Citrus/Hernando Waterways Restoration Council 2014 Report to the Legislature

Including 2015 Restoration Funding Requests

Cover photos left to right:
Lake Lindsey, Chassahowitzka River, Weeki Wachee River, Three Sisters Springs

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Executive Summary

The Florida Legislature passed House Bill 221 and Senate Bill 430 during the 2003 session creating the Citrus/Hernando Waterways Restoration Council (Council) in response to regional concerns for the health of Citrus and Hernando County waterways. Provisions of the Legislation required the Council to form two separate County Task Forces to develop plans for the restoration of the Tsala Apopka Chain of Lakes and the Weeki Wachee River and Springs. This legislation was amended in 2006 to expand the focus of the Council and Task Forces to include all waterways within the two counties and to increase the membership of the Council and Technical Advisory Group (TAG). The Council is to develop, review, evaluate and/or recommend plans for waterway restoration techniques and sport fish population recovery strategies, shoreline restoration, sand and other sediment control and removal, exotic species management, floating tussock management or removal, navigation, water quality, and fish and wildlife habitat improvement. The Legislation also requires that the Council report to the Legislature before November 25 of each year on the progress of the Citrus/Hernando Waterways restoration program and to develop any recommendations for the next fiscal year. This report represents the plan and recommendations of the Council.

Restoration Council Recommendations

The Council, both by itself and through its two component Task Forces, reviewed previous studies and reports done on several waterways within each county. The Council established that of the eight restoration issues identified in the enacting legislation, its primary objectives for the identified waterways are:

- Fish and wildlife habitat improvement
- Water quality and quantity improvement
- Organic sediment/sand removal

Priority Projects for the Citrus County Task Force
Not Listed in Priority Order

Project	County	2015 Legislative Funding Request	Details	Project Partner(s)
City of Crystal River Stormwater Retrofit Project	Citrus	$350,000	Stormwater Retrofit	City of Crystal River
Kings Bay Sediment Removal Project	Citrus	$580,000	Sediment Removal	SWFWMD
Chassahowitzka Sediment Removal Project – Phase II	Citrus	$375,000	Sediment Removal	SWFWMD
Homosassa River Restoration	Citrus	$150,000	Aquatic Habitat Restoration	SWFWMD and FDEP
Homosassa Springs Master Sewer Plan and Septic Tank Removal Project (Phase IV)	Citrus	$435,000	Sewer Master Plan and Septic Connections	Citrus County
Homosassa South Fork Water Quality Improvement Project	Citrus	$2,000,000	Wetland Creation and Stormwater Treatment	Citrus County
Point Lonesome Harvesting Phase I	Citrus	$150,000	Design and Permitting of Tussock Removal	FFWCC
Lake Rousseau Water Quality Monitoring Network	Citrus	$6,000	Water Quality Data Collection	SWFWMD
Lake Rousseau Preliminary Sediment Survey	Citrus	$10,000	Sediment Study	SWFWMD
Total		**$4,056,000**		

Priority Projects for the Hernando County Task Force
Listed in Priority Order

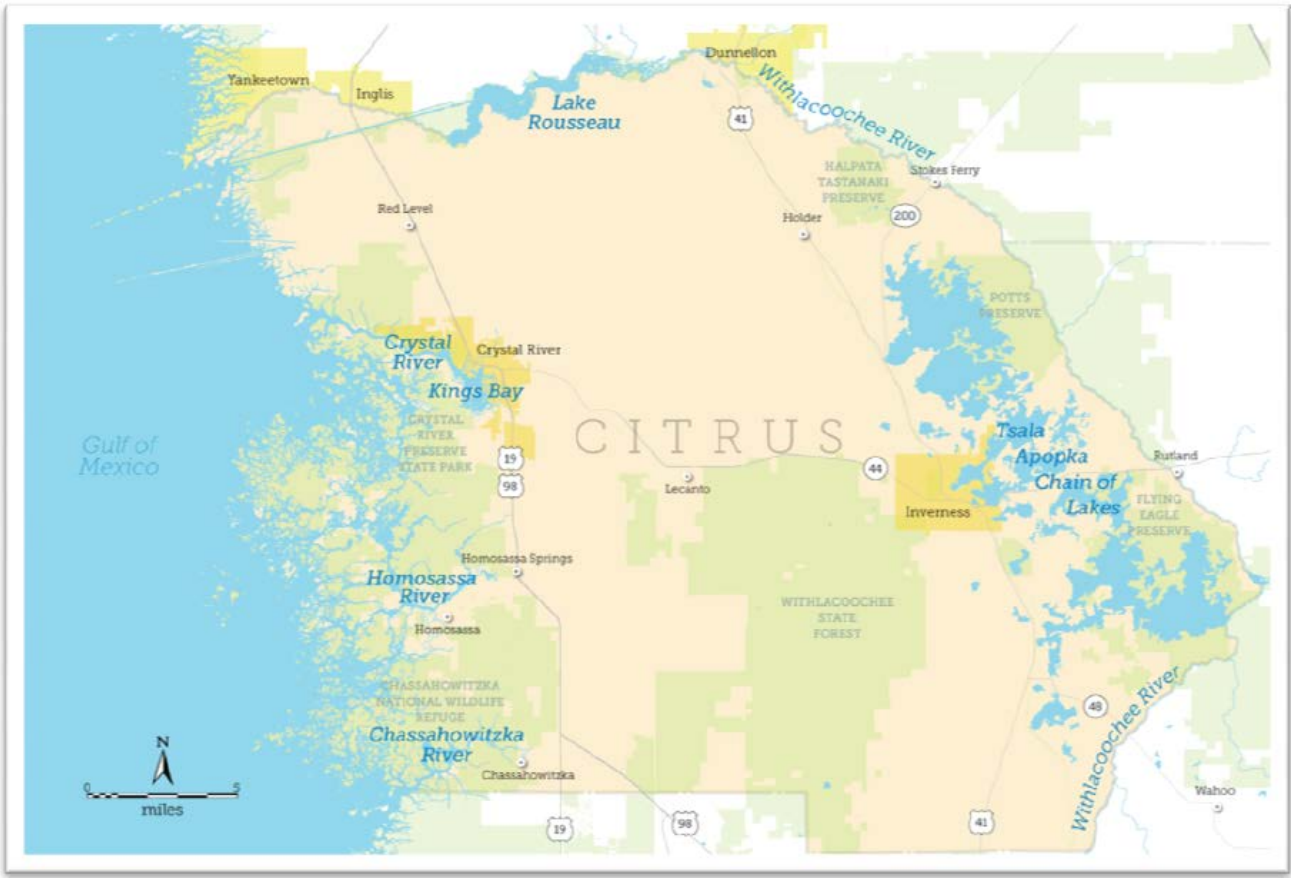
Project	County	2015 Legislative Funding Request	Details	Project Partner(s)
Weeki Wachee State Park Parking Lot Retrofit	Hernando	$100,000	Engineering Services for Stormwater Retrofit	FDEP and SWFWMD
Hunters Lake Habitat Restoration	Hernando	$100,000	Feasibility Study for Organic Sediment Dredging and Tussock Removal	FFWCC and Hernando County
Weeki Wachee River Fish and Wildlife Habitat Restoration	Hernando	$100,000	Feasibility Study for Hydraulic Dredging	FDEP and FFWCC
Lake Lindsey Habitat Restoration	Hernando	$100,000	Feasibility Study for Hydraulic Dredging	FFWCC
Mountain Lake Fish and Wildlife Habitat Restoration	Hernando	$100,000	Preliminary Engineering for Herbicide Treatment and Sediment Scraping	FFWCC and Hernando County
Total		**$500,000***		

*The funds requested for 2015 are for preliminary engineering efforts. Future funding requests are anticipated for the construction phase of the projects.

Citrus County Task Force Recommendations to the Legislature

Introduction

Citrus County is home to some of the State's most productive and unique surface water resources. Both the ecologic and economic integrity of Citrus County depend on the health and sustainability of these resources, and the industries they support. Ecotourism, commercial and recreational fishing, scalloping, snorkeling, scuba diving, kayaking, and swimming are all favorite activities of residents and visitors alike. In addition, the coastal spring-fed rivers and bays including the Homosassa River, Chassahowitzka River and Kings Bay/Crystal River, support one of the largest and increasing populations of the endangered West-Indian Manatee. To ensure that the water resources of Citrus County continue to provide these economic activities and support economic sustainability, it is vitally important that action is taken to maintain, and improve, wherever necessary, our waterways.



Goals

In 2005, the Citrus County Task Force (CCTF) adopted four major Goals and Objectives targeted at improving the health of the County's waterways:

- **Improve fisheries habitat and recreational use access**
- **Maintain or improve water quality**
- **Restore historic connections between the Tsala Apopka Chain of Lakes and the Withlacoochee River, to the greatest extent possible**
- **Improve marsh habitat between the Tsala Apopka Chain of Lakes and the Withlacoochee River, thereby encouraging the recruitment of native emergent herbaceous plants**

Over the past ten years, the CCTF has met on a regular basis to develop strategies and plans to meet the goals and objectives listed above. The CCTF has invited project ideas from public and private entities, taken citizen input, and reviewed potential restoration projects. Some of the projects discussed in the past include shoreline restoration, sediment removal, habitat management, improved navigation, water quality improvement, and floating tussock removal.

