# *DRAFT*

# *Manatee River*
# *Basin Management Action Plan*

**Division of Environmental Assessment and Restoration**
**Water Quality Restoration Program**
**Florida Department of Environmental Protection**

with participation from the
**Manatee River Basin Stakeholders**

**March 2025**

**2600 Blair Stone Road**
**Tallahassee, FL 32399-2400**
**https://floridadep.gov**

# Acknowledgements

This *2025 Manatee River Basin Management Action Plan (BMAP)* was prepared as part of a statewide watershed management approach to restore and protect Florida's water quality. It was prepared by the Florida Department of Environmental Protection (DEP) in coordination with the Manatee River stakeholders.

**Florida Department of Environmental Protection**
Alexis A. Lambert, Secretary

**Table ES-1. Manatee River stakeholders**

| Type of Organization/Entity | Name |
|---|---|
| **Responsible Entities** | Agriculture<br>City of Bradenton<br>City of Palmetto<br>Manatee County<br>Sarasota County |
| **Responsible Agencies** | County Health Departments<br>Florida Department of Agriculture and Consumer Services (FDACS)<br>Florida Department of Environmental Protection (DEP)<br>Florida Department of Health (FDOH)<br>Florida Department of Transportation (FDOT)<br>Southwest Florida Water Management District (SWFWMD) |
| **Other Interested Stakeholders** | Residents/Homeowners<br>Florida Onsite Wastewater Association<br>Septic System Contractors<br>Tampa Bay Estuary Program (TBEP) |

See **Appendix A** for links to resources referenced in this document. For additional information, contact:

Florida Department of Environmental Protection
Water Quality Restoration Program
2600 Blair Stone Road, Mail Station 3565
Tallahassee, FL 32399-2400
Email: BMAPProgram@FloridaDEP.gov

# Table of Contents

# List of Figures

# List of Tables

# List of Acronyms and Abbreviations

| | |
|---|---|
| ACE | Agricultural Cooperative Regional Elements |
| ALG | Agricultural Land Geodatabase |
| AWT | Advanced Waste Treatment |
| BEBR | Bureau of Economic and Business Research |
| BMAP | Basin Management Action Plan |
| BMP | Best Management Practice |
| BOD5 | Biochemical Oxygen Demand – 5 Day |
| CAFO | Confined Animal Feeding Operation |
| CASTNET | Clean Air Status and Trends Network |
| Chl-a | Chlorophyll-a |
| CMAQ | Community Multiscale Air Quality |
| CWA | Clean Water Act |
| DEP | Florida Department of Environmental Protection |
| DMR | Discharge Monthly Report |
| DO | Dissolved Oxygen |
| EMC | Event Mean Concentration |
| EPA | Environmental Protection Agency |
| F.A.C. | Florida Administrative Code |
| F.S. | Florida Statutes |
| FDACS | Florida Department of Agriculture and Consumer Services |
| FDOH | Florida Department of Health |
| FDOT | Florida Department of Transportation |
| FFS | Florida Forest Service |
| FIB | Fecal Indicator Bacteria |
| FLWMI | Florida Water Management Inventory |
| FNAI | Florida Natural Areas Inventory |
| FSAID | Florida Statewide Agricultural Irrigation Demand (geodatabase) |
| FWRA | Florida Watershed Restoration Act |
| FYN | Florida Yards and Neighborhoods |
| GIS | Geographic Information System |
| LA | Load Allocation |
| lbs/day | Pounds Per Day |
| lbs/yr | Pounds Per Year |
| LID | Low Impact Development |
| L.O.F. | Laws of Florida |
| LVS | Linear Vegetation Survey |
| mgd | Million Gallons Per Day |
| mg/L | Milligrams Per Liter |
| MS4 | Municipal Separate Storm Sewer System |
| N | Nitrogen |
| N/A | Not Applicable |

| | |
|---|---|
| NADP | National Atmospheric Deposition Program |
| NARF | Nutrient Application Record Form |
| NELAC | National Laboratory Environmental Accreditation Conference |
| NELAP | National Environmental Laboratory Accreditation Program |
| NHD | National Hydrography Database |
| NMP | Nutrient Management Plan |
| NNC | Numeric Nutrient Criteria |
| NOI | Notice of Intent |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | Natural Resources Conservation Service |
| NSF | NSF International (formerly National Sanitation Foundation) |
| NTN | National Trends Network |
| O&M | Operations and Maintenance |
| OAWP | Office of Agricultural Water Policy (DACS) |
| OSTDS | Onsite Sewage Treatment and Disposal System |
| P | Phosphorus |
| PBTS | Performance-based Treatment System |
| PLRG | Pollutant Load Reduction Goal |
| POR | Period of Record |
| PSA | Public Service Announcement |
| QA/QC | Quality Assurance/Quality Control |
| RAP | Reasonable Assurance Plan |
| RIB | Rapid Infiltration Basin |
| ROC | Runoff Coefficient |
| RPS | Rapid Periphyton Survey |
| RSF | Regional Stormwater Facility |
| RST | Regional Stormwater Treatment |
| SAV | Submerged Aquatic Vegetation |
| SBIO | DEP Statewide Biological Database |
| SCI | Stream Condition Index |
| SR | State Road |
| SSO | Sanitary Sewer Overflow |
| STAR | Statewide Annual Report |
| SWFWMD | Southwest Florida Water Management District |
| SWMP | Stormwater Management Program |
| TAT | Tributaries Assessment Team |
| TBD | To Be Determined |
| TBEP | Tampa Bay Estuary Program |
| TMDL | Total Maximum Daily Load |
| TN | Total Nitrogen |
| TP | Total Phosphorus |
| UF-IFAS | University of Florida-Institute of Food and Agricultural Sciences |
| USGS | U.S. Geological Survey |

| | |
|---|---|
| WBID | Waterbody Identification (number) |
| WIN | Watershed Information Network |
| WLA | Wasteload Allocation |
| WMD | Water Management District |
| WQPP | Water Quality Protection Plan |
| WWTF | Wastewater Treatment Facility |

# Executive Summary

## Background

The Manatee River Basin (Figure ES-1) covers an area of 229,758 acres in Manatee and Sarasota counties and discharges to Lower Tampa Bay. Major tributaries include Gilly Creek, Gamble Creek, and the Braden River. The watershed includes two run-of-the-river water supply reservoirs: Lake Manatee on the Manatee River provides potable water supply to Manatee County, and the Bill Evers Reservoir (also known as Ward Lake) on the Braden River supplies the City of Bradenton. The Upper Manatee River and Gilly Creek are major tributaries to the Lake Manatee Reservoir. Tributaries of the Evers Reservoir include the Upper Braden River, Rattlesnake Slough, Cedar Creek, Nonsense Creek, and several other streams. The Manatee River is a tidal, estuarine waterbody downstream of the Lake Manatee Dam, as is the Braden River downstream of the Evers Reservoir (Southwest Florida Water Management District [SWFWMD], 2001).

This BMAP targets restoration of the following segments with adopted total maximum daily loads (TMDLs). The list below shows the impaired segments with their respective waterbody identification (WBID) numbers in the Manatee River Basin and names of the waterbodies:

- WBID 1923 - Rattlesnake Slough.
- WBID 1926 - Cedar Creek.
- WBID 1913 - Nonsense Creek.
- WBID 1914 - Braden River above Evers Reservoir.
- WBID 1840 - Gilly Creek.

TMDLs are water quality targets, based on state water quality standards, for specific pollutants (such as excessive nitrogen and phosphorus). DEP identified the Manatee River to be impaired by nutrients (chlorophyll a [chl-a]), dissolved oxygen (DO), and fecal coliforms. In September 2013, the U.S. Environmental Protection Agency (EPA) approved the revisions to Florida's criteria for DO in Rules 62-302 and 62-303, Florida Administrative Code (F.A.C.). In 2016, the state's water quality standard for fecal indicator bacteria was updated to use *Escherichia coli (E. coli)* in freshwater for classes I and III waters and enterococci in class III marine waters. While the FIB TMDLs in this basin are for fecal coliform, the FIB BMAP goal is to meet the current FIB standard. The 2014 BMAP addresses five fecal coliform TMDLs (WBIDs 1923, 1926, 1913, 1914, 1840) and two DO and nutrient TMDLs (WBIDs 1913 and 1914).

A BMAP is a framework for water quality restoration that contains a comprehensive set of solutions to achieve the pollutant reductions established by a TMDL. Examples include permit limits on regulated facilities, urban and agricultural best management practices (BMPs), wastewater and stormwater infrastructure, regional projects and conservation programs designed to achieve pollutant reductions established by a TMDL. A BMAP is developed with local stakeholders and relies on local input and commitment for successful implementation. BMAPs

are adopted by Secretarial Order and are legally enforceable. BMAPs use an adaptive management approach that allows for incremental load reductions through the implementation of projects and management strategies, while simultaneously monitoring and conducting studies to better understand the water quality and hydrologic dynamics. Progress is tracked by assessing project implementation and water quality analyses.

Section 403.067, Florida Statutes (F.S.), establishes an adaptive management process for BMAPs that continues until the TMDLs are achieved and maintained. This 2025 Manatee River BMAP incorporates new legislative requirements that are now in effect in the BMAP. This document is to be used as a supplement to the original 2014 BMAP. The phased BMAP approach allows for incrementally reducing loading through the implementation of projects, while simultaneously monitoring and conducting studies to better understand water quality dynamics (sources and response variables) in each impaired waterbody.

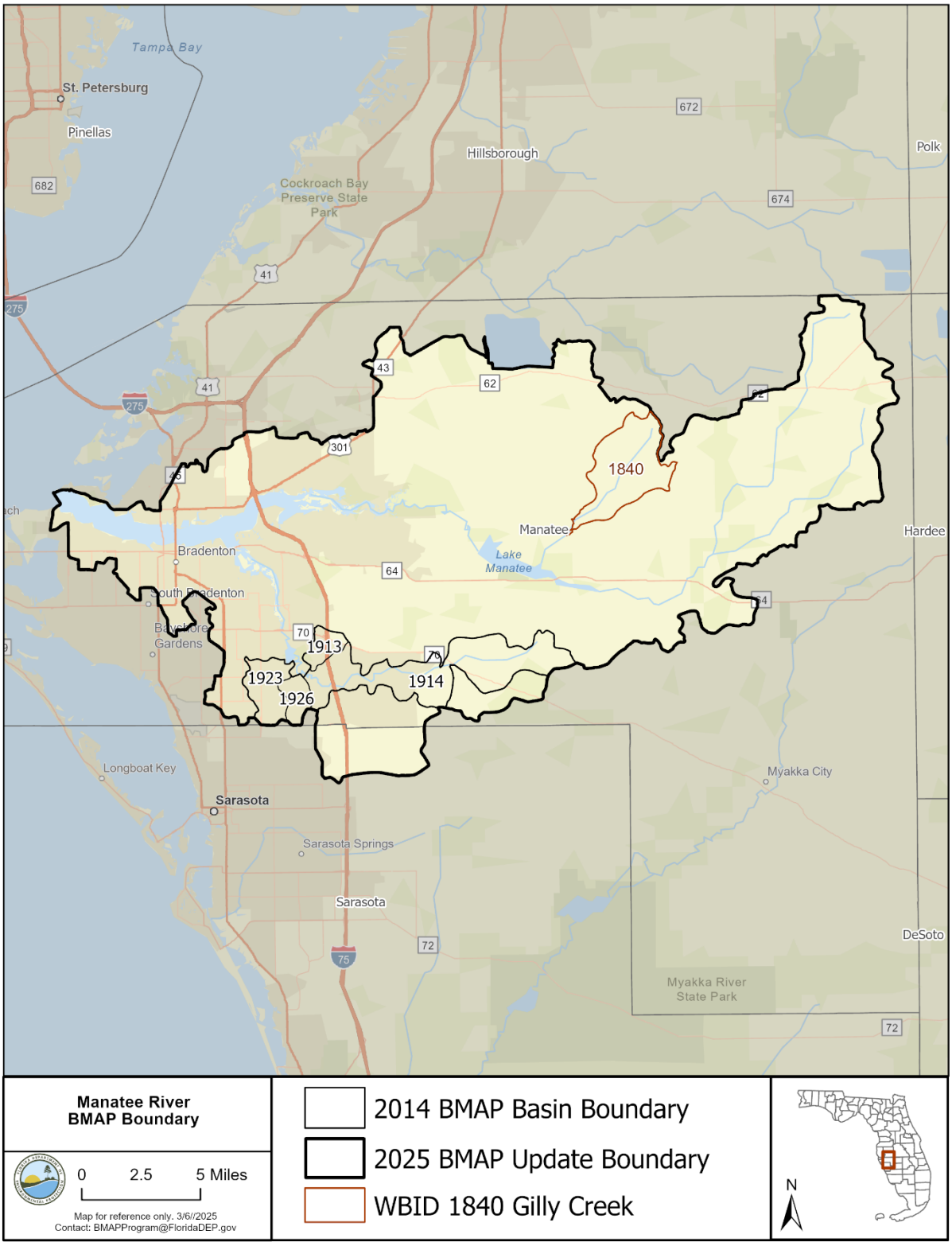


**Figure ES-1. Manatee River BMAP, TMDL waterbodies, and local government jurisdictions in the basin**

## Required Reductions and Options to Achieve Reductions

The BMAP provides for phased implementation under subparagraph 403.067(7)(a)1., Florida Statutes (F.S.). As part of the continual adaptive management process, in 2024, DEP reviewed assessment data to guide next steps.

According to the 2022 to 2024 assessments, the following results were observed:

- Rattlesnake Slough (WBID 1923) attains the DO saturation standard. Linear vegetation surveys (LVS) were performed at two sites in November 2022, one site passed and one failed. Additional data will be gathered to determine the attainment status of the applicable numeric nutrient criteria (NNC). Rattlesnake Slough did not meet the standard for fecal indicator bacteria, *Escherichia coli (E. coli)*.

- Cedar Creek (WBID 1926), a Class I waterbody, did not meet the standard for fecal indicator bacteria, *E. coli.*

- Nonsense Creek (WBID 1913) attained the DO saturation standard. Similar to Rattlesnake Slough, LVS were performed at two sites in November 2022; one passed and one failed. Additional data will be gathered, including stream condition index sampling, to determine the attainment status of the applicable NNC. Nonsense Creek, a Class I waterbody, did not meet the standard for fecal indicator bacteria, *E. coli.*

- Braden River above Evers Reservoir (WBID 1914) met the standard for *E. coli.*

- Gilly Creek (WBID 1840) did not meet the standard for fecal indicator bacteria, *E. coli.* This TMDL waterbody is now added to the Manatee River BMAP.

Based on section 403.67 F.S., DEP is required to fairly and equitably allocate pollutant loads. DEP performed a review of pollutant sources addressed by the RAP. Agriculture as a source of nutrients and fecal indicator bacteria has been addressed under the BMAP in only the TMDL waters. The RAP cannot require agriculture to engage in the BMP program or monitoring activities, however BMAPs do require enrollment or monitoring. To more fairly and equitably share responsibility for maintaining restoration momentum, DEP has expanded the watershed addressed by the BMAP to include the entire watershed of the Manatee River. Priority for funding opportunities will also be expanded to the entire basin and this expansion is anticipated to assist producers and additional municipalities in raising funds for additional restoration activities.

The new legislative requirements will address future growth of onsite sewage treatment and disposal systems (OSTDS) on parcels of one acre or less. Implementation of these OSTDS restrictions along with additional wastewater treatment requirements function as milestones to further protect and restore the waters of the Manatee River Basin and its tributaries. If future evaluations determine these protections are not enough, the BMAP may expand the future

growth protections, for example, by including OSTDS enhancement on larger parcels or may require remediation of existing conventional septic systems.

# Section 1. Context, Purpose, and Scope of the Plan

The Manatee River Basin (**Figure 1**) covers an area of 229,758 acres in Manatee and Sarasota counties and discharges to Lower Tampa Bay. Major tributaries include Gilly Creek, Gamble Creek, and the Braden River. The watershed includes two run-of-the-river water supply reservoirs: Lake Manatee on the Manatee River provides potable water supply to Manatee County, and the Bill Evers Reservoir (also known as Ward Lake) on the Braden River supplies the city of Bradenton. The upper Manatee River and Gilly Creek are major tributaries to the Lake Manatee Reservoir. Tributaries of the Evers Reservoir include the upper Braden River, Rattlesnake Slough, Cedar Creek, Nonsense Creek, and several other streams. The Manatee River is a tidal, estuarine waterbody downstream of the Lake Manatee Dam, as is the Braden River downstream of the Evers Reservoir (Wolfe and Drew 1990; Southwest Florida Water Management District [SWFWMD] 2001).

This BMAP targets restoration of the following segments with adopted TMDLs. The list below shows the impaired segments with their respective WBID numbers in the Manatee River Basin and names of the waterbodies:

- WBID 1923 - Rattlesnake Slough.
- WBID 1926 - Cedar Creek.
- WBID 1913 - Nonsense Creek.
- WBID 1914 - Braden River above Evers Reservoir.
- WBID 1840 - Gilly Creek.

