

Jackson Blue Spring and Merritts Mill Pond Basin Management Action Plan

Kickoff Meeting Summary

*Tuesday, April 22, 2014
6:30 PM – 8:00 PM (Central Time)
Jackson County IFAS Extension Office
Marianna, Florida 32488*

Attendees

Andy Andreasen, AAA Farms	Alice Granberry, Citizen
John Alter, NFWFMD Governing Board	Chris Hawthorn, FDEP
Beth Alvi, FDEP	Troy Hays, Jones Edmunds & Associates
Carly Barnes, Citizen	Ray Hodge, Southeast Milk
Andrew Bowden, Citizen	Doug Mayo, IFAS – Jackson County
Angela Chelette, NFWFMD	Jeff Pittman, Farm Bureau
Steve Cioccia, FDEP	Marcy Policastro, Wildwood Consulting
Brett Cyphers, NFWFMD	Terry Pride, FDACS
James Dodson, FDEP	Allen Scheffer, Florida Farm Bureau
Cindy Eade, Cindale Farms, LLC	Leland Smith, ECT
Dale Eade, Cindale Farms LLC	Edd Sorenson, Cave Adventures
Lauren Engle, NFWFMD	Josh Thompson, IFAS
Hank Floyd, H&L Farms	Diana Thurman, FDACS
Charlie Gauthier, FDEP	Becky Trott, Citizen
Guy Gowen, NFWFMD	John Trott, Citizen

Welcome and Opening Remarks

Charlie Gauthier thanked everyone for attending the kickoff meeting for the water quality restoration plan or Basin Management Action Plan (BMAP) for Jackson Blue Spring and Merritts Mill Pond. Charlie stated that he works in the Florida Department of Environmental Protection's Water Quality Restoration Program. He introduced Beth Alvi who is the Department's Administrator for the Water Quality Restoration Program, and she is involved in every restoration effort in the state. He introduced Steve Cioccia who is the Department's Basin Coordinator for Northwest Florida, and Steve works on the BMAPs for Wakulla Springs and Bayou Chico. Charlie introduced James Dodson who is from this area and he is the Department's project geologist. Charlie also introduced Marcy Policastro who is under contract to assist the Department on the BMAP, and works on BMAPs across the state. The participants introduced themselves and the entity they represent.

Charlie stated that this BMAP kickoff meeting was preceded with one-on-one meetings with several stakeholders. After this meeting, the Department will be working on a nutrient source inventory for the basin, and the next BMAP meeting will be held in July. The Department will be looking for opportunities to interact with the stakeholders when developing the nutrient source inventory. Charlie noted that the challenge in this basin is excessive nitrates, which is a common problem across the state and nation. The Department knows that it will be a long-term process to reduce the nitrate levels, but the purpose of the BMAP is to start making progress towards these reductions.

Charlie noted that most of what the Department does related to water quality is directed by federal law under the Clean Water Act. Florida law includes an act that parallels the Clean Water Act. As part of Florida law, the BMAP process is included and this is a cooperative process to address water quality

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problems. The first part of the water quality framework is to set water quality standards, which is complicated because there are different standards for different types of waterbodies and parameters. The Department monitors and assesses the waterbodies in the state on a rotating basis every five years. If a waterbody is not meeting water quality standards, it is placed on the impaired waterbodies list. Waters on this list will receive a total maximum daily load (TMDL) to set targets to achieve standards. A BMAP is then developed, and this is a process unique to Florida. This is a cooperative and collaborative process to determine what the water quality problems are and how to solve them. Around the state, there are many impaired waterbodies, mainly for nutrients. In ground water systems, nitrates are the main nutrient issue.

There are many adopted TMDLs across the state, and most of these were developed because of the consent decree after several groups sued the U.S. Environmental Protection (EPA) to get standards in place for Florida's impaired waters. Charlie noted that the consent decree TMDLs are completed, and the Department's TMDL group is determining priorities for where to set TMDLs next. The Department recently held meetings to obtain input on the proposed waterbodies for TMDLs.

