

The Role of Septics Advisory Committees In Protecting Florida's Springs

A Report for the Florida Springs Institute
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Executive Summary

In 2016, the Florida Legislature passed a water bill addressing a broad range of issues; the Florida Springs and Aquifer Protection Act (the Springs Act) can be found in Part VIII of Chapter 373, Florida Statutes and is “hailed by its sponsors as a major step forward in the restoration of Florida’s springs.”¹ However, many springs advocates believe this Act will not restore “Florida’s beleaguered springs in the foreseeable future”² because of statutory deficiencies, contradictory provisions, and what will likely be weak implementation. This paper will examine options for addressing Onsite Sewage Treatment and Disposal Systems (septics) issues in Outstanding Florida Springs as well as the role of OSTDS³ advisory groups in springs restoration efforts.

Introduction and Overview

Florida’s springs provide an unparalleled aspect of the state’s landscape and appeal and should be protected.⁴ Not only do these springs provide immense economic, recreational, natural, and inherent value, but they are also home to a wide variety of plants and animals, many threatened or endangered.⁵ Additionally, Florida’s springs are scientifically important, serving as indicators of local conditions and providing insight into the varied behaviors of aquatic ecosystems.⁶ Springs are only as robust as the Floridan Aquifer system from which they flow and which provides the majority of Floridians with clean drinking water. Adverse effects from many sources including stormwater runoff, deficient stormwater and wastewater management practices, and contaminated runoff from agricultural and urban lands impact Florida’s aquifers; in turn, the environmental and hydrological health of the springs are affected.⁷

¹ Bob Palmer, *A Retrospective Analysis – The impact of Florida’s 2016 Water Law on Restoration of Florida’s Springs*, 1, September 2017.

² *Id.*

³ With an estimated 2.6 million septic systems in active operation, Florida represents 12% of all septic systems in the United States. <http://www.floridahealth.gov/Environmental-Health/onsite-sewage/index.html> (December 2, 2017).

⁴ 373.801 F.S.

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

To complicate the already complex issue of maintaining springs' health in the face of Florida's population and agricultural growth is the fact that springshed boundaries often overlap various local government jurisdictional and water management district boundaries. Coordination among these entities is imperative if efforts at springs restoration are to prove fruitful. One aspect of facilitating sufficient coordination between and among the departments involves the creation of Basin Management Action Plans (BMAPs) for Priority Focus Areas within Outstanding Florida springsheds.⁸ These BMAPs are required to include, among other things, a list of all specific projects and programs necessary to achieve the nutrient total maximum daily load (TMDL)⁹ no more than 20 years after the adoption of the BMAP.¹⁰

One aspect of achieving the TMDL is cleaning up nitrogen contributions from septic systems when such contributions are "significant" – that is, exceeding 20% of the total nonpoint source nitrogen loads within the BMAP area.¹¹ Currently, 24 of 30 Outstanding Florida Springs are impaired by nitrogen pollution¹². Clean-up of these impaired springs will be addressed in 14 BMAPs, mandated in legislation for completion by June 30, 2018. In nine of these 14 BMAPs, nitrogen from OSTDS poses a significant problem: Wakulla Spring, Wekiwa and Rock Springs, Silver Springs, Rainbow Springs, Volusia Blue Springs, Kings Bay-Crystal River, Homosassa Spring, Chassahowitzka Spring, and Weeki Wachee Springs.¹³

Unfortunately, the Act aimed at restoring these springs suffers from inconsistencies. For example, Section 373.807(1) indicates that detailed septic remediation plans must be completed by July 2018; on the other hand, Section 373.807(3) explicitly states that these same plans are not due until the first 5-year BMAP milestone in 2023. FDEP seems to be operating as if the 2023 deadline for detailed septic plans rather than the 2018 deadline is binding, since draft BMAPs released to date have very few details in their septic remediation plans. For example, the Volusia Blue Spring's BMAP does not identify a nitrogen reduction target for OSTDS, nor does it include any ranked, financially feasible projects necessary to attain the

⁸ Per the statute, "Priority Focus Areas" means "the area or areas of a basin where the Floridan Aquifer is generally most vulnerable to pollutant inputs where there is a known connectivity between groundwater pathways and an Outstanding Florida Spring, as determined by the department in consultation with the appropriate water management districts, and delineated in a basin management action plan."

