

**Caloosahatchee Estuary Basin Management Action Plan (BMAP)
5-Year Review Meeting Summary**

*Wednesday, October 18, 2017 at 10:00 AM
South Florida Water Management District (SFWMD) Lower West Coast Service Center
2301 McGregor Boulevard, 1st Floor Large Conference Room
Fort Myers, FL*

Attendees

Joe Adams, Pavese Law Firm	Steven Kelly, FDOT
Martha Avila, DEP	Lisa Kreiger, Lee County DNR
Marisa Carrozzo, Conservancy of Southwest FL	Linda McCarthy, Lykes Brothers
John Cassani, Calusa Waterkeeper	Stacey Ollis, SFWMD
Audra Colgan, FDACS	Roland Ottolini, Lee County DNR
Allison Conner, Charlotte Harbor National Estuary Program	Harry Phillips, City of Cape Coral
Kevin Coyne, DEP	Ray Pribble, Janicki Environmental
Sara Davis, DEP	Raulie Raulerson, FDACS
Cathy Foerster, Wildwood Consulting	Stewart Swanson, UF
Kathleen Greenwood, FDACS	Mary Szafraniec, Wood
Janet Hearn, ATM	Richard Thompson, City of Fort Myers
Connie Jarvis, City of Cape Coral	Rhonda Watkins, Collier County
Kerry Kates, Florida Fruit & Vegetable Association	Rae Ann Wessell, Sanibel-Captiva Conservation Foundation
Wes Kayne, Barraco and Associates	Kevin Williams, DEP

Introduction

Sara Davis, Florida Department of Environmental Protection (DEP) Environmental Manager, opened the meeting at 10:05 AM by welcoming everyone. She reminded everyone to sign in and to provide their email address for receipt of future DEP electronic notices regarding the Caloosahatchee Estuary Basin Management Action Plan (BMAP). She mentioned that Cathy Foerster with Wildwood Consulting is taking notes and it is very important for participants to identify themselves prior to speaking. She introduced Kevin Williams, DEP Basin Coordinator, and then requested that each person in the room introduce themselves. She stated that the draft 5-Year Review was released for public comment on October 16, 2017. The purpose of today's meeting is to provide an overview of relevant legislation, discuss how the draft report was developed, provide an overview of the draft report, and discuss next steps.

Pertinent Legislation

Sara stated that legislation went into effect in 2016 that requires the 5-Year Review of the Caloosahatchee Estuary BMAP which is to be finalized and submitted to the Governor, Senate President, and Speaker of the House in November 2017 (five years from date of adoption [November 2012] of the original BMAP). The review shall include 5-year milestones towards meeting the total maximum daily load (TMDL) in the next 15 years (20 years from adoption of the BMAP in 2012); assessment of progress towards meeting the milestones; determination of whether the TMDL can be met within the 20 years, and if not, an explanation as to why; and recommended revisions to the BMAP, such as changes to the monitoring network and updated modeling.

Caloosahatchee Estuary Basin Management Action Plan (BMAP) 5-Year Review Meeting Summary

Timeline

Sara stated that this is the first 5-Year Review conducted by DEP; therefore, it is a new product and process for the agency and involved stakeholders. She requested feedback on the process and product. The review includes information through May 31, 2017. She provided the following timeline:

1. July 14, 2017 – Deadline for DEP to receive project updates (for activities through May 31, 2017) and potential new projects (for the next 15 years) from stakeholders.
2. August 31, 2017 – Deadline for stakeholders to upload water quality monitoring data via the Watershed Information Network (WIN) or Florida Storage and Retrieval System (STORET) for samples collected through May 31, 2017.
3. October 18, 2017 – Date of public meeting to present and obtain comments on the draft report.
4. October 30, 2017 – Deadline for DEP to receive comments from stakeholders on the draft report.
5. November 30, 2017 – Deadline for DEP to submit the final report to the Florida Legislature and Governor.

Draft 5-Year Review Report

Kevin stated that the draft report was released on October 16, 2017, and consists of three chapters that focus on the past (background information), present (assessing progress), and future (recommendations).

Background Information

The background information includes a summary of the Caloosahatchee TMDL and BMAP regulatory components. The Caloosahatchee Estuary BMAP was adopted in November 2012 to implement a total nitrogen (TN) TMDL that was adopted in 2009. The required TN reduction in the Tidal Caloosahatchee Watershed is 388,718 pounds of nitrogen per year (lbs-N/year) within 20 years of BMAP adoption.

