

St. Lucie River and Estuary Basin Management Action Plan

Technical Meeting Summary

Wednesday, August 12, 2015

9:00 AM – 12:00 PM

Martin County Building Department - Building Department Conference Room
900 Southeast Ruhnke Street, Stuart, Florida 34994

Attendees

Lesley Bertolotti, SFWMD	Patrick Helms, AECOM for NSLRWCD
Jason Bessey, St. Lucie County	Dianne Hughes, Martin County
Vanessa Bessey, FDACS	Chad Kennedy, FDEP
Ansel Bubel, FDEP	Kathy LaMartina, SFWMD
Tiffany Busby, Wildwood Consulting	Milton Leggett, Stuart
Kevin Coyne, FDEP	Dale Majewski, Port St. Lucie
Kristen Davis, HBOL-FAU	Mary Oakley, UF
Patrick Dayan, St. Lucie County	Ximena Pernet, SFWMD
Amy Eason, AECOM, TIWCD, Verano CDD	Mark Perry, Florida Oceanographic Society
Rebecca Elliott, FDACS	Michelle Piccolo, FDEP
Rachel Espinosa, E Sciences	Nyla Pipes, One Florida Foundation
Alicia Forbis, Fort Pierce	Kenneth Rau, Higgins Engineering
Stan Ganthier, FDEP	H.M. Ridgely, Evans Properties
David Glassner, FDEP	Gary Ritter, SFWMD
Gary Goforth, Citizen	Gerard Rouse, St. Lucie West Service District
Amy Griffin, St. Lucie County	Laura Savage, Wildwood Consulting
Bill Griffin, Stuart	Katherine Schmidt, NSLRWCD
Chris Guth, Hazen and Sawyer	Colt Schwerdt, Port St. Lucie
Katie Hallas, FDACS	Harold Tourjee, Captec Engineering
Jodie Hansing, SFWMD	Fawen Zheng, SFWMD
Janet Hearn, ATM	

Welcome and Opening Remarks

Tiffany Busby welcomed everyone to the second annual meeting for the St. Lucie River and Estuary Basin Management Action Plan (BMAP). The participants introduced themselves and the entity they represent.

Overview of the BMAP Annual Progress Report

David Glassner noted that the reporting period for the annual progress report is from July 1, 2014 through June 30, 2015. The report discusses the accomplishments over that period as well as the upcoming year's activities. David noted that there were several projects completed during the reporting period. The City of Fort Pierce completed the Heathcote Botanical Gardens treatment train project (also known as the Indian Hills Recreation Stormwater Improvement Project). The project resulted in an estimated reduction of 232.7 pounds/year of total nitrogen and 98.9 pounds/year of phosphorus. David informed the group that Jason Bessey would be providing a presentation on the Heathcote Botanical Gardens treatment train project later on during meeting. The City of Port St. Lucie phased out 293 septic tanks during the reporting period. David noted that the total nitrogen (TN) reductions for the phase out have not been calculated yet but the information has been provided to Dr. Ming Ye (Florida State University) for his review. Dr. Ye uses the Arc geographic information system (GIS)-based

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Nitrate Load Estimation Toolkit (ArcNLET) model, which is the department's approved method for calculating reductions from septic tank phase out for the BMAPs. Martin County, in conjunction with the Florida Department of Agriculture and Consumer Services (FDACS) and Watershed Technologies, Inc., completed construction of the Bessey Creek Hybrid Wetland Treatment Technology (HWTT) facility and is currently in the works of completing the Danforth Creek HWTT. The Bessey Creek HWTT project resulted in an estimated reduction of 6,038 pounds/year of total nitrogen and 1,466 pounds/year of phosphorus. Martin County also constructed two rain gardens; one at the Hoke Library and another one at Halpatiokee Park. A stormwater education program was also implemented in conjunction with the Florida Yards & Neighborhoods program to encourage residents to build rain gardens in their own landscapes. St. Lucie County completed the Platt's Creek compensatory mitigation project and purchased a new street sweeper. David pointed out that The Town of Sewall's Point installed inlets, pipes, and a baffle box along with an exfiltration trench to provide additional water quality treatment in the Quail Run Basin.

