Florida Department of Environmental Protection

Central Indian River Lagoon Basin Management Action Plan

August 3, 2012

Overview of the BMAP

DRAFT

BASIN MANAGEMENT ACTION PLAN

for the Implementation of Total Maximum Daily Loads for Nutrients
Adopted by the Florida Department of Environmental Protection

in the

Indian River Lagoon Basin
Central Indian River Lagoon

developed by the
Central Indian River Lagoon Stakeholders

in cooperation with the
Florida Department of Environmental Protection
Division of Environmental Assessment and Restoration
Bureau of Watershed Restoration
Tallahassee, Florida 32399

July 2012

Acknowledgments

- The acknowledgements table was updated to list organizations, instead of individual names.
- The table lists allocation entities, agencies, and other interested parties.

Executive Summary

- The first sentence was revised to clarify the full extent of the Indian River Lagoon (IRL) Basin and the impaired portions of the IRL.
- Additional details were added to explain the seagrass depth limit targets in the total maximum daily loads (TMDLs).

Executive Summary, continued

- A new subsection was added, Management Actions and BMAP Enforcement.
  - Describes what management actions were eligible in this BMAP iteration.
  - Summarizes BMAP enforcement mechanisms.
- A new subsection was added, Economic Benefits of the IRL System.
  - Summarizes the economic benefits of restoring the IRL.
- BMAP cost information was updated.

Comments and Questions on Executive Summary

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Chapter 1: Context, Purpose, and Scope of the Plan

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Plan Scope and Allocations

- A reference to the newly included southern IRL area was added in the Plan Scope (Section 1.3.1).
- New maps for Figures 1 – 4 were added.
- Information from the North IRL and BRL BMAPs were added in the new Initial and Detailed Allocations section (Section 1.3.2.2).

TMDLs Addressed in the BMAP

- Section 1.3.3 was updated to clarify how the TMDL seagrass depth limit targets were determined.
- Table 3 was updated to include a footnote to explain what the percentage means in the stormwater wasteload allocation column.

BMAP Purpose

- The purpose of the BMAP is to document projects that have been completed that contributed to seagrass success and to identify projects that will occur in the future to continue seagrass improvement.
- Text was added to explain that credit for future projects in the BMAP could count towards reductions in a future BMAP iteration for up to 10 years.

New Assumptions Section

- The TMDL requires TN and TP reductions from the watershed to improve water quality to allow seagrass to grow at greater depths. Therefore, reducing nutrient loading to the Central IRL is the most important factor to improving seagrass depth limits.
- Some of the BMPs that are listed in the project tables that reduce TN and TP will also result in total suspended solids (TSS) reductions. TSS is another factor that limits light penetration in the lagoon; therefore, reductions in TSS, in conjunction with reductions in nutrients, should allow seagrass to grow at deeper depths.

Assumptions, continued

- Certain BMPs were assigned provisional credit for load reductions in this iteration of the BMAP while additional research is conducted to quantify the effectiveness. These reduction estimates may change, as additional research results are available.

New Considerations Section

- Land uses –The loading estimates for this iteration of the TMDL and BMAP were based on 2000 land use data. Future iterations should consider more recent land use information and whether allocations should be adjusted accordingly.
- Soil types – The Natural Resources Conservation Service released a new soil coverage for Florida in February 2010. During the next iteration of the BMAP, FDEP or SJRWMD will review the updated soil coverage and make adjustments to the Pollutant Load Screening Model (PLSM), as needed.

Considerations, continued

- Basin boundaries – Additional data about the topography of the Central IRL subbasin have been collected. During the next iteration of the BMAP, FDEP or SJRWMD will review the available data and make any additional adjustments to the drainage basin, as needed.
- Areas with stormwater treatment - At the time of TMDL development, areas with stormwater treatment areas were not well mapped. During the next BMAP iteration, FDEP or SJRWMD will review available data and make adjustments to the treated areas in the model, as needed.

Considerations, continued

- Event mean concentrations (EMCs) and runoff coefficients (ROCs) – More accurate and extensive EMCs and ROCs have been added to FDEP's database. During the next BMAP iteration, FDEP or SJRWMD will review available data and make adjustments to the EMCs and ROCs in the model, as needed.
- County roads – Stakeholders expressed concern during the BMAP process that county roads were included as part of the loading to each municipality. If the county road coverages are available for the next BMAP iteration, FDEP will use this information to refine the allocations.

