FLORIDA SPRINGS COUNCIL ASKS FOR U.S. EPA REVIEW OF SILVER SPRINGS BASIN MANAGEMENT ACTION PLAN

FOR IMMEDIATE RELEASE

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December 8, 2015

GAINESVILLE, FL – In a letter to the Region IV Administrator of the U.S. Environmental Protection Agency (EPA), the Florida Springs Council has asked the EPA to review the Basin Management Action Plan recently adopted by the Florida Department of Environmental Protection (FDEP) for Silver Springs and the Upper Silver River.

The Florida Springs Council—an alliance of 34 private and public organizations that represent more than 100,000 people—is concerned that the Basin Management Action Plan, or BMAP, does not meet requirements set forth in two sections of the federal Clean Water Act. The Council's letter requests that the EPA "…exercise your full authority to require the State of Florida to follow the letter of the law with regards to this BMAP." According to federal law, if a state is found in violation of the Clean Water Act, the EPA has the authority to withhold CWA grant funding or other federal assistance until the deficiencies are corrected.

The Council's concerns about the Basin Management Action Plan include:

- FDEP failed to achieve the 79 percent nitrate reduction requirement established by that agency in 2012 in the Total Maximum Daily Load (TMDL) allowed for Silver Springs.
    - Based on FDEP's calculations, there will be no more than a 6 percent reduction of the existing nitrogen load polluting Silver Springs and the Silver River with the BMAP.

    - FDEP failed to uphold a basic principle of TMDL implementation by emphasizing reliance on public utilities, instead of reliance on *all* polluters, to reduce nitrate pollution.
    - FDEP failed to hold agriculture and on-site treatment and disposal systems (such as septic tanks) accountable for their shares of nitrate pollution to the Silver Springs Basin.
- FDEP failed to conduct a federally required anti-degradation review of non-point sources of pollution to the Silver Springs Basin.
- FDEP failed to include annual milestones for implementation of voluntary agricultural Best Management Practices, or BMPs.
- FDEP failed to identify feasible funding sources to implement its recommended pollution reduction strategies.

More details about each of these complaints are given in the attached copy of the Council's letter to the EPA.

The Florida Springs Council has concluded that the final Silver Springs BMAP fails to achieve springs restoration, fails to meet federal statutory requirements, and fails to result in any significant reduction in nitrogen loadings in the Silver Springs Basin during the next five years.

The State of Florida's failure to enforce federal and state water quality standards over the past 40 years has resulted in an environmental tragedy for Silver Springs, the largest and most revered spring system in the United States—a spring system that also holds an important place in the global history of science as the birthplace of systems ecology.

Motivated by the continuing failures by the State of Florida and its Department of Environmental Protection, the Florida Springs Council has asked the U.S. Environmental Protection Agency to take whatever steps are available to force FDEP to take action to ensure that targeted water quality standards for Silver Springs and the Upper Silver River will be achieved in a timely fashion.

-End-

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December 8, 2015

Ms. Heather McTeer Toney
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VIA ELECTRONIC MAIL: Bonner.Beverly@epa.gov; Bonner.Brenda@epa.gov

RE: Florida's failure to adopt a protective Basin Management Action Plan (BMAP) for Silver Springs and the Silver River Basin

Dear Ms. Toney:

The Florida Springs Council requests that you review the BMAP for the Implementation of Total Maximum Daily Loads (TMDL) adopted by the Florida Department of Environmental Protection (FDEP) in the Silver Springs Basin Management Area for Silver Springs, Silver Springs Group, and Upper Silver River (hereinafter "Silver Springs BMAP") adopted on October 27, 2015. Our view is that this BMAP does not meet the requirements set forth in Sections 303 and 319 of the Clean Water Act. We therefore request that you exercise your full authority to require the State of Florida to follow the letter of the law with regards to this BMAP.

Introduction

The Florida Springs Council is an alliance of 33 private and public organizations which promote effective springs restoration and protection. The Florida Springs Council, through the membership and supporters of these organizations, represents the springs conservation interests of more than 100,000 people.

The Florida Springs Council, the Silver Springs Alliance, and the Florida Springs Institute submitted detailed comments critical of the draft Silver Springs BMAP to the FDEP in August of this year (see attachments). Members of these organizations sat through several years of BMAP meetings hosted by FDEP and offered many suggestions to improve the process. In spite of these sincere efforts, FDEP has chosen to finalize a BMAP that includes numerous deficiencies and runs afoul of the requirements of the Clean Water Act (CWA).

The BMAP fails to meet the 79% nitrate reduction requirement established by the TMDL

Section 303(d) of the CWA states that "[e]ach State shall identify those waters within its boundaries for which the effluent limitations required by section 1311 (b)(1)(A) and section 1311 (b)(1)(B) of this title are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such

waters."[1] Implementation of the priority ranking for those waters shall include the establishment of a total maximum daily load (TMDL), which "shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality."[2] Once the TMDL is approved by the Administrator, any effluent limitation based on the TMDL for identified waters that have not yet attained the applicable water quality standards (WQS) may only be revised if:

> (i) the cumulative effect of all such revised effluent limitations based on such total maximum daily load or waste load allocation will assure the attainment of such water quality standard, or
> (ii) the designated use which is not being attained is removed in accordance with regulations established under this section.[3]

The TMDL for Silver Springs was adopted and subsequently approved by the FDEP Secretary in 2012. The TMDL requires a 79% reduction in nitrate concentration at Silver Springs to meet the target concentration of 0.35 milligrams per liter (mg/L) of nitrate as nitrogen. Based on FDEP's calculations, no more than 6% of the existing nitrogen load polluting Silver Springs and the Silver River will be reduced by this BMAP. This proposed reduction falls far short of the 79% nitrogen load reduction mandated by the FDEP's TMDL determination for several reasons:

Equitable Abatement

FDEP has abandoned a basic principle for developing an effective plan as outlined in the TMDL implementation amendments to the 1994 Florida Watershed Restoration Act.[4] Rather than seeking equitable abatement of the pollutant loadings from all contributing sources causing impairment, the Department has excluded meaningful efforts to reduce nitrogen loads by agriculture and on-site treatment systems. The main emphasis of this implementation plan is reliance on public utilities to carry the burden of nitrogen load reduction.