Charlie stated that BMAPs have only been in state law since 2005, and the Department has already adopted 19 BMAPs that cover about six million acres of the state. An additional eight BMAPs are currently in development. Many of the adopted BMAPs are along the St. Johns River. The Lower St. Johns River BMAP is the flagship BMAP, and there are several adopted BMAPs in the Middle St. Johns River Basin. BMAPs have been adopted for the St. Lucie and Caloosahatchee rivers and estuaries, and the BMAP for Lake Okeechobee is underway. The Department is currently focused on springs BMAPs. The Wekiva Springs BMAP is poised for adoption, and the issue there is mainly septic tanks. The Silver Springs BMAP is close to being completed, and a meeting will be held tomorrow on this BMAP. The Rainbow Spring BMAP is adjacent to the Silver Springs BMAP, and this area is mostly agricultural. The Rainbow Springs TMDL required an 80% reduction in nitrates, compared to a 90% reduction for Jackson Blue Springs. The Department is also working on the Wakulla Springs BMAP, and this spring is in better condition because of the City of Tallahassee wastewater treatment facility upgrade, although septic tanks are also an issue.

The Florida Watershed Restoration Act is located in 403.067, Florida Statutes. This act requires that BMAPs be fair and equitable, and requires as much public participation as possible to achieve as much consensus as possible. The BMAP must include management strategies to solve the water quality problem, and the BMAP may be phased to address the problem. Once a BMAP is adopted, annual progress reports are prepared and a meeting is held every year to discuss progress. At the end of five years, statute requires that the BMAP be reassessed and revised, as needed. Charlie noted that the real work begins once the BMAP is adopted. BMAP are adopted by the Department's Secretary through a final order.

Charlie stated that the tools used in a BMAP depend on the sources. The Department will use the nutrient source inventory to better understand the sources in the Jackson Blue Springs and Merritts Mill Pond area. The preliminary information indicates that fertilizer is the main source; however, septic tanks along the pond are also a source. In some places, such as Ocala, urban stormwater is the main source, and one option to address this source is through a Florida-friendly fertilizer ordinance. The Department works with wastewater treatment facilities on standards for disposal. Septic tanks are also a wastewater source but it is difficult to achieve hook up because the burden is so great on individuals.

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The BMAP must also look ahead to consider what the future loading could be in the area. In addition, BMAPs provide a helping hand with funding. Section 319 funding is available for nonpoint source pollution control, and averages about \$5 million per year in funding. Section 319 funding comes from EPA, and they want to spend it in areas with BMAPs; therefore, more than half of the funding goes to projects in BMAPs. The legislature also gives the Department funding for TMDL grants, which comes from part of the documentary stamp tax. This funding is more focused on urban projects. There is also agricultural cost-share funding.

Charlie noted that as part of the Jackson Blue Springs BMAP, there will be a lot of discussions about agricultural best management practices (BMPs). As part of the nutrient source inventory, the Department would like to determine what the actual fertilizer practices are in the basin. There are about seven adopted BMP manuals for different agricultural commodities. In areas with BMAPs, commercial agricultural producers must implement adopted BMPs or conduct water quality monitoring to show they are not impacting water quality. The Florida Department of Agriculture and Consumer Services (FDACS) has already enrolled a lot of the agricultural area in Jackson County in BMPs.

Blue Spring Water Quality Status and TMDL

James Dodson stated that the TMDL is a formal process to set the water quality standard in a given waterbody. A TMDL is how much of a pollutant that a waterbody can take and still be in good health. A TMDL is developed through a formal process using the best available information and local knowledge. For the Jackson Blue Springs and Merritts Mill Pond TMDL, the Department used U.S. Geological Survey (USGS) information and Northwest Florida Water Management District (NFWFMD) support. A public workshop on the TMDL was held in December 2012, and the Department received comments that were incorporated into the TMDL document.

The Department creates the list of verified impaired waters around the state, and Jackson Blue Springs and Merritts Mill Pond were on that list. The impairment in the mill pond and springs is algae, and this algae is dense enough that it affects the ecosystem, which is why these waters are listed as impaired. James noted that there are a lot of springs around the state that are also impaired because of algae. Jackson Blue Springs and Merritts Mill Pond were placed on the 2009 impaired waters list as impaired for nutrients (algal mats). All waters around the state have waterbody identification (WBID) numbers. Jackson Blue Springs is WBID 180Z (the spring vent) and Merritts Mill Pond is WBID 180A.

