DRAFT

Indian River Lagoon Basin

North Indian River Lagoon Basin Management Action Plan

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

with participation from the
North Indian River Lagoon Stakeholders

April 2025

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Acknowledgments

The *North Indian River Lagoon 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) with participation from the North Indian River Lagoon stakeholders identified below.

Table ES-1.North Indian River Lagoon stakeholders

Type of Organization or Entity	Participant
Responsible Stakeholders	Agriculture Brevard County Volusia County City of Cocoa City of Edgewater City of Melbourne City of Oak Hill City of Rockledge City of Titusville Kennedy Space Center Town of Indialantic Town of Palm Shores
Responsible Agencies	County Health Departments DEP Florida Department of Agriculture and Consumer Services (FDACS) Florida Department of Transportation (FDOT) - District 5 Florida Turnpike Enterprise Indian River Lagoon Estuary Program St. Johns River Water Management District (SJRWMD)
Other Interested Stakeholders	Citizens/Homeowners East Central Florida Regional Planning Council (ECFRPC) Florida Farm Bureau Florida Onsite Wastewater Association (FOWA) Residents/Homeowners Septic System Contractors

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

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ACE	Agricultural Cooperative Regional Elements
ALG	Agricultural Land Geodatabase
AWT	Advanced Waste Treatment
BAM	Biosorption Activated Media
BCUD	Brevard County Utilities Department
BEBR	Bureau of Economic and Business Research
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
BRL	Banana River Lagoon
CAFO	Concentrated Animal Feeding Operation
CDD	Community Development District
CERP	Comprehensive Everglades Restoration Plan
CIRL	Central Indian River Lagoon
CWA	Clean Water Act
DEP	Florida Department of Environmental Protection
DIW	Deep Injection Well
DO	Dissolved Oxygen
DOR	Florida Department of Revenue
DWM	Dispersed Water Management
EMC	Event Mean Concentration
EPA	U.S. Environmental Protection Agency
F.A.C.	Florida Administrative Code
FCT	Florida Communities Trust
FNAI	Florida Natural Areas Inventory
DACS	Florida Department of Agriculture and Consumer Services
FDOH	Florida Department of Health
FDOT	Florida Department of Transportation
FIND	Florida Inland Navigation District
FLWMI	Florida Water Management Inventory
FPL	Florida Power and Light
F.S.	Florida Statutes
FSAID	Florida Statewide Agricultural Irrigation Demand (Geodatabase)
FWRA	Florida Watershed Restoration Act
GIS	Geographic Information System
HAB	Harmful Algal Bloom
IMPLAN	Impact Analysis for Planning
HOA	Homeowner Association
HSPF	Hydrologic Simulation Program–Fortran
IRL	Indian River Lagoon
IWR	Impaired Surface Waters Rule

km	Kilometer
lbs	Pounds
L.O.F.	Laws of Florida
LET	Load Estimation Tool
LPA	Load Per Acre
m	Meter
MAPS	Managed Aquatic Plant System
mgd	Million Gallons Per Day
mg/L	Milligrams Per Liter
MHP	Mobile Home Park
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NELAC	National Environmental Laboratory Accreditation Council
NELAP	National Environmental Laboratory Accreditation Program
NEP	National Estuary Program
NHD	National Hydrography Database
NIRL	North Indian River Lagoon
NMP	Nutrient Management Plan
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOx	Nitrate + Nitrite
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OAWP	Office of Agricultural Water Policy
OSTDS	Onsite Sewage Treatment and Disposal System
PAR	Photosynthetically Active Radiation
PLSM	Pollutant Load Screening Model
PSA	Public Service Announcement
QA/QC	Quality Assurance/Quality Control
RAP	Reasonable Assurance Plan
ROC	Runoff Coefficient
RRLA	Rapid Rate Land Application
RV	Recreational Vehicle
SJRWMD	St. Johns River Water Management District
SOP	Standard Operating Procedure
SR	State Road
STORET	STOrage and RETrieval (Database)
SWIL	Spatial Watershed Iterative Loading
SWMP	Stormwater Management Program
TCRPC	Treasure Coast Regional Planning Council
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus

TSS	Total Suspended Solids
UF–IFAS	University of Florida-Institute of Food and Agricultural Sciences
USGS	U.S. Geological Survey
WBID	Waterbody Identification (number)
WCD	Water Control District
WIN	Watershed Information Network (Database)
WMD	Water Management District
WRF	Water Reclamation Facility
WQMN	Water Quality Monitoring Network
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

Executive Summary

Background

The Indian River Lagoon (IRL) is a 156-mile-long estuary along Florida's east coast. The impaired portions of the IRL are directly adjacent to lands in only Volusia, Brevard, Indian River, and St. Lucie counties. The northern portion of the watershed extends to near the Ponce De Leon Inlet in Volusia County and the southern portion to near the Fort Pierce Inlet at the Indian River County–St. Lucie County boundary line. Because of the large geographical extent of the IRL Basin and the hydrological differences throughout the basin, DEP determined the best way to address the total maximum daily loads (TMDLs) and impairments for the IRL Basin was to divide the watershed into three subbasins: (1) Central IRL (CIRL); (2) North IRL (NIRL); and (3) Banana River Lagoon (BRL). Separate basin management action plans (BMAPs) were developed for each subbasin; this document focuses solely on the NIRL Subbasin. The main stem of the NIRL Subbasin extends from Turnbull Creek in Volusia County to the Melbourne Causeway in Brevard County (**Figure ES-1**). The Mosquito Lagoon, to the north, is being addressed through a reasonable assurance plan (RAP).

Intense and extensive algal blooms in the IRL began in 2011 and have returned periodically. Harmful algal blooms (HABs) cause shading that stresses seagrass in the IRL, adverse effects on wildlife, and in some cases, detrimental effects on human health. The SJRWMD launched the Indian River Lagoon Protection Initiative in 2013, including a multiyear investigation that increased the understanding of these blooms. This and other research indicate it is important to continue implementing projects that decrease nutrient loads to the IRL, because that approach will limit the severity of HABs and their impact on the system.

In 2023, the Florida Legislature created Section 5 of section 373.469, Florida Statutes (F.S.) called the *Indian River Lagoon Protection Program (IRLPP)*, including the *Indian River Lagoon Watershed Research and Water Quality Monitoring Program*. The IRLPP enacted specific evaluation and protection measures for the three IRL BMAPs and Mosquito Lagoon Regional Assurance Plan (RAP) areas. The IRLPP included the following provisions:

- Evaluating and updating the IRL BMAPs every five years.
- Identifying any further load reductions necessary to comply with the TMDLs.
- Inclusion of a water quality monitoring component to evaluate progress over time.
- Identification and prioritization of strategies and projects that are included in the BMAPs and RAP.
- Prohibiting new onsite sewage treatment and disposal systems where central sewer is available, as defined in section 381.0062(2)(a), Florida Statutes (F.S.).

- Where central sewer is not available for new OSTDS, requiring enhanced nutrient-reducing systems of at least 65% nitrogen treatment.

- Requiring existing OSTDS to connect to central sewer or have enhanced nutrient-reducing systems by July 1, 2030.

The research and monitoring program directs DEP, in coordination with other public entities, to establish a comprehensive water quality monitoring network and to fund research related to water quality, ecosystem restoration, and seagrass impacts and restoration. DEP will use the results to prioritize projects and revise the BMAPs, as appropriate.

TMDLs

A TMDL is a water quality restoration goal establishing the maximum amount of a pollutant that a waterbody can assimilate without causing exceedances of water quality standards. The nutrient TMDLs for the main stem of the IRL were adopted by DEP in March 2009. The TMDLs focus on the water quality conditions necessary for seagrass regrowth at water depth limits where seagrass historically grew in the lagoon, based on a multiyear composite of seagrass coverage. The median depth limits of seagrass coverage in the IRL decreased over the years because of changes in water quality conditions resulting from anthropogenic influences. As polluted runoff reaches the lagoon, it contributes to conditions that prevent the seagrass from growing in deeper water.

