

Caloosahatchee Estuary BMAP

Annual Meeting Summary

Wednesday, March 30, 2016

10:00 AM – 11:09 AM

SFWMD Lower West Coast Service Center – 1st Floor Large Conference Room

2301 McGregor Boulevard, Fort Myers, Florida

Attendees

Martha Avila, FDEP-South District	Ernesto Lasso de la Vega, Lee County Hyacinth Control District
Missie Barletto, Glades County/AIM Engineering	Sam Lee, Lee County DNR
Jim Beever, SWFRPC	K. McBride, City of Cape Coral
Julie Boese, Citizen	Nicole Monies, FDOT
Tiffany Busby, Wildwood Consulting	Kelly O’Nan, Hendry County
Steve Canton, GEI	Stacey Ollis, SFWMD
Terry Cerullo, FDEP-South District	Judy Ott, Charlotte Harbor NEP
Ben Clayton, FDOT	Roland Ottolini, Lee County DNR
Joel Caouette, City of Sanibel	Tom Mallett, FDACS, Forest Service
Teresa Coley, SFWMD	Joyce Palmer, USFWS
Roger Copp, ADA Engineering	Steve Peene, ATM
Kevin Coyne, FDEP	Pete Quasius, Audubon/Collier
Sara Davis, FDEP	Raulie Raulerson, FDACS
Manuel De La Vega, FDACS, Forest Service	Gary Ritter, Florida Farm Bureau
Phil Flood, SFWMD	Jonathan G. Seig, Pavase Law Firm
Marcy Frick, Tetra Tech	Brent Setchell, FDOT
Katie Hallas, FDACS	Ray Scott, FDACS
Bernadette Hamera, Florida Federation of Garden Clubs	Mary Szafraniec, Amec Foster Wheeler
Jennifer Hecker, Conservancy of SWFL	Richard Thompson, City of Fort Myers
Robin Holland, FDACS, Forest Service/BMP Forester	Dave Urich, Responsible Growth Management
Kerry Kates, FFVA	Mike Walters, AIM Engineering
Keith Kibbey, Lee County DNR	Keri Weeg, Island Sand Paper
	Rae Ann Wessel, SCCF

Welcome and Opening Remarks

The meeting started just after 10:00 AM. Kevin Coyne welcomed everyone to the Caloosahatchee Basin Management Action Plan meeting. The participants introduced themselves and the entity they represent. There were no telephone participants.

Overview of the Caloosahatchee BMAP Annual Progress Report

Sara Davis gave a presentation on the 2015 Annual Progress Report. Sara reported that the total maximum daily load was adopted in 2009 and the BMAP was adopted in 2012. The 2015 report is the third annual progress report that covers the time period of December 2014 through November 2015. Based on estimates for the projects completed to date, just over fifty percent of the necessary reductions have occurred to meet the TMDL for total nitrogen (TN).

Sara showed a graphic of the reductions and the loads compared to the starting load and the allocation. The reductions reflect the completed and on-going projects in the basin. Sara also showed a pie chart that detailed the total reductions achieved by entity (including completed projects and projects underway) and the remaining reductions that still need to be achieved. A table was shown that also described the reductions by entity and compared those reductions to the required reductions. To date, projects associated with 51 percent of the reductions are completed or underway.

Activities During the Reporting Period

Sara noted that the city of Cape Coral, the city of Fort Myers, and agriculture had newly completed projects during the reporting period. Additionally, various on-going efforts continue such as public education, street sweeping and maintenance, and source control ordinances. Sara added that Cape Coral completed a septic tank phase out projects in the “Southwest 6/7” area, but the reduction benefits from this effort have not yet been quantified using the ArcNLET tool.

Sara briefly noted the Ford Street Diversion project completed by the city of Fort Myers, as another more detailed presentation is to follow. Lee County had a series of billboards from July through September 2015 to encourage proper fertilizer use as part of their public education efforts. Lee County also conducted vegetation harvesting at several locations. The Lehigh Acres Municipal Services Improvement District (MSID) distributed over 2,000 education cards related to fertilizer use, household waste, and pet waste. The Lehigh Acres MSID held seven different public education events and school-based events.