Agricultural Sources

FDEP has estimated that Agricultural nitrogen inputs, including row crops, livestock operations, and managed forests, are responsible for about 38% of the nitrate load reaching Silver Springs. Research conducted and reported by the University of Florida has found that the current agricultural best management practices (BMPs) do not come close to providing the nitrogen load reductions mandated by the Silver Springs TMDL, yet the BMAP relies heavily upon their voluntary implementation.[5] Nitrogen pollution at Silver Springs will never be eliminated if agriculture does not significantly reduce its nitrogen load to the basin's groundwater by changing crops or by moving operations out of the vulnerable areas of the springshed.

On-Site Treatment and Disposal Systems

FDEP's staff has determined that septic tank wastewater disposal systems also contribute about 38% of the total nitrogen load to Silver Springs. Local governments have authority to require the use of passive engineer-designed nitrogen-removing on-site systems. FDEP, in cooperation with the University of Central Florida, has developed and tested passive nutrient removal septic systems that achieve less than 10 mg/l, and the recently completed Florida

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[1] 33 USC § 1313(d)(1)(A); *see also* 40 CFR § 130.7(d).
[2] 33 USC § 1313(d)(1)(C); *see also* 40 CFR § 130.7(c)(1).
[3] 33 USC § 1313(d)(4)(A).
[4] *See* Fla. Stat. § 403.067(6)(b) ("The total maximum daily loads shall include establishment of reasonable and equitable allocations of the total maximum daily load between or among point and nonpoint sources that will alone, or in conjunction with other management and restoration activities, provide for the attainment of the pollutant reductions established pursuant to paragraph (a) to achieve water quality standards for the pollutant causing impairment").
[5] Graham, W. and M. Clark. 2013. Review of BMP Effectiveness for Groundwater and Springs Protection. PowerPoint presentation to the Florida Agriculture & Natural Resources Subcommittee, October 8, 2013.

Department of Health septic tank study has identified other systems that engineers could use to meet this requirement. The BMAP does not require these types of on-site systems for any new installations within the springshed. Allowing the continuing installation of ineffective, traditional septic tank systems is not sufficient to provide the necessary substantial nitrogen load reduction target for this source.

In Summary

Failure to achieve a larger reduction in existing nitrogen load pollution to Silver Springs in the initial BMAP creates an impediment to future BMAP development of any sort. Creating a BMAP that mandates a negligible reduction in nitrogen loading to the impaired water body has the effect of drawing out the restoration process to the point that no real changes to the health of the water body will occur given the additional unregulated nitrogen loadings that are expected to occur in the future. This has the effect of rendering the TMDL and its implementation process useless for the purposes of environmental protection and compliance with the intent of the CWA.

FDEP has not conducted an antidegradation review of effluent limitations for nonpoint sources

The CWA requires that all state adopted water quality standards include an "antidegradation policy" for nonpoint source pollution, which is described as "a policy requiring that state standards be sufficient to maintain existing beneficial uses of navigable waters, preventing their further degradation."[6] Under the Section 319 of the CWA, each state must prepare a state assessment report that "identifies those navigable waters within the State which, without additional action to control nonpoint sources of pollution, cannot be expected to attain or maintain applicable water quality standards or the goals and requirements of this chapter."[7] In order to achieve this goal, states must include an assessment of state antidegradation WQSs in the CWA 303(d) process.

The Silver River is designated as a "Special Waters" Outstanding Florida Water (OFW).[8] It can therefore be expected that a "special" OFW will be afforded the highest level of protection and that no degradation of water quality will be permitted.[9] In the past, FDEP has only applied this standard to certain discharge permitting situations.[10] This limited application is not consistent with the requirements of the CWA, which requires that the state's assessment report identify and describe state and local programs that will achieve and maintain state WQSs by properly controlling pollution from nonpoint sources.[11]

If the EPA reviewed the Silver Springs BMAP in conjunction with the antidegradation requirements of the CWA, it should conclude that the BMAP fails to limit pollution from nonpoint sources. For instance, the BMAP does not require that local governments track the loads resulting from their approval of new developments within the springshed. A perfect example of this deficiency is the recent FDEP approval of the Sleepy Creek Lands, Inc. 1.46 MGD Consumptive Use and Environmental Resource permits. These permits collectively allow the long-term loading of an additional 1.5 million pounds of nitrogen per year to the ground surface within the Silver Springs maximum extent springshed. Based on FDEP's estimates for other agricultural sources, this new nitrogen loading may increase the nitrate load to Silver Springs by more than 190,000 pounds per year, a 12% increase over the existing loads estimated in the draft BMAP. Furthermore, any new or expanded housing and commercial developments, golf courses, septic tanks, and agricultural operations located in the springshed are likely to off-set the projected benefits

[6] *PUD No. 1 of Jefferson County and City of Tacoma v. Wash. Dep't of Ecology*, 5011 U.S. 700, 705 (1994); *Kentucky Water Alliance v. Johnson*, 540 F.3d 466, 471 (6th Cir. 2008); *Manasota-88, Inc. v. Tidwell*, 896 F.2d 1318, 1320 (11th Cir. 1990) (the state antidegradation policy must be "consistent with and at least as stringent as the federal anti-degradation rule. 40 C.F.R. § 131.12").
[7] CWA § 319(a)(1)(A).
[8] Rule 62-302.700, F.A.C.
[9] *See* Rule 62-302.700(1), F.A.C.
[10] *See* Rule 62-302.700(7), F.A.C.; Rule 62-4.242, F.A.C.
[11] *See* 33 U.S.C. § 1329(a)(1).

of all of the projects listed in the BMAP to improve water quality. This expected future degradation of Silver Springs is a clear violation of the CWA's requirements and requires intervention by EPA to mandate compliance.

The BMAP does not include annual milestones for implementation of BMPs

Pursuant to 33 USC § 1329(b), state management programs designed to control nonpoint source pollution must include a "schedule containing annual milestones for (i) utilization of the program implementation methods identified in subparagraph (B), and (ii) implementation of the best management practices identified in subparagraph (A) by the categories, subcategories, or particular nonpoint sources designated under paragraph (1)(B)."[12] Where a state fails to meet the requirements of the CWA, the EPA has the option to withhold CWA grant funding or other financial assistance until the state's policies comply with the requirements of the Act.[13]

FDEP has not included annual milestones for program implementation controlling nonpoint source pollution in the BMAP. Rather, the BMAP alludes to five-year increments over which additional information and management strategies will be developed or used to refine existing strategies. These "five-year iteration[s]", as described in the BMAP, do not include annual milestones addressing program implementation methods or the implementation of BMPs. Rather, the BMAP alludes to the uncertain outcome of the state's proposed management strategies. Uncertainty should be no excuse for the state's failure to include a detailed implementation schedule complete with the annual milestones required by law. Failure to meet these requirements should lead to federal rejection of the state's management plan and to withholding of grants and other financial assistance until such deficiencies are corrected.

