Wakulla Springs Alliance

**Friday, January 26, 2018 Minutes**

This section provides information on what you and others can do to support research-based actions to enhance water quality and quantity in Wakulla Springs and springshed and to improve related environmental, economic and social systems. Efforts by all, produce results!

**Background on Wakulla Springs**

• Wakulla Springs Information

• WSA Purpose and Plans

• WSA Action Resources

**Upcoming Events**

* Put the WSA Board meeting on your calendar (4th not 3rd Fridays) **Feb 23**, Mar 23, Apr 20, May 25, Jun 22, Jul 27, Aug 24, Sep 28, Oct 26, Nov 30 (5th Fri), Dec 21. All 2018 WSA Board Meetings will be held in the 2nd floor conference room at the Renaissance Building, 435 N. Macomb St.
* BMAP and OSTDS Committee meetings Tuesday, March 6, 2018, 2:00 PM
Woodville Community Center, 8000 Old Woodville Rd.

**Action Items**

* The Jim Stevenson’s [WSA tours](https://www.palmettoexpeditions.com/index.php?option=com_content&view=article&id=107&Itemid=104) educate the public. We need to market the tours.
* Bart Bibler make motion, seconded by Debbie Lightsey, to do a letter of support for Ming Ye’s cooperative research proposal, to be prepared and approved by Executive Committee.
* Tom Taylor made a motion that the Annual and Board Meetings be held on February 23 and that the Board temporarily waive the requirement in the bylaws for the appointment of the nomination committee 90 days before an election. It passed unanimously.
* Gail Fishman made, and Bart Bibler seconded, a motion to approve the new Protect Florida Springs tag grant # PFS1819-09, for $33,912. It was approved unanimously.
* Richard Wieckowicz will ask FSU about their plans for the golf course and intermural fields including construction and fertilization.
* We need to pressure the USFS to do more burning on the Apalachicola National Forest and to partner with Tall Timbers, Nature Conservancy and others. Need to talk to the Airport too.
* There was a conference call with other springs’ groups that identified legal problems. Now we need action on the BMAPs.
* There is a Senate Bill 1506 by Farmer. Bart Bibler will send copies of the bill.
* TAPP needs to be commended and we need to promote and distribute [their](https://www.youtube.com/watch?time_continue=1&v=EnuQBVA1Iws) video.
* We need an update on the tracking of algae by Dr. Spenser and the grad student

**1-26-18 WSA Minutes**

**Overview**

The Wakulla Springs Alliance held their regular Board meeting on January 26, 2016 at the Renaissance Building. The agenda and participants are in Appendices A and B. Review the action items underlined for your commitments and actions you can help with. Our success in protecting and enhancing Wakulla Springs depends on the actions of the WSA board, advisors and supporters. This report is based on the recorder’s notes and does not capture everything or exactly what was said.

**Opening**

* Seán McGlynn welcomed everyone and asked them to introduce themselves.
* Bart Bibler made a motion seconded by Jim Stevenson to approve the Minutes. Approval was unanimous.
* The motion to approve the Treasurer Reportwas made by Bart Bibler and seconded by Albert Gregory. Approval was unanimous.

**Introduction to the Karst Center at FSU**

* Ming Ye is seeking a cooperative grant for FSU and WSA.
* His research involves groundwater modeling that uses mathematical and numerical approaches to advance our understanding of flow and solute transport in various geological media: Porous, Fractured, and Karst.
* This includes studying Nitrogen transport and loading from septic systems.
* The goal is to integrate DEP, WMD and FSU research.
* We need to look at practical applications of the academic research and ways to communicate this to a skeptical public. People need to understand the impact of 400,000 septic tanks, the impacts of events, etc.
* The Jim Stevenson’s WSA tours have help educate the public and we need to market the tours.
* We need to let the polluters pay and they are us. We need to educate everyone. Cooperation is need between government, private sector and the community.
* Bart Bibler make motion, seconded by Debbie Lightsey, to do a letter of support for Ming Ye’s cooperative research proposal, to be developed and approved by Executive Committee.