Additionally, TMDLs were adopted in 2013 for two tributaries to the NIRL, now addressed in this BMAP. For Addison Creek (waterbody identification [WBID] number 3028), no further nutrient load reductions were requested beyond those already established for the main stem seagrass nutrient TMDLs. For the Eau Gallie River (WBID 3082), the total nitrogen (TN) and total phosphorus (TP) target loads defined in the TMDLs are different from the main stem. The tidal portion of the Eau Gallie River consistently showed high annual average chlorophyll *a* concentrations, and so the loading targets for the Eau Gallie are the natural background nutrient condition, which require a 51% TN reduction and a 58% TP reduction of nonpoint source loads based on the Hydrological Simulation Program–Fortran (HSPF) Model for the period from 1996 to 2005.

NIRL BMAP

In addition to dividing the overall IRL Watershed into subbasins, the NIRL was further divided into "project zones." The project zone boundaries are based on the distinct hydrology in different areas of the basin and their corresponding annual residence times. These zones are important because the flushing times vary greatly among locations and consequently affect how nutrient reductions will impact these distinct areas of the basin. The project zones identify large areas where projects should be implemented to ensure that the load reductions achieve the desired response for each subbasin. The NIRL Subbasin was split into four project zones, as follows:

- North A – Turnbull Creek to NASA Causeway (State Road 405).

- North B – NASA Causeway to Melbourne Causeway (U.S. Highway 192).

DEP first adopted the NIRL BMAP in 2013 to implement TN and TP TMDLs in each NIRL project zone. BMAPs are designed to be implemented in a phased approach. In 2018, DEP and several local stakeholders were developing several components of an updated BMAP, including the local completion and DEP review of a new water quality model, the Spatial Watershed Iterative Loading (SWIL) Model. The SWIL Model was developed through cooperative funding provided by Brevard County, all of its cities, and FDOT District 5, as well as support from the U.S. Space Force, in an effort to update the data being used to predict loading. An updated version of the SWIL model (Version 4.0) was used in the 2021 BMAP. In this 2025 BMAP update, the same version of the SWIL Model (Version 4.0) was used to estimate loading to the NIRL; the loading estimates have not been updated. Similarly to the 2021 BMAP, for this BMAP update the percent reductions adopted in the original TMDL rules are applied as the water quality targets.

This 2025 update retains the changes made in the 2021 BMAP including the SWIL Model (Version 4.0) estimates, boundary adjustments, 2021 allocations and load reductions to the responsible stakeholders, and a revised monitoring plan to continue to track trends in water quality. The 2020 update set a deadline for achieving load reductions no later than 2035, which is 22 years after the initial BMAP adoption in 2013. This 2025 BMAP incorporates new legislative requirements that are now in effect and includes updates to the management actions to achieve nutrient reductions.

As part of the adaptive management process for this BMAP, DEP is well underway with refinements to the SWIL Model, creating Version 5.0, which will be used to revise BMAP allocations and adjust project credits. This extensive effort includes updates to some of the SWIL Model input layers (e.g., land use, soils, etc.), verification of watershed boundaries in some areas, revisions to the model period of record, and the validation of predicted flows in selected calibration basins. DEP anticipates that this effort will be completed in 2025. After the SWIL model refinement is complete, DEP will reevaluate and, if necessary, adopt another iteration of the BRL and IRL BMAPs, most likely before 2030. The next iteration will include updated loading estimates and required reductions.

Summary of Load Reductions

DEP requested stakeholders to provide information on management actions, including projects, programs, and activities, that may reduce nutrient loads to the NIRL. Management actions are included in the BMAP to address nutrient loads to the lagoon and have to meet several criteria to be considered eligible for credit. The estimated reductions of activities completed through October, 2024, are provided in Table ES-2. This date was chosen to allow adequate time to review project documentation and calculate reductions based on accepted methodologies and best management practice (BMP) efficiencies. Updated project information will be provided each year in the Statewide Annual Report and at an annual meeting.

To achieve the TMDLs, stakeholders must identify and submit additional local projects as well as determine the significant funding that will be necessary. Enhancements to programs addressing basinwide sources will also be required.

Table ES-2. Progress to date in the NIRL BMAP area by project zone

lbs/yr = Pounds per year.

Project Zone	TN Reduction (lbs/yr)	% Achieved towards TN Target	TP Reduction (lbs/yr)	% Achieved towards TP Target
A	72,045	60.7	11,131	56.6
B	85,906	64.2	17,425	68.3
Total	**157,951**	**62.6**	**28,556**	**63.2**

Source Requirements

Florida law (Section 403.086, [F.S.], and Chapter 2020-150, Laws of Florida [L.O.F.]) beginning July 1, 2025, requires all domestic wastewater facilities directly discharging to surface waters of the state within or connected to the IRL to meet advanced wastewater treatment requirements. Additionally, this BMAP sets TN and TP effluent limits in the NIRL for individually permitted domestic wastewater facilities and their associated effluent disposal systems and reuse activities. Local governments must develop remediation plans to address loads from wastewater facilities and septic systems in the BMAP area.

In 2023, Executive Order 23-06 led the way for adoption of the IRLPP, section 373.469, F.S. The IRLPP prohibits new conventional onsite sewage treatment and disposal systems (OSTDS) by January 1, 2024, and transitioning all existing conventional systems to sewer or advanced treatment systems by July 1, 2030.

Subparagraph 403.067(7)(a)9., Florida Statutes (F.S.), specifies that local governments (county governments and municipalities) within a BMAP must develop a wastewater treatment plan and/or an onsite sewage treatment and disposal system (OSTDS) remediation plan containing information if DEP "identifies domestic wastewater treatment facilities or onsite sewage treatment and disposal systems as contributors of at least 20% of point source or nonpoint source nutrient pollution or if the Department determines remediation is necessary to achieve the [TMDL]."

DEP determined that the domestic wastewater treatment facilities and/or OSTDS sources within the NIRL BMAP met the 20% contribution and/or remediation of these sources is necessary to achieve the TMDL. A final order (23-0122) was issued to prescribe timelines for local governments to submit these plans on June 12, 2023. Draft wastewater treatment and OSTDS remediation plans were submitted by February 1, 2024, and final plans were submitted by August 1, 2024. Projects outlined in the plans addressing domestic wastewater sources are incorporated into this BMAP update.

Additionally, DEP has determined facilities that land apply reclaimed water identified in **Appendix G** are subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S.

The facilities listed in **Appendix G** have 10 years from BMAP adoption to meet the applicable advanced wastewater treatment (AWT) standards. More information can be found in **Section 3.3.**

Agricultural nonpoint sources are a contributor of TN and TP loading to the CIRL. Attainment of the TMDLs is contingent upon addressing the agricultural loading to the lagoon and tributaries. The BMAP for NIRL was originally adopted in 2013, and many agricultural producers have been enrolled and are implementing BMPs. FDACS has focused efforts to improve enrollment efforts, resulting in 26% of the agricultural lands in the BMAP being enrolled in the BMP program as of July 2024. FDACS will continue to carry out its statutory authority and fulfill its statutory obligations by actively engaging agricultural nonpoint sources to enroll in BMPs and by adequately verifying BMP implementation.

FDACS is responsible for verifying that all eligible agricultural producers are enrolled in appropriate BMP programs. FDACS will perform onsite inspections of all agricultural operations enrolled in BMPs to ensure that these practices are being properly implemented every two years. FDACS will continue to collect nitrogen and phosphorus fertilization records during implementation verification visits from each agricultural producer enrolled in BMPs and is required to provide DEP the nutrient application records in accordance with subsection 403.067(7)(c)5., F.S.

Chapter 2023-169, Laws of Florida (L.O.F.), (403.067, F.S.) requires that BMAPs include milestones for implementation of total maximum daily loads. Any responsible entity within the BMAP that has an assigned pollutant load reduction requirement must identify projects or strategies that such entity will undertake to meet their upcoming 5-year milestone. Each project must include a planning-level cost estimate and an estimated date of completion in the Statewide Annual Report.

Within five years of the adoption of this BMAP, DEP will evaluate any entity located in the BMAP area that serves a minimum resident population of at least 1,000 individuals who are not currently covered by a municipal separate storm sewer system (MS4) permit and designate eligible entities as regulated MS4s, in accordance with Chapter 62-624, Florida Administrative Code (F.A.C.).

Water Quality Monitoring

The IRLPP also requires the BMAPs to focus on expanding water quality monitoring for tracking sources of nutrients and expanded coordination to achieve the TMDLs in the basin. The NIRL BMAP monitoring network consists of 19 stations sampled by SJRWMD, U.S. Geological Survey, and Volusia County. The monitoring plan also includes research priorities to better understand the lagoon, nutrient sources, and the responses of seagrass to nutrient loading, both internal and external, to the lagoon.