The BMAP does not identify feasible funding strategies for implementing the management actions presented for each fiscal year

33 USC § 1329(b)(2)(E) requires that all state management programs include "[s]ources of Federal and other assistance and funding" available to the state "in each of such fiscal years for supporting implementation of such practices and measures and the purposes for which such assistance will be used in each of such fiscal years." The Silver Springs BMAP discusses various funding strategies for implementation through local governments, state and federal agencies, and the legislature and the Department provides a list of potential funding sources in Appendix E of the BMAP.

Although the BMAP includes several potential funding sources, there is no assurance that these sources will be available for BMAP implementation in the coming years. Furthermore, the BMAP does not include a breakdown of the funding assistance available for implementation by fiscal year or the purposes for which the available funding will be utilized each year. The BMAP merely lists potential funding sources, with no indication of which funding sources will be utilized from year-to-year for implementation of the management actions described. Without an understanding of the prescribed management actions in the BMAP for which funding will be sought each year, it is difficult to argue that the BMAP will achieve the approved WQSs within a reasonable timeframe if at all.

Florida Springs Council's Conclusions

The Florida Springs Council concludes that the final Silver Springs BMAP is an inadequate vehicle for springs restoration, does not meet federal statutory requirements, and will not result in any significant reduction in nitrogen loadings during the next five years. The State of Florida's inadequate enforcement of Federal and State water quality standards over the past forty years has resulted in an environmental tragedy at Silver Springs, the largest and most

[12] 33 USC § 1329(b)(2)(C).
[13] *See Pronsolino*, 291 F.3d at 1140 ("[s]tates must implement TMDLs to the extent that they seek to avoid losing federal grant money').

revered spring in the United States. The final Silver Springs BMAP will clearly not restore the health of this former environmental jewel.

As a non-governmental alliance of many thousands of people who deeply care about the future health of Florida's priceless springs, the Florida Springs Council urges your agency to require that FDEP correct these glaring deficiencies. If the state fails to meet the requirements of the CWA to establish and maintain protective WQSs through the BMAP process, the FSC respectfully requests that the EPA exercise its federal powers to take whatever steps are available to force FDEP to attain WQS at Silver Springs and the Silver River in a timely fashion.

Sincerely,

Dan Hilliard, Chairman
Florida Springs Council Executive Committee

Heather A. Culp, Esq.
Florida Springs Council Executive Committee

Cc: Jon Steverson, Secretary, FDEP
Drew Bartlett, Deputy Secretary Ecosystem Recreation, FDEP
Annie Godfrey, Water Quality Standards Supervisor, US EPA Region 4
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Enclosures

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August 10, 2015

Ms. Mary Paulic, Basin Coordinator
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Re: Comments on July 2015 Draft BMAP for Silver Springs and the Silver River

Dear Ms. Paulic:

The Howard T. Odum Florida Springs Institute (FSI) is a non-profit scientific and educational springs research organization. Our mission is to improve the understanding of springs ecology and to foster the development of science-based education and management actions needed to restore and protect springs throughout Florida. In my capacity as director of the FSI, I am submitting the comments below related to your draft Silver Springs and River Basin Management Action Plan (BMAP).

Introduction

I have personally been active in the scientific study of Silver Springs and the Silver River (Silver Springs System) since my doctoral research there from 1979-80[1], including a second in-depth study funded by the Florida Department of Environmental Protection (FDEP) from 2004-2005[2], and a

[1] Knight, R. L. 1980. Energy Basis of Control in Aquatic Ecosystems. Ph.D. dissertation, University of Florida, Gainesville, Florida.

[2] Munch, D.A., D.J. Toth, C. Huang, J.B. Davis, C.M. Fortich, W.L. Osburn, E.J. Phlips, E.L. Quinlan, M.S. Allen, M.J. Woods, P. Cooney, R.L. Knight, R.A Clarke, and S.L. Knight. 2006. Fifty-year retrospective study of the ecology of Silver Springs, Florida. Report prepared for the Department of Environmental Protection, Special Publication SJ2007-SP4. Palatka: St. Johns River Water Management District. 314 pp. From: http://www.sjrwmd.com/technicalreports/pdfs/SP/SJ2007-SP4.pdf.

third ecological evaluation in 2009[3]. Since 2010, FSI staff and volunteers have continued water quality and biological monitoring at Silver Springs[4]. Our efforts as well as FDEP's Total Maximum Daily Load evaluation[5] and nitrogen sourcing study[6] have demonstrated severe biological impairments at the Silver Springs System as a result of reduced flows and elevated nitrate nitrogen concentrations. Both of these detrimental drivers are contrary to Florida laws concerning the protection of biological integrity of Outstanding Florida Waters, waters wholly contained within a state park and Aquatic Preserve, and in a National Natural Landmark.

While the past cannot be changed, the future can be. The final Silver Springs BMAP has the opportunity to establish firm and achievable goals for water quality restoration, based on a realistic time table. Concurrent efforts by the St. Johns River Water Management District (WMD) have been underway since at least 2001 to establish Minimum Flows and Levels (MFLs) for Silver Springs and the Silver River. These MFLs have not been finalized and also have the potential to provide a path forward for significant recovery of Silver Springs lost flows. In concert with ongoing hydrological and ecological research at Silver Springs being conducted by the University of Florida under contract to the St. Johns River WMD, the combined BMAP and MFLs efforts have the potential to contribute to holistic restoration and future protection of the Silver Springs System. This opportunity should not be lost as a result of weak implementation and enforcement of existing laws.

FDEP's Plan

The FSI has concluded that the subject of this letter, the draft FDEP Silver Springs BMAP, is inadequate as a roadmap to provide timely compliance with the TMDL of 0.35 mg/L or restoration of the lower historic nitrate nitrogen levels in Silver Springs[7]. Based on the most recent water quality data from Silver Springs, the nitrate nitrogen concentration is greater than 1.4 mg/L, four times higher than the 0.35 mg/L TMDL goal and 35 times higher than the historic nitrate level. This concentration is continuing to rise and is a reflection of high nitrogen loads placed on a vulnerable springshed.