**New WSA grant to Protect Florida Springs tag grant # PFS1819-09, for $33,912**

* Approved to start in June for 18 months for 33,000. One more dye trace on current contract
* Gail Fishman made, and Bart Bibler seconded, a motion to approve the new Protect Florida Springs tag grant # PFS1819-09, for $33,912. It was approved unanimously.

**Bylaws Change re Nominating Committee**

* Tom Taylor made a motion that the Annual and Board Meetings be held on February 23 and that the Board temporarily waive the requirement in the bylaws for the appointment of the nomination committee 90 days before an election. It passed unanimously.
* Here is the status of current officers, board members, advisors with suggestions to the nominating committee:

Directors whose terms end in January 2019: (~~Resigned)~~

Bart Bibler

~~Bob Henders~~on

Cal Jamison

~~Ryan Smart~~

Rob Williams

Directors whose terms end in January 2018 (~~Not running aga~~in)

~~Bob Deyle~~

Gail Fishman

Albert Gregory

Howard Kessler

Debbie Lightsey

Sean McGlynn

~~Ryan Smart~~

Jim Stevenson

~~Tom Taylor~~

Suggestions for the Nominating Committee

Connie Bersock

Doug Barr

See FOWS leaders: Madeleine Carr, etc.

George Willson

Bob Rackleff

Pete Scalco

Sandy Cook

1000 Fr Representative (Thomas Hawkins)?

Look for diversity: race, gender and age

Current Officers ~~Not running aga~~in

Sean McGlynn

~~Bob Deyle~~

~~Tom Taylor~~

~~Bob Henderson~~

Suggestions for the Nominating Committee to consider

Jamie Hughes

George Willson

Lindsey Stevens

Advisors

Anthony Gaudio

Pam Hall

Julie Harrington

Chuck Hess

Todd Kincaid

Bob Knight

Terrance McCaffrey

Pam McVety

Dan Pennington

Ryan Smart

Bob Thompson

Suggestions for the Nominating Committee to consider

Richard Wieckowicz

**Wakulla Springs Champion Award**

* Jim Stevenson said that these are special periodic awards. WSA has given 2 awards in the past.
* Debbie Lighsey presented this award to Dr. Pam Hall, an advocate with a track record of success. She has fought sprawl, worked to improve water quality and more. The wastewater facilities engineering plan has been approved and this wouldn’t have happened without her. She is respected by everyone.
* Pam acknowledged that all of this was not done alone. It was curiosity that led to my own investigation. It will take decades to address this $½ Billion problem.

**Springshed Updates**

* Sean McGlynn reported that Lake Cascades and other lakes are draining black water to Wakulla Springs.
* Spring Creek is not flowing
* FSU is redesigning the golf course. Richard Wieckowicz will ask FSU about their plans for the golf course and intermural fields including construction and fertilization. FSU has to do a MF4 reports that will have some of the information.
* The wildlife underpass for Capital Circle will impact flows between lakes.

**Camp Indian Springs for Auction**

* Sean McGlynn reported that the auction will be February 14. We wrote a letter of support.
* We can’t get permission to do the dye tracing.

**Land Acquisition**

* Jim Stevenson took the Asst. Sec of DEP for State Lands and Parks on tours of the Itchetucknee and Wakulla Springs.

**Leon County’s RFP for the Comprehensive Wastewater Treatment Facility Plan**

* Debbie Lightsey said that the RFP was expanded to include outside consultants, more analysis and a financial piece. 9 or 14 areas for sewering will be included but not Woodville.
* Wakulla needs to do this too. Their efforts can build on the Leon County work. It will tell them the implications of their policy decisions. We should go to them in 6 months.
* The success of the Tallahassee Waste Treatment Plant shows we can make a difference. We are a model for other springsheds. The results are real. Sewer users are paying 20/mo. to pay for improvements. To be fair those on septic tanks need to do their share.
* The next step will be to address financial responsibility.
* We need to educate that it is not just sewers are good and septic systems are bad. Nitrogen-reducing septic systems and cluster systems can be just as effective and have comparable costs.
* There must be a responsible management entity to finance and manage this.

