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Initiative to Protect Florida's Springs and Significant Water Resources

Prepared by the Florida Conservation Coalition

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Proposed Priority Springs and Water Bodies (Not ordered)

Spring / Water Body	County(ies)		Spring / Water Body	County(ies)
St. Johns River and tributaries	1		Wekiwa Spring	Seminole
Indian River Lagoon	2		Chassahowitzka Spring	Citrus
St. Lucie River	3		Manatee Spring	Levy
Caloosahatchee River	4		Troy	Lafayette
Suwannee & Santa Fe Rivers	5		Rock Spring	Orange
Apalachicola River	6		Weekiwachi Spring	Hernando
Kissimmee-Okeechobee-Everglades	7		Fanning Spring	Levy
Silver Spring	Marion		Homosassa Spring	Citrus
Rainbow	Marion		Alexander Spring	Lake
Santa Fe Spring	Alachua		De Leon Spring	Volusia
Wakulla Spring	Wakulla		Peacock Spring	Suwannee
Wacissa Spring	Jefferson		Ponce de Leon Spring	Holmes
Ichetucknee Spring	Columbia		Silver Glen Spring	Marion
Hornsby Spring	Alachua		Blue Spring	Madison
Columbia Spring	Columbia		Spring Creek Springs	Wakulla
Blue Spring	Jackson		Gainer Spring	Bay
Lime Sink Run Spring	Suwannee		Blue Spring	Volusia
Blue Spring	Lafayette			

¹ Brevard, Clay, Duval, Flagler, Indian River, Lake, Orange, Osceola, Putnam, Seminole, St. Johns, Volusia

² Brevard, Indian River, Martin, Palm Beach, St. Lucie, Volusia

³ Martin, St. Lucie

⁴ Glades, Hendry, Lee

⁵ Alachua, Baker, Bradford, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Levy, Madison, Suwannee, Union

⁶ Jackson, Gadsden, Calhoun, Liberty, Gulf, Franklin

⁷ Osceola, Polk, Highlands, Okeechobee, Glades, Martin, Palm Beach, Hendry, Monroe, Collier, Miami-Dade, Broward

Recommendations to Protect Florida's Springs and Significant Water Resources

Introduction

The Florida Conservation Coalition (FCC) is composed of over 40 conservation organizations and thousands of individuals devoted to protecting and conserving Florida's land, fish and wildlife and water resources. The first priority of the Coalition is to protect and preserve Florida's water resources. This paper, prepared by a working group with guidance from the FCC Steering Committee, highlights the urgent need to move forward in removing nutrient contamination and restoring flow to these damaged natural resources.

Background

Florida is blessed with an array of stunning and important water resources: Apalachicola Bay's world famous seafood; the beauty of central Florida's springs and rivers; Florida's River of Grass, the Everglades; Indian River Lagoon, among the most biologically diverse estuaries in the United States; and the 320 mile St. Johns River are only a few examples of Florida's unparalleled natural resources. These natural assets are the foundation of our state's economy and culture. It is our responsibility, as Floridians, to protect these critical water resources for our own well-being and for that of future generations. Sadly, at present, Florida's natural resources, its springs, lakes, rivers, wetlands, and aquifers are in dire need of help.

Florida boasts approximately 700 recorded springs, making the state home to one of the largest concentrations of natural freshwater springs in the world. Northern Florida has 33 first magnitude springs and 191 second-magnitude springs. Springs were among Florida's first tourist attractions and continue to draw millions of visitors each year and provide significant economic benefits to nearby communities.

It could be said that Florida's waters stand at a tipping point. Springs throughout Central and North Florida are in serious decline due to decreased flows and nutrient pollution. Important Florida springs have stopped flowing and may never return and algae blooms have devastated ecosystems. This summer toxic algae in the Indian River Lagoon has resulted in the deaths of scores of dolphins, over a hundred manatees, and more than 300 pelicans. Discharges from Lake Okeechobee have had devastating effects on the Lagoon's ecological and economic resources.