Considerations, continued

- Atmospheric deposition – The TMDL assumed that no reduction in atmospheric deposition would occur. However, there are two power plants in the North IRL subbasin and these contributions could be reduced in the future. For future BMAP iterations, FDEP or SJRWMD will evaluate any changes in atmospheric deposition and adjust the estimated loading to the lagoon, as appropriate.
- Ground water loads - The nutrient loading from the surficial aquifer was implicitly included in the TMDL modeling as part of the watershed flow and loadings. The stakeholders expressed concern that the ground water loads were not sufficiently accounted for in the. In future iterations, FDEP or SJRWMD will evaluate any available ground water data and utilize this information, to the extent possible, in the modeling.

Considerations, continued

- Progress towards seagrass depth limit targets – FDEP will continue to assess progress towards the seagrass depth limit targets. Adjustments will be made to the required TN and TP reductions in future BMAP iterations, as needed, based on seagrass response.

New Future Growth in the Basin Section

- Section 403.067(7)(a)(2), Florida Statutes, requires: BMAPs to:

  "…identify the mechanisms by which potential future increases in pollutant loading will be addressed."

- The BMAP will not include an allocation for new development.
- New discharges cannot increase existing load and must meet "net environmental improvement" for the Environmental Resource Permit (ERP) program requirements.

Reducing Loads from Future Growth

- Information is included about the new "10/2" general permit and the importance of local governments being proactive to address loading from future growth.
- Local governments are encouraged to pursue measures to control loads from future growth such as:
  - Low impact development (LID) standards and incentives;
  - Florida friendly landscaping; and
  - Modifications to local development regulations.

Economic Benefits of the IRL System

- This new section was added to describe the economic benefits of improving the lagoon.
- Summarized the findings from the Hazen and Sawyer report prepared for the IRL National Estuary Program (NEP) in 2008.

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Comments and Questions on Chapter 1

Chapter 2: Central Indian River Lagoon Basin Setting

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Basin Hydrology and Land Use

- Revised text to better explain the major tributaries to the Central IRL.
- Removed the reference to impacts from causeway construction because of conflicting information in different reports.
- New Figure 11 was added and the date of the land use coverage (2000) is included.

Comments and Questions on Chapter 2

Chapter 3: Pollutant Sources

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BMAP Enforcement

- Added new Section 3.5 to describe the BMAP enforcement mechanisms, if reductions are needed in future iterations.
  - Includes information on enforcement of point sources facilities, municipal separate storm sewer systems (MS4s), non-MS4s, and agriculture.

Enforcement of BMAPs

- A BMAP is developed collaboratively with stakeholders to meet provisions in Section 403.067(7), Florida Statutes (F.S.).
- For point sources, BMAPs are enforceable through WWTF and MS4 National Pollutant Discharge Elimination System (NPDES) permits.
- For nonpoint sources, BMAP projects are enforceable through the BMAP itself.
- For agriculture, best management practices (BMPs) or monitoring is required.
- BMAPs are adopted by FDEP Secretarial Order.

New Anticipated Outcomes of BMAP Implementation

- Improved water quality trends in the Central IRL, which will help improve seagrass coverage;
- Decreased loading of TN and TP;
- Decreased loading in TSS from some of the projects implemented to reduce TN and TP loads;
- Increased coordination between state and local governments and within divisions of local governments when solving problems for surface water quality restoration;
- Additional state and local funding secured for water quality restoration;
- Improved identification of effective projects through stakeholder decision-making and priority-setting processes;
- Enhanced public awareness of pollutant sources, pollutant impacts on water quality, and corresponding corrective actions; and
- Enhanced understanding of basin hydrology, water quality, and pollutant sources.

Comments and Questions on Chapter 3

Chapter 4: Management Actions

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Summary of Load Reductions

- New Section 4.1 was added to summarize the load reductions that occurred in the Central IRL subbasin from stakeholder and regional projects.
  - Notes that these are only the reductions that could be quantified.
  - Includes a table of TN and TP quantified reductions by source.
- This section also notes that there has been a 20% decrease in rainfall in the subbasin, which likely contributed to success.
  - Continued project implementation is needed to maintain compliance.