TMDLs are water quality targets, based on state water quality standards, for specific pollutants (such as excessive nitrogen and phosphorus). DEP identified the Manatee River to be impaired by nutrients (chlorophyll a [chl-a]), DO, and fecal coliforms. In September 2013, the U.S. EPA approved the revisions to Florida's criteria for DO in Rules 62-302 and 62-303, F.A.C. ). In 2016, the state's water quality standard for fecal indicator bacteria was updated to use *Escherichia coli (E. coli)* in freshwater for classes I and III waters and enterococci in class III marine waters. While the FIB TMDLs in this basin are for fecal coliform, the FIB BMAP goal is to meet the current FIB standard. The 2014 BMAP addresses five fecal coliform TMDLs (WBIDs 1923, 1926, 1913, 1914, and 1840) and two DO and nutrient TMDLs (WBIDs 1913 and 1914).

A BMAP is a framework for water quality restoration that contains a comprehensive set of solutions to achieve the pollutant reductions established by a TMDL. Examples include permit limits on regulated facilities, urban and agricultural BMPs, wastewater and stormwater infrastructure, regional projects and conservation programs designed to achieve pollutant reductions established by a TMDL. A BMAP is developed with local stakeholders and relies on local input and commitment for successful implementation. BMAPs are adopted by Secretarial

Order and are legally enforceable. BMAPs use an adaptive management approach that allows for incremental load reductions through the implementation of projects and management strategies, while simultaneously monitoring and conducting studies to better understand the water quality and hydrologic dynamics. Progress is tracked by assessing project implementation and water quality analyses. This 2025 Manatee River BMAP incorporates new legislative requirements that are now in effect in the BMAP. This document is to be used as a supplement to the original 2014 BMAP.

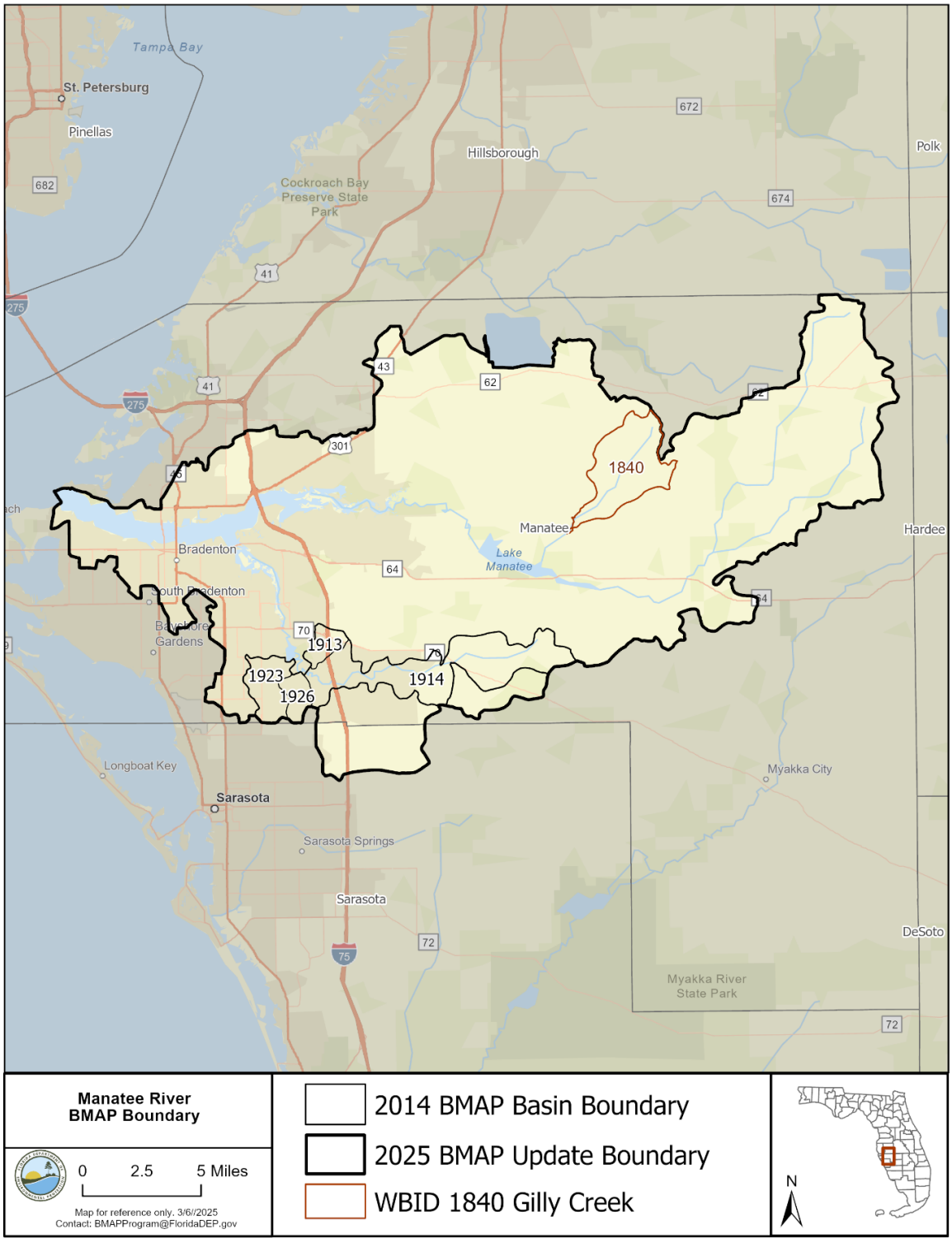


**Figure 1. Manatee River BMAP, TMDL waterbodies, and local government jurisdictions in the basin**

## 1.1 Water Quality Standards and Total Maximum Daily Loads (TMDLs)

Florida's water quality standards are designed to ensure that surface waters fully support their designated uses, such as drinking water, aquatic life, recreation, and agriculture. Currently, most surface waters in Florida, including many in the Manatee River basin, are categorized as Class III waters, meaning they must be suitable for recreation and support fish consumption and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. More than half the waterbodies in the Manatee River planning unit are Class I waters and must meet higher water quality standards for some parameters because they are categorized as potable water supplies. The waterbodies with TMDLs addressed by the Manatee River BMAP are Class I. **Table 1** lists all designated use classifications for Florida's surface waters.

**Table 1. Designated use attainment categories for Florida surface waters**

[1] Class I, I-Treated, and II waters additionally include all Class III uses.

| Classification | Description |
|---|---|
| **Class I[1]** | **Potable water supplies** |
| **Class I-Treated[1]** | Treated potable water supplies |
| **Class II[1]** | Shellfish propagation or harvesting |
| **Class III** | Fish consumption; recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife |
| **Class III-Limited** | Fish consumption, recreation or limited recreation, and/or propagation and maintenance of a limited population of fish and wildlife |
| **Class IV** | Agricultural water supplies |
| **Class V** | Navigation, utility, and industrial use (*no current Class V designations*) |

Section 303(d) of the federal Clean Water Act (CWA) requires that every two years each state must identify its "impaired" waters, including estuaries, lakes, rivers, and streams that do not meet their designated uses. DEP is responsible for assessing Florida's waters for inclusion on the Verified List of Impaired Waters (when a causative pollutant for the impairment has been identified) and Study List (when a causative pollutant for the impairment has not been identified, and additional study is needed). These lists are then provided to the U.S. EPA as a biennial update to the state "303(d) list."

## 1.2 Manatee River Basin TMDLs

A TMDL is the maximum amount of a specific pollutant that a waterbody can assimilate while maintaining its designated uses. The wasteload allocations (WLA) have two parts—a WLA for stormwater sources with National Pollutant Discharge Elimination System (NPDES) permits called municipal separate storm sewer system (MS4) permits as well as a WLA for wastewater sources. Additionally, the TMDLs include load allocations (LAs) for stormwater sources outside of the designated MS4 areas. The following TMDLs are listed in the original 2014 BMAP with the addition of Gilly Creek which is now covered in this 2025 BMAP update.

**Table 2. TMDLs for Manatee River BMAP**

| Waterbody | TMDL Components |
|---|---|
| **1923 Rattlesnake Slough** | **TP (% load reduction)**<br>WLA (NPDES stormwater) = 21%<br>LA = 21%<br>**TN (% load reduction)**<br>WLA (NPDES stormwater) = 30% reduction<br>LA = 30% reduction<br>**BOD5 (% load reduction)**<br>WLA (NPDES stormwater) = 31% reduction<br>LA = 31% reduction<br>**Fecal coliform concentration (% reduction)**<br>WLA (NPDES stormwater) = 43% reduction<br>LA = 43% reduction |
| **1926 Cedar Creek** | **Fecal coliform concentration (% reduction)**<br>WLA (NPDES stormwater) = 61% reduction<br>LA = 61% reduction |
| **1913 Nonsense Creek** | **Fecal coliform concentration (% reduction)**<br>WLA (NPDES stormwater) = 57% reduction<br>LA = 57% reduction<br>**TN (% load reduction)**<br>WLA (NPDES stormwater) = 27% reduction<br>LA = 27% reduction BOD5 (% load reduction)<br>WLA (NPDES stormwater) = 36 % reduction<br>LA = 36% reduction |
| **1914 Braden River above Evers Reservoir** | **Fecal coliform concentration (% reduction)**<br>WLA (NPDES stormwater) = 43% reduction<br>LA = 43% reduction |
| **1840 Gilly Creek** | **Fecal coliform concentration (% reduction)**<br>LA = 56% reduction |

The BMAP provides for phased implementation under subparagraph 403.067(7)(a)1., F.S. As part of the continual adaptive management process, in 2024 DEP reviewed the assessment data for these TMDL waterbodies and used it to guide next steps in the 2025 BMAP update.

## 1.3 Manatee River BMAP

A BMAP is a framework for water quality restoration that contains a comprehensive set of solutions to achieve the pollutant reductions established by a TMDL. Examples include permit limits on regulated facilities, urban and agricultural BMPs, wastewater and stormwater infrastructure, regional projects and conservation programs designed to achieve pollutant reductions established by a TMDL. A BMAP is developed with local stakeholders and relies on local input and commitment for successful implementation. BMAPs are adopted by Secretarial Order and are legally enforceable. BMAPs use an adaptive management approach that allows for incremental load reductions through the implementation of projects and management strategies, while simultaneously monitoring and conducting studies to better understand the water quality and hydrologic dynamics. Progress is tracked by assessing project implementation and evaluating water quality analyses.

## 1.4 Stakeholder Involvement

Stakeholder involvement is critical to develop, gain support for, and secure commitments in a BMAP. In the context of the BMAP, there are different organizations named in the plan.

> *Responsible entities* are those organizations who are assigned load reductions and must comply with the BMAP provisions; these organizations are sometimes referred to as "*Lead Entities*."
>
> *Responsible agencies* may be accountable for reducing loads from their own activities or have an important public sector role in BMAP implementation such as regulatory oversight, monitoring, research, or other related duties.
>
> *Interested stakeholders* are those organizations that have engaged with BMAP development and implementation with the intention to influence the implementation process and outcomes.
>
> *Stakeholders* is a more general term often used in the BMAP context to include all three of the previously mentioned organizations—responsible entities, responsible agencies, and interested stakeholders.

The BMAP process engages responsible entities, responsible agencies, and interested stakeholders and promotes coordination and collaboration to address the pollutant load reductions necessary to achieve the TMDLs. DEP invited stakeholders to participate in the BMAP development process and encouraged public participation and consensus to the greatest practicable extent. **Table ES-1** identifies the stakeholders who participated in the development of this BMAP.

Local stakeholders are a significant part of the process to update the Manatee River BMAP. DEP held a series of individual meetings with responsible stakeholders to review their BMAP progress and ensure they are aware of the legislative changes that apply to the BMAP. A public meeting was held on April 2, 2025, to present and receive public comments on the 2025 BMAP update. The purpose of this meeting was to solicit comments from all interested parties, disseminate information, and allow for public discussion. Prior to adoption, all public meetings are formally noticed in the Florida Administrative Register, and at least one meeting is noticed in local newspapers.

## 1.5 Considerations

The full implementation of this BMAP will be a long-term, adaptively managed process. While some of the BMAP and RAP projects and activities were recently completed or are currently ongoing, several projects require more time to design, secure funding, and construct. Regular

follow-up and continued coordination and communication by the stakeholders will be essential to ensure the implementation of management strategies and assessment of incremental effects.

- **Complexity of Problem** – DEP acknowledges the complexity of the dynamics that affect the water quality of Manatee River and its watershed; therefore, this BMAP is designed to encompass a wide variety of projects that will cumulatively act to significantly reduce nutrient loads and address anthropogenic sources of bacteria.

- **Jurisdictional Boundaries** – Entities may experience shifts in their jurisdictional boundaries over time that require allocation adjustments. Changes to the boundaries and/or allocations for these stakeholders may be made as necessary and reflected in future Tampa Bay Estuary's Reasonable Assurance Plan (RAP) iterations.

- **Continue Progress** – The BMAP recognizes the effectiveness of the RAP approach. To sustain the successes resulting from the allocation and implementation efforts of the RAP, DEP performed an evaluation of strengths and weaknesses during the development of this iteration of the BMAP. As a result, the BMAP basin will expand to match on the Tampa Bay Estuary's RAP Manatee River Subbasin. Basins were delineated based on geographic information system (GIS) information and stakeholder input. This is an iterative process, and refinements will occur in future iterations of the BMAP.

- **Fair and Equitable** – Section 403.67 F.S. requires fair and equitable allocations. The expansion of the BMAP to match the Manatee River Subbasin of the RAP extends the obligations of BMAP participation such as achievement of established allocations, remediation activities, future growth planning and protections, and participation in agricultural BMPs, as applicable.

- **Funding and Prioritization** – Inclusion of the whole Manatee River watershed in the BMAP will open and extend funding opportunities and prioritization to agriculture and some wastewater remediation projects (when listed in the project table) that would otherwise receive lower prioritization on a statewide scale.

# Section 2. Data Evaluation and Analyses

In 2024, DEP reviewed assessment data to guide next steps. According to the 2022 to 2024 assessments, the following results were observed:

- Rattlesnake Slough (WBID 1923) attains the DO saturation standard. LVS were performed at two sites in November 2022, one site passed and one failed. Additional data will be gathered to determine the attainment status of the applicable NNC. Rattlesnake Slough did not meet the standard for fecal indicator bacteria, *E. coli).*

- Cedar Creek (WBID 1926), a Class I waterbody, did not meet the standard for fecal indicator bacteria, *E. coli.*

- Nonsense Creek (WBID 1913) attained the DO saturation standard. Similar to Rattlesnake Slough, LVS were performed at two sites in November 2022; one passed and one failed. Additional data will be gathered, including stream condition index sampling, to determine the attainment status of the applicable NNC.

- Braden River above Evers Reservoir (WBID 1914) met the standard for *E. coli.*

- Gilly Creek (WBID 1840) did not meet the standard for fecal indicator bacteria, *E. coli.* This TMDL waterbody is now added to the Manatee River BMAP.

# Section 3. Tracking Implementation

## 3.1 Allocations

Refer to the Tampa Bay Nitrogen Management Consortium's Tampa Bay Estuary RAP and subsequent updates for load allocations for the Manatee River basin.

## 3.2 5-Year Milestones

Section 403.067, F.S., requires that BMAPs include 5-year milestones for the implementation of TMDLs. Because the Manatee River BMAP is reliant on the Tampa Bay RAP allocations for meeting nutrient targets, any responsible entity within the BMAP that has not met their RAP allocation must identify projects or strategies to fully meet their obligations and report them to DEP.

All responsible entities, even those currently meeting their RAP allocations, must report to DEP on how they are implementing the new statutory requirements related to nutrient loads in the BMAP area. Responsible entities must submit a sufficient list of additional projects and management strategies to DEP no later than January 14, 2026, to be compliant with the upcoming BMAP milestone or be subject to further department enforcement.

If any lead entity is unable to submit a sufficient list of eligible management strategies to demonstrate they are implementing the statutory requirements and their RAP allocations (if applicable), additional project identification efforts are required to be submitted by January 14, 2026 to remain in compliance with the BMAP. Responsible entities with project deficits must catalog their efforts to identify management strategies to meet their milestone requirements. These planning efforts are ineligible for BMAP credit themselves but are necessary to demonstrate that additional eligible management actions will be forthcoming and BMAP compliance will be achieved. Examples of project identification efforts are included in **Appendix C**.

# Section 4. Management Actions

Management actions refer to the suite of structural and nonstructural activities that the Manatee River BMAP entities will be conducting to achieve their required total phosphorus (TP) and total nitrogen (TN) reductions. The projects submitted by the entities to achieve at least their required upcoming 5-year milestone reductions are summarized in the tables in **Appendix B**. These projects were submitted to provide reasonable assurance to DEP that each entity has a plan on how it will meet its allocations. However, this list of projects is meant to be flexible and allow for changes over time, provided that the required reduction is still met within the specified timeframe. New projects that meet the required nutrient reductions may be substituted for those identified in **Appendix B** during the statewide annual report process.

## 4.1 Wastewater

Recent legislative updates have expanded the requirements for addressing OSTDS (or septic systems) and wastewater treatment facility (WWTF) sources within BMAPs.

### 4.1.1 OSTDS

**4.1.1.1 Beginning July 1, 2023, section 403.067, F.S., prohibits new conventional OSTDS serving a lot of one acre or less where central sewer is available. Within all BMAP areas, if central sewer is unavailable, then the owner must install a DEP-approved enhanced nutrient-reducing OSTDS that achieves 65% nitrogen reduction, or other wastewater system that achieves 65% reduction. BMAP OSTDS Remediation Plan**

This BMAP recommends remediation plans for existing OSTDS, especially for communities where RAP allocations are not already met or future growth is expected to challenge continual attainment of RAP allocations. Projects remediating existing OSTDS should be provided and updated annually through the statewide reporting process. Projects that reduce loads from existing OSTDS through either sewer connection, adding enhancement nitrogen treatment to OSTDS, or installing another type of wastewater system on the property, will be accepted as applicable.

