

**Lakes Harney and Monroe
Basin Management Action Plan (BMAP)**

Technical Meeting Summary

Thursday, January 20, 2011

10:00 AM – 12:00 PM

Seminole County UF/IFAS Extension Services Office, Sanford, Florida

Meeting Attendees

Brian Bates, Lake Mary	Carol Johnson, FDACS
Mary Brabham, SJRWMD	Kerry Kates, Florida Fruit and Vegetable Assoc.
Samantha Budd, FDEP	David King, Quentin L. Hampton Associates
Roderick Cashe, Tetra Tech	Robert King, Friends of Lake Jesup
Gerald Chancellor, Deltona	Gabrielle Milch, Seminole County Extension
Leslie Corcelli, Brevard County	Dan O'Hanlon, Deltona
Mark Ellard, Geosyntec	Kim Ornberg, Seminole County
Gordon England, Stormwater Solutions	Marcy Policastro, Wildwood Consulting
Chris Ferraro, FDEP	Robert Potts, E-Sciences
Mark Flomerfelt, Seminole County	Charles Shinn, Florida Farm Bureau Federation
David Hamstra, Pegasus Engineering	Kalina Warren, FDEP
Janet Hearn, ATM	Kelly Young, Volusia County
Danielle Honour, CDM	Tom Ziegler, SJRWMD

Welcome and Opening Remarks

Marcy Policastro welcomed everyone to the Lakes Harney and Monroe Basin Management Action Plan (BMAP) meeting and thanked Seminole County for the use of their meeting room. The stakeholders introduced themselves and the entity they represent.

Smith Canal Total Maximum Daily Load (TMDL)

Samantha Budd noted that during the last meeting, Dr. Xueqing Gao (FDEP) did not have time to review the Smith Canal TMDL. The TMDL will be reviewed in this meeting; however, any detailed modeling questions will be deferred to Xueqing and an answer provided after the meeting. The northernmost portion of the Smith Canal waterbody identification (WBID) number will be included in the Lakes Harney and Monroe BMAP. This portion of the WBID is located in the Lake Monroe watershed and includes parts of Lake Mary and Sanford. The southernmost part of the WBID drains to the Lake Jesup Basin and will not be included in this BMAP.

Smith Canal was verified impaired for dissolved oxygen (DO) with total phosphorus (TP) as the causative pollutant. Eight monitoring stations in the WBID provided the water quality data. The Florida Department of Environmental Protection (FDEP) analyzed data for DO, TP, total nitrogen (TN), and biochemical oxygen demand (BOD) to determine the cause of the impairment. Approximately 45% of the samples were below the state water quality standard of 5 mg/L for DO. Through these analyses, FDEP found a significant correlation between DO and TP concentrations and no significant relationship between DO and TN. Therefore, TP appears to be the main factor affecting DO concentrations. However, project implementation to control TP should also help to control TN. Carol Johnson noted that if temperature affects DO then reducing TP may not be enough to increase DO to state standards. Samantha responded that it seems like from the modeling that TP is main factor controlling DO. As part of the BMAP, monitoring will be implemented and this will help determine how much of the DO concentration is affected by TP as opposed to other factors.

Samantha noted that in the modeling, the target TP concentration was determined by adjusted the current loading such that DO fell below 5 mg/L less than 10% of the time. This resulted in a target TP concentration of 0.10 mg/L. The TMDL also identified sources of nutrients to the Smith Canal. There are no wastewater treatment facilities in this area. The Seminole County/Florida Department of

Lakes Harney and Monroe Basin Management Action Plan (BMAP)

Transportation (FDOT) Phase I municipal separate storm sewer system (MS4) permit, with co-permittees Lake Mary and Sanford, includes this basin. In addition, stormwater runoff, septic tanks, and atmospheric deposition loads were included.

During the last meeting Xueqing reviewed the details of the Hydrologic Simulation Program – Fortran (HSPF) model, which was used to develop both for the Lakes Harney and Monroe TMDL and the Smith Canal TMDL. The model includes three major modules to simulate flows from pervious land areas, runoff from impervious areas, and flow routing and water quality in the receiving waters. The Smith Canal WBID is located in subwatersheds 6 and 7 in the HSPF model, which are part of the Lake Monroe basin. Robert Potts noted that Florida 417, which goes through the Smith Canal WBID, is owned by the Turnpike; therefore, FDOT District 5 does not have the ability to implement best management practices (BMPs) along that road. Samantha responded that FDEP will follow up on including the Turnpike in this portion of the BMAP.