For 2014, the CCTF placed a high priority on restoration projects in each of the significant waterbodies in the county. This CCTF Recommendations Report to the Legislature provides the background and basis to implement projects targeted at improving the systems. Keys to improving these national and Florida treasures are (1) the control of nutrients such as Nitrogen and Phosphorus, (2) enhanced stormwater treatment, (3) sediment removal and (4) habitat (beneficial aquatic vegetation) restoration. The CCTF respectfully requests FY2015 funding for nine projects that will go a long way toward achieving the Goals set forth by the CCTF.

For 2015 the CCTF intends on placing great focus on the regionally significant Withlacoochee River Watershed Initiative (WRWI) being led by the SWFWMD (District). The District is studying the Withlacoochee River and its surrounding watershed from the Green Swamp to the Gulf of Mexico. As part of this initiative, SWFWMD staff has performed hydrology and hydraulics studies, field investigations and engineering analyses to evaluate how the river system functions. This includes the development of a comprehensive computer model of the entire Withlacoochee River, which has been calibrated using in-depth field surveys and published gauge data. The CCTF will review the various model results and will prioritize future projects based on this information and public input to obtain the goal of system-wide restoration. The CCTF respectfully requests Legislative consideration of future projects resulting from this effort. The system is interconnected, so making one change in an area will likely affect other areas of the watershed.

Crystal River/Kings Bay

Crystal River/Kings Bay is a complex spring group of more than 70 individual springs. The discharge from this first magnitude spring system accounts for 99 percent of the fresh water entering the 600-acre Kings Bay. Crystal River/Kings Bay is one of Florida's largest spring systems, discharging a tidally-influenced flow averaged at about 490 cubic feet of water per second. Crystal River, which emerges from the northwest end of Kings Bay, travels westward approximately six miles before entering the Gulf of Mexico.

Recognizing the need to provide protection of the waters, the state designated Crystal River/Kings Bay as an Outstanding Florida Water (OFW) in 1983. In 1988, SWFWMD designated the area as a Surface Water Improvement and Management (SWIM) Priority Water Body.

Kings Bay is also a federally designated critical habitat for the West Indian Manatee. Since the 1970s, both winter and summer populations of manatee have been increasing to record numbers. In January 2010, there was a record 566 animals observed in the bay. In June 2013, 83 animals were counted in the Crystal River/Kings Bay complex. Increasing numbers of manatees have resulted in increases in grazing pressure on bay-wide submerged aquatic vegetation (SAV). The more desirable SAV has experienced significant declines over the past decade due to many factors including changes in water quality and the increase in *Lyngbya* algae.

Kings Bay supports a wide variety of recreational uses, all of which are critical to the economy of Crystal River, Citrus County, and the Springs Coast. Over the past several decades, there has been a significant degradation in the overall health of Kings Bay. Decreased SAV coverage, poorer water clarity, and degraded water quality have been widely documented. Beneficial SAV such as eel grass has been replaced by filamentous algae including *Lyngbya*, a cyanobacteria that can form large algal mats. Sediment quality has also degraded from what used to be a mostly sandy bottom to what is now characterized as a mostly organic rich muck. Though sediment thickness and accumulation rates vary significantly, overall, bay-wide organic muck has been on the increase.

While questions remain as to the root causes of bay-wide SAV loss and *Lyngbya* increase, the CCTF believes that strategic planning can and should be implemented now to facilitate measureable improvements in the bay in the near-term.

PROJECT: City of Crystal River Stormwater Retrofit Project

Timeline: 12–18 months

Funding Request: $350,000

This project will design, permit, and construct stormwater improvements in the City of Crystal River (City) to treat stormwater runoff discharging into the Kings Bay Springs Group. Stormwater best management practices (BMPs) will be implemented to improve water quality by reducing nutrient, sediment, and other contaminant loads to Kings Bay. The City is currently developing a conceptual design of stormwater BMPs for the area adjacent to northern Kings Bay, targeting existing stormwater inputs to Cedar Cove and Hunters Cove. This conceptual design will be used to identify and select stormwater BMPs for design, permitting, and construction.

Stormwater BMPs have been shown to be an effective means of reducing nutrient, sediment, and other contaminant loads in stormwater runoff. This project will likely consist of a mix BMPs including retention basins and vegetated swales. According to the USEPA (1999), nitrogen pollutant removal efficiencies range from 30-65% for retention basins and from 50-80% for vegetated filter strips. Wet retention basins can result in average reductions in nitrate loading of 24% (Schueler 1997).

PROJECT: Kings Bay Sediment Removal

Timeline: 36 months

Funding Request: $580,000

The Kings Bay Sediment Removal Project includes the hydraulic dredging of organic sediments from Cedar and Magnolia Coves, the northern most extent of Kings Bay. The project will improve the aquatic habitat in northeastern Kings Bay by removing organic sediments that cover the sand bottom, which will provide the appropriate conditions for submerged aquatic plant (SAV) re-vegetation. An estimated 700 west-Indian manatees take advantage of the temperate waters in the Bay during the winter months.

While the project will not reduce the nutrient loading in the springs, the result of increasing nutrients in groundwater discharge, the project will selectively remove accumulated muck, which will improve the substrate for the re-establishment of beneficial SAV. The reintroduction of desirable rooted native vegetation is one of the ways to reduce the nutrients. Additionally, the removal of sediments will prevent anoxic and even hypoxic conditions that currently exist there.

Chassahowitzka River

The Chassahowitzka River is a spring-fed system located in southwestern Citrus County. The headwaters are formed by the Chassahowitzka Springs Group but overall river discharge is supplied by more than a dozen spring vents and tributaries, including Crab, Baird, and Potter Creeks. Average discharge for the main spring group is approximately 63 cubic feet per second (cfs), but Crab Creek and other downstream springs contributing a nearly equal amount of ground water to the river. Daily tidal cycles influence both springs discharge and flow rates within the river.

This shallow river travels approximately 6 miles from the headsprings to the Gulf of Mexico. Submersed aquatic vegetation is abundant in the Chassahowitzka River, although aquatic plant density tends to decline with distance downstream due to increased salinity. Filamentous algae can become seasonally abundant, particularly in the shallow and wide portions of the river where naturally reduced flow rates allow algae to accumulate. The upper river area is surrounded by hardwood swamps, while the lower river transitions into an extensive marsh complex and ultimately discharges into a productive estuary with numerous oyster bars, mangrove islands, and seagrass beds.

Due to the significance of this spring fed river system, multiple protective designations have been applied. The Chassahowitzka River is an Outstanding Florida Water (OFW), the lower half of the river is part of the 31,000 acre Chassahowitzka National Wildlife Refuge administered by the United States Fish and Wildlife Service, and in 2014 the river was designated as a Surface Water Improvement and Management (SWIM) Priority Water Body by SWFWMD. Manatees utilize the Chassahowitzka, but to a lesser extent than the nearby Homosassa and Crystal River/Kings Bay systems.

The Chassahowitzka River provides a variety of recreational uses, which in turn, support the local and county economies. The spring vents are popular swimming locations, while the river provides kayaking and nature observation opportunities. Fishing for fresh and saltwater species occurs within the river and the adjacent Gulf of Mexico. The Chassahowitzka estuary supports a local commercial blue crab fishery. Development along the Chassahowitzka River is reduced in comparison to nearby river systems. A county park with boat ramp, a residential community and a series of man-made canals with homes are immediately adjacent to the headsprings area. Shoreline development along the lower river is limited to approximately a dozen homes.

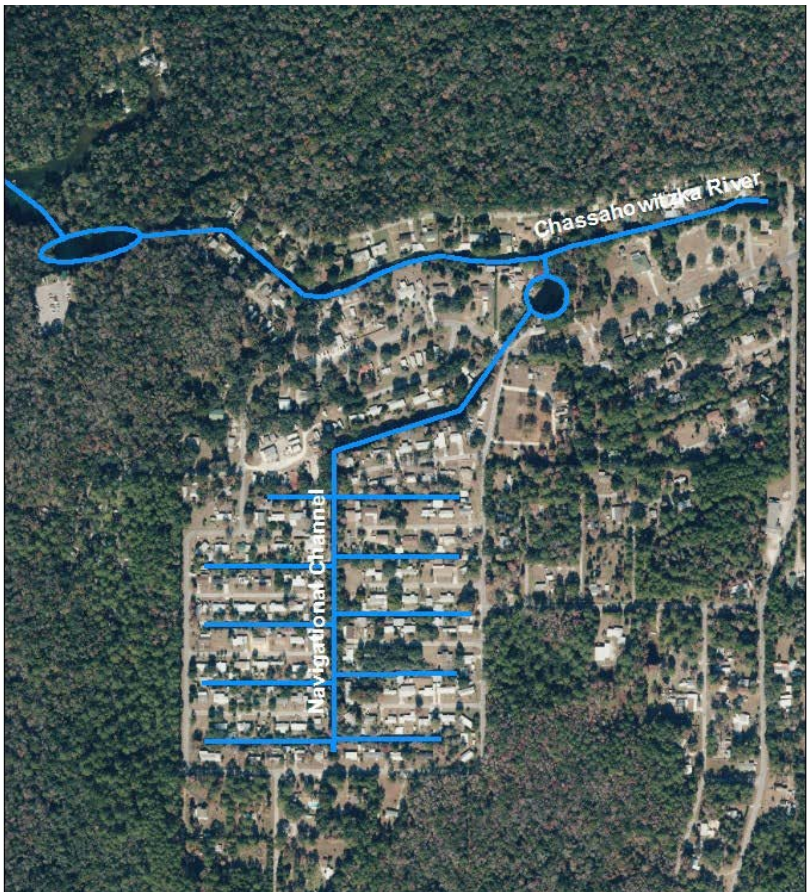
As with other spring systems in the region, an increasing level of focus has been placed on the Chassahowitzka. A key goal has been to better understand the impacts that variable rainfall and discharge, increased salinity from sea level rise, and increased nutrients in ground water have on the water quality and aquatic habitats within this spring system.

