

**Silver Springs Basin Management Action Plan Meeting  
June 20, 2013**

**Marion County Growth Services  
2710 East Silver Springs Blvd, Ocala, Florida**

**DRAFT Meeting Notes**

Opening Remarks, Introductions & Meeting Goals – Shane Williams

- Housekeeping and Introductions: let us know if you are not getting emails but are coming to the meetings. If your last name begins with A-G, please give Shane your email again, as some were inadvertently deleted.
- Reiterate that this is a stakeholder driven process. Feedback gives a good idea of what needs to be explained better.
- In previous meetings, have introduced the Focus Area.
- Goals for today
  - i. Present strategy for focus area remediation.
  - ii. Update on nitrogen inventory.
  - iii. Initiate project data collection.

2. Focus Area Strategies – Mary Paulic

- Provisional management area was presented in May, and is out for review and comments until July 12.
- Role of management area is to help identify stakeholders, define nitrate inventory area, and define area for project data collection (implemented, planned and proposed). Stakeholder roles will be defined through group discussion.
- Purpose of the management area is to concentrate remediation efforts and identify best use of dollars.
- Overall strategy: consider geological and physical attributes where aquifer is most vulnerable.
- Next step, add in data- consider nitrate inventory and planned projects. “Projects” are broadly defined; they include management strategies.
- Establish Focus Areas and identify additional projects and strategies where needed.

3. Nitrate Source Inventory– Mary Paulic

- Wakulla Springs approach was presented in May. In Marion, need to better refine equine operations. Met with DACS and Extension to get a better understanding of them. Extension Service continues to work with industry and survey and document practices.

- Planning to do ground-truthing. FDACS is signing up acreages under BMPs.

Comment: Need to be careful because fertilizer is not as important for equine operations. Fertilizer on horse farms is not a big number. Those that do fertilize do so bi-annually.	
Comment: Fertilizer isn't key to nutrient uptake. Cattle operators are more likely to adjust for pH. We have a lot of lightning and people are not farming the same way they do up north. You don't see a response on Bahia with fertilizer like you do with lawn fertilizer.	
Fertilizer sales have dropped over the past few years.	
Would you say that cattle operators are not contributing to the problem?	Not saying who is contributing. Just saying that we need to have a better handle on what is actually happening.

#### 4. Projects and Management Strategies

- Broad definition: can include infrastructure, operation and maintenance, Structural BMPS (such as baffle boxes and ponds), planning (upgrades to wastewater handling), public education, street sweeping, ordinances, conservation areas.
- Spreadsheet format for maintaining data about projects shows type of information we need to collect and examples of types of projects that have been included before.
- Database will be in Access 2003. If you don't have the email with the database, let Shane and Mary know.
- Would like GIS information related to projects that are put in the database.
- We need to establish a starting date for projects that will be included? Typical situation is that a TMDL has been established through a model with a defined period of record. Usually include projects after the model time frame. The Silver Springs TMDL was evaluated through 2011; proposed starting date of 2009 because this is a groundwater basin.
- Sufficiency of Effort- set 5 yr target of achievable restoration goals.
- Consider identifying additional efforts that will be needed.
- Locating focus areas will feed back in to the additional efforts.
- Process:
  - Work one on one with stakeholders to determine what has happened and what is happening now.
  - Identify next steps based on inadequacies- look at future growth.
  - Also need to set up monitoring plan in the interim.
  - No meeting in July to give time for nitrogen inventory and individual meetings to collect data.
- Some of you will probably hear from us. If you have something that you want to contribute, feel free to contact us.

