

**North Indian River Lagoon
Basin Management Action Plan (BMAP)**

Technical Meeting Summary

Friday, September 11, 2009

9:30 AM – 11:30 AM

*Brevard County Agricultural Center
3695 Lake Drive, Cocoa, Florida 32926*

Attendees

Amy Adams, Cape Canaveral Scientific, Inc.	Bob Kelly, SAIC
Sheryl Albeiga, BKI, Inc.	Ken Kniel, DRMP
Carolina Alvarez, Brevard County	John Matthews, NASA-KSC
Virginia Barker, Brevard County	Mike McBee, Brevard County
Ernie Brown, Brevard County	Craig Mott, Citizen
Tiffany Busby, Wildwood Consulting	Carol Noble, Noble Engineering
Crystal Cook, FDEP	Marcy Policastro, Wildwood Consulting
Robert Day, SJRWMD IRL NEP	Ken Poole, Rockledge
Douglas Durham, NASA	Robert Potts, E-Sciences
Roger Dykes, Cocoa	Thomas Price, NASA-KSC
Gordon England, Stormwater Solutions	Troy Rice, SJRWMD IRL NEP
Chris Ferraro, FDEP	John Royal, Brevard County
Vivian Garfein, FDEP	Suzanne Stempel, Brevard County
Whit Green, SJRWMD	Dani Straub, Melbourne
Don Griffin, Rockledge	Steve Szabo, Jones Edmunds & Associates
Lorraine Guise, Titusville	Alix Townsend, Rockledge
Kathy Hill, SJRWMD	Amy Tracy, FDEP
Erlyn Hupfer, ISC Environmental Assurance	Kalina Warren, FDEP
Michael Jarusiewicz, Rockledge	Everett Wegerif, Cocoa
Carol Johnson, FDACS	Kelly Young, Volusia County

Welcome and Opening Remarks

Tiffany Busby welcomed everyone to the first technical meeting for the North Indian River Lagoon (IRL) Basin Management Action Plan (BMAP). The participants introduced themselves and the entity they represent. Tiffany noted that the Florida Department of Environmental Protection (FDEP) is working to carefully step through the stages of the BMAP and will bring information to the stakeholders for input. The process may seem slow at times but the goal is to be methodical and learn about the basin. This meeting is to specifically discuss the North IRL and identify the correct stakeholders. FDEP started with the contact list from the IRL National Estuary Program (NEP) and added stakeholders to it based on requests and attendees of the two kickoff meetings. The distribution list was then cross checked with the stakeholders in the basin to ensure that at least one representative from each entity was included. If there is anyone missing that should be added, please let FDEP know.

Amy Tracy stated that she knows a lot of the stakeholders are interested in getting started with the BMAP and want their pounds reduction requirement. FDEP is in the process of determining an allocation approach and the approach should be ready for the next meeting. Before it can be brought to the stakeholders for input, it will need to be reviewed internally to obtain buy in from FDEP upper management. There are a lot of data to review and implications that must be thought through before determining an approach so there is no information to share yet. The

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allocation calculations will not be ready for the next meeting; however the process for the allocation approach can be discussed. Amy also noted that FDEP is reconsidering the project cutoff date based on additional info brought forward by the St. Johns River Water Management District (SJRWMD) and the Total Maximum Daily Load (TMDL) data. FDEP is now reviewing the possibility of using 2000 instead of 2006 as the start date for project eligibility. This will be discussed at the next meeting.

Ernie Brown asked if the model data and development information would be provided at the next meeting to help everyone understand how the land use/land cover data were used to determine loads. Amy responded that the discussion during the meeting will be on who is receiving an allocation and how the allocations will be calculated, which is related back to the model. A presentation is not currently planned to provide a detailed review of the TMDL model. Public meetings were held on the IRL main stem TMDL in which Dr. Xueqing Gao (FDEP) discussed the model and there are papers that Whit Green (SJRWMD) and Joel Steward (SJRWMD) prepared on the model that can be posted to the FTP site.

