

Weeki Wachee Springs Basin Management Action Plan

Kick-off Meeting Summary

Tuesday, May 27, 2014

1:00 PM – 3:00 PM

Weeki Wachee Springs State Park – Enchanted Ballroom
6131 Commercial Way, Spring Hill, Florida 34606

Attendees

Beth Alvi, FDEP	James Dodson, FDEP
Andy Auwer, HRA	Scott Garth, DRMP
Juanita Bernal, Pasco County	Terry Hansen, FDEP
Clay Black, Hernando County	Janet Hearn, ATM
Pete Butt, Karst Environmental Services	Van Hoda, Florida Springs Institute
Tiffany Busby, Wildwood Consulting	Jan Mandrup-Poulsen, Dynamic Solutions
Bill Colona, URS	Marcy Policastro, Wildwood Consulting
Veronica Craw, SWFWMD	Mary Szafraniec, AMEC
Scott Deitche, GPI	Barry Vance, Water & Air Research
Dave DeWitt, SWFWMD	Dawn Velsor, Hernando County

Presentations

Meeting presentations are located at: http://publicfiles.dep.state.fl.us/DEAR/BMAP/SpringsCoast/BMAPs/WW_BMAP/ in the appropriate month folder.

Introduction

Terry Hansen welcomed everyone to the Weeki Wachee Springs Basin Management Action Plan (BMAP) kick-off meeting. The participants introduced themselves and the entity they represent.

Overview of the Total Maximum Daily Load (TMDL)

James Dodson stated that the Florida Department of Environmental Protection held two workshops for the Weeki Wachee Spring and River nutrient TMDL. The TMDL does not address flow in the river and spring. The TMDL establishes a formal target for the water quality in a waterbody so that it meets its designated uses within a margin of safety. The TMDL is a formal target for achieving water quality that uses the best available science and local information to determine the target. The initial TMDL workshop was held in July 2013 with a follow up workshop in September 2013. The river and spring were listed as impaired because of algal growth. James noted that most of the historic photographs of the springs are tourism photographs, which are made to look very nice. Therefore, it was difficult to find photographs of historical algal growth in the performance area. The algal mats in the river and spring are caused by high nitrate levels.

For the TMDL, the watershed for the river and the springshed for the spring were combined and called the “contributing area.” The springshed boundary ends at the spring vent, but the contributing area extends to the west to encompass the watershed for the freshwater portion of the river. The contributing area includes portions of Hernando and Pasco counties. The age of the water in the spring is relatively new. The water takes different paths to reach the springs so the travel time varies. As the water gets closer to the spring and moves into a conduit, it moves faster. Dave DeWitt added that the Southwest Florida Water Management District (SWFWMD) conducted a dye trace study in the area. This was a near field study using a few monitoring wells on other side of Highway 19 from the park, and

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measurements were collected during low flows to provide conservative estimates. The averages from two different wells were travel times of 40 feet per day and 100 feet per day. The wells were located about 700 feet and less than 0.5 miles away from the spring vent. Another dye study was conducted in the 1990s using the dipolar sinks that are about 2.5 miles up-gradient of the spring vent. This was not a successful study because the dye did not come out at the vent. James noted that while there is not exact information on the water age, it is more recent than the water in other springs he has worked on.

The nitrate trends in the spring has steadily increased since 1971, and the most recent concentration was about one milligram per liter (mg/L). The nitrate concentration in the river has also increased since 1975. James noted that the Department was able to use specific data to set the TMDL nitrate targets for Weeki Wachee Spring and River. At first, the Department had limited data so they used the default springs nitrate target of 0.35 mg/L. During the first TMDL workshop, the stakeholders noted that in the past the river and spring were not in a good condition when the nitrate concentration was 0.35 mg/L. The Department then found a 1994 study by SWFWMD that had specific information on algae and nitrate concentrations in the river. This study included algae mapping in 1991, a visual survey of submerged aquatic vegetation at 26 locations, and monthly water quality samples collected from six locations. Using the data from this study, the Department determined at what concentration there were limited algae (*Lyngbya*), which was used to set the TMDL nitrate target of 0.28 mg/L for the spring. Using attenuation and dilution factors, the Department determined the relationship between the spring nitrate concentration and the river nitrate concentration. Based on this relationship, the TMDL nitrate target for the river was set at 0.20 mg/L. These target concentrations are an annual average.