Subparagraph 403.067(7)(a)9., F.S., also requires local governments within a BMAP to develop an OSTDS remediation plan that is adopted as part of the BMAP no later than July 1, 2025, if DEP identifies OSTDS as contributors of at least 20% of point source or nonpoint source nutrient pollution or if DEP determines remediation is necessary to achieve the TMDL. When applicable, the OSTDS remediation plans must be developed by each local government in cooperation with DEP, water management districts (WMDs), and public and private domestic wastewater facilities. This 2025 BMAP includes a boundary expansion that extends the remediation plan requirements to additional local governments. Responsible entities who are newly subject to subparagraph 403.067(7)(a)9., F.S. have one year from BMAP adoption to submit their applicable remediation plans and comprehensive plan amendments. Requests for remediation plan exemptions are due within 60 days of BMAP adoption.

Each OSTDS remediation plan for this BMAP must contain the information outlined in DEP Final Order 23-0121. The remediation plans required cities and counties within the 2014 BMAP area to provide OSTDS remediation plans. At the time of the requirement, no load allocations were documented in the BMAP, and Hillsborough Bay had been meeting its targets, therefore few OSTDS remediation projects were identified. With the expansion of the BMAP boundary described in this document, this concept applies to a broader area. All entities should review their RAP allocations, and those which fall short of RAP allocations will be required to provide adequate projects, and OSTDS remediation is highly recommended in these cases.

Entities will submit projects describing how septic system loads are addressed as part of BMAP reporting and estimate the load reductions associated with each project. The estimated reductions to the basin from addressing these septic systems will be based on multiple factors, including location and how they are addressed.

#### 4.1.1.2 Local Government Ordinances

Local governments may have existing ordinances or could adopt new ordinances that add additional requirements for enhancement of OSTDS. To expedite remediation of wastewater sources and to facilitate achievement of assigned milestones in this BMAP, DEP encourages local governments to adopt such ordinances.

### 4.1.2 Wastewater Treatment

#### 4.1.2.1 Facility Improvements and Effluent Limits

A list of WWTFs that are located within or discharge to the BMAP area are listed below in **Table 3**. A map of the WWTFs disposal sites located in the Manatee River BMAP is provided in **Figure 2.**

The U.S. EPA authorizes DEP to issue permits for discharges to surface waters under the NPDES Program. Permits for discharges to groundwater are issued by DEP based on Florida law and rules. Wastewater discharge permits establish specific limitations and requirements based on the location and type of facility or activity releasing industrial or domestic wastewater from a point source.

In areas with an adopted, nutrient-related BMAP prior to July 1, 2023, section 403.086, F.S., requires any facility discharging to a waterbody to upgrade to advanced waste treatment (AWT) by January 1, 2033. Further, waterbodies determined not to be attaining nutrient or nutrient-related standards after July 1, 2023, or subject to a BMAP or RAP after July 1, 2023, have 10 years to provide AWT after such determination or adoption.

**Table 3. Facilities with domestic wastewater disposal sites within the Manatee River BMAP boundary**

* This is a preliminary list of facilities. Additional facilities may also dispose of effluent in the BMAP area and identified at a later date.

| Facility Name | Facility Identification Number |
|---|---|
| **City of Bradenton WWTF** | FL0021369 |
| **Lake Manatee State Park WWTF** | FLA012654 |
| **Lakewood Ranch Stewardship District WWTF** | FL0824381 |
| **Manatee County Southeast Regional WWTF** | FLA012618 |

The nitrogen and phosphorus effluent limits set forth in **Table 4** and **Table 5** will be applied as an annual average, taken at end of pipe before any land disposal (or other authorized compliance point), to all new and existing WWTFs with a DEP-permitted discharge or disposal area within this BMAP.

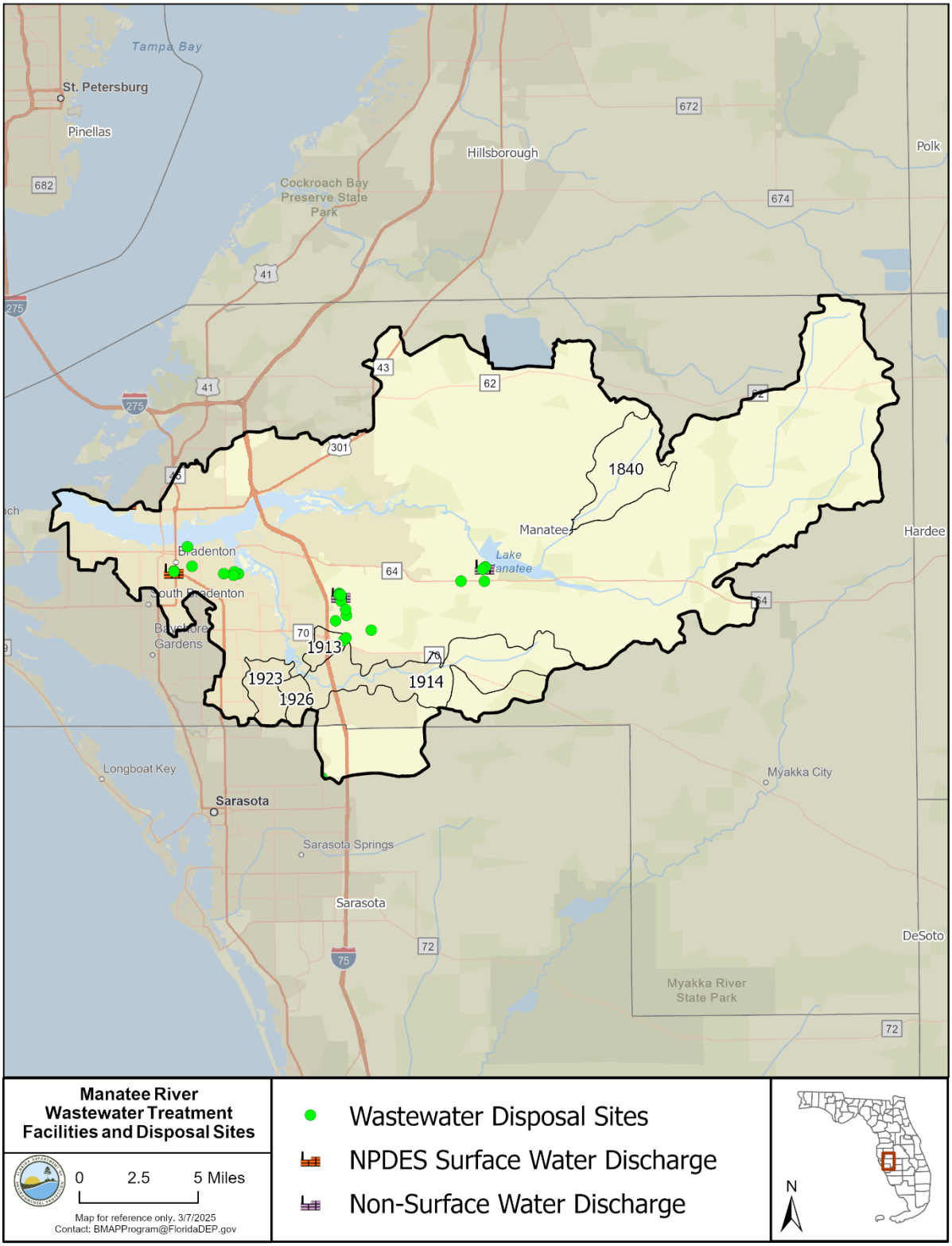


**Figure 2. WWTFs in the Manatee River BMAP area**

**Table 4. Nitrogen effluent limits for wastewater facilities**

mgd = Million gallons per day. mg/L = Milligrams per liter.

| Facility Capacity (mgd) | Surface Water Discharges (mg/L) | WWTFs Listed in Appendix D (mg/L) | WWTFs Not Listed in Appendix D – Rapid Rate Land Application Effluent Disposal System (mg/L) | WWTFs Not Listed in Appendix D – All Other Disposal Methods, Including Reuse (mg/L) |
|---|---|---|---|---|
| **≥ 0.5** | 3 | 3 | 3 | 10 |
| **< 0.5, ≥ 0.1** | 3 | 3 | 6 | 10 |
| **< 0.1** | 3 | N/A | 10 | 10 |

**Table 5. Phosphorus effluent limits wastewater facilities**

| Facility Capacity (mgd) | Surface Water Discharges (mg/L) | WWTFs Listed in Appendix D (mg/L) | WWTFs Not Listed in Appendix D – Rapid Rate Land Application Effluent Disposal System (mg/L) | WWTFs Not Listed in Appendix D – All Other Disposal Methods, Including Reuse (mg/L) |
|---|---|---|---|---|
| **≥ 0.5** | 1 | 1 | 1 | 6 |
| **< 0.5, ≥ 0.1** | 1 | 1 | 3 | 6 |
| **< 0.1** | 1 | N/A | 6 | 6 |

Where the law does not provide a compliance timeframe, new effluent standards will take effect at the time of permit renewal or no later than five years after BMAP adoption, whichever is sooner.

Additionally, new and existing wastewater permits in the BMAP area must require at least quarterly sampling of the effluent discharge for TN and TP concentrations and report these sampling results in the discharge monitoring reports (DMRs) submitted to DEP.

In 2021, subsection 403.064(16), F.S., was amended where domestic wastewater utilities that dispose of effluent, reclaimed water, or reuse water by surface water discharge were required to submit for DEP review and approval, a plan for eliminating non-beneficial surface water discharge by January 1, 2032. A utility must fully implement the approved plan by January 1, 2032. If a plan was not timely submitted or approved by DEP, the utility's domestic WWTFs may not dispose of effluent, reclaimed water, or reuse water by surface water discharge after January 1, 2028. Violations are subject to administrative and civil penalties pursuant to sections 403.121, 403.131, and 403.141, F.S.

#### 4.1.2.2 Reclaimed Water Effluent Limits

In accordance with section 403.086. F.S., by July 1, 2034, any WWTF providing reclaimed water that will be used for commercial or residential irrigation or be otherwise land applied within a nutrient BMAP or RAP area is required to meet AWT standards for TN and TP such that the reclaimed water product contains not more, on a permitted annual average basis, of 3 mg/L of TN and 1 mg/L of TP. These requirements do not apply to reclaimed water that is land applied as part of a water quality restoration project or water resource development project

approved by DEP to meet a TMDL or minimum flow or level and where the TN and TP will be at or below AWT standards prior to entering groundwater or surface water.

DEP has determined that certain WWTFs providing reclaimed water for the purpose of commercial or residential irrigation or that is otherwise being land applied within this BMAP area are causing or contributing to the nutrient impairments being addressed in this BMAP. Based on DEP's determination, these facilities are identified in **Appendix D** and are subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S. The facilities listed in **Appendix D** have 10 years from BMAP adoption to meet the applicable AWT standards. This requirement does not prevent the department from requiring an alternative treatment standard, if the department determines the alternative standard is necessary to achieve the TMDL(s) or applicable water quality criteria. For facilities that did not have adequate information to complete an evaluation or where a change occurs to the facility's application of reclaimed water after the initial evaluation (e.g., an increase in facility capacity or change in location of reclaimed water application), the department will evaluate the land application of reclaimed water as more information becomes available pursuant to section 403.086, F.S.

All new permitted facilities providing reclaimed water that will be used for commercial or residential irrigation or be otherwise land applied within the BMAP area are required to meet AWT standards for TN and TP in accordance with section 403.086, F.S.

#### 4.1.2.3 Wastewater Treatment Facility Plans

Subparagraph 403.067(7)(a)9., F.S., requires local governments within a BMAP to develop WWTF plans to be adopted as part of nutrient BMAPs no later than July 1, 2025, if DEP identifies domestic wastewater as contributors of at least 20% of point source or nonpoint source nutrient pollution or if DEP determines remediation is necessary to achieve the TMDL. The WWTF plans must be developed by each local government in cooperation with DEP, WMDs, and public and private domestic wastewater facilities within the jurisdiction of the local government. Each local government's wastewater treatment plan for this BMAP must contain the information outlined in Final Order 23-0121 for each existing or proposed domestic wastewater facility in the local government's jurisdiction.

Subparagraph 403.067(7)(a)9., F.S., was amended in 2024 to clarify that private domestic wastewater facilities must provide this information to local governments effective July 1, 2024. Information related to private facilities will need to be included in future local government WWTF plans if not captured in the initial plans. This 2025 BMAP includes a boundary expansion that extends the remediation plan requirements to additional local governments as well as private wastewater facilities. Responsible entities who are newly subject to subparagraph 403.067(7)(a)9., F.S. have one year from BMAP adoption to submit their applicable remediation plans. Requests for remediation plan exemptions are due within 60 days of BMAP adoption.

#### 4.1.2.4 Connection to Sewer

The installation of new OSTDS within a BMAP area is prohibited where connection to sewer lines is available. For existing OSTDS, the owner must connect to sewer within 365 days of written notification by the utility that connection to its sewer line is available. A utility is statutorily required (section 381.00655, F.S.) to provide written notice to existing OSTDS owners regarding the availability of sewer lines for connection. Additionally, existing OSTDS needing repair or modification must connect to available sewer lines within 90 days of notification by DEP.

To facilitate an inventory of noncompliant properties, by February 2, 2026, and every two years thereafter, each utility with sewer lines in the BMAP shall provide DEP a list of properties with existing OSTDS where sewer is available but has not connected. For each identified property, include the date(s) which the utility provided written notice to the owners of the availability of sewer.

#### 4.1.2.5 Biosolids and Septage Application Practices

To provide assurance that nitrogen and phosphorus losses to surface water and groundwater are minimized from the permitted application of biosolids and septage in the BMAP area, the requirements in Chapter 62-640, F.A.C., apply to newly permitted application sites and existing application sites upon permit renewal. Where biosolids materials mixed with yard waste or other organic materials are distributed as compost or soil amendments, DEP recommends the recipients of these materials be notified of their increased nutrient content, so that any fertilization practices on the site can be adjusted accordingly. FDACS and University of Florida Institute of Food and Agricultural Sciences (UF-IFAS) are coordinating efforts to ensure that the distribution process for these kinds of materials includes notification of the nutrient content to the site manager.

## 4.2 Stormwater

Urban stormwater is a source of nutrient loading to Manatee River and many urban areas are already regulated under the Municipal Separate Storm Sewer System (MS4) NPDES Stormwater Program. An MS4 is a conveyance or system of conveyances, such as roads with stormwater systems, municipal streets, catch basins, curbs, gutters, ditches, constructed channels, or storm drains. If an MS4 permittee is identified as a contributor in the BMAP, the permitted MS4 must undertake projects specified in the BMAP.

Regulated MS4s are required to implement stormwater management programs (SWMP) to reduce pollutants to the maximum extent practicable and address applicable TMDL allocations. Both Phase I and Phase II MS4 permits include provisions for the modification of SWMP activities. Phase I medium and large MS4s are regulated under an individual permit, with multiple permittees having coverage under the same permit as “co-permittees.” Phase II small MS4s are regulated under a generic permit. Under the “NPDES Two-Step Generic Permit for Discharge of Stormwater from Phase II MS4s” (paragraph 62-621.300(7)(a), F.A.C.), regulated

Phase II MS4s must develop a SWMP that includes BMPs with measurable goals and a schedule for implementation to meet six minimum control measures.

DEP can designate an entity as a regulated MS4 if its discharges meet the requirements of the rule and are determined to be a significant contributor of pollutants to surface waters of the state in accordance with Rule 62-624.800, F.A.C. A Phase II MS4 can be designated for regulation when a TMDL has been adopted for a waterbody or segment into which the MS4 discharges the pollutant(s) of concern. Because urban areas located in the BMAP that are not currently covered by an MS4 permit also significantly contribute to nutrient loading, individually or in aggregate, the NPDES Stormwater Program will, within five years of BMAP adoption, evaluate any entity located in the BMAP area that serves a minimum resident population of at least 1,000 individuals that is not currently covered by an MS4 permit and designate eligible entities as regulated MS4s, in accordance with Chapter 62-624, F.A.C.

On June 28, 2024, Governor Ron DeSantis signed Senate Bill 7040 into law, which updates Florida's stormwater rules and design criteria, including Chapter 62-330 F.A.C., to protect the state's waterways. The new regulations aim to manage runoff from developments, ensuring that future stormwater systems are better maintained. Operation and maintenance entities will be required to have estimates for the expected routine maintenance costs and to certify that they have the financial capability to maintain the stormwater system over time. The rule will also provide for more consistent oversight through a required periodic inspection routine and reporting on the inspection results to the permitting agency.

Additionally, under Chapter 62-330 F.A.C., applicants must demonstrate, through calculations or modeling, that future stormwater management systems meet the greater of the following nutrient load reduction criteria: either the Environmental Resource Permit (ERP) stormwater performance standards of an 80% reduction for TP and 55% reduction for TN, or that post-development nutrient loading does not exceed pre-development levels. Additional requirements apply for projects discharging to Outstanding Florida Waters or impaired waters. Permitting requirements for groundwater protection are outlined in the Stormwater Applicant Handbook, Volume I, Section 8.5.2.