Virginia Barker stated that the technical stakeholders need a good technical understanding of the TMDL model so they inform their upper management colleagues that the BMAP is moving forward correctly. This needs to be discussed soon to help future meetings go more smoothly. Amy responded that these are technical meetings; however, they have to meet the requirements of the Governor's plain language initiative in which information must be presented in a way that everyone can understand. These meetings will become more technical as the BMAP process moves along. FDEP will consider including a presentation to review the TMDL model in a future meeting if this is a concern for the stakeholders. The focus will be on how allocations were determined through the model instead of details on how the model works. Virginia noted that a detailed review of the model is not needed but information on data inputs, assumptions, and data gaps is important. Any changes made to the SJRWMD model by FDEP during the TMDL process are also key topics. Amy responded that FDEP took the model from SJRWMD and used it "as is." Dr. Gao included atmospheric deposition information in the TMDL and also two point sources that were missing from the U.S. Environmental Protection Agency (EPA) TMDL. However, he did not add any additional data to the model or rerun it.

Information Needed for Basin Working Group Formation

Tiffany stated the role of the Basin Working Group (BWG) was briefly discussed in the kickoff meetings. A handout was provided as the BWG nomination form. FDEP has found that in other basins it takes some time for an entity to identify the appropriate representative so this process is starting now in order to have the BWG set when a meeting is needed. The forms should be submitted by December 1st and the BWG will not be finalized until FDEP has determined who will receive allocations. Each entity that has an allocation will have a seat on the BWG. The BWG will have a set membership and FDEP will appoint the members based on the nominations from the technical stakeholders. If there are multiple nominations from an entity, FDEP will contact the entity to determine the most appropriate representative. The BWG functions as an advisory group to FDEP on BMAP items and although the recommendations are not binding to FDEP, FDEP will consider the recommendations when making a decision on the BMAP. The BWG members are not allowed to discuss BMAP related items outside of a publicly noticed meeting as required by the Sunshine Law. This limitation will influence who should be chosen

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from each entity. FDEP does not dictate who the representatives should be and the member can be a staff person or an elected official. A nomination for an alternate should also be provided because the BWG will have a quorum requirement for voting and it will be important to have a representative if the member cannot attend. The BWG will not meet frequently and the meetings will be as short as possible to efficiently use their time. Therefore, it is very important for the technical stakeholders to keep their BWG representatives briefed on the BMAP. The BWG will vote on the allocation approach, project reductions, the BMAP document itself, and any other issues as needed.

Amy noted that the BWG meeting will not be held for several months but FDEP wanted to give the stakeholders enough time to identify their representatives. In some cases, several cities may work with a county through the municipal separate storm sewer system (MS4) relationship and those cities may choose to use the county BWG representative instead of having their own member. It is up to each entity to determine the appropriate representative for them. Ernie asked if FDEP could provide examples of what other BWG memberships looked like and a more detailed list of policy decisions that the BWG will make. This will help determine the best representative. Tiffany responded that each entity is organized differently so it will be difficult to apply an example from another basin. Example lists can be provided but it may not be obvious why an entity chose that specific representative. In addition, an entity may have different representatives for different BMAPs, which is the case for SJRWMD. Amy added that an appropriate representative is one that is high enough within an entity that they can make decisions on funding commitments.

North IRL TMDLs – Main Stem and Tributaries

Bob Kelly stated that he did a water quality analysis for the North IRL waterbody identification numbers (WBIDs), which are 2963B-F (south to north). The TMDL for the main stem developed total nitrogen (TN) reductions, which range from 35-36%. Atmospheric deposition was examined in the TMDL. The Central and North IRL have shown significant reductions in TN over the last ten years, which may be due in part to reductions in atmospheric deposition. Atmospheric deposition will not be examined in greater detail until the next TMDL cycle and this could change future BMAP allocations. The TP reductions in the TMDL range from 47-53% and TP is not really affected by atmospheric deposition.

Bob noted that the TMDL includes a discussion of point source discharge reductions and each treatment facility will be restricted through their permit to either their current discharge or the 95th percentile of their current discharge. Additional details on the calculations for the point source allocations are included in the TMDL document. Chris Ferraro added that the facilities' current permit limits are based on permitted capacity and the revised limits in the TMDL are lower.