There are historic groundwater wells in the basin. The land in this area is sand with some clay and limestone underneath. The water table is not flat across this area. There is no apparent single strong underground cavern covering the entire springshed; instead, there is porous limestone that water moves through in most of the springshed and then there are cave conduits near the springs. In the Wakulla Springs area, the cave conduit is about 300 feet below ground, whereas in the Jackson Blue Springs area the conduit is about 100 feet down so it is close the land surface. The Chattahoochee River is to the east and the Chipola River is to the west. Near these rivers, there are heavier soils that make the water runoff towards the rivers. Between the two rivers, the soils are sandier so the water goes down into the ground water. This area is considered the springshed. There is also surface water runoff around Mill Pond, which represents the watershed. The springshed and watershed together are called the “contributing area” for Jackson Blue Springs and Merritts Mill Pond. The underground water movement is measured in feet per year so the water is not moving quickly towards the springs. About 90% of the water in the mill pond is from Jackson Blue Springs, and the rest of the water comes from the secondary springs.

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James presented the nitrate water quality trend in Jackson Blue Springs. There is one data point from USGS in 1958 but the majority of the data are from the 1990s to the present. Overall, there has been an increase in nitrate from about 1.0 milligrams per liter (mg/L) in 1958 to 3.5 mg/L. There has also been an increase in nitrate in Merritts Mill Pond. James noted that there has been a lot of effort and research to determine the freshwater springs nitrate target based on the tripping point for algal blooms. The Department adopted a target of 0.35 mg/L of nitrate for freshwater springs. This concentration was selected because algal blooms do not occur as quickly at this level of nitrate. This target concentration then gets assigned to different sources in the allocation from the TMDL. In the contributing area, there are no point sources. The nonpoint source runoff is from agriculture, septic tanks, and several other sources. The existing nitrate concentration in the waterbody was compared to the target to determine the percent reduction required, which is 90%. James noted that the waterbody is impaired because of algae so if the 0.35 mg/L target is achieved and algae are still a problem, the springs would still be impaired. The Department would make this determination as part of its assessment on the rotation schedule. The TMDL is only for nitrate because phosphorus has been at a steady background level over time.

Andy Andreasen stated that he can remember what Merritts Mill Pond looked like in 1958 and even then it had algae blooms, usually in the hot weather. He asked if information is available on how long it will take to see the results of an action implemented today. He noted that the current cost of fertilizer has resulted in about an 80% reduction in use in the area. Andy also asked how a 90% reduction in nitrate could be achieved. James responded that he has been monitoring this area and the best BMP has been the rising cost of fertilizer. He noted that the time to see the benefit of an action in the springs depends on the location in the contributing area. The average age of the water in the springs, which is from different sources that made different trips, is 17 years. Some of the water in the springs is very fresh that is only hours old and some water is about 30 year old. In terms of achieving a 90% reduction, this will be difficult but the current goal is to get the current increasing trend to flatten out and start decreasing.

Edd Sorenson asked how the BMAP process will work if water quality is assessed every five years but the Department knows it will take longer than that to see results. James responded that once the BMAP is adopted, there will be annual meetings to review progress, and every five years, the Department will reassess the water quality. If the springs have not responded in five years, more work will occur to try to reduce the nitrate concentration. Edd asked how often the nitrate levels are monitored. James responded that samples are collected quarterly. Edd asked if there were any increases or decreases in the nitrate concentrations observed during the drought period. He noted that he is in the caves every day and noticed that during the drought, the algae was more prevalent. James responded that the drought did not affect the nitrate concentration because the water quality in the springs is based on water that has been in the ground for a long time. However, during the drought times, water flow slows down, which gives more time for the nutrients to linger and increases the chance for algal blooms.

John Alter asked if the water age has to do with the distance traveled, as well as the porosity of the area. James responded that this is correct because if there is a conduit, the water has an expressway to the springs. If the water is coming into the ground on either side of the conduit, its travel time to the springs would be longer. In addition, if the water is coming from further north, it takes longer to make the trip to the springs. Therefore, part of the BMAP will be to identify short-term solutions based on sources near the springs.