Issues

Numerous studies by Florida's water management districts, the Florida Geological Survey, and the United States Geological Survey demonstrate that the nature and magnitude of water quality threats to Florida's waters is largely determined by land use practices and the geology of the region. What occurs on the land directly and indirectly affects the quality of water moving both into our rivers and lakes and into the aquifer. Storm water runoff carries oil, fertilizer, pesticides and bacteria. Septic tanks contribute nutrients, bacteria and chemicals. Agricultural and residential fertilizer application damages water throughout the State from the Panhandle to the Florida Keys.

Nitrate contamination is a major threat to humans, businesses, plants and animals that depend on our natural waters. Some waters, like Sulphur Springs in Tampa, have been closed to public use due to unsafe water quality. Recent algae outbreaks on the St. Johns and Santa Fe Rivers have destroyed wildlife and adversely affected those who make a living on these waters. As a result of Lake Okeechobee releases, the Caloosahatchee River and San Carlos Bay face the loss of sea grasses and oysters due to decreased salinity.

Nitrate concentrations in Silver Springs, a Florida icon, are approximately four times the limit that the Department of Environmental Protection (DEP) has determined as "safe" to protect the ecosystem. Reducing nitrate concentrations to an acceptable level would require a nearly 80% reduction. In contrast, nearby Juniper Springs, whose springshed largely lies within, and is protected by, the Ocala National Forest, has a nitrate concentration of less than one fourth of the DEP "safe" limit.

According to a 2012 paper presented at the University of Florida's Water Institute Symposium, 19 of Florida's 33 first magnitude springs, including Rainbow Springs (Marion County), exceed the .35 milligrams per liter (mg/L) nitrate criteria established by the DEP. Average nitrate concentrations in these 19 springs is nearly 1.3 mg/L; 370% greater than the target nitrate levels. According to this study, even if the trend of nitrate loading was reversed, it would take 29 years for Rainbow Springs to reach the target nitrate level of .35 mg/L. This study illustrates the urgency of acting now to address nitrates issues in our waters. Meaningful recovery will require significant actions and adequate funding. The longer it takes to begin to reduce nitrate levels in our springs and waters, the more costly and difficult their protection and restoration becomes.

The flow of springs and rivers and the ability to store water in wetlands and floodplains is also greatly affected by water consumption for agriculture, industry, and other human uses. Spring

and river flow can be reduced or eliminated by the over-consumption of water. Kissingen Springs (Polk County), which once flowed at over 20 million gallons per day and served as a popular recreation site, stopped flowing in 1950 due to over-pumping of groundwater. In 1990, White Sulphur Springs (Hamilton County), which was heralded as Florida's first tourist attraction and emitted more than 37 million gallons of water per day, stopped flowing. Silver Springs (Marion County) has experienced a nearly 50% reduction in flow and reached its lowest flow on record in April 2012. Additionally, Wekiwa and Rock Springs (Seminole and Orange Counties) have been below their established minimum flows and levels for more than two years.

Problems exist in both the permitting and regulation of consumptive use of water. Consumptive use permitting decisions should be based on the most accurate available data, reasonable use of water, and the public's best interest. Conservation measures need to be prioritized and employed. Water use restrictions, across all sectors, should be implemented in areas of critical concern during droughts and times of low flow. Water management districts and DEP need to act, or propose legislation, to expeditiously implement effective recovery strategies for springs, rivers and lakes. We must assure that all new minimum flow and levels meet the needs of the resource.

The performance of water quality protections is also lacking. Although the DEP has increased its efforts to set Total Maximum Daily Load (TMDL) requirements for Florida's waters, the setting of criteria does nothing by itself to remove even one pound of nitrogen entering Florida's aquifers, rivers, lakes, and springs. Currently, when attempting to curb pollution, the DEP creates a Basin Management Action Plan (BMAP) which delineates the land area contributing to nitrate loading to the area, the sources of nitrate pollution in that area, and the reductions that would be necessary to achieve the target pollution criteria. Unfortunately, little is actually done to allocate and stop verified non-point source pollution such as fertilizer use and septic tanks. Most people fail to realize that even fully functioning septic tanks contribute harmful nitrogen and phosphorus that cause algae growth in our springs.

The Department of Agriculture and Consumer Services (DACS) has no mandate and lacks funding to reduce the introduction of nitrates to our most sensitive North and Central Florida aquatic ecosystems, even though agriculture is one of the top nitrate contributors. Voluntary Best Management Practice (BMP) implementation to reduce pollution needs to be strengthened and enforced.