Bob stated that he determined trends in the available data in the main stem of North IRL. The black line on the graphs represents the regression over the last ten years and the red line is the regression over the last five years. When comparing the two regressions, there is a significant reduction of about 15% in TN between the first and second five year periods. For TP, there appears to be a slight decline but there is no significant difference between the two five-year periods.

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In addition, Bob examined the data for the two tributaries in the subbasin: (1) Addison Creek, which is WBID 3028 and flows into WBID 2963E; and (2) Eau Gallie River, which is WBID 3082 and flows into WBID 2963B. FDEP is still developing the tributaries TMDLs and they are on schedule to be completed by the end of this year or early next. FDEP has not decided on an approach and they are considering two options: (1) a comparison with other estuary systems in south Florida to determine what nutrient concentration is needed so that the tributaries are not impaired; and (2) use a model to simulate natural background conditions to determine what the nutrient loads should be. If this approach is used then the expectation is that the kinds of reductions for tributaries will be similar to the IRL main stem because the TMDLs will be based on returning to historic conditions.

Bob determined the means for salinity and total suspended solids (TSS) concentrations in the main stem and tributaries based on data from the last five years. Each WBID had 50-80 data points. There is a significant difference in the WBID data from the north to south, which is related to the residence time (the time it takes to replenish water in the system). WBID 2963F has the highest residence time and WBID 2963B has the lowest. WBID 2963F has slightly higher TN concentrations than the other WBIDs. All the WBIDs have very low concentrations of inorganic nitrogen, which suggests that inorganic nitrogen is being taken up by plants. WBID 2963F has a much higher TP concentration than the other main stem WBIDs. In addition, WBID 3028 (Addison Creek) has very high TP concentrations, which are not being reflected in the concentrations in WBID 2963E. This is likely due to the residence time. WBID 2963F also has higher inorganic phosphorus than the other main stem WBIDs. There is relatively more inorganic phosphorus than nitrogen in the WBIDs, making nitrogen the limiting factor. The difference in concentrations across the WBIDs supports SJRWMD suggestion to limit areas where projects can be implemented in order to achieve the necessary reductions in each WBID.

Bob also plotted the relationship of chlorophyll and TN or TP for the main stem. TP has a very close relationship with chlorophyll, although there is one outlier that is defining the relationship. However, this does show that if there are higher concentrations of TP then there will be higher levels of chlorophyll. There is a similar relationship with TN but to a lesser degree. Virginia noted that this relationship makes it seem like TP is driving chlorophyll levels but earlier graphs showed that inorganic nitrogen is the limiting factor. Bob responded that looking at the data in different ways can sometimes give conflicting results.

Roger Dykes asked what the possible source of TP is in Addison Creek. Bob responded that it appears to be fertilizer based on the high inorganic phosphorus levels. Tiffany noted that the conflicting graphs in the presentation seem to support what the TMDL shows, which is that TN, TP, and TSS all affect seagrass and its extent. Controlling only one of these will not help the system. Roger asked if the data were consistent for each WBID or variable. Bob responded that the red bars on the graphs show the variability. The standard error (error around the mean) is fairly low but the individual data points could be different.

Amy Adams stated that it appears that the existing best management practices (BMPs) are not adequately addressing the TP load and she asked what options there are for treatment. Whit Green stated that wet detention ponds reduce TP by about 50-60% based on data from SJRWMD, FDEP, and Harvey Harper. This is based on a 20-day residence time. There are

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other factors that affect treatment, such as how much of the TP is inorganic, which is easier to remove. TN is more difficult to remove than TP. Carol Johnson stated that the Florida Department of Agriculture and Consumer Services (FDACS) is finding that citrus groves do not need to apply phosphorus and they are working to help them reduce their loads.

Amy asked Whit to provide more details on why residence time is an important factor for the IRL. Whit responded that the longer the residence time, the less flushing occurs so pollutants stay in one place and can lead to algal blooms. Areas that are further from the inlets have the longest residence times because they are not being flushed through the tides.