Provisional Credit

- The provisional credit for floating islands (Section 4.5.1) was clarified to state that the 20% credit is applied to the TN and TP load remaining after treatment by the stormwater pond.
- A summary of the provisional credit for aquatic vegetation harvesting (Section 4.5.4) was added.

Agricultural Reductions

- Table 23 was added to summarize agricultural reductions.

Central IRL Estimated Loads	TN (lbs/yr)	TP (lbs/yr)
Load Reductions via BMPs, 50% Target Enrollment	26,852	3,684.8
Credit for Changes to Urban Land Use	94,996	22,033.5
Credit for Changes to Less Intensive/Fallow Agriculture	26,072	29,605.9
Total Estimated Reductions	**147,920**	**55,324.2**

Regional Projects

- Text was added to Section 4.7 to note that future components of the regional projects will affect loading from some of the stakeholders by re-diverting water to the Upper St. Johns River Basin.
- Estimates of reductions from Phase 1 of the C-1 re-diversion project were added to Section 4.7.1.
- Information on when the C-54 discharges to the IRL were reduced was added to Section 4.7.2.

Comments and Questions on Chapter 4

Chapter 5: Assessing Progress and Making Changes

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Monitoring and Research Priorities

- Clarified that the primary monitoring is the only component of the monitoring plan that is required (Section 5.4.1).
- Added new research priorities:
  - Collecting data on the nutrient load reduction that results from WCD staging/ retaining stormwater runoff.
  - Collecting data on groundwater nutrient concentrations and volume reaching the tributaries and IRL.
  - Collecting data on nutrient flux/internal recycling of legacy nutrient loads held within the IRL sediments and exchanged with the water column.

Monitoring Network

- The monitoring network includes:
  - Central A –1 proposed monthly water quality station (if funding is available).
  - Central SEB –1 proposed monthly water quality station (if funding is available).
- The proposed stations will only be added if SJRWMD receives budget for additional monitoring staff.

Comments and Questions on Chapter 5

Chapter 6: Southern IRL

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Southern IRL

- During the June 27th meeting, the southern IRL stakeholders decided to include their projects and programs in the Central IRL BMAP.
- The stakeholders in this area were not assigned required reductions because TMDLs have not been adopted for this area.
- The projects in this area are expected to improve water quality conditions in the Central IRL.

Impairments and TMDL Development

- IRL main stem WBID 3190 is impaired for chlorophyll-a and dissolved oxygen (DO) with TN and TP as the causative pollutants.
  - TMDLs have not been drafted yet.
  - FDEP is working with the South Florida Water Management District (SFWMD) on a seagrass depth target for this WBID.

Impairments and TMDLs, continued

- Fort Pierce Farm Canal and C-25 east segment are impaired for DO and chlorophyll-a caused by nutrients.
- C-25 west segment is impaired for DO caused by biochemical oxygen demand.
- The U.S. Environmental Protection Agency (EPA) recently drafted TMDLs for these WBIDs.
- FDEP is considering TMDLs for these waterbodies.

Considerations

- Connection to Central IRL – Further investigation into the connection between WBID 3190 in the southern IRL subbasin and WBID 5003B in the Central B project zone is needed. Additional review of the water quality data, hydrological data, and depths of the lagoon in each WBID should be made to determine the extent of the connection.
- Basin boundary – Stakeholders noted that the current basin boundary is incorrect. The area south of the C-25 drains to the south instead of to the IRL, and a small area in the northwestern part of the basin near the Turnpike is pumped to the north, outside of the IRL Basin. FDEP and SFWMD will update the basin boundaries, as needed.

Considerations, continued

- Changes in water flows – Several regional projects are planned in the southern IRL subbasin, which will reduce the amount of watershed runoff to the IRL. Depending on the extent of the projects implemented, the amount of flow and loading from this area to the IRL could be greatly reduced in the future.
- Development of TMDLs –FDEP will work with the stakeholders as they develop targets and TMDLs for this area. Once TMDLs are adopted, a determination will be made about whether to continue to include this area in the Central IRL BMAP or if a separate BMAP will be required.

