restoration funding for the Ocklawaha River from the Land Acquisition Trust Fund. This would offer a "win-win" approach for both advocates of Ocklawaha River restoration, and the Putnam County economic development contingent. Putnam County Commissioners would be encouraged to advance this bill as their own proposal. The bill could be modeled somewhat after recent SB10 that provided Amendment 1 funding, as well as other funding to help offset economic losses due to projected loss of farmland and local jobs.

The advantage of this proposal is that it would be a simple approach. Its disadvantage is that it would require both state Land Acquisition Trust Funds and other appropriate state funding.

## **Strategy #3: Inclusion of Line Item Appropriations**

An appropriations line item will be simpler than a separate bill. Legislative champions will need to be identified. The appropriation would provide funding for restoration and management as well as Putnam county economic development incentives.

- Marion County could be convinced, based in part on the upcoming UF/SJRWMD report, that river restoration/dam removal would be a significant economic boon. This is because the (1) report should indicate that true Silver Springs restoration is contingent upon river restoration/dam removal and (2) the associated reestablishment of a substantial manatee population at the spring would attract many more visitors and related economic activity (think Crystal River).
- Volusia County and West Volusia utilities could also potentially benefit from the "new" Silver Springs manatee habitat by taking some pressure off the need to recover the targeted additional flow at Volusia Blue Spring to accommodate the ever-increasing manatee population there.

## **Strategy #4: Mitigation Bank to Restore the Ocklawaha**

The establishment of a mitigation bank over the restored wetlands and forested uplands could generate the funds for restoration and provide economic incentives for local governments. Several options could be explored, among them the might be a mechanism for a private mitigation bank company to operate the mitigation bank with a division of the credit revenues to cover the costs of restoration, provide funding to Putnam County (possibly Marion County also) for economic development projects, cover the costs of management of the mitigation bank and

provide a reasonable profit to the operator. Alternatively, an agency such as SJRWMD or a local government could conduct the restoration and manage the mitigation bank's long term success. (Note: An example of a creative mitigation bank structure is the mitigation bank at Corkscrew Swamp Sanctuary. This is a partnership between a private mitigation banker and National Audubon Society, who owns the land and handled the restoration and monitoring work.)

Public access for recreational use of the restored portions of the Ocklawaha River would be included in the management plan. The mitigation bank company would apply for a mitigation bank permit through either the Florida Department of Environmental Protection or St. Johns River Water Management District and the U.S. Army Corps of Engineers. The permit would contain a proposal to generate mitigation credits primarily through restoration and enhancement of approximately 9,000 acres of the former natural river floodplain. This would occur through (1) Draining the Rodman Reservoir by opening the spillway to its maximum (2) removing all or part of the Rodman Reservoir and spillway (3) planting and or enhancing naturally volunteering floodplain forest species to maximize recovery of the floodplain to a hydric forest. (4) Reestablishing any sections of the old river channel (once exposed by draining the reservoir) that need physical restoration in order to function.

An initial marketing feasibility study has been completed and the market environment for a mitigation bank is very favorable as there are no other mitigation banks offering state mitigation credits in this geographic area. The plan would be to gain approval by the Governor and cabinet to allow a percent of the funds raised to go to Putnam County to offset any economic losses from the removal of the dam. Putnam County would be considered one of the investors. Loblolly mitigation bank in Jacksonville provides an example of how this process could work.

This strategy is highly complex. It would hand-off much of the control and the economic benefits of the project to a private mitigation banking firm. The legal documents defining roles and responsibilities and environmental safeguards establishing the bank would be crucial to the conservation success of the project.

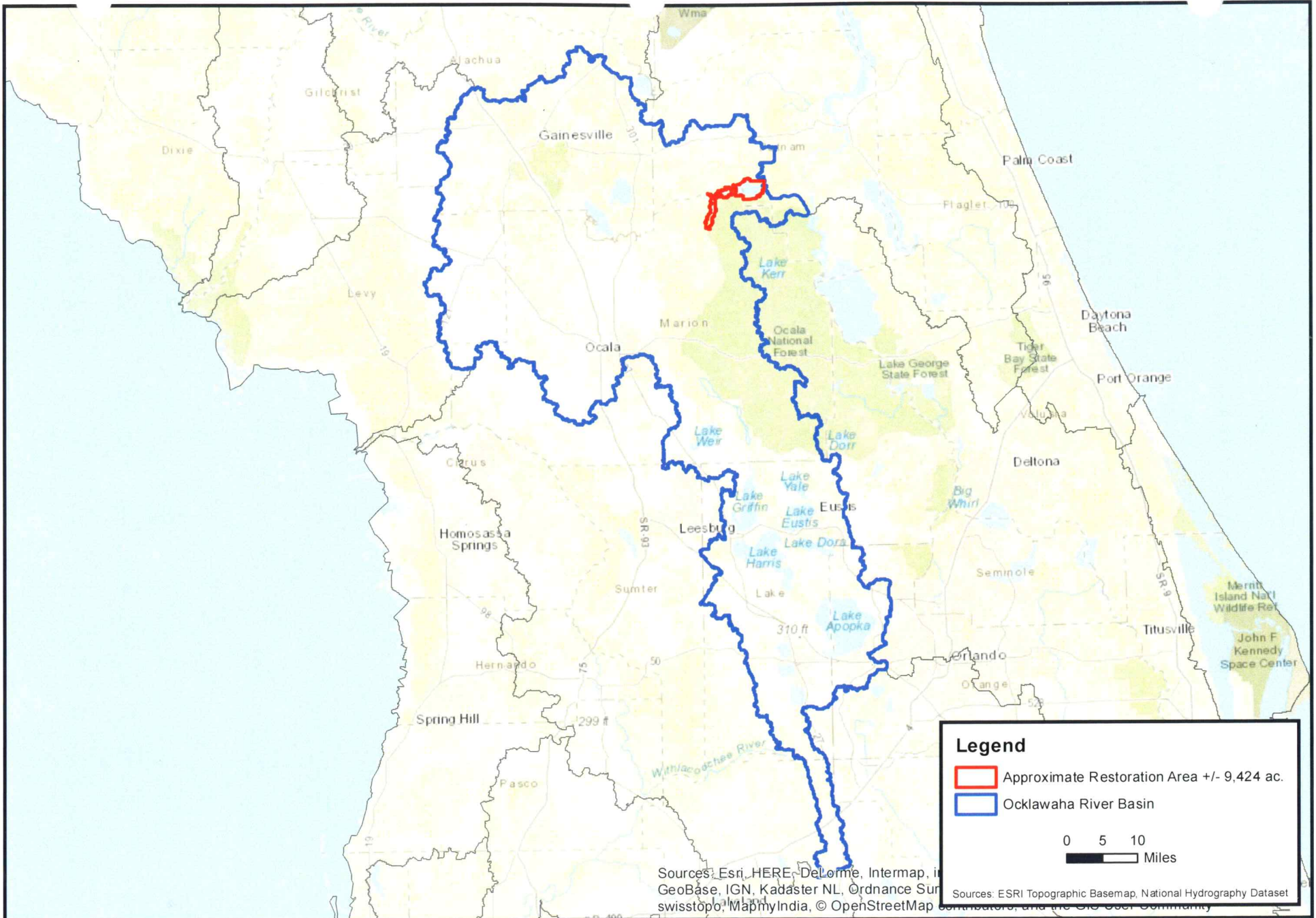
#### **Strategy #5: Acquisition of private funding to conduct necessary restoration work.**