Recent efforts by the Legislature have not demonstrated a commitment to addressing water quality problems. Legislation requiring inspections of Florida's estimated 2.6 million septic tanks

was overturned in 2011 and local efforts to restrict fertilizer usage have been stymied. Ultimately, a more effective and comprehensive system is necessary for reducing the amount of nitrates and other pollutants reaching Florida's waters. Major funding for centralized sewage treatment that removes nitrates, incentives for reduction in fertilizer use, and enforceable standards for agriculture are needed. In addition, funding must be made available for retrofitting existing septic tanks that cannot be connected to central sewer systems, in order to reduce nutrient outputs.

Florida not only needs to strengthen laws, but also change its perception of the crisis facing our waters, citizens, and economy. Clean, abundant, water is the lifeblood of Florida, its main economic driver, and a fundamental component of the state's history and culture. If we continue to allow our water resources to deteriorate through loss of flows and increased pollution, we will only pass a more expensive, and possibly unsolvable problem to our children and future generations of Floridians.

The sources of our water's problems, reduced flows and over-nutrication have been understood for years. Although some recent studies have clarified the division of responsibility, there are no pending actions by state government or water management districts to provide measurable, on the ground, solutions to these problems on a statewide basis. Legislation is needed in the 2014 session to protect our waters, environment and economy.

Specific Recommendations

It is indisputable that Florida's water quality and quantity are in decline. Unfortunately, there is no "magic bullet" to restore our nutrient-impacted water bodies and restore declining groundwater levels. As many studies have shown, there are numerous contributors to our water resource problems, driven by rapid urbanization and intensified agricultural practices. We all share in contributing to these problems, and we will all have to participate in the solutions. It is essential that the State lay out a strategy to address the myriad of water resource problems. Below are essential tools which the state, water management districts, and local governments need to have available to effectively address these problems.

Implementation of these recommendations will produce significant and measurable reductions in pollutant contamination and groundwater decline. Some of them can be funded from existing programs, some will have little to no cost, and others will require major funding commitments. These recommendations are provided for those willing to step forward and take action to stop and reverse the deterioration of our springs and significant water resources.

More Effective Total Maximum Daily Load (TMDL) & Basin Management Action Plan (BMAP) Implementation and Enforcement

- The current TMDL & BMAP process has proven ineffective in reducing nitrates and pollutant loading to our water resources, primarily because they are not being effectively implemented. The attitude persists that more studies are needed to address these issues. Perhaps in a few circumstances detailed studies are needed, but it is not a lack of information or studies that is causing the degradation of our springs and water resources.

The existing patchwork of laws, regulations, and Departmental guidance should be reviewed and amended to create a more comprehensive and better coordinated system for monitoring and reducing pollution. Non-point pollution sources such as septic tanks and residential and agricultural fertilizer use are not adequately addressed under the current regulatory regime. The 2010 Wekiva River Basin Nitrate Sourcing Study indicates that over 75% of the nitrates entering the Wekiva Basin are from non-point sources. Considering that the Wekiva TMDL calls for a 79% reduction in nitrates entering the Wekiva Basin, it is most likely impossible to meet the state mandated criteria without the adoption of new policies and increased funding at both the state and local levels to address fertilizer and septic tank pollution.

Reduce Septic Tank Pollution- Years of scientific research have identified septic tank discharges as a major source of water pollution through much of Florida, particularly in areas of the state containing most of Florida's springs. Even properly maintained septic tanks contribute large amounts of nitrates to the Floridan Aquifer and springs, yet many septic tanks are not properly maintained because of the perceived inordinately high cost of inspections and maintenance. Given the difficulties of inducing private action to address this problem, and the reality that even well-functioning septic tanks contribute unacceptable nitrate levels to our groundwater, legislation is needed to authorize state and local governments to require and enforce the removal of septic tanks, and to provide the funding to replace septic tanks with central sewage systems and advanced wastewater treatment facilities. Regional nutrient reduction strategies, including comprehensive management entities to coordinate all types of wastewater treatment, are also necessary.