### 4.2.1 Urban BMPs and Eligibility

Management actions must reduce TN and/or TP loads and meet certain criteria to be considered eligible for credit in the BMAP and RAP. Permit conditions are established to prevent impacts from the new development and do not contribute to water quality improvement.

### 4.2.2 Sports Turfgrass and Golf Courses

Sports turfgrass sources include golf courses and other sporting facilities. Sporting facilities are required to follow the 2025 Sports Turf BMP Manual to protect water resources.

Superintendents of all publicly owned golf courses within the BMAP must obtain a certification for golf course BMPs under section 403.9339 F.S. and all golf courses must implement the

BMPs described in the DEP golf course BMP manual, *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses* (DEP, 2021). All golf courses located within a BMAP are required to submit an NMP to DEP that is designed to sustain even plant growth while minimizing excessive growth and nutrient losses. Required information for the NMP is available in **Appendix E**. A draft NMP must be submitted to DEP within one year of BMAP adoption and a final document is due two years after adoption. All soil, water, and tissue sampling must include appropriate nitrogen and phosphorous analyses.

If a facility (either golf course or other sporting facility) uses fertilizer rates greater than those in the BMP manuals, the facility is required to conduct water quality monitoring prescribed by DEP or a WMD that demonstrates compliance with water quality standards.

### 4.2.3 Agriculture

#### 4.2.3.1 Agricultural BMPs

To address nutrient loading from agricultural operations effectively, a balanced approach is necessary—one that supports agricultural productivity while safeguarding water resources. This entails promoting farming practices that optimize nutrient and water use efficiency, minimize runoff, and enhance soil health. Section 403.067, F.S., requires agricultural producers in adopted BMAPs to either enroll and properly implement the applicable FDACS BMPs for their operation or to conduct water quality monitoring activities as required by Chapter 62-307, F.A.C. Agricultural BMPs include practices such as nutrient management, irrigation management and water resource protection, and can mitigate nutrient loading while promoting environmental stewardship among Florida's agricultural producers. In many BMAPs, however, the implementation of BMPs alone will not be sufficient to meet water quality restoration goals. BMP manuals adopted by FDACS are available at https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Best-Management-Practices. Agricultural landowners that do not enroll in BMPs are referred to DEP for water quality monitoring or enforcement under sections 403.121, 403.141 and 403.161, F.S.

Every two years, FDACS is required to perform onsite inspections of each agricultural producer that enrolls in BMPs to ensure that the practices are being properly implemented. The verification includes: review and collection of nutrient application records that producers must maintain to demonstrate compliance with the BMP Program; verification that all other applicable BMPs are being properly implemented; verification that any cost shared practices are being properly implemented; and identification of potential cost share practices, projects or other applicable BMPs not identified during enrollment. Rule 5M-1.008, F.A.C., outlines the procedures used to verify the implementation of agricultural BMPs. Producers not implementing BMPs according to the process outlined in Chapter 5M-1, F.A.C., are referred to DEP for enforcement action after attempts at remedial action by FDACS are exhausted. Failure to implement BMPs or conduct water quality monitoring that demonstrates compliance with pollutant reductions may result in enforcement action by DEP (paragraph 403.067(7)(b), F.S.).

Pursuant to paragraph 403.067(7)(c), F.S., where water quality problems are demonstrated despite the appropriate implementation, operation and maintenance of adopted BMPs, DEP, a water management district (WMD), or FDACS, in consultation with DEP, must conduct a reevaluation of the BMPs. If the reevaluation determines that the best management practice or other measure requires modification, DEP, a water management district, or FDACS, as appropriate, shall revise the rule to require implementation of the modified practice within a reasonable time period.

For this 2025 BMAP update, FDACS used the parcel-level polygon Agricultural Land Geodatabase (ALG) data that is part of the Florida Statewide Agricultural Irrigation Demand (FSAID) Geodatabase to estimate agricultural acreages statewide. The percentage of agricultural land use within the Manatee River BMAP was then determined by comparing the FSAID 11 ALG and total acreage of the 2014 BMAP boundary. Based on FSAID 11, the total agricultural land in the BMAP is 935 acres. To estimate the agricultural acres enrolled in the BMP program, FDACS Office of Agricultural Water Policy (OAWP) overlayed the FSAID ALG and BMP enrollment data within a geographic information system (GIS) to calculate the acres of agricultural land in an enrolled parcel. **Table 6** summarizes agricultural lands within the Manatee River BMAP based on the FSAID 11 and the results of the FDACS unenrolled agricultural lands characterization.

**Table 6. Agricultural lands in the Manatee River BMAP**

* Enrollment information current as of June 30, 2024.

| Crediting Location | Agricultural Acres | Unenrolled - Unlikely Enrollable Acres | Agricultural Acres - Adjusted | Agricultural Acres Enrolled* |
|---|---|---|---|---|
| 2014 BMAP Watersheds | 935 | 556 | 379 | 297 |

FDACS will seek further enrollment of producers in the BMAP area. As of June 30, 2024, in the Manatee River BMAP there are 297 agricultural acres enrolled in the BMP program. **Table 7** and **Figure 3** summarize the acres enrolled in the BMP Program by commodity. Currently, no producers are conducting water quality monitoring in lieu of implementing BMPs.

**Table 7. Agricultural lands enrolled in the Manatee River BMAP by BMP program commodity**

| Commodity | Agricultural Acres Enrolled |
|---|---|
| Cow/Calf | 297 |
| **Total** | **297 (78%)** |

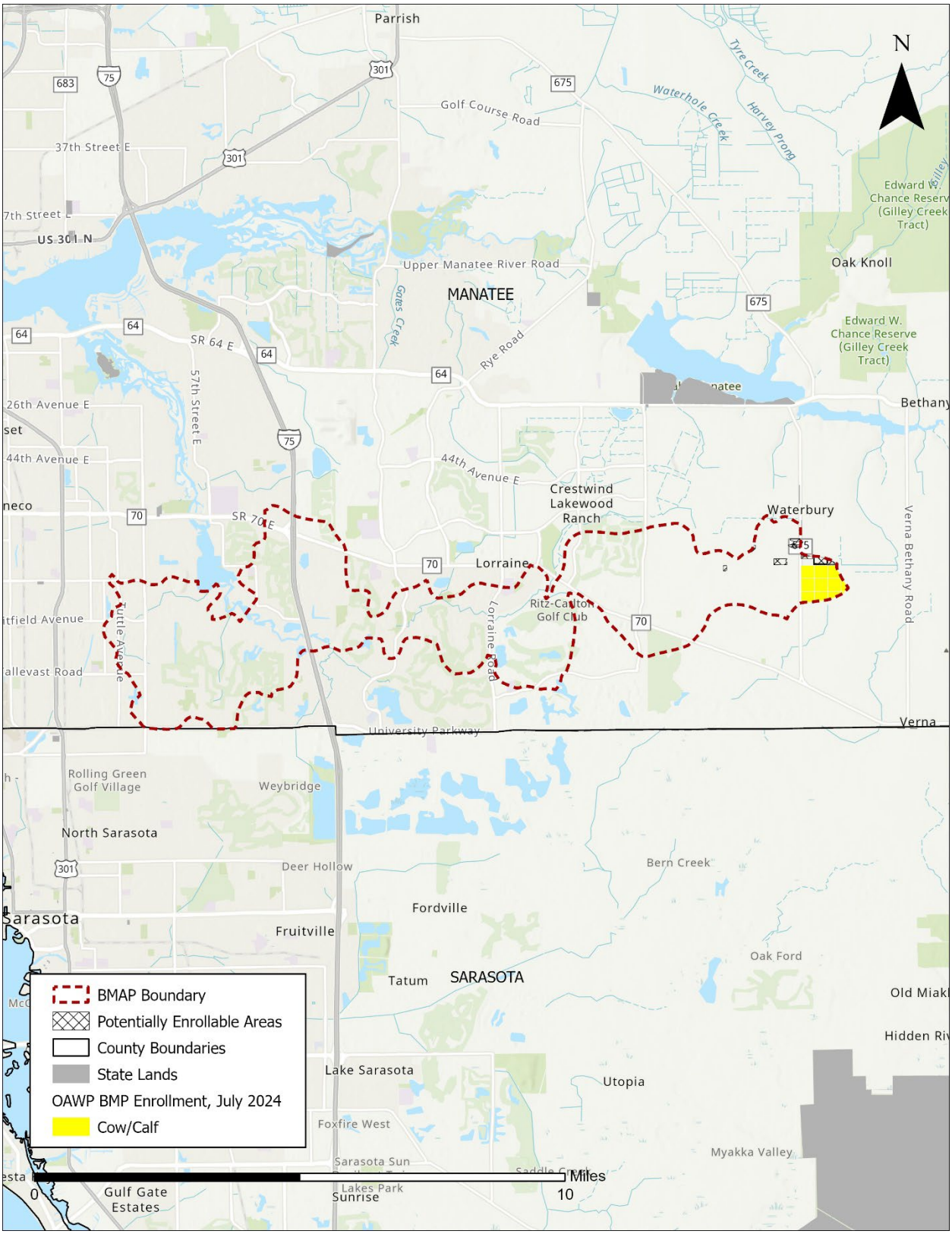


**Figure 3. Agricultural BMP enrollment in the Manatee River BMAP**

#### 4.2.3.2 Dairies and Other Confined Animal Feeding Operations (CAFOs)

CAFO dairies permitted under Chapter 62-670, F.A.C., located within a BMAP, may not cause or contribute to a violation of water quality standards and must implement nutrient management practices identified in the permits. To minimize infiltration of liquid manure, waste storage ponds must be lined using a concrete or geosynthetic liner. If a clay liner exists, then the operation will need to upgrade to a concrete or geosynthetic liner when funding is available, or it must demonstrate that the liner does not allow leaching that results in water quality exceedances.

Additionally, sampling for TN and TP of land applied effluent/wastewater must be included in the DEP-approved nutrient monitoring plan established in the permit and implemented in accordance with the monitoring plan.

#### 4.2.3.3 Livestock Operations Without CAFO Permits

Livestock operations may not cause or contribute to a violation of water quality standards. Not all livestock operations are large enough to require an NPDES CAFO permit under Chapter 62-670, F.A.C. For these operations, section 403.067, F.S., requires the operation to enroll in the FDACS BMP Program and implement applicable BMPs or to conduct a monitoring program according to Chapter 62-307, F.A.C., that is approved by DEP or the applicable WMD.

#### 4.2.3.4 Aquaculture

Under the federal Clean Water Act, aquaculture activities are defined as a point source. In 1999, the Florida Legislature amended Chapter 597, F.S., Florida Aquaculture Policy Act, to create a program within FDACS that requires those who sell aquatic species to annually acquire an Aquaculture Certificate of Registration and implement Chapter 5L-3, F.A.C., Aquaculture BMPs. Permit holders must be certified every year.

#### 4.2.3.5 Silviculture

The Florida Forest Service (FFS) within FDACS is the lead entity responsible for assisting landowners, loggers, and forestry professionals with silviculture BMP implementation as well as for conducting statewide silviculture BMP training and compliance monitoring. The FFS implements Chapter 5I-6, F.A.C., and requires both private and public forest landowners across the state to comply with BMPs and the rule. Compliance with the rule involves submitting a Notice of Intent to Implement BMPs (NOI) to the FFS and thereby committing to follow BMPs during all current and future forestry operations.

#### 4.2.3.6 Agricultural Cooperative Regional Elements (ACE)

Section 403.067, F.S., requires FDACS, DEP, and agricultural producers to work together to establish ACE in BMAPs where agricultural nonpoint sources contribute at least 20% of nonpoint source nutrient discharges to impaired waterbodies, or where DEP determines this element is necessary to achieve the TMDLs. FDACS is responsible for providing DEP a list of projects which, in combination with BMPs, state-sponsored regional projects and other management strategies, will achieve the needed pollutant load reductions established for

agricultural nonpoint sources. The list of projects included in the ACE must include a planning-level cost estimate of each project along with the estimated amount of nutrient reduction that such project will achieve. Partner agencies and key stakeholders referred to in this process include FDACS, DEP and agricultural producers.

Addressing nutrient loading from agricultural sources in Florida's waterways requires collective action and partnership among the key stakeholders, and in consultation with the WMDs. By fostering cooperation and engagement, the ACE framework facilitates the exchange of knowledge, resources, and expertise, leading to innovative solutions and effective strategies for tackling water quality challenges. Engaging producers in the decision-making process ensures that projects are practical, feasible, and tailored to the needs and realities of agricultural operations. Partner agencies provide technical support, regulatory guidance, and funding opportunities that will enhance the implementation and success of regional water quality improvement initiatives. This cooperative effort is essential for implementing targeted actions that balance the economic and social benefits of agriculture with the obligation to address agricultural nonpoint source loading beyond BMP implementation and cost share.

The ACE framework leverages resources and technical expertise to efficiently identify regional projects and other strategies tailored to the diverse agriculture production methods, landscapes, and watersheds that will need to be implemented to achieve the TMDLs. Regional project types will vary among the different BMAPs, and can include, but are not limited to, a combination of traditional projects that focus on water treatment, land acquisition in fee or conservation easements on the lands of willing sellers, site-specific water quality improvement projects, dispersed water management projects, innovative technologies, and regional projects funded through existing or enhanced cost share programs administered by FDACS or the WMDs.

While FDACS is assigned the lead role on project solicitation, development, selection, and implementation, they will work closely with all the key stakeholders, including DEP as a partner agency, to define and identify regional projects that will be included in the BMAP and to leverage existing programs and resources. FDACS will lead engagement with producers and industry groups through workshops to identify potential regional projects. Identified projects will be implemented through various mechanisms, such as existing agency cost share or grant programs or through a legislative budget request and eventual appropriation. Upon identification of a project, FDACS will update DEP on project development and implementation, including the funding strategy.

FDACS and DEP will work together to track progress on agricultural water quality projects under the ACE framework through the development of performance metrics and evaluation of water quality monitoring data in the basin or, if necessary, at the project level. The default performance measures will be the expected range of pollutant removal efficiencies associated with a project or strategy. Tools may be needed to determine the effectiveness of projects, such as modeling and where feasible onsite water quality monitoring.

FDACS will report on projects annually through DEP's Statewide Annual Report (STAR) process and during BMAP update and/or development. Projects and other management strategies implemented through the ACE will be evaluated cooperatively by partner agencies using the predetermined performance metrics. The ACE process provides for adaptive management, allowing flexibility to adapt and improve based on regional project or management strategy results.

Based on the 2104 BMAP boundary, agricultural nonpoint sources contribute less than 20% of the nutrient sources in the Manatee River BMAP, and an ACE is not required. However, with the expansion of the BMAP boundary, this percentage could change. Within a year after BMAP adoption, DEP will re-evaluate nonpoint source contributions in the expanded BMAP area and determine whether an ACE will be required in this BMAP.

The required reductions established by the RAP will be achieved through enrollment and implementation of BMPs and cost share projects funded by FDACS, SWFWMD, and other partners. Targeting future funding toward precision agriculture or soil health practices, including combining practices where applicable, to address nutrient impacts from agriculture on a regional scale could provide additional reductions.

FDACS will continue to work with key stakeholders in the Manatee River BMAP to identify additional options for addressing agricultural nonpoint source nutrient loading. For more information on the FDACS Regional Projects Program, see the links in **Appendix F**.

#### 4.2.3.7 Description of BMPs Adopted by Rule

**Appendix F** provides detailed information on BMPs and agricultural practices in the BMAP area. **Table 8** identifies the adopted BMPs and BMP manuals relevant to this BMAP.

**Table 8. BMPs and BMP manuals adopted by rule as of July 2025**

| Agency | F.A.C. Chapter | Chapter Title |
|---|---|---|
| FDACS OAWP | 5M-1 | Office of Agricultural Water Policy |
| FDACS OAWP | 5M-06 | Florida Nursery Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |
| FDACS OAWP | 5M-08 | Florida Vegetable and Agronomic Crop (VAC) Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |
| FDACS OAWP | 5M-09 | Florida Sod Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |
| FDACS OAWP | 5M-11 | Florida Cattle Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |
| FDACS OAWP | 5M-12 | Conservation Plans for Specified Agricultural Operations |
| FDACS OAWP | 5M-13 | Florida Specialty Fruit and Nut Crop Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |
| FDACS OAWP | 5M-14 | Florida Equine Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |
| FDACS OAWP | 5M-16 | Florida Citrus Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |

| Agency | F.A.C. Chapter | Chapter Title |
|---|---|---|
| FDACS OAWP | 5M-17 | Florida Dairy Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |
| FDACS OAWP | 5M-18 | Florida Agriculture Wildlife Best Management Practices |
| FDACS OAWP | 5M-19 | Florida Poultry Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |
| FDACS OAWP | 5M-21 | Florida Small Farms and Specialty Livestock Operations, 2024 Edition: Water Quality and Water Quantity Best Management Practices |
| FDACS Division of Agriculture Environmental Services | 5E-1 | Fertilizer |
| FDACS Division of Aquaculture | 5L-3 | Aquaculture Best Management Practices |
| FFS | 5I-6 | Best Management Practices for Silviculture |
| DEP | 62-330 | Environmental Resource Permitting |

## 4.3 Atmospheric Deposition

### 4.3.1 Summary of Atmospheric Loading

Atmospheric deposition is largely a diffuse, albeit continual, source of nitrogen. Currently, nitrogen species and other chemical constituents are measured in wet and dry deposition at discrete locations around the U.S. In 2014, Schwede and Lear developed a hybrid model for estimating the total atmospheric deposition of nitrogen and sulfur for the entire U.S., referred to as the total atmospheric deposition model (TDEP). Deposition data from several monitoring networks-- including the Clean Air Status and Trends Network (CASTNET); the National Atmospheric Deposition Program (NADP) Ammonia Monitoring Network; the Southeastern Aerosol Research and Characterization Network; and modeled data from the Community Multiscale Air Quality (CMAQ) Modeling System—are combined in a multistep process with National Trends Network (NTN) wet deposition values to model total deposition.