BMAP Cost

The project costs provided for the BMAP may include capital costs as well as those associated with construction, routine operations and maintenance, and monitoring. Many BMAP projects

were built to achieve multiple objectives, not just nutrient reductions. Funds for some projects have already been spent, others have been obligated to ongoing projects, and the remainder are yet to be appropriated.

The funding sources for the projects range from local public and private contributions to state and federal legislative appropriations. DEP will continue to work with stakeholders to explore new opportunities for funding assistance to ensure that the activities listed in this BMAP can be maintained at the necessary level of effort and that additional projects can be constructed by 2035.

Chapter 2023-169, L.O.F., expanded grant opportunities for local governments and eligible entities working to address a TMDL. Previously, grant funding was available for specific project types, including septic-to-sewer, advanced wastewater treatment expansion or upgrades, and OSTDS upgrades. Now, through the Water Quality Improvement Grant program, eligible entities can also apply for grant funding for stormwater, regional agricultural projects, and a broader suite of wastewater projects including collection systems and domestic wastewater reuse. Projects are prioritized that have the maximum nutrient load per project, demonstrate project readiness, are cost-effective, have a cost-share by the applicant (except for Rural Areas of Opportunity), have previous state commitment and are in areas where reductions are most needed.

Chapter 2024-180, L.O.F., created a program to expeditiously review new and innovative enhanced nutrient-reducing OSTDS to reduce the nutrients entering Florida’s waterways.

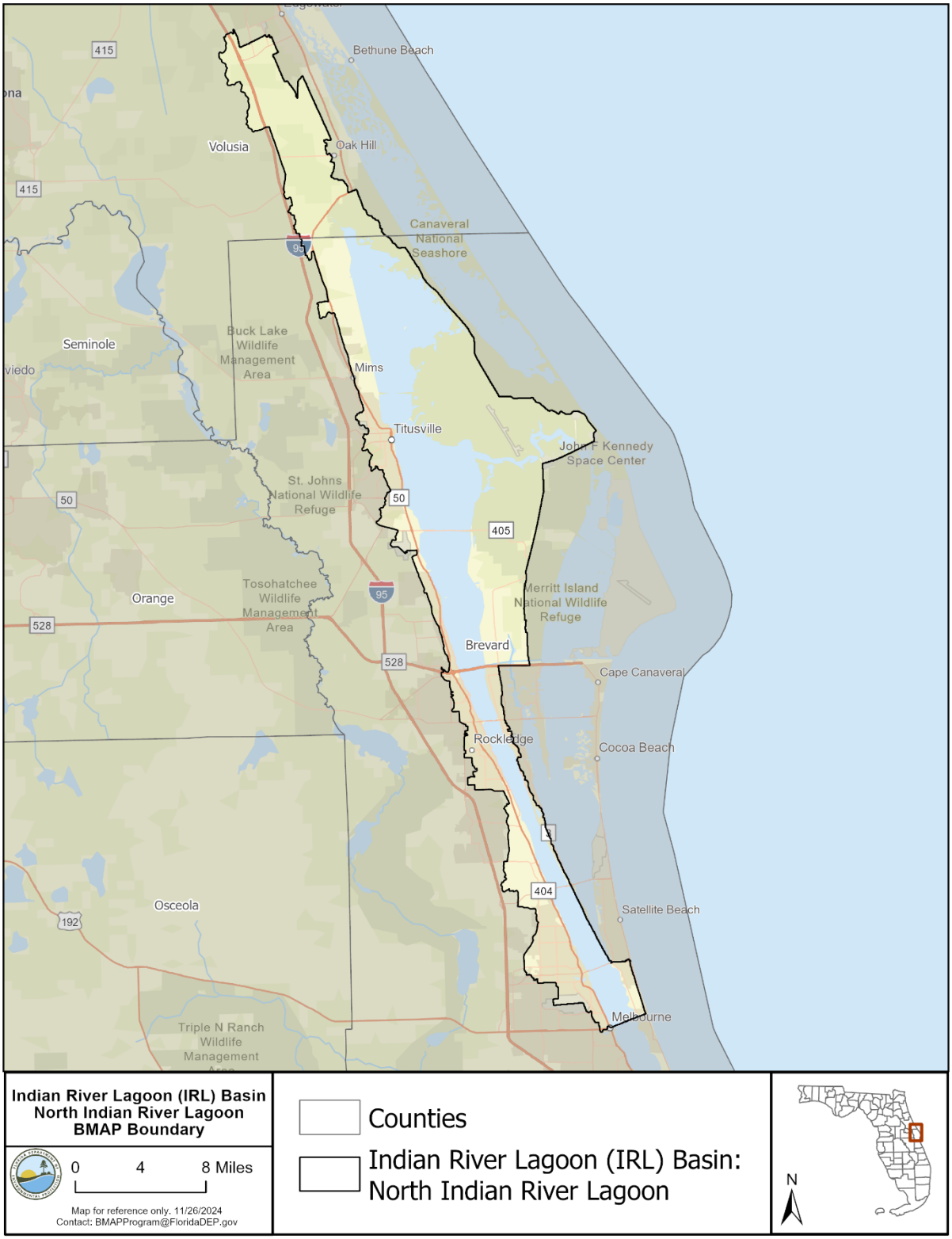

Figure ES-1. NIRL BMAP area

Section 1. Background Information

1.1 Water Quality Standards and 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 of those in the NIRL, are categorized as Class III waters, meaning they must be suitable for recreation and must support fish consumption and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. In addition, many waterbody segments (also known as waterbody identification units, WBIDs) are categorized as Class II waters, which have a designated use of shellfish propagation or harvesting. **Table 1** lists all designated use classifications for Florida 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. Yellow shading indicates classifications in the IRL waters.

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*)

Class II waters in the NIRL may be used for aquaculture. The WBIDs that are designated as Class II waters are listed in **Table 2.** If not listed, the remaining WBIDs are Class III waters.

Section 303(d) of the federal Clean Water Act (CWA) requires that each state must identify its impaired waters every two years, including estuaries, lakes, rivers, and streams, that do not meet their designated uses. DEP staff in the Division of Environmental Assessment and Restoration are 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. Environmental Protection Agency (EPA) as an update to the state's 303(d) list. In 2009, DEP adopted, by Secretarial Order, revisions to the Verified List of Impaired Waters for the NIRL that identified several estuarine segments as impaired for dissolved oxygen (DO) and nutrients. The DO impairment was based on low DO concentrations measured in milligrams per liter (mg/L), and the nutrient impairment was based on an imbalance in flora and fauna because of decreases in seagrass distribution.

Table 2. Class II waters in the NIRL

Classification	WBID Number	Waterbody Name
Class II	2924	South Mosquito Lagoon
Class II	2924B1	Central Mosquito Lagoon
Class II	2924B2	North Mosquito Lagoon
Class II	2963A1	Indian River above Sebastian Inlet
Class II	2963B1	Indian River above Melbourne Causeway
Class II	2963C1	Indian River below 520 Causeway
Class II	2963D1	Indian River above 520 Causeway
Class II	2963EA	Indian River above Nasa Causeway
Class II	2963F3	Indian River above Max Brewer Causeway
Class II	3057B	Banana River above 520 Causeway

1.1.1 NIRL TMDLs

TMDLs are water quality restoration goals establishing the maximum amount of a pollutant that a waterbody can assimilate without causing exceedances of water quality standards. The IRL TMDLs focus on the water quality conditions necessary for seagrass recruitment at water depth limits where seagrass historically grew in the lagoon, based on a multiyear composite of seagrass coverage. The median depth limits of seagrass coverage in the IRL decreased over the years (see **Section 4.3.1**) because of changes in water quality conditions resulting from anthropogenic influences.

As polluted runoff reaches the lagoon, it contributes to conditions that prevent the seagrass from growing in deeper water because of elevated light attenuation. The full restoration depth-limit target for seagrass was established for each segment based on a deep edge boundary delineating the composite of seven years of historical seagrass data for the period from 1943 to 1999. The restoration targets were set at depths where the deep edge of the seagrass beds previously grew and created a maximum depth limit for seagrass distribution. The TMDL targets allowed for a 10% departure (shoreward) from the full restoration target seagrass depth. The 10% departure in target depths was selected to be consistent with the water quality criteria in Chapter 62-302, F.A.C., which allows for up to a 10% reduction in the photo compensation point.