Water Quality Analysis

David stated that a detailed water quality evaluation will occur at the end of year four of the BMAP implementation (in 2017). It is currently the objective of the program to collect more water quality data and provide a more detailed analysis of the data. David mentioned that last year's report only included data collected by the South Florida Water Management District (SFWMD) at the Roosevelt Bridge (station SE03). The department currently receives data from the North St. Lucie River Water Control District (NSLRWCD) but needs to evaluate the data along with other data to get a better idea of what is going on upstream of the compliance point. David noted that he plans to reach out to stakeholders in the coming weeks to get more data and to discuss how the data are assessed. The data will then be analyzed and filtered as scientifically valid, and the draft results will be provided to stakeholders for review and comments.

David reviewed the project load reduction calculations for total nitrogen and total phosphorus. Overall, the data show that the nutrient levels are trending downward. The TN load has declined to 1,833,880 pounds/year and the total phosphorus (TP) load has declined to 440,011 pounds/year. Gary Goforth asked if the numbers were simulated or observed. David stated that the numbers are based off of project calculations which have been scientifically researched and formulated to provide a good estimate for load reductions.

WaSh Model Update

Next, David provided an update on the WaSh Model. The WaSh model was developed by the SFWMD. The water quality component of the model is being updated with the intent that it will replace the spreadsheet model that is currently being used. The WaSh model developer started making changes to the model back in January 2015 through a contract with the department and SFWMD. The model will be updated to support best management practice (BMP) applications and analyze user defined sub-regions and the FORTRAN algorithms will be updated to include BMP and an enhanced wetlands representation. The model updates are scheduled to be completed by January 2016. The updated WaSh model will replace the spreadsheet model during the next BMAP iteration and will be used to refine second-phase BMAP allocations. In the interim, the department will be collecting additional water quality and flow data to match up and calibrate the model.

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David concluded his discussion on the WaSh model and Tiffany asked if there were any questions concerning the material presented so far. Mark Perry requested clarification on the graph that showed the draft TN project calculations. David reviewed the graph and explained that the first bar represents the starting load, the second bar shows the current load, and the third bar shows the target load. The graph is ultimately showing that the load reductions for the first BMAP iteration have been met for TN and TP. Mark then asked how the credits were calculated in the project tables (located in Appendix A of the draft annual report). Tiffany explained that each entity has required reductions for each phase of the BMAP. If the entity exceeds the reductions required during that phase then the additional reductions become credits that can be applied to next phase. Mark then asked if the credits summarized in the table include just completed projects. Tiffany responded that she believes so, but will follow-up to make sure that that is the case. Kevin Coyne noted that the department is reformatting the annual report to be more concise and comments on the new format are welcomed.

Gary Goforth commented that there are over 400,000 pounds of nitrogen in Lake Okeechobee which is four times higher than the lake total maximum daily load (TMDL) and is certainly higher than the St. Lucie TMDL. Gary Goforth asked why then is Lake Okeechobee not included in this report. David responded that Lake Okeechobee has its own BMAP and that the two BMAPs work independently. The model used to develop the St. Lucie BMAP assumes that Lake Okeechobee is meeting its TMDL and vice versa. Gary Goforth then added that the progress report should at least note that the loading rates are underestimated due to the exclusion of Lake Okeechobee as an input. Gary Goforth then asked if sub-basin loads are provided in the annual report. David responded that the annual reports do not include this information but the BMAP adoption document does. Gary Goforth then requested that the bar charts be modified to include information from basins that are interconnected to the St. Lucie basin and show the cumulative total loads. Gary Ritter asked if the department would look at legacy loads in Lake Okeechobee and the St. Lucie watershed. Kevin Coyne responded that the department is working on possible ways to accomplish this; the modeler is looking into ways to create a carryover effect in the model. Kevin added that it is a difficult issue to deal with in a model, but they are evaluating possible ways to address legacy loads.

Dianne Hughes asked if the stakeholders would see a change in required BMPs due to the WaSh model. David responded that this would be addressed in year five of the BMAP. The updated model will be used at that time to refine second-phase BMAP allocations. Kevin stated there are at least three BMAPs that are currently undergoing additional modeling efforts which will be used to refine allocations.

