Indian River Lagoon (IRL) Basin Management Action Plans (BMAPs) Meeting Summary
April 3, 2023, via GoToWebinar
1:30 pm – 4:22 pm

Attendees

Holly Abeels, UF
Amy Adams, Citizen
Becky Allenbach, EPA
Carolina Alvarez, Brevard County
Suzanne Archer, SJRWMD
Jana Ash, RES
Aleah Ataman, Brevard County
Christian Avila, SFWMD
Kj Ayres, Indian River Lagoon Council
Lisa Bally, RES
Alex Banner, Citizen
Peter Barile, Citizen
Virginia Barker, Brevard County
Venetia Barnes, Fort Pierce
Janelle Barriero, FL Senate
Mark Barton, SFWMD
James Beams, St Lucie County
Evelyn Becerra, DEP
Matthew Berbig, Citizen
Adam Blalock, DEP
Priscilla Bornmann, Citizen
David Botto, Citizen
Terri Breeden, Brevard County
Tiffany Busby, Wildwood Consulting
Thomas Calhoun, Seminole County
Lauren Campbell, DEP
Jim Cannon, SJRWMD
Joseph Capra, CAPTEC Engineering
Stacy Cecil, DEP
Eric Charest, Indian River County
Tirzah Chichester, DEP
Johnathon Combs, Cocoa
James Condon, AECOM
Steve Crawford, Lake County Water Authority
Jeanne Curtin, FL House of Representatives
Casey Darling Kniffin, FL Oceanographic Society
Sara Davis, DEP
Bill Debusk, Citizen
Kylie Decker, DEP
Duane Defreese, Indian River Lagoon Council
Kim Dinkins, Save The Manatee
Mark Dixon, Citizen
Doug Durham, NASA
Jahn Dussich, Ecosense
Christine Eastwick, FWS
Rebecca Elliott, FDACS
Yesenia Escribano, FDACS
Chris Fagerstrom, Pond & Company
Jennifer Ferngren, FDOT
Jessica Fetgatter, DEP
Sabrina Fischer, DEP
Jake Fojtik, Florida Farm Bureau
David Frady, DEP
Amber Frank, Citizen
Marcy Frick, Tetra Tech
Tiare Fridrich, Save The Manatee
Aubrey Frye, SFWMD
Frank Gidus, Coastal Conservation Association
Diane Goldberg, Citizen
Jim Gorton, Martin County
Kelly Gravuer, EPA
Lindsay Guthrie, Tetra Tech
Lauren Hall, SJRWMD
Donna Halleran, Citizen
Sameul Hankinson, DEP
Madeline Hart, FDACS
Janet Hearn, Applied Technology
Heather Herald, Sea & Shoreline
Cori Hermle, FDACS
Hannah Herrero, Citizen
Ferrell Hickson, FDOT
Matt Hixson, Edgewater
Charlie Hoey, DEP
Moira Homann, DEP
Laila Hudda, Citizen
Bonnie Ida, Citizen
Stephanie Insalaco, University of Tennessee
Jeff Ludicello, SFWMD
Megan Jacoby, SFWMD
Charles Jacoby, SJRWMD
Vj Karycki, Rockledge
Virginia Keating, Citizen
Chandler Keenan, DEP
Gretchen Kelley, SJRWMD