Land Uses and Pollutant Sources

- Based on 2000 land use coverage:
  - 67.7% of the area is agriculture;
  - 7.9% of the area is urban uses; and
  - 24.4% of the subbasin is undeveloped lands.
- Pollutant sources include:
  - Agriculture;
  - MS4s (St. Lucie County, City of Fort Pierce, FDOT District 4, and Turnpike Enterprise); and
  - Non-MS4s (Town of St. Lucie Village and Fort Pierce Farms WCD).

Management Actions

- The MS4s and non-MS4s submitted completed and planned projects.
  - Only street sweeping and catch basin clean out credit could be estimated.
- The Florida Department of Agriculture and Consumer Services (FDACS) will enroll 90% of the properties in agricultural BMPs.
  - This goal has almost been achieved.

Management Actions, continued

- Future regional projects:
  - IRL – South as part of the Comprehensive Everglades Restoration Plan (CERP);
  - Large scale water retention areas or "water farms;" and
  - Potential reconnection of SFWMD and St. Johns River Water Management District (SJRWMD) infrastructure.

Monitoring

- The seagrass flyover and mapping, funded by FDEP and SJRWMD, will include the southern IRL area.
- Fort Pierce Farms WCD has 5 existing water quality stations.
- SFWMD has 7 existing water quality stations.

Comments and Questions on Chapter 6

Chapter 7: Commitment to Plan Implementation

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Commitment to the BMAP

- The stakeholders have worked collaboratively to develop the BMAP.
- The stakeholders have demonstrated their willingness to confer with and support each other in their efforts.
- This chapter will include letters of commitment or resolutions of support for the BMAP provided by the stakeholders.

Letters of Commitment

- Providing a letter of commitment or resolution of support for the BMAP is not required.
- However, stakeholders in other basins have stated that having this letter provides a way to show support for the BMAP as staff and board/commission members change over time.
- An example letter was provided. The wording and format can be modified to meet each stakeholder's needs.

Comments and Questions on Chapter 7

Appendices

BMAP Appendices

- Appendix A: TMDL Basin Rotation Schedule
  - Explains the FDEP watershed assessment cycle.
- Appendix B: Summary of Statutory Provisions Guiding BMAP Development and Implementation
  - Includes excerpts from Sections 403.067(6) and (7) in Florida Statutes
- Appendix C: Summary of EPA-Recommended Elements of a Comprehensive Watershed Plan
  - Outlines key elements in a watershed plan; necessary to obtain certain types of funding.

BMAP Appendices, continued

- Appendix D: Process to Conduct the Seagrass Depth Limit Compliance Evaluation
  - New appendix that summarizes the GIS process to evaluate seagrass compliance.
- Appendix E: Projects to Achieve the TMDL
  - ***Please review the information in your project tables carefully.***
- Appendix F: Glossary of Terms
- Appendix G: Bibliography of Key References and Websites

Comments and Questions on Appendices

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Steps to BMAP Adoption

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Stakeholder and FDEP Staff Actions

Action	Responsible Party	Date
Comments on first Draft BMAP	Stakeholders	Completed
Technical meeting to review updated Draft BMAP	FDEP and Technical Stakeholders	August 3, 2012 (today)
Comments on second Draft BMAP due	Stakeholders	***August 24, 2012***
Policy briefing on final Draft BMAP	FDEP, Policy Makers, and Technical Stakeholders	October 2012
Public meeting on BMAP	Public/FDEP	November 2012
Public comment period closes	FDEP	30 days after public meeting
Review of public comments by staff complete	FDEP	1 week after end of public comment period
Letters of commitment due for inclusion in BMAP package to FDEP Secretary	Policy Makers and Technical Stakeholders	End-2012

FDEP Secretarial Adoption Process

- Brief FDEP DEAR management on BMAP.
- Brief FDEP Deputy Secretary on BMAP.
- Brief FDEP Secretary on BMAP and obtain Secretarial approval.
- Notify interested parties and place Florida Administrative Weekly (FAW) notice.
- End of challenge period (21-days after notice).
- BMAP adopted and enforceable (if there are no challenges.

Questions?

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