The Florida Department of Transportation (FDOT) conducted mandatory training for their staff and contractors on illicit discharge detection and elimination (IDDE). South Florida Water Management District (SFWMD) issued the first of four construction packages for phase 1 of their C-43 West Basin Storage Reservoir project. This project is predicted to supply up to 540 cubic feet per second in base flow during dry period. The SFWMD also kicked off Phase I of the C-43 Water Quality Treatment and Testing Facility project that is testing the use of wetlands for reducing nitrogen loads to the Caloosahatchee River and Estuary.

The SFWMD also has two additional projects underway—a tape grass pilot study and the Lake Hicpochee Hydrologic Enhancement-North effort to provide water storage, rehydration of a lake bed, and provide capacity of ancillary water quality enhancements.

The Florida Department of Agriculture and Consumer Services (FDACS) has continued enrollment in best management practices (BMPs) with 18,480 acres enrolled. Based on the increase in enrollment, new TN reductions of 16,696 pounds per year (lbs/yr) were estimated.

Sara summarized the reductions accomplished during the reporting period of 23,989 lbs/yr of TN. Total reductions to date equal 196,187 lbs/yr of TN.

Ford Street Preserve Summary

Richard Thompson with the city of Fort Myers provided an overview of their Ford Street Preserve project. Richard explained that the project was completed in October 2015 and serves an 811-acre urbanized watershed. This is the third filter marsh the city has constructed. The first filter marsh was in Billy Creek and the second one was the Fort Myers Country Club project. Two other projects are

planned, but have significant barriers such as the need for property acquisition or airport proximity issues.

Richard showed a map of the site. The water moves through a diversion weir into a settling pond. There is a sheet pile weir that serves an overflow function. The wall elevation is 3.7 feet high. The city plans to add a trash barrier in the near future to catch waste materials that enter the system. Richard noted that the area was already a wetland when the project started, but was full of invasive exotic plants. The city removed the exotics, left many native plants in place and added additional plantings. Richard showed a list of the plantings that were added to the site in addition to those that were already there.

Richard showed a photo of the diversion weir; the weir has a diversion gate for emergency discharges. Richard stated that the sheet pile wall along the boardwalk serves as a large weir. Richard showed a photo of the boardwalk and noted that the site is adjacent to a city park. Richard added that some of the project benefits were unforeseen such as the minimization of a collision of high flows with Billy Creek.

The project includes public education. There are signs in the park and along the boardwalk, of which Richard showed some photos. The signs along the boardwalk describe the plants which are easily observed from each sign's location. Tiffany Busby asked what the funding sources were for the project. Richard responded that the project received both a Section 319 grant from DEP and a grant from the Land & Water Conservation Fund. Brett Setchell asked how big the site is. Richard answered that the project site is 5.75 acres. Judy Ott asked for directions on how to visit the site and Richard provided them. Kevin thanked Richard for his presentation.

Monitoring Program Update

Kevin introduced Dr. Mary Szafraniec from Amec Foster Wheeler. Mary described the entities that are conducting water quality monitoring as part of the BMAP monitoring plan. These entities include the following: city of Cape Coral; city of Fort Myers; DEP-South Regional Operations Center; Lee County and SFWMD. Mary emphasized that it is important that the water quality data are uploaded to the Florida Storage and Retrieval (STORET) database so the information can be used to assess the benefits of the projects in the BMAP. Mary added that biological monitoring of oysters and seagrass is conducted by SFWMD, and DEP also monitors seagrass. These data are available from DEP either through the Division of Environmental Assessment and Restoration (DEAR) (hard copies) or the Charlotte Harbor Aquatic Preserves (Excel format).

Mary described time series analyses she performed on TN concentrations at four sites. Mary showed a map of the site locations. Mary explained that these sites were selected because they had a long enough data period to allow for a trend analysis. Mary stated that she filtered the data to select only surface grab samples, which eliminated duplicate samples at different levels in the water column that were taken at some stations. Mary added that laboratory "U Codes" or "non-detect" measurements were treated as if the sample measured one-half the minimum detection limit (MDL). The analyses that were performed were monotonic trend analyses using a non-parametric approach. Mary used the Mann-Kendall test to identify trends and to test whether the trends were significant.