Assessing Progress

To date, the estimated TN reduction is 217,008 lbs-N/yr (56 % of the required reduction) through 73 projects completed by the City of Cape Coral, City of Fort Myers, Charlotte County, Lehigh Acres Municipal Services Improvement District (LA-MSID), Lee County, Lucaya Community Development District, Florida Department of Transportation (FDOT), and agricultural producers. Twelve projects are also underway and three are planned for a total of 88 projects in the BMAP area. Detailed project tables are included in the draft report.

Kevin highlighted efforts of the Coordinating Agencies that will help meet the TMDL: Florida Department of Agriculture and Consumer Services (FDACS) is providing cost-share assistance to agricultural producers and enrolling producers in its Best Management Practices (BMPs) Program throughout the entire Caloosahatchee watershed; SFWMD is completing multiple projects throughout the Caloosahatchee watershed that are expected to provide water storage and water quality benefits (C-43 West Basin Storage Reservoir Project, C-43 Water Quality Treatment and Testing Facility, and the Lake Hicpochee Hydrologic Enhancement-North Project). Further details on these efforts are included in the draft report.

Mary Szafraniec with Wood presented a series of slides on water quality trend analyses that were conducted for Tier 1 stations in the freshwater tributaries in the Tidal Caloosahatchee watershed and impaired waterbodies (WBIDs) within the Caloosahatchee Estuary. The analyses were based on available data in STORET and WIN for the POR of May 1, 2007 through April 30, 2017. Data gaps were addressed if necessary by using varying gap-filling techniques. Some PORs were truncated due to data gaps at the

Caloosahatchee Estuary Basin Management Action Plan (BMAP) 5-Year Review Meeting Summary

beginning or end of the defined POR. Seasonality and serial correlation were assessed and corrected if evident from the dataset. Nonparametric statistical techniques (Seasonal Kendall and Mann-Kendall trend tests) were used. No differences were found between the Seasonal Kendall and Mann-Kendall results. The trend analyses were conducted on two different spatial scales: individual stations within freshwater tributaries in the Tidal Caloosahatchee watershed, and aggregated data for impaired Caloosahatchee Estuary WBIDs and from S79.

Tributary Trends

TN data from 20 stations were analyzed. No station had statistically significant increasing trends; 3 had decreasing trends; and 17 did not show any statistically significant trends. Total phosphorus (TP) data from 14 stations were analyzed. Two stations had statistically significant increasing trends; 3 had decreasing trends; and 9 stations did not show any statistically significant trends.

Estuary Trends

For TN, two WBIDs showed evidence of seasonality, therefore, seasonally adjusted (decomposed) trend data were used. No statistically significant trends were identified for TN.

For TP, a seasonality pattern was identified; therefore, decomposed trend data were used. Overall, the aggregated WBID data reflects a negative significant trend (improvement in water quality) for each of the WBIDs and station S79.

Recommendations

Kevin explained that this chapter in the draft report discusses the ways in which more progress can be made to meet the required reductions. This is an opportunity to address aspects of the BMAP that can be enhanced such as modeling, allocation revisions, and whether to add, remove, or reclassify the monitoring network stations.

Milestones

The following milestones are proposed:

- 5-year milestone (Years 1 to 5): 50 % or 194,360 lbs-N/year
- 10-year milestone (Years 6 to 10): 80 % or 310,975 lbs-N/year
- 15-year milestone (Years 11 to 15): 95 % or 369,283 lbs-N/year
- 20-year milestone (Years 16 to 20) 100 % or 388,718 lbs-N/year

Estimates of the total TN reduction (217,008 lbs/yr) attributed to completed projects (through May 31, 2017) exceed the first 5-year milestone. 15 projects are currently identified for the 10-year milestone. Estimates have been provided for 8 of these projects, for a total of 93,629 lbs/yr. 2 projects are expected to be complete during years 11 to 15, but sufficient details are not yet available to quantify anticipated TN reductions.