PROJECT: Chassahowitzka Sediment Removal Project – Phase II

Timeline: 12–24 months

Funding Request: $375,000

This multi-year project is the second component of the Chassahowitzka Springs Restoration Project and is for design, permitting and construction services for sediment removal in the Chassahowitzka Canal Navigation Basin. Phase I of this restoration effort included a feasibility report, project design, permitting and construction of the removal and disposal of 3,800 cubic yards of organic sediments and sand from the Chassahowitzka Headspring. Phase II, the Canal Navigation Basin dredging will remove approximately 800-1,100 cubic yards of sediment including associated phosphorus and other pollutants. The project will provide additional water quality and water clarity benefits to the headsprings. The dredging will provide additional sediment settling volume in the Navigation Basin for the sediments that are currently making their way to the Chassahowitzka Headsprings from the upstream residential canals.



This project will remove 800-1,100 cubic yards of sediment from Chassahowitzka Canal, including the associated phosphorus of approximately 103 - 1,525 lbs and nitrogen of approximately 163 – 9,562 lbs. The phosphorus amount was estimated assuming the phosphorus concentration in the sediments ranged from 200-2,145 mg/kg (from a Kings Bay study) and a sediment weight of 18.3 lb/cubic ft. The nitrogen amount was estimated assuming the nitrogen concentration in the sediments ranged from 315 – 13,439 mg/kg and a sediment weight of 18.3 lb/cubic ft.

Homosassa River

The Homosassa River is a spring-fed system within the Nature Coast. The majority of the stream discharge emanates from a main spring vent located within the Ellie Schiller Homosassa Springs Wildlife State Park; however, smaller springs in the upper river contribute additional flow. Tidal cycles influence both spring discharge and flow within the river. The marsh complex of the river is extensive and water clarity is substantially reduced in this area. Water clarity decreases with distance downstream of the headspring. Dense patches of seagrass and attached macroalgae characterize the nearshore Gulf waters. Much of the land surrounding the Homosassa River and other components of the Homosassa River system is under public ownership. The Homosassa Main Springs are located in the Ellie Schiller Homosassa Springs Wildlife State Park and are used as a center for injured and orphaned Florida manatees. The State Park is also one of the top 10 most visited parks in the State's system. The Homosassa River was classified as an Outstanding Florida Water (OFW) in 1992 and in 2014 the river was designated as a Surface Water Improvement and Management (SWIM) Priority Water Body by SWFWMD.

The Homosassa River is a unique system that is both spring-fed and tidally influenced. In the 1960s, dense submerged aquatic vegetation (SAV) beds were reportedly wide-spread though most of the river. Today, virtually all of the SAV in the river has disappeared, though there are some areas where sparse SAV persists. Further, SAV abundance in the Homosassa River is much less than in the adjacent Chassahowitzka and Weeki Wachee Rivers, according to work conducted by the University of Florida and the SWFWMD. Unfortunately there is no single root cause of SAV loss in the river. More than likely there are a number of factors influencing the distribution of SAV in the river including discharge, flow, sediment, light availability, salinity, nutrients, herbivory (consumption of plants by animals), and others. SAV must be adapted to environments that can be both fresh and brackish if they are to survive in this environment.

While the root causes may not yet be well understood, there are areas in the river where conditions are viable for SAV growth and the CCTF feels the time to act is now. Working with local citizens and the SWFWMD, the CCTF is in the process of identifying target areas in the river for active revegetation of native SAV, specifically eel grass, a species that was once common in the river. An advantage to planting eel grass is that it can grow in a wide range of salinities even though it is technically considered a freshwater species.

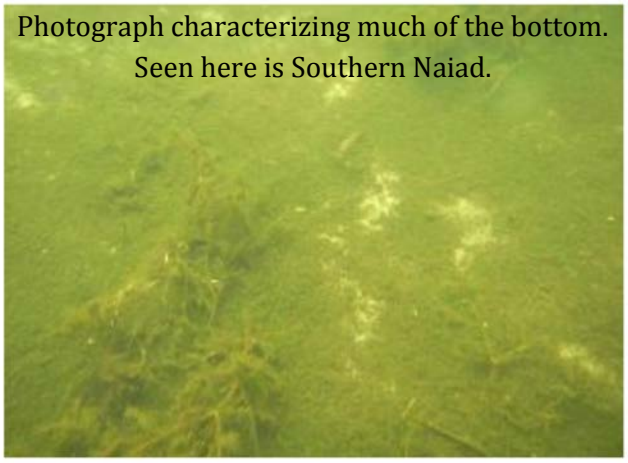
PROJECT: Homosassa River Restoration

Timeline: 12–18 months

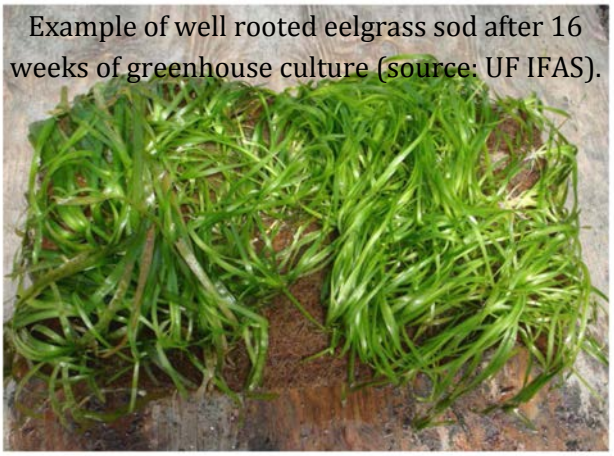
Funding Request: $150,000

The CCTF respectfully requests funding for the Homosassa River Restoration project located in the upper reaches of the Homosassa River just downstream from Homosassa Spring State Park. This project is an excellent example of local citizens taking ownership of their river and, working together with state and local government, to develop this project proposal.

The river bottom is characterized by sparsely vegetated flocculent, sandy muck. The project will revegetate portions of the river with salt-tolerant SAV using an experimental sod technique developed by the University of Florida Institute of Food and Agriculture Sciences (IFAS). The project will also install temporary herbivore excluder devices to prevent manatees and other herbivores from denuding the newly planted vegetation.



Photograph characterizing much of the bottom. Seen here is Southern Naiad.



Example of well rooted eelgrass sod after 16 weeks of greenhouse culture (source: UF IFAS).

PROJECT: Homosassa Springs Master Sewer Plan and Septic Tank Removal Project (Phase IV)

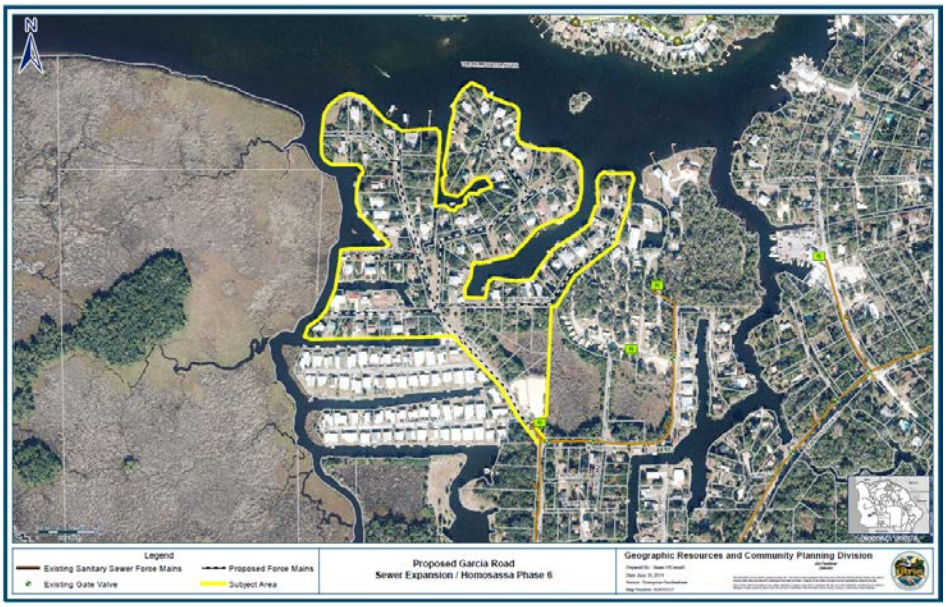
Timeline: 12 months

Funding Request: $435,000

Local Match: $435,000 (Citrus County)

This project will provide planning services to develop a master sewer plan for the south side of the Homosassa River and potentially remove septic tanks (Phase IV) from residences along the Homosassa River and connect these properties to a wastewater collection system operated by Citrus County. A comprehensive master plan ($50,000) will be developed because past efforts were not coordinated. The area to be served by the project will be the Blue Water Forest subdivision and existing residences along Spring Cove Road, Bob Court and a portion of Fishbowl Drive. These areas are directly adjacent to several springs at the head of the Homosassa River, which have recently been classified as Impaired due to algal mats resulting from nutrient enrichment. Previous projects funded by the County have removed septic tanks along the river, and now 47% of improved lots are connected to central sewer. The County intends to connect all improved lots in proximity to the river to central sewer. This project will help restore the ecology of the Homosassa River, which is a winter refuge for the endangered Florida manatee.