Gary Ritter noted that the SFWMD uses a different model to estimate flows and asked David to explain why the WaSh model was chosen for this basin. David responded that the WaSh model provides a better method for determining allocations and that the allocations are based on political boundaries that are closely fitted to hydrological boundaries.

Project Presentations

Jason Bessey provided a presentation on the Indian Hills Recreation Area Stormwater Improvements Project. The project was a partnership project between Florida Communities Trust, Florida Department of Environmental Protection (DEP), SFWMD, St. Lucie River Issues Team, Treasure Coast Resource Conservation and Development Council, St. Lucie County, and City of Fort Pierce. St. Lucie County provided the land for the project. The project provides treatment for a 1,200-acre watershed of urban and commercially developed land. A treatment train of six different BMPs have been joined together to

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improve the water quality of stormwater runoff that discharges into the Indian River Lagoon. The BMPs include expansion of a 17-acre stormwater treatment pond, construction of an alum plant, relocation of the outfall structure (to increase residence time), creation of three acres of littoral zone, installation of floating aquatic plant system (12 floating islands were installed and anchored totaling one acre of growing surface), and construction of a pre-treatment bioswale. The County just started-up the alum injection facility which is a gravity-feed system with automatic injection based on velocity and depth of water flowing through the entrance channel. The site includes recreational amenities to allow visitors to enjoy the improvements while being educated about the stormwater protection system as well. The total cost of the project was about three million dollars. The project received \$900,000 in TMDL grant money, \$510,000 in U. S. Environmental Protection Agency (EPA) Section 319(h) grant money as well as funding from St. Lucie River Issues Team Grant, SMU-Fort Pierce, and Florida Communities Trust Grant.

Gary Goforth asked if load reductions were calculated for the project. Jason responded that they only have estimates right now but that the county is currently installing auto-samplers and other instrumentation to be able to sample and test the influent and effluent. Jason mentioned that alum is expensive, so they plan to test the effluent with and without the alum to determine the phosphorus removal efficiencies.

Jason then discussed the Platt's Creek Compensatory Mitigation Project. Construction of the compensatory mitigation area was the final phase of the Platt's Creek stormwater treatment facility project which first began with the construction of a stormwater pump station, including an alum injection system, and a wet detention pond. Jason mentioned that the county purchased citrus lands adjacent to the original project site with plans to convert the land to a mitigation bank. The county received the permit, but did not have the money at the time to create the mitigation bank. Port St. Lucie later on wanted to build a bridge where the county had the permitted mitigation bank. The county constructed the mitigation area using the credits they received from the bridge project. The pre-treated stormwater can now rehydrate over 80 acres of restored wetlands and hammock directly adjacent to the North Fork of the St. Lucie River. The wetlands will also increase our already high pollutant removal efficiencies and drastically increase stormwater storage for the basin. The mitigation includes wood stork mitigation and floodplain compensation which is navigable for paddle boards.

Dianne Hughes provided an update on Martin County's projects. She noted that the Bessey Creek project is completed and the Danforth project is near completion. The two creeks are the most polluted in the county. The county also worked with several stakeholders on the Be Floridian Now, a summer-time fertilizer application ban media education campaign. The program educates residents and property owners about the impacts of stormwater discharges on the St. Lucie River and Indian River Lagoon and what they can do to reduce these impacts. A website has been developed and billboards and media print ads are being distributed throughout the St. Lucie River Estuary watershed region. Signs are being distributed to retail stores to educate residents that a summer-time application ban for nitrogen and phosphorus fertilizers is in place in unincorporated Martin County. Diane noted that the county is receiving a grant which will keep the program running for one more year.

Gary Goforth noted that fertilizer programs are great, but asked how they apply to agriculture. Diane responded that the county's fertilizer programs do not apply to agriculture, golf courses, and sport complexes. They only apply to commercial and residential properties.

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Public Comments and Wrap Up

David mentioned that everyone should have received a draft copy of the annual report by email, but it is not yet posted on the FTP site due to technical problems with the site. David will post the document when the technical issues are resolved. Comments on the draft report are due by September 12, 2015. David mentioned that he plans to reach out to stakeholders to get project specifics including water quality data from data collectors and last quarter numbers from FDACS as well as to have discussions on what would be useful in the model.