⁹ The Environmental Protection Agency (EPA) defines TMDL as, "the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant."

¹⁰ 373.807(1)(b), F.S.

¹¹ Research Review and Advisory Committee (RRAC) Onsite Sewage Treatment and Disposal Systems (OSTDS) Meeting Minutes (October 21, 2016).

¹² <https://floridadep.gov/springs/protect-restore> (December 2, 2017).

¹³ *Id.*

missing target.¹⁴ Additionally, it does not present a specified public education plan with pre-determined programs for specific areas. Incomplete plans of this sort allow for the perpetual “kicking of the can down the road.” With every delay, the springs – the wildlife, the habitats, the water quality – suffer.

In developing these remediation plans, the methodology that the Florida Department of Environmental Protection (FDEP) is using to calculate water quality may result in a “substantial under-estimation of the total nitrogen load to the respective spring systems as well as under-estimation of the share of that total load attributable to septic tanks.”¹⁵ Several non-profit entities, including Stetson University, Volusia County, and Save the Manatee Club, have questioned whether FDEP is accurately calculating the relationship between the nitrogen load to the aquifer and the amount of nitrogen exiting Volusia Blue Spring.

The Middle and Lower Suwannee BMAP has similar issues. For example, critics have noted that the “explanation of further load reduction is vague, speculative, and inadequate.”¹⁶ One instance of this is the BMAP’s failure to provide sufficient explanations and citations documenting that Best Management Practices (BMPs) will result in 15% and 10% reductions in nitrogen releases for crops and livestock waste practices, respectively.¹⁷ Other issues with this BMAP involve the fact that the required listing of corrective projects fails to comply with the Act requirements.¹⁸ For example, each project must have a cost estimate, estimated completion date, specifics for sources of funding, and specifics for amounts of funding. One or more of these requirements are lacking from virtually every project listed. Clearly, there is still much work to be done.

A Brief Overview of State-Funded Springs Restoration Efforts to Date

Since 2013, the state of Florida has provided nearly \$135 million in funding for springs restoration.¹⁹ Another \$50 million was appropriated in the FY 2018-2019 state budget approved in March 2018. This funding has helped local governments and other stakeholders in

¹⁴ Robert Deyle, Comments on Draft OSTDS Remediation Plan for Volusia Blue Spring (Aug 2017 MBAP Appendix D) (November 28, 2011).

¹⁵ Email composed by Robert Deyle, Vice Chair, Wakulla Springs Alliance (December 11, 2017). Specific examples of these flawed calculations were sent to FDEP staff, urging FDEP to correct the errors before continuing with BMAP revisions and remediation plan developments.

¹⁶ Letter written by John Ross Thomas, P.A. to Tom Frick, Director of the Division of Environmental Assessment and Restoration at DEP (November 30, 2017) on behalf of the Sierra Club and the Florida Springs Council.

¹⁷ *Id.*

¹⁸ *Id.*

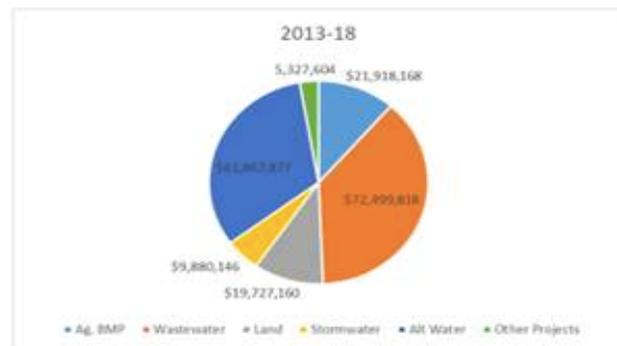
¹⁹ Florida Department of Environmental Protection, Springs Restoration Projects (Oct. 20, 2017), <https://fdep.maps.arcgis.com/apps/MapJournal/index.html?appid=32125e5198514a978426f757810cb6c8>.