**Wakulla Springs BMAP/OSTDS update**

* See Appendix D - Wakulla Springs BMAP/OSTDS Update by Bob Deyle.
* The NSIL is FDEP’s Revised Nitrogen Source Inventory Loading Tool.
* Ammonia causes fish kills.
* The source allocation charts need to include all factors including sinking lakes.
* Animal poop (livestock, wildlife, dogs, etc.) may be as large as septic tanks.
* The BMAP is being finalized and they may not be willing to change the pie charts and numbers.
* Jim Stevenson did a car tour in S Georgia with Brian Katz, Tom Swihart and others. They didn’t see much agriculture. There are USDA reports that show estimates, but we can’t do much about it. Septic Tanks are the low hanging fruit.
* We have questions about the BMAP numbers, legal issues and actions that can be taken. The key policy question is whether we act on septic systems in the PFAs (Protection Focus Areas).
* There was a conference call with other springs’ groups that identified legal problems. Now we need action on the BMAPs.
* There is a Senate Bill 1506 by Farmer that has been filed. Bart will send copies of the bill.

**Lake Jackson Dye Study Update**

* Seán McGlynn, Bob Deyle, Cal Jamisonhave done 2 studies and are doing a 3rd. The next will be in Lake Lafayette.
* Lakes Lafayette and Jackson took 34.83 and 35.21 days for the dye to reach Wakulla Springs
* Make the dye placement a public event.
* Sean showed the results.
* We have one more dye test.
* Contact FGS to coordinate dye efforts.

**Springshed Video (TAPP)**

* The video can be seen at:<https://www.youtube.com/watch?time_continue=1&v=EnuQBVA1Iws>
* Some septic systems around sinking lakes like Harrbingwoods are being connected to sewers and will not be included in the engineering study.
* Inspections will find failing systems that can be upgraded to nitrogen-reducing systems.
* Inspection and maintenance has little effect on nitrogen.
* People need to understand that the solution can be addressed in the tank and drainage field.
* It needs to be shown in videos to talk about the nitrogen and health issues. This video is a good step.
* It points out the citizens not city paid for it. Now others need to pay their share.
* TAPP needs to be commended and we need to promote and distribute [their](https://www.youtube.com/watch?time_continue=1&v=EnuQBVA1Iws) video.
* It should show that this affects private wells. We can request a video from the Department of Health.

**Other Updates**

* Send information for the website to Tom Taylor
* Bob Deyle has had people from 48 countries on his Wakulla Springs boat tours.
* Tall Timbers Fire Day included a tour by Jim Stevenson.
* We need to pressure the USFS to do more burning and work with Tall Timbers, Nature Conservancy and others to partner on burning on the Apalachicola National Forest. There is a national interagency fire training center. Need to talk to the Airport too.
* We need an update on the tracking of algae by Dr. Spenser and the grad student.

Appendix A

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Wakulla Springs Alliance

**Agenda, Friday, January 26, 2018**

**9 am to 12 pm**

**9 am to 12 pm, Renaissance Center**

**435 N. Macomb Street, 2nd Floor Conference Room**

**9:00 Opening**

Welcome and meeting agenda review (Seán McGlynn)

Introductions (Board)

Secretary Minutes (Tom Taylor)

Treasurer Report(Bob Henderson)

**9:15 Introduction to the Karst Center at FSU** – Ming Ye

Cooperative Grant, FSU and WSA – Ming Ye

**9:35 New WSA grant to Protect Florida Springs tag grant # PFS1819-09, for $33,912** – TMDT

**9:35 Bylaws Change re Nominating Committee** – Tom Taylor

(Election of Board Members and Officers in February)