To determine nutrient targets and reductions needed to improve lagoon water quality in each subbasin, regression relationships were used between 4 years of loading levels and the same years' seagrass depth limit (the percent departure from the full restoration). TN and TP targets were developed from the median concentrations observed where seagrass depth limits were within the 10% departure (shoreward) from their full restoration levels. These targets should result in nutrient reductions that allow seagrass to grow almost to the depths previously seen in the area. **Table 3** lists the TMDLs and pollutant load allocations adopted by rule for the NIRL.

Table 3. NIRL TMDLs

NPDES = National Pollutant Discharge Elimination System.

WBID	Waterbody	NPDES Stormwater TN (% reduction)	NPDES Stormwater TP (% reduction)
2963F	Indian River above Max Brewer	35	47
2963E	Indian River above NASA Causeway	35	47
2963D	Indian River above 520 Causeway	36	53
2963B+2963C	Indian River above Melbourne Causeway	36	48

Additionally, this BMAP addresses adopted TMDLs for certain tributaries to the NIRL. A summary of reductions for the NIRL Tributaries appears in **Table 4**. For Addison Creek (WBID 3028), no further nutrient load reductions were requested beyond those already established for the main stem seagrass nutrient TMDLs. For the Eau Gallie River (WBID 3082), the TN and TP target loads defined in the TMDLs are different from the main stem; there is also a biochemical oxygen demand (BOD) TMDL for the Eau Gallie River. The tidal portion of the Eau Gallie River consistently showed high annual average chlorophyll *a* concentrations, and so the loading targets for the Eau Gallie are the natural background nutrient condition, which require a 51% TN reduction and a 58% TP reduction of nonpoint source loads based on the HSPF Model for the period from 1996 to 2005. **Table 4** lists the tributary TMDLs in the NIRL.

Table 4. NIRL tributary TMDLs

WBID	Waterbody	NPDES Stormwater TN (% reduction)	NPDES Stormwater TP (% reduction)	Project Zone
3028	Addison Creek	35	47	A
3082	Eau Gallie River	51	58	B

1.2 NIRL Basin Management Action Plan (BMAP)

A BMAP is a framework for water quality restoration that contains local and state commitments to reduce pollutant loading through current and future projects and strategies. BMAPs contain a comprehensive set of solutions, such as permit limits on wastewater facilities, urban and agricultural BMPs, and conservation programs designed to achieve pollutant reductions established by a TMDL. These broad-based plans are developed with local stakeholders and rely on local input and commitment for development and successful implementation. BMAPs are adopted by DEP Secretarial Order and are legally enforceable.

The Florida Watershed Restoration Act (FWRA), Subparagraph 403.067(7)(a)1., F.S., establishes an adaptive management process for BMAPs that continues until the TMDLs are met. This approach allows for incrementally reducing loadings through the implementation of projects and programs, while simultaneously monitoring and conducting studies to better understand water quality dynamics (sources and response variables) in each impaired waterbody. The NIRL

BMAP was first adopted in February 2013. An adaptive management process that is statutorily required, such as the changes made in this updated BMAP, will continue until the TMDLs are achieved and maintained as new information becomes available or every five years under the IRLPP.

This document serves as an update to the 2021 BMAP. **Figure 1** shows the NIRL BMAP area with project zones.

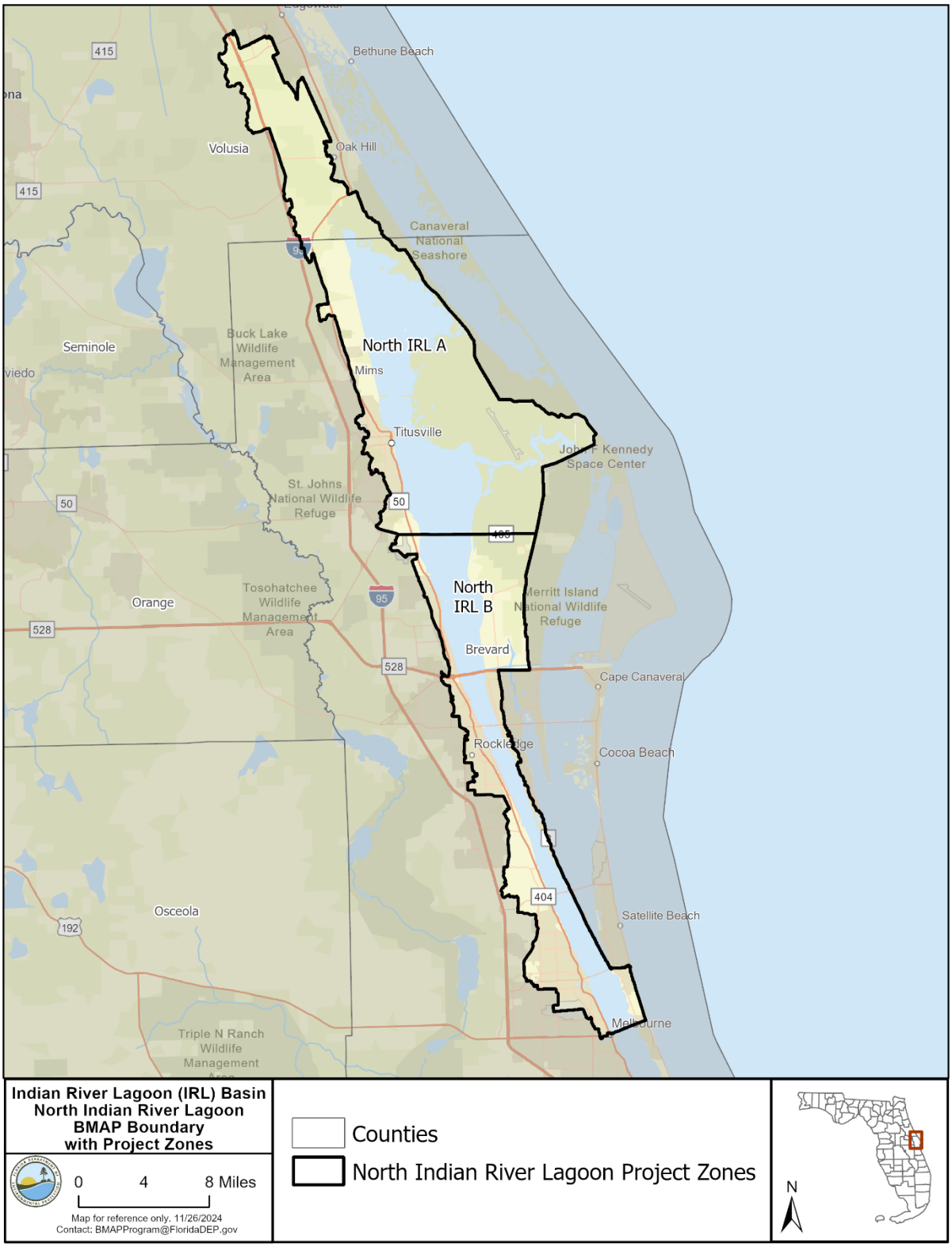

Figure 1. NIRL BMAP area with project zones

1.2.1 Milestones and Tracking Progress

The projects and activities in the BMAP are key to the overall goal of recovering seagrass in the lagoon. The estimated benefits of these implemented activities are tracked to show stakeholder efforts by determining a percentage towards the total required reductions to be achieved at each milestone. Chapter 2023-169, L.O.F., (section 403.067, F.S.) requires that BMAPs include milestones for implementation of TMDLs. This statute requires any responsible entity within a BMAP that has an assigned pollutant load reduction requirement to identify projects or strategies to meet the upcoming 5-year milestone, even if the identified project or strategy will not be completed by the milestone. Stakeholders must provide DEP with reasonable assurance that they have enough project credits to achieve their required reductions within the period established by the BMAP (**Section 4)**. Each project must include a planning-level cost estimate and an estimated date of completion in the Statewide Annual Report.

Subparagraph 403.067(7)(a)6., F.S., indicates that an assessment of progress towards the BMAP milestones shall be conducted every five years, and plan revisions made as appropriate. To meet these requirements, DEP has established milestones for the years 2025, 2030, and 2035. The percent reductions in the milestones apply to all stakeholder required reductions, so that as various entities implement their projects, the overall milestones are also being met.