Lewis Kontnik, Citizen
Natalie Kraft, FPL
Kathryn Lamartina, SFWMD
Juli Larock, SFWMD
Kristin Larson, SFWMD
Emily Lawson, Orange County
Ivette Leiva, FDOT
Jack Levy, AECOM
Waylon Locklear, Melbourne
Jen Lomberk, Matanzas Riverkeeper
Eduardo Lopez, Stantec
Lora Losi, Citizen
Kenneth Ludwa, BSE Consultants
Andrew Luering, DEP
Casey Lyon, FDOT
Michael Mccabe, Melbourne-Tillman WCD
Lourdes Mena, FWS
Dan Merritt, Rivers Coalition/SeaGate Harbor HOA
Michelle Moore, NASA
Nicole Morgan, DEP
Lori Morris, SJRWMD
Michael Myjak, Citizen
Kevin O'Donnell, DEP
Stacey Ollis, SFWMD
Judy Orcutt, Citizen
Sara Ouly, SFWMD
Joshua Papacek, SJRWMD
Charise Parker, Sea & Shoreline
Amanda Peck, DEP
Roy Pence, Citizen
Mark Perry, FL Oceanographic Society
Nicolas Pisarello, Applied Technology
Elon Poole, Rockledge
Thomas Price, NASA
Kai Rains, USF
Raulie Raulerson, FDACS
Sandra Reller, Titusville
Olivia Robinson, Citizen
Rhonda Roff, Citizen
Mitchell Roffer, Citizen
Frànk Rohrer, Citizen
Robert Rupe, Citizen
Andrew Seibel, FDOT
Patrick Shearer, RES
Andy Shelton, Fellsmere
Charles Shinn, Florida Farm Bureau
Kevin Shropshire, Rockledge
Kimberly Shugar, DEP
Stacey Simmons, FDACS
George Simons, Carter Associates
Jordan Skaggs, DEP
Bryant Smith, Cocoa
Michael Smith, Citizen
Robert Stone, Terra Azul Tech
Dani Straub, Melbourne
Janelle Strong, DEP
Rachel Sweet, FL Health
Jane Thompson, AECOM
Laurilee Thompson, Indian River Lagoon Roundtable
Scott A Towler, Florida Governmental Utility Authority
Charlie Venuto, Citizen
Bruna Vilela, La Florida Development Group
Amanda Waite, ANGARI Foundation
Thomas Walker, TGW Engineering
Ken Weaver, DEP
Kaylene Wheeler, Dewberry
Ragan Whitlock, Center for Biological Diversity
Terry Williamson, Brevard County
Eden Yarborough, SJRWMD
Kelly Young, Volusia

St. Johns River Water Management District, Chuck Jacoby & Lauren Hall

Question: The Northern IRL probably has a lot of secure airspace. Is there another seagrass mapping process needed for these areas?

Answer: Lauren responded that the secured areas are a complication, especially with more rocket launches than in prior periods. The St. Johns River Water Management District (SJRWMD) and the contractor can get imagery with approval from the National Atmospheric and Space Administration (NASA), but it does take some coordination.

Shoreline Restoration Efforts – Claudia Listopad, Applied Ecology for the U.S. Space Force

Question: I've heard from quite a few folks involved in the issues with the IRL, who are saying as soon as seagrass is planted, the manatees eat them up, or excessive boat traffic uproots them. If true, are there any plans to close off certain areas of the IRL to allow the grasses to grow & develop adequate root systems, etc., or what else is being considered to address this issue?

Answer: Chuck Jacoby responded that protecting newly planted seagrass is an important consideration. Thus far, protection has been implemented on a small-scale, e.g., cages or small wave attenuating devices, but the value of larger scale protection has been discussed. He anticipates further discussions as preparations for large-scale planting continue.

Question: Does riprap and geotech-style fabric on mosquito impoundment dikes count for credit?

Answer: Stacy responded that sounds like a good topic for discussion in our upcoming one-on-one meeting with St. Lucie County in May. Generally, activities that are involved with the maintenance of a permitted project are not credited in the BMAP. However, if the project goes above and beyond those permit requirements or is a retrofit, there may be the potential for nutrient reduction credit on a case-by-case basis.

Question: What is the reason for the increase in fine sediments in 2022, compared with previous years?

Answer: Claudia responded that the changes and variability were relatively small. We have seen erosion occurring over time, so there could be some slight differences. The soil grain size and nutrients were the elements that varied the least compared to the nitrification numbers and the plant numbers. The values of fine sediments went up from below measurable amounts to about 4 to 6%, still a very small fraction of the total sediment. Please note that samples aren't taken at the same exact location, since we fill in the core location with surface sand. We didn't study the dynamics of the living shoreline over time or the spatial variability. You can see there are 6% of fine sediments in April 2021 and close to 0% in the next sampling event. This does highlight there are likely both spatial and temporal variabilities in the data that need to be represented during the monitoring effort.

Question: For the U.S. Space Force projects, what is the estimated cost per pound of N removal?

Answer: Claudia responded that, as contractors, they did not run cost numbers. Steven Baker, U.S. Space Force, provided the following for this summary. The cost for the Runway 11 site, one of the two shorelines, was just under $700,000. This would yield about $1,350 per pound of TN removed and about $71,118 per pound of TP removed.