This project will result in water quality improvements through the reduction of Total Nitrogen (TN) loading to the Homosassa River, a first magnitude spring group. The estimated load reduction is 1,583 lbs of TN/yr for the spring-fed Homosassa River. The project will also result in a reduction in bacteria. The Homosassa River is listed as impaired by FDEP for nutrients. This project is part of an ongoing effort to reduce nitrogen loading to the Homosassa River and associated springs by providing central wastewater collection service to residential and commercial properties currently served by onsite septic systems. All wastewater collected by the new facilities will be transmitted to and treated at the County's Meadowcrest Wastewater Treatment Facility, which was recently upgraded to produce reclaimed water. The reclaimed water from the Meadowcrest Facility is pumped to the Black Diamond Golf Course for irrigation purposes. This results in a reduction in groundwater pumping for golf course irrigation purposes.



PROJECT: Homosassa South Fork Water Quality Improvement Project

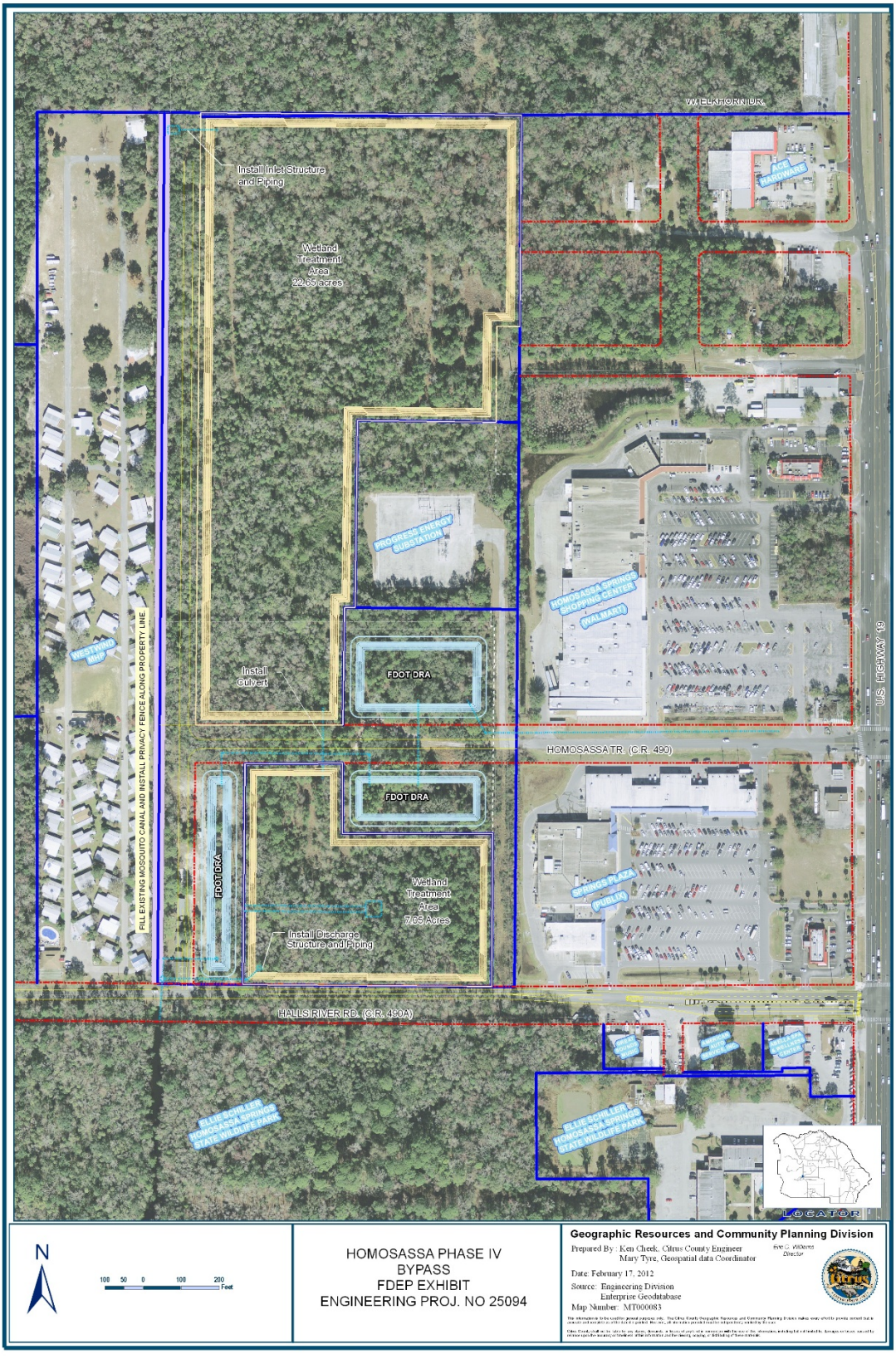
Timeline: 36 months

Funding Request: $2,000,000

The purpose of the Homosassa South Fork Project is to provide water quality treatment of stormwater runoff from the directly connected areas north of Halls River Road (CR 490A). These areas discharge untreated stormwater into an existing mosquito control canal that flows directly into the headwaters of the Homosassa River, an Outstanding Florida Waterway (OFW). The headwaters, including a first magnitude spring, are located within the boundaries of the Homosassa Springs Wildlife State Park and are a significant wintering area for the West Indian Manatee.

In 2002, Citrus County and SWFWMD cooperatively funded the Homosassa South Fork Watershed Master Plan, performed by Jones Edmunds and Associates, who also updated the modeling associated with that project in 2013. The plan identified the areas that discharge untreated stormwater directly to surface waters leading to the headwaters of the Homosassa River. It also provided recommended actions to reduce the associated pollutant loading. This project was specifically identified in the Master Plan, with the recommendation that the mosquito control canal be redirected to flow through a large wetland treatment area prior to discharging back into the canal. In 2006 and 2012, the County acquired the parcels necessary for construction of this proposed wetland treatment area, which is expected to span roughly 24 acres.

Using a first-order decay model and published values for rate constants from similar wetland treatment systems, the constructed treatment wetland on the northern branch will require approximately 42 acres, and the one on the southern branch will require approximately 18 acres to achieve a nitrogen reduction of approximately 30 percent and a phosphorus reduction of approximately 40 percent on an average annual basis. A nitrogen reduction of approximately 20 percent and a phosphorus reduction of approximately 25 percent can be achieved with systems of approximately 24 acres for the north system and 10 acres for the south system. A nitrogen reduction of approximately 10 percent and a phosphorus reduction of approximately 15 percent can be achieved with systems of approximately 11 acres for the north system and 5 acres for the south system.