Modeling and Allocations

Kevin stated that during BMAP development, stakeholders expressed concerns about the models used for the TMDL. DEP has consultants evaluating and revising the existing models (Hydrologic Simulation Program-FORTRAN [HSPF] and Environmental Fluid Dynamics Code [EFDC]). The HSPF model, a watershed model, is being clipped to help focus the investigation into causative pollutant(s) in impaired tributaries upstream of the BMAP. The new HSPF model is expected to be complete in early 2018 and will be used to develop a new TMDL for the impaired tributaries. The draft TMDL should be available

Caloosahatchee Estuary Basin Management Action Plan (BMAP) 5-Year Review Meeting Summary

for review by summer 2018. EFDC model scenarios are being run to investigate multiple stressors in the estuary. A final report on the first scenario was released in May 2017. Ultimately, the model results will assist in determining the best path forward with the existing estuary TMDL that was adopted in 2009. The TMDL is being revisited since better tools are now available through the revised HSPF and EFDC models; to support current and future restoration activities; to determine a more refined target; to incorporate more recent data in the decision making; and to address numeric nutrient criteria.

Water Quality Monitoring

It is being recommended that the water quality monitoring network tier system change from the current four-tier system to a three-tier system to increase efficiency and limit sampling duplication. Recommendations for the monitoring network include implementing the new tier system for the sampling stations along with adding and removing specific stations from the network. The proposed changes would become effective upon adoption of a revised BMAP by the DEP Secretary. The proposed tiers and stations are depicted on a series of slides. The recommended Tier 1 stations are essential/mandatory stations that are needed to track BMAP progress and are selected based on their POR, the core parameters they monitor, and their lack of tidal-influence. The Tier 2 stations can be used for regional/secondary analyses. These stations are not included in Tier 1 because of their varying POR or limited core parameters monitored. Tier 3 stations are U.S. Geological Survey (USGS) and Sanibel-Captiva Conservation Foundation (SCCF)-maintained stations that do not provide data to WIN or STORET, but are relied upon for other purposes relevant to the BMAP.

Current (2), recommended (2), and additional (9) flow monitoring locations are depicted on a slide. The current flow monitoring stations are located at SFWMD S79 and USGS Whiskey Creek. DEP recommends 2 additional locations (Orange River and Telegraph Creek), at a minimum, and identifies 9 other stations where flow monitoring would be beneficial to track watershed loads. Kevin requested that stakeholders provide further recommendations or suggestions on additional flow monitoring locations.

Appendices

Kevin mentioned that there are also five appendices in the report (current BMAP projects; future BMAP projects; BMAP monitoring network and recommended revisions; agricultural enrollment and reductions; and water quality data processing and analysis methods). He requested that stakeholders focus on the current and future BMAP projects appendices when submitting comments.

WIN Update

Kevin provided contact information for the DEP STORET/WIN coordinators, so data providers with questions can contact the coordinators directly. Tommy Adams is now the coordinator for the south and southwest areas.

Next Steps

Kevin reiterated that written comments on the draft report are due by October 30, 2017, and should be submitted directly to him with copy to Sara (contact information was provided on a slide). The final report is due to the Florida Legislature and Governor by November 30, 2017.

Sara elaborated that stakeholders should look through the project tables carefully since the data will be included in the new statewide report that DEP will submit in July 2018 to the Governor and Florida Legislature. Each table cell must contain information and where information is lacking, DEP will indicate either to be determined, not applicable, or information not provided. Kevin Coyne stated that project

**Caloosahatchee Estuary Basin Management Action Plan (BMAP)
5-Year Review Meeting Summary**

details are quite important and should be provided by stakeholders, particularly if stakeholders would like their projects to be eligible for state funding.