The following percent reduction goals are proposed for each milestone and may be adjusted as the BMAP is adaptively managed through future phases:

- 5-year milestone in 2025: 55% or 138,872 pounds per year (lbs/yr) of TN and 55% or 24,856 lbs/yr of TP. Based on the forthcoming model revisions, reset the 10-year and 15- year milestones, as needed.
- 10-year milestone in 2030: 80% or 201,996 lbs/yr of TN and 80% or 36,154 lbs/yr of TP.
- 15-year milestone in 2035: 100% or 252,495 lbs/yr of TN and 100% or 45,193 lbs/yr of TP.

By the next milestone in 2030, at least 80% of the TN and TP required reductions must be met. The deadline established by this BMAP for achieving the full load reductions is 2035, which is 22 years after the initial adoption of the 2013 BMAP.

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 meet their next 5-year milestone reductions, specific project identification efforts are required to be submitted by January 14, 2026. Any such project identification efforts must define the purpose of and a timeline to identify sufficient projects to meet the upcoming milestone. The project

description and estimated completion date for any such project identification effort must be provided and reflect the urgency of defining, funding, and implementing projects to meet the upcoming and future BMAP milestones. 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. Only those entities that provide sufficient project identification efforts will be deemed as possessing a defined compliance schedule. Those entities without an adequate project list nor a defined compliance schedule to meet their upcoming 5-year milestone may be subject to enforcement actions. Examples of project identification efforts are included in **Appendix E**.

1.2.2 Assumptions

The water quality impacts of BMAP implementation are based on several fundamental assumptions about the pollutants targeted by the TMDLs, modeling approaches, waterbody response, and natural processes. The following assumptions were used during the BMAP process:

- Certain BMPs were assigned provisional nutrient reduction benefits for load reductions in this BMAP iteration while additional monitoring and research are conducted to quantify their effectiveness. These estimated reductions may change in future BMAP iterations as additional information becomes available.

- The nutrient reduction benefits of the stakeholders' projects were calculated using the best available methodologies. Project-specific monitoring, where available, will be used to verify calculations, and reduction benefits may be adjusted as necessary.

- The TMDLs require TN and TP reductions from the watershed to improve water quality in the NIRL to allow seagrass to grow at greater water depths. High watershed nutrient loadings result in high chlorophyll *a* concentrations in the lagoon, which may indicate algal growth and a reduction in light availability to the seagrass, thus limiting the depth at which seagrass can grow. Therefore, reducing nutrient loading to the NIRL is an important factor in improving seagrass depth limits.

- The allocations do not require load reductions from areas identified as natural land use areas in the modeled land use/land cover information. These loads are considered uncontrollable, background sources, and the stakeholders are not required to make reductions on natural lands. The BMAP allocations focus on urban and agricultural stormwater sources as well as septic and sewage treatment systems in the watershed.

- Water is exchanged between the NIRL and other nearby waterbodies (the CIRL, BRL, and St. Lucie River and Estuary), and water quality conditions in

the NIRL may be influenced by conditions in nearby waters. To help address these nearby conditions, separate BMAPs have been adopted for these watersheds.

1.2.3 Considerations

This BMAP requires stakeholders to implement their projects to achieve reductions within the specified 5-year milestone period. However, the full implementation of this BMAP will be a long-term, adaptively managed process. While some of the BMAP 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.

During the BMAP process, a number of items were identified that should be addressed in future watershed management cycles to ensure that future BMAPs use the most accurate information:

- **HABs** – HABs cause shading that stresses seagrass in the IRL, adverse effects on wildlife, and in some cases, detrimental effects on human health. Intense and extensive algal blooms in the IRL began in 2011 and have returned periodically, with clear impacts on the extent, density, and depth where seagrasses grow; some fish kills; and, fortunately, little direct impact on human health. Compared with earlier blooms (1996 to 2010), the recent blooms (2011 to 2020) have been dominated by smaller types of algae called nanoplankton and picoplankton. SJRWMD launched the Indian River Lagoon Protection Initiative in 2013, including a multiyear investigation that increased the understanding of the blooms. This and other research indicate it is important to persevere with projects that decrease TN and TP loads to the IRL, because that approach will limit the severity of HABs and their impacts on the system.

- **Land Uses** – The loading estimates in the BMAP are based on land uses at a point in time, allowing the model to be calibrated. The loading estimates for this BMAP iteration were based on land use/land cover data from approximately 2015 from the water management districts as well as property appraiser data. Land uses in the model will be updated during future model revisions based on the most recent and accurate data available; this may result in changes to loading estimates. Agricultural land use data are updated annually in the FSAID. The land use data used for modeling loads in this BMAP may not match information published by FDACS.

- **Basin Boundaries** – In the 2021 BMAP update, 6,516 acres were added to the BMAP area and 904 acres removed, resulting in a net addition of 5,692 acres. When the 2013 basin boundary was developed, there was uncertainty about

whether some areas drained to the IRL, to the Upper St. Johns River, or to other adjacent waterbodies. The boundaries were adjusted based on the best information available about the hydrology of the IRL, but future adjustments may be made because of flow diversions or updated information. There were no additional changes to the BMAP boundary for this update.

- **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 BMAP iterations.

- **SWIL Model** – The SWIL Model was initially developed through cooperative funding provided by Brevard County, all of its cities, and FDOT District 5, as well as support from the U.S. Space Force, for purposes other than the BMAPs. In 2021, DEP endeavored to explore refinements that may help improve the SWIL for future use in the IRL BMAPs. The updates to the model led to changes in the loading estimates for the NIRL and are described further in **Section 3**.

- **Community Development District (CDD) Responsibilities** –DEP has had several communications with the CDDs located in the NIRL. Where applicable, CDDs are assigned allocations only if three criteria were met: (1) there is development—i.e., roads and infrastructure—in the CDD area; (2) the CDD does not discharge to an MS4; and (3) the CDD pays a stormwater fee and receives a refund of this fee. New CDDs may receive allocations in future BMAP iterations.

- **Special Districts** – Water control districts (WCDs) and similar types of special districts have been assigned qualitative allocations for the canals and rights-of-way to the special districts, as the districts have control over these portions of their jurisdictions. These districts are required to implement specific canal and right-of-way BMPs to be compliant with the BMAP. The BMPs for each special district are based on the activities and land uses within the district, and reporting on those BMPs is due annually. This BMAP area currently has no applicable special districts identified. The existence of water control districts with stormwater responsibilities will be reevaluated in each five-year BMAP update. The evaluation will be based on the special district's operations, authorities, and utilization of those authorities.

- **Complexity of the Problem** – DEP acknowledges the complexity of the dynamics affecting the water quality of the NIRL; therefore, this BMAP is designed to encompass a wide variety of projects and management strategies that will cumulatively act to significantly reduce nutrient loads. In estuarine-based systems, the interaction with ocean waters and freshwater inflows adds variability to the water quality conditions (including those associated with

climate shifts and elevated sea levels). Other factors such as inconsistency in annual rainfall amounts, changing land uses and farming practices, and internal nutrient sources such as muck deposits also complicate measuring the benefits of projects and management strategies and understanding the relationship between nutrient loading and the biological response of the seagrass deep edge.

- **Water Depths** – Elevated sea levels and changes in lagoon water depth over time affect the depth at which seagrass growth is measured for TMDL compliance and for assessing seagrass restoration. Improved depth estimates and seagrass deep edge assessment techniques are needed.

- **Previous Restoration Efforts** – DEP recognizes that stakeholders throughout the watershed have implemented stormwater management projects prior to the implementation of the TMDLs and that these efforts have benefited water quality. Projects completed in 2000 or later are considered for credits and inclusion in the BMAP.

- **Atmospheric Deposition** – Reductions in atmospheric deposition have occurred over time and are expected to continue. This BMAP and all subsequent nutrient reduction requirements and allowable loads factor only those inputs directly from the watershed. DEP will continue to monitor atmospheric deposition and may address it in future BMAP iterations as part of the adaptive management process.