Partial or full funding for the restoration could be sought from major corporations and foundations. Funding alone would not assure restoration would occur. Funding commitments could be used as a leverage to get cooperation from USFS and DEP. Local government incentives would be difficult to include in a solicitation package. The goal of \$25-\$50 million is not an easy target. Lesser amounts could be used to complete final engineering study, mitigation marketing assessment, and outreach campaign.



## Ocklawaha River Restoration Map Series

1. Ocklawaha Basin Map
2. Location Map
3. 1964 Aerial
4. Ocklawaha River Restoration Plan
5. Adjacent Conservation Lands
6. Land Cover
7. FWC Manatee Synoptic Survey Observations Locations
8. Points of Interests: Landings and Submerged Springs
9. Cultural/Historic Resources – Not for Public Distribution
10. Silver Springs Proposed Redevelopment Area



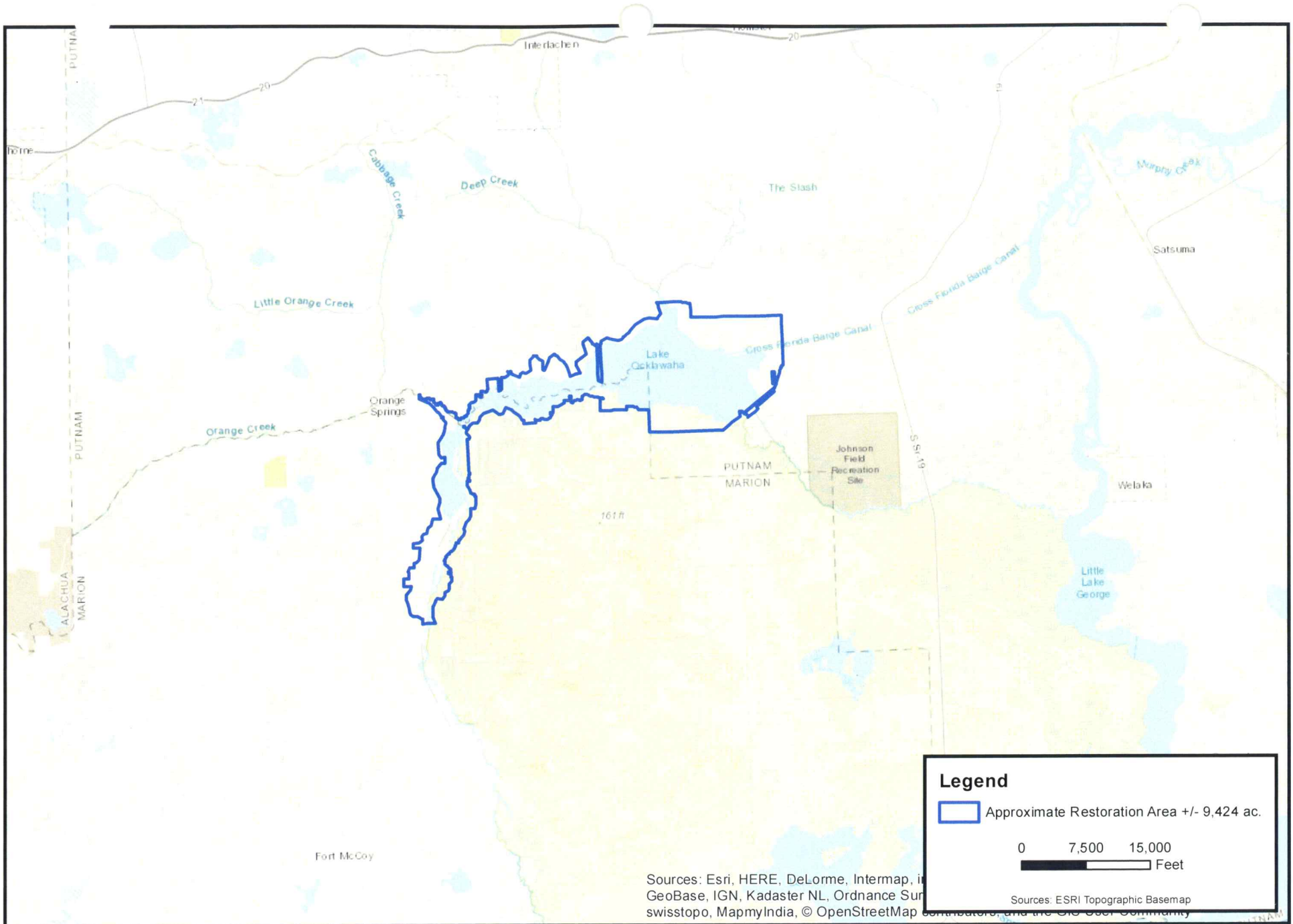
**Legend**

- Approximate Restoration Area +/- 9,424 ac.
- Ocklawaha River Basin

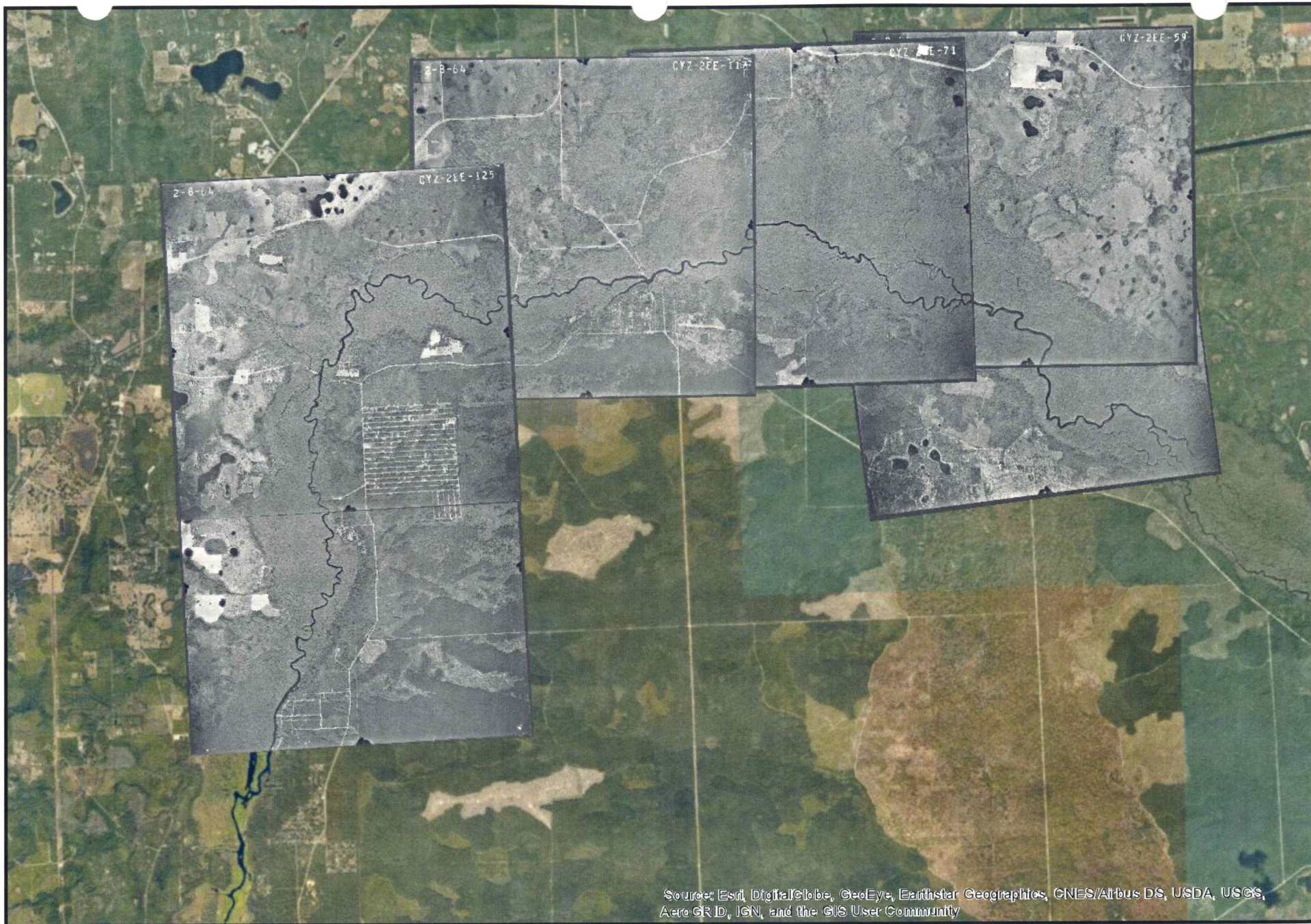
0 5 10  
Miles

Sources: ESRI Topographic Basemap, National Hydrography Dataset contributors, and the OpenStreetMap community