Question: Did you say phosphorus removal is only assessed by calculation using the Marsh-Redfield ratio? How does that account for "applied" sources of phosphorus, e.g., fertilizers and glyphosate degradation?

Answer: Claudia answered that the phosphorus is calculated in Protocol 1 and Protocol 3. We also look at phosphorus in the soil. You would be able to account for that in the fine grains. The U.S. Space Force is not fertilizing—particularly on the shorelines. You would expect the shorelines to provide more denitrification potential than phosphorus. Also, they were not applying glyphosate on the marsh areas.

Stacy added that the Marsh-Redfield ratio particularly looks at changes in nitrogen, not phosphorus. Following the meeting, the U.S. Space Force confirmed there are no applied sources (either herbicide or fertilizer) in the shoreline where samples are taken.

Question: What is the total N and P removal/prevention goals compared with current status?

Answer: Stacy covered this in her presentation.

Save Our Indian River Lagoon – Terri Breeden, Brevard County

Question: With growth being on steroids at least in Brevard County if not other counties, are current best practices enough to even able to keep up with runoff created by this growth? What measurements are showing us if we are or are not making headway on any projects we do?

Answer: Terri responded that with monitoring, for a lot of projects the county performs pre and post monitoring. For example, for the Breeze Swept septic-to-sewer project in Rockledge, Brevard County has the monitoring report available. For many of our larger projects, many of them are still underway. For the current practices and growth, we have grown a lot. Every action is making an impact and the more we can do to treat runoff before it reaches the IRL, the better off we will be.

Virginia Barker added that in addition to the projects which are retrofit projects to reduce existing pollution, we also have adopted fertilizer ordinances (adopted by the county and the cities). The Brevard County fertilizer ordinance is one of the most protective in the state. We have also adopted a biosolids ordinance that applies countywide; there are no new permits for the application of biosolids. We have adopted a septic overlay ordinance so that new development near the water requires advanced nitrogen-reducing septic systems. Additionally, all the wastewater treatment facilities are now required by the state to upgrade to advanced wastewater treatment standards. The wastewater facilities are also required to have assessments of their infrastructure. Right now, the statewide stormwater rule is being updated and proposed to the Florida Legislature; those changes and have the potential to have influence on the impact new development has on stormwater quality.

Question: It's great to see the positive efforts being made to clean up the BRL. Considering the healthy ecosystems in St. Augustine, Ponce Inlet, Sebastian, Jupiter, Stuart etc. shouldn't we consider opening the Port Canaveral Lock for an extended period on incoming tides to flush the Lagoon with fresh sea water? The challenges we face are the same challenges up and down Florida's East Coast, the difference is they have the ability to flush.

Answer: Stacy stated that there has been a lot of discussion about this topic. One of the big issues with opening the lock is a larger ecosystem question and whether we could do more harm by increasing the flow. There are federal and state agencies looking into it, so we understand more about the implications. Terri added that kind of project is not under the county's jurisdiction and would need to be approved by the U.S. Army Corps of Engineers.

Question: Septic to sewer shows 30% of overall cost. What amount of nutrient removal is anticipated for regional wastewater improvements?

Answer: Terri responded that the reduction to date is 228,000 lbs/yr TN for the wastewater projects.

Question: What is the total N and P removal/prevention goals compared with current status?

Answer: Stacy covered this in the presentation.

Question: We talk about cleaning the stormwater... but the stormwater itself feeds excess amounts of freshwater into the IRL lowering saline levels to dangerous levels.

Answer: Chuck noted that they are updating the 2017 stormwater feasibility study and looking at both nutrient loads and freshwater loads. Stacy added this written answer: While rainwater is typically fresh when it is precipitated, as it travels across the land surface, it carries along whatever is in its path. Leveraging best management practices (BMPs) to reduce the amount of nutrients from being carried is a goal of project implementation. The mass balance of freshwater input from rainfall to the lagoon has seemed to reduce within the timeframe of the updates to the Spatial Watershed Iterative Loading (SWIL) Model which may indicate that freshwater input has remained stable if not reduced.

BMAP Annual Progress Report—Stacy Cecil, DEP

Question: Will DEP be informing FWC of the need to continue supplemental manatee feeding based on seagrass availability and projections for regrowth?