Mary stated that annual geometric means (AGMs) were calculated using monthly values for each year in the period of record (POR) for data available since January 2000. Mary noted that AGMs are less

sensitive to outlying data than arithmetic means and are, therefore, more appropriate for comparing targets. Mary stated that she also overlaid the AGMs on the long-term time series trend line.

Mary showed the AGMs at each site for each year. She noted that two sites were limited to AGMs for 2011 to 2015, because five years of data were not available for the preceding years, which was the data limit for this technique. Mary showed an aerial image locating site Cape Coral 300 (CC 300) at Meade Canal. Mary showed the Mann-Kendall test for this station. Mary used a P Value standard of 0.05 or less to indicate significance of a trend. This analysis gave a P Value of 0.21 and therefore the trend is not statistically significant.

For site CC 390, for which Mary showed an aerial photo with the site location at San Carlos Canal, the results were similar with no statistically significant trend, with a P Value of 0.76.

For the site called "DEP CALUSA0023FTM," Mary showed the site location on the Orange River. For this test, there was no significant trend with a P Value of 0.86 for data from 2011 to 2016. Mary added that she is considering looking at where the AGM meets the trend line. For the site at Hancock Creek (DEP CALUSA0025FTM), there was also no significant trend with a P Value of 0.48.

Mary stated that she and DEP are interested in feedback on this statistical approach. These statistics are not included in the draft Annual Report, but similar summaries could be included in the future. Mary added that SFWMD's South Florida Environmental Report (SFER) is now available online. Volume 1, Chapter 10 of the SFER has detailed information on the Caloosahatchee Basin. This report is available at <http://my.sfwmd.gov/portal/page/portal/xweb%20about%20us/agency%20reports>. Mary asked if there were questions.

Gary Ritter asked if Mary had looked for a relationship with rainfall. Mary replied that they are looking at flow and would consider looking at rainfall as well. Kevin added that we could look at that but the biggest challenge right now is getting all the data into STORET so it can be considered. Ernesto Lasso de la Vega asked if the trends could be de-seasonalized. He suggested using a seasonal Kendall-Tau test. Mary responded that he made a good suggestion and that approach is currently under discussion.

Judy stated that she liked the idea of using the seasonal Kendal-Tau test and that these analyses are a good step forward. Judy suggested that it would also be helpful to look at sub-basins and to look for flow data to calculate loads. She suggested that it would also be interesting to look at the land uses in the different sub-basins. Mary thanked Judy for her suggestions. Mary responded that they have looked at nutrient concentrations and the U.S. Geological Survey (USGS) gage data, but there are not many that are available to use.

Keith Kibbey stated that the Charlotte Harbor National Estuary Program (NEP) has been conducting a seasonal Kendall-Tau test on water quality data and posting the results on their Water Atlas. This effort is being done for their entire NEP study area. Keith noted that their five-year time periods and DEP's may not be the same, however. Kevin responded that DEP doesn't want to duplicate regional efforts and that feedback is appreciated. Judy noted that these may not be duplicate efforts because the BMAP is focused on a smaller area. It is also interesting to compare the current results to historic data. Judy

added that the Water Atlas is administered by the University of South Florida (USF) and uses a statistical model developed for the NEP by Janicki Environmental.

Mary and Kevin asked for any additional comments on the statistical approach as soon as possible.

Modeling Update

Sara noted that during the Caloosahatchee BMAP development, stakeholders had concerns about the models used for the TMDLs. Issues that were identified include the following: agricultural pumping; streams with reversing flows; model time period; stations for calibration; and outdated land use coverage. Sara stated that DEP has contracted with Tetra Tech and AMEC to evaluate and revise the existing Caloosahatchee models.

Sara explained that the Hydrologic Simulation Program FORTRAN (HSPF) model has been developed for the watershed between Lake Okeechobee and San Carlos Bay. Sara also showed a map of the previous model's coverage. Sara added that there is also a hydrodynamic/river model using Environmental Fluid Dynamics Code (EFDC). The previous application of this model covers the estuary and river to Structure 79 (S79).