**Ocklawaha Basin Map**



**Location Map**

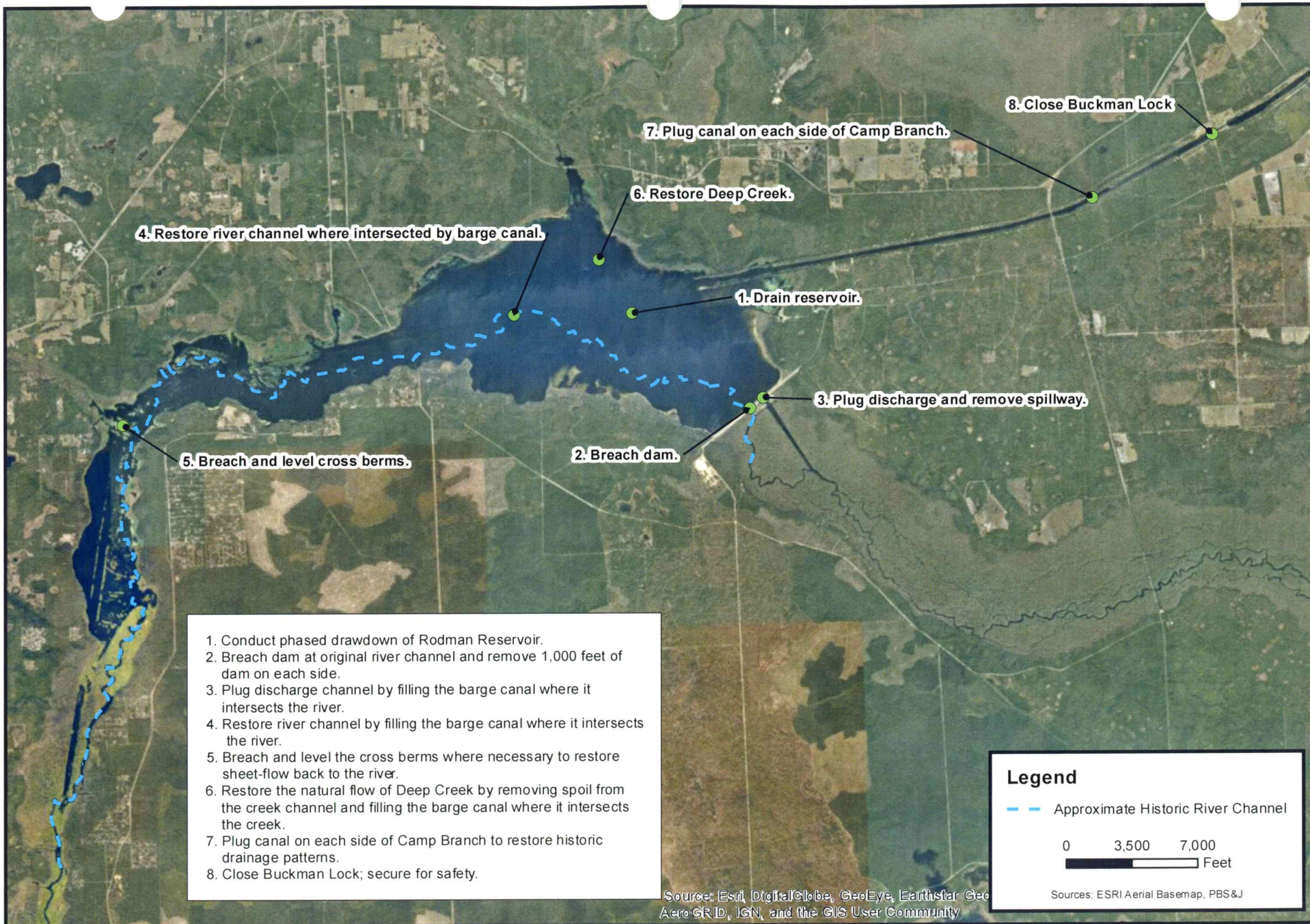


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

## 1964 Aerial

0 3,000 6,000  
Feet

Sources: ESRI Aerial Basemap, UF Smathers Library



4. Restore river channel where intersected by barge canal.

6. Restore Deep Creek.

8. Close Buckman Lock

7. Plug canal on each side of Camp Branch.

1. Drain reservoir.

3. Plug discharge and remove spillway.

5. Breach and level cross berms.

2. Breach dam.

1. Conduct phased drawdown of Rodman Reservoir.
2. Breach dam at original river channel and remove 1,000 feet of dam on each side.
3. Plug discharge channel by filling the barge canal where it intersects the river.
4. Restore river channel by filling the barge canal where it intersects the river.
5. Breach and level the cross berms where necessary to restore sheet-flow back to the river.
6. Restore the natural flow of Deep Creek by removing spoil from the creek channel and filling the barge canal where it intersects the creek.
7. Plug canal on each side of Camp Branch to restore historic drainage patterns.
8. Close Buckman Lock; secure for safety.