Questions/Comments

1. John Cassani: Aggregating and decomposing water quality data to determine a trend is an interesting concept. Mary: Data were aggregated on a WBID basis in a similar fashion to how the DEP conducts impairment assessments. Decomposed (adjusted for seasonality) data were used only when data showed evidence of seasonality. Non-decomposed data were used when seasonality was not identified through time-series analyses.
2. John: Did you use all stations within all impaired WBIDs? Mary: Tier 1 stations within the impaired WBIDs were used (listed in Appendix E). John: How representative are the Tier 1 stations in the overall picture? Mary: The Tier 1 stations were used since they have a 5-year minimum POR with minimal data gaps and a good data collection frequency. Sara: One of the criteria for selecting the Tier 1 stations was data availability. The water quality data set will also be posted at the DEP ftp site for review.
3. John: Are you comfortable with the assumptions used in the water quality analyses? Mary: Yes. Rigorous steps were involved in the analyses. The steps and other considerations were discussed with the Coordinating Agencies. Please see Appendix E of the report for detailed information regarding the steps taken for processing and analyzing the water quality data.
4. John: I am concerned regarding the variation in time frame used in the current analyses compared to the analysis used for the TMDL. Your trend analyses are based on 2007 to 2017 while the adopted TMDL is based on 2004 data. Mary: The 2007-2017 POR was selected to allow for a period of 5 years prior to and 5 years after the BMAP implementation, not the TMDL adoption date. Many of the tributary stations did not have sufficient data in 2007 for the stations in STORET, therefore, those stations had the POR start date as 2008. Data for the estuarine stations had sufficient data in 2007, therefore 2007-2017 was used as the POR for the estuarine WBIDs. We rely exclusively on STORET and WIN data. Sara: The period of record (POR) for the analyses was chosen for the purposes of tracking implementation progress. The POR for the TMDL was chosen for a different purpose, specifically to set a target for healthy waterbodies. We did not do comparative analyses here. We established a methodology to evaluate a trend within a specified POR.
5. John: I am concerned there are data gaps when you compare the TMDL POR and current trend analyses. Sara: The current analyses are based on measured data rather than a model. We do look at the 2004 pollutant loading data when evaluating projects and identifying reduction credits associated with the projects, but this water quality evaluation was done to look at the measured response to projects in the tributaries and estuary.
6. John: There is a significant lag time between BMAP implementation (post 2012) and benchmark data (2004 land use) used in the TMDL. A longer POR in your trend analyses would provide more accurate results.
7. John: You do not segregate project progress prior to 2012 in the draft report, and I recommend showing that segregation.
8. Kathleen Greenwood: Do you have an explanation for the spikes in the TN and TP time series? I suggest that you add a WBIDs map in the report. Mary: I do not have an explanation for the TN and TP spikes.
9. Marisa Carrozzo: We appreciate that measured data were used in the trends analyses. How do you take the trends results and translate to a metric that progress is being made? What is the measured data telling us about pollutant reductions in the watershed? If no significant trends are observed, what does this tell us about project progress? There needs to be monitoring of actual projects to ascertain

**Caloosahatchee Estuary Basin Management Action Plan (BMAP)
5-Year Review Meeting Summary**

actual pollutant reductions rather than estimated reductions. Sara: We are tracking BMAP progress through load reductions associated with projects. Our methodology for the trends analyses is to use concentration data until significant flow data sets are available. We are recommending flow monitoring in the tributaries. Kevin Coyne: We acknowledge there needs to be a continuous review of data.

10. John: You used models to establish the pollutant loading. Why not use the same model in the trends analyses since your measured flow data is only from two stations? Sara and Kevin Coyne: Stakeholders requested trend analyses based on measured/empirical data rather than a model.
11. Rae Ann Wessell: Stakeholders do want real-time data; however, with the lack of funding for flow monitoring, this may not be possible.
12. Rae Ann: There is a bias in your analyses if relying only on STORET data. SCCF data are not in STORET. STORET is an incomplete data set.
13. Rae Ann: We need to understand what the projects are actually achieving in terms of load reductions. We need to understand better how project reduction credits are calculated. Sara: The original 2012 BMAP has a lot of information on calculation of the pollutant loading based on the TMDL model and associated reductions needed by stakeholders, so all of that information was not included in the 5-Year Review. Required reductions were determined from model results, and the same model results are used to estimate base loading from an area treated by a project. Efficiencies are then applied by project type, using methods applied in BMAPs statewide.
14. Rae Ann: There needs to be a real analysis of the projects; otherwise, we continue to move the baseline. Water quality is worse now. Sara: Requiring project monitoring by stakeholders is very difficult, and would likely lead to fewer projects being implemented. The statewide methodology used to estimate project reduction credits is based on efficiencies for specific project types that have been developed through previous studies and data.
15. Rae Ann: But you are not requiring monitoring of actual project performance. Sara: There is not a realistic way for DEP to require project monitoring at the local level due to the costs and logistics associated with monitoring. Kevin Coyne: Monitoring is now a requirement to be eligible for some grant funding.
16. Rae Ann: There needs to be a way to track how and where project performance is/is not working.
17. Lisa Kreiger: Monitoring is very expensive and Lee County does monitor some of its projects. There is a balance between undertaking new projects versus more monitoring.
18. Rae Ann: I am suggesting monitoring by sources, not stakeholders, such as on an environmental resource permit (ERP) basis or municipal separate storm sewer system (MS4) permits. Site by site; project by project.
19. John: MS4s are very important to this process since there is a nexus between BMAP projects and MS4 projects. However, there is nebulous compliance in the MS4 Program. I do not see that MS4s identify compliance with restoration targets in their annual reports. Tracking and measuring of progress is an open book.
20. Roland Ottolini: From the Lee County perspective, we are tracking and measuring progress of our projects.
21. Rae Ann: We are not seeing positive changes in the real-time data. Sara: The project reduction credits will continue to be estimates in every BMAP since there is not a monitoring requirement for all projects. Some credits are based on measured data if the data is available. If stakeholders have concerns regarding MS4 monitoring and compliance, please continue to work with DEP staff in the MS4 Program. We understand that various analyses have been done over the years on data in the Caloosahatchee, and the POR will definitely make a difference in the results. Because this analysis is being done to track the measured response to projects in the tributaries and estuary, we chose to focus

