

**Lake Okeechobee Basin Management Action Plan (BMAP)
5-Year Review and BMAP Update Stakeholder Meeting Summary**

*Tuesday, July 30, 2019 at 9:00 AM
Williamson Conference and Education Center
Indian River State College (IRSC) – Dixon Hendry Campus
2229 NW 9th Ave
Okeechobee, FL 34972*

Participants

David Allen, City of Okeechobee	Logan Luse, FFBF
Rick Baird, Osceola County	Yogesh Khare, Everglades Foundation
Libby Bolles, Rep. Steube	Lisa Kreiger, Lee County
Katie Bowes, Martin County	Kimberly Lawrence, Reedy Creek
Fritz Brewer, Brewer Cattle	Emily Lawson, Orange County
Marisa Carrozzo, Conservancy of Southwest FL	Arthur Lorenz, Air Force
Stacy Cecil, DEP	Linda McCarthy, Lykes
James Colgan, Okeechobee Cattleman	Marcos Montes de Oca, City of Okeechobee
Anne Cox, Citizen	Ximena Pernet, SFWMD
Kevin Coyne, DEP	Mark Perry, Florida Oceanographic
Terry Daniel, Citizen	Libby Pigman, SFWMD
David Davis, SFCO	Nicolas Pisarello, ATM
Sara Davis, DEP	Irene Quincey, Pavese Law Firm
Greg DeAngelo, DEP	Erin Rasnake, DEP
Joe DeCervo, SLID	HM Ridgely, Evans Properties
Mark Dixon, Air Force	Dawn Ritter, Highlands County
Amy Eason, AECOM	Gary Ritter, Florida Farm Bureau
Marcy Frick, Tetra Tech	Kate Rogers, E Sciences
Lisa Gemma, E Sciences	Maria Romero, Lee County
Gary Goforth, GG LLC	Chad Rucks, Environmentalist
Kathleen Greenwood, FDACS	Ted Saltos, DEP
Roxanne Groover, FOWA	John Small, Cal-Main Foods
Chris Guth, Federico & Associates	Steve Smith, Gulf Citrus Growers
Noah Handley, Lykes	Tim Stanley, Glades County
Herb Harbin, Osceola CFB	Jeff Sumner, Sumner Engineering
John Hayford, OUA	Amy Thibaut, Pavese Law
Mike Holloway, Consulting Engineer	Jose Vega, St. Lucie County
John Howle Okeechobee County	Ron Visness, Citizen
Bob Jarriel, Okeechobee City	Pam Wade, SFWMD
Chris Johns, LLW	Benita Whalen, FCA
Kerry Kates, FFVA	Wes Williamson, Williamson Cattle
Richard Lee, City of Orlando	Bonnie Wolff, FDACS
Beth Lewis, The Nature Conservancy	Wayne Zahn, US Sugar

Welcome and Opening Remarks

Marcy Frick welcomed everyone to the Lake Okeechobee BMAP meeting to discuss the 5-Year Review and BMAP Update. The participants introduced themselves and the entity they represent.

Overview of the Lake Okeechobee BMAP

Sara Davis stated that the total maximum daily load (TMDL) was adopted in 2001 for total phosphorus (TP). The TMDL is 140 metric tons per year (MT/yr) to the lake of which 35 MT/yr is from atmospheric deposition. The TMDL is calculated using a five-year rolling average of the measured monthly loads. The BMAP was adopted in 2014 and focused on the six northern sub-watersheds and included projects for the first 10 years from the stakeholders and Coordinating Agencies (Florida Department of Environmental Protection [DEP], South Florida Water Management District [SFWMD], and Florida Department of Agriculture and Consumer Services [FDACS]). Sara stated that this information is provided for background, but a new approach will be discussed during today's meeting.