**Legend**

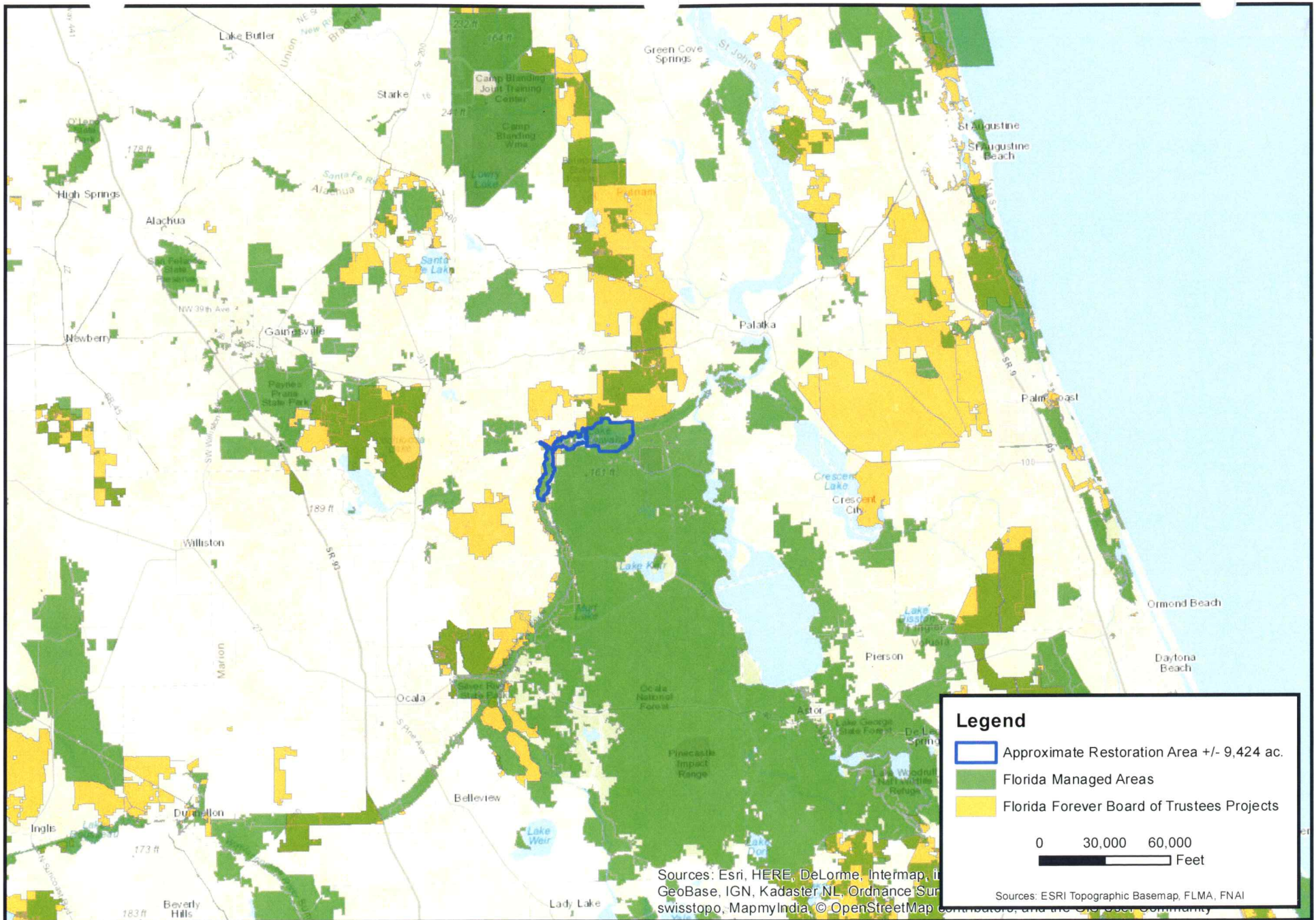
— Approximate Historic River Channel

0 3,500 7,000  
 Feet

Sources: ESRI Aerial Basemap, PBS&J

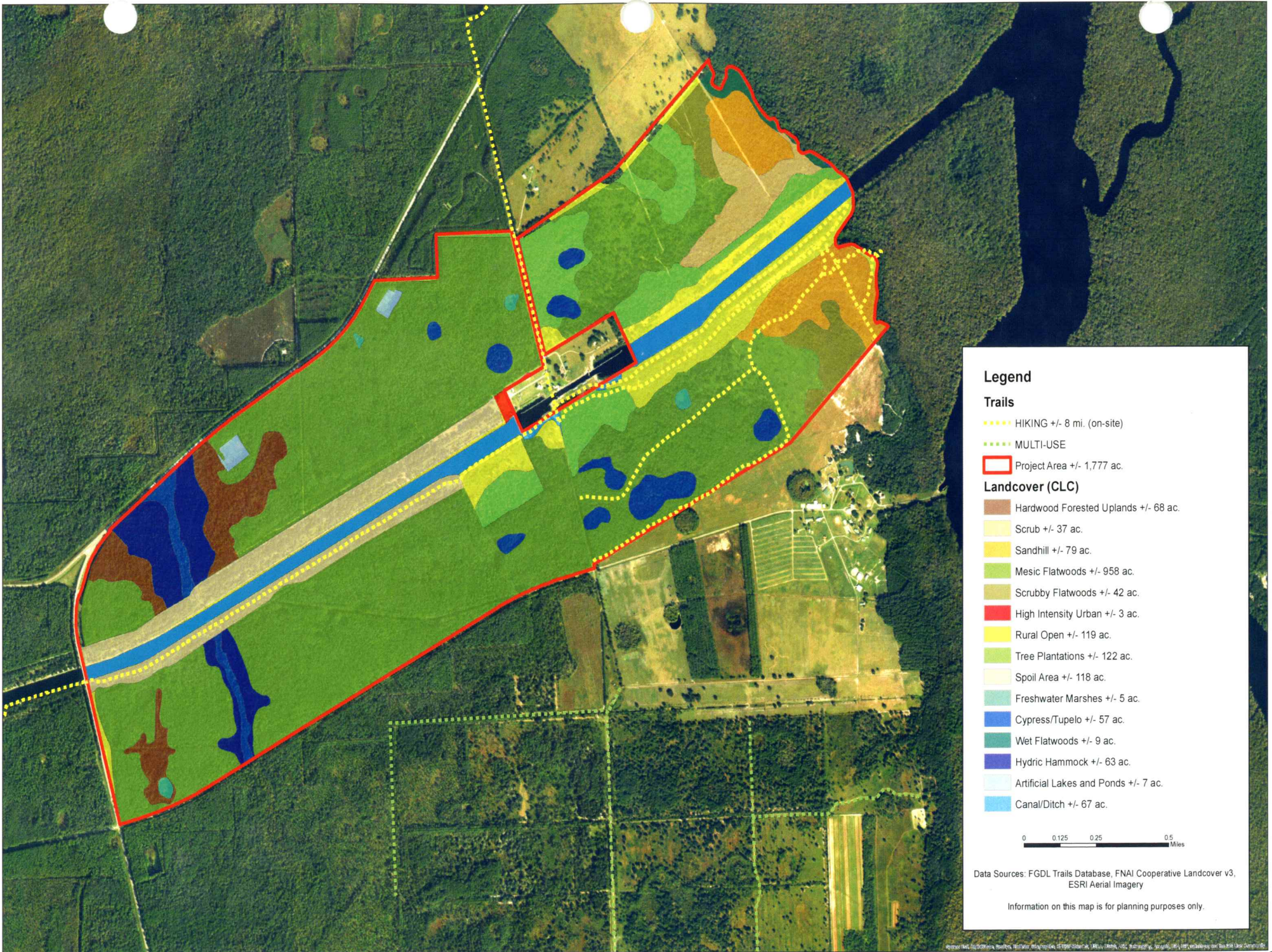
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geo  
 AeroGRID, IGN, and the GIS User Community