**10:00 Wakulla Springs Champion Award** –Jim Stevenson

**10:30 What’s New** – Seán McGlynn

* Springshed Updates– Cal Jamison
* Camp Indian Springs for Auction – Cal Jamison
* Land Acquisition – Cal Jamison
* Land use in vulnerable areas of the Wakulla Springs Springshed – Seán McGlynn
* Website and Social Media, Updates – Tom Taylor

**11:00 Leon County’s RFP for the Comprehensive Wastewater Treatment Facility Plan** – Debbie Lightsey

**11:05 Wakulla Springs BMAP / OSTDS update** – TBDT

* FDEP’s Revised Nitrogen Source Inventory Loading Tool – TBDT

**11:15 Lake Jackson Dye Study Update** – Seán McGlynn, Bob Deyle, Cal Jamison

**11:20 Springshed Video (TAPP)** https://www.youtube.com/watch?time\_continue=1&v=EnuQBVA1Iws

**11:30 Items from the floor**

**12:00 Adjourn**

Attachments: 12-15-17 Minutes and Action Items

Attachments: WSA Financial Statement 31Dec2017

Attachments: WSA Comments Leon County’s RFP for the Wastewater Facility Engineering Plan

Attachments: WSA Letter supporting Kearney’s Camp Indian Springs Plan

Appendix B

**Board, Advisors and Guests**

\* Indicates 1-26-18 Participants

Board Members

Bart Bibler \*

Bob Deyle

Gail Fishman \*

Albert Gregory \*

Bob Henderson

Cal Jamison

Howard Kessler

Debbie Lightsey \*

Sean McGlynn \*

Ryan Smart

Jim Stevenson \*

Tom Taylor \*

Rob Williams

Guests

Doug Barr \*

Kathleen Coates \*

Jon W. Dodrill \*

Mark Heidecker \*

Carlos Herd \*

Paul Lee \*

Somer Pell \*

Bob Rackleff \*

Johnny Richardson \*

Tom Rogers \*

Eric Rosenstein \*

Richard Wieckowicz \*

WSA Advisors

Anthony Gaudio

Pam Hall \*

Julie Harrington

Chuck Hess \*

Todd Kincaid

Bob Knight

Terrance McCaffrey

Pam McVety

Dan Pennington

Bob Thompson

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|  | Appendix C |  |  |  |
|  | **Financial Statement** |  |  |  |
|  | **WSA** |  |  |  |
|  | **Period Ended** |  |  |  |  |
|  | **December 31, 2017** |  |  |  |
| **INCOME** | **Budget** | **In-Kind** | **Current Month** | **Y-T-D Trans** |   | **Checking Account** |
| Fund Balance (January 1, 2017) | 3854.46 |  |  | 3854.46 | BFB | 3854.46 |
| Palmetto Tours |  |  |  | 581.00 | Income | 831.00 |
| Board Member Contributions (4) |  |  |  | 250.00 | Expense | 930.51 |
| Other Donations |  |  |  |  | Grant |  |
|  |  |  |  |  |   |  |
|  |  |  |  |  | EFB | 3754.95 |
| Subtotal | 0.00 | 0.00 | 0.00 | 831.00 |   |  |
| **TOTAL** | **3854.46** | **0.00** | **0.00** | **4685.46** |   |  |
|  |  |  |  |  |   |  |
| **EXPENDITURES** |  |  |  |  | Rest |  |
| Secretary Expenses |  |  |  |  | **Unrest** | 3754.95 |
| Web Support |  |  |  | 499.26 |  |  |
| Corporate Filing Fee | 61.25 |  |  | 61.25 |   |  |
| Grants |  |  |  | 200.00 | Bank Statement | 3754.95 |
| Board Workshop |  |  |    | 170.00 | Checks not |  |
|  |  |  |  |  | Recorded |  |
| **RESERVES** |  |  |  |  |   |  |
|  |  |  |  |  | Deposits not |  |
|  |  |  |  |  | Recorded |  |
|  |  |  |  |  |   |  |
|  |  |  |  |  | Due to/from |  |
|  |  |  |  |  | Projects Fund |  |
|  |  |  |  |  |   |  |
|  |  |  |  |  | EFB | 3754.95 |
| **TOTAL** | **61.25** | **0.00** | **0.00** | **930.51** | (Overage) | 0.00 |
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Appendix D