Q&A- group discussion

<p>Comment: The decision to include or not include a project may depend on type of project and where it's located. Potential for time of travel may need to be accounted for.</p>	
<p>Are you working on 5 year blocks?</p>	<p>May be mixing 2 time periods. The 5 year period begins after we have the BMAP.</p>
<p>The further back you go, the more things get "grandfathered in". Their effect would have been included in the original analysis.</p>	
<p>Using the 31<sup>st</sup> St Stormwater retrofit as an example, does the water still go into the sinkhole?</p>	<p>Gail M.: Yes, but we remove about 75% of the nitrate.</p>
<p>The travel time would have manifested already and be reflected in the TMDL (lbs of N removed from that project would have been included in evaluation).</p>	<p>Gail M.: Disagree, because the dye tracer showed that the flow went in multiple directions. A direct connection with Silver Springs was not shown. The impact may be showing up now, but would probably not have been seen in 2011.</p>
<p>If you set a date too far back in time, we can say they haven't manifested yet, so we don't have to do anything more.</p>	
<p>On other BMAP projects, how far do you go back?</p>	<p>Depends on what type of data was used. About 7 years of projects are being counted in Orange Creek and Upper Ocklawaha Had been counting land restoration for the entire time. These are good points that we need to look at individual projects</p>
<p>Comment: This BMAP is close on heels of TMDL so the proposed look-back is pretty modest. The period of record for many other TMDLs are often well before the BMAP begins, so the look-back is longer.</p>	
<p>How do you give credits for education projects when there are no quantifiable reductions?</p>	<p>That is difficult. When we talk about "crediting" it is different when we have a specific number and can assign a % to reduction to the effort. Education, outreach, ordinances are typically credited as a percent reduction from the stormwater loading.</p>
<p>Comment: UF/IFAS requires agents to submit numbers for their programs, so there is a standard that can be used to estimate load reductions.</p>	
<p>Comment: When asking for self-reporting or self-data, make sure that those reporting understand the difference between <math>\text{NO}_3^-</math>-N and <math>\text{NO}_3^-</math>. Be specific about units and how the data was generated. Self-reporting generally reports <math>\text{NO}_3^-</math>, where regulatory programs require <math>\text{NO}_3^-</math>-N. There is a multiplier of 4.3x when comparing</p>	

NO <sub>3</sub> -N to NO <sub>3</sub> <sup>-</sup> .	
It will be difficult to estimate load reductions for most activities because they aren't required to be monitored.	
FDEP maintains a list of BMPs and their estimated load reductions that can be used.	
Suggest Word document or help screen.	Mary did provide, but may need to provide additional detail in the document.
What is the start date of the BMAP?	It starts on the date that the DEP Secretary adopts the BMAP plan. In interim years, hold at least an annual meeting, and can be adding new information and projects as we go along.
Any idea of target year for BMAP completion?	Mid-2014
Have "real-world" projects from 319 data been published?	In provisional stage, not been released that Mary is aware of. Removal efficiencies are available for some projects on FDEP website. TMDL water quality program results may not be available yet.
Charles G.- The overall mgmt. area is provisional; nothing's finalized. Then we have the "focus areas". How do you foresee identifying final delineation of focus area?	Composite inventory of data. Look at "hotspots" of sources and compare to where activities are going on. Where there is a high source, and high activity, may let it play out a little longer. But where there is high source and not a lot of activity, additional projects will be needed. Philosophy is that areas that are more vulnerable will have more impact on the springs.
Regarding projects, are we looking at focus area or Management Area?	looking at management Area.
Comment. The irony is that we all would agree that closer to spring, more vulnerable. County passed CRA that call for higher density near Spring. More people, more N. Right hand doesn't know what the left hand is doing.	
Comment: this BMAP's primary focus is what is on the ground now.	
Which stakeholders need to complete database?	Local governments, need updates for Marion, will pull info that they already have on file. Invite NGOs to participate.
Would it also apply to private entity?	Yes
We should include removing animals from Silver Springs.	Good point, need to remember silver river is also included, and the animals did not just affect surface runoff.

What about sources directly into Ocklawaha?	Ocklawaha is different waterbody and outside this BMAP.
Should we also talk about projects that have increased N loads? Something is still happening; nitrate levels continue to rise. There have been land use changes in the springshed.	Yes, knowing would be important. Some of those issues and changes will come up during the ground-truthing. Rick will try to capture that, but please do let us know if you are aware of anything that has happened that we may not be aware of.