Sara reviewed the project tasks which include numbered tasks one through 10. She added that the task 1 draft memo has been circulated for comment. This memo includes the evaluation of the HSPF and EFDC modeling integrity and development of project templates. Sara stated that the DEP TMDL staff held a public meeting on March 11, 2015 to discuss the approach, and the consultants are now making adjustments to the memo based on comments received. Tasks 2 through 10 will proceed. Sara said that DEP will send out the draft memos for comment as they are ready for review. DEP expects the modeling to be completed by March 2017. The modeling information may lead to existing TMDL refinements as well as to new TMDLs.

Sara noted that she also expects to expand the BMAP area upstream in the future and noted that some upstream projects are already underway. Sara provided TMDL contacts at DEP including Erin Rasnake, Mohammad Sayemuzzaman and Douglas Gilbert.

Next Steps

Sara relayed that the Florida Legislature made revisions to Section 373.4695, Florida Statutes (F.S.) in 2016. These changes provided new requirements for the Northern Everglades watersheds including Lake Okeechobee, Caloosahatchee and St. Lucie. The requirements include enhanced integration of SFWMD protection plans and BMAPs and additional reporting requirements.

For the Northern Everglades and Estuaries Protection Program (NEEPP) BMAPs, the new requirements include the listing of projects to achieve the TMDL in 20 years; five-year milestones to measure progress; and a five-year progress report. New elements for all BMAPs include the collection of additional project and funding information.

In response to these requirements, in early 2016 Sara and her counterparts contacted more than 1,000 stakeholders in the five South Florida BMAPs and requested information on new projects. To date,

information on 18 projects has been received. No projects have been received for the Caloosahatchee area. Sara encouraged everyone to submit any projects they would like to pursue.

Sara listed the action items she has identified that include the following: comments are due on the annual report by Friday, April 8th; everyone who collects monitoring data is strongly encouraged to upload their data into Florida STORET; DEP will continue water quality analyses; model results are expected in March 2017; the next annual meeting is planned for Spring 2017; development of the Phase II BMAP should begin in 2017; and the Muddy Water Blues event will be held in Ft. Myers on April 26, 2016.

Ernesto asked why DEP doesn't eliminate any project requests that have zero reductions in their application. Sara responded that the project information is just what has been submitted so far, and the submittals have not yet been screened or prioritized. In addition, it is possible that some projects will achieve nutrient reductions but the calculations were not available at the time of the request. Kevin added that the screening process is not there yet, but it was important to start the project request process.

Bernadette Hamera asked why the sampling doesn't include measuring what the sources of nitrogen are and where the nitrogen comes from. Tiffany responded that once the nitrogen is in the water, it is not always possible to tell exactly where it came from. It is possible to test nitrogen isotopes to identify certain types of sources, but the exact nitrogen source is not something that is easily measurable. Someone stated that it is important to know if the source came from agriculture or from another source. Sara responded that we do use models to try to estimate the loads from different land uses such as agriculture and urban land uses.

Judy asked what the timeframe is for collecting new project information and offered to send out the project requests again through the Charlotte Harbor NEP website. Kevin responded that might be helpful. Brett asked about expanding the Caloosahatchee BMAP upstream and if the new boundary will be adjacent to or overlap the lake Okeechobee BMAP. Sara responded that the Lake Okeechobee BMAP is expected to overlap the Caloosahatchee BMAP as the boundary is expanded upstream, and already overlaps the St. Lucie BMAP. Jim Beever suggested there should be a protocol to avoid over-counting project benefits. Sara responded that DEP is counting the benefits at the receiving waterbody, in this case the Caloosahatchee estuary, so over-counting should not be a problem. It won't be "double-counting" but "different accounting."

Tiffany reviewed the action items.

Adjournment

The meeting adjourned at 11:09 am.

Action items

- Mary and Kevin asked for any additional comments on the statistical approach as soon as possible.
- Comments are due on the annual report by Friday, April 8th.

- Everyone who collects monitoring data is strongly encouraged to upload their data into Florida STORET.
- DEP will continue water quality analyses.
- Model results are expected in March 2017.
- The next annual meeting is planned for Spring 2017.
- Development of the Phase II BMAP should begin in 2017.
- The Muddy Water Blues event will be held on April 26, 2016 in Ft. Myers.