5-Year Review Status

Sara stated that the legislature updated the statutes in 2016 and required a 5-Year Review for the Northern Everglades BMAPs to look at ways to improve and adaptively manage the BMAPs. The format of the Caloosahatchee and St. Lucie 5-Year Reviews has included three chapters for background, assessing progress, and recommendations. Sara noted that the format may change if the 5-Year Review for Lake Okeechobee is wrapped up in the BMAP Update that is now required by January 2020. The water quality analysis was already completed by DEP in conjunction with SFWMD, and DEP also worked with SFWMD on the Lake Okeechobee Watershed Construction Project (LOWCP) evaluation. During the webinar in March, the detailed results of the water quality evaluation and model updates were presented. There is the stakeholder meeting today and another meeting or webinar tentatively scheduled for October. In December, the 5-Year Review will be completed, which may be part of the BMAP Update that is due in January.

Sara stated that for the assessing progress chapter in the 5-Year Review, DEP will add the estimated project reductions to compare the total reductions needed to achieve the TMDL. An update on the Tohopekaliga Nutrient Reduction Plan (Lake Toho NRP) will also be included. DEP and the Lake Toho NRP stakeholders decided to include the Lake Toho NRP reporting in the BMAP since Lake Toho is part of the Lake Okeechobee Watershed. A summary of the BMAP water quality analysis will also be included in this chapter. Sara noted that the project count from the Statewide Annual Report (STAR) was included in the presentation and will be updated based information currently being provided by the stakeholders. The projects also include Coordinating Agency projects that have larger water quality benefits. Sara presented a few maps from the water quality evaluation that showed where there were statistically, although not necessarily ecologically, significant trends in loads, flow-weighted mean (FWM) concentrations, and concentrations.

Sara stated that the recommendations chapter describes options to help adaptively manage the BMAP. The items that will be included in this section are the results of the LOWCP evaluation, targeted restoration areas approach, milestones that will be developed after stakeholders submit projects, modifications to the BMAP monitoring network, and the model updates.

Ximena Pernett stated that SFWMD is updating the Lake Okeechobee Watershed Protection Plan in 2020 and the LOWCP is a component of this plan. The approach that SFWMD used to evaluate the LOWCP was to take available data at the sub-watershed and basin levels to identify areas with water quality or flow problems. They then evaluated the more than 80 management measures (projects and programs) in the LOWCP. The Coordinating Agencies met in February to review the water quality data,

statistical analyses, and projects to determine recommendations. SFWMD presented the LOWCP information to the stakeholders for input in April. SFWMD incorporated stakeholder comments and met with DEP in June to present the draft modifications to the LOWCP. SFWMD will be releasing the updated LOWCP after they receive input from the Governing Board. The updated information will be posted to the SFWMD website for the Watershed Protection Plan Update.

Sara stated that DEP is now building on the work that SFWMD did for the LOWCP to create an approach for the BMAP. The new BMAP approach is to focus on smaller "targeted restoration areas," which in the Lake Okeechobee Watershed are the basins. DEP is taking a data-driven approach using monitoring from the agencies and other stakeholders to evaluate TP, total nitrogen (TN), and flow. This approach will be used for all three Northern Everglades BMAPs. DEP will compare the measured data to benchmarks and use information from the SFWMD LOWCP evaluation to determine projects for the targeted restoration areas. DEP will then release a solicitation or request for information (RFI) to ask for projects that specifically meet identified needs instead of just releasing a blanket RFI.

Sara reviewed the handout that describes the approach. There are smaller basins within each sub-watershed and these basins will be evaluated to identify what type of restoration is needed. For each basin, DEP is evaluating existing data for TP and TN, and any available information on the flows and storage is being reviewed. The map in the handout shows the monitoring stations from the tiered BMAP network as an example of where there is available data. DEP will also be looking to recommend additional monitoring where data are needed. Model information may also be used to help inform decisions where needed. The next step is to select benchmarks and DEP is suggesting the numeric nutrient criteria (NNC) for peninsular Florida that apply to flowing streams in the watershed. DEP thought the NNC were a good starting point and information from the LOWCP will also be considered to see where SFWMD found water quality or flow issues. Existing storage goals will be used as the benchmark for flows. The NNC for TP is 0.12 milligrams per liter (mg/L) and for TN is 1.54 mg/L. These numbers were used for the examples in this meeting but DEP is looking for input on the benchmarks. Basins with concentrations below the NNC are green, basins with concentrations two times higher than the NNC are red, and the concentrations in-between are yellow and orange. The NNC were selected to provide an ecologically significant benchmark that has already been peer reviewed.