Answer: FWC will determine when manatee feeding is necessary based on their expert analysis.

Question: Isn't Titusville spilling sewer from time to time, or is that not counted? This is in relation to the slide saying Titusville had a 71% nitrogen reduction.

Answer: Stacy replied that she would need to check with the compliance staff to see if it would impact water quality for nitrogen and phosphorus. However, since nutrients are always high in that area of the IRL, that indicates that short-term, individual events are not the only cause of the elevated nutrient levels. Under the BMAP, Titusville much meet their wastewater permit; the facility has a wasteload allocation for nitrogen and phosphorus in the TMDL, as well as their stormwater load allocation in the BMAP.

Question: Does DEP feel the current parameter list is sufficient to explain the seagrass status?

Answer: In terms of monitoring the conditions to promote seagrass growth and the necessary nutrient reductions, the BMAP report outlines the parameters for assessment.

Question: I applaud the progress being made by the SOIRL and other projects discussed here today and your performance discussion--but I do have some specific questions for the DEP. Are the BMAPs working? The BMAP measure in seagrass--given there has been a continuing decline, is DEP going adjust its reduction requirement for point and non-point sources? Are the reduction requirements enforced?

Answer: The reduction target and allowable load established by the TMDLs will not change. The required reduction to meet the TMDLs may need to change as development of agricultural and natural lands changes. The reductions are enforceable through various programs, depending on the source.

Question: In Sierra v. DEP, the appeals court held that DEP BMAPs, "must equitably allocate pollutant reductions … to each point source or category on nonpoint source (e.g., urban turf, agricultural fertilizer, etc.)." Are these types of reductions included in our BMAPs?

Answer: Yes. The IRL BMAPs assign allocation reductions to the stakeholders based on modeled applicable land use types, direct runoff coefficients, and event mean concentrations within their

jurisdiction and the TMDLs assigns specific wasteload allocations to point source facilities. The methodology for allocation assignment can be found in Appendix B of each of the three IRL BMAP reports.

Question: Can you please provide an operational definition of the FDOT District 5? What does this encompass?

Answer: You can see a map of District 5 for FDOT at this link-- **https://www.fdot.gov/agencyresources/districts/index.shtm.**

Question: If seagrass does not recover will there be discussions on what will be our measuring tool?

Answer: DEP will need to continue to monitor the situation as it develops - we still have not met the total maximum daily load (TMDL) targets for any section of the lagoon, and it may be premature to say that seagrass will not recover.

Question: Does DEP have records of salinity in the NIRL? To add, are there records of salinity in the NIRL that date back to the 1960s?

Answer: DEP has all the SJRWMD salinity records; they are most robust from the mid-1990s.

Question: With septic to sewer, we seem to be just moving the problem from one place to another since we spread biosolids on our agriculture lands or liquid to yards and golf courses? With liquid or solid biosolids, are we measuring what other contaminations are doing to the location (for example pharmaceuticals and forever chemicals)? What is Vero Beach doing that we are not doing to bring back sea grasses?

Answer: Biosolids land application is prohibited within the IRL BMAP areas. Class AA biosolids are fertilizers, regulated by FDACS, and may be used within the IRL BMAPs in accordance with FDACS regulations.

1) DEP regulates the facilities that produce Class A, B, and AA biosolids, to ensure the biosolids meet requirements for nutrients, metals, and pathogens.
    a) Once the Class AA biosolid leaves the producing facility, it is not tracked by DEP because it is now considered a fertilizer/soil amendment. These are tracked and further regulated by FDACS as described below.
    b) DEP regulates land application of Class A biosolids (but these are not generally used by agriculture).
    c) DEP regulates land application of Class B biosolids (these are more generally used by agriculture).
2) Agricultural producers need a DEP permit for any Class A or B biosolids applications.
3) Agricultural producers provide to DEP annually:
    a) Application by field, tons of nitrogen, and phosphorus.
    b) A description of material received.
    c) Detailed hauling records.
    d) Site logs showing field level application data.
4) DEP does not require permits for Class AA biosolid application.
5) FDACS Agricultural Environmental Services (AES) tests the Class AA biosolids to make sure the biosolid contents match the packing label.