#### 5. Lake Griffin Restoration and Upper Ocklawaha BMAP – Rolland Fulton

- Questions have been raised about whether Griffin may be contributing to Silver Springs. It is the northernmost lake in the Harris Chain of Lakes.
- Eutrophic for a long time, but became alarming in the late 1990s.
- Muck farms were a large source of nutrients (2/3 of total TP load).
- Lake Griffin Restoration Program- nutrient reduction and habitat restoration
  - 5,000 acres of muck farms purchased.
  - Gizzard shad removal- remove P in fish, reduce p cycling caused by bottom feeding and stirring up of sediments.
  - Tributary loading from upstream lakes is another significant load source.
  - Water quality improved significantly, spikes in 2005 and 2007.
- Aquatic Nitrogen Cycle- Lake Griffin low N, but what is there, is organic. There is a pathway to convert TON to nitrate.
- In Griffin, nitrogen fixation is phosphorus limited. Primary source of N was tributary flows. Main portion of the N load has been reduced due to drought, i.e. low flows from tributaries, and source reduction and restoration projects. The Lake Griffin TMDLs and Upper Ocklawaha BMAP are focused on reducing TP loads to the lake and concentration within the lake.
- P limitation is another reason for the nitrogen reduction.
- Believe there is recharge to aquifer from Griffin- which is on edge of 1000 yr. capture zone. Dye study didn't include work in L. Griffin.
- L. Griffin is not the only large lake in the Silver springshed and there are reasons to doubt that the lakes contribute significant N to Silver Springs.
  - The lakes can be recharge or discharge areas depending on potentiometric surface.
  - Ocklawaha regulation schedules are believed to increase recharge, resulting in greater eastward (rather than northward) flows.
  - Natural attenuation.
  - Long transit times (models estimate 1,000 yr travel time).

What is recharge rate?	Do not know, but could ask staff.
Comment: Actual travel time is 30 days to 3 years. Model estimates shouldn't be used in presentations like this.	

Recognize that the proposed management area does not use MODflow estimates. It is a hybrid of potentiometric surface and physical features.	
The proposed management area for Silver does not currently include Lake Griffin.	
2005 SJRWMD map shows northern part as recharge, southern part as discharge areas.	That would depend on fluctuations in aquifer.
Is Griffin included in Wekiva BMAP?	No.
So it falls between the cracks. Much of nitrogen probably becomes nitrate and it goes somewhere.	It is included in Upper Ocklawaha BMAP.
What is historic nitrogen for Griffin?	Don't have that information, but do have it for P.
What were the best projects for nutrient reduction?	For Griffin, muck farm removals were best, but on other lakes, there were big projects that had a big impact. Alum treatment and gizzard shad harvesting also had an effect along with better management of stormwater inputs.
This demonstrates the complexity of the system. In the lakes, there was an identifiable cause and effect. But we're putting a TMDL on the aquifer and hope that people don't expect to see these types of results as quickly.	
How are tributary contributions of N being controlled?	Upstream restoration and stormwater projects along with watershed stormwater projects. Concentrations coming out of upstream lakes aren't changing that much.
Based on the slides, it appears that farms aren't contributing to the N load.	This is shown in g/m <sup>2</sup> /yr. but in metric tons, would be 10s of thousands of kg/yr.
L. Griffin to moss bluff is essentially one big lake because it's bordered by dams.	

Agency Updates – 3:15

— Marion County Utilities Springs Protection Activities

- Marion County acquired facilities that were constructed to lower than municipal standards.
- Planning – 2009 silver springs water quality report identified areas to be addressed within the vicinity of Silver Springs.
- Regional AWT- eliminate deteriorated plants, reduce O&M costs, reduce nutrient loads.
- Increase Public Access Reuse water use- offset groundwater withdrawals
- Taking off 2 Pilot stations from septic and connecting to sewer, also working with Jasmine Plaza and Circle Square Commons.
- Septic tank abatement is on the list- Community Block Development Grant, CRA will be ways to pay for septic tank abatement.

Is AWT 3 mg/l- nitrate and is it in your permit? How much of MCU effluent goes to	Yes it's 3 mg/L; about 85% of effluent treated to that standard. Won't permit
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that?	unless required to.
Without permit, there is no guarantee that it will be operated that way in the future.	
Please expand as to why not permit	It is very costly. 3 times man-power and additional monitoring
Recognize that as facilities are going to reuse, nitrogen monitoring is being taken off all together.	
Most MCU plants are discharging at 2 mg/L-nitrate.	
If the limit is not officially in the permit, will we get credit for it?	If it's operating at that level, yes. Don't know how that will be credited, but need to consider how it will be handled.
It would be a good idea to continue to look at groundwater monitoring data in the vicinity of the facilities as improvements are made.	

6. Looking Ahead – Shane Williams – 3:30 PM

- Stakeholder One-on-One Meetings.
- Next Meeting: Tuesday, August 13.
- Public Meeting.