Gordon England asked if the TSS has been quantified to determine what is sediment-based versus algae-based. Bob responded that this has not been done at this time. Virginia asked if the North IRL TMDL could be met through BMPs or if some of the muck needed to be removed. Whit responded that SJRWMD has looked at the muck deposits in the IRL and removed muck in specific areas in the past. The muck does result in some internal loads but the external source needs to be reduced to prevent further accumulation. Eventually, the muck will be reabsorbed and flushed out of the system. Ernie noted that the northern end of the lagoon is very shallow so resuspension of sediments must be a factor. Whit responded that the TMDL is based on loads coming off the watershed and their relationship to seagrass. The internal loads in the IRL were not included and having a good seagrass bed will help prevent resuspension. Virginia asked if SJRWMD has looked at a current study to capture macroalgae in pens. Whit responded that he has not seen the results but macroalgae are an issue because they have a shading effect on seagrass and they grow when there are large nutrient inputs.

Mike McBee asked where the sample points for Addison Creek are located. Bob responded that the majority are near the mouth. Amy added that there is a Geographic Information System (GIS) layer posted on the FTP site that includes the sampling station locations.

Kelly Young asked if Turnball Creek in Volusia County plays a role in the nutrient loads coming into the basin from the north. Bob responded that he only looked at the tributaries that will have TMDLs. While any creek would have an impact on the receiving water, the tributaries with TMDLs are impaired and have larger inputs. Kelly noted that only a small part of Volusia County is in the basin and she is trying to determine their role. Amy responded that she will follow up with her to obtain information about that area and any potential sources to the IRL.

Geographic Information System (GIS) Data Request

Amy reviewed the handout for the requested GIS data. Amy stated that most people understand the system in their jurisdiction but they rarely see all the information for the basin. The goal of collecting the GIS data is to create a comprehensive database for the North IRL system. The stakeholders are asked to submit any available data and the compiled GIS tool will be made available to all stakeholders. If an entity does not have GIS, they can provide a list of the paper files they have. Amy has a list of data that the several of the stakeholders provided to CDM for the tributaries TMDLs and this information does not need to be submitted again. Amy requested that the entities have their GIS person contact Amy so she can discuss with them what information is needed. Information on recent aerials should also be provided. Amy noted that

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the GIS files can be sent in any version of GIS and CAD data can also be used. Some versions of CAD allow the files to be exported in a GIS compatible format.

Tiffany stated that the most important GIS layers are jurisdictional boundaries, water quality stations, septic tank locations, sewer service areas, and updated aerials. Lorraine Guise asked how they should send this information. Amy responded that she will provide the contact people with a link to the FTP site where they can post the files.

Allocation Approach – Key Entities vs. Other Stakeholders

Amy reviewed the handout with stakeholders in the basin. The wastewater treatment facilities (WWTFs) already have allocations, as outlined in the TMDL. The MS4s in the basin will likely receive an allocation. There are other stormwater sources, agriculture and Town of Palm Shores, that could also receive allocations. Additional stakeholders could be identified during the BMAP process and FDEP will contact them to bring them into the process as needed. There are several entities that FDEP is not anticipating assigning an allocation to including soil and water conservation districts, mosquito control districts, community development districts (CDDs), and census designated places (CDPs). These areas will fall under the associated municipality's responsibility unless the municipality can provide information as to why they should not be responsible. Virginia asked if water control districts (WCDs) will be included. Tiffany responded that there are no WCDs in this subbasin; however, FDEP is reviewing information on the WCDs for the other subbasins. Mike stated that the county requires all homeowners associations (HOAs) to conduct the maintenance and upkeep of their systems. Further discussion may be needed on these areas because the county does not have control or access to those ponds.

Amy Adams stated that NASA and Patrick Air Force Base are included in the Banana River Lagoon BMAP and she asked why the Merritt Island National Wildlife Refuge is not being considered in the North IRL BMAP. Amy Tracy responded that FDEP is looking into this and the infrastructure associated with the refuge. They could be added depending on what the information on this area shows.