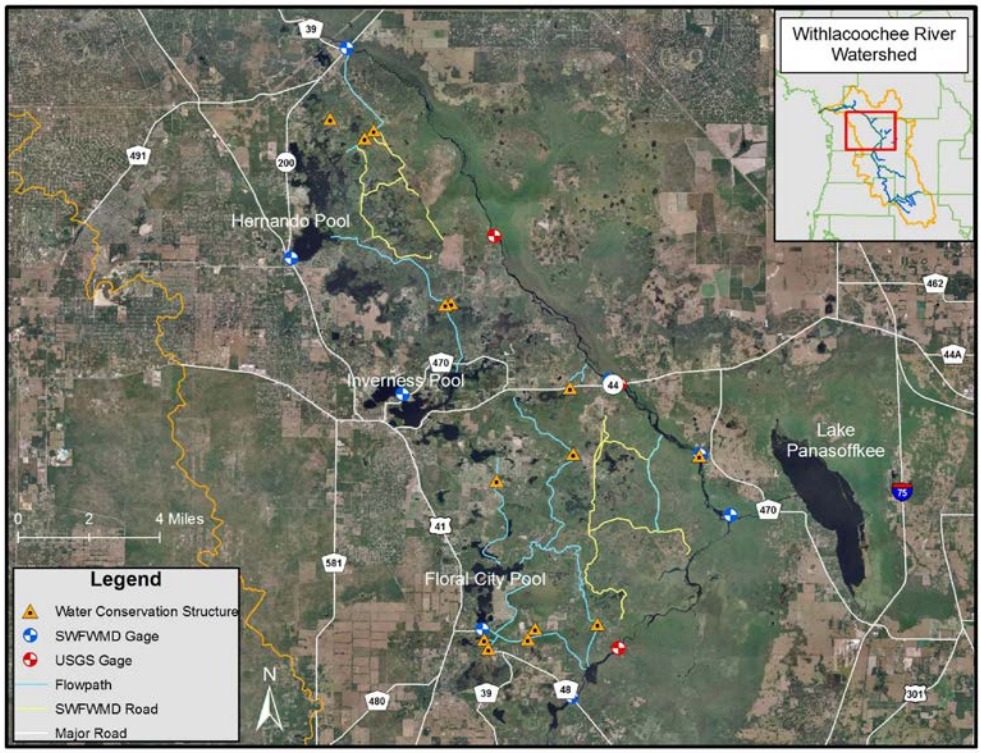

W. ELKHORN DR.
ACE HARDWARE
Install Inlet Structure and Piping
Wetland Treatment Area 22.65 acres
PROGRESS ENERGY SUBSTATION
HOMOSASSA SPRINGS SHOPPING CENTER (WALMART)
U.S. HIGHWAY 19
WESTWARD MHP
FILL EXISTING MOSQUITO CANAL AND INSTALL PRIVACY FENCE ALONG PROPERTY LINE
Install Culvert
FDOT DRA
HOMOSASSA TR. (C.R. 490)
FDOT DRA
FDOT DRA
Wetland Treatment Area 7.05 Acres
Install Discharge Structure and Piping
SPRINGS PLAZA (PUBLIX)
HALLS RIVER RD. (C.R. 490A)
ELLIE SCHILLER HOMOSASSA SPRINGS STATE WILDLIFE PARK
ELLIE SCHILLER HOMOSASSA SPRINGS STATE WILDLIFE PARK
LOCATOR
N
100 50 0 100 200 Feet
HOMOSASSA PHASE IV BYPASS
FDEP EXHIBIT
ENGINEERING PROJ. NO 25094
Geographic Resources and Community Planning Division
Prepared By : Ken Cheek, Citrus County Engineer
Mary Tyre, Geospatial data Coordinator
Eric G. Williams
Director
Date: February 17, 2012
Source: Engineering Division
Enterprise Geodatabase
Map Number: MT000083

Tsala Apopka

Lake Tsala Apopka is the largest freshwater resource in Citrus County. The system is comprised of an interconnected series of vast marshes and open water pools covering nearly 22,000 acres. The lake system is divided into three separate and hydrologically distinct "pools." While these pools are distinct, they are connected with the Withlacoochee River through a vast expanse of marsh lying between the pools and the Withlacoochee River. In 1989, the Withlacoochee River and Lake Tsala Apopka were designated as Outstanding Florida Waters (OFW) by the Florida Department of Environmental Protection (FDEP).

The name "Tsala Apopka" derives from the Seminole Indians and signifies "the lake where bass are eaten." This is an accurate description of the chain that is one of the most significant freshwater fisheries in the state. The fisheries resource, which reflects the health of the lake, is important not only to local residents, but historically supported a secondary economy including bait and tackle shops, guide services, motels and fish camps, which have declined through the years due to habitat loss.

Tussock (island-like rafts of plants and organic material) management and sediment accumulation have long been a concern in the Tsala Apopka system. Floating tussocks and organic sediments are excessive and are a fish and wildlife habitat concern because they preclude valuable rooted emergent and native submerged species and affect recreational user access. Increased tussock management and sediment removal activities will benefit the system by improving habitat for fisheries, native aquatic plant life, and recreational use.



PROJECT: Point Lonesome Harvesting Phase I

Timeline: 12–18 months

Funding Request: $150,000

Point Lonesome Lake has organic sediments thicker than three feet in many deeper areas but a firmer bottom in shallow areas which are periodically exposed to drying conditions during severe droughts. The intent of this proposed project is to mechanically remove floating tussocks, primarily from deeper, central areas, restoring previously open water portions of the lake.

Approximately 80-100 acres of floating tussock material is recommended to be removed from the central portion of the lake via mechanical harvester and deposited in an upland disposal site. Deep littoral areas and water fluctuation zones would be targeted. Due to the nature of the project and the time needed to complete it, the project has been phased as outlined below:

Phase I - $150,000

- Permits
- Survey/Engineering
- Secure disposal site (*cost could be substantially higher if potential adjacent disposal site is not secured*)

Phase II - $850,000 to $3,000,000 estimate

- Harvesting and Disposal of tussock material
- Cost dependent on location of the disposal site


Point Lonesome Lake 312 Acres
Hernando Pool
Crystal Lake
Citrus Lake
Twin Lake
Inverness Pool
White Lake
Fish Lake

Lake Rousseau

Lake Rousseau is a man-made 4,163-acre impoundment of the Withlacoochee River formed by the construction of the Inglis Dam by the Florida Power Corporation in 1909. The reservoir is bordered on the north by Levy and Marion Counties and on the south by Citrus County. The dividing line is the historic Withlacoochee River channel, which generally meanders through the middle of the lake. The lake was once a cypress-hardwood swamp. Because the swamp was not cleared before closing the Inglis Dam, stumps and snags abound outside the original river channel. In 1982 the Lake Rousseau State Recreation Area was designated an OFW.

The water quality of the system is driven by nutrient-rich spring outflows from the Rainbow River and the input of tannin stained water from the Withlacoochee River. Nutrient export from Rainbow River to Lake Rousseau has the potential to create negative environmental impacts in Lake Rousseau. These impacts include reduced water clarity and algal blooms as are being experienced in the lower portion of Rainbow River.

The Citrus County Task Force expects to dedicate significant time in 2015 investigating potential restoration opportunities in the Lower Withlacoochee River and Lake Rousseau. The goal of the restoration projects will be to enhance the water quality and navigation potential of the lower river.

PROJECT: Lake Rousseau Water Quality Monitoring Network

Timeline: Ongoing

Funding Request: $6,000

To determine the health of our local waters and trends in water quality, the Southwest Florida Water Management District (SWFWMD) monitors environmental conditions at a number of water bodies in its 16-county area. As part of the Withlacoochee River Monitoring Network, SWFWMD collects and analyzes data at two (2) separate stations, upstream and downstream of the lake. Additionally, the Florida Department of Environmental Protection and LAKEWATCH collect data from the lake proper. However, the collection frequency is sporadic. This project will establish a quarterly water quality program at three locations in the lake. This would increase both the consistency and frequency for the existing program presently in place. The purpose of the water quality monitoring network will be to establish the baseline conditions and determine long term trends to support the determination if restoration projects are needed and may be used as a basis to evaluate the success of restoration efforts, if necessary.

PROJECT: Lake Rousseau Preliminary Sediment Survey

Timeline: 12 months

Funding Request: $10,000 estimate

In 1989 the Southwest Florida Water Management District (SWFWMD) completed a comprehensive analysis of the lake entitled, "Lake Rousseau Operations and Management Study". As part of the study, sediment analysis was completed at 18 locations on the lake. This data was compared to a previous effort by the Florida Fish and Wildlife Conservation Commission (FFWCC) which completed a sediment survey in 1977-78. Based on SWFWMD and FFWCC studies, the organic sediments in the lake were found to be uniform in composition but variable in depth. Sediment depths ranged from a few inches to over four feet. Based on the results of comparing the two previous studies, it was determined that sediments were increasing at an average rate of ¼ inch per year.

This project will evaluate sediment type, thickness, accumulation rate and distribution in the lake at a subset of the original study sites. Results from this project will be used to determine if the deposition rates have increased since the findings of the 1989 study. Once that is determined, potential management options may be discussed.