**Caloosahatchee Estuary Basin Management Action Plan (BMAP)
5-Year Review Meeting Summary**

on the period when a majority of the BMAP implementation has taken place. We are also recommending additional flow monitoring in the 5-Year Review so that hopefully it can be identified for funding.

22. Janet Hearn: An MS4 permit does require compliance with the TMDL. There are specific deliverables associated with each permit.
23. John: There is a disconnect between the MS4 Program and the TMDL/BMAP Program.
24. Rae Ann: I am concerned there is no coordination between the BMAP Program and the Water Supply Planning Program at the water management districts. For example, the crop changes that are proposed to reduce water consumption will also reduce nutrients.
25. Rae Ann: Are there recommendations on how to fund flow monitoring, such as through a stormwater utility fee?
26. Richard Thompson: The stormwater utility fees are slated for flood control projects. Kevin Coyne: Unfortunately, we are seeing less monitoring throughout the state due to lack of funding.
27. Roland: We do have flow data for Telegraph Creek.
28. Lisa: There are also easement and access issues associated with monitoring. Even if we can fund the monitoring, we sometimes can't get access to the places where we think are important to monitor.
29. Marisa: We support the flow monitoring recommendation report. How can we leverage the report to obtain funds? Sara: The report in and of itself should be leverage since we are documenting the need for flow data to track reduction of the loads required in the TMDL and BMAP.
30. John: The message in the report needs to be emphatic that funding is needed. DEP needs to address fundamental issues associated with measuring progress. There is an obvious discrepancy that you are showing a 56 % load reduction, but yet we are seeing an increase in concentrations. Sara: Please provide those edits directly in the report. We acknowledge that refinement is needed in the report, and welcome your suggestions to help communicate this message.
31. John: We provided our comments during the BMAP development process. Why are we losing funding when implementation is just getting started?
32. Rae Ann: DEP and the water management districts could provide financial support, but the districts keep rolling back their millage rates, which reduces their revenue. By doing so, they are losing a huge opportunity to fund projects. Is there a way for DEP and the districts to combine funding for an economy of scale? Sara: Communicate your concerns to your local representatives who can voice them to the people in charge of those decisions.
33. Sara: We have been talking with USGS to identify cost estimates for funding flow monitoring in the watershed, and potential availability of matching funds. If you have any additional information on the cost to conduct flow monitoring in actual locations, please provide it to DEP. Understanding the magnitude of the cost will help to make decisions about funding.
34. Roland: How can we go about establishing criteria for no net loading in new developments? John: Update the Stormwater Handbook, though that it is a very political endeavor.
35. Kevin Coyne: New technologies are improving project efficiencies. DEP continues to update its statewide BMP efficiencies document that is the resource for determining project credits.

Adjournment

The meeting adjourned at 11:30 AM.

Action Items

Below are action items from the meeting.

1. Kevin: Replace a water quality figure in the meeting presentation prior to finalization.
2. Mary: Provide the water quality data set to DEP.

Caloosahatchee Estuary Basin Management Action Plan (BMAP)
5-Year Review Meeting Summary

3. Kevin: Post final presentation, meeting summary, and water quality trends data and results to the DEP BMAP ftp site. Notify all stakeholders when available.
4. Mary/Kevin/Sara: Review water quality trends results with SFWMD.
5. Kevin/Sara: Consider adding WBIDs to a map in the final report.
6. Stakeholders: Provide written comments on the draft report directly to Kevin Williams with copy to Sara by close of business October 30, 2017.
7. Stakeholders: Provide Kevin Williams and Sara cost estimates to conduct flow monitoring in actual locations.