DEP calculated the average TN and TP concentrations using measured data from the last five water years (May 1, 2013 – April 30, 2018) to focus on current conditions. Sara noted that she started with data from the water quality analysis as an example of the comparison to the benchmarks. The first step is to compare the water quality to the benchmarks and then use the information from the LOWCP evaluation, which used a different period of record but has information on changes over time, FWM concentrations, and unit area loads. The purpose of this evaluation is not to say that a basin has concentrations below the NNC, so no action is needed. The benchmarks are used to determine priority areas to focus limited resources where they are needed the most to make the biggest impact. The benchmarks are not new targets; the TMDL is still the target. The benchmarks are used for prioritization.

Rick Baird asked if the benchmarks only apply to tributaries and not lakes like Lake Kissimmee. Sara responded that benchmarks do not apply to Lake Okeechobee but will be used for the flowing streams in the basins. The data being compared against the benchmarks should be at stations that aren't located within the smaller lakes within the Lake Okeechobee Watershed. Mark Dixon asked if the basins in white on the map do not have data. Sara responded that those basins are not part of the example dataset

that she used. There may be data for the areas in white, but she has not pulled them yet. Mark noted that Tetra Tech collected data for the Avon Park Air Force Range that should be available. Kevin Coyne stated that this is a first cut at the evaluation and DEP is still working on gathering data, so this feedback is helpful. Marisa Carrozzo asked if the basins are the same as the waterbody identification (WBID) number boundaries. Sara responded that the basins were delineated by SFWMD and the WBIDs were delineated by DEP. The basins are likely larger than WBIDs. Gary Ritter asked if DEP has plans to expand the existing monitoring network to add more sites. Sara responded that they do and she will discuss this later in the meeting. Gary Goforth asked why DEP did not use the TMDL load as the benchmark. Sara responded that DEP is using the TMDL load in the process. These benchmarks are being used for prioritization because a concentration was a better comparison, since flow data are not available everywhere to calculate loads. Gary stated that SFWMD has been measuring data for decades and conducting an annual evaluation of actual loads to the lake is better than the deception of the model data. Sara stated that DEP is planning on doing that annual evaluation of measured loads compared to the TMDL as a later step in the process. The benchmarks are being used to help prioritize the basins to focus limited resources. Gary stated that some of the highest concentrations are in the sub-watersheds to the south and DEP is ignoring that information. Sara stated that the benchmarks are being used to compare data that's going into the lake. DEP looked at the data south of the lake and there were few times where back pumping to the lake occurred, so those sub-watersheds are not included in this example. Averages for data that are representative of basins south of the lake can be evaluated, but a methodology for averaging the correct data has not been established yet. Gary stated that DEP cannot just ignore that part of the watershed. Sara responded that the BMAP will include all nine sub-watersheds but they have not completed all the evaluations yet.

Sara stated that after the basin priorities are identified, they will determine what types of projects will be most impactful in each basin to address water quality (TN and/or TP) and/or flow. The projects that have already been identified in the BMAP, LOWCP, and other plans will be compared to the findings in each targeted restoration area to determine if more projects are needed. DEP will use information from SFWMD on where there are flow issues and will rely on the existing storage goals until funding is available to rerun the storage model. DEP will also use information on impaired waters and where TMDLs are in development, since these local targets may help to achieve restoration faster than if the projects are only focused on benefits to Lake Okeechobee. Gary Goforth stated that the map shows projects but the agricultural best management practices (BMPs) are not shown. He asked why the BMPs are not considered a project. Sara responded that they are considered a project and are included in the BMAP but were just not shown on the map. The agricultural BMP information will be used to help target cost-share funding and regional project needs.

Ron Visness stated that he pulled 40 years of data from the DBHDYRO database to look at trends in biologically-active phosphorus, which has increased exponentially in Lake Okeechobee. This causes blooms within the lake, which leads to harmful algal blooms on the east and west coasts after releases. He asked why no one has engineered something to correct this problem. Sara responded that the BMAP is only one element of restoration in the area and is focused on the watershed. The Blue-Green Algae Task Force, SFWMD, and others are looking at ways to address the in-lake problem. This BMAP focuses on water quality in the watershed while a lot of other efforts are ongoing.