Jodie asked if the water quality data will be included in the annual report. Kevin Coyne responded that some information will be included in the report, but additional data and monitoring will need to occur before this section can be completed.

Diane Hughes asked if the SFWMD is still monitoring the tributaries and Jodie replied that the SFWMD is still monitoring the tributaries.

Gary Goforth noted that the base period for the TMDL was the calendar year from 1996-2005 which is not consistent with annual report period (July 1-June 30). Tiffany noted that the annual reports are tied to the BMAP adoption date, which in this case was adopted mid-year. The reports provide water quality results, modeling efforts, and project activities over the previous 12 months.

Gary Goforth noted the BMAP has starting loads for each basin based on 1996-2005 data and associated loads for that same period. Gary Goforth noted that flows vary greatly between basins and asked what efforts will be made to adjust the data to show these differences. David responded that this question is related to why the department wants to collect more water quality and flow data. Ansel Bubel noted that the department is trying to pull together as much data as possible to get the best calibration for the update WaSh model. Gary mentioned that the SFWMD has produced a comprehensive document that includes flows, highs and lows, and asked why the department is not using that data. Tiffany explained that the water quality and flow data are used to adjust the model, which helps guide us towards meeting the water quality standards. Kevin mentioned that there will be a more discussions on the model later on in its development. Gary Goforth responded that the data are there and it is good to see projects on the ground, but the projected load reductions need to be tied to real world data. Gary Goforth mentioned that Ten Mile Creek is improving and the model for this creek could possibly be used to improve other creeks. It was concluded that the department will continue to gather data to calibrate the model and the data over time will be presented in a useful manner to show how the efforts are improving water quality.

Diane Hughes asked if there will be a subcommittee of stakeholders for the water quality evaluation. David responded that he will start with calls and emails to the stakeholders and then the group can decide after that if they want to meet.

Patrick Helms asked if the report will include the water quality data at Roosevelt Bridge. David responded that he found some data qualifiers and noticed some negative values in the data, so he plans to filter through the data and then include the filtered data in the report.

Gary Goforth asked FDACS if they field-verify the agricultural sites that are enrolled in the BMP program. Vanessa Bessey and Katie Hallas both explained how the program works and when site visits

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are conducted. Vanessa mentioned that it is the responsibility of the department to ensure compliance with the BMPs. Gary asked how the department ensures the load reductions are real. Kevin Coyne noted that the department works with universities and the University of Florida-Institute of Food and Agricultural Sciences (UF-IFAS) who conduct research and estimate the load reductions that occur from various BMPs.

Gary Goforth stated that the 2007 state legislation required coordination between agencies to modify Rule 40-61 to include the St. Lucie watershed, as well as parts of the Lake Okeechobee watershed. Gary Goforth asked what the status was on this. Lesley Bertolotti commented that they proposed changes, but have not been implemented yet. Gary Goforth asked why the references to the technical support documents were removed. Jodie responded that she did not know why the references were removed, but could look into it.

Mark Perry noted that he would like to see the projects categorized by sub-basin rather than by entity. Tiffany mentioned this could be difficult because some of the projects cross basin boundaries but this method could be considered during the second phase of the BMAP. Mark Perry stated that eventually the releases from Lake Okeechobee will need to be filtered out to understand the water quality in the St. Lucie Basin. David agreed that one compliance point which is at a confluence point is not sufficient to understand all the watershed dynamics and increased water quality analysis must be performed.

Adjourn

The meeting was adjourned at 10:33 AM.

Action Items

David- Post draft annual report to FTP site.

All- Review the annual report and provide comments by September 12, 2015.

David- Insert the City of Port St. Lucie septic tank phase out results/reductions in the annual report.

FDACS- Provide fourth quarter BMP enrollments.

David- Obtain water quality data from stakeholders for water quality analysis and model calibration.

Monitoring Entities-- Provide water quality data and project updates.

David- Include the Roosevelt Bridge compliance point data summary in the annual report.

Jodie- Look into why references were removed from the technical support document that supported the revision of Rule 40-61.

All- Provide comments on the new format of the annual report.

David—Consider the suggestion to report water quality results and project efforts by sub-basin.

David—Consider adding text in the annual report to explain how the Lake Okeechobee BMAP and loads are related to the St. Lucie BMAP and water quality conditions.