[3] Wetland Solutions, Inc. (WSI). 2010. An Ecosystem-Level Study of Florida's Springs. Final Report. February 26, 2010. Prepared for the Florida Fish and Wildlife Conservation Commission, Tallahassee, FL. FWC Project Agreement No. 08010. 232 pp

[4] Wetland Solutions, Inc. (WSI). 2012. Silver River Ecosystem Metabolism Study (2011-2012). Prepared for the Howard T. Odum Florida Springs Institute; Wetland Solutions, Inc. (WSI). 2014. Silver River Ecosystem Metabolism Study (2012-2014). Prepared for the Howard T. Odum Florida Springs Institute.

[5] Hicks, R.W. and K. Holland. 2012. Nutrient TMDL for Silver Springs, Silver Springs Group, and Upper Silver River (WBIDs 2772A, 2772C, and 2772E). Tallahassee, FL: Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration, Bureau of Watershed Restoration.

[6] Eller, K., and B.G. Katz. June 2015. Draft nitrogen source inventory and loading estimates for the Silver Springs BMAP contributing area. Tallahassee, FL: Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration, Water Quality Evaluation and Total Maximum Daily Loads Program, Ground Water Management Section.

[7] Historic nitrate nitrogen concentration at Silver Springs measured as 0.04 mg/L in 1907 reported by Rosenau, J. C., G. L. Faulkner, C. W. Hendry Jr., and R. W. Hull. Springs of Florida - Florida Geological Bulletin 31 (Revised). Division of Resource Management, Florida Department of Natural Resources, Tallahassee: Florida Geological Survey, 1977, p. 279.

As summarized by FDEP's nitrogen sourcing study, the current average total nitrogen discharged to the land surface in the BMAP area is 13,290,144 pounds per year (6,645 tons per year). Of this total, approximately 80% is due to human activities and therefore is controllable. About 12.5% of this total load to the land surface is estimated to reach the Upper Florida Aquifer and ultimately the Silver Springs System. The nitrogen load reaching Silver Springs is estimated as 1,661,268 pounds of nitrogen per year (831 tons per year). An estimated 90% of this nitrogen load is attributable to human activities and is controllable.

FDEP's Silver Springs TMDL calls for a 79% nitrate load reduction at Silver Springs, including all sources. The target load reduction to the Upper Floridan Aquifer in the Silver Springs BMAP area, and ultimately Silver Springs, is (0.79 x 831) or 656 tons per year (1,312,980 pounds per year). A 79% target nitrogen reduction at the land surface in the BMAP area is (0.79 x 6,646) or 5,250 tons per year (10,500,680 pounds each year).

The FDEP draft BMAP presents 130 (or 108?) nitrogen reduction "projects" that have an estimated maximum potential to reduce existing nitrogen loads to the land surface in the Silver Springs BMAP area by 631,253 pounds per year (316 tons per year). This amount is about 6% of the target nitrogen load reduction. From the draft BMAP it is not clear how many of these projects are complete and how many are conceptual or unfunded. Of the $216 million cost estimated for 43% of the proposed projects, it is not clear how much money has already been spent or allocated and what additional financial impact the completion of these projects will require. Purchase of conservation lands is listed under the project heading and has received more than half (62%) of the estimated funding to-date[8].

FSI concludes that these "projects", with their unrealistic nitrogen load reduction estimates, no funding, and no deadlines for completion; and their combined estimated nitrate load reduction of 6% of the BMAP goals, do not provide a demonstration of "sufficiency of effort" by FDEP and the various stakeholders. There is no timeline given, no assignment of responsibilities to various stakeholders, or technical specificity provided in this draft BMAP about how the remaining 94% of the required nitrate load reduction will occur.

The optimistic but small nitrogen load reduction predicted in FDEP's draft BMAP also does not take into account additional new sources of nitrogen pollution in the Silver Springs contributing basin (*e.g.*, Sleepy Creek Lands Phase 1 with an estimated fertilizer input to the land surface of 708,246 pounds of nitrogen per year [354 tons per year]). New anthropogenic sources of nitrogen such as golf courses, cattle farms, homes, and businesses, resulting from the continuing issuance of new permits, will likely negate the insufficient benefits of this BMAP before any recovery of the water quality at Silver Springs actually occurs.

[8] FSI does not consider the prior purchase of conservation lands as a reduction in current estimated nitrogen loading to the BMAP area. FSI also does not agree with the draft BMAP assumption that agricultural best management practices (BMPs) achieve an average nitrogen load reduction of 30%.

FSI concludes that the draft Silver Springs BMAP does not demonstrate significant improvement in water quality at Silver Springs, is not in the public interest, and is not sufficient for achieving the TMDL goal and the eventual restoration of Silver Springs.

Silver Springs Restoration

The FSI has previously prepared a comprehensive restoration plan for the Silver Springs System[9]. The FSI's independent restoration plan is based on solid science and first-hand research experience at Silver Springs. The FSI's restoration plan describes a feasible approach to restoring the historic flow at Silver Springs, and for lowering nitrate nitrogen concentrations to less than 0.35 mg/L, both within the next 10 to 20 years. The FSI's plan can be called **"The People's BMAP"** because it represents the public's best interests.

Comprehensive restoration will be dependent upon returning the Silver Springs System as closely as possible to its historical physical, chemical, and biological conditions, and re-establishing connectivity with the St. Johns River through removal of the Kirkpatrick Dam and Rodman Pool on the Ocklawaha River. Adoption of a truly protective BMAP and MFLs would be a promising step forward. However projects completed by the state and local governments to-date have not slowed the continuing downward declines in water quality and flows at Silver Springs.

The FSI concludes that significant restoration of the Silver Springs System will, at a minimum, require:

- Restoration of historic spring discharges;
- Reduction of nitrate-nitrogen concentrations and loads;
- Reduction in the intensity of certain recreational activities in the Silver River;
- Breaching or removal of the Kirkpatrick Dam and reconnection of the Silver Springs System to the St. Johns River/Atlantic Ocean via the restored Ocklawaha River; and
- Additional protections and mitigative measures for the river in the face of continuing urban development in the springshed.

The preliminary effort identified by the FSI to achieve holistic restoration of the Silver Springs System is to develop a specific set of actions that will improve the natural condition of the river in the short-term (next five years), and will ultimately (next 20 years) restore it to a near-pristine historical condition. During the first five years of this proposed restoration effort, it is critical that the state legislature mandate collection of "aquifer protection fees" on both groundwater

[9] Wetland Solutions, Inc. (WSI) 2014. Silver Springs Restoration Plan. Prepared for the Howard T. Odum Florida Springs Institute. February 2014.

and nitrogen uses. A proposal for this essential "carrot" designed to encourage voluntary conservation measures is detailed in Knight (2015)[10].