Atmospheric deposition of phosphorus can also be a source to lakes via wet deposition through rainfall and dry deposition via gaseous and particulate wind-transported particles (Anderson & Downing, 2006; Zhai et al., 2009). The movement of phosphorus between land and water sources has been greatly accelerated by anthropogenic activities, particularly related to use of fertilizers that include phosphorus (Cordell et al., 2009; Boehme et al., No Date). However, the NADP National Analytical Laboratory does not include phosphorus measurements as a primary objective; orthophosphate is measured, but only for quality assurance as an indicator of sample pollution (University of Wisconsin, 2024). Therefore, fewer data are available on the trends of atmospheric deposition of phosphorus in the basin.

### 4.3.2 Description of Approach

Atmospheric sources of nutrients are local, national, and international. Nitrogen atmospheric sources are generally of low concentration compared with other sources and are further diminished through additional biological and chemical processes before they reach groundwater. Recent data (Himes and Dawson, 2017) indicate that the deposition of nitrogen has been generally decreasing in Florida with an up to 55% decrease in atmospheric deposition by 2028,

possibly related to power plant fuel source changes and air treatment upgrades as well as the increased use of electric vehicles, decreasing mobile sources (Himes and Dawson, 2017). This gradual decrease in atmospheric deposition of nitrogen will assist with creating the necessary reductions. Currently, since the scale of the national and international programs to address air deposition loads are difficult to integrate into the much smaller scale of this water quality plan, there are no specific nitrogen or phosphorus reductions assigned to this source category. Atmospheric deposition sources and trends will be re-evaluated periodically.

## 4.4 Future Growth

Nutrient impacts from new development are addressed through a variety of mechanisms outlined in this BMAP, as well as provisions of Florida law. While most of the restoration projects and management strategies listed in this BMAP address current nutrient loading, there is a need to plan and implement sound management strategies to address loading associated with population growth. DEP has included in this BMAP specific elements to address current and future WWTF effluent, OSTDS, and stormwater sources. Broader requirements—such as local land development regulations, comprehensive plans, ordinances, incentives, environmental resource permit requirements and consumptive use permit requirements—all provide additional mechanisms and avenues to protect water resources and reduce the impact of new development and other land use changes as they occur.

Further strengthening of comprehensive plans is required under section 163.3177, F.S., which requires local governments to amend their comprehensive plans with the considerations listed below. This 2025 BMAP includes a boundary expansion that extends the comprehensive plan requirements to additional local governments. Responsible entities who are newly subject to section 163.3177, F.S. have one year from BMAP adoption to submit their comprehensive plan amendments to address these considerations:

- Identify and prioritize projects to meet the TMDLs.

- Update the wastewater section to include plans for treatment updates, not just capacity, and AWT must be prioritized.

- In developments with more than 50 lots with more than one OSTDS per acre, the plan must consider the feasibility of providing sanitary sewer within a 10-year planning horizon and identify the facility that could receive the flows. The plan must review the capacity of the facility and any associated transmission facilities; projected wastewater flow at that facility for the next 20 years, including expected future new construction and connections of OSTDS to sanitary sewer; and timeline for the construction of the sanitary sewer system. The plan was initially required to be updated by July 1, 2024.

- Comprehensive plans must contain capital improvements element to consider the need for and the location of public facilities:

- Construction, extension, or increase in capacity of public facilities as well as principals for correcting existing public facility deficiencies. Components must cover at least a 5-year period.
- Costs, timeline, general location, and projected revenue sources to fund the facilities.
- Standards to meet an acceptable level of service.
- Schedule of capital improvements, which may include privately funded projects.
- A list of projects necessary to achieve the pollutant load reductions attributable to the local government, as established in a BMAP.
- The element must address coordinating the extension of, increase in the capacity of, or upgrade in treatment of facilities to meet future needs; prioritizing AWT while maximizing the use of existing facilities and discouraging urban sprawl; conserving potable water resources; and protecting the functions of natural groundwater recharge areas and natural drainage features.

Through this array of laws and the requirements in this BMAP, new development must undertake certain nutrient-reduction measures before the development is complete. DEP recommends that local governments revise their planning and land use ordinance(s) to adequately address future growth and the associated environmental impact. Maintaining land at lower intensity uses through land purchases or easements for conservation and recreational use is one strategy that can help reduce water quality impacts in the basin. Any additional nutrient loading from land use intensification will be evaluated during future BMAP update efforts. If an increase in loading occurs, a responsible entity may receive additional reduction allocations that will require additional management actions by the responsible entity to mitigate those water quality impacts.

### 4.4.1 Future Growth Analysis

An analysis was done to consider the impacts of future population growth and urban development on loading in the basin. Wastewater sources were evaluated using per-person estimations calculated for portions of the population estimated to be served by OSTDS and those connected to central sewer. Stormwater sources were evaluated using per-acre estimations calculated for portions of a jurisdictional area that may be developed.

First, population growth for each county was taken from the Bureau of Economic and Business Research (BEBR) 2040 Medium Growth Projections. Then, a spatial analysis was performed to determine the proportion of developable land area attributed to each entity within each county. Areas where there are permanent waterbodies, or which have been set aside for conservation are unlikely to see future development or increased population so the National Hydrography Database (NHD) for lake and ponds and the Florida Natural Areas Inventory (FNAI) conservation lands were used to remove lands from the analysis. The percentage of remaining land attributed to each entity was applied to the county projected population growth to determine the number of additional people anticipated to contribute to loading by 2040.

The next step was to distinguish the future population expected to be served by sewer versus those with OSTDS based on the most recent Florida Water Management Inventory (FLWMI) for each BMAP county. For this, FLWMI parcels within each entity's jurisdiction were counted and categorized based on the Wastewater Type field. The number of points in "Known Sewer," "Likely Sewer," and "Somewhat Likely Sewer" divided by the total number of points estimated a portion of the population that are served by central wastewater collection system. The remainder are assumed to have an OSTDS.

Per person loading calculations were used to estimate future loads from WWTFs and OSTDS under different planning scenarios, as described below. DEP's Domestic Wastewater Program estimates each person in Florida generates 100 gallons of wastewater per day. For OSTDS, FDOH estimates each person in Florida generates 10 lbs TN/yr. US-IFAS estimates each person in Florida generates 10 grams TP/day. Phosphorus loading rates from OSTDS are not affected by new technologies or BMAP management strategies. An attenuation rate of 50% for wastewater effluent disposal was applied to loading calculations to derive the estimated future load to the basin.

Per acre loading calculations were used to estimate future loads from increased urban runoff as a result of development under different planning scenarios, described below. First, a number of developed acres were derived by applying percentages to the developable land areas from the initial GIS analysis for each entity. Then, the loadings were based on DEP's statewide event mean concentrations (EMCs) and runoff coefficients (ROCs) for low density residential, with a generalized rainfall for Central Florida from the *Evaluation of Current Stormwater Design within the State of Florida* report (Harper, 2007). Finally, a generalized attenuation rate of 70% for urban runoff was applied to loading calculations to derive the estimated future load to the basin.

Scenario 1 represents a future planning scenario with the highest levels of treatment feasible. It assumes all local governments within the BMAP have a minimum of 90% of their population served by centralized sewer, and all domestic wastewater will be treated to AWT standards (3 mg/L TN or less and 1 mg/L TP or less) by 2040 based on current Florida law and BMAP management strategies. This scenario also assumes that all future OSTDS will be enhanced nutrient-reducing systems or other wastewater systems with a nitrogen treatment efficiency of at least 65%. For urban development, this scenario represents a conservative growth future where 2% of developable land is converted to low density residential.

Scenario 2 utilizes the current rates of sewer availability based on the FLWMI parcels to estimate the population served by central wastewater collection system. This future planning scenario assumes that all domestic wastewater will be treated to AWT standards (3 mg/L TN or less and 1 mg/L TP or less) by 2040 based on current Florida law and BMAP management strategies. This scenario also assumes that all future OSTDS will be enhanced nutrient-reducing systems or other wastewater systems with a nitrogen treatment efficiency of at least 65%. For urban development, this scenario represents a moderate growth future where 10% of developable land is converted to low density residential.

Scenario 3 represents a future planning scenario with the lowest levels of treatment feasible. It utilizes the current rates of sewer availability based on the FLWMI parcels to estimate the population served by central wastewater collection system and assumes that all domestic wastewater will be treated to 6 mg/L TN and 3 mg/L TP by 2040. This scenario also assumes that all future OSTDS will be conventional systems. For urban development, this scenario represents an extreme growth future where 17% of developable land is converted to low density residential.

Future development will likely also result in an increase in loading from turfgrass. This change is difficult to model because much of it depends on the type and location of development, enforcement of local ordinances, future home values, and future social attitudes towards turfgrass lawns. There are also complex dynamics associated with new urban development in which loading from human activities is compounded by potential removal or conversion of forest lands or green spaces, which had previously provided natural remediation of atmospheric and soil nitrogen.

Based on the methodology above, using nitrogen loads as an example, **Table 9** shows the estimated future loads from wastewater and urban stormwater sources that may be assigned to local governments if growth continues as projected under the three planning scenarios. DEP encourages local governments to consider these additional nutrient loads when authorizing new development or changes in land uses, and when developing local plans for wastewater infrastructure expansion and maintenance, to ensure that the TMDL target is achieved and maintained.

**Table 9. Estimated nitrogen load from future growth in the BMAP area**

| Entity | 2040 Additional Population | 2040 Additional TN Loading (lbs/yr) Scenario 1 | 2040 Additional TN Loading (lbs/yr) Scenario 2 | 2040 Additional TN Loading (lbs/yr) Scenario 3 |
|---|---|---|---|---|
| **Manatee County** | 55,851 | 30,419 | 31,084 | 60,505 |
| **City of Bradenton** | 2,517 | 1,420 | 1,569 | 3,063 |
| **City of Palmetto** | 583 | 302 | 309 | 601 |
| **Sarasota County** | 2,177 | 1,025 | 1,042 | 2,040 |
| **Basin Totals** | **61,129** | **33,166** | **34,005** | **66,209** |

Scenario 1 resulted in an additional basin load of 33,166 lbs/yr TN. Scenario 3 resulted in an additional basin load of 66,209 lbs/yr TN.

While it is unlikely that additional nutrient loading from future populations can be entirely avoided, the results of this analysis provide local governments information on how they can mitigate future nitrogen loading by pursuing planning scenarios which prioritize the expansion of centralized sewer services that meet or exceed AWT standards for wastewater effluent. Entities

with minor or no changes in 2040 loading under Scenarios 1 and 2 already have a high rate of sewering in their jurisdiction.

This broad analysis is not being used to determine allocated reductions for responsible entities because it does not capture all local considerations and complexities of mixed land use, or current allocation approaches for wastewater. In addition, changes in nutrient loading from future population and development are difficult to model because much of it is dependent on the type and location of development, enforcement of local ordinances, future home values, and future social attitudes towards lawn maintenance and waste management. There are also complex dynamics associated with new urban development in which loading from human activities is compounded by potential removal or conversion of forest lands or green spaces, which had previously provided natural remediation of atmospheric and soil nutrients, as well as other ecosystem benefits. However, the results show trends in how loading in the basin might change in the coming decades without comprehensive local and regional planning.

Other mechanisms discussed in this section are available to local governments to further mitigate future nutrient loading from existing and future developed land. For example, strengthening and enforcing fertilizer ordinances, working with homeowners' associations or neighborhood groups to reduce fertilizer use on community landscaping, or incentivizing Florida friendly development practices could reduce the overall impact of additional nutrient loading associated with urban fertilizer. Additionally, wastewater can be treated to higher standards than those built into this analysis through upgrades to WWTFs and use of enhanced nutrient-reducing OSTDS certified with higher nitrogen treatment efficiencies or other wastewater treatment systems with higher treatment levels. Local governments can use this information to incorporate water quality considerations when developing and implementing local ordinances, comprehensive plans, stormwater planning, and enhanced OSTDS incentive programs in areas of urban expansion.

### 4.4.2 Funding Opportunities

Chapter 2023-169, Laws of Florida (L.O.F.), expanded grant opportunities for local governments and eligible entities working to address TMDLs or impaired waters. Through the DEP Water Quality Improvement Grant Program, eligible entities can apply for grant funding for wastewater, stormwater, and regional agricultural projects. Projects are prioritized that have the maximum nutrient load per project, demonstrate project readiness, are cost-effective, have cost-share by the applicant (except for Rural Areas of Opportunity), have previous state commitment, and are in areas where reductions are most needed. Multiple competitive funding resources are available under the Protecting Florida Together website.

Financial and technical assistance through FDACS and the SWFWMD are available to agricultural producers within the Manatee River BMAP. FDACS and conservation district technicians provide outreach and education on BMP implementation for enrolled agricultural operations, as well as work with interested producers to provide cost share funding for projects to improve on-farm nutrient and irrigation efficiencies that work in tandem with the applicable practices from the producer’s BMP checklist. The SWFWMD cost share program also provides

outreach and funding for projects that provide nutrient and irrigation management benefits. FDACS and the SWFWMD work closely to ensure their cost share programs complement each other to meet the needs of the producers while considering the specific characteristics of the region.

# Section 5. Monitoring Strategy

## 5.1 Monitoring Objectives

The Manatee River BMAP monitoring plan is described in the 2014 BMAP. The primary and secondary objectives of the monitoring strategy will remain the same for this 2025 BMAP. A map of the water quality monitoring network is shown in **Figure 4.**

An annual review of the DEP study list will be supplemental to the existing monitoring plan to allow for more comprehensive assessments of the nutrient related TMDL waters in the Manatee River BMAP.

Additional long-term monitoring stations will be identified to represent areas of the BMAP that are not represented in the current BMAP monitoring network.

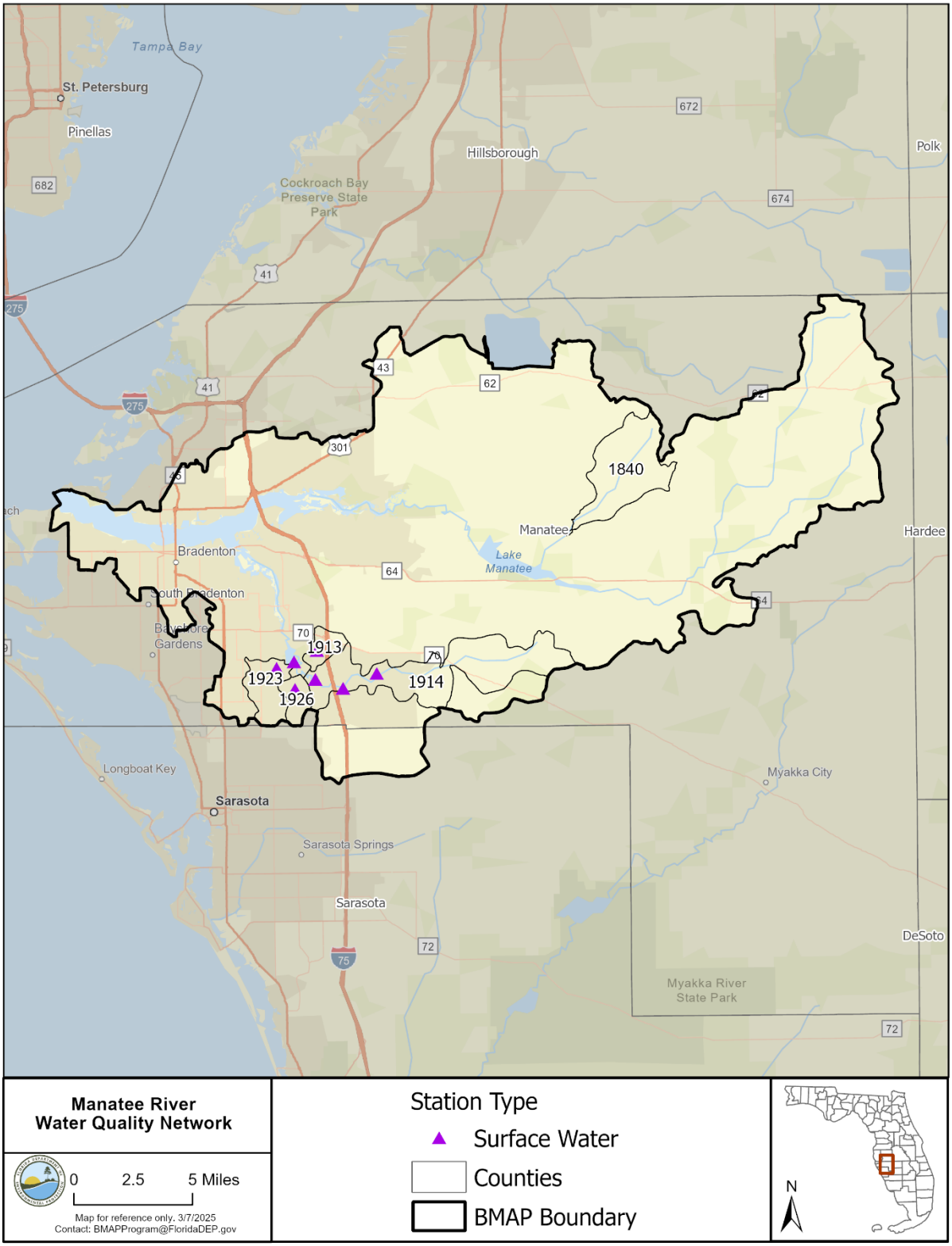


**Figure 4. Manatee River BMAP water quality monitoring network**

# Section 6. Commitment to Plan Implementation

## 6.1 Adoption Process

The 2025 BMAP update is adopted by Secretarial Order and designates responsible entities.