Samantha stated that urban land uses make up about 42% of the basin, agricultural land uses are about 11%, and natural land uses are about 30%. The total watershed that discharges to Smith Canal is slightly less than 10,000 acres. The TMDL includes a more detailed breakdown of the land uses in the Smith Canal WBID. The TMDL is posted to the FTP site, and the link is included at the bottom of the agenda. Carol noted that it does not appear that the rangeland land use is being included as part of agriculture. Samantha responded that she will follow up with Xueqing on how rangeland was treated in the model.

Samantha stated that the number of failing septic tanks in the basin were estimated using repair permit information from the Seminole County Department of Health. This information was used to determine the average number of failing tanks per acre in the county, and this value was then multiplied by number residential acres in the Smith Canal WBID. The result was an estimated 29 failing tanks. All of these failing tanks were more than 50 feet from surface waters and were, therefore, included implicitly in the residential load. Marcy added that Xueqing explained how septic tanks were included in the model during the last meeting. Failing septic tanks within 50 feet of surface waters were modeled as a direct input to the waterbody. Those failing tanks located greater than 50 feet from surface waters were implicitly included in the loading. Danielle Honour asked if the 50 foot distance is from the permit requirements. Samantha responded that she believed this how the distance was determined but she would verify this with Xueqing.

Atmospheric deposition on the land was included in the loadings from the land uses. Atmospheric deposition on the water was modeled explicitly using data from various sources. The annual loadings were then included as a monthly input to the model. BMPs in the watershed were also simulated in the model. The BMPs were divided into dry detention ponds, wet detention ponds, or swales and each category had associated percent efficiencies. Danielle asked where the information on the BMPs came from for the model. Marcy responded that the efficiencies were based on three different reports that were referenced in the TMDL. The BMP locations came from a study that was done for the entire St. Johns River Basin. The BMP coverage should be available and stakeholders will be given an opportunity to review the information during project collection to ensure all projects that were on the ground between 1996 and 2003 (the TMDL data period) were included.

Samantha stated that the TP target loading to Smith Canal was determined by adjusting the phosphate-related coefficient rate for anthropogenic land uses in the model to meet the TP target concentration of 0.10 mg/L. The background condition was also modeled and the TP concentrations were found to be less than the TP target concentration. To meet the target, a 26% reduction in TP is needed from the existing condition for anthropogenic sources. This is a reduction of approximately 5,800 pounds/year of TP.

Lakes Harney and Monroe Basin Management Action Plan (BMAP)

Gerald Chancellor noted that one of the earlier slides stated that the data for December and February were not included in the analyses and that no January data were available. He asked if data from these three months were included in the analysis how that would change the results. Samantha responded that the goal of that analysis was determine the correlation between the causative pollutant and DO. Marcy added that the DO concentrations met the state standard of 5 mg/L during that time and FDEP likely removed those data to determine what reduction was needed to meet the DO standard at those times when it is currently not being met. Samantha stated that she would ask Xueqing for more details about why these data were not included.

Danielle asked if there are studies to support that TP is a larger consumer of oxygen. The correlation is there for the data in the TMDL but that does not necessarily mean that there is a cause and effect relationship. Kim Ornberg noted that Seminole County had also asked this question during the Smith Canal TMDL development. A lot of this waterbody is a shallow ditch, which could make it a candidate for the new Class III Limited waterbody classification. Marcy responded that the reductions for the Smith Canal will be included in the BMAP allocations. However, an allocation approach has not yet been determined so there may be an opportunity to include a separate approach for the Smith Canal reductions. Robert Potts noted that separate reductions would be useful since these are additional requirements for those stakeholders in this WBID. Gordon England asked what areas would be included in the BMAP. Samantha responded that the Lakes Harney and Monroe Basin and the Smith Canal WBID will be included in the BMAP. Marcy noted that Seminole County had submitted some questions about Smith Canal and she asked if all those questions were addressed. Mark Flomerfelt responded that they are following up with FDEP separately and are trying to understand where the loads are coming from and identify any noncontributing areas.