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Edd asked if there is any sampling in the secondary springs. James responded that four of the secondary springs are sampled. He cannot remember all of them but Hole in the Wall and Gator Hole springs are included. Edd stated that Karst Environmental put sampling tubes in Gator Hole, Heidi Hole, Hole in the Wall, and Shangri-la springs. He is in those caves every day and the tubes have not been touched, and Jackson County spent a lot of money to have those tubes put in. James responded that sampling is occurring in those springs but he is not sure those tubes are being used for the sampling. He will verify where the sampling is occurring.

John stated that a few years ago, he saw a chart with the county's purchase of fertilizer, and he remembers a tremendous drop off in the amount but cannot remember when that drop off occurred in relation to the 17-year water period. James responded that part of the issue with using fertilizer sales by county is that just because the fertilizer is sold in a county does not mean it was used in that county. He told this to Kris Barrios (NFWFMD) when he was working on a nutrient source inventory, and James suggested using land use acreage instead of fertilizer sales. James noted that the big drop in fertilizer sales in Jackson County could be when the plant burned down in 1983/1984 because they had railroad cars sending fertilizer out from the plant.

Edd asked how the water travel time is calculated. James responded that USGS conducted an isotope analysis using an isotope that goes back to when the use of atom bombs started. If the water was underground during that time, it has a different isotope than water that was above ground during the time that the nuclear explosions happened. Enough time has passed that this isotope test cannot be used anymore because of atmospheric mixing. Dye could be added in a sinkhole and the dye could come out within two days, but not all of the water is that age.

Andy noted that the basin map includes a portion of the contributing area in Alabama. He asked if there is any cooperation with Alabama on this spring. James responded that at least once a year, Florida has a meeting with the adjoining states. However, only about 10% of the entire contributing area is in Alabama. Andy noted that this portion of Alabama has a lot of row crops and cattle.

Jackson Blue Spring and Merritts Mill Pond BMAP Development Process and Approach

Steve Cioccia thanked the participants for attending the meeting to help with the BMAP effort. BMAPs are not successful without local cooperation and involvement because local information is needed to verify what is occurring in the area. The contributing area is primarily agriculture so the Department will rely on information from the producers for the BMAP. Steve noted that his presentation will be an overview of the BMAP process, but there is not a lot of detail yet for this area since the process is just starting.

Steve noted that this spring is referred to as "Jackson" Blue Springs because there are 17 Blue Springs in the state so the county name is used to identify which Blue Springs is being referred to in the process. The restoration process is cyclic; therefore, the Department does not create a BMAP and then walk away. As part of this cycle, James has already taken care of the monitoring, assessment of water quality, and setting restoration goals. The current steps in the process are to establish a restoration plan and implement restoration. The success of the BMAP will be determined by looking at the water quality data and comparing the results to water quality standards. Steve presented the quarterly water quality nitrate results from the Jackson Blue Springs vent for 2012 through January 2014, and the average concentration was 3.7 mg/L. Therefore, the nitrate concentrations are still very high and are a little

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higher than the average from the TMDL period. The goal of the BMAP will be to make the nitrate concentrations head in a lower direction.

The contributing area will be used as the focus for the BMAP. Jackson Blue Springs and Merritts Mill Pond are located in the southwestern portion of the contributing area. The contributing area is where ground and surface waters are going to the impaired waters. Steve noted that the Department will be taking input from the stakeholders to ensure the contributing area is correct. There are also eight secondary springs in the area. The two impaired waters are the focus of the BMAP restoration effort, using the nitrate target from the TMDL. The BMAP will evaluate both surface and ground water inputs to the impaired waterbodies to achieve the 90% reduction in nitrate from nonpoint sources in the area.

Steve stated that the BMAP process will include developing sources and estimates of loading to the springs and pond, identifying responsibilities for load reductions, identifying management actions to reduce nitrate concentrations, and determining mechanisms to show progress towards the TMDL through the BMAP monitoring plan. The BMAP will also include commitments to pollutant reductions, actions to achieve water quality improvement, and an implementation timeline for the actions.