Wakulla Springs BMAP/OSTDS Update

Bob Deyle, January 26, 2018

This brief summarizes developments and emerging issues associated with the forthcoming revisions of FDEP’s NSILT, BMAP, and OSTDS Remediation Plan for Wakulla Spring and the Upper Wakulla River based on documents provided for and presentations and discussions at the OSTDS Remediation Advisory Committee meetings on October 17, 2017 and January 16, 2018, as well as a meeting I had with FDEP staff on January 5, 2018.

**NSILT Revisions**

In response to input from several quarters, including the meeting I had with FDEP staff on January 5 and new data on golf course fertilizer use in Tallahassee provided by the City**, FDEP has revised the NSILT allocations of total nitrogen load to the Upper Floridian Aquifer (UFA) within the Wakulla BMAP Basin a second time (see Figure 1).**

**I have raised additional concerns, but** at the OSTDS Advisory Committee meeting on January 16, Greg DeAngelo indicated that **FDEP does not intend to make further adjustments prior to completing the next BMAP revision and the accompanying OSTDS Remediation Plan**, which will appear as an appendix of the revised BMAP. He acknowledged that additional fine tuning is needed but maintained that those refinements would not result in any change in priorities in the revised BMAP and OSTDS Remediation Plan.

**Specific changes of note relative to the 2014 adopted NSILT:**

* Sinking waterbodies (lakes and streams) – Dropped altogether in the Jan 2018 draft. FDEP dropped Sinking Streams in the Nov 2017 draft and substituted Sinking Lakes drawing from the analysis conducted by McGlynn Labs Inc. (MLI) under the Alliance’s Sinking Lakes license tag grant from the Fish and Wildlife Foundation of Florida. They reasoned that the Sinking Streams load is small and non-anthropogenic, hence not amenable to mitigation. FDEP has now decided to drop Sinking Lakes as well, reasoning that (a) some of the input is non-anthropogenic (atmospheric deposition plus leaching from naturally-produced nitrogen within the lake watersheds), (b) while the remainder is predominantly urban runoff from fertilizer use within the lake watersheds, there is no straightforward way to estimate those amounts, and (c) loadings cannot be estimated directly from nitrogen concentrations in the lake water column since some attenuation is likely to occur in the bottom organic and inorganic sediment layers. In fact, MLI did account for attenuation, applying the attenuation factor used by FDEP in the 2014 NSILT for sinking streams.
* Atmospheric deposition – \_FDEP applied new data and analytic methods for estimating loadings from this source resulting in a higher estimate in the Nov 2017 and Jan 2018 NSILT drafts. I argued that if they were going to discount loadings from sinking streams and lakes because they are all or partially non-anthropogenic, then they ought to do the same for atmospheric deposition which has been estimated to be approximately 11% non-anthropogenic globally (Galloway et al., 2004). An alternative argument is that all sources should be included regardless of their origin or susceptibility to mitigation so that we have a complete picture of the total nitrogen load to the UFA within the Wakulla BMAP basin.
* Septic tanks – Nov 2017 revision yielded a net decrease in total estimate load from septic tanks due primarily to a more up-to-date inventory of septic systems and the use of the so-called “effective septic population factor” to account for the time individuals spend away from their homes on a daily basis. FDEP subsequently dropped the “effective septic population factor” after several of us pointed out that they had misinterpreted the per capita daily nitrogen load originally reported in a 1992 USEPA report. This correction increased the septic tank total nitrogen load to the UFA by about 22% (52,700 lbs.-N/yr.) and the total load to the UFA by about 6% relative to the Nov 2017 estimates.
* Farm fertilizer – The Nov 2017 draft reported a fairly substantial increase in the farm fertilizer load estimate resulting from an attempt to estimate actual usage based on agricultural land use data and information about actual and/or recommended fertilizer application rates. The 2014 NSILT estimated farm fertilizer use based on local fertilizer sales, a method that FDEP recognized as likely to be significantly inaccurate. Some fine-tuning of the estimated fertilized pasture acreage between the Nov 2017 and Jan 2018 drafts resulted in a small decrease in the total load estimate but no change in the percentage.
* Sports turf fertilizer – FDEP added this separate category in the Nov 2017 draft to be consistent with recent state legislation. Golf course fertilizer data from the City of Tallahassee resulted in a decrease in the Jan 2018 estimate.
* Urban fertilizer – Nov 2017 revision reflects refined methods of estimating area fertilized and a 2016 TAPP survey of homeowner fertilizing practices. No change in Jann 2018 revision.
* Livestock – Nov 2017 revision resulted in some increase based on more recent agricultural land use data. No change in Jan 2018 revision.
* WWTFs – Nov 2017 revision incorporated facility-specific estimates based on permit standards and actual discharges. No change in Jan 2018 revision.