FSI's recommended water quantity restoration goal for Silver Springs is to restore average flows to >90% of their historic average flow (restore average flow to >738 cfs or >477 MGD) based on a five-year rolling average. The average flow of the Silver River over a recent decade (2003-2012) was about 534 cfs (345 MGD). The FSI recommends an interim ten-year flow recovery goal of 80%, or 656 cfs (424 MGD), followed by the >90% goal over the following ten years. This ultimate flow recovery goal will require an estimated average groundwater pumping reduction of more than 204 cfs (132 MGD) in the regional area that affects flows at Silver Springs. Additional flow recovery in excess of this goal is also recommended. These proposed reductions in groundwater extractions can be accomplished through existing MFL and Consumptive Use Permit procedures.

The preliminary target for nitrate-nitrogen concentration reduction at Silver Springs is achieving a maximum monthly average of 0.35 mg/L. Evidence from Silver Springs as well as other Florida springs indicates that full recovery is not likely to occur until nitrate-nitrogen concentrations are at 0.2 mg/L or lower. Achieving the 0.35 mg/L nitrate goal will require an estimated 79% reduction in nitrogen loads to the vulnerable portions of the springshed. To achieve this goal it will be necessary to reduce all uses of nitrogen fertilizer in the Silver Springshed and to connect a significant number of on-site sewage systems to central sewer with advanced levels of nitrogen reduction. A substantial portion of this nutrient reduction could be accomplished in concert with the water quantity restoration described above. Cutting back on groundwater extractions will have the beneficial side-effect of reduced fertilizer use.

One approach to implementing nitrogen load reductions will be to phase in limits for all nitrogen fertilizer use in the springshed at about 50% of current levels in the first five years, followed by a second phased reduction of an additional 50% over the next five years, and consideration of one additional phased reduction if found to be necessary based on the measured nitrate-nitrogen levels in Silver Springs. Collection of an aquifer protection fee on nitrogen fertilizer and phased limits on total nitrogen fertilizer use would allow flexibility for agricultural producers to develop less polluting cropping strategies.

Human wastewater nitrogen loads in the springshed can be reduced by implementing advanced nitrogen removal for all central wastewater plants and by providing centralized collection and wastewater treatment for all high-density septic tank areas. A detailed analysis evaluating and comparing nitrogen removal measures using advanced nitrogen removal technologies such as constructed wetlands, biological nutrient removal processes, and nitrogen-removing on-site systems should be prepared as part of the current BMAP process. Additional

[10] Knight, R.L. 2015. Silenced Springs – Moving from Tragedy to Hope. FSI Press, Gainesville, Florida. pp. 186-189.

nitrate-nitrogen reductions will likely be required beyond the goals of the BMAP to achieve true water quality restoration at Silver Springs.

Removing the Kirkpatrick Dam on the Ocklawaha River is a priority to provide open passage for aquatic wildlife to move between the Atlantic Ocean and St. Johns River and Silver Springs. The Eureka Lock and Dam on the Ocklawaha River downstream of the Silver River are not impassable, as the dam itself was never completed. However, the existing structures at Eureka are still an impediment to some fish and wildlife use and should also be removed. Breaching or removing these dams would likely increase the diversity and dominance of fish and other aquatic wildlife species within the river ecosystem. These native aquatic vertebrates have been shown to optimize the photosynthetic efficiency of the Silver Springs System, increasing the forage base for the formerly diverse fish and wildlife populations that utilize the Silver Springs System.

Unlike the Rainbow River, Ichetucknee River and some other spring runs, the Silver River receives little in-water, human-contact recreation and instead is dominated by watercraft recreation. In the case of the Silver River, the lack of in-water recreation in combination with the deeper water depths helps protect the submerged aquatic biological and cultural resources from some of the pressures of contact recreation. No facilities exist on the water at Silver Springs to facilitate human use via tubing or swimming. In-water recreation, with the exception of research with a permit, is prohibited in the upper mile of the river. Furthermore, motorboat access is limited to a boat ramp at the Ray Wayside Park more than 5 miles downstream of the head spring. However, motorboats do access the river and have caused damage as evidenced by prop scars in shallow vegetation and shoreline erosion. A size limit on motorboats on the Silver River will help to reduce these impacts.

Conclusions

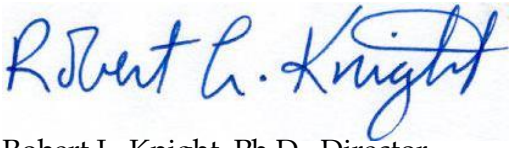
The effects of reduced flows, increasing concentrations of nitrate-nitrogen, a downstream dam impeding the movement of aquatic fauna, invasions by exotic species, and increasing recreational uses are resulting in visible long-term changes to the natural flora and fauna of Silver Springs. Ecological restoration will require a holistic approach for dealing with all sources of impairment simultaneously, rather than a piecemeal approach of divided responsibilities by an array of state and local agencies. A comprehensive monitoring program is sorely needed in the entire Silver Springs System to document the changing health of this priceless natural resource.

Ongoing public education about the threats facing the long-term health of Silver Springs and the Silver River will be essential for achieving ultimate restoration. The FSI's Silver Springs Restoration Plan provides a feasible roadmap to fully accomplish restoration goals. However, getting this information out to the public and to the state officials who are most concerned with springs' protection is an important part of this educational process. This will require public presentations, public meetings, newspaper and television reporting, rallies at Silver Springs,

and many partnerships. The Silver Springs Alliance, Inc. will most likely be the leader in this effort, with technical support from the Howard T. Odum Florida Springs Institute, the Florida Springs Council, and other springs alliance advocacy groups throughout North Florida.

FDEP and the WMD should carefully review the FSI Silver Springs restoration action plan before finalizing the Silver Springs BMAP and MFLs. Anything less than an honest effort by these state agencies to achieve full Silver Springs restoration in a timely fashion is irresponsible.

Sincerely,



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August 17, 2015

Mary Paulic, Basin Coordinator
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VIA ELECTRONIC MAIL: mary.paulic@dep.state.fl.us

RE: FLORIDA SPRINGS COUNCIL Comments on July 2015 Draft BMAP for Silver Springs and the Silver River

Dear Ms. Paulic:

Introduction

The Florida Springs Council is an alliance of more than 33 private and public organizations who promote effective springs restoration and protection. The Florida Springs Council, through the membership and supporters of these organizations represents the springs conservation interests of more than 100,000 people. The Florida Springs Council offers the comments and recommendations provided below for your careful consideration.