The typical sources of nitrate include inorganic fertilizer, animal waste, domestic wastewater (mainly septic tanks), stormwater runoff, and atmospheric deposition. Steve noted that in this area, stormwater runoff is not a big source and atmospheric deposition is not considered a controllable source. Therefore, the BMAP will focus on fertilizer, animal waste, and septic tanks. The sources of nitrate fall into two categories: (1) point sources, which include wastewater treatment facilities and municipal separate storm sewer systems (MS4s); and (2) nonpoint sources, which are delivered via runoff and ground water transport. Steve noted that there are no point sources in the area so the focus of the BMAP will be on nonpoint sources. The initial steps in the BMAP process will include trying to understand the routes of nitrate transport, developing an understanding of sources and how much they are contributing, and compiling a nutrient source inventory.

To address agricultural nitrate sources, there are the BMP cost share programs through NFWFMD and FDACS. Steve presented an example of a nitrogen source inventory from the Wakulla Springs BMAP. The inventory will go into a lot of detail on the different sources and their relative contribution, and this is why the Department will need local information about what commodities are in the area, how much nitrate fertilizer is applied, and at what times fertilizer is applied. The inventory will also include estimates of the contribution from other sources. The preliminary land use (based on 2009-2010 land use data) for the contributing area shows that 23% of the acreage is tree plantations, 19% is upland forest, 16% is hay, 12% is improved pasture, 11% is field crops, and the rest of the land uses are below 10% each. Therefore, the focus of the BMAP will be on the five largest land uses to determine where they are located in relation to the springs and how much they are contributing to the springs. The Department hopes to ground truth this information soon.

In order for agricultural activities to demonstrate compliance with TMDL reduction requirements, they must either implement BMPs or a water quality monitoring plan to show they are not contributing to the impairment. Steve noted that it is very rare that a producer does not implement BMPs since many BMPs are practices that they are already implementing so they only have to sign up with FDACS to get on the record for BMP implementation. About 29% of the agricultural acreage, in various commodities, has already enrolled in BMPs. By the end of the BMAP, the goal is to have 100% of the acreage

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enrolled. The BMAP will set milestones for this enrollment to determine progress. There is already significant agricultural environmental stewardship in area.

Steve presented the tentative BMAP schedule. The next meeting will be held in late June/early July to allow time to gather information for the nutrient source inventory. The inventory is a major effort that will be conducted in coordination with the stakeholders. At the next meeting, there will be discussion about hydrogeology, aquifer vulnerability and ground water travel, and the contributing area boundary. The August meeting will include discussions of reduction strategies, agricultural BMPs and responsibilities, and springs funding opportunities. For the September meeting, the source inventory will be ready for review and to discuss priority sources for nitrate reduction activities. In October, the BMAP contents will be reviewed and the draft BMAP will be presented, and this will be the final public meeting. In November/December, the BMAP will be adopted by the Department Secretary. Steve noted that this is a fairly short timeline; however, this is a small area with confined sources that need to be addressed.

Steve requested that the participants add their names and email addresses on the sign in sheet so they can be notified of future meetings. He asked that they continue to participate in meetings, and to spread the word about the BMAP to other interested participants. Steve noted that the stakeholders can contact him if they have any questions, and he will send an email once the next meeting is set.

John stated that it was encouraging to hear Charlie talk about other areas in the state where BMAPs have been done because it means that the process will not have to be figured out in this area. He noted that both Charlie and Steve used the word “consensus,” and he asked what this word means to the Department. Steve responded that the Department tries as much as practical to develop consensus so that the people involved in developing the BMAP agree that the plan gets the waters where they need to go. Everyone will not agree on everything but the Department wants agreement that what is developed in the BMAP is the right tool to move in the right direction. John noted that there are some groups in the area that work on the purest sense of consensus, and a lot of good ideas fall to the wayside because of this approach. Steve responded that the Department looks at the BMAP as a team effort, because the Department telling the stakeholders what they need to do will not get the job done. However, the Department is responsible for what goes into the BMAP and they need to assure the Secretary that this plan will help make progress towards the target. There is a lot of latitude in what goes into the BMAPs and how they are developed, and this is where the Department wants stakeholder input and consensus.