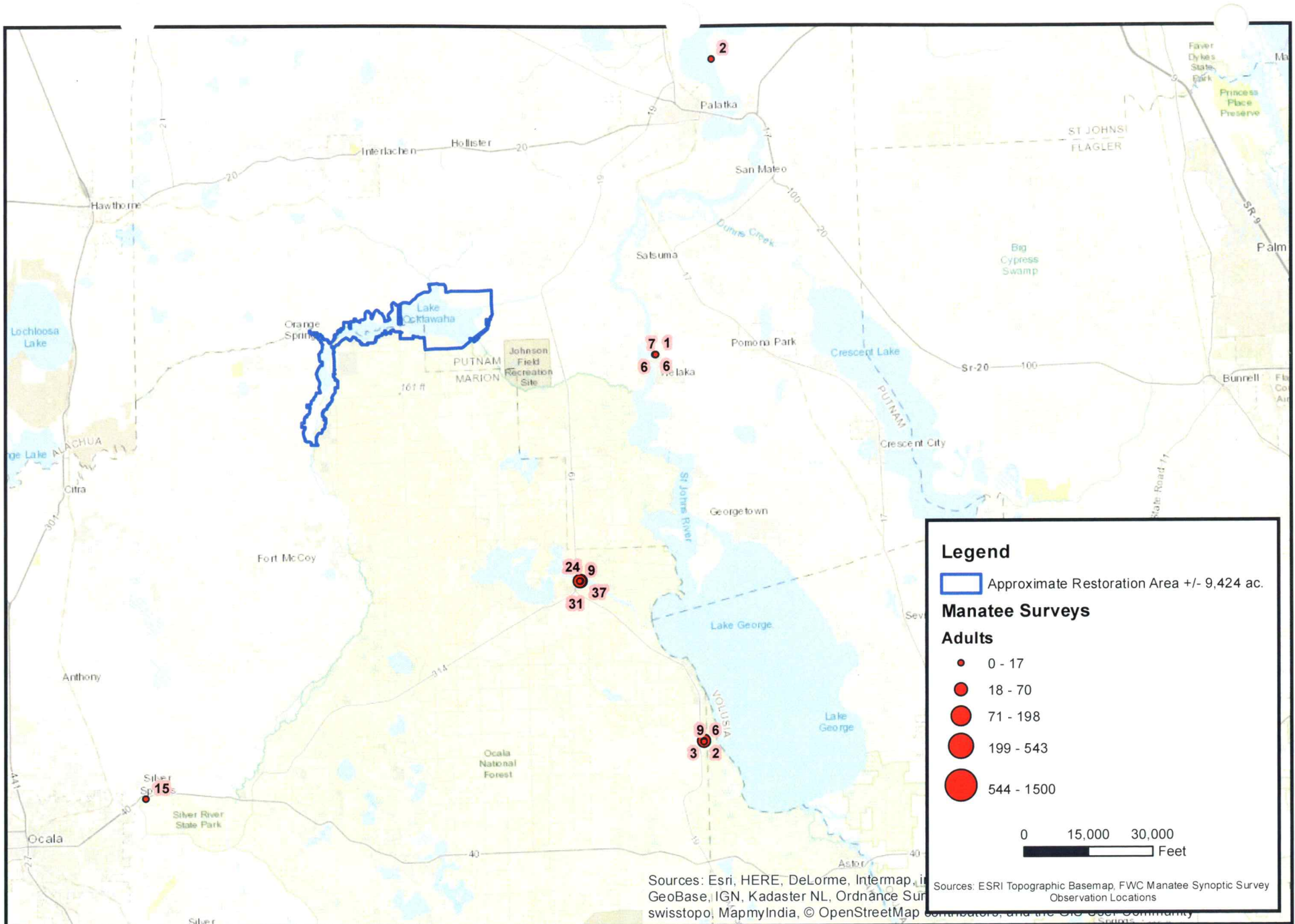
# Ocklawaha River Restoration Plan



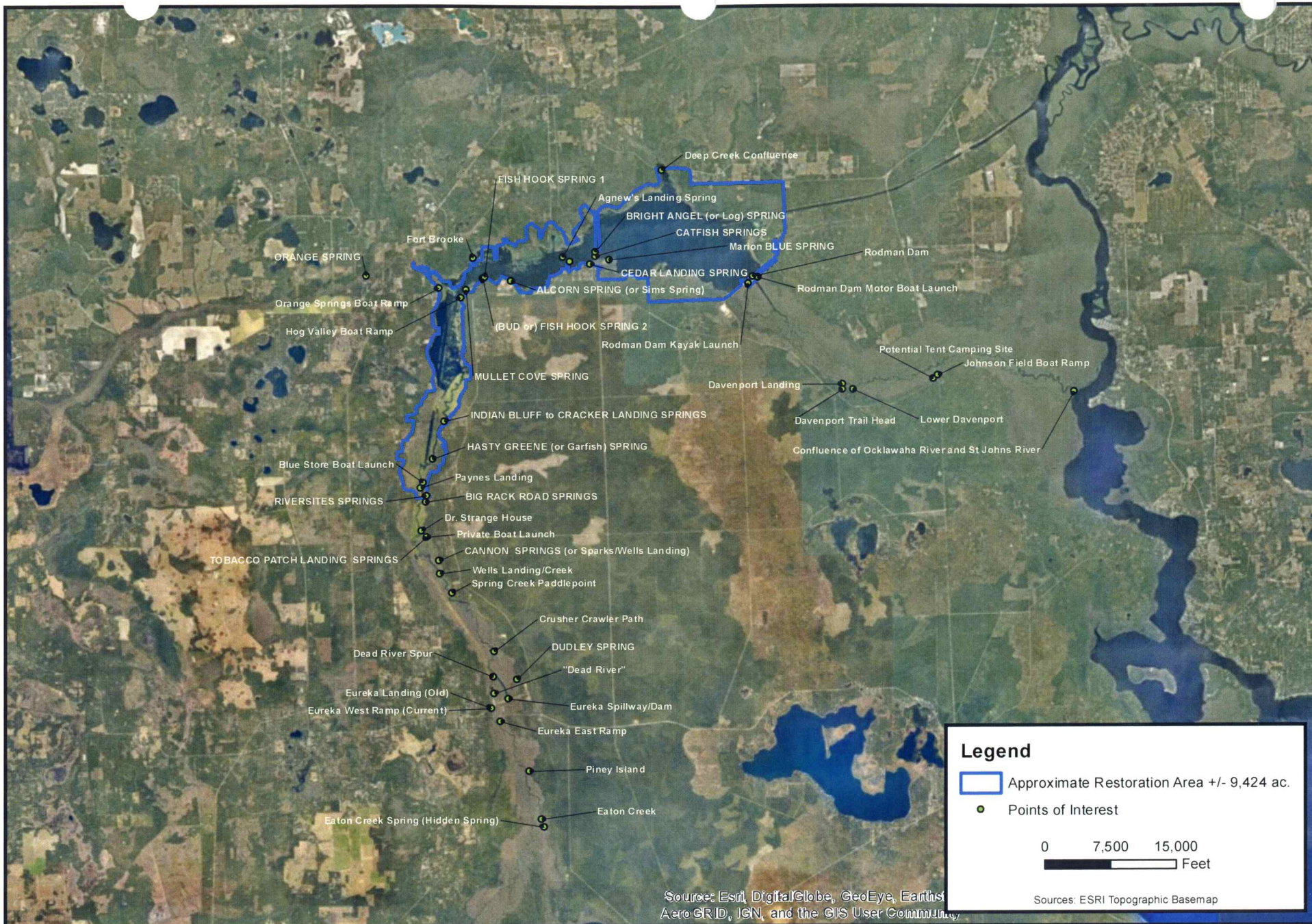
## Adjacent Conservation Lands



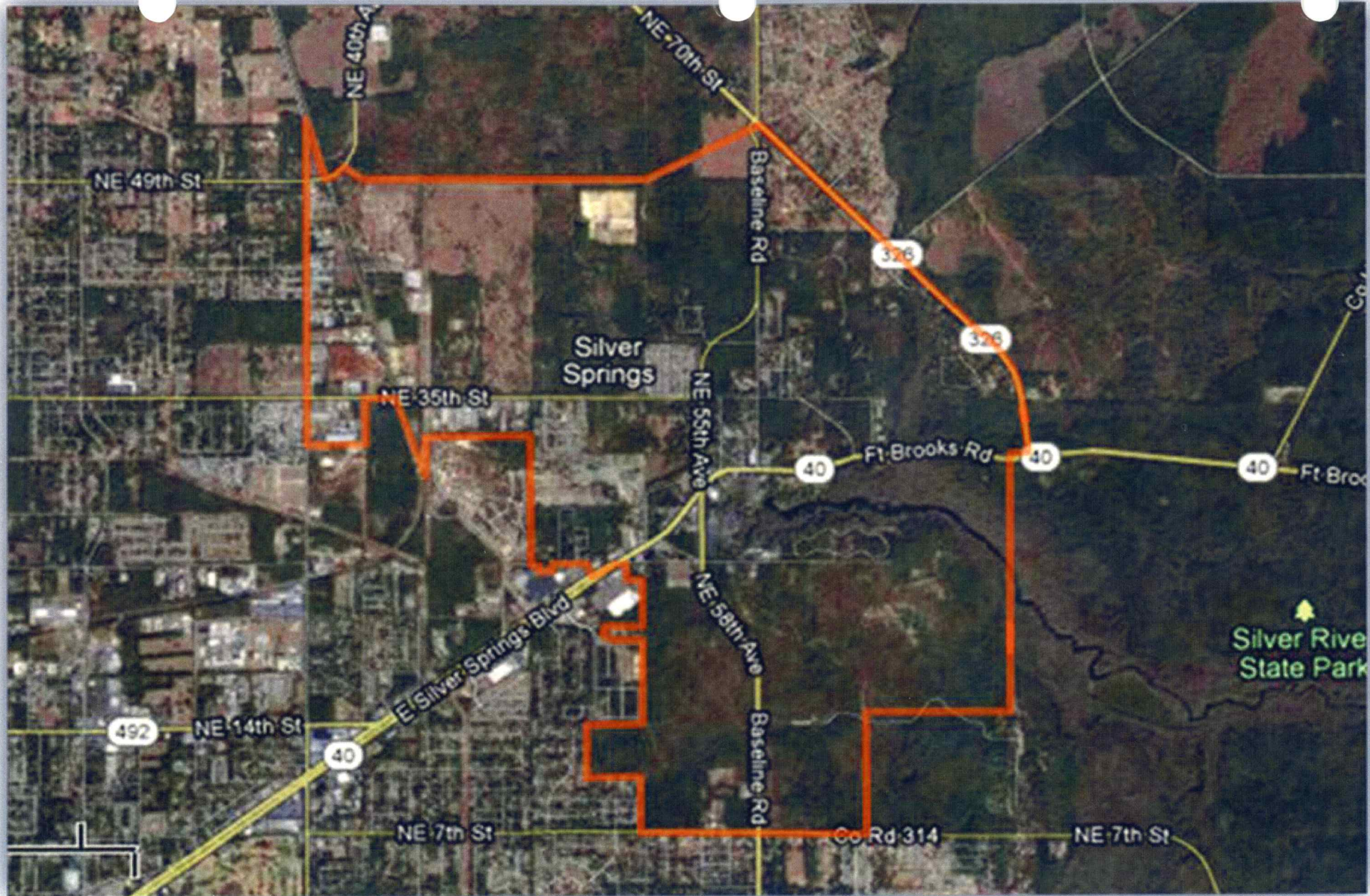




## FWC Manatee Synoptic Survey Observation Locations



## Cultural Resources and Points of Interest



**Silver Springs Proposed Redevelopment Area**

# **Ocklawaha River Restoration**

**Business Support Letters**

**and**

**Supporting Organizations**

## Letter for Jolene Everett – Everett Distributing Co Inc.

I attended a recent meeting facilitated by FWC at the Ravine Gardens State Park in order to gain an education opinion of the draw down. I went in the hopes of leaning the benefits of the draw down process. I left that meeting with a very dissatisfied feeling. I am appalled that our state is spending millions of dollars to maintain and protect a damn that is not needed nor necessary. I am to understand the that draw down happens to control vegetation growth. The vegetation growth is there due to the unnecessary high-water level. Within about a month of the draw down several springs are clear and visible. I am left with the question as to why there is it necessary to have the water that high at all.

The excuse for the reservoir is to save portable water. This doesn't hold water. The pun is intended. It is proven that still water evaporates faster than a free-flowing river. So, more water is being lost to the atmosphere than made available. It is also proven that the chemicals used to suppress the vegetation mixed with the treatment of the water to be able to drink would make the water carcinogenic. More drinkable water would be made available if the springs could flow.

It only stands to reason that the draw down needs to remain in place permanently. The damage caused by unnecessary high water level effects the natural flow of the 20 known springs, makes visible the thousands of dead tree trunks that can be harmful to water crafts, allows for a smoother transition in regards to removing the unnecessary damn, and allows for more exposed land to be available to enjoy for ecotourism.

I see the draw down as a favorable economic impact in the Putnam County area. It's time to return the area to its natural state and stop suppressing the natural beauty that is being suffocated in order to please a small number of sportsmen. Putnam County is building its reputation as an inviting green space to play and visit from ecotourists. Ecotourism is growing in popularity carrying with it the economic boost to towns that offer more hiking, camping, cycling, horseback riding, swimming, extreme triathlons, and other outdoor activities.