Roger asked about enforcement scenarios and what occurs if someone is in violation. From a municipal perspective, they have found that a lot of state mandates become a local enforcement issue. Amy responded that any obligations made in the BMAP, whether or not they are associated with a permit, are enforceable by FDEP. If an entity offers an ordinance as one of their projects to meet their required reductions, then FDEP is assuming that entity will enforce that ordinance. If one of the stakeholders in the basin does not want to participate in the BMAP process, FDEP can try to bring them to the table or tell them what their assigned reductions are in the BMAP without the entity's input. Tiffany added that additional information about the implications of the projects included in the BMAP will be provided during the project collection process.

Amy Adams noted that they have encountered this issue when Gordon England was doing work for an area and one of the stakeholders did not want to be involved. Eric Livingston (FDEP) had said that the stakeholder would still be responsible for their load whether or not they participated. Tiffany stated that in other basins, FDEP has told stakeholders that if they do not submit projects

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for the BMAP, then they are assumed to be in compliance with their allocation and FDEP can start enforcement once the BMAP is adopted if the allocation is not met.

Don Griffin asked if future land use GIS information is needed. Amy responded that it is not needed because FDEP will be depending on the stormwater treatment rules for future development, which require no net increase in loads.

Roger stated that previously SJRWMD had enough staff to inspect stormwater facilities and ensure the HOAs were operating the systems properly. SJRWMD no longer has the staff for these inspections and the stormwater systems are not functioning. As an MS4 permittee, the city is trying to determine if it is their responsibility to enforce the HOA maintenance, and if so, whether an ordinance is needed. Amy responded that some cities do have an ordinance for this. For example, Tallahassee has stormwater permittees pay a fee and that funding is used for inspections. Something like this could be added as a BMAP action, if the city wants to do this.

Virginia noted that the way a lot permits were issued for subdivisions allowed developers to turn over stormwater maintenance to the HOAs and the HOAs are allowed to dissolve after 30 years. In some cases, there is not an HOA to enforce upon and this is an issue that maybe the group can work out. Gordon asked if the entities can receive soft credit for enforcing maintenance of BMPs. Tiffany responded that this has not been done in other BMAPs but can be considered. Vivian Garfein noted that even if the HOA is dissolved, the property is still owned by someone and the city or county can enforce against the property owner. Virginia stated that if property taxes are not paid on those common areas for seven years then the land reverts back to county, which makes the county responsible for the maintenance. Vivian responded that there may be a way to creatively deal with this situation and it is important to have these technical meetings to hear about issues and try to find solutions.

Mike stated that a sore spot with the counties and cities is when the stormwater rule went into effect in the early 1980s, FDEP and the water management districts said they would require the HOAs to do the maintenance and inspections. The stakeholders were recently told by the SJRWMD that these requirements will not be included in the permit renewals. Chris responded that this subject has been discussed with the statewide stormwater rule but no decision has been made. The group has been talking about requiring certification of systems, although Chris was not sure if this was all stormwater systems or just the new ones. The next stormwater rule meeting will be held September 22-23 in Orlando. Carolina Alvarez added the rule will require inspections that have to be certified by a Professional Engineer (P.E.).

Ken Poole stated that one of the GIS requests is wastewater information but the city has deep well injection and does not discharge to the IRL. He asked why they were given a reduction in the TMDL if they are not contributing to the lagoon. Tiffany responded that the main interest in the data is to determine where septic tanks are and the location of sewer infrastructure can help identify septic tank locations. Chris added that the TMDL includes a load allocation for the WWTFs, which allows the city to discharge when they are testing for loading on the injection well. In addition, sewer infrastructure can leak or overflow into the IRL and have an impact, which is also why these data are needed.

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Next Meeting

The next meeting will be held at the Brevard County Agricultural Center on Friday, December 11, 2009 at 9:30 AM.

Adjourn

The meeting was adjourned at 11:35 AM.

Actions

1. FDEP staff will consider having a technical meeting to discuss the TMDL model, including the data inputs, assumptions, and data gaps.
2. FDEP staff will prepare a more detailed description of the BWG role and policy decisions they will need to make. This will include examples of other BWG memberships.
3. Entities should submit BWG nomination forms by December 1st.
4. Amy will contact Kelly Young to discuss Volusia County's role in the BMAP.
5. Entities should provide Amy with their GIS contact person and files as soon as possible.