funding a variety of projects aimed at springs restoration.²⁰ Projects implemented in the first three years of funding are projected to reduce four million pounds of nutrient pollution and conserve 84 million gallons of water per day for our aquifers.²¹ For the fiscal year 2016-17, nearly \$90 million in funding will be leveraged for springs projects.²²

There were 35 statewide projects funded in Fiscal Year 2016-17, dispersed through the four water management districts that are home to springs. The table and chart below demonstrate funding allocations for fiscal years 2013 – 2018. More specific details of these projects and images of the springs they influence can be found on the FDEP’s website.²³

There has been controversy with regard to the State spending springs funding on septic systems (research, removal, etc.), as the primary purpose of the source of springs funding – Amendment 1 – was for environmental lands acquisition for protection and preservation. Expectations of Amendment 1 supporters were that the funds were to be used to purchase parks, wildlife habitats, and natural areas – environmentally conscious real estate – not for “pet projects.” As the chart demonstrates below, environmental land acquisition has proven far from a priority from the funds allocated for springs.

FY 2013-2018	
Project Type	State Funding
Wastewater	\$72,499,818
Alternative Water Supply	\$61,867,877
Ag. BMP	\$21,918,168
Land Acquisition	\$19,727,160
Stormwater	\$9,880,146
Other Projects	\$5,327,604
Total	\$191,220,773



OSTDS Advisory Committees

While a variety of efforts are being made to combat springs pollution and decline, one of the primary battles involves nitrogen pollution, including nitrogen pollution from septic systems. If at least 20 percent of sourced nitrogen pollution is from OSTDS, the area’s BMAP must include

²⁰ Revenue from Florida’s excise tax on documents provides funding for Amendment 1. A portion of that revenue is allocated to the Land Acquisition Trust Fund, used for conservation easements and to acquire and improve wildlife management areas, forests, fish and wildlife habitats, wetlands, recreational trails and parks, and lands protecting water and drinking water resources.

²¹ *Id.*

²² *Id.*

²³ *Id.*

an OSTDS remediation plan.²⁴ While an OSTDS remediation plan requirement became part of the enacted legislation, the requirement for OSTDS Advisory Committees did not. In 2015, FDEP appears to have made the assumption that Advisory Committees would be a required aspect of the prospective legislation; therefore, FDEP created three committees – Wakulla, Wekiva, and Silver/Rainbow Springs – in anticipation of the impending requirement. While ultimately the legislation did not make the advisory committees mandatory, their engaged, knowledgeable stakeholders have actively participated in the development of area BMAPs by way of questions asked, data provided, and agency oversight. These three advisory committees have proven their value and relevancy.

Each advisory committee's charge is to help in the development of a septic remediation plan. Through their conversations and research, aided by the committee members' expertise²⁵, the groups are to provide concepts and products for FDEP's review and possible inclusion into the remediation plans.²⁶ The system of the advisory committees is cyclical in nature as both FDEP and the committees collaborate by presenting, reviewing, and reporting back with feedback on what exactly should be done to move forward.²⁷

Collaboration by committee members – not only with FDEP, but with each other as well – has proven increasingly problematic. FDEP considers these committees Sunshine groups²⁸, which limits participants' communications outside of scheduled meetings.²⁹ Although members cannot communicate with each other outside of the meetings, and each group cannot communicate with other groups, FDEP claims that the lessons learned at these meetings are shared with the other committees.³⁰

Overall, the existence of these groups has proved beneficial. While it has made the process of developing a plan lengthier simply by way of coordinating each member's schedule, taking additional time for members to pose questions, and having additional meetings, participants

²⁴ 373.801, F.S.