The Clean Water Act provides Florida with financing for sewage treatment infrastructure under the State Revolving Fund, a low-interest loan program administered by the U.S. Environmental Protection Agency and Florida Department of Environmental Protection. Federal, state and local government sewage treatment funding that currently facilitates growth and sprawl would be better directed to ensuring our state has the necessary infrastructure to support current and future Florida residents and businesses without damaging water and natural resources. Local governments within priority springsheds should be given discretion to adopt stricter standards for septic tanks for both new and existing onsite sewage treatment systems.

Reduce Fertilizer Pollution – Fertilizer use is a major source of water pollution throughout Florida, affecting nearly every important water resource in Florida. Unfortunately, local governments which have enacted regulations on fertilizer are finding themselves in conflict with the Legislature, which has sought to prohibit or weaken such regulations. It is not scientifically feasible to restore our springs and protect our waters without meaningful and effective fertilizer regulations that apply to large agricultural operations and other significant users, including residential users. Many agricultural operations could be covered under an improved BMP program. The legislature should take a leadership role and establish strong statewide regulations for fertilizers sold in Florida and provide stronger minimum criteria for utilization in Florida. Whether agricultural or residential, state legislation should allow for more stringent local requirements if part of a comprehensive program to meet nutrient loading limits.

Connect Water Quality and Water Quantity Regulations – Florida has two distinct regulatory systems for dealing with water quality and water quantity issues. This separation fails to reflect the undeniable linkage between these two important areas. Reduced spring and river flows serve to concentrate pollution that would otherwise be diffused if more water was running through our spring systems. In that regard, Chapters 373 and 404 of the Florida Statutes need to be linked together so Florida’s water management districts can consider the effect of increased nutrients and pollution when making consumptive use permitting decisions. Under the existing system, even if a water management district is aware that approving a consumptive use permit will result in increased nutrient levels, even beyond criteria established by the state, they are unable to incorporate this knowledge into their permitting decisions. Florida’s regulatory agencies need the authority and tools to address both water quality and quantity problems in order for real progress to be made. The districts should also proceed to develop water reservations for all stressed spring and river systems as already required by Chapter 373.

Update Water Management District Rainfall and Recharge Modeling – Water management districts currently use outdated rainfall models that overestimate annual rainfall amounts in their consumptive use permitting process. Assuming that present and future rainfall will mimic that of the past (but which is often less than in the past), results in the permitting of greater withdrawals than would otherwise be allowed. The consequence of this system of management has resulted in the continued drawdown of the Floridan Aquifer at a rate greater than it can be replenished, leading to reduced spring and river flows and lower lake levels. Florida’s water management districts should update rainfall models to reflect actual rainfall totals and trends over the recent past. This is of special importance considering that water management districts have argued that reduced spring and river flows are the result of decreased rainfall, yet, at the same time, do not acknowledge the same decreases in their consumptive use permitting decisions.

In addition, water management districts should revise aquifer recharge models to reflect the alteration of land uses that have led to greater run-off and reduced aquifer recharge even during times of heavy rains.

Delineation of Springsheds by Rulemaking –DEP and Florida’s water management districts should delineate all of the major spring sheds by rule, and such delineations should be subject to outside peer review. A more detailed understanding of how water withdrawals and pollutant discharges affect Florida’s waters is impossible without a thorough and accurate description of which geographical areas feed and affect our springs. This, however, is a refinement and should not affect proceeding with vigorous springs and water resource protection and restoration.

Standards for Groundwater Discharges – Permits issued for discharges into the aquifer should be evaluated and modified to assure that they do not cause or contribute to violations of surface water standards once the water resurfaces in Florida’s springs. It is essential that our laws and regulations reflect the direct connection between groundwater and surface waters. Dye tests like those performed in connection with Wakulla Springs (Wakulla County) show that groundwater can travel much faster through karst areas of the aquifer than previously thought, reducing the ability for nutrients and other pollution to be filtered out before reaching springs. Updating central sewer treatment nutrient output standards in priority springsheds should be given the highest priority.