- **Muck Deposition** – Muck deposits contain nutrients that flux into the water column, increasing the abundance of phytoplankton, drift macroalgae, and epiphytes that attenuate light and constrain seagrass growth and propagation. Most IRL muck originates from upland soils and vegetation. For this reason, stringent watershed soil-erosion control and soil/vegetation containment measures are needed. Without such measures in place, muck removal will need to be frequently repeated, which is neither cost-effective nor time efficient. Ideally, muck removal projects should be performed in conjunction with soil and vegetation retention programs, including public awareness activities, that limit the amount of muck material deposited into the IRL. The SWIL Model does not automatically take this process into account; however, guidance documentation has been developed for crediting muck removal projects specifically from the lagoon.

- **Tributary Water Quality Impairments** – DEP has identified nutrient and DO impairments in many of the NIRL tributaries but has not yet set water quality targets with TMDLs. These waters include Turnbull Creek marine (WBID 2942A), Turnbull Creek freshwater (WBID 2942B), and Horse Creek (WBID 3081). The relationship between the tributary loads and the targets set for the lagoon proper will be defined as tributary TMDLs are developed. As a

general principle, when DEP establishes upstream TMDLs, downstream water quality targets are considered. In this case, when DEP establishes NIRL tributary TMDLs, meeting the lagoon's seagrass depth targets will be considered. Future tributary TMDLs may allow the targeting of specific watersheds for nutrient load reductions.

1.3 Pollutant Sources

There are various sources of pollution in the NIRL. Nonpoint (i.e., diffuse) sources in the watershed contribute the majority of TN and TP loads to the NIRL and include urban and agricultural runoff. The Mosquito Lagoon, to the north, is being addressed through a reasonable assurance plan (RAP).

1.3.1 Land Use

1.3.1.1 Land Use of Project Zone A

Project Zone A covers more than 91,000 acres of the NIRL BMAP. As shown in **Table 5**, wetlands make up 47.9% of the project zone, followed by urban areas with 15.0%. Stakeholders in Project Zone A are Volusia County, Brevard County, FDOT District 5, City of Edgewater, City of Oak Hill, City of Titusville, and Kennedy Space Center.

Table 5. Summary of land uses in Project Zone A

Note: Land use code 5000 (water) acreage excludes lagoon water in this table.

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban	13,707	15.0
2000	Agricultural	5,223	5.7
3000	Upland Prairie and Shrublands	12,752	13.9
4000	Upland Forested Areas	9,363	10.2
5000	Water	4,453	4.9
6000	Wetlands	43,880	47.9
7000	Disturbed Lands	715	0.8
8000	Transportation	1,464	1.6
Totals		**91,557**	**100.0**

DEP asked stakeholders to provide information on management actions, including projects, programs, and activities, that may reduce nutrient loads to the NIRL. Management actions are included in the BMAP to address nutrient loads to the lagoon and have to meet several criteria to be considered eligible for credit. In **Appendix B, Table B-1** shows progress towards the required TN and TP load reductions allocated to Project Zone A from projects completed through October 2024.

1.3.1.2 Land Use of Project Zone B

Project Zone B covers more than 49,000 acres of the NIRL BMAP area. As shown in **Table 6,** urban areas make up the majority of the project zone with 59.3% of the area, followed by wetlands with 16.5%. Stakeholders in Project Zone B are Brevard County, FDOT District 5, City of Titusville, City of Cocoa, City of Rockledge, City of Melbourne, Town of Palm Shores, Town of Indialantic, and Kennedy Space Center.

Table 6. Summary of land uses in Project Zone B

Note: Land use code 5000 (water) acreage excludes lagoon water in this table.

Level 1 Land Use Code	Land Use Description	Acres	% Total
1000	Urban	29,544	59.3
2000	Agricultural	2,310	4.6
3000	Upland Prairie and Shrublands	2,159	4.3
4000	Upland Forested Areas	2,570	5.2
5000	Water	1,815	3.6
6000	Wetlands	8,198	16.5
7000	Disturbed Lands	256	0.5
8000	Transportation	2,963	5.9
Totals		**49,815**	**100**

DEP asked stakeholders to provide information on management actions, including projects, programs, and activities that may reduce nutrient loads to the NIRL. Management actions are included in the BMAP to address nutrient loads to the lagoon and have to meet several criteria to be considered eligible for credit. In **Appendix B, Table B-2** shows progress towards the required TN and TP load reductions allocated to Project Zone B from projects completed through October 2024.

1.3.2 Agricultural Nonpoint Sources

The primary agricultural land uses in the NIRL BMAP area are grazing lands, fallow land, citrus, and open lands. Other agricultural land uses include nurseries and horse farms/specialty farms. Most of the horse farms are small, noncommercial hobby farms. Because of urban encroachment, citrus health issues (freeze/disease), and the downturn in the economy, a majority of previously existing citrus operations have been destroyed or abandoned, have significantly lowered their production acreage, or have transitioned to another commodity. In recent years, some of this acreage may have also shifted to nonagricultural/urban uses.

Table 7 summarizes the agricultural land use enrolled in best management practice (BMP) programs for the entire NIRL BMAP area. Enrollment is as of June 2024, and the agricultural acreage is based on the Florida Statewide Agricultural Irrigation Demand (FSAID) XI Geodatabase. **Appendix D** provides more information on agricultural activities in the NIRL BMAP area.

Table 7. Agricultural land use acreage enrolled summary in the BMP Program in the NIRL BMAP area as of June 2024

Category	Project Zone A Acres	Project Zone B Acres
FSAID VII agricultural acres in the BMAP area	3,080	869
Total agricultural acres enrolled	804	236
% of FSAID VII agricultural acres enrolled	26%	27%

1.3.3 MS4s

Many of the municipalities in the watershed are regulated by the Florida 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. Refer to **Appendix A** for a link to a list of MS4 permittees.

1.3.4 Urban Nonpoint Sources

Subsubparagraph 403.067(7)(b)2.f., F.S., prescribes the pollutant reduction actions required for nonagricultural pollutant sources that are not subject to NPDES permitting. Non-MS4 sources must also implement the pollutant reduction requirements detailed in a BMAP and are subject to enforcement action by DEP or a water management district if they fail to implement their responsibilities under the BMAP.

1.3.5 Wastewater Treatment

Recent legislative updates have expanded the requirements for addressing onsite sewage treatment and disposal systems (OSTDS or septic systems) and wastewater treatment facility (WWTF) sources within BMAPs. These requirements are addressed in **Section 3.3**.

1.3.5.1 OSTDS

Based on data from the FDOH Florida Water Management Inventory (FLWMI), there are 11,237 known or likely septic systems (onsite sewage treatment and disposal systems [OSTDS]) located throughout the NIRL. **Table 8** summarizes the number known and likely septic systems and **Figure 2** illustrates the location of known or likely septic systems in the NIRL.

Table 8. NIRL septic system counts

OSTDS Classifications	Total Number of Septic Systems
Known	3,727
Likely	7,510
Total	**11,237**