Gary Goforth stated that the measured loads are 60 % higher than what is included in the BMAP progress reports. He asked if DEP will use measured data in the future to report on actual progress. Sara

responded that DEP will be reporting more measured data in the future. The project estimated load reductions are based on the average loads from the model but DEP is not saying that is the load to the lake in any given year. The estimated project reductions are one way to evaluate progress and the water quality trends are a second way that's used. This benchmark approach will be a new way to evaluate what is occurring.

Rick stated that the issue in the Upper Kissimmee is flow leading to high loads because the concentrations are low. He asked if they will be a low priority for funding since this area is shown as green. Sara responded that the green is just for the comparison against the benchmark for concentration but other data will also be considered. Gary Ritter stated that there are hundreds of miles of flood control canals that go into Lake Okeechobee. He asked if anyone is evaluating their impact due to legacy loads. Sara stated that DEP has had conversations about legacy loads in those canals but do not have an answer yet. Mark Perry asked if achieving the NNC benchmark will reach the TMDL. Sara responded that the TMDL will not be achieved by reaching the NNC benchmark. The benchmark is just a way to prioritize. Mark stated that the map shows the Taylor Creek/Nubbin Slough concentrations are greater than 0.24 mg/L. He asked if that is the benchmark for that area. Sara responded that the benchmark sets the priority for the basin and this basin is a high priority because of the high concentrations. Beth Lewis asked if DEP will look for hotspots with high TP and TN concentrations even though the BMAP is focused on TP. Sara responded that they will be looking for hotspots for TP, TN, and flow.

Sara stated that DEP will establish milestones after receiving the stakeholder project information. Marcy noted that she spoke with and emailed many of the stakeholders to gather projects. The project information is due tomorrow, July 31st. For stakeholders with projects in the BMAP, one spreadsheet was sent with existing projects to confirm the information. If there are other planned projects, they should be added to this spreadsheet. A separate, blank spreadsheet was also provided. This spreadsheet is for future project ideas to help meet water quality goals and help to establish the BMAP milestones. These future project ideas may be good locations for projects or unfunded projects, and the future projects will not be a BMAP commitment.

Sara stated that DEP is looking to revise the water quality network into tiers. Tier 1 is the structure stations that are used to calculate the load to the lake. Tier 2 is the watershed stations that typically only have concentration data. The Lake Toho NRP monitoring stations will likely be part of this tier. Tier 3 is the U.S. Geological Survey (USGS) flow stations. DEP has been discussing adding temporary or synoptic monitoring to gather data for a shorter period of time in an area. This type of monitoring would be part of Tier 4. Sara noted that another update for the BMAP was that the model domain was expanded from only the northern six sub-watersheds to the entire watershed. The model information will be used to help evaluate the projects received through the RFI. The model will also be used to estimate the base load for the projects to apply the treatment efficiency to estimate the project credits.

Ron stated that he thinks the idea of using temporary stations is a good way to help understand the dynamics in the watershed. Mark Perry stated that SFWMD has monitoring stations within the lake, and he asked if DEP will use those as well. Sara stated that other groups outside the BMAP evaluate the in-lake data. These stations were in the original BMAP monitoring network and DEP is trying to decide whether to include them or not since the BMAP is focused on the watershed. Mark asked if the TMDL is measured at S-65E or other locations. Sara responded that the TMDL is measured at several structures to the lake.

Gary Goforth stated that the updated BMAP has to include a target date to achieve the TMDL. Sara responded that once DEP receives the project information, they will work to establish the milestones. The statute says the TMDL must be met in 20 years and, if it cannot, what is needed to achieve the TMDL. Gary asked if the updated BMAP will not include a schedule. Sara responded that the BMAP will include a schedule with milestones. Gary stated that the TMDL was adopted in 2001 and programs to address the lake have been in place for decades. The 2016 legislation kicked the can further down the road. He is frustrated because the counties in the area of lake discharges have a high mortality rate from the harmful algal blooms. Sara responded that DEP did not create the legislation and they are working towards water quality restoration. DEP is happy to take constructive comments on how best to restore water quality with an understanding of the resource limitations. The stakeholders have the local knowledge and DEP needs them engaged in the BMAP process even outside of the public meetings. Ron stated that their frustrations will not be solved until the legislature understands how bad the problem is throughout south Florida. Sara stated that this new approach has been discussed at DEP all the way up to the Secretary. This is the first time they are publicly presenting the approach and they would appreciate feedback.