²⁵ Committee members for the Silver Springs and Rainbow Springs BMAPs include: Dan Dooley, Department of Health, Marion County; Tracy Straub, County Official, Marion County; Bruce Phillips, City Official, Belleview; Bryan Schmalz, Public/Private Utility, Bay Laurel Center CDD (On Top of the World); Burt Eno, Environmental Interest Rainbow Springs, Rainbow River Conservation, Inc.; Russ Melling, Environmental Interest Silver Springs, Oklawaha Valley Audubon; Dave Harden, Other Interests, Marion County Building Industry Association; Robert Himschoot, Other Interests, Florida Home Builders Association; Roxanne Groover, Other Interests, Florida Onsite Wastewater Association (FOWA).

²⁶ Telephone Interview with Kevin Coyne, Florida Department of Environmental Protection Program Administrator (Oct. 2, 2017).

²⁷ *Id.*

²⁸ Chapter 286, F.S.

²⁹ Telephone Interview with Kevin Coyne, Florida Department of Environmental Protection Program Administrator (Oct. 19, 2017).

³⁰ *Id.*

have indicated that a great deal of good has come from them, mostly in the groups' efforts to keep FDEP focused on demonstrable action.³¹ The unity of the groups and their commitment to the health of the springs is apparent, both with meeting attendance, vocal participation, and an ongoing barrage of emails, letters, and phone calls to decision-makers around the state, demonstrating their sincere engagement with their undertaking and their very clear feeling of responsibility for springs protection. As the groups are relatively new and their contributions have yet to be fully implemented, it is too soon to tell whether the groups will continue without a state mandate.³²

While there was no executive order or other legal authority for these advisory committees, there is a legislative mandate for public meetings to be held during the development of BMAPs. FDEP is tasked with assuring that key stakeholders are "invited to participate in the process"; per legislative mandate, at least one public meeting to "discuss and receive comments during the planning process" must be held to encourage public participation.³³ However, an "invitation" to participate during "at least one" public meeting seems a far cry from active encouragement of public participation. As with the advisory committees, it appears too soon to gauge the effectiveness of these meetings. But it appears likely that participation in these mandated public meetings will pale in comparison with the involvement of citizens in the septic advisory groups.

Septic System Alternatives

There are several options available to replace or enhance current septic systems. These include high-tech commercial systems, passive systems, Biosorption Activated Media (BAM), and hooking up existing residential plumbing lines to sewer lines directed to water treatment plants. High-tech commercial systems have proven to be highly effective at reducing nitrogen in waste water but these systems are often cost prohibitive. High-tech commercial systems generally use multiple distinct chambers to treat varying waste water streams; chamber one is typically the primary treatment chamber, chamber two is often the non-aerated tank, and finally, chamber three, is usually considered the anoxic and/or aerobic treatment zone.³⁴ High-tech systems are capable of treating residential wastewater to "below detection levels" for carbonaceous biochemical oxygen demand and to low levels for nutrient nitrogen and phosphorus³⁵ as long as cold temperatures are not persistent.³⁶ There are several high tech systems on the market that are NSF/ANSI 40 compliant. To meet the NSF/ANSI 40 standard,

³¹ *Id.*

³² *Id.*

³³ 403.067(7)(a)(3), Florida Statutes

³⁴ NSF: The Public Health and Safety Organization (December 1, 2017, 10:32 AM), <http://www.nsf.org/services/by-industry/water-wastewater/onsite-wastewater>.

³⁵ *Id.*

³⁶ Environmental Protection Agency, Onsyte Wastewater Treatment Systems Technology Fact Sheet 3, Sequencing Batch Reactor Systems, TFS – 15.

nitrogen must be reduced by a minimum of 50%.³⁷ The cost for high-tech commercial systems is roughly \$30,000.

Passive systems, an alternative to high-tech commercial systems, are currently being studied by the Florida Department of Health. These passive systems are generally characterized by “in-ground nitrogen-reducing bio-filters” with the inclusion of “aerobic treatment units certified for 50% nitrogen reduction (NSF 245).”³⁸ “[R]eactive media for denitrification and a single liquid pump, if necessary” are used to reduce the nitrogen in the wastewater.³⁹ Sand, clay, sulfur, and woodchips are the reactive media materials being tested so far.⁴⁰ Testing includes a standard system with a standard liner, Variant One (no liner), Variant Two (liner with underdrain), and Variant Three (dual liner).⁴¹ The longevity and effectiveness of these passive systems are still unknown. Two challenges for wide adoption of passive technology are a pending patent dispute with Presby Environmental⁴² and the dramatic variation in costs. Depending on the soil quality, water table, and landscape, passive systems can cost between \$10,000 to \$30,000.