John noted that it would help to include the BMAP meetings in the newspaper calendar, and to contact the two radio stations and two television stations that cover the county to get people to the meeting. Charlie responded that the Department is coming to this meeting as a guest of the stakeholders, and the Department has a lot to learn about this area. The BMAP process started with some preliminary meetings and outreach, and they built an email list from these efforts. The Department wants to find the best way to get information to the stakeholders about the meetings. In terms of consensus, there will be a series of meetings to develop facts collectively. After a while, a group comes together to create a common understanding. The Department hopes to grow the number attendees and have regular meeting attendants to develop this consensus.

Edd stated that it seems as if the Department already has a plan for this area, and this meeting is to just warm the stakeholders up for when the Department presents the plan. He asked if the Department is

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looking at all the contributing factors, such as the sturgeon farm. Agricultural pivots only draw water when they need it but the sturgeon farm is pulling out millions of gallons of water per day and discharging the polluted water back into the center of the recharge area. Steve responded that the Department does not already have a plan for this area; they only have a structure that they need to plan within. What the final BMAP will look like depends on what is developed in these meetings. The Department will be looking at all sources in the area, as well as the routes and conduit flow ways to determine what sources get to the springs the fastest and have the most impact. Charlie added that the Department wants to hear from people engaged in agriculture in the area because there is already a lot of good things that are happening.

Jeff Pittman asked how the Department will obtain information about agriculture in the area. Steve responded that they would like to talk with the growers to obtain information about their practices. These meetings will occur in May and June so that the information gathered can be used in the nutrient source inventory. Terry Pride added that the Department will not go to the individual growers and check their fertilizer rates. Instead, there will be group meetings to discuss what commodities are in this basin and the typical practices used. The University of Florida – Institute of Food and Agricultural Sciences (UF–IFAS) has fertilizer rates for each commodity but a lot of the producers are not fertilizing that much. The Department wants to know this so they can adjust the estimates in the inventory.

Jeff asked what the lowest nitrate concentration was in Jackson Blue Springs since there was a data record. Steve responded that the lowest nitrate concentration was about 1 mg/L in 1958. James added that most of the historical data were collected by the Department, and they tried to document the available data in the TMDL. Edd asked if there are any available data in the secondary springs. Steve responded that NFWFMD is collecting the data in the secondary springs. All of the data will be compiled as part of the BMAP process.

John Trott noted that all the agricultural produces will be required to implement BMPs. He asked what else will be included in the BMAP, other than checking on the water quality. Steve responded that the Department will be trying to develop information on the contributions through the source inventory. The BMAP will also include a monitoring plan for the next five years to determine what progress is being made. The Department will also look at information on ground water transport and where the conduits are located to determine how fast the loading gets to the springs. John asked when all growers sign up for BMPs, if they are done with their part of the BMAP. Charlie responded that this is correct but new technology is being developed so there will be advances in BMPs. There is a big reduction needed in this area and a lot of water that needs to work through the system. The Department does not have an answer now on what needs to be done to achieve these reductions. Steve noted that another option to address the loading is that some BMAPs include a focus area where the sources and actions are looked at in detail, and new technologies are identified that may be more effective. This could be an option if the current agricultural BMPs do not achieve the reductions needed. James added that there are basic BMPs included in the manuals but there are also advanced BMPs that achieve more reductions. BMPs must be economically viable, which includes a consideration for cost to implement and crop yield. The BMPs for agriculture in Jackson Blue Springs might be different than the BMPs for Silver Springs.

Dianna Thurman noted that this BMAP will be different from the BMAPs for surface waters. During the meeting, the Department discussed the long residence time and the fact that producers are already

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implementing BMPs. She asked what if the necessary reductions have already been made. If a greater percentage of water coming out of the springs is older water with higher nutrients, it makes it difficult to move forward. Steve responded that because of travel times in this area, it will take a while to see changes at the spring vent from reduction activities that have already gone into place. This is why the BMAP will include monitoring to determine when reductions occur. James added that monitoring wells may be needed closer to the sources to obtain more immediate feedback on whether there is a reduction occurring at that source.