Marcos Montes de Oca asked how increasing the amount of urban areas impacts the water quality. Sara responded that DEP tries to use the latest land use information to capture those changes. Libby Pigman asked if DEP could provide information on how locals can get involved in the BMAP process. Sara responded that DEP will be publishing an RFI and will be looking for ideas. If someone has a lot of land in a targeted restoration area which can be used for a project, they should provide that information as a response to the RFI. If someone sees that key information is not being considered, they should let DEP know. Marisa stated that she appreciates DEP looking at both TN and TP data for the Northern Everglades. Based on the discussion today, it sounds like there is a need to better integrate the NNC for benchmarks and the TMDL as the final benchmark for progress. Sara responded that DEP will evaluate progress annually not just towards the benchmarks but also towards the TMDL through comparisons to sub-watershed loads that are being developed. Marisa stated that the more measured data can be used, the better.

Gary Ritter stated that a few months ago, SFWMD asked for input on projects through the LOWCP evaluation. He asked how the suggestions people submitted were used. Ximena responded that SFWMD is waiting for the Governing Board members to review the updated LOWCP before it is made available. As part of the evaluation, they determined where there were flow or water quality issues, and then reviewed the projects in the LOWCP to determine if the projects fit the need for that area. The projects were either kept, modified, or removed if they did not support the need. They also included a list of new projects for the LOWCP, which included feedback from stakeholders. Sara added that these projects will be included in the BMAP evaluation for the priority basins.

Wes Williamson stated that one of the stations in the water quality evaluation had an increase in concentration. He asked how much of this is from nutrients released from rehydrating wetlands through the Kissimmee River Restoration project. Sara responded that the evaluation was done for a 10-year period of record. It only looked at statistical significance but did not identify the cause of the increase. Wes noted that in his experience with wetland restoration projects, there are increases in nutrients initially but these decrease over time. He noted that if a landowner wants to do a project in a basin, this provides a big bang for the buck because the project would hold back water and reduce TP. There would

not be a need to buy land, just compensate the landowner. Sara responded that this type of project is occurring in some places and thoughts on where else to place them would be helpful.

BMAP Update Timeline

Sara stated that the Executive Order was released in January 2019 and included a directive to update the Northern Everglades BMAPs by January 2020. The 5-Year Review was completed for the Caloosahatchee BMAP and St. Lucie BMAP and DEP is working on the Lake Okeechobee BMAP review. Since the timelines for the Lake Okeechobee 5-Year Review and BMAP Update overlap, it may be better to include both in one document. The Executive Order also created the Blue-Green Algae Task Force and the third meeting will be held on Thursday. During the July Task Force meeting, they reviewed information related to the Lake Okeechobee BMAP and looked at innovative technologies to help with algal blooms. DEP will hold one-on-one meetings with stakeholders, as needed, in September. The next public meeting will tentatively be held in October followed by the release of the draft BMAP. The BMAP will be completed in January 2020.

STAR

Sara stated that the project requests for the STAR went out in November 2018 and the project updates were due in January 2019. DEP compiled the report and posted the new story map format at the end of June. Sara noted that stakeholders can download a portable document format (PDF) version but the interactive presentation is more informative. She reviewed the story map webpage, which includes information on TMDLs, BMAPs, and minimum flows and levels (MFLs). The final tab includes an option to download all the BMAP projects in an Excel file.