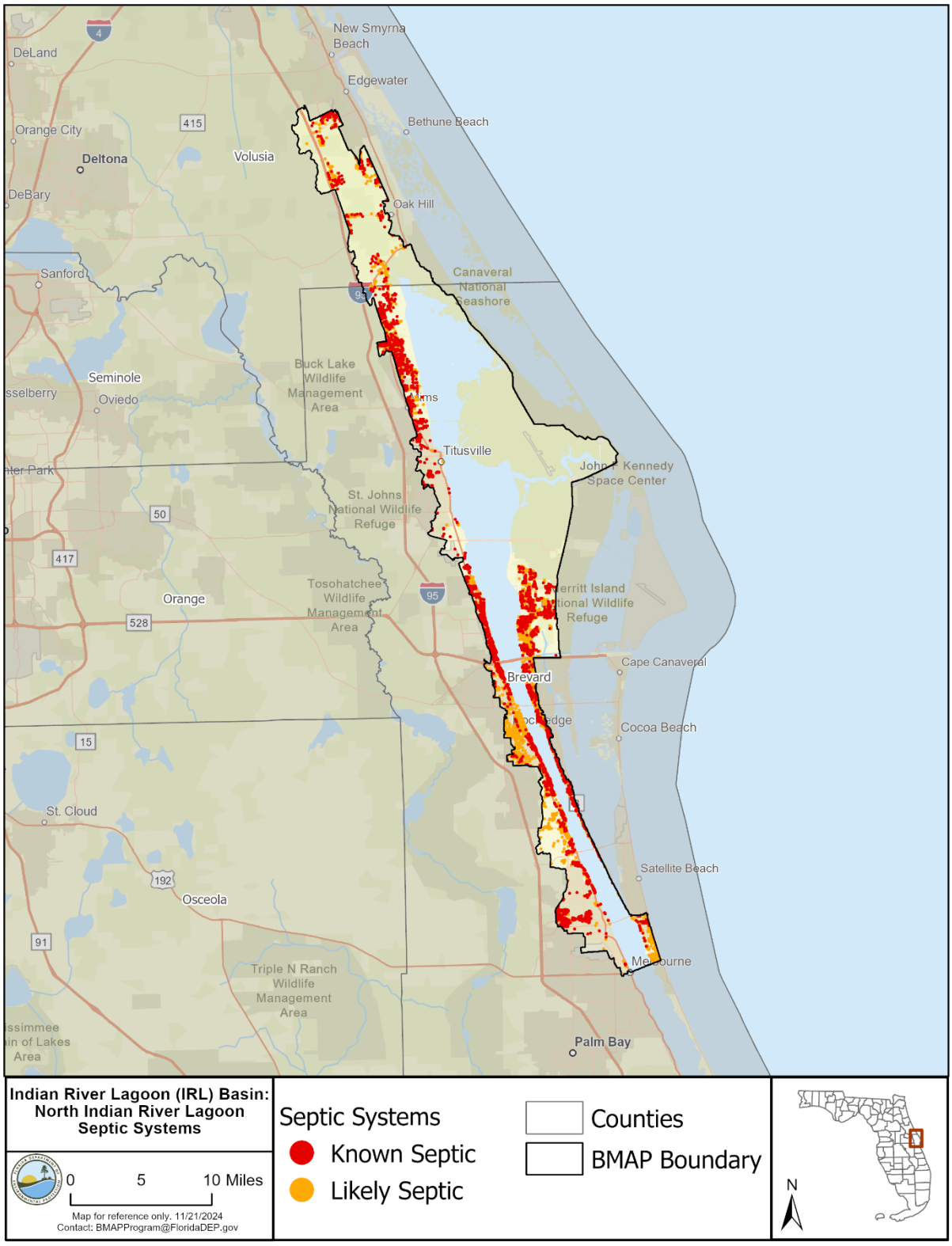
New Smyrna Beach
DeLand
Edgewater
Orange City
Bethune Beach
Deltona
Volusia
DeBary
Oak Hill
Sanford
Canaveral National Seashore
Buck Lake Wildlife Management Area
Seminole
Oviedo
Titusville
John F Kennedy Space Center
St. Johns National Wildlife Refuge
Tosohatchee Wildlife Management Area
Orange
Merritt Island National Wildlife Refuge
Cape Canaveral
Brevard
Cocoa Beach
St. Cloud
Satellite Beach
Osceola
Triple N Ranch Wildlife Management Area
Palm Bay
Indian River Lagoon (IRL) Basin:
North Indian River Lagoon
Septic Systems
0 5 10 Miles
Map for reference only. 11/21/2024
Contact: BMAPProgram@FloridaDEP.gov
Septic Systems
Known Septic
Likely Septic
Counties
BMAP Boundary
N

Figure 2. Map of known or likely septic systems in the NIRL

1.3.5.2 WWTFs

WWTFs located in the NIRL are shown in **Figure 3** and **Table 9.** As of January 2025, DEP identified 17 individually permitted wastewater facilities or activities in the NIRL Subbasin. The U.S. EPA authorizes DEP to issue permits for discharges to surface waters under the NPDES Program.

Table 9. Wastewater facilities in the NIRL as of January 2025

*BCUD = Brevard County Utilities Department; RV = Recreational vehicle. * 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 ID	Facility Name
FLA102695	BCUD/Sykes Creek Regional Wastewater Treatment Facility
FLA010354	Canebreaker Condo
FL0021521	Cocoa, City of - Cocoa Water Reclamation Facility
FLA010323	David B Lee Wastewater Treatment Plant
FLA011175	Magnolia Village WWTF
FLA010377	Merritt Island Utility Company WWTF
FLA010336	Orlando Utilities Commission - Indian River Plant
FLA010365	Palm Harbor Mobile Home Park WWTF
FLA102750	Port St John Wastewater Treatment Plant
FLA010361	River Forest Mobile Home Park WWTF
FLA010383	Riverview Mobile Home & RV Park
FL0021571	Rockledge, City Of
FL0102679	South Central Regional Wastewater Treatment Plant
FL0103268	Titusville, City of - North - Osprey WWTF
FLA010355	Tropical Trail Village WWTF
FLA017413	VC/Southeast WWTF-7
FLA010358	Willow Lakes RV Park WWTF

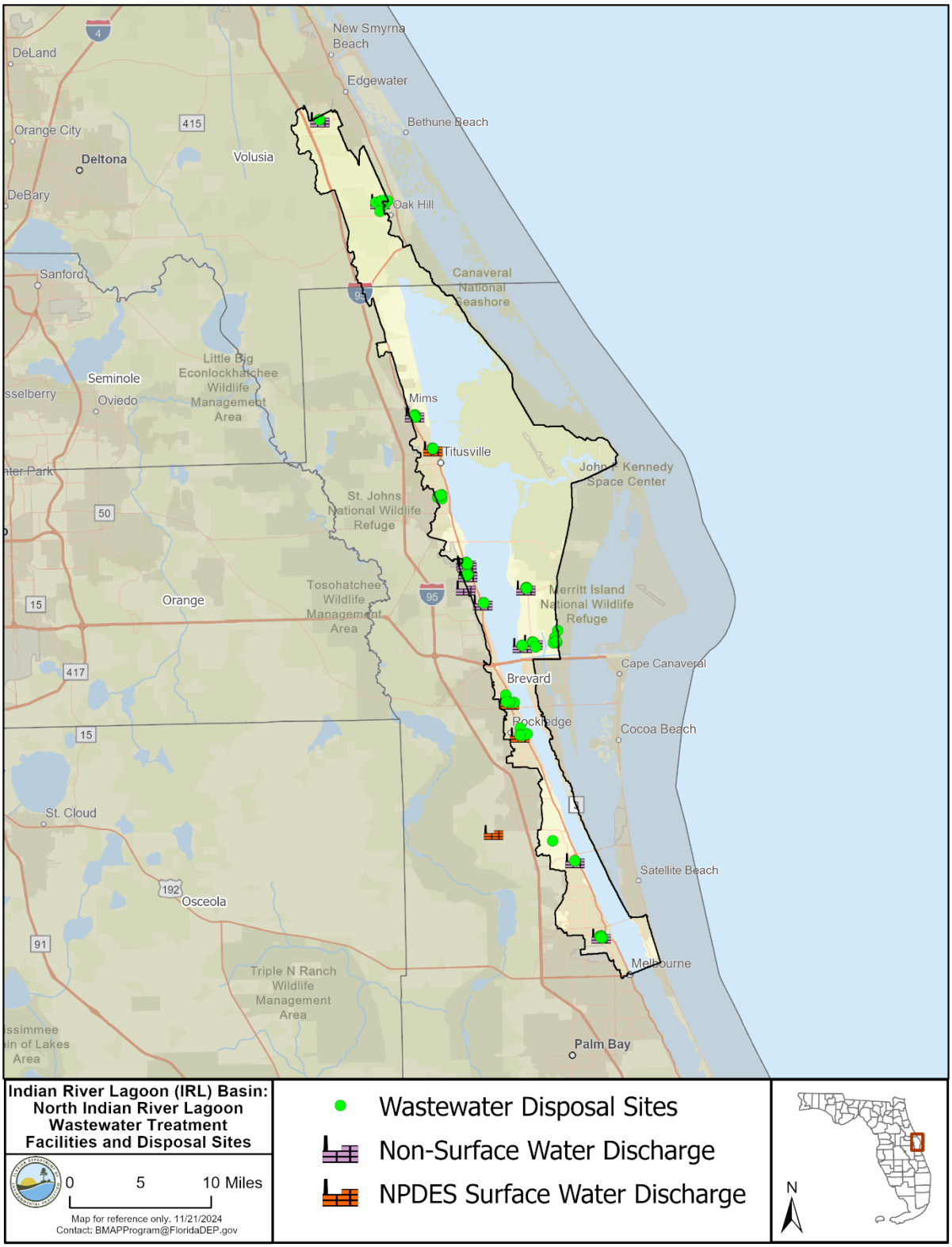

Figure 3. Map of wastewater facilities in the NIRL

1.4 IRLPP

In 2023, the IRLPP was established in Section 373.469, F.S. The IRLPP includes the Banana River Lagoon, Central IRL, and North IRL BMAPs. Specific requirements within the IRLPP include:

- **BMAP Updates**: Requires BMAPs to be evaluated and updated every five years with implementation milestones with strategies and projects and sufficient water quality monitoring to evaluate whether reasonable progress in pollutant load reductions is being achieved over time.