James noted that the TMDL includes different categories for load allocations. The wasteload allocation is for point sources, which include National Pollutant Discharge Elimination System (NPDES) wastewater and stormwater sources. The load allocation is for nonpoint sources such as wastewater application sites, septic tanks, urbanized land uses, and agricultural land uses. The TMDL also includes a margin of safety, which is implicit in the targets because they are annual averages and the worst year is used to determine the percent reduction needed to achieve the target. There is no wasteload allocation for wastewater in the Weeki Wachee TMDL because none of the facilities directly discharge to the river or springs. The NPDES stormwater reductions are 71.1% for the spring and 77.3% for the river; however, there are currently no municipal separate storm sewer systems (MS4s) with direct discharges to the river or spring. The load allocation for the nonpoint sources is a 71.1% reduction for the spring and 77.3% reduction for the river.

Terry asked what the status is for the TMDL adoption. James responded that the Department went through the rulemaking process and associated challenge period. The TMDL is currently with the Department Secretary for his signature to adopt the TMDL. This should occur this week. Jan Mandrup-Poulsen stated that the Department has almost completed the numeric nutrient criteria (NNC) process, and the NNC require total nitrogen (TN) numbers for the river. He asked how the NNC process integrates with this TMDL. James responded that he does not believe the NNC apply to these waters since the Department used specific studies. Tiffany Busby added that the specific targets in a TMDL supersede the NNC. Scott Deitche asked if phosphorus was considered. James responded that phosphorus was not considered for Weeki Wachee because the concentrations have been low and remained steady.

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Pete Butt asked if any local groups expressed displeasure with these targets. James responded that there was displeasure with the 0.35 mg/L target; however, most people were comfortable with the revised targets in the TMDL. Jan asked if there was a seasonal analysis of the data. James responded that since this is a ground water driven system, there was not a lot of seasonal influence. In springs across the state, if there are have long periods of drought, there can be changes in concentrations, but the springs are slow to respond to changes in rainfall. The Weeki Wachee system is more responsive to rainfall, which indicates that the water is fresher, but there were no significant changes in nitrate concentration associated with rainfall. In other springs, the average water age is 17 years so it will take a while to see the results from restoration; however, the results should be seen faster in the Weeki Wachee Spring and River. Pete asked if the Weeki Wachee area has an extensive ditch network, such as the one in the Homosassa area. James responded that the ditch network in Weeki Wachee is not extensive.

Introduction to BMAP Process

Terry stated that the Clean Water Act/TMDL process is to develop a TMDL for an impaired waterbody, and then determine how to restore the waterbody. The BMAP is the restoration plan to restore water quality, and it is an ongoing process to meet the waterbody's designated use. A BMAP is adopted by Secretarial order, so the actions in the plan are enforceable. The Florida Watershed Restoration Act, which is Section 403.067 in Florida Statutes, outlines the issues that are addressed by the BMAP. In the Springs Coast, SWFWMD is working on a regional process for water quality and water quantity, and the goal is to create a consistent process for the springs in this area. Terry noted that the BMAP is one piece of a bigger puzzle, and the stakeholders should consider how actions affect all of the springs in the area. The Kings Bay/Crystal River and Weeki Wachee BMAPs have started development, and these TMDLs should be adopted in May or early June. In about a year, the TMDLs for the other major springs in the area should be adopted. The Rainbow River and Springs and Silver River and Springs BMAPs to the north of the Springs Coast are already being developed. Terry presented a graph of Hernando County's population from 1946 to 1999 compared to the nitrate concentration in Weeki Wachee Spring vent. The curves are mirror images, which indicates that the increase in the nitrate concentrations in the spring is linked to the increase in population.

Terry stated that Hernando and Pasco counties are partners in the BMAP, and the Department will be talking with them about completed and planned projects to reduce nitrates. The Department has already started talking with SWFWMD about projects they have underway. There is some agriculture in the area, although this is mostly an urban basin. The boundary in the TMDL for the contributing area will be the starting point for the BMAP, but there is the option to discuss if areas should be added or removed. A 77.3% nitrate reduction is needed for the river and a 71.1% reduction is needed for the spring. Terry noted that these are high reductions and there are legacy loads, but the stakeholders should try to reduce the current nutrient loads as much as possible. Making these reductions will not be easy or fast, but they are needed to get the spring and river back to their designated uses.

The key BMAP components include the TMDL being addressed, the contributing area, future growth impacts, and projects to reduce the nutrient footprint to meet the TMDL. Terry stated that the Department will meet with the counties, municipalities, Florida Department of Transportation (FDOT), and other stakeholders that contribute to the impairment to discuss project implementation and a timeline. The BMAP will also include a monitoring plan to determine progress toward the TMDL. After the BMAP is adopted, there will be project reporting requirements and follow up meetings to discuss progress.