TMDL Prioritization Update

Erin Rasnake stated that in 2013 the U.S. Environmental Protection Agency announced a long-term vision to provide a better framework for water quality. There are a lot of problems throughout the state with nutrients being high priority nationwide. DEP has a toolbox of options to evaluate waterbodies. DEP determined a priority list for the state in 2015 using the hydrologic unit codes (HUCs) and different criteria such as impairments, Outstanding Florida Waters, restoration plans, ecological areas, aquifer recharge, and Environmental Justice which are areas with higher environmental burdens on certain populations. DEP established TMDL priorities through 2022 and they included a midpoint re-evaluation, which is underway now. The re-evaluation used the same process as 2015 with the latest data and did not find major changes. They added WBIDs in the Kissimmee River HUC, Fisheating Creek HUC, and Taylor Creek HUC, which aligns with Executive Order 19-12 priorities. There is an interactive story map on the TMDL webpage to show the priorities. Under the priority workload from 2013, DEP has adopted more than 46 TMDLs into rule and another 36 TMDLs are in various stages of development. There are 21 impaired waterbodies left on the list in need of TMDLs, of which seven impairments are metals for which DEP is working to develop an approach. Through this mid process update, they added 23 new waterbodies in the Kissimmee, Fisheating Creek and Taylor Creek HUCs for TMDL development by 2022. In other TMDL news, there is a TMDL rule development public workshop on August 27th in Frostproof for several lakes (Lakes Reedy, Ida, Hickory, Clinch, and Adelaide), and another meeting on August 28th in Sebring to kickoff development for several more lakes (Lakes Glenada, Placid, Red Water and Istokpoga). It takes 12 months to 36+ months to develop a TMDL, and DEP is completing about 15 to 20 TMDLs per year. On the story map (found on the TMDL website), there is an option to download the list of priority WBIDs and the status. The stakeholders can contact Erin with any questions or feedback.

GovDelivery Notifications and Next Steps

Sara stated that in the past, if a stakeholder wanted to be added to a DEP distribution list, they had to contact DEP. There is a new process where the stakeholders can go to the DEP website and sign up for the lists they are interested in. Sara reviewed the steps to sign up for notifications and noted that the Lake Okeechobee BMAP is included in the Northern Everglades list.

Sara stated that project information is due tomorrow. The stakeholders should email Sara with feedback on the targeted restoration areas approach by August 13th. There is a tight deadline to complete the BMAP updates and DEP would like to use this approach in all three Northern Everglades BMAPs. The RFI for Lake Okeechobee will be released in September and the next meeting will likely be held in October. The draft BMAP will be sent out in November for review and will be finalized in January.

Questions, Comments, and Discussion

Rick stated that the Kissimmee Chain of Lakes is included in both the Central and Northern Everglades BMAP notification lists but is not specifically listed. Sara responded that these lists are setup based on the BMAPs and since there is no specific BMAP for these lakes, stakeholders should sign up for any list with a BMAP in their area of interest.

Mark Perry asked if DEP is trying to establish TN load benchmarks for this watershed. Sara responded that they will use the NNC TN concentrations to prioritize the basins and will track estimated project load reductions. Gary Goforth provided Sara with a printed list of recommendations for improving the BMAP. He noted that SFWMD is supposed to revise the Works of the District rule 40E-61 to be consistent with the BMAP. He asked how this is being accomplished. Sara responded that DEP is trying to establish priorities to be used by anyone, including SFWMD, but she cannot speak to how they will revise the rule. Mark Dixon stated that he is also a stakeholder in the Indian River Lagoon BMAP where he has a load reduction that needs to be met. He asked if the Lake Okeechobee BMAP will also provide load reductions to the stakeholders. Sara responded that DEP is not looking to do this now because this watershed is not as urban, and the issues need to be addressed through larger, regional projects and initiatives. Individual load allocations may be needed in the future but will not be determined now. Terry Daniel asked if past webinars are posted online. Sara responded that the March webinar and past meeting materials are posted to the DEP file transfer protocol (FTP) site.

Sara thanked the stakeholders for their participation and feedback.

Adjourn

The meeting was adjourned at 10:50 am.

Action Items

- Stakeholders should submit updated project information and future project ideas to Sara and Marcy by July 31st.
- Stakeholders should submit comments on the targeted restoration areas approach to Sara by August 13th.
- Stakeholders should confirm and update their subscriptions to the GovDelivery BMAP topics as needed.