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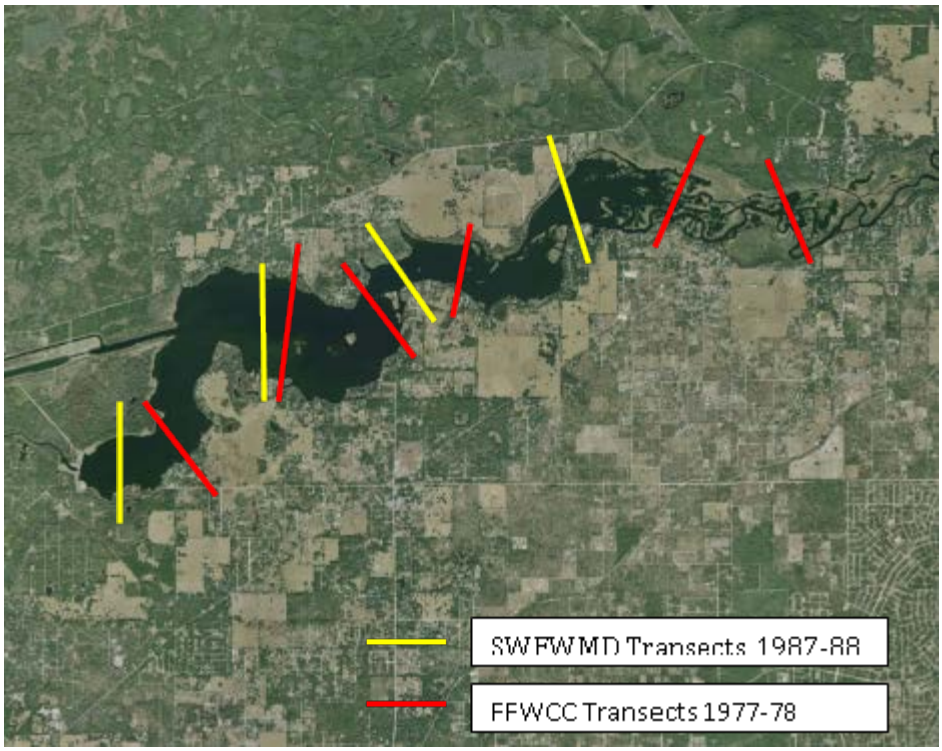
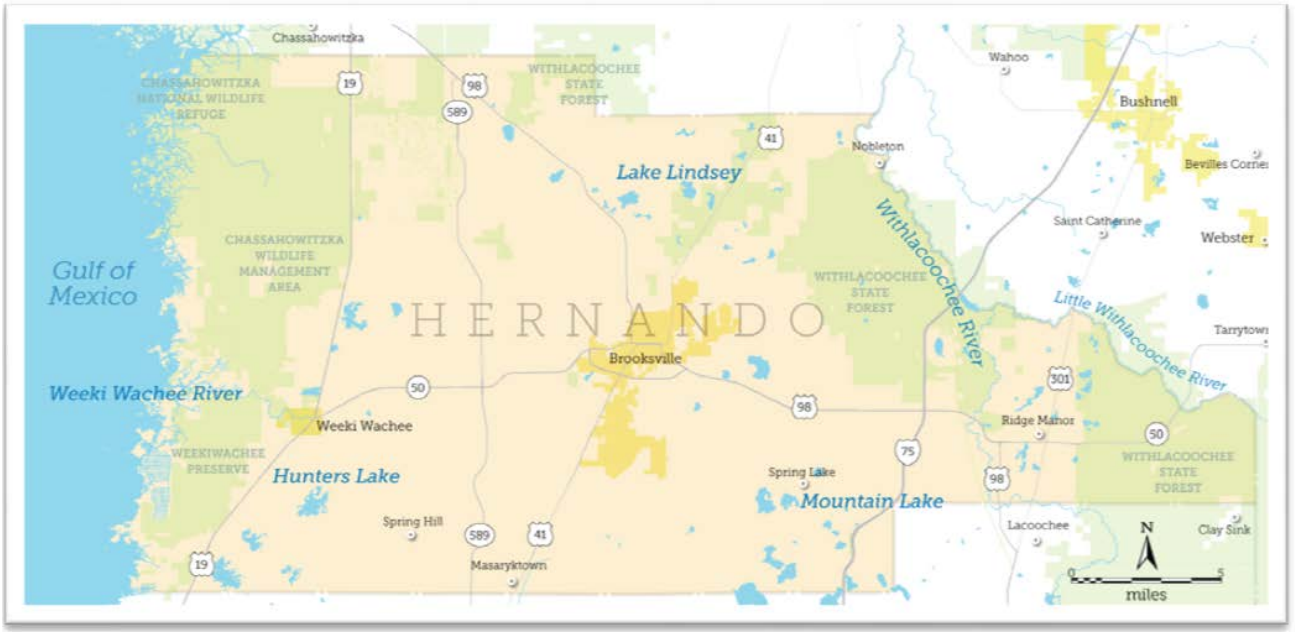


Hernando County Task Force Recommendations to the Legislature

Introduction

Despite a great deal of growth, Hernando County still retains a rural character. Covered by coastal swamps, dense woodlands, lakes, rivers and pastures, the county is rapidly changing as residential development expands. Continued population growth in the county, fueled by the development of the Suncoast Parkway, will continue to create issues between land use and water resource conservation. Of paramount concern is the need to maintain the quality and biological health of the waters and aquatic resources within the county to ensure their continued use and enjoyment for current and future residents.



In 2003, the Florida Legislature enacted legislation which directed the Hernando County Task Force (HCTF), as members of the Council, to develop plans for the restoration of Hernando County waterways. As part of their plan development, the TAG presented information to the HCTF on the hydrologic conditions of the region, the status of the restoration of Weeki Wachee Springs, and activities related to shoreline stabilization, navigation and sand transport within the Weeki Wachee River.

At their July 2007 meeting, the HCTF solicited proposals for restoration projects from both the general public and federal/state/local agencies. In total, seven project proposals were received. The HCTF adopted four of the projects. Several lakes within the county that once supported robust recreational opportunities for fishing and boating have become unusable due to the build-up of sediments and proliferation of non-native plants. Therefore, the Hernando County Task Force recommended that three of the larger lakes in the county be restored for the purpose of improving the fisheries habitat and the Weeki Wachee River have sediment removed to restore fish and wildlife habitat and improve recreation.

The three remaining projects, which included bank stabilization in the Withlacoochee River, dredging of a water body with no public access, and improvements to an existing boat ramp, were rejected by the HCTF because they were found to be either ongoing maintenance programs or were not public resources and therefore not candidates for public funding.

The HCTF reviewed and agreed to resubmit the projects identified in 2007, with one addition, to the legislature for funding in 2015. The five projects recommended for funding are shown in priority order in the table on page 2. The three highest priority projects reflect the acknowledgement of economic benefit and the noteworthy State and local support shown toward restoring springs and significant public interest in the restoration of Hunters Lake.

Goals

- **Shoreline restoration**
- **Sediment control and removal**
- **Exotic species management**
- **Floating tussock management or removal**
- **Recreation, water quality, and fish and wildlife habitat improvement**

Weeki Wachee River

The Seminole Indians named the Weeki Wachee River, which translates to "winding waters." This spring-fed river is located in southwestern Hernando County, where it flows approximately seven and one-half miles from its headspring to the Gulf of Mexico. Recognizing the need to provide some protection of the waters, the state designated the Weeki Wachee River as an Outstanding Florida Water (OFW) in 2003.

The headspring of the Weeki Wachee River discharges some of the clearest water in the world, and the Weeki Wachee River itself contains a healthy mixture of freshwater, estuarine and saltwater species of fish. The Weeki Wachee River is heavily used for recreation, especially in the summer and early fall. Approximately 30 percent of the Weeki Wachee River's shoreline is altered for waterfront housing, and most waterfront residents use the Weeki Wachee River for swimming, boating and fishing. Five boat ramps and three county parks allow public access to the Weeki Wachee River. Shoreline alterations have allowed sand to accumulate within the Weeki Wachee River bed. The sand accumulation at times creates a navigational risk to the public and has altered/smothered natural riverine habitat and river bed contours.

PROJECT: Weeki Wachee State Park Parking Lot Retrofit

Timeline: 24-36 months

Funding Request: $100,000 (Engineering Services)

Parking lot runoff is a major contributor to non-point source pollution. Contaminants in parking lot runoff can contain oil, hydrocarbons, metals from brake linings, rubber particles from tires, nitrous oxide from car exhaust and grease (Green Parking Lot Resource Guide, EPA 2008). Weeki Wachee Springs is also listed as impaired by the Florida Department of Environmental Protection for nitrate concentrations that exceed state wide numeric nutrient criteria for nitrate (0.35 mg/L). Untreated stormwater from impervious surfaces is a source of nutrient loading and sediment contribution to Weeki Wachee Spring and River. In 2011 an alternatives analysis was performed to determine projects that provide water quality benefits within Weeki Wachee Springs State Park. The Weeki Wachee Springs State Park Parking Lot Retrofit Project was identified by the alternative analysis and is included in the Weeki Wachee Springs State Park 2013 Conceptual Master Plan (see map next page).

This project will capture and treat stormwater prior to discharging into the Weeki Wachee Springs and River by utilizing a combination of low impact development (LID) techniques (e.g., rain gardens, vegetated buffers and bio swales). LID aims to replicate predevelopment hydrology and reduce the impacts of development. LID techniques can reduce the volume of stormwater being generated and reduce the pollutant load associated with the remaining runoff.


Picnic Pavilions
Boat Dock
Bridge
Bath House & Concessions
Wildlife Show Area
Archaeological Interpretive Area
Canoe/Kayak Rentals
Covered Deck Seating
RR
RR
Grandstand
Food
Event Area
RR
Stage
Pavilion
Interpretive Center
Playground
Swimming Area
Splash Pool Area
Lifeguard Station
Emergency Access
Snack Bar/ Overlook
Central Fountain
Swale
Garden of the Stars
Theater
Support Area
Spring Overlook and Special Event Area
RR
Gift Shop
Historic Mermaid Wall
Entry
Exit
Accessible Parking
0 20' 40' 80' 120'
Weeki Wachee Springs State Park Overview
Detail Area

PROJECT: Weeki Wachee River Fish & Wildlife Habitat Restoration

Timeline: 18–24 months

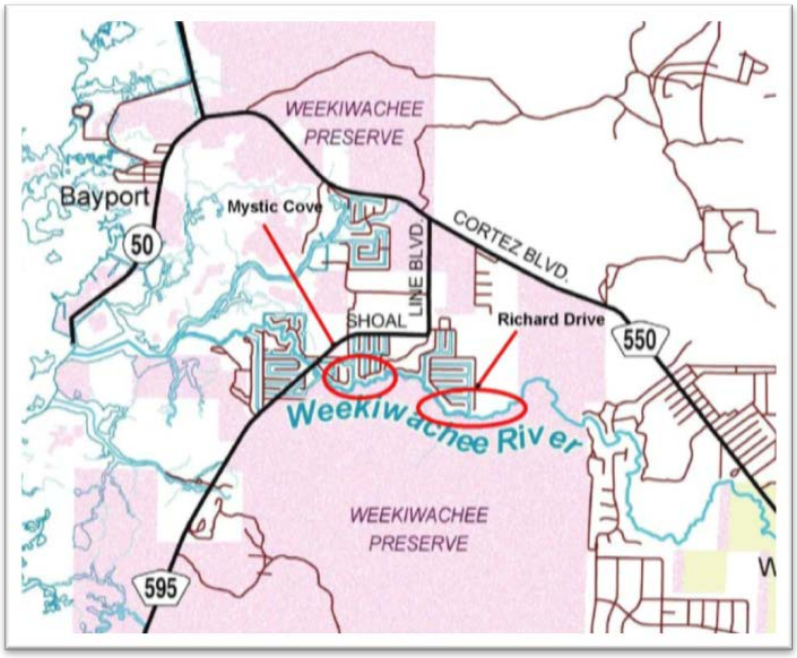
Funding Request: $100,000 (Feasibility Study)

Several environmental problems have developed over time within the headspring and upper reaches of the Weeki Wachee River. The immediate area surrounding the headspring had become infested with *Lyngbya* algae. In addition, the introduction of silts and organics into the spring and river system via untreated stormwater runoff and other external sources has caused additional concerns due to their conveyance downstream.