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The land uses in the contributing area, based on the 2009 SWFWMD coverage, are 27% residential, 23% agriculture, 23% forest, and 15% wetlands. Most of the agriculture is lower density cattle and pasture land, and the focus for these land uses will be implementing appropriate best management practices (BMPs). In the urban area areas, the focus will be on addressing stormwater, wastewater, and septic tank sources. The Department is preparing a nutrient source inventory to evaluate the sources of nitrogen in the contributing area. The sources of nitrogen include atmospheric deposition, fertilizers, land application of wastewater and biosolids, septic tanks, and stormwater runoff. The inventory will estimate loads to the ground water using attenuation factors to account for environmental processes that transform nitrogen, and a weighting factor to account for the amount of recharge in an area. Terry noted that it is difficult to determine an exact amount of nitrate to the ground water. However, the inventory can provide information on the inputs and impacts from each source type to help in determining how to reduce the nutrient footprint. The inventory is a tool to help stakeholders focus their resources. The draft inventory will likely be discussed at the August BMAP meeting.

Terry stated that SWFWMD completed a sediment and algae removal project in 2009, and a stormwater project in 2008 to capture and treat stormwater runoff. Veronica Craw added that the stormwater project was to build a large retention pond on the south side of the Weeki Wachee Park parking lot, along with linear ponds outside the fence along Highway 19 to treat stormwater before it enters the park. Terry noted that SWFWMD also has a few proposed projects. Veronica stated that the Rogers Park low impact development project is in conjunction with Hernando County, and they are waiting for approval to start the design. SWFWMD is also evaluating the Highway 19 reclaimed water transmission main project, but Veronica was unsure about the project details. Terry stated that SWFWMD has a portal with information about the major springs. The website includes example nutrient source inventories, which will be updated with the new information that the Department is developing. The website also includes an interactive page, which shows how land use changed over time in an area.

Terry stated that for the BMAP schedule, the TMDL will be adopted in May or early June. Terry met with the Pasco County Board of County Commissioners last week, and he will meet with the Hernando County Board of County Commissioners on June 10th. The purpose of meetings with the commissioners is to make them aware of the BMAP process, so that when staff goes to them with projects, the commissioners know about the BMAP requirements. Future meetings with the local stakeholders will also be held, and Terry stated that he is looking for feedback on what information is needed by the stakeholders at these meetings. Clay Black responded that Hernando County has an interest in the nutrient source inventory to determine the cost-benefit of different projects.

Terry asked if there were suggestions for other places to hold the BMAP meetings. Veronica noted that the environmental education center is another option, and this is a school board facility. Dawn Velsor offered to provide Terry with the contact information for the environmental education center. Terry asked what time of day is best for the meetings. The stakeholders provided feedback that afternoon meetings work well. Terry requested that the stakeholders let him know if there are other people who should be attending the meetings. Dawn stated that she would find out who the contact is for the local citizen's group and she will provide that information to Terry.

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Questions

Veronica stated that a lot of the work that SWFWMD has completed and is continuing to pursue is dredging and sediment removal projects. There are nutrients bound to these sediments. She asked how these project types would be considered in this BMAP since the focus is on nutrients. Terry responded that the Department will have to evaluate the projects to determine if they can calculate the nutrient reduction achieved by dredging.

Clay stated that Hernando County's MS4 does not have a direct discharge to the river. He asked if this affects the county's ability to obtain grant funding for surface water projects that do not directly impact this system. Terry responded that if the stormwater project is within the springshed, it becomes important to think about what can be added for denitrification, such as Bold & Gold (a soil amendment). In a springshed, water should not be taken out of the system but water should be treated before it goes back in. For example, SWFWMD is constructing a project at Three Sisters in the Kings Bay contributing area using wetland treatment.

Scott asked what timeline will be used to include completed projects in the BMAP. Terry responded that this has not been determined yet. Since the water travel time in the contributing area is about 10 – 15 years, this timeframe could be used as a starting point. The location of the project will also have to be evaluated because if a project was completed 15 years ago across the street from the park, the benefits of that project are already accounted for in the water quality data.