The Florida Department of Environmental Protection's (FDEP's) Statutory Authority

The Florida Springs Council finds that FDEP does not have the legal authority to develop and adopt a Basin Management Action Plan (BMAP) that does not meet the requirements set forth in Section 403.067(7)(a). As currently proposed, the draft BMAP does not:

- Establish a schedule for implementing management strategies with identified feasible funding that will ensure the strategy is implemented on schedule (403.067(7)(a)1).
- Equitably allocate pollutant load reductions to the identified categories of nonpoint sources of pollutant loading that are causing or contributing to the impairment of Silver Springs and the Silver River (403.067(7)(a)2). Since the entire required load reduction is assigned to the Waste Load

Allocation, the BMAP needs to equitably allocate the reductions among all of the categories of nonpoint source pollutant loading.

- Ensure that new development will not increase the loading of nitrogen and nitrate. The plan does not contain a "no net increase in loading" objective nor include any accounting of new loads by those entities that allow new loadings (403.067(7)(a)2).
- Ensure that the BMAP planning process has incorporated all useful public comment and been performed in a manner that encourages the greatest amount of stakeholder cooperation and consensus. FDEP has not responded to all requests from watershed stakeholders for additional information or scientific analyses that support statements made by Department staff (403.067(7)(a)3).
- Include firm milestones for implementation of management strategies and water quality improvement (403.067(7)(a)5). Many of the management strategies listed in the draft BMAP that would result in significant reductions of nitrogen have no firm schedule because they have no firm funding – they are simply wish list items. As a result, the draft BMAP not only will not lead to any new significant reductions in nitrogen loading during the next five years, but it will actually allow an increase in nitrogen loading from new sources.

"Sufficiency of Effort"

It appears that FDEP is attempting to develop and adopt this BMAP without proper legal authority. Section 403.067(7), F.S., establishes clear requirements that must be included in a BMAP. There is no legal basis for a "Sufficiency of Effort" approach that the Department is using. Furthermore, state law clearly prohibits using "Incipient Agency Policy' when implementing programs or regulations. Finally, the paper does not include any clearly defined quantitative or qualitative evaluation factors for any of the point or nonpoint sources of pollutant loading. More importantly, the draft BMAP does not establish clearly defined "end points" that the Department staff will use in making a determination that the submitted management strategies either do or do not meet the undefined "Sufficiency of Effort" standard. As a result, the Department has abandoned one of the longstanding key basic principles in developing a BMAP. Namely, all aspects of the process and decision-making must be clearly defined and transparent in order to obtain watershed stakeholder buy-in and consensus.

Equitable Abatement

In this BMAP process and document FDEP has abandoned a basic principle for developing an effective plan as outlined in 1994 with the passage of the Total Maximum Daily Load (TMDL) implementation amendments to the Florida Watershed Restoration Act. Rather than seeking equitable abatement of the pollutant loadings from all contributing sources causing impairment, the Department has decided to exclude meaningful efforts on behalf of agriculture and on-site treatment system nitrogen load reductions. The main emphasis of this draft plan is reliance on public utilities to carry the entire burden of nitrogen load reduction.

Agricultural Sources

Agricultural nitrogen inputs are estimated to be responsible for about 38% of the nitrate load reaching Silver Springs. Research conducted and reported by the University of Florida has found

that the current agricultural best management practices (BMPs) do not come close to providing the nitrogen load reductions mandated by the Silver Springs TMDL. Reality dictates that the existing nitrogen pollution so evident at Silver Springs will never be eliminated if agriculture does not significantly reduce its nitrogen load to the groundwater by changing crops or by moving out of the vulnerable areas of the springshed.

On-Site Treatment and Disposal Systems

FDEP's staff has determined that septic tank wastewater disposal systems contribute about 38% of the total nitrogen load to Silver Springs. Local governments have authority to require the use of passive engineer-designed nitrogen-removing on-site systems. FDEP, in cooperation with the University of Central Florida, have developed and tested passive nutrient removal septic systems that achieve less than 10 mg/l, and the recently completed Department of Health septic tank study has identified other systems that engineers could use to meet this requirement. Therefore, the counties comprising the Silver Springs Recharge Basin should be required in this BMAP to immediately require these types of on-site systems for any new installations within the springshed. Allowing the continuing installation of ineffective, traditional performance-based septic tank systems is not sufficient to provide the necessary substantial nitrogen load reduction target for this source.

No Net Nitrogen Increase

The draft Silver Springs BMAP does not ensure that there will be no increase in nitrogen pollutant loading during the next five years. The BMAP does not include a "no net increase in nitrogen loading" objective nor does it require the local governments to track the loads resulting from their approval of new developments within the springshed. A perfect example of this failure is the recent approval of the Sleepy Creek Lands, Inc. 1.46 MGD Consumptive Use and Environmental Resource permits. These permits collectively allow the long-term loading of an additional 1.5 million pounds of nitrogen per year to the ground surface within the Silver Springs maximum extent springshed. Based on FDEP's estimates for other agricultural sources, this new nitrogen loading may increase the nitrate load to Silver Springs by more than 190,000 pounds per year, a 12% increase over the existing loads estimated in the draft BMAP. New or expanded housing and commercial developments, golf courses, septic tanks, and agricultural operations located in the springshed are likely to off-set the projected benefits of all of the projects listed in the draft BMAP.

New Stormwater Loads

With regard to stormwater, each of the local governments in cooperation with the St. Johns River Water Management District (SJRWMD) needs to ensure that every new development or redevelopment project within the Silver Springs springshed/watershed meets the "net improvement" stormwater treatment standard set forth in Section 373.414, F.S., for new discharges to impaired waters. Furthermore, since the Legislature authorized the "10/2 self-certification process" for any project with up to 10 acres of land and up to two acres of imperviousness, it is imperative that the local governments carefully review the stormwater plans for such projects since the net improvement standard is not being met or enforced by either FDEP or the SJRWMD for these "10/2 self-certifications."

Monitoring and Verification

The proposed Silver Springs BMAP monitoring plan does not meet statutory requirements as it does not provide sufficient information "to evaluate whether reasonable progress in pollutant load reductions is being achieved over time." Detailed maps of monitoring stations, parameters to be evaluated and sampling frequency need to be upgraded in the final BMAP. A table of specific approved methods for all sampling procedures needs to be provided as well as the responsible entity. Existing monitoring by the SJRWMD, the University of Florida, the Florida Springs Institute, and others was not specifically designed to monitor the effectiveness of this BMAP. Please be more specific about how a more specific monitoring program will be able to conclusively demonstrate whether or not nutrient reduction management strategies are leading to reduced loadings and restoration of the health of the Silver Springs ecosystem. The future health of Silver Springs can only be ensured if it is thoroughly monitored in a way that can result in to corrective management actions.