6) FDACS tracks Class AA biosolid nutrient application as part of the implementation verification monitoring.
7) FDACS doesn't measure or monitor other constituents or potential contaminants.
8) Agricultural producers whose operations produce animal waste (dairy, poultry) that is applied onsite must report it to DEP as part of their animal feeding operation (AFO)/confined animal feeding operation (CAFO) permit (nutrient management plan).

The Central IRL project zone B, where Vero Beach is located, did not have the full extent of the long term algal blooms that occurred in the North IRL and Banana River Lagoon during 2011, 2016, and 2020. The light limitation for this area of the lagoon has not been as severe, which allows for seagrasses to survive better.

Question: Re parameters - is there any monitoring of herbicides or runoff from the vastly increased space launches?

Answer: Herbicides are monitored by DEP and where standards have been adopted, they are assessed to determine if they are meeting the standard thresholds, similar to any other pollutant.

Question: Shouldn't we ensure our sewer infrastructure is solid before moving septic to sewers to ensure we are not causing a bigger problem when our sewer systems have such large spills from time to time?

Answer: Stacy answered that this is part of what the Clean Waterways Act (SB 712) asked of the wastewater operators—do they have additional capacity to take on additional waste from phased out septic system. This is information that DEP needs from the local wastewater utilities.

Question: Stacy mentioned leveraging nature-based solutions, is there more information available on this?

Answer: This is a burgeoning topic of discussion and a mandate of Executive Order (EO) 23-06. As many nature-based solutions such as oyster reef restoration and marsh plantings do not have a means of crediting specific nutrient reductions without extensive monitoring and large start up considerations, they are a lower priority for stakeholders to submit as a BMAP project. As more projects come online and more data become available in terms of how nutrients are reduced by them, more of these projects may be seen in the BMAPs.

Question: In order, Central Zone A, Central Zone SEB and then Central Zone B we see a significant improvement going south with the TMDLs. Is this a result of infrastructure improvements or are the TMDLs lower as a result of being tidal influenced areas? I find the accuracy of this data troubling.

Answer: It may be too early to assume that the improvement in these areas are significant; it may be more accurate to say that the challenges towards reducing nutrient pollution in these areas are different. For example, the extent of the long term algae bloom events from 2011, 2016, and 2020 did not extend as far into this area of the lagoon so the extensive die off from extended light limiting conditions was not seen in this area. There is still a significant loss of seagrass in this area compared to historic conditions and the nutrient inputs are still above acceptable levels.

Question: Is the TMDL wastewater staff working more closely with the stormwater side? With current permit language in the special conditions section sampling to determine compliance in meeting the new Clean Waterways Act may pose an issue that will need further discussion and partnering.

Answer: The DEP wastewater permitting section is working with facility operators to meet the conditions outlined by the TMDL rule (62-304.520, F.A.C.) and the adopted BMAPs. The Clean Waterways Act requires facilities within the BMAPs to create a plan that will allow them to both provide service to their area and meet restoration targets.

Question: The MRC IRL report was released during this webinar: It concludes, in part, that the seagrass is dying even though water quality is improving.
https://files.constantcontact.com/b2cbe08e601/53b749f1-80d7-4a65-8a90-455afe32d0e0.pdf.

Answer: Thank you for providing the report.

Florida Department of Agriculture and Consumer Services – Yesenia Escribano

Question: Are there not alternatives to push on Big Ag when it comes to fertilizers? What are ways for us to make that change at least in Zone B?

Answer: Yesenia responded that she wasn't sure which Zone B is being referenced since there are three Zone Bs in the IRL. In general, growers use best management practices (BMPs) to control fertilizer usage to prevent nutrients in agricultural runoff. Then FDACS uses the implementation verification (IV) process to verify those BMPs. Growers and producers are required to keep records of their fertilizer application and these records are audited during IV site visits to determine compliance with BMPs. FDACS staff establish corrective measures if they are not being properly implemented, including fertilizer application rates above University of Florida-Institute of Food and Agricultural Sciences (UF-IFAS) rates.

Question: I'm looking for some design standards for cattle crossings of canals, to stabilize and prevent erosion. Is funding available for the ranchers?

Answer: Yes, cost share funding from FDACS is available to prevent erosion. The Natural Resources Conservation Services' EQIP Program provides funding and assistance for design. Yesenia Escribano will reach out to Mike McCabe directly.