Improve Effectiveness, Enforcement, and Funding of Agricultural Best Management Practices
Under the current BMAP process, agricultural best management practices are voluntary and largely focused at lowest common denominator-solutions that do little to help achieve the state criteria for water quality in our springs. In areas where agricultural practices are shown to be a significant source of springs deterioration DACS needs to create, monitor, and enforce best management practices that result in the reduction of nitrates in Florida’s springs within the shortest possible timeframe. Best Management Practices should have specific goals for nitrate loading on a site by site basis, mechanisms for monitoring to assure the achievement of these goals, and an enforcement system to ensure that these goals are met. Additional DACS funding is necessary to incentivize actions that benefit Florida’s springs and to help defray the cost of implementing best management practices.

Annual Report – The DEP should annually submit to the Legislature and Governor an assessment of the water quality and flow and level conditions of springs and significant water resources, using 2013 conditions as the baseline. A report in 2014, the baseline report, and annual reports beginning in 2015 should include: for springs - clarity, nitrate and pollutant concentrations (including the sources), algae, and biota; for significant water resources - water levels and flow and nutrient and pollutant concentrations (including the sources); and for groundwater - ground water levels, principal water users, and nutrient and pollutant

concentrations in the watersheds or areas related to or affecting springs and significant water resources. The report should also detail the individual and cumulative effects on water quality and quantity of projects completed after 2013.

Land Conservation to Protect Water Resources – Protecting land within springsheds by conservation easement or acquisition is the most effective means of protecting Florida’s springs and water resources. According to a 2004 University of Florida survey of residents within the St. Johns River Water Management District (SJRWMD), the overwhelming majority listed protecting the quality and quantity of freshwater resources as their top choice for the focus of land conservation funding, and were willing to pay more for land conservation to protect water resources, than for any other conservation purpose. In fact, the survey’s authors concluded that residents within the SJRWMD were willing to pay over \$43 per year per household, a total of nearly \$79,000,000 (in 2004 dollars). Based on the proven effectiveness of land conservation to protect water resources, and the public’s strong preference for these programs, funding for Florida Forever should be returned to historical levels. Moreover, Save Our Rivers should be devoted to water management district land protection. And, conservation of land within springsheds should be prioritized for all conservation land purchases.

Water Management District Governing Board Selection – In 1997, the Legislature required the consideration of diversity in water management district governing board composition and expertise. Unfortunately, simply mandating “consideration” has proven ineffective at assuring diverse and knowledgeable governing boards that represents the public’s best interest. The Legislature should consider a more specific directive to ensure that its intent is carried out. One solution would be to institute a nominating system (with a candidate screening committee) similar to that used in appointing Public Service Commissioners. This would result in a more balanced list of potential appointees. Specific guidance should be given to the screening board to include representatives from the business, agricultural, academic and environmental communities.

Funding Options

No meaningful protection of Florida’s springs and significant water resources is possible without meaningful increases in funding for land acquisition, resource management and regulation, and water conservation. Historically, these programs have been funded through a combination of ad valorem taxes, legislative appropriation, federal grants and loans, and land conservation programs such as Preservation 2000 and Florida Forever. Recently severe cuts in WMD ad valorem tax rates, land conservation funding, and DEP and water management district staffs have seriously diminished the capability of Florida’s resource management agencies to properly manage and protect our environment and natural resources. The options below would

assist in restoring adequate funding for these priorities. To assure long-term protection, economic policies to encourage water conservation and nutrient load reduction will need to be considered.

Water Management District (WMD) Ad Valorem Taxes (property tax) - The method provided in Chapter 373 for funding water management in Florida. Over the past three years, dramatic cuts in WMD ad valorem tax rates has diminished WMDs ability to protect and restores springs and manage water resources. As a very practical option, modest increases in WMDs ad valorem tax rates would result in a very low annual cost to the average homeowner, while greatly enhancing the ability of WMDs to carry out their mission and protect and restore Florida's waters.

For example, from fiscal year 2007 to 2011 the St. Johns River Water Management District's millage rate was set at .4158 mills (41.58 cents per \$1,000 of home value). Over the past three years the District's Governing Board, under direction from the legislature, DEP, and Governor's office, has significantly reduced that millage rate to .3282 mills. The millage rate reduction saves the owner of a \$200,000 home only \$13.10 a year. However, the cumulative revenue loss to the St. Johns River Water Management District is approximately \$21.4 million in 2014, 25% of all ad valorem district tax revenue for fiscal year 2014.