Erosion of sand from the riverbanks has caused the river to become shallower than it would naturally be, and as such, velocities have been reduced as well as the ability of submerged aquatic vegetation to establish. Aforementioned projects removed primary sources of sand and sediment; however, a significant volume remains within the lower river. In summer 2009, FFWCC Aquatic Habitat Conservation and Restoration Section personnel surveyed the river and found it adequate for manatee passage. They did note habitat restoration was needed in some areas however.

To improve navigation and fish and wildlife habitat, the Hernando County Task Force recommends the removal of shoaling sand in the lower river which has accumulated over historical limerock river bottom substrate, and in some places, impeded river flow.

Various locations, including "Mystic Cove" and "Richard Drive," are proposed for study for potential hydraulic dredging of sand. The amount of sand accumulated is unknown but a reasonable starting cost for dredging, based on visual estimates, is $5,000,000.



Hunters Lake

Hunters Lake, 302 acres, is located in the Spring Hill urbanized area of Hernando County. The lake is served by a public boat ramp and has provided a major recreational facility for the area. Access to the lake from the boat ramp has become impassable because of the increase of organic material (muck) in the channel and by reduced water levels due to drought. In 2009 the boat ramp parking area was closed to the public for safety reasons and to reduce vandalism. There has also been considerable tussock formation and encroachment of invasive vegetation surrounding the lake. The isolating channel surrounding the Audubon Society bird sanctuary has been compromised by bridging tussocks and invasive vegetation.

PROJECT: Hunters Lake Habitat Restoration

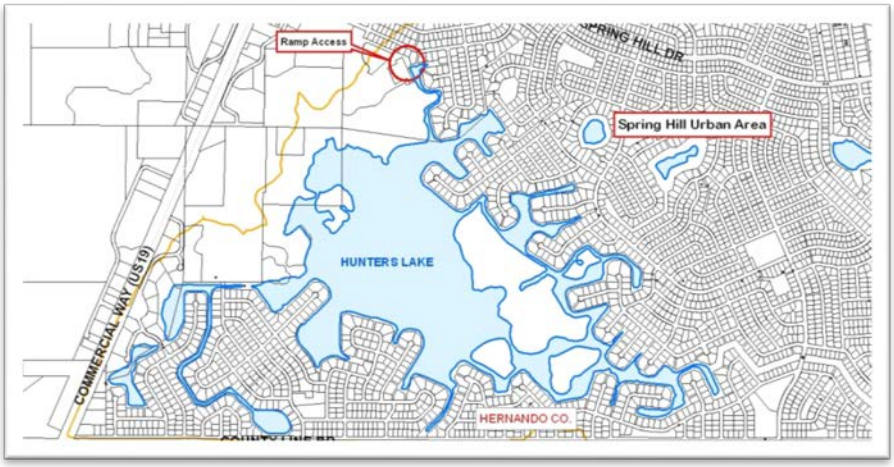
Timeline: 12–18 months

Funding Request: $100,000 (Feasibility Study)

The organic material associated with tussocks and the encroachment of invasive plants reduce oxygen levels during decomposition, increase turbidity, replace valuable fish and wildlife habitat, limit the growth of native plants which are desirable for fish and wildlife and impedes the successful spawning and recruitment of native fish species. Loss of access to this public lake has removed a valuable recreational outlet for the community.

The Hernando County Task Force recommends the dredging of organic sediments to restore the access channel from the boat ramp to the body of the lake and the removal of tussocks and encroaching invasive vegetation to restore fish and wildlife habitat and isolate the Audubon Society bird sanctuary.

The area of tussock growth is estimated at approximately 100 acres and approximately 12,000 cubic yards of organic sediments must be removed in the access channel. The project cost is estimated at $5,250,000. Ongoing maintenance will need to be performed until historical water levels return.



Lake Lindsey

Lake Lindsey, comprising approximately 137 acres, is located in Hernando County, Florida. The land adjacent to the northern and eastern shore of Lake Lindsey is made up of mostly single-family homes and a church. The land on the southern and western shore is owned by the U.S. Department of Agriculture and the University of South Florida. There is a public boat ramp on the eastern side of the lake.

PROJECT: Lake Lindsey Habitat Restoration

Timeline: 36 months

Funding Request: $100,000 (Feasibility Study)

Stabilized water levels, exotic vegetation and development on properties adjacent to the lake have contributed to an increase of organic material (muck) deposition. Tussock formations on the southern and northern shores are problematic as well. The resulting accumulation of muck, formation of tussocks, and the encroachment of invasive vegetation on the lake necessitate its removal to enhance the quality of aquatic habitat for fish and wildlife. The organic material associated with tussocks and the encroachment of invasive plants reduces dissolved oxygen levels during decomposition, increases turbidity, promotes more tussock formation, impedes the successful growth of desirable native plants, impedes the successful spawning and recruitment of native fish species, and replaces valuable fish and wildlife habitat.

The HCTF recommends hydraulic dredging of organic sediments to restore fish and wildlife habitat to improve sport fish populations, spawning success and angling success with increased local economic benefits. There are approximately 221,000 cubic yards of organic sediment to be removed at a cost of $11–15 per cubic yard. Initial removal cost estimates range from $2,500,000–$3,500,000.

Mountain Lake

Mountain Lake, a 127-acre public lake located near Spring Lake and once popular with local anglers, was dry for several years prior to an above average rainy season in 2012. The low levels prior to 2012 were due to a sinkhole and years of drought conditions. During these times of low water, the lake is reduced to only a couple of acres at the center of the lake basin with the remainder being vegetated with dog fennel, Para grasses, and other invasive terrestrial species common to disturbed or dewatered areas.

PROJECT: Mountain Lake Fish and Wildlife Habitat Restoration

Timeline: 12–18 months

Funding Request: $100,000 (Preliminary Engineering)

The HCTF recommends herbicide treatment of all terrestrial plant material followed by removal and scraping down to natural sand lake bottom by heavy equipment at a cost of approximately $2,000,000. Ongoing maintenance will need to be performed until historical water levels return.

Citrus/Hernando Waterways Restoration Council

Enacting Legislation

During the 2003 Florida Legislative Session, Chapter 2003-287, Laws of Florida were passed creating the Council. During the 2006 session, the Legislature revised the previous legislation by passing House Bill 341 and Senate Bill 496. The new language revised the membership, powers and duties of the Council. The Legislature, through the Act, required the following:

Representation

The act required the establishment of the Council. The Council consists of fourteen voting members as follows: two waterfront property owners from each county with one from each side of the county, an attorney from each county, a member from the Board of Directors of the Chamber of Commerce from each county, an environmental engineer from each county, an engineer from each county, and a person from each county with training in biology or another scientific discipline. Seven of the Council members are appointed by the President of the Senate and seven are appointed by the Speaker of the House of Representatives. The Council members from each county form two separate County Task Forces. In addition, an advisory group to each task force was formed. Members to the advisory group include a member of the FFWCC, FDEP, SWFWMD, Florida Department of Transportation (FDOT), County Public Works, and the United States Army Corps of Engineers (USACOE). All have training in biology or other scientific disciplines.

Table 1. Citrus/Hernando Waterways Restoration Council Members

Mr. Robert Christensen	Citrus County Task Force
Mrs. Sandra Clodwick	Citrus County Task Force
Mr. Michael Czerwinski	Citrus County Task Force
Mr. Al Grubman	Citrus County Task Force
Mr. Eric Latimer	Citrus County Task Force
Mr. Mike Moberley	Citrus County Task Force
Mr. Wayne Sawyer	Citrus County Task Force
Mr. William Epply	Hernando County Task Force
Mr. George Foster	Hernando County Task Force
Mr. Michael Liberton	Hernando County Task Force
Mr. Charles W. “Chuck” Morton	Hernando County Task Force
Mr. Nicholas Nicholson	Hernando County Task Force
Mr. James L. Polk	Hernando County Task Force
Mr. Timothy Stoops	Hernando County Task Force

Table 2. Technical Advisory Group Members

Mr. Allen Martin	FFWCC
Mr. Paul W. Thomas	FFWCC
Mr. John Burnett	Hernando County
Mr. Mark Edwards	Citrus County
Mr. James Davidson	USACOE
Ms. Virginia Creighton	FDOT
Ms. Erin Rasnake	FDEP
Mr. Philip Rhinesmith	SWFWMD
Mr. Richard Gant	SWFWMD

Table 3. Southwest Florida Water Management District Administrative Support

Veronica Craw
Jennifer Noland
Dianna Brass

Duties and Responsibilities

Chapter 2003-287 (amended) specifically charged the Council with the following powers and duties:

1. **Restoration Issues:** Review audits and all data specifically related to lake and river restoration techniques and sport fish population recovery strategies, including strategies for shoreline restoration, sand and other sediment control and removal, exotic species management, floating tussock management or removal, navigation, water quality, and fish and wildlife habitat improvement.