**Nitrogen Reduction Calculations**

**FDEP has also revised its nitrogen reduction calculations.** They originally circulated an Excel spreadsheet in April 2017. The revised January 2018 version is based on the January NSILT revision. It also reflects a change in the values used to determine the current nitrogen load at the springhead and the TMDL load, i.e. the maximum load that can continue while meeting the TMDL concentration limit of 0.35 mg/L. The April 2017 calculations apparently used 2014-2017 average concentration and flow values. The January calculations use the upper bounds of the 95% confidence intervals for concentration and flow. **This resulted in higher estimates for the total load at the spring vent, the TMDL load, and the total load reduction required to achieve the TMDL load (see Table 1).**

Discounting Nitrogen Mitigation Credits

**This analysis also reveals a substantial disparity between the NSILT estimate of the total annual nitrogen load to the Upper Floridian Aquifer (UFA) and the annual load measured at the Wakulla springhead:**

* NSILT estimated annual load to UFA = 832,090 lbs.-N/yr.
* Upper bound 95% confidence interval estimate of annual load at springhead = 701,411 lbs.-N/yr.

The annual discharge measured at the springhead therefore accounts for only 84% of the estimated load discharged to the UFA. Two factors are likely to be responsible for this disparity: (a) over-estimation of 3

the load to the UFA because of simplifying assumptions and incomplete/imprecise data used in the NSILT analysis and (b) not all ground water within the Wakulla BMAP basin discharges at the spring vent. **Several of us have argued that any mitigation calculations should, therefore, discount the reduction credits, i.e. we should not assume that 100% of the reductions achieved for any specific source within the BMAP basin will translate to a 1 for 1 reduction in loading at the springhead.** I have argued that FDEP should at least discount nitrogen credit reductions by the percentage of total discharge to the upper river constituted by the Sally Ward Spring Run, the flow of which enters the main river channel about 0.33 mile downriver of the water quality monitoring station at the vent where nitrogen levels are measured. Greg DeAngelo indicated that they would consider making such an adjustment. I provided them with flow and nitrogen data collected by the NWFWMD at its recently installed gauging station on the hiking trail bridge across the Sally Ward Run.

**Forthcoming Draft Revised BMAP and OSTDS Remediation Plan**

FDEP staff provided copies of the draft revised BMAPs for Volusia Blue Spring and Kings Bay-Crystal River as examples of what we might expect from FDEP for the Wakulla BMAP and OSTDS Remediation Plan, which will comprise an appendix in the BMAP.

**FDEP will provide draft copies of the revised Wakulla BMAP, including an OSTDS Remediation Plan, at least two weeks prior to the next OSTDS Advisory Committee meeting which is scheduled for March 6, 2018**. A follow-up meeting is to be held in April to receive final comments on revised drafts that reflect input received at the March meeting.