Project Types for BMAP Credit

Marcy stated that a handout was provided to summarize the types of projects that are eligible for BMAP credit. Additional details on the projects and how credit will be calculated will be provided in a future meeting. The Lakes Harney and Monroe TMDL requires TN and TP reductions and the Smith Canal TMDL requires TP reductions. These reduction requirements will be allocated to each responsibility entity in the BMAP. Xueqing is currently working on modifying the model to calculate the starting loads for each entity. The HSPF model is more complicated than some of the models used in other TMDLs, such as the Lake Jesup TMDL, which makes it a little more difficult to determine allocations. As mentioned in a previous meeting, part of the allocation process will be to identify *de minimus* entities in which the loadings are not significant enough to allocate to these entities in this BMAP. That determination will be made before the project collection process begins. The responsible stakeholders will provide projects and programs that reduce nutrient loads to achieve their required TN and TP reductions. Credit will be calculated for each project and those pounds of reductions will be subtracted from the required reductions. Projects completed since January 1, 2003 count for credit. The TMDL data period is 1996 through 2003; however, the water quality benefits of some of the projects may not have been seen in the data so projects since the beginning of 2003 will count for BMAP credit.

Marcy noted that projects that provide treatment over and above any permitted requirements will receive BMAP credit. This is a requirement because any stormwater projects constructed to offset new development do not provide water quality benefits to the watershed. Projects that provide additional treatment, retrofits, or treat areas that were previously not treated will be given credit. Kim asked how those land uses in the model that do not show treatment by BMPs will be handled in the BMAP. Marcy responded that if BMPs are missing from the coverage in the TMDL, then the stakeholders can provide information for those projects. Any pre-2003 projects would receive credit based on the BMP efficiencies used in the TMDLs (shown in the Smith Canal presentation). Danielle noted that the removal efficiencies shown in the Smith Canal presentation are different than what has been used in other basins and she asked if FDEP is trying to determine consistent numbers to apply in all basins. Samantha responded that FDEP

Lakes Harney and Monroe Basin Management Action Plan (BMAP)

is working on this now and the goal is to have consistent numbers. Dan O'Hanlon asked how credit would be assigned for cleaning out catch basins. Marcy responded that FDEP is waiting for the Florida Stormwater Association (FSA) study to be completed, which will include information on catch basins. Once the report is available, which should be in February, details will be provided on how credit will be calculated. In the meantime, it would be helpful to determine when the catch basins were put in place and what areas in the basin they treat.

Marcy stated that when the project collection process is started, FDEP will provide a project collection spreadsheet for the stakeholders to fill out with project details. Information in the spreadsheet will include the lead entity and any partners, project name, location, project type, description, links to permits, acres treated, and cost and funding sources. Marcy noted that the cost information is included because FDEP usually receives requests for information on how much a BMAP will cost. In addition, FDEP would also like to work towards estimates of cost per pound of removal for different project types. Providing this information does not commit the stakeholders to spending that amount of money; this is only for BMAP cost estimation purposes. The project collection spreadsheet will also include columns for the project implementation schedule and completion dates. This is important because stakeholders are not only held to the required reductions but are also held to meeting the schedule agreed to in the BMAP. From the information provided by the stakeholders, FDEP will calculate TN and TP credit. Mary Brabham suggested adding additional cost columns for the different cost categories (land, design, and construction) to help with project cost estimates.

Marcy stated projects also must be operated and properly maintained as permitted to receive credit. The removal efficiencies for each project are based on the assumption that the project is operating as permitted. FDEP may request operation and maintenance records as part of project collection. If projects are not operated as permitted, FDEP will either reduce the credit for the project or require maintenance for full credit. The standard stormwater treatment BMPs that will count for credit were outlined in the presentation and included on the handout. Credit for retention BMPs, wet detention ponds, and swales will be based on the information in the *Stormwater Rule Applicant's Handbook*. The baffle box credit is based on information from a study that was completed for FDEP and alum injection credit is a percentage based on a study by Harvey Harper. In addition, provisional credit will be provided for Stormceptor units, continuous deflective separation (CDS) units, public education and outreach, and street sweeping. These credits are provisional because FDEP knows these BMPs help reduce nutrients and Florida specific studies are underway to determine appropriate efficiencies.

For education efforts, up to a 6% reduction in TN and TP from each entity's starting point loads can be assigned. A 3% credit will be applied for participation in the Florida Yards and Neighborhoods Program. Up to 2% credit will be assigned for four local ordinances: landscaping, irrigation, fertilizer, and pet waste management. In order to receive credit for the fertilizer ordinance, it must meet the provisions of the state model ordinance. In addition, 1% credit will be given for public service announcements, informational pamphlets, websites, and illicit discharge inspection programs and call-in numbers. The street sweeping credit will be based on the results of the FSA study. Marcy noted that preliminary results were presented at the December FSA conference. Based on example calculations using the "yardstick" approach from the FSA presentation, it appears that the new method will provide significantly more credit than the Lake Jesup approach. The stakeholders should begin identifying the areas of the basin they sweep in preparation for credit calculations.