Another wastewater treatment option utilizes BAM for pollution control. BAM has been shown to be useful for nitrogen and phosphorus reduction in stormwater, wastewater, and agricultural applications.⁴³ One product -- Bold and Gold -- uses a patented blend of mineral materials, clay, and sand⁴⁴ and has shown 50-80% nitrogen reduction levels and 70-90% phosphorus reduction levels.⁴⁵ The typical cost is for initial installation is between \$10,000 to \$15,000.

Finally, a highly effective wastewater treatment option to remove nitrogen from septic tanks is simply to connect these households to community sewer systems. This option provides guaranteed monitoring 24 hours a day and minimal homeowner responsibility; however, the orchestration of these connections can prove complicated and costly.⁴⁶

³⁷ Note, this also appears to be the percentage for NSF 245 systems. National Standards for Decentralized Wastewater Treatment: An Overview of Methods and Criteria for Demonstrating Product Performance, Environmental Protection Agency (Oct. 21, 2017, 6:34 AM) https://www.epa.gov/sites/production/files/2015-06/documents/nsf_epa_webinar_ww_standards_03_2012_r1.pdf.

³⁸ Research Review and Advisory Committee Meeting (October 20, 2017), 25 of 91.

³⁹ *Id.* at 57.

⁴⁰ *Id.* at 58.

⁴¹ *Id.* at 27.

⁴² Presby Environmental (December 10, 8:17 AM), <http://presbyeco.com>.

⁴³ Environmental Conservation Solutions (December 12, 2017, 11:00 AM), <http://www.boldandgoldmedia.com/> <https://ecs-water.com>.

⁴⁴ *Id.*

⁴⁵ Martin Wanielista, *Performance of a Bio-Retention System in Stormwater Retention Areas*, (November 17, 2017, 9:07 AM) <http://stormwater.ucf.edu/wp-content/uploads/2014/10/PerformanceOfBioRetention2012.pdf>.

⁴⁶ Some homeowners seem reluctant to convert, even with subsidized costs.

The chart below provides an overview of these alternatives.

Name	Type of Technology	Cost	Results
High Tech Commercial Systems	Reaction tanks, aeration system-diffused air, etc.	\$33,000 including construction, permitting, and maintenance	Up to 85 – 95% Nitrogen Removal
Passive Systems (including Bold and Gold)	Liners, Sand, Clay, Woodchips, Ground Tires, etc.	\$10,000 - \$30,000 with periodic maintenance	Target Performance 65% Nitrogen Removal
Traditional Sewer System	Pipes to Wastewater Treatment Plants	Connection Costs range from \$2,500 - \$20,000 with monthly bills	50+% Nitrogen Removal

Recommendations

The legislative mandate for the “invitation” for the public to participate in “at least one” public meeting on OSTDS remediation is inadequate. Formalizing the OSTDS advisory committees would have a positive impact on springs restoration efforts. While it is still too soon to tell the actual impact these three advisory committees are having in the BMAP development and implementation process, the meetings have kept FDEP engaged, accountable, and moving forward. Participants have been both vocal and assertive, two qualities likely to produce positive change. Therefore, we recommend enactment of a legislative mandate creating these committees for all springs BMAPs, especially in light of the continued development of septic remediation plans through 2023.

With the certainty of increased land development and growth in Florida, connecting homes to sewer lines may ultimately prove to be the most cost-effective, consistent, and safest means of nitrogen removal. As the State moves slowly to rescue Florida’s springs and as the OSTDS Advisory Committees work to promote effective and timely OSTDS remediation plans, we must remember that our springs still suffer, and all that rely on them – wildlife, habitats, people – suffer, too.