## 6.2 Tracking Reductions of Nutrients

For BMAP compliance, responsible entities are expected to continue implementing and reporting on efforts to meet and stay within RAP allocations. Each entity responsible for implementing management actions to meet their upcoming 5-year milestone as part of the BMAP will provide DEP, via the statewide annual report process, with an annual update of progress made in implementing load reductions. The update will track the implementation status of the management actions listed in the BMAP and document additional projects undertaken to further water quality improvements in the basin. FDACS will continue to report acreage enrolled in NOIs at least annually to DEP.

## 6.3 Fecal Indicator Bacteria (FIB)

Responsible entities with jurisdictional or other connection to FIB impaired waters within Manatee River will participate in quarterly Tributaries Assessment Team (TAT) virtual meetings hosted by DEP. The meetings include a review of recent FIB sampling results by data providers and discussion of any investigative follow-up activities. Collaboration is expected between appropriate departments of responsible entities and responsible agencies. The goal is to identify and eliminate the origin of anthropogenic sources of FIB such that less than 10% of ambient samples of the waterbodies exceed the Ten Percent Threshold Values, established in water quality standards. Responsible entities will provide DEP, via the statewide annual report process, information on source identification and elimination efforts and source reduction projects.

## 6.3 Revisions to the BMAP

Adaptive management involves setting up a mechanism for making course corrections in the BMAP when circumstances change, or feedback mechanisms indicate that a more effective strategy is needed. Section 403.067, F.S., requires that the plan be revised, as appropriate, in collaboration with basin stakeholders. All or part of a revised BMAP must be adopted by Secretarial Order. Adaptive management measures include the following:

- Need to update based on new information, including model updates.
- New law requirements.
- Procedures to determine whether additional cooperative actions are needed.

- Criteria/process for determining whether and when plan components need to be revised because of changes in costs, environmental impacts, social effects, watershed conditions, or other factors.

- Descriptions of the stakeholders' role after BMAP completion.

DEP will reevaluate and, if necessary, adopt another iteration of the Manatee River BMAP. The next iteration may include updated required reductions, timelines and 5-year milestones. Tracking implementation, monitoring water quality and pollutant loads, and holding periodic meetings to share information and expertise are key components of adaptive management.

# Section 7. References

Anderson, K.A. and Downing, J.A. 2006. *Dry and wet atmospheric deposition of nitrogen, phosphorus, and silicon in an agricultural region*. Water, Air, and Soil Pollution 176: 351–374.

Boehme, J., Schulhauser, R., and Bejankiwar, R., Undated. *Atmospheric Deposition of Phosphorus to Freshwater Lakes*. Great Lakes Regional Office, International Joint Commission.

Cordell, D., Drangert, J.O. and White, S. 2009. *The story of phosphorus: Global food security and food for thought*. Global Environmental Change 19: 292–305.

Florida Department of Environmental Protection. 2007. *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses*. Tallahassee, FL.

Florida Stormwater Association. 2012. *Methodology for calculating nutrient load reductions using the FSA assessment tool.*

Harper, H. 2007. *Evaluation of Current Stormwater Design Criteria within the State of Florida*. Florida Department of Environmental Protection.

Himes, B. and Dawson, J. 2017. *Florida Nitrogen Oxides Emissions Trends*. Division of Air Resource Management, Florida Department of Environmental Protection. August 11, 2017.

Southwest Florida Water Management District. 2001. *Manatee River Comprehensive Watershed Management Plan*. April 26, 2001.

University of Wisconsin. December 2024. *National Trends Network*. National Atmospheric Deposition Program. Retrieved December 31, 2024, from https://nadp.slh.wisc.edu/networks/national-trends-network/.

Zhai, S., Yang, L. and Hu, W. 2009. *Observations of Atmospheric Nitrogen and Phosphorus Deposition During the Period of Algal Bloom Formation in Northern Lake Taihu, China*. Environmental Management 44: 542–551.

# Appendices

## Appendix A. Important Links

The links below were correct at the time of document preparation. Over time, the locations may change and the links may no longer be accurate. None of these linked materials are adopted into this BMAP.

- DEP Website: http://www.floridadep.gov
- DEP Map Direct Webpage: https://ca.dep.state.fl.us/mapdirect/
- Florida Statutes: http://www.leg.state.fl.us/statutes:
    a. Florida Watershed Restoration Act (Section 403.067, F.S.)
- DEP Model Ordinances: http://fyn.ifas.ufl.edu/fert_ordinances.html
- DEP Standard Operating Procedures for Water Quality Samples: https://floridadep.gov/dear/quality-assurance/content/dep-sops
- NELAC NELAP: https://floridadep.gov/dear/florida-dep-laboratory/content/dep-laboratory-quality-assurance-manual-and-sops
- FDACS BMPs: Best Management Practices (BMPs) / Agriculture Industry / Home - Florida Department of Agriculture & Consumer Services
- FDACS BMP and Field Staff Contacts: Agricultural Water Policy / Divisions & Offices / Home - Florida Department of Agriculture & Consumer Services
- FDACS Regional Projects Program: https://www.fdacs.gov/Divisions-offices/Agricultural-Water-Policy.
- Florida Administrative Code (Florida Rules): https://flrules.org/
- Florida Stormwater Rule: https://floridadep.gov/water/engineering-hydrology-geology/content/erp-stormwater-resource-center
- UF–IFAS Research: http://research.ifas.ufl.edu/

# Appendix B. Projects to Reduce Nutrient Sources

The following project lists are based on project collection limited to the area of the 2014 BMAP basin. Future project collection efforts will be based on the 2025 expanded BMAP basin.

## Table B-1. Stakeholder projects

TBD = To be determined; N/A = Not applicable; O&M = Operations and maintenance.

| ProjID | Lead Entity | Project Number | Project Name | Project Description | Project Type | Project Status | Completion Date | Cost | Cost Annual Operations and Maintenance (O&M) | Funding Source | Funding Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3464 | Braden River Utilities | BRU-001 | Reclaimed Water | Water use reduction and quality improvement. | WWTF Diversion to Reuse | Completed | 2012 | TBD | TBD | Braden River Utilities | TBD |
| 4836 | FDACS | FDACS-01 | BMP Implementation and Verification | Enrollment and verification of BMPs by agricultural producers. Acres treated based on FDACS June 2024 Enrollment and FSAID XI. | Agricultural BMPs | Ongoing | NA | NA | NA | FDACS | NA |
| 5342 | FDOT District 1 | FDOT1-01 | Street Sweeping | Street sweeping. | Street Sweeping | Ongoing | NA | TBD | TBD | Florida Legislature | TBD |
| 7140 | FDOT District 1 | FDOT1-02 | Treatment Train SR 70 from Lorraine Rd to Bourneside Blvd. | SR 70 project includes construction of a regional stormwater pond and 3 floodplain compensation ponds. Listed as project because of land use changes. FM 414506-7-8. | BMP Treatment Train | Underway | 2026 | NA | NA | Florida Legislature | NA |
| 3463 | FDOT District 1 | TBEP-1166 | 201032-2 I-75 at SR 70 Interchange | FPID 201032-2 will improve I-75 and SR 70 interchange in Manatee County, including FIB-Stormwater treatment facilities. Basins 9, 10, 11, 12, and 13 providing extra nutrient removal. (In Nonsense Creek WBID 1913). | Stormwater System Upgrade | Completed | 2022 | ####### | TBD | FDOT | Not provided |
| 3466 | Manatee County | MC-0001 | Walk the Waterbody | Walk the Waterbody exercise for Rattlesnake Slough to identify potential issues in watershed. | FIB- Source Identification Activities | Completed | 2012 | TBD | NA | Manatee County | TBD |
| 3467 | Manatee County | MC-0002 | Walk the Waterbody | Walk the Waterbody exercise for Cedar Creek to identify potential issues in watershed. | FIB- Source Identification Activities | Completed | 2013 | TBD | NA | Manatee County | TBD |
| 4449 | Manatee County | MC-0003 | Walk the Waterbody | Walk the Waterbody exercise for Williams Creek to identify potential issues in watershed. | FIB- Source Identification Activities | Completed | 2016 | TBD | TBD | Manatee County | TBD |

| ProjID | Lead Entity | Project Number | Project Name | Project Description | Project Type | Project Status | Completion Date | Cost | Cost Annual Operations and Maintenance (O&M) | Funding Source | Funding Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5343 | Manatee County | MC-0005 | Mustang Ranch and Rattlesnake Slough Short-term Source ID Partnership | Source identification sampling conducted in partnership with DEP on priority areas. | FIB- Source Identification Activities | Completed | 2019 | TBD | TBD | Manatee County; DEP | NA |
| 5344 | Manatee County | MC-0006 | Walk the Waterbody | Walk the Waterbody exercise for Gap Creek (Pearce Drain/Gap Creek) to identify potential issues in watershed. | FIB- Source Identification Activities | Completed | 2020 | TBD | TBD | Manatee County | TBD |
| 5346 | Manatee County | MC-0008 | South County Watersheds | Watershed Management Plan and Surface Water Resource Assessment for South County watersheds (Tidal Braden River watersheds). | FIB- Source Identification Activities | Planned | TBD | TBD | TBD | SWFWMD | TBD |
| 6697 | Manatee County | MC-0009 | Ambient Monitoring | Ambient surface water sampling is conducted on a monthly basis throughout the BMAP area. Analytical results are submitted to State of Florida's WIN database. | FIB- Stormwater | Ongoing | NA | TBD | TBD | Manatee County | TBD |
| 6690 | Manatee County | MC-0010 | Street Sweeping | A large portion of county-maintained roads and streets within the BMAP area are swept, generally quarterly. Removed material is transferred to the county-owned landfill. | Street Sweeping | Ongoing | NA | NA | NA | Manatee County | TBD |
| 6939 | Manatee County | MC-0011 | Septic-to-Sewer Conversion Plan | The Utilities Department has identified critical concentrations of OSTDS (i.e., septic systems) and is developing a septic-to-sewer conversion plan and adding this to the BMAP. | FIB- OSTDS | Underway | 2025 | TBD | NA | TBD | NA |
| 3469 | Manatee County | MC-1312 | Fertilizer Ordinance | Water quality improvement ordinance. | Regulations, Ordinances, and Guidelines | Ongoing | NA | TBD | TBD | Manatee County | TBD |

| ProjID | Lead Entity | Project Number | Project Name | Project Description | Project Type | Project Status | Completion Date | Cost | Cost Annual Operations and Maintenance (O&M) | Funding Source | Funding Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7197 | Manatee County | MC-2400 | Braden Woods Septic to Sewer Conversion | Connect 410 lots with septic systems in Braden Woods to central sewer. | OSTDS Phase Out | Planned | TBD | ####### | NA | TBD | TBD |
| 7196 | Manatee County | MC-2401 | Manatee County SERWRF Capacity Improvements Project | Capacity expansion necessary to accommodate septic to sewer conversion. | WWTF Capacity Expansion | Planned | 2029 | ####### | TBD | Manatee County | 38,000,000.00 |
| 7199 | Manatee County | MC-2402 | Oak Run Septic to Sewer Conversion | Connect 50 lots with septic systems in Oak Run to central sewer. | OSTDS Phase Out | Planned | TBD | ####### | TBD | TBD | 245,000,000.00 |
| 7198 | Manatee County | MC-2403 | Braden Pines Septic to Sewer Conversion | Connect 120 lots with septic systems in Braden Pines to central sewer. | OSTDS Phase Out | Planned | TBD | ####### | TBD | TBD | 6,000,000.00 |
| 3465 | Manatee County | TBEP-0942 | Conservatory | 50 acres of land purchased for preservation. Canceled. Completion date of 2004 is outside the TMDL POR for WBID 1923. | FIB-Stormwater | Canceled | NA | NA | NA | NA | 12,000,000.00 |
| 3471 | Manatee County | TBEP-1165 | Braden River Area Surface Water Assessment | Surface Water Resource Assessment for Braden River watershed. | FIB-Stormwater | Completed | 2012 | ####### | NA | SWFWMD; City of Bradenton | NA |
| 3470 | Manatee County | TBEP-1350 | Deep Well Injection at North WRF | Deep well injection at North WRF. | Wastewater - Injection Well | Planned | TBD | TBD | TBD | Not provided | Not provided |
| 3461 | Manatee County | TBEP-1351 | Deep Well Injection at Southeast WRF | Deep well injection at Southeast WRF. | Wastewater - Injection Well | Planned | TBD | TBD | TBD | Not provided | TBD |
| 3462 | Manatee County | TBEP-1354 | Manatee County Southeast WRF Upgrade | Manatee County Southeast WRF Upgrade. | WWTF Upgrade | Planned | TBD | TBD | TBD | Not provided | TBD |
| 3474 | River Club HOA | RCHA-0001 | 2010 Love Our Lake Campaign | Educate residents on benefits of reducing fertilizer use, provide handouts in English and Spanish, become model for other associations, measure behavioral changes with pre- and post-survey. | FIB-Stormwater | Ongoing | NA | 2,800.00 | NA | SWFWMD | TBD |

| ProjID | Lead Entity | Project Number | Project Name | Project Description | Project Type | Project Status | Completion Date | Cost | Cost Annual Operations and Maintenance (O&M) | Funding Source | Funding Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3472 | River Club HOA | RCHA-0002 | 2011 Volunteer Water Quality Education Program | Educate residents on how to collect and test water quality samples, demonstrate how ponds treat FIB- Stormwater, reduce fertilizer use June to September, Manatee County Ordinance passed June 2011 effective June 2012. | FIB-Stormwater | Ongoing | NA | 4,429.00 | NA | SWFWMD | Not provided |
| 3460 | River Club HOA | RCHA-0003 | 2012 Project to Reduce Nutrient Runoff in FIB-Stormwater Ponds | Build on existing community initiatives, utilize community-based social marketing, educate homeowners on fertilizer ordinance, monitor effectiveness of blackout period and homeowner awareness of ordinance, test homeowners support for BMPs. | FIB-Stormwater | Ongoing | NA | TBD | TBD | Not provided | Not provided |
| 3473 | River Club HOA | RCHA-0004 | Additional Projects | Flow-way maintenance projects, cooperative maintenance projects with golf course, floating tussock removal projects, shoreline restoration projects. | FIB-Stormwater | Underway | TBD | TBD | TBD | Not provided | TBD |
| 3475 | Schroeder-Manatee Ranch | SMR-0001 | Agricultural BMPs (Citrus, Cow/Calf, Container Nurseries, Sod) | Reduction in agricultural fertilizer usage. | Agricultural BMPs | Underway | TBD | NA | NA | NA | NA |
| 3468 | Schroeder-Manatee Ranch | SMR-0002 | Water Quality Monitoring | Water quality monitoring. | FIB-Stormwater | Underway | TBD | TBD | TBD | Not provided | Not provided |

# Appendix C. Planning for Additional Management Strategies

If any lead entity's management strategies list falls short of meeting their next 5-year milestone, additional projects and management strategies are required. These entities must submit a sufficient list of projects and management strategies to DEP by January 14, 2026, to be compliant with the upcoming BMAP milestone or be subject to further DEP enforcement.

To remain in compliance with the BMAP until January 14, 2026, responsible entities with project deficits must catalog their efforts to identify management strategies to meet their milestone reduction requirements. These planning efforts are ineligible for BMAP credit themselves but are necessary to demonstrate that additional eligible management actions will be forthcoming and BMAP compliance will be achieved.

Examples of project identification efforts include:

- Planning and identifying water quality projects and related costs and schedules in specific plans:
  - Feasibility studies (e.g., stormwater feasibility studies or wastewater feasibility studies).
  - Flood mitigation plans with nutrient management components.
  - Basinwide water quality management plans.
  - Nutrient management plans.
- Applying for external project funding.
- Developing interagency/interdepartmental agreements or MOUs for collaboration on nutrient reduction projects that cross jurisdictional or administrative boundaries.
- Updating future growth considerations in local comprehensive plans, land development reviews, and audits of relevant codes and ordinances
- Updating existing remediation plans.
- Monitoring water quality in support of project planning and implementation.
- Researching innovative technologies.

# Appendix D: Wastewater Facilities

DEP has determined that certain WWTFs providing reclaimed water for the purpose of commercial or residential irrigation or that is otherwise being land applied within this BMAP area are causing or contributing to the nutrient impairments being addressed in this BMAP. Based on DEP's determination, the facilities listed below are subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S.

These facilities have 10 years from BMAP adoption to meet the applicable AWT standards. This requirement does not prevent the department from requiring an alternative treatment standard, if the department determines the alternative standard is necessary to achieve the TMDL(s) or applicable water quality criteria.