2. **Evaluate Existing Studies:** Evaluate whether additional studies are needed.

3. **Funding:** Explore all possible sources of funding to conduct the restoration activities.

4. **Report to Legislature:** Report to the Speaker of the House of Representatives and the President of the Senate before November 25 of each year on the progress of the program and any recommendations for the next fiscal year.

A copy of the enacting legislation is provided in Appendix A.

Appendix A

CHAPTER 2003-287

House Bill No. 221

An act relating to water management; creating the Citrus/Hernando Waterways Restoration Council; providing for membership, powers, and duties; providing for separate county task forces; providing for a report to the Legislature; providing for an advisory group to the council; requiring the Southwest Florida Water Management District to act as lead entity for the purpose of providing staff and administrative support for the council; providing for a Citrus/ Hernando Waterways restoration program; providing an effective date.

WHEREAS, the waterways of Citrus and Hernando Counties are of historic, hydrological, and ecological significance, and

WHEREAS, most of these Citrus/Hernando waterways are Outstanding Florida Waterways or are in the application process, and

WHEREAS, the Citrus/Hernando waterways are plagued by fluctuating water levels and sedimentation increasing nitrate levels and sand movement causing blockage of natural springs and excessive growth of aquatic plants, which are degrading their water quality and recreational value, and

WHEREAS, despite their current problems, the Citrus/Hernando water- ways continue to provide wildlife habitat for fish, birds, and game and offer recreational opportunities for the residents of Citrus and Hernando Counties and visitors to the area, and

WHEREAS, the renewable economic potential of the Citrus/Hernando waterways is significant, and

WHEREAS, the Southwest Florida Water Management District and the Fish and Wildlife Conservation Commission, along with other state, regional, and local entities, have developed proposals to restore portions of the Citrus/Hernando waterways, NOW, THEREFORE,

Be It Enacted by the Legislature of the State of Florida:

Section 1. (1) The Citrus/Hernando Waterways Restoration Council.— There is created within the Withlacoochee and Coastal Rivers Basin Boards of the Southwest Florida Water Management District a council to be known as the Citrus/Hernando Waterways Restoration Council. The council shall be coordinated by representatives of the following agencies: the Florida Fish and Wildlife Conservation Commission, the Department of Environmental Protection, and the Southwest Florida Water Management District. The council is subject to the provisions of chapters 119 and 120, Florida Statutes.

(2) Members of the council shall consist of 12 voting members with 6 appointed by the President of the Senate and 6 appointed by the Speaker of the House of Representatives. The council shall consist of representatives as follows:

(a) A waterfront property owner from each county.

(b) An attorney from each county.

(c) A member of the Board of Directors of the Chamber of Commerce from each county.

(d) An environmental engineer from each county.

(e) An engineer from each county.

(f) A person from each county with training in biology or another scientific discipline.

(3) The council members from each county are to form two separate county task forces from the council to review and make recommendations on specific waterways. The Hernando County Task Force shall develop plans for the restoration of the Weeki Wachee River and Springs. The Citrus County Task Force shall develop plans for the restoration of the Tsala Apopka Chain of Lakes.

(4) There shall be a technical advisory group to the council and the two county task forces which shall consist of one representative each from the Southwest Florida Water Management District, the Department of Environ- mental Protection, the Department of Transportation, the Fish and Wildlife Conservation Commission, the Coastal Rivers Basin Board, the Withlacoochee River Basin Board, and the United States Army Corps of Engineers, each of whom shall be appointed by his or her respective agency and each of whom, with the exception of the representatives from the Withlacoochee River Basin Board and Coastal Rivers Basin Board, shall have had training in biology or another scientific discipline.

(5) Immediately after appointment, the council shall meet and organize by electing a chair, a vice chair, and a secretary, whose terms shall be for 2 years each. Council officers shall not serve consecutive terms. Each council member shall be a voting member. Additionally, the two county task forces shall elect a chair and a secretary, whose terms shall be for 2 years each.

(6) The council or the county task forces shall meet at the call of their respective chairs, at the request of six members of the council or of the respective task force, or at the request of the chair of the governing board of the Southwest Florida Water Management District.

(7) The council shall have the powers and duties to:

(a) Review audits and all data specifically related to lake and river restoration techniques and sport fish population recovery strategies, including data and strategies for shoreline restoration, sand and other sediment control and removal, exotic species management, floating tussock management or removal, navigation, water quality, and fish and wildlife habitat improvement, particularly as they may apply to the Citrus/Hernando waterways.

(b) Evaluate whether additional studies are needed.

(c) Explore all possible sources of funding to conduct the restoration activities.

(d) Report to the Speaker of the House of Representatives and the President of the Senate before November 25 of each year on the progress of the Citrus/Hernando Waterways restoration program and any recommendations for the next fiscal year.

(8) The Southwest Florida Water Management District shall act as lead entity for the purpose of providing staff and administrative support to assist the council in carrying out the provisions of this act.

(9) Members of the council shall receive no compensation for their ser- vices but are entitled to be reimbursed for per diem and travel expenses incurred during execution of their official duties as provided in section 112.061, Florida Statutes. State and federal agencies shall be responsible for the per diem and travel expenses of their respective appointees to the council, and the Southwest Florida Water Management District shall be responsible for per diem and travel expenses of other appointees to the council.

Section 2. The Citrus/Hernando Waterways restoration program.—

(1) The Fish and Wildlife Conservation Commission and the Southwest Florida Water Management District, in conjunction with the Department of Environmental Protection, pertinent local governments, and the Citrus/ Hernando Waterways Restoration Council, shall review existing restoration proposals to determine which ones are the most environmentally sound and economically feasible methods of improving the fish and wildlife habitat and natural systems of the Citrus/Hernando waterways.

(2) To initiate the Citrus/Hernando Waterways restoration program recommended by the Citrus/Hernando Waterways Restoration Council, the Fish and Wildlife Conservation Commission, with assistance from the Southwest Florida Water Management District and in consultation and by agreement with the Department of Environmental Protection and pertinent local governments, shall develop tasks to be considered by those entities for the enhancement of fish and wildlife habitat. These tasks shall include the following:

(a) An evaluation of different methodologies for removing the extensive tussocks and buildup of organic matter along the shoreline and of the aquatic vegetation in the lake.

(b) The conduct of any additional studies as required by the Citrus/ Hernando Waterways Restoration Council.

(3) Contingent on the Legislature's appropriating funds for the Citrus/ Hernando Waterways restoration program and in conjunction with financial participation by federal, other state, and local governments, the appropriate agencies shall, through competitive bid, award contracts to implement the activities of the Citrus/Hernando Waterways restoration program.

Section 3. This act shall take effect upon becoming a law.

Approved by the Governor July 14, 2003.

Filed in Office Secretary of State July 14, 2003.

CODING: Words ~~stricken~~ are deletions; words underlined are additions

CHAPTER 2006-43

Senate Bill No. 496

An act relating to the Citrus/Hernando Waterways Restoration Council; amending section 1 of ch. 2003-287, Laws of Florida; revising the membership, powers, and duties of the council; revising the membership of the separate county task forces of the council; providing an effective date.

Be It Enacted by the Legislature of the State of Florida:

Section 1. Subsections (2), (3), and (4) of section 1 of chapter 2003-287, Laws of Florida, are amended to read:

Section 1.

(2) Members of the council shall consist of 14 ~~12~~ voting members with 7 ~~6~~ appointed by the President of the Senate and 7 ~~6~~ appointed by the Speaker of the House of Representatives. The council shall consist of representatives as follows:

(a) Two ~~A~~ waterfront property owners ~~owner~~ from each county, one of whom must be a property owner from the east side of the county and one of whom must be a property owner from the west side of the county.

(b) An attorney from each county.

(c) A member of the Board of Directors of the Chamber of Commerce from each county.

(d) An environmental engineer from each county.

(e) An engineer from each county.

(f) A person from each county with training in biology or another scientific discipline.

(3) The council members from each county are to form two separate county task forces from the council to review and make recommendations on specific waterways. The Hernando County Task Force shall develop plans for the restoration of the waterways in Hernando County ~~Weeki Wachee River and Springs~~. The Citrus County Task Force shall develop plans for the restoration of the waterways in Citrus County ~~Tsala Apopka Chain of Lakes~~.

(4) There shall be a technical advisory group to the council and the two county task forces which shall consist of one representative each from the Southwest Florida Water Management District, the Department of Environmental Protection, the Department of Transportation, the Fish and Wildlife Conservation Commission, the Coastal Rivers Basin Board, the Withlacoochee River Basin Board, the public works department of each county, and the United States Army Corps of Engineers, each of whom

shall be appointed by his or her respective agency and each of whom, with the exception of the representatives from the Withlacoochee River Basin Board and Coastal Rivers Basin Board, shall have had training in biology or another scientific discipline.

Section 2. This act shall take effect upon becoming a law.

Approved by the Governor May 30, 2006.

Filed in Office Secretary of State May 30, 2006.

CODING: Words ~~stricken~~ are deletions; words underlined are additions