Florida Springs Council's Conclusions

The Florida Springs Council concludes that the draft Silver Springs BMAP is woefully inadequate, doesn't meet statutory requirements, and will not result in any significant reduction in nitrogen loadings during the next five years. Because the draft BMAP is so inadequate with respect to preventing new loadings, the BMAP likely will result in increased nitrogen loadings to Silver Springs and the Silver River over the next five years. As a non-governmental alliance of many thousands of people who deeply care about the future health of Florida's priceless springs, the Florida Springs Council exhorts FDEP to correct the deficiencies identified above and by other commenting organizations before formally adopting the Silver Springs BMAP.

Sincerely,

Dan Hilliard, Chairman
Florida Springs Council Executive Committee

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August 18, 2015

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Re: Comments on July 2015 Draft BMAP for Silver Springs and the Silver River

Dear Ms. Paulic:

The Silver Springs Alliance is a group of private citizens who care deeply about Silver Springs. The Silver Springs Alliance works to ensure the protection of a healthy ecosystem at Silver Springs for future generations. The Silver Springs Alliance recognizes that the groundwater supply of Marion County is finite and vulnerable to overuse and pollution due to human activity. Therefore, it is the goal of the Silver Springs Alliance to ensure the sustainability (quantity and quality) of the Floridan Aquifer System, the primary source of water that nourishes Silver Springs.

To accomplish these goals the Silver Springs Alliance advocates for actions that provide for the long-term maintenance of a healthy Silver Springs, Silver River, and contributing area of the Floridan aquifer (collectively termed the Silver River System).

To make this happen, the Silver Springs Alliance will:

- Be an advocate for the Silver Springs System and the environment and the surface and ground watershed that impact the springs and/or the river.
- Conserve, protect and enhance fish, wildlife, and the habitats of the Silver River System.
- Support stewardship of the Silver Springs System.
- Produce and make available by sales, charitable donations, or free distribution, suitable interpretive and educational events and material that increase the understanding of Silver Springs System, its wildlife, and the environment that impacts these areas.

The Silver Springs Alliance is an educational and charitable organization within the meaning of Section 501(c)3 of the Internal Revenue Code.

The Silver Springs Alliance is listed as a stakeholder in the draft document titled: **Basin Management Action Plan (BMAP) for the Implementation of Total Maximum Daily Loads (TMDLs) adopted by the Florida Department of Environmental Protection (FDEP) in the Silver Springs Basin Management Area for Silver Springs, Silver Springs Group, and Upper Silver River (July 2015).** Members of the Silver Springs Alliance have attended every meeting of the Silver Springs Basin BMAP Working Group and have provided oral and written comments concerning many aspects of FDEP's efforts to enforce the Silver Springs TMDL. As an affected stakeholder group with a sincere interest in water quality improvements at Silver Springs, the Silver Springs Alliance contributes the following comments about the draft Silver Springs BMAP.

Comments on the Draft Silver Springs BMAP

The draft Silver Springs BMAP applies to a spring basin that totals approximately 989 square miles or 632,960 acres. The Silver Springs Alliance does not agree with the springshed covered by the draft BMAP. At the beginning of the BMAP process the Florida Springs Institute (FSI) provided convincing evidence for using a larger contributing area of about 1,300 square miles or 832,000 acres. This is the total area that has been shown through scientific analysis to contribute groundwater flows to Silver Springs and is nearly one third (31%) larger than FDEP's BMAP basin area. It will be impossible to achieve the Silver Springs nitrate TMDL of 0.35 mg/L while omitting nearly one third of the contributing basin from any source control responsibilities.

The Silver Springs TMDL requires a 79% reduction of nitrate nitrogen concentrations in Silver Springs and the Silver River to achieve the 0.35 mg/L concentration target. Based on FDEP's analysis described in the draft BMAP document, achieving this legal requirement will entail the elimination of more than 8 million pounds of existing nitrogen loads in the Silver Springshed. The Silver Springs Alliance believes that all controllable sources of nitrogen in the basin, including agriculture, septic tanks, urban fertilizer use, and wastewater and stormwater disposal, will need to be part of this effort. The only fair way to apportion this effort is with the initial assumption that all of these sources will share equally by reducing more than 79% of their existing nitrogen load (assuming that the nitrogen load from atmospheric deposition is not part of the TMDL). Based on the draft BMAPs estimated loading by source, this equates to the estimated target nitrogen load reductions by source summarized in Table 1 below.

The draft BMAP provides for a very small fraction of the required nitrogen load reductions. For example, agricultural sources, the largest category of nitrogen applied to the land surface is only required to clean up 2.6% of their estimated load. Nitrogen loads from the estimated 66,000 septic tanks in the FDEP BMAP area only have to be reduced by an estimated 1.5%. The overall nitrogen load reduction described in this BMAP document is less than 6% of the total estimated load. Consequently, it is the conclusion of the Silver Springs Alliance that the draft Silver Springs BMAP does not even come close to providing the legally-required roadmap for timely recovery of Silver Springs water quality.

Table 1. Summary of estimated loads of total nitrogen to the land surface in the Silver Springs BMAP area and target load reduction goals by source based on the FDEP TMDL of 79% nitrate reduction.

Source Category	TN Loading to Land Surface (lbs N/yr)	TN Load Reduction Goal (lbs N/yr)
Agriculture	7,596,510	6,001,243
Atmosphere	2,454,844	N.A.
Septic Tanks	1,588,491	1,254,908
Urban Fertilizer	1,028,106	812,204
Municipal Wastewater	581,895	459,697
Drainage Wells	40,298	31,835
Totals	13,290,144	8,559,887

Marion County Groundwater Wells Nitrate Map

While restoration and protection of Silver Springs and the Silver River are the primary goals of the Silver Springs Alliance, our group is equally concerned for the health of the residents of Marion County and the surrounding areas. Nitrate is not only a primary cause of ecological imbalance at Silver Springs but is also a toxin to humans when elevated in drinking water. Achieving compliance with the nitrate TMDL at Silver Springs equates with improving the quality of life for all residents in the Silver Springs groundwater basin.