For facilities that did not have adequate information to complete an evaluation or where a change occurs to the facility's application of reclaimed water after the initial evaluation (e.g., an increase in facility capacity or change in location of reclaimed water application), the department will evaluate the land application of reclaimed water as more information becomes available pursuant to section 403.086, F.S.

**Table D-1. Wastewater facilities subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S.**

| Facility Name | Permit Number |
|---|---|
| FLA012618 | Manatee County Southeast Regional WWTF |
| FL0021369 | City of Bradenton - WWTF |

# Appendix E: Golf Course NMPs

The fertilizers used to maintain golf courses can be significant sources of nutrients in watersheds that are impaired for nitrogen and/or phosphorous. To achieve the TMDL target(s), all nutrient sources need to reduce their nutrient loading. Similar to other sources, golf courses are required to implement management strategies to mitigate their nutrient loading and be in compliance with the BMAP. Florida BMAPs are adopted by Secretarial Order and therefore legally enforceable by the DEP. Requirements for golf courses located in BMAPs are below.

1. **Golf Course BMP Certification, Implementation, and Reporting.**
   a. In areas with an adopted BMAP, all golf courses must implement the BMPs described in DEP's golf course BMP manual, *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses* (DEP, 2021).
   b. At minimum, the superintendent for each golf course must obtain and maintain certification through the UF-IFAS Florida Golf Courses Best Management Practices Program. It is highly recommended that course managers and landscape maintenance staff also participate in the certification program to ensure proper BMP implementation and understanding of nutrient-related water quality issues and the role of golf courses in water quality restoration and protection. By no later than January 14, 2026, the golf course superintendents must confirm to DEP whether they have completed the certification. Certification must be completed by December 31, 2026. This certification must be renewed every four years.
   c. Beginning in 2026 a nutrient application record (fertilizer, reuse, etc.) must be submitted each year during the BMAP statewide annual reporting process.
   d. Fertilizer rates should be no greater than the UF/IFAS recommendations to help prevent leaching. This includes nutrients from reuse or any other source applied. If a facility uses fertilizer rates greater than those in the BMP manual they are required to conduct water quality monitoring prescribed by DEP or WMD that demonstrates compliance with water quality standards (**Table E-1**).
   e. Example golf course BMPs applicable to protecting water quality are listed below.
      - Use slow release fertilizer to prevent volatilization.
      - Use of lined media in stormwater features.
      - Use of denitrification walls.
      - Use of rain gardens.
      - Use of tree boxes.
      - Use of bioswales.

**Table E-1. Nutrient ranges for warm-season turfgrass species**

Note: For more information refer to the *Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses* (DEP, 2021).

| Nutrient | Bermudagrass (%) | St. Augustinegrass (%) | Seashore Paspalum (%) | Centipedegrass (%) | Zoysia (%) |
|---|---|---|---|---|---|
| **N** | 1.95 - 4.63 | 1.53 - 2.41 | 2.80 -3.50 | 1.5 - 2.9 | 2.04 - 2.36 |

| Nutrient | Bermudagrass (%) | St. Augustinegrass (%) | Seashore Paspalum (%) | Centipedegrass (%) | Zoysia (%) |
|---|---|---|---|---|---|
| **P** | 0.15 - 0.43 | 0.30 - 0.55 | 0.30 - 60 | 0.18 - 0.26 | 0.19 - 0.22 |
| **Potassium (K)** | 0.43 - 1.28 | 1.1 - 2.25 | 2.00 - 4.00 | 1.12 - 2.50 | 1.05 - 1.27 |
| **Calcium (Ca)** | 0.15 - 0.63 | 0.24 - 0.54 | 0.25 - 1.50 | 0.50 - 1.15 | 0.44 - 0.56 |
| **Magnesium (Mg)** | 0.04 - 0.10 | 0.20 - 0.46 | 0.25 - 0.60 | 0.12 - 0.21 | 0.13 - 0.15 |
| **Sulfur (S)** | 0.07 - 0.02 | 0.15 - 0.48 | 0.20 - 0.60 | 0.20 - 0.38 | 0.32 - 0.37 |
| **Sodium (Na)** | 0.05 - 0.17 | 0.00 - 0.17 | - | - | - |

2. **All golf courses located within a BMAP are required to submit a nutrient management plan (NMP) that is designed to, while maintaining even plant growth, prevent nutrient losses to the Floridan aquifer and surrounding surface waters. A draft NMP must be submitted to DEP within one year of BMAP adoption and a final document is due two years after adoption. The NMP must include the following:**
   a. ***A brief description of the goals of the nutrient management plan.***

   This should be a paragraph that describes the goals of your NMP. Talk about how you are managing for high quality turf and water quality. Remember your goal is to protect water quality while maintaining the golf course in premium condition.

   b. ***Identification of areas where nutrient applications will be made including greens, tees, fairways and roughs.***

   Discuss the areas of the course where you plan to use fertilizer, and why. Also discuss the areas that do not need or get any fertilizer applications.

   Include a GIS shapefile identifying all of these areas.

   Complete the table(s) detailing your nutrient application practices.

**Turf Details**

| Turf Type | Turf Species | Acreage |
|---|---|---|
| **Tees** | | |
| **Greens** | | |
| **Fairways** | | |
| **Roughs** | | |
| **Totals** | | |

## Fertilizer Applications

| Month | Turf Type | TN Application Rate (lbs/acre) | TP Application Rate (lbs/acre) | Number of Applications | Total TN Applied (lbs/acre) | Total TP Applied (lbs/acre) |
|---|---|---|---|---|---|---|
| **January** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **February** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **March** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **April** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **May** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **June** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **July** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **August** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **September** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |

| Month | Turf Type | TN Application Rate (lbs/acre) | TP Application Rate (lbs/acre) | Number of Applications | Total TN Applied (lbs/acre) | Total TP Applied (lbs/acre) |
|---|---|---|---|---|---|---|
| **October** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **November** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **December** | Tees | | | | | |
| | Greens | | | | | |
| | Fairways | | | | | |
| | Roughs | | | | | |
| **Totals** | | | | | | |

## Amount of Reuse/Reclaimed Water Applied

**Supply reuse/reclaimed water volumes applied, if applicable.*

| Month | Reuse/Reclaimed Water Quantity (Gallons) | Monthly Average TN (mg/L) | Monthly Average TP (mg/L) | Quantity of TN Applied (lbs) | Running Total of TN Applied per Acre (lbs/acre) | Quantity of TP Applied (lbs) | Running Total of TP Applied per Acre (lbs/acre) |
|---|---|---|---|---|---|---|---|
| **January** | | | | | | | |
| **February** | | | | | | | |
| **March** | | | | | | | |
| **April** | | | | | | | |
| **May** | | | | | | | |
| **June** | | | | | | | |
| **July** | | | | | | | |
| **August** | | | | | | | |
| **September** | | | | | | | |
| **October** | | | | | | | |
| **November** | | | | | | | |
| **December** | | | | | | | |
| **Totals** | | | | | | | |

Are any other sources of nutrients (i.e. manure, etc.) applied to the grounds? If so, please detail in a table similar to the reuse and fertilizer tables.

c. ***Soil sampling methods and results for each area receiving fertilizer applications. Areas receiving fertilizer applications shall be sampled once every three years. Soil samples shall be collected and analyzed according to UF-IFAS/DEP recommendations or standard industry practice. Soil samples shall be analyzed, at minimum, for:***

1. Nitrogen
2. Phosphorus

Describe existing soil sampling here. Describe what your planned soil sampling schedule looks like. Have you been soil testing for years already? Please describe. If you are just getting started with soil testing the course, you can discuss that. What parts of the course are priority?

If soil samples from areas of similar soil, fertilizer use and management are combined, then describe that process and justify why you feel they are similar enough to combine into a "representative" sample. That's fine, just describe why.

Keep all soil test results (or copies of them) in this file as part of your nutrient management plan. Please do not send them in to DEP individually. If you've been soil testing for years, remember to add copies of all those past results to your NMP file.

d. ***Water quality sampling methods and results. Water quality sampling and analysis should be conducted in accordance with DEP's Standard Operating Procedures. Water quality samples shall be analyzed, at minimum, for:***

1. Nitrogen
2. Phosphorus.

Describe your existing water quality sampling here. Describe what your planned water quality sampling schedule looks like. Have you been sampling for years already? If you are just getting started with soil testing the course, you can discuss that. What parts of the course are priority?

Keep all water quality test results (or copies of them) in this file as part of your nutrient management plan. Please do not send them in to DEP individually. If you've been testing for years, remember to add copies of all those past results to your NMP file.

e. ***Tissue sampling methods and results. Tissue samples shall be collected and analyzed according to UF-IFAS/DEP recommendations or standard industry practice.***
Describe existing tissue sampling plan here. Keep all test results (or copies of them) in this file as part of your nutrient management plan. Please do not send them in to DEP

individually. If you've been testing for years, remember to add copies of all those past results to your NMP file.

f. ***Soil, tissue and water quality sample results shall be maintained for a minimum of 5 years. Please provide records.***

g. ***When developing new (or expanding) golf courses, pre- and pos- monitoring should be implemented in accordance with UF-IFAS/DEP recommendations.***

# Appendix F: Agricultural Enrollment and Reductions

FDACS provides the information for this appendix for each BMAP. The information in this appendix does not represent DEP's position.

## Agricultural Landowner Requirements

Section 403.067, F.S., requires agricultural producers and landowners located within BMAP areas to either enroll in the FDACS Best Management Practices (BMP) Program and properly implement BMPs applicable to their property and operation or to conduct water quality monitoring activities as required by Rule Chapter 62-307, F.A.C. Producers or agricultural landowners who are enrolled in the FDACS BMP Program and are properly implementing the applicable BMPs identified on the BMP Checklist, or who are in compliance with the Equivalent Program requirements of Rule Chapter 5M-1, F.A.C., are entitled to a presumption of compliance with state water quality standards per section 403.067(7)(c)3., F.S.

## FDACS Office of Agricultural Water Policy (OAWP) BMP Program

## Best Management Practices (BMPs) Definition

For the purposes of the OAWP BMP Program, the term "best management practice" means a practice or combination of practices determined based on research, field-testing, and expert review, to be the most effective and practicable on-location means, including economic and technological considerations, for improving water quality in agricultural discharges. Section 403.067, F.S., requires that BMPs reflect a balance between water quality improvements and agricultural productivity. FDACS works closely with the FDEP, water management districts (WMDs), industry experts, and academic institutions to understand the environmental and agronomic effects addressed by BMPs.

Section 403.067, F.S., authorizes and directs FDACS to develop and adopt by rule BMPs that will help Florida's agricultural industry achieve the pollution reductions allocated in BMAPs. To date, FDACS OAWP has adopted 11 commodity specific BMP manuals by rule, covering cattle, citrus, equine, dairy, nurseries, poultry, sod, small farms and specialty livestock, specialty fruit and nut, vegetable and agronomic crops, and wildlife operations. All OAWP BMP manuals are periodically revised, updated, and subsequently reviewed and preliminarily verified by DEP before re-adoption. BMPs serve as part of a multidisciplinary approach to water resource restoration and protection that includes public/private partnerships, landowner agreements and regional treatment technologies, which together form the comprehensive strategy needed to meet the goals established in BMAPs.

## Enrolling in an FDACS BMP Program

To initially enroll in the FDACS BMP Program, agricultural landowners and producers must meet with an FDACS representative on site to determine the appropriate practices that are

applicable to their operation(s) and to document the BMPs on the Notice of Intent (NOI) and BMP Checklist. FDACS representatives consider site-specific factors when determining the applicability of BMPs including commodity type, topography, geology, location of production, soil type, field size, and type and sensitivity of the ecological resources in the surrounding areas. Producers collaborate with the FDACS representative to complete an NOI to implement the BMPs and the BMP Checklist from the applicable BMP manual.

Once the NOI and Checklist are completed, signed, and submitted to OAWP, the producer is formally enrolled in the BMP Program. Because many agricultural operations are diverse and are engaged in the production of multiple commodities, a landowner may sign multiple NOIs for a single parcel. Producers must properly implement all applicable BMPs as soon as practicable, but no later than 18 months after completion and execution of the NOI and associated BMP Checklist.

## Enrollment Prioritization

To address the greatest resource concerns, OAWP utilizes a phased approach based on commodity type, irrigation, and agricultural acreages, while ensuring that all entities identified as agriculture will be notified. Enrollment efforts have previously focused on enrolling parcels that are most impactful to water quality including parcels containing many agricultural acres, irrigated acres, or more intense agricultural land uses.

## Implementation Verification

Section 403.067, F.S., requires FDACS to conduct an Implementation Verification (IV) site visit at least every two years to ensure that agricultural landowners and producers are properly implementing the applicable BMPs identified in the BMP Checklist. An IV site visit includes: review and collection of nutrient application records that producers must maintain to demonstrate compliance with the BMP Program; verification that all other applicable BMPs are being properly implemented; verification that any cost shared practices are being properly implemented; and identification of potential cost share practices, projects or other applicable BMPs not identified during enrollment. During the IV site visit, FDACS representatives also identify opportunities for achieving greater nutrient, irrigation, or water resource management efficiencies, including opportunities for water conservation. Procedures used to verify the implementation of agricultural BMPs are outlined in Rule 5M-1.008, F.A.C.

## Nutrient Application Records

Enrolled landowners and producers are required to keep records on the total pounds of nitrogen (N) and phosphorus (P) fertilizer from all sources that are applied to their operations to comply with BMP program requirements, including AA bio-solids. Nutrient records from Class A or B biosolids applied in accordance with Chapter 62-640, F.A.C. are collected through the DEP permitting process as described in 5M-1.008(5). FDACS will collect information pertaining to

these records for a two-year period identified when an IV site visit is scheduled. OAWP adopted a Nutrient Application Record Form (NARF) (FDACS-04005, rev. 06/24, incorporated in 5M-1.008(4), F.A.C.), to help simplify the record keeping requirement. The form is available under Program Resources at https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Best-Management-Practices. As these records relate to processes or methods of production, costs of production, profits, other financial information, fertilizer application information collected during an IV site visit is considered confidential and may be exempt from public records under chapters 812 and 815, F.S., and Section 403.067, F.S. In accordance with subsection 403.067(7)(c)5., F.S., FDACS is required to provide DEP the nutrient application records.

## Compliance Enforcement

If multiple efforts to contact agricultural landowners and producers within BMAPs about enrollment in the BMP Program are unsuccessful or if the landowner or producer chooses not to enroll in the BMP Program FDACS refers them to DEP for enforcement action per Section 403.067(7)(b), F.S.

If a producer is enrolled in the FDACS BMP program and the producer chooses not to properly implement the applicable BMPs, FDACS representatives provide the landowner or producer with a list of corrective measures and the timeframes within which they must be implemented. If a landowner or producer does not cooperate with FDACS to identify or implement corrective or remedial measures, or refuses an IV site visit, FDACS refers them to DEP for enforcement action after attempts at corrective and remedial action are exhausted. Chapter 5M-1, F.A.C. outlines the process to ensure compliance with the BMP Program requirements.

## Equivalent Programs

Enrollees operating under one of the Equivalent Programs listed in Rule 5M-1.001(7), F.A.C., are required to complete an NOI and meet the other requirements for Equivalent Programs specified in Rule Chapter 5M-1, F.A.C. Compliance with BMPs on the area(s) of the NOI property subject to the Equivalent Program instrument is demonstrated by fulfilling the requirements of Rule 5M-1.008(8), F.A.C. An Enrollee under an Equivalent Program listed in Rule 5M-1.001(7)(a)-(b), F.A.C., that is not required to complete a BMP Checklist is not subject to IV site visits. For Enrollees under an Equivalent Program listed in Rule 5M-1.001(7)(a)-(b), F.A.C., implementation verification shall be undertaken by the agency that issued the permit pursuant to its statutory and/or rule authority.

## Other FDACS BMP Programs

FDACS implements other regulatory programs that help minimize nonpoint source pollution from agricultural activities.

## Aquaculture

The FDACS Division of Aquaculture develops and enforces regulations governing the commercial aquaculture industry in Florida. Chapter 597, F.S., Florida Aquaculture Policy Act, requires Floridians who engage in commercial aquaculture to annually acquire an Aquaculture Certificate of Registration and implement all applicable Aquaculture Best Management Practices listed in Rule Chapter 5L-3.004, F.A.C. Facilities with certain production and discharge rates also require an NPDES permit from DEP. The Aquaculture BMPs were last updated by rule in November 2023.

FDACS Division of Aquaculture conducts annual site visits at certified facilities to confirm compliance with BMPs. These include management practices in areas of construction, containment, shrimp culture, sturgeon culture, shellfish culture, live rock culture, aquatic plants, including fertilizer application, and health management. For more information about FDACS Division of Aquaculture and Aquaculture BMPs go to https://www.fdacs.gov/Divisions-Offices/Aquaculture.

Within the Manatee River Basin BMAP, there are no aquaculture facilities under certification with the FDACS Division of Aquaculture as of November 2024. As with agricultural land use in Florida, aquaculture facilities are frequently in and out of production. The facilities being provided may no longer be in operation and/or there may be new companies in different parts of the basin by the next BMAP iteration.