Stop with the nonsense already,

Jolene Everett  
Everett Distributing Co Inc

To all concerned,

I have been a full-time river guide in North Florida for over 22 years and have been a nature & history writer for almost 30. Of all the tours I lead (72 Florida waterways) none are as unique and ecologically significant as the Ocklawaha. Because of its unique formation--formed along fault lines at the edge of a massive uplift and subsidence area thousands of years ago--the soils and geology are unlike any other. Sediments in the river have been dated to 17,000 years--far older than other rivers in the peninsula.

Before Rodman Reservoir was put in place, the free-flowing Ocklawaha was a well-travelled migration route for several species of fish as well as the threatened Florida manatee, which were drawn to the spring flow for over 20 springs now submerged under the reservoir. Like any living entity, a river must flow freely, from its head waters to its mouth, if it is to function as a healthy system.

Today, Rodman Reservoir serves no other purpose than fishing. While, the intact, flowing sections of the river, above and below the reservoir, have excellent fishing. Many winners of recent fishing tours in Rodman Reservoir were documented as having caught their fish outside of the reservoir. As the tournament began, many "locked-out" and went out into the St. Johns River, and it was there that they caught their trophy fish.

Ecotourism will benefit from a restored river, as well. My tours on Ocklawaha are very popular. During drawdowns in the reservoir, I lead tours to see the old river channel and to visit some of the 20+ springs that are otherwise submerged when the reservoir is full. My tours in the drawdowns are extremely popular and well-attended, however, they have a very different feel than regular tours. These have a somber tone, as the underlying theme of discussions is the travesty of this reservoir. Unanimously, my customers end this tour with hopeful comments about the day when this river will be allowed to flow freely again.

Restoring Ocklawaha River is an action long overdue. The taxpayers of Florida spend hundreds of thousands of dollars every year to maintain a water body that is nothing more than an artificial fishing hole--and one that no longer has the exceptional fishing that it did in its early years. It is time to remove Rodman (Kirkpatrick) Dam and restore the free-flowing Ocklawaha River. It makes ecologic sense and it makes economic sense. Please act now to remove Rodman Reservoir and allow the resurgence of the 20+ lost springs and local economy that are just waiting to happen! Allow this rare piece of our natural heritage to flow again.

Sincerely,

Lars Andersen

*Lars Andersen*

*Adventure Outpost LLC*

*Ft. White, FL 32038*

[www.adventureoutpost.net](http://www.adventureoutpost.net)

<http://riverguidesjournal.blogspot.com/>

# Friday's Lead Letter: Removing Rodman dam could improve tourism in Putnam County

**By owner of Welaka Lodge**

Posted Aug 17, 2017 at 6:34 PM

My wife and I purchased an old rundown fish camp in 2004. We worked hard to build what is now Welaka Lodge & Resort. We cater to families, couples, reunions and, of course, fishermen and their wives.

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.

Our guests do not fish the Rodman Reservoir. Although I am not an ardent fisherman, I do discuss fishing with our guests to pass on information to subsequent guests.

I hear time and again that the trip through the barge canal (locks) and the multitude of obstacles (tree stumps) once you reach the reservoir make the trip more trouble than worth the effort. Those who have attempted it will not try again. Our guests bring nice expensive boats and



do not want to risk damage. Obviously, there is much water to be fished on the St. Johns, lower Ocklawaha and Lake George.

Many of our guests bring boats and do not fish. Silver Glen, Salt Springs, water sports and riverfront restaurants are their destinations. Many dream of taking their boat up the Ocklawaha all the way to the Silver River and beyond. That would be the same route the steam river boats navigated before the advent of railroads.

Trips up the Ocklawaha now end at the foot of the dam. I understand that most reservoir access is south of Palatka.

The money is on the St. Johns River and its contiguous Ocklawaha. Fishing is excellent on the St. Johns, and there is plenty of water to access.

Aesthetics aside, we need to focus on the economic gains by removing the dam.

**Kevin Finch**, owner,

Welaka Lodge & Resort

## **Letter from Erika Ritter, Ocklawaha River Guide A Cruising Down the River**

The Ocklawaha River was removed from the list of Wild and Scenic Rivers so it could be used for navigation for the Ship Canal. This act was shameful and enough reason and cause for this river to be saved. Our fish have dwindled due to huge fish kills. Our fish diversity has lost the migratory species. The east coast of Florida has lost the cost free natural spawning of Striped Bass. We no longer witness the huge schools of Channel and White Catfish covering the white sand bottom river to spawn in the 70 plus miles upstream to Silver Springs and to the Harris Chain of Lakes. This should also be enough to save this river. From Eureka north the river has lost her shade, her clean sand bottom is covered with silt, trees are still dying from drowning and it is choking up from invasive plants. Cool water Springs aren't flowing under the weight of 12-14 feet of water causing a 8 degree water temperature increase in the summer. This is the most neglected restoration project! A restoration needed for the flora fauna and yes the human needs of a boosted economy. The Rodman Dam and all facilities within the flooded pool have deteriorated and several recreational in these areas have been blocked off to the public. How can you continue to turn your back on this river? Fear of criticism can't be your excuse! That's all some politicians ever get! Here is a simple majority backed project that will gain world interest and positive notoriety that will be gained for all! Small businesses need this type of recreation to develop and survive in a setting of restored wilderness in a state park that is just beginning to grow.

Please help us get our wild scenic river and fish back!

## **Alliance for the restoration of the Ocklawaha River**

1. Florida Defenders of the Environment (organizing member)
2. 1000 Friends of Florida
3. Alachua Audubon Society
4. Alachua Conservation Trust
5. Audubon Florida
6. Bullsugar Alliance
7. Calusa Waterkeeper
8. Center for Biological Diversity
9. Defenders of Wildlife
10. Duval Audubon Society
11. Earth Justice
12. Florida Native Plant Society
13. Florida Springs Council
14. Florida Springs Institute
15. Florida Wildlife Federation
16. Friends of the Everglades
17. Ichetucknee Alliance
18. Marion Audubon Society
19. Matanzas Riverkeeper
20. Our Santa Fe River, Inc.
21. Orange Audubon Society
22. Paddle Florida
23. Rainbow River Conservation, Inc.
24. Santa Fe Audubon Society
25. Save the Manatee Club
26. Sierra Club Florida Chapter
27. St. Johns County Audubon Society
28. St. Johns Riverkeeper