The difference in the South Florida Water Management District is even starker considering the challenges facing South Florida in flood protection, water supply, water quality, Everglades Restoration. Restoring millage rates to FY 2011 levels would raise approximately \$137.5 million in revenue for the SFWMD, more than 50% of the \$266.6 million the District will collect in ad valorem taxes this year, while increasing the tax burden on the owner of a \$200,000 home by less than \$35 per year.

If all of Florida's water management districts were to return ad valorem tax rates to fiscal year 2011 levels the state would raise over \$214,000,000 in additional funding, per year, to support water projects, nutrient reduction, and springs protection. (Table 1)

WMD	2011 Millage Rate	2014 Millage Rate⁶	Homeowner Saves (\$)⁷	Lost District Revenue (\$) (FY2014)⁸
St. Johns	.4158	.3282	13.10	21,400,000
Southwest	.5744 ⁹	.3818	\$28.90	57,500,000
South Florida (Okeechobee)	.6240	.4110	32.00	126,000,000
South Florida (Big Cypress)	.4814	.3278	23.00	8,900,000
Suwannee	.4399	.4143	3.80	333,000
Northwest	.045	.040	.75	407,000
Total Lost Revenue (FY 2014)				214,540,000

Another way to approach the potential for funding through ad valorem taxation is to examine the additional revenue that could be brought in, statewide, from a minute increase. If ad valorem taxes were increased .05 mills (5 cents per \$1,000 of assessed property value) in the South Florida, Southwest Florida, St. Johns River, and Suwannee River Water Management District, and increased by .01 mills in the Northwest Florida Water Management District (from the current .04 mills to the constitutionally maximum .05 mills), it would raise an additional \$60.3 million per year for projects to reduce nutrients and protect spring flows. The cost to the owner of a \$200,000 property for the increase amounts to only \$7.50 per year. An increase of only half that amount, equaling \$3.75 per year in additional taxes for the owner of a \$200,000 property, would raise over \$30 million dollars per year for these essential priorities. (Table 2)

	Increase of .05 mills	Increase of .025 mills
Annual Cost to Homeowner (\$) ¹⁰	7.50	3.75
Additional Revenue Statewide (\$) (FY 2014)	60,300,000	30,150,000

⁶ Proposed

⁷ Based on property value of \$200,000

⁸ Approximate lost revenue for FY 2014 representing difference between FY 2011 and FY 2014 millage rates.

⁹ Average across all Basins

¹⁰ Based on property value of \$200,000.

Although ad valorem tax reductions are intended to “reduce the burden on homeowners” the reality is a policy that provides a negligible benefit to Florida homeowners while placing all Floridians at greater risk from flooding, water shortages, and water pollution, while impeding progress in important environmental initiatives like Everglades Restoration, spring protection, and nutrient reduction. Simply returning water management district ad valorem millage rates to 2011 levels would provide significant funding for these important initiatives.

State Revolving Fund (SRF) – The Clean Water Act provides low-cost financing for water quality projects, including all types of nonpoint source pollution, watershed protection or restoration management projects, and expanding and improving municipal wastewater treatment under the State Revolving Fund, a low-interest loan program administered by the U.S. Environmental Protection Agency and Florida Department of Environmental Protection. In fiscal year 2013 the Department of Environmental Protection awarded over \$93.7 million to water projects from the SRF. Beginning in fiscal year 2014 these funds should be directed towards projects that improve water quality and reduce nutrient pollution in priority springs and water bodies. Focus should be given to springs and water bodies suffering from the greatest ecological damage and those projects that result in the greatest net decrease of nitrates per project cost. To prioritize funds in such a manner would likely require a rule change to 62-503 F.A.C., which determines how projects are ranked for funding under CWASRF by Florida Department of Environmental Protection.

Florida Forever Funding – For nearly two decades the legislature funded one of the largest and most successful public land acquisition programs in the nation. Florida Forever and its predecessor Preservation 2000 provided funding for the acquisition of more than 2.5 million acres of public lands for the protection of water resources, conservation lands, fish and wildlife, and the state’s cultural heritage. Recently, however, Florida Forever funding has been decreased to only a small fraction of the historical norm. The legislature needs to increase funding for Florida Forever either by the method used for Preservation 2000 and Florida Forever, or some other means, with emphasis on protecting springs and significant water resources.