Question: Why is enrollment low? Why is ag so far behind in reductions across the board?

Answer: It is due to a variety of factors, including the following:

- Difficulty hiring and retaining FDACS staff in this area.
- The Clean Waterways Act mandates biennial implementation verification sites visits. Since the law went into effect (July 2020), FDACS has been focusing on implementation verification efforts in the identified priority BMAPs, including IRL. New enrollments were a lower priority during this time.
- The 2022 hurricane and the Governor's executive orders had a big impact on implementation verification (IV) and enrollment activities.
- FDACS has requested additional staff each year to accomplish both IV site visits and new enrollments.

Question: What is being done to ensure the agricultural producers are taking these targets seriously? The common theme seems to be very little progress toward meeting targets for agricultural producers in all regions and they appear to have some of the largest targets.

Answer: We are committed to working together to develop projects both individually and regionally to improve water quality.

Question: In late November 2022 FDACS issued an emergency rule, 5MER22-8, allowing agriculture to reapply fertilizers lost to Hurricane Ian. The rule listed no expiration. Was there an expiration date? Has DEP considered this additional application in this assessment?

Answer: See the two items below--

a. 252.36 Emergency management powers of the Governor.— Pursuant to the authority vested in her or him under paragraph (a), the Governor may issue executive orders, proclamations, and rules and may amend or rescind them. Such executive orders, proclamations, and rules shall have the force and effect of law. An executive order, a proclamation, or a rule must be limited to a duration of not more than 60 days and may be renewed as necessary during the duration of the emergency. If renewed, the order, proclamation, or rule must specifically state which provisions are being renewed.

b. Clegg Hooks is the FDACS contact for this rule—he can be contacted at clegg.hooks@fdacs.gov.

Agricultural Best Management Practice Compliance – FDEP David Frady

Question: Are there not alternatives to push on Big Ag when it comes to fertilizers? What are ways for us to make that change at least in Zone B?

Answer: The agricultural BMP enforcement process was described in David Frady's presentation.

Question: The load reductions achieved by agricultural producers are very low. Will they be required to improve their load reductions?

Answer: As more agricultural lands are enrolled, FDACS anticipates that there will be further reductions.

Question: Wasn't Senate Bill 712 just amended to adopt the Least Cost Alternative? If so, how will that affect the BMAP goals?

Answer: David Frady responded that Senate Bill was passed in 2020, so we need further clarification on what she meant by the recent amendment; there has been no revision as it relates to agricultural BMP enforcement.

BMAP Next Steps—Stacy Cecil, DEP

Stacy reviewed how the statewide annual report (STAR) works and the timelines.

Stacy also reviewed what happens next with the BMAPs. She also outlined the Clean Waterways Act requirements for WWTF and OSTDS plans from local entities. Stacy described Executive Order 23-06 including the IRL funding and reducing nutrient contributions.

Stacy will email the stakeholder list with follow-up information from this meeting. This will include today's presentation, the meeting recording, and a summary of the questions and answers. If we did not

get to your question today in the live discussion, DEP will include a response in the meeting summary. If you have further questions about the meeting today, please feel free to reach out to the presenters or to Stacy Cecil.

Question: Can you provide a link to watch the recorded webinar after the meeting?

Answer: Yes, Stacy will send out an email after the meeting with a link to the recording as well as a copy of the presentation.

Adjourn

The meeting adjourned at 4:22 pm.

Action items

Stacy—Post the presentation, recording, and meeting summary to the FTP site and notify the IRL list that the materials are available. Follow up on any outstanding questions.

Yesenia/Stacy—Follow up with Mike McCabe on his cattle crossing question; Stacy will provide Mike's contact information to Yesenia.

All--Provide comments on the SWIL Model calibration. Send out a reminder.

Modelers/Stacy—Work on the allocation load run and the load estimation tool.

Local Governments/Special Districts/CDDs—Send any jurisdictional boundary changes to Stacy Cecil as soon as possible so they can be used for the allocation load run.

Local Governments with WWTFs—Plan to provide your WWTF information and plans to DEP to meet the Clean Waterways Act requirements.

Local Governments with OSTDS—Plan to provide your OSTDS information and plans to DEP to meet the Clean Waterways Act requirements.