Janet Hearn requested all the supporting data for the removal efficiencies in the *Applicant's Handbook*. Marcy responded that she will follow up with Eric Livingston (FDEP) to obtain this information. Gordon asked if only the HSPF model will be used or if another model will be provided for the entities to use. Samantha responded that HSPF is the only model that will be used and Xueqing is in the process of modifying the model to follow jurisdictional boundaries, instead of the subbasins. Marcy added that the

Lakes Harney and Monroe Basin Management Action Plan (BMAP)

HSPF model is complicated and it would be difficult to find another, simpler model for the stakeholders to use. FDEP will provide the supporting Geographic Information System (GIS) files to the stakeholders.

Accounting for Future Growth

Marcy stated that Florida Statutes requires BMAPs to identify how loads from future growth will be addressed. In some BMAPs, a portion of the load allocation was set aside for future growth, which then requires additional reductions from the stakeholders. The Lakes Harney and Monroe BMAP will not include an allocation for new development and will instead rely on the provisions of the Environmental Resource Permit (ERP) program. An ERP application must show compliance with state water quality standards and projects cannot result in loads that would violate the water quality standards. Since the waters in this basin are impaired, there cannot be an increase in nutrient loads; therefore, new developments must result in a “net environmental improvement” from existing loads. One way to help reduce loads from future growth is to implement low impact development (LID) provisions, such as Florida friendly landscaping and pervious pavement. Marcy stated that FDEP does not have enough information to estimate nutrient reductions from LID projects; however, if stakeholders have a LID project or a planned LID project and can include monitoring that information could be used to determine credit.

Robert King asked since this relies on the ERP program if there is a way to cross-reference the existing condition from the permit application to the land use in the TMDL to ensure that loads are not increased. In reviewing applications, Robert has found that the land use information is not always accurate. Marcy responded that the water management districts know what areas drain to an impaired waterbody but the land use detail may be difficult to cross-reference.

Janet asked if provisional credit will also be given for floating mats. Marcy responded that it would be and they would make sure to add this information to the project credit guidance. In order to receive credit, floating mats are required to cover 5% of the pond or waterbody. A 20% reduction in TN and TP would be applied as part of a treatment train. Gordon noted that he thought the handbook stated an additional 20%, not as a treatment train. Marcy will follow up on how to calculate credit.

Public Comments and Wrap Up

Marcy stated that the next meeting is tentatively scheduled for Thursday, February 17, 2011. Samantha added that the goal is to bring the allocations to the next meeting and if they are not ready for February, the meeting will be postponed. Gerald asked how allocations could be done if the stakeholders have not had time to pull together their projects. Marcy responded that the first step is to allocate the required reductions from the TMDL to each of the stakeholders. Once the allocations are made, the stakeholders will provide projects to meet their required reductions. Danielle asked if there is a way to break out the Smith Canal allocations since these reductions affect a portion of the stakeholders. Samantha responded that FDEP and the stakeholders will need to determine the best way to do this. Marcy added that a decision on how the reductions will be achieved has not yet been made. Since these are not large reductions, the first step may be to collect completed projects since January 1, 2003 to see how much of the reductions have already been achieved. From there, a timeline to meet the remainder of the reductions can be determined. Kerry Kates asked if these TMDLs would be adopted as site-specific alternative criteria (SSAC) as part of the numeric nutrient criteria (NNC) process. Marcy responded that FDEP hopes to adopt SSACs for all adopted TMDLs. The U.S. Environmental Protection Agency (EPA) should come out with guidance next month on the SSAC process and FDEP will use this information to determine how best to proceed with each TMDL.

Adjourn

The meeting was adjourned at 11:07 AM.

Lakes Harney and Monroe Basin Management Action Plan (BMAP)

Action Items

- FDEP will add the Turnpike to the list of stakeholders in the Smith Canal WBID.
- Samantha Budd will follow up with Dr. Xueqing Gao on:
 - How rangeland was treated in the model;
 - Where the 50 foot distance came from for septic tank contributions; and
 - Why the data from December and February were not included in the analysis and if including those data would change the results;
- Marcy Policastro will contact Eric Livingston for the data used in the *Stormwater Rule Applicant's Handbook*.
- Marcy will add floating mats to the list of BMPs for BMAP credit and determine how the 20% reduction should be applied.