Andy Auwer asked what it means that the BMAP is legally enforceable. Terry responded that it means if an entity is supposed to complete a project in a certain amount of time, the Department can take enforcement action against the responsible party if the project is not completed on schedule. The Department tries not to go to the enforcement route because they want to see restoration occurring. The Department understands that there could be project delays or that a project in the BMAP may not be feasible after additional study, but they want to see that the stakeholder implements another project or makes a good effort to achieve reductions. Andy asked if the Department could fine an entity for not complying with the BMAP. Terry responded that the Department could fine an entity. However, the state cannot achieve restoration alone and they need the stakeholders to reduce their nutrient footprints. This is the spirit that the Department hopes the stakeholders will follow in the BMAP.

Mary Szafraniec stated that focusing on water quality in the spring may not result in the desired change in biology. The Department should also consider tracking biology, such as diatoms that are returning to the system in response to nutrients being reduced. Terry responded that this approach could be used as a milestone to assess progress, since it will take a while to see water quality changes in the spring. James added that the river and spring are listed as impaired because of the algal mats, and they will remain impaired until the algal mats are addressed, even if the water quality targets are met. Mary noted that evaluating the diatoms in the water column may be a good indicator of change. Beth Alvi responded that this would be a good discussion during the BMAP monitoring plan development to determine what additional parameters should be measured.

Scott Garth asked when the BMAP would be approved. Terry responded that he hopes to have the BMAP to the Department's Secretary by the end of the year for adoption, so this would be about a 6 – 9 month process. The problem and contributing area have already been identified, and the main effort now is to collect projects to get the reductions started. Scott asked if there are any studies to show how

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effective Bold & Gold is at removing nitrate. Mary responded that Marion County has been active in using Bold & Gold, and they have been collecting data that show up to a 70% nitrate removal. Terry noted that there are already efforts to reduce nitrates in the area. Hernando County recently passed a fertilizer ordinance. Juanita Bernal noted that Pasco County will be introducing its ordinance at the next commission meeting.

Clay asked if the Department will be in charge of BMAP enforcement or if this will be the counties' responsibility. Beth responded that the Department will be in charge of the enforcement because the local governments are making commitments to the Department in the BMAP. Tiffany added that if a BMAP project is related to a wastewater treatment facility or MS4 permit, the Department would take the enforcement through the permit. If there is no permit, the Department would take enforcement through the BMAP itself. Agriculture also has a responsibility in a BMAP to implement BMPs. The Florida Department of Agriculture and Consumer Services (FDACS) enrolls growers in BMPs, but any enforcement actions would be through the Department. Terry noted that the Department wants to work with stakeholders before getting to enforcement because they want the reductions to occur.

Jan stated that this is a complex ground water and surface water system, and it may be helpful to delineate what part of contributing area is surface water driven versus ground water driven to help with project identification. It would also be helpful during the first few meetings to focus on information that SWFWMD has gathered. In the Wakulla Springs area, the Department looked at conduit locations to determine what sources were nearby to help select projects. Terry responded that this evaluation would be part of the nutrient source inventory. James added that the Weeki Wachee conduit map is in the TMDL document. The TMDL does not place a lot of emphasis on the conduits because people tend to think that if they are not located on a conduit, then they do not have to make reductions. Terry noted that the system here is better characterized by fractures/joints than by conduits. Dave added that there are some conduits, which are mostly under Weeki Wachee Park until about Highway 19. Terry stated that the Wakulla area has the biggest conduit system and then the conduits get smaller, moving south down the Springs Coast. Pete noted that the deepest conduit in this area is about 300 feet deep, and there are also dipolars that are deep.

Jan asked if there is an existing inventory of well data and nitrogen isotopes to determine sources. Dave responded that there are some data, but they do not provide much information on identifying a source because there is a mixed isotope signature. Jan noted that the graph on population versus nitrate seems to indicate that the sources have occurred with growth. Terry responded that there is a lot of knowledge about this system that will help to answer questions and guide the BMAP process.

Terry asked if Tuesdays are a good day for the meetings. Several stakeholders noted that their board meetings are on Tuesdays. Terry suggested holding the next meeting on Wednesday, July 9th. A notice will be sent to the distribution list once the date and location are set.

Adjourn

The meeting was adjourned at 2:40 PM.

Action Items

- The Department will present the draft nutrient source inventory at the August meeting.

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- The stakeholders should let Terry Hansen know of any topics they would like to discuss at future meetings.
- Dawn Velsor will provide Terry with the contact information for the environmental education center.
- The stakeholders should provide Terry with the contacts of other stakeholders who should be involved in the BMAP process. Dawn will provide the contact for the local citizen's group.
- The Department will consider delineating the watershed and springshed to help with project siting.
- Terry will send a notice to the distribution list once the next meeting is set.