## Forestry

The FDACS Florida Forest Service (FFS) develops, implements (through education and training), and monitors Silviculture BMPs in Florida. Silviculture BMPs are applicable to *bona-fide* ongoing silviculture operations and are not intended for use during tree removal or land clearing operations that are associated with a land-use change to a non-forestry objective. The FFS Silviculture BMP Manual is adopted under Chapter 5I-6.002 F.A.C. and was last updated in 2008. FFS is currently in the process of updating the manual with guidance from the FDACS Silviculture BMP Technical Advisory Council. The current manual is composed of fourteen BMP categories covering many aspects of silviculture operations including timber harvesting, site preparation, forest roads, stream and wetland crossings, and forest fertilization. The primary objectives of Silviculture BMPs are to minimize the risks to Florida's water resources from silviculture-related sources of nonpoint source pollution and maintain overall ecosystem integrity. Section 403.067, F.S., provides silviculture practitioners implementing Silviculture BMPs a presumption of compliance with state water quality standards for the pollutants addressed by the BMPs.

The FFS Silviculture BMP implementation monitoring program was initiated in 1981 and follows the criteria which have been established for state forest agencies in the southeastern

United States by the Southern Group of State Foresters. Monitoring surveys are conducted biennially on a random sample of recently conducted silviculture operations throughout Florida with the goal of determining the level of implementation and compliance with Silviculture BMPs. For the period of record (1981 to 2023), Florida's statewide Silviculture BMP compliance rates range from 84% (1985) to 99.7% (2019) and have shown an overall average compliance rate above 98% since 2005. For more information about Silviculture BMPs and to download a copy of the latest FFS Silviculture BMP Implementation Survey Report go to https://www.fdacs.gov/bmps.

## Agricultural Land Use

## Agricultural Land Use in BMAPs

Land use data are helpful as a starting point for estimating agricultural acreage, determining agricultural nonpoint source loads, and developing strategies to reduce those loads in a BMAP area, but there are inherent limitations in the available data. Agriculture acreages fluctuate when volatile economic markets for certain agricultural commodities provide incentive for crops to change at a fast pace, properties are sold, leases are terminated, production areas decrease, or production ceases, among other reasons. Florida's recent population growth has also resulted in accelerated land use changes statewide, some of which include transitioning agricultural or fallow agricultural lands to developed land uses. The dynamic nature of Florida's agricultural industry creates challenges with comparing agricultural acres from year to year.

When developing a BMAP, agricultural nonpoint source loading is estimated using a broad methodology based on statewide land use data. Oftentimes, this results in properties being designated as agricultural nonpoint pollution sources and creates an obligation for these properties to enroll in the FDACS BMP Program when they may be better addressed under other programs more applicable to the practices occurring on those properties. Examples of these properties include: rural residential/homesteads, ranchettes, or single-family homes with accessory structures for livestock or groves that serve the needs of those living on the property. Continued identification of these properties as agricultural nonpoint sources limits the ability to reliably direct programmatic resources to meet water quality restoration goals.

FDACS uses the parcel-level polygon agricultural lands (ALG) data that is part of the Florida Statewide Agricultural Irrigation Demand (FSAID) Geodatabase to estimate agricultural acreages statewide. FSAID provides acreages and specific crop types of irrigated and non-irrigated agricultural lands statewide. FSAID is updated annually based on water management district land use data, county property appraiser data, OAWP BMP enrollment data, U.S. Department of Agriculture data for agriculture, such as the Cropland Data Layer and Census of Agriculture, FDACS Division of Plant Industry citrus data, as well as field verification performed by the U.S. Geological Survey, water management districts, and OAWP. As the FSAID is detailed and updated on an annual basis, it provides a reliable characterization of agricultural land uses that accounts for the fast-growing population and resultant land use changes taking place statewide. The FSAID also provides FDACS a clearer picture of

agriculture's impact on the landscape and consistent method to better track, direct, and assess BMP implementation, cost share projects, and regional projects.

**Table F-1** and **Figure F-1** shows the percentage of agricultural land use within the Manatee River Basin BMAP, determined by comparing the FSAID 11 ALG and total acreage of the BMAP boundary. Understanding what proportion of a BMAP is comprised of agriculture provides insight as to the potential contribution of agricultural nonpoint sources.

**Table F-1. Agricultural land use in the Manatee River Basin BMAP**

| Acreage Type | Acres |
|---|---|
| **Non-agricultural acres** | 16,028 |
| **Agricultural acres** | 379 |

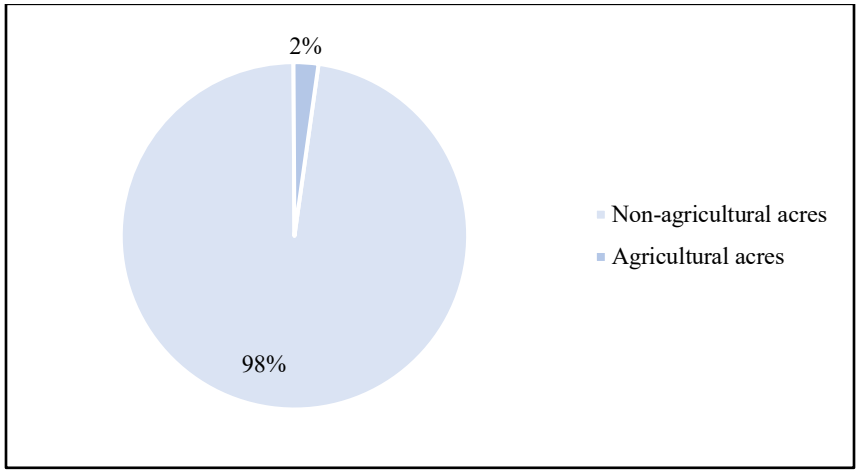


**Figure F-1. Relative agricultural land uses in the Manatee River BMAP**

## FDACS BMP Program Metrics

## Enrollment Delineation and BMAP Metrics

BMP enrollments are delineated in GIS using county property appraiser parcels. In terms of NOIs, enrolled acreage fluctuates when parcels are sold, when leases end or change hands, or when production areas downsize or production ceases, among other reasons. Nonproduction areas such as forest, roads, urban structures, and water features are often included within the parcel boundaries. Conversely, agricultural lands in the FSAID ALG only include areas identified as agriculture. To estimate the agricultural acres enrolled in the BMP program, OAWP overlays the FSAID ALG and BMP enrollment data within GIS to calculate the acres of agricultural land in an enrolled parcel.

## Summary Tables

**Table F-2. Agricultural lands enrolled in the Manatee River Basin BMAP by BMP program commodity**

| Commodity | Agricultural Acres Enrolled |
|---|---|
| Cow/Calf | 297 |
| **Total** | 297 (78%) |

As of July 2024, 78% of the agricultural acres in the Manatee River Basin BMAP area are enrolled in FDACS' BMP program. **Table F-2** Shows the acreages enrolled in the BMP Program by commodity. **Figure F-2** shows a map of the enrolled acres in the basin. It is important to note that producers often undertake the production of multiple commodities on their operations, resulting in the requirement to implement the applicable BMPs from more than one BMP manual. When this occurs, the acres enrolled under more than one BMP manual are classified as "multiple commodity" and not included in the individual commodity totals to prevent duplication.

## Enrollment Map

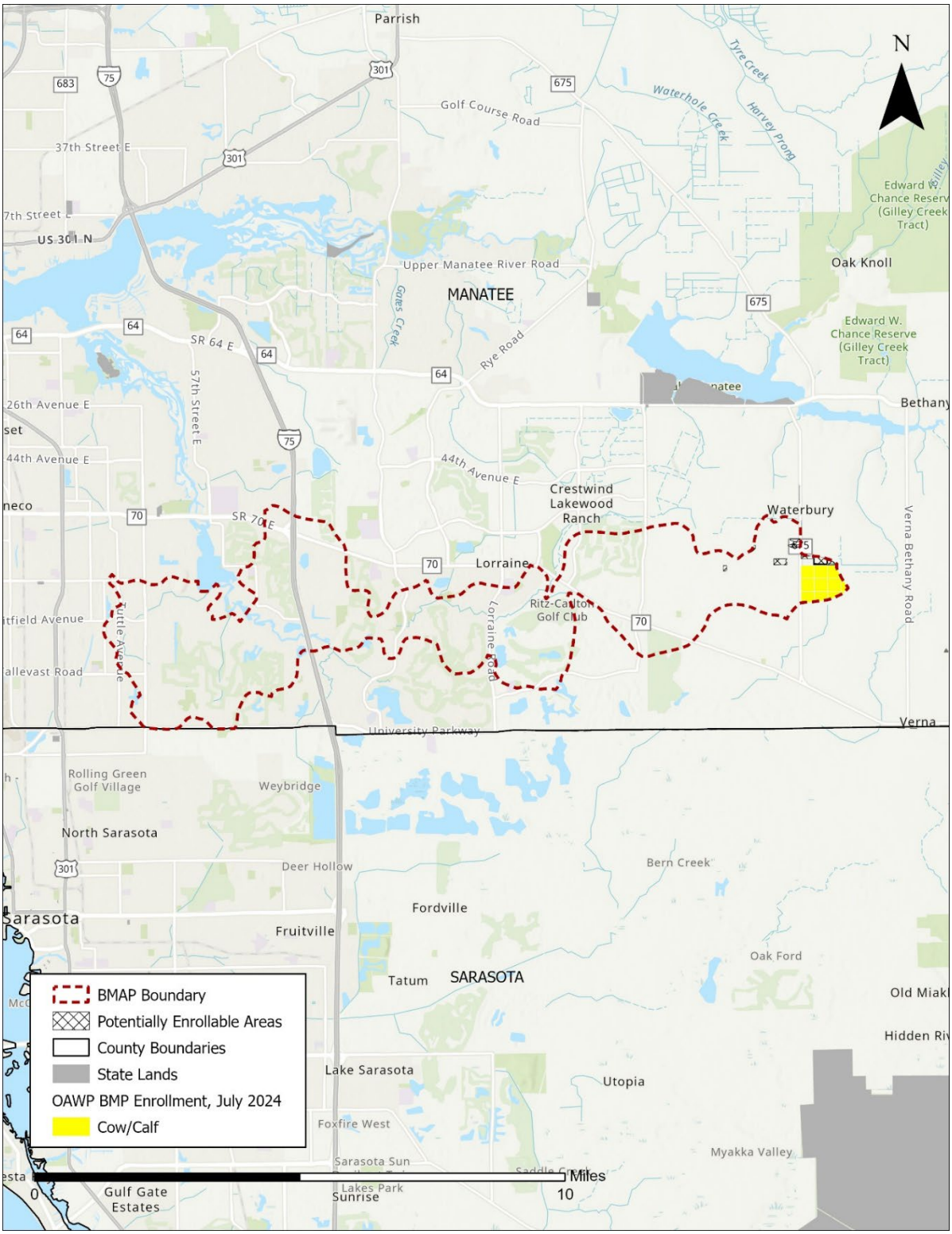


**Figure F-2. Agricultural enrollment in the Manatee River BMAP**

## Unenrolled Agricultural Lands

Oftentimes, there are lands initially identified as agriculture which, upon closer evaluation, raise questions as to whether there is agricultural activity and whether it is enrollable within the purview of OAWP. FDACS characterizes lands classified as agriculture in the FSAID ALG, but not currently enrolled in the FDACS BMP Program using property appraiser data such as parcel owner information, agricultural tax valuation for exemption purposes, other parcel land use details to determine whether the remaining lands are potentially enrollable. More information about the "Unenrolled agricultural lands" characterization analyses is available in **FDACS Annual Status of Implementation of BMPs Report**.

The assessment of unenrolled agricultural lands at a more granular scale provides an indication of which areas are more likely (or unlikely) to have enrollable agricultural activities occurring on them. It also provides an estimate of the number of parcels and the associated agricultural acres deemed to be enrollable. The number of parcels is a useful proxy for the level of resource dedication needed to enroll the associated agricultural acres and where best to focus finite resources and staffing needs. It is often the case that much of the potentially enrollable acreage is encompassed within many smaller parcels which may require additional resources to enroll and require further evaluation, such as those that have agricultural activity intended solely for personal use ancillary to a residence, those that do not have an agricultural land use per the property appraiser, as well as parcels where there is no current activity to enroll.

**Table F-3** shows the breakdown of agricultural lands within the Manatee River Basin BMAP based on the FSAID 11 and the results of the FDACS unenrolled agricultural lands characterization.

**Table F-3. Agricultural lands in Manatee River Basin BMAP**

* Enrollment information current as of June 30th, 2024

| Crediting Location | Agricultural Acres | Unenrolled - Unlikely Enrollable Acres | Agricultural Acres - Adjusted | Agricultural Acres Enrolled* |
|---|---|---|---|---|
| BMAP Wide | 935 | 556 | 379 | 297 |

## Potentially Enrollable Lands

There are 83 acres of potentially enrollable lands within the Manatee River Basin BMAP based on the assessment of unenrolled agricultural lands performed by FDACS. **Table F-4** shows the potentially enrollable acreages by crop type. **Figure F-3** shows the count of potentially enrollable parcels based on size classifications used by FDACS.

**Table F-4. Potentially enrollable acres by crop type**

| Crop Type | Acres |
|---|---|
| Crops | 24 |
| Grazing Land | 52 |

| Crop Type | Acres |
|---|---|
| Open Lands | 7 |
| **Total** | **83** |

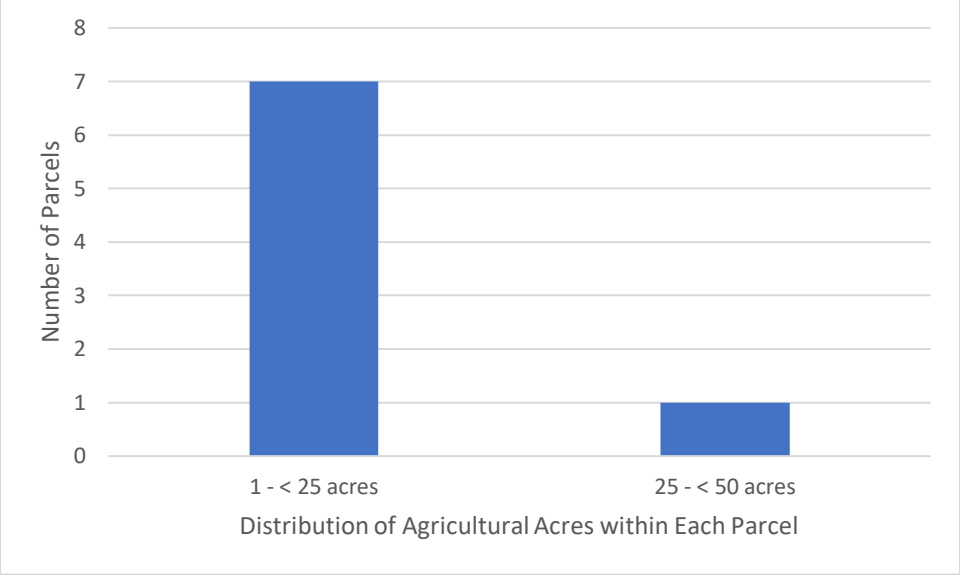


**Figure F-3. Count of potentially enrollable parcels by size class**

## FDACS Cost Share

Enrollment in and proper implementation of BMPs makes a producer eligible for cost share for certain BMPs, other practices, and projects. The availability of cost share funds depends on annual appropriations by the Florida Legislature, and therefore, the amount available can vary each year. Cost share applications may be submitted once a producer has enrolled in the BMP Program and has been assigned an NOI number. Cost share practices are categorized as nutrient management, irrigation management, or water resource protection. BMPs, other practices, and projects eligible for cost share funding may include precision agriculture technologies, variable rate irrigation methods, water control structures, and tailwater recovery systems. OAWP seeks to leverage its cost share funding with other cost share programs offered by FDACS and other state and federal agencies. The United States Department of Agriculture NRCS offers funding through its Environmental Quality Incentives Program, and certain WMDs have agricultural cost share programs. Applicants are encouraged to use OAWP cost share in conjunction with other available conservation programs although funding cannot be duplicative.

## Future Efforts

## Outreach

To address resource concerns, FDACS continues enhancing coordination with producers, agencies, and stakeholders to increase enrollment in the BMP program. OAWP is sending

correspondence to agricultural landowners within BMAPs that are not currently enrolled in the BMP program to increase enrollment rates and verify land uses where additional focus may be required to achieve resource protection. This effort is utilizing a phased approach and targeting priority land uses, and then evaluating the amount of agricultural acreage for the remaining unenrolled lands, while ensuring that all entities identified as agriculture will be notified. Additionally, OAWP continues to coordinate with industry groups and outreach partners to educate and inform agricultural producers about the BMP program.

## Legacy Loads

Legacy loading can present an additional challenge to measuring progress in many areas of Florida with adopted BMAPs. Based on research, initial verification by DEP, and long-term trends in water quality in the BMAP area, it is expected that current efforts, such as BMP implementation, will continue to provide improvements in overall water quality despite the impacts from legacy loads.

While the implementation of BMPs will improve the water quality in the basin, it is not reasonable to assume that BMP implementation alone can overcome the issues of legacy loads, conversion to more urban environments, and the effects of intense weather events. BMP implementation is one of several complex and integrated components in managing the water resources of a watershed.

Collaboration between DEP, FDACS, the water management districts, and other state agencies, as well as local governments, federal partners, and agricultural producers, is critical in identifying projects and programs, as well as locating funding opportunities to achieve allocations provided for under this BMAP. To improve water quality while retaining the benefits that agricultural production provides to local communities, wildlife enhancement, and the preservation of natural areas requires a commitment from all stakeholders to implementing protective measures in a way that maintains the viability of agricultural operations.