Dianna stated that even if there are higher nitrate concentrations coming off a farm, it may not matter as that water gets mixed in with other waters. The agricultural community wants to know what will occur if they are doing everything right now but in five years the Department says this is not good enough. Beth Alvi responded that these are good questions. While the Department has been developing BMAPs for a few years, BMAPs for springsheds are newer so they do not have the answers to all of these questions yet. The Department does know there are loadings in this area that need to be reduced, which would benefit the system. These are the sources that need to be addressed first. As part of the BMAP process, the Department and stakeholders can figure out the best way to answer these questions. About 29% of agriculture has implemented BMPs so there is still a lot of agriculture that needs to be enrolled, and this will be part of the first step. In another BMAP, there was an innovative technology that was submitted and the Department provided funding to test that technology. The BMAP will be a combination of trying new things and implementing tried and true things. The BMAP is implemented in phases to ensure that the Department is not requiring the stakeholders to do more than is needed, and to ensure the right questions are being asked.

Dianna stated that even if new technology is implemented, she does not want to give an impression that the BMPs are not working just because it is old water coming out of the vent. Edd asked what percentage of the water in the springs is old. During the drought, Jackson Blue Springs was not even a first magnitude spring but the water has quadrupled in the springs over the last quarter so that water cannot be 17 years old. James responded that in one flow situation, there could be water that is backed up that never comes out at the vent, but under a different flow condition that water does come out. The average age of water under one regime could be very different from water under another regime. The isotope information provides a date and dye studies can be used. However, changes in flow over time are based on what is happening in the system, such as a new sinkhole opening up. Steve responded that in systems that are predominately ground water driven, it is not easy to determine what is happening. Additional investigations might be needed. The process needs to start somewhere and that is the idea behind the first five years of the BMAP. Edd noted that the data Steve presented showed a spike in nitrate concentrations after the drought ended so it looks like conditions do change. Steve responded that this would be examined as part of the BMAP process.

Becky Trott asked if the Department checks the age of the water periodically. James responded that the water age is not routinely tested. The last determination was made at least five years ago by USGS. Beth noted that if there starts to be an improving trend in nitrate concentrations at the spring vent, the Department and stakeholders can decide to wait to see what happens with the trend before they implement more activities in the future.

Hank Floyd stated that his farm practices are very different from what was done in the past. He asked if all agriculture is committed to BMPs and the nitrate concentration is still high in five years, if the

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Department will come back to agriculture for more reductions. It could be that in 17 years from now, the Department realizes that agriculture is not the problem. Steve responded that every five years, the BMAP will be reevaluated; however, the monitoring will occur throughout this time and the Department will annually gather information on activities and monitoring. The Department will not wait five years before looking at the data. They will try to figure out where things are going and what needs to change to improve water quality. Charlie added that Hank's comment is a good point. The BMAP process will take into account that yesterday's agricultural practices are also responsible for the nitrate concentrations at the vent, and that the source is not necessarily today's agricultural practices.

Edd asked where Merritts Mill Pond is sampled. James responded that the concentration in the mill pond is based on surface water samples that are taken from a depth of six inches in the pond itself. The Jackson Blue Springs concentration is collected from inside the vent as ground water. Dianna asked if the 0.35 mg/L target uses the annual geometric mean or 95th percentile. James responded that it is an annual geometric mean based on a one out of three year failure.

Public Comments and Wrap Up

Steve asked for feedback on when is the best time for meetings for the planned meetings in July through October. Hank responded that evening meetings are better for the agricultural producers. Andy responded that the meetings need to be done by mid-September because the producers are busy in the field after that time. Carly Barnes asked if there are any restrictions on where the Department can hold meetings. It would be great to meet in basin but the only places that have big enough rooms would be churches; however, this would be closer to where people are farming. Steve responded that he does not think there are any restrictions on where meetings can be held as long as the room is accessible. John Alter noted that the Bascomb town hall can hold about 100 people, and it is located in the middle of the basin. This could be a good option for future meetings.

Adjourn

The meeting was adjourned at 8:42 PM.

Action Items

- James Dodson will verify where the sampling in the secondary springs is occurring.
- Stakeholders should help notify other interested individuals about the BMAP process and meetings.
- Steve Cioccia will send an email to the distribution list when the next BMAP meeting is scheduled.
- The Department will look into noticing future meetings through the local newspaper, radio stations, and television stations.
- The Department will look for rooms within the contributing area for future meetings.