Numerous lines of evidence indicate that existing elevated nitrate concentrations throughout much of the Floridan aquifer may be harmful to humans in addition to their noxious effects on the ecology of the springs. The Environmental Protection Agency (EPA), on its' website states that "nitrate may cause problems if present in public or private water supplies in amounts greater than the drinking water standard set by EPA." The maximum contaminant level (MCL) for nitrate nitrogen is 10 milligrams per liter (mg/l). The same EPA website states that "infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill, and if untreated, may die."

The President's Cancer Panel Report (2010) states that the : "…most likely known mechanism for human cancer related to nitrate is the body's formation of N-nitroso compounds (NOC), which have been shown to cause tumors at multiple organ sites in every animal species tested…". The report goes on to say: "In humans, NOCs are suspected brain and central nervous system carcinogens"; and that in an Iowa study, older women drinking water with elevated nitrate concentrations had increased risk for bladder cancers. The authors conclude that nitrate in drinking water at concentrations less than 10 mg/L MCL (the "safe" human drinking water standard) could be carcinogenic and that further research is warranted, especially since groundwater nitrate concentrations in many agricultural areas continue to increase.

Figure 1 provides a map of recent groundwater nitrate nitrogen concentrations measured in drinking water wells located in Marion County. Nitrate "hot spots" occur throughout much of the county. The Silver Springs Alliance believes that nitrate in drinking water may be a serious health threat to the residents of Marion County, even if it is less than EPA's MCL. This is a compelling reason, in addition to Silver Springs restoration, to significantly lower human-caused nitrogen loads to the Floridan aquifer.

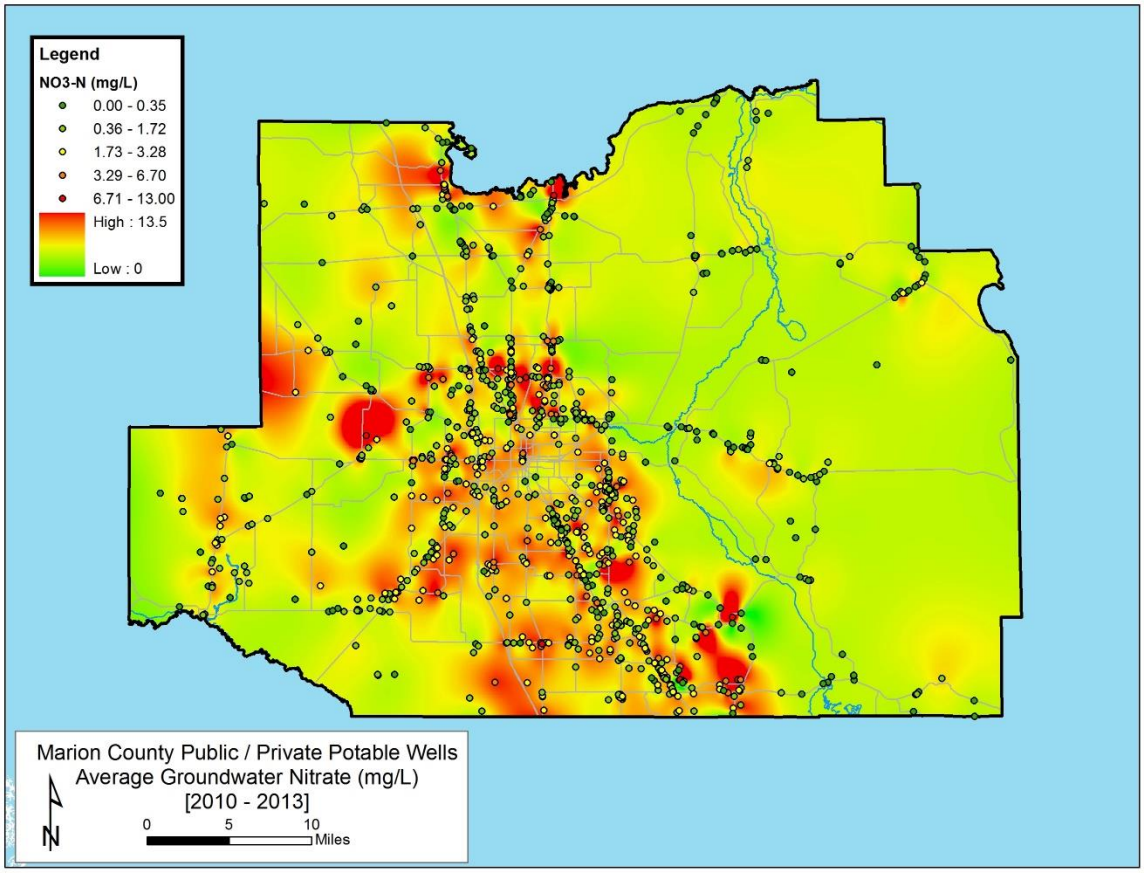

Figure 1. Map of groundwater nitrate concentrations in public and private potable supply wells in Marion County, Florida for the period from 2010 to 2013 (data from FDEP and Florida Department of Health).

Conclusions

The Silver Springs Alliance is determined to achieve its goals related to Silver Springs restoration and protection. The draft Silver Springs BMAP prepared by FDEP and other local and state governmental agencies does not comply with the will of the people that it affects. For this reason, the Silver Springs Alliance rejects the insufficient nitrate reduction strategy presented in the draft BMAP document. The Silver Springs Alliance recommends that FDEP:

1) increase the BMAP area to include the maximum-extent contributing area;
2) include a mandatory reduction in nitrogen loading rates of at least 30% by all agricultural operations located in contributing areas listed as Vulnerable, More Vulnerable, and Most Vulnerable within the next five years, at least 50% in the next ten years, and at least 79% in the next 20 years; and
3) hook up at least 30% of all septic tanks on properties of two acres or less, located in the Silver Springs contributing basin within the next five years, at least 50% in the next ten years, and at least 79% in the next 20 years.

These recommendations have an honest chance of achieving the TMDL legal requirement of a 79% nitrate load reduction. Anything less does not. Finalizing a BMAP plan that has no chance to remediate the existing widespread groundwater nitrate contamination is not an option for Silver Springs or for the Marion County residents who are drinking and bathing in this tainted water. In a spirit of cooperation, members of the Silver Springs Alliance are willing to meet with FDEP staff to discuss how to best incorporate these recommendations.

If FDEP chooses to ignore the Silver Springs Alliance's recommendations to cure the problems in the draft BMAP, then the Silver Springs Alliance requests to be removed from the list of BMAP stakeholders.

Sincerely,

President

Vice President

Secretary/Treasurer

Director

Director

Director

Director