5-Year Nitrogen Reduction Milestones

**The revised BMAPs contain 5-year nitrogen reduction milestones based on the estimated total load reduction necessary to achieve the TMDL within 20 years.** The draft schedule contained in the January 2018 Nitrogen Reduction Spreadsheet is reproduced here as **Table 2**. Whereas FDEP had previously assigned milestones for each nitrogen source defined in the NSILT, they now present only the totals, acknowledging that mitigation initiatives must realistically focus on those sources most amenable to interventions, i.e. anthropogenic sources for which technological or policy interventions can result in load reductions.

**Neither the NSILT nor the nitrogen reduction calculations account for projected population growth within the PFAs or the BMAP Basin.** Greg DeAngelo argues that growth can be accounted for with the five-year updates of the BMAP. That’s after-the-fact correction for growth that has already occurred rather than setting milestones based on projected growth. That’s not the way a planner would do it . . .

Minimum Requirements for New OSTDSs

Section 28 of the 2016 Florida Springs and Aquifer Protection Act (Chapter 2016-1, section 22ff, Florida Statutes) created Section 373.811 Florida Statutes to read in part “. . . The following activities are prohibited within a priority focus area in effect for an Outstanding Florida Spring [emphasis added] . . . (2) New onsite sewage treatment and disposal systems on lots of less than 1 acre, if the addition of the specific systems conflicts with an onsite treatment and disposal system remediation plan incorporated into a basin management action plan in accordance with s. 373.807(3).” \_FDEP staff presented contradictory interpretations of this clause at the January 16 OSTDS Advisory Committee meeting. 4

**Each BMAP specifies what may be called a “plan remediation envelope”** (my term) based on (a) geography (e.g. within PFAs only; PFAs and other areas within the BAMP basin) and (b) OSTDS parcel size category (< 1 acre; ≥1 acre). The BMAPs for Volusia Blue Spring and Kings Bay-Crystal River include similar directives for two different “remediation plan envelopes” under the discussion of restoration approaches for OSTDSs in their Executive Summaries. The Volusia Blue Spring BMAP states the following:

DEP evaluated the potential for nitrogen reductions based on OSTDS enhancement through nitrogen-reducing actions or replacement through connection to sewer. For this BMAP, to achieve the TMDL on all lots less than one acre within the PFA, the BMAP specifies that Florida Department of Health (FDOH) permits to install new OSTDS or repair/modify existing OSTDS will require enhancement unless sewer will be available within five years [emphasis added]. If sewer is readily available to lots of less than one acre within the PFA, new or repair permits will not be issued. Connection to sewer service is required when such service is available (Subsection 381.00655, F.S.).

The Kings Bay-Crystal River BMAP contains similar language but includes all OSTDSs within the PFA rather than just those on lots less than one acre in size.

**Several of us at the January 16 OSTDS Advisory Committee meeting questioned the wisdom of not requiring use of new nitrogen-reducing OSTDS if “sewer will be available within five years”** raising among other concerns how FDOH would assess the likelihood of any particular sewering project being completed within such a time frame. FDEF staff explained that the provision was intended to avoid undue financial hardship on property owners who might pay to install a nitrogen reducing OSTDS system and then have to pay to connect to sewer when it became available. Several members of the committee suggested strategies for avoiding such financial penalties, e.g. pro-rating connection fees to account for the remaining usable life of the OSTDS, or providing financial subsidies for both installing the advanced OSTDS and then subsequently connecting to sewer.

Greg DeAngelo then asserted that the sewer-available-in-five-years waiver would not apply within the BMAP“ remediation plan envelope.” That interpretation appeared to be inconsistent with the plain meaning of the language in the two BMAPs resulting in confusion among staff as well as committee members and others present.

**The issue is further confused by inconsistency with the statements contained within the Executive Summaries of the two BMAPs and the language in their respective OSTDS Remediation Plans, i.e. section D.3.1. That language limits the waiver to properties with an existing OSTDS:**

If an existing OSTDS is in an area that will have central sewer available to service the associated property within five years of the permit application (determined by an existing BMAP project), the additional nitrogen treatment requirements of this paragraph are not required for the existing OSTDS, but the property must connect to central sewer within one year of central sewer service becoming available to the property, pursuant to Section 381.00655, F.S., and the existing OSTDS must be properly abandoned.

**FDEP staff promised to sort this out before the next OSTDS Advisory Committee meeting.** 5

Nitrogen Reduction Gap Analysis

In their Nitrogen Reduction spreadsheet, FDEP estimates the possible load reductions from use of either enhanced OSTDS nitrogen-reducing technology (65% nitrogen reduction) or sewering (95% nitrogen reduction) for several alternative plan remediation envelopes:

* all of the OSTDSs less than 1 acre within the PFAs
* all OSTDSs on lots GE 1 acre within the PFAs
* all of the OSTDSs less than 1 acre within the entire BMAP basin
* all OSTDSs on lots GE 1 acre within the entire BMAP basin.

**Comparing the potential reductions from mitigating OSTDSs against what is needed to achieve the maximum TMDL load is sobering:**

* IF we remediated all OSTDSs within both PFAs solely by enhancement, the total nitrogen reduction would fall short of achieving the maximum TMDL load by about 78,000 lbs.-N/yr. (not accounting for population growth).
* IF we remediated all other OSTDSs within the unconfined area of the BMAP basin by enhancement, the total nitrogen reduction would fall short by about 52,000 lbs.-N/yr.
* IF we remediated all OSTDSs within both PFAs solely by sewering, the total nitrogen reduction would fall short of achieving the maximum TMDL load by about 50,000 lbs.-N/yr. (not accounting for population growth).
* IF we remediated all other OSTDSs within the unconfined area of the BMAP basin by sewering, the total nitrogen reduction would fall short by about 12,000 lbs.-N/yr.
* BOTTOM LINE: To achieve the estimated load reduction necessary to achieve the TMDL, we would have to remediate all of the OSTDSs within the PFAs and the remaining unconfined areas within the entire BMAP basin as well as additional OSTDSs within the semi-confined areas of the BMAP basin, all of which are outside the PFAs. One option may be to revise the PFA boundaries to encompass enough of the reclaiming unconfined area and some of the semi-confined areas closest to the spring to accomplish the necessary reductions.

The Volusia Blue Spring and Kings Bay-Crystal River BMAPs/OSTDS Remediation Plans present “gap analyses” based on lists of the nitrogen reduction projects within the BMAP basin that have been completed since 2010, are under way, and “planned.” **FDEP will have to proceed differently for Wakulla Spring** since the current load at the springhead used in the gap analysis is calculated from data collected between 2014 and July(?)1 2017 (see Table 1). Only projects completed, underway, or planned since the end of that data record should be included.

1 Staff was unable to say with certainty what the end date of the data record is.

References Cited

Galloway, et al. 2004. Nitrogen Cycles: Past, Present, and Future. *Biogeochemistry* 70(2): 153-226.

USEPA. 1992. *Manual for Wastewater Treatment/Disposal for Small Communities* (EPA/625/R-92/005). 6

Figure 1: NSILT Nitrogen Load Allocations by Source: 2014 adopted, Nov 2017 draft, Jan 2018 draft 7

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| **Table 1. Total Reduction Needed to Meet the TMDL**  |
| **January 2018**  | **April 2017**  |
| **Nitrogen Loads (lb-N/yr)**  | **Source**  | **Nitrogen Loads (lb-N/yr)**  | **Source**  |
| **Total Load at Spring Vent**  | 701,411  | Upper 95% confidence interval - nitrate data and flow data from years 2014 to 2017 (814 cfs)  | 655,203  | Calculated based on recent 3 yrs data, concentration, and flow  |
| **TMDL Load**  | 561,847  | TMDL target is 0.35 mg/L and using the same flow data from years 2014 to 2017  | 531,523  | Calculated based on 0.35 mg/L target and recent 3 years of flow  |
| **Required Reduction**  | **139,564**  | Current load minus TMDL load  | **123,680**  | Current load minus TMDL load  |