- **Achieving Water Quality Standards**: Requires DEP to coordinate with partners to identify, prioritize, and incorporate into BMAP/RAPs strategies and projects necessary to achieve water quality standards and meet the TMDL within the IRL watershed.

- **IRL Watershed Research and Water Quality Monitoring Program**: Requires DEP to work with partners to establish and implement a comprehensive water quality monitoring network throughout the IRL and fund research to identify sources and prioritize projects for water quality and seagrass restoration.

- **OSTDS Requirements**: Beginning on January 1, 2024, prohibits new conventional OSTDS where sewer is available. Where sewer is not available, enhanced-nutrient reducing systems are required. All existing (residential and commercial) conventional OSTDS must be connected to sewer or upgraded to enhanced nutrient-reducing OSTDS by July 1, 2030.

DEP is working with its partners to identify data gaps, expand the monitoring network in the lagoon, and identify research projects. Since its inception, the IRL water quality grants have funded $309 million dollars for 48 projects.

1.5 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.

- R***esponsible 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 TMDL. 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.

During the development and update of the BMAP, DEP held a series of meetings involving stakeholders and the public. The purpose of these meetings was to consult with stakeholders to gather information, evaluate the best available science, define management strategies and milestones, update the NSILT, develop entity required reductions, and update monitoring requirements. 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. Public meetings were held virtually in April 2024 All meetings were open to the public and noticed in the *Florida Administrative Register* (F.A.R.). Additionally, a final public meeting was held on April 17, 2025, that was noticed in the F.A.R. and in local newspapers.

In addition to public meetings, DEP held several one-on-one meetings with the responsible stakeholders for this BMAP. Throughout the process, DEP made themselves available to answer stakeholder questions.

Upon BMAP adoption, DEP intends to facilitate annual meetings with stakeholders to review progress towards meeting entity required reductions identified for the milestones that are needed to achieve the TMDL.

Section 2. Seagrass and Water Quality Monitoring Plan

2.1. Water Quality Monitoring

This monitoring plan is designed to track seagrass distribution and to identify long-term water quality trends. Sampling stations, parameters, frequency, and other elements of this strategy may be modified as appropriate to match changing environmental conditions, funding resources, and understanding of the IRL system.

2.1.1. Objectives

The primary and secondary monitoring objectives for the NIRL monitoring plan are described as follows:

Primary Monitoring Objective

- Track seagrass depth extent responses to BMAP implementation.

Secondary Monitoring Objectives

- Track trends in ambient water quality in the NIRL and its watershed, including major tributaries.
- Determine if watershed nutrient loading is decreasing and resulting in improved lagoon water quality, which will allow seagrass to grow to target depths.

Additional information about the seagrass depth and compliance with the TMDL targets is discussed in **Section 4.3**, including the most recent results based on the 2023 aerial mapping data. To read more about the process for analyzing the seagrass data and depth analysis, see **Appendix C**.

2.1.2. Monitoring Parameters, Frequency, and Network

To achieve the primary monitoring objective, the main parameter that will be tracked is the seagrass depth by project zone, which is identified through flyover mapping and aerial photography interpretation. DEP and SJRWMD are partnering to fund and conduct flyovers and mapping. In the past, SJRWMD and partners typically have contracted for seagrass mapping every two to three years, and DEP will continue to work with the district to maintain this frequency for the BMAP monitoring plan.

The aerial photography is taken from spring to early summer, during the seagrass growing season. Field sampling conducted around the time of the flights provides data for assessing the accuracy of the maps, and additional field sampling is conducted to address uncertainty regarding areas mapped as seagrass. Using aerial photography, a map is created showing seagrass extent in the lagoon. These maps are used in evaluations to assess progress towards the

TMDL seagrass depth targets for the NIRL. Additional details on the seagrass assessment methodology are contained in **Appendix C**.

To achieve the secondary monitoring objective above, the existing SJRWMD stations in the NIRL BMAP will be monitored. On average, seagrass transects are 1 kilometer (km) away from a long-term water quality station. The monitoring strategy for these stations focuses on the following parameters listed in **Table 10**.

Table 10. Core water quality indicators and field parameters

Parameters
Alkalinity
Ammonium
Chlorophyll *a*
Depth of Collection
Dissolved Organic Carbon
Dissolved Oxygen
Field Conditions
Nitrite/Nitrate
Orthophosphate
pH
Photosynthetically Active Radiation (PAR)
Secchi Depth
Silica
Specific Conductivity
Total Depth of Sample Site
Total Kjeldahl Nitrogen
TN
Total Organic Carbon
TP
Total Suspended Solids (TSS)
True Color
Turbidity
Volatile Suspended Solids
Water Temperature

In addition to the SJRWMD water quality monitoring stations, Volusia County collects water quality data at two stations in the NIRL, and the U.S. Geological Survey (USGS) collects flow data at two stations. **Table 11** lists the stations that SJRWMD, Volusia County, and USGS currently sample in the NIRL BMAP; these stations are shown by project zone in **Figure 4** and **Figure 5**. Generally, data are collected from three types of stations: flow stations where volume is primarily determined; tributary water quality stations near the junction of tributaries where parameters are sampled as these waters mix with the lagoon; and lagoon water quality stations that measure parameters in the lagoon itself.

Table 11. Monitoring stations in the NIRL BMAP area

Entity	Station ID	Project Zone	Status	Latitude	Longitude	Station Type	Frequency
SJRWMD	IRLBFRR	NIRL-A	Active	28.7553	-80.8461	Tributary	Monthly
SJRWMD	IRLEGU	NIRL-B	Active	28.1243	-80.6308	Tributary	Monthly
SJRWMD	IRLI02	NIRL-A	Active	28.7370	-80.8007	Lagoon	Monthly
SJRWMD	IRLI06	NIRL-A	Active	28.6358	-80.8020	Lagoon	Monthly
SJRWMD	IRLI07	NIRL-A	Active	28.6035	-80.7984	Lagoon	Monthly
SJRWMD	IRLI09E	NIRL-A	Active	28.5564	-80.7416	Lagoon	Monthly
SJRWMD	IRLI10	NIRL-B	Active	28.5012	-80.7686	Lagoon	Monthly
SJRWMD	IRLI13	NIRL-B	Active	28.3931	-80.7359	Lagoon	Monthly
SJRWMD	IRLI15	NIRL-B	Active	28.3353	-80.7131	Lagoon	Monthly
SJRWMD	IRLI16	NIRL-B	Active	28.2778	-80.6767	Lagoon	Monthly
SJRWMD	IRLI18	NIRL-B	Active	28.1949	-80.6487	Lagoon	Monthly
SJRWMD	IRLI21	NIRL-B	Active	28.1253	-80.6165	Lagoon	Monthly
SJRWMD	IRLSG018	NIRL-A	Active	28.785124	-80.8466	Biological	Bi-annual
SJRWMD	IRLSG019	NIRL-A	Active	28.682612	-80.8082	Biological	Bi-annual
SJRWMD	IRLSG020	NIRL-A	Active	28.63036	-80.8157	Biological	Bi-annual
SJRWMD	IRLSG021	NIRL-A	Active	28.597788	-80.8031	Biological	Bi-annual
SJRWMD	IRLSG022	NIRL-B	Active	28.509828	-80.7799	Biological	Bi-annual
SJRWMD	IRLSG023	NIRL-B	Active	28.408905	-80.729	Biological	Bi-annual
SJRWMD	IRLSG024	NIRL-B	Active	28.396957	-80.7194	Biological	Bi-annual
SJRWMD	IRLSG025	NIRL-B	Active	28.39167	-80.7404	Biological	Bi-annual
SJRWMD	IRLSG026	NIRL-B	Active	28.345542	-80.7037	Biological	Bi-annual
SJRWMD	IRLSG027	NIRL-B	Active	28.31386	-80.688	Biological	Bi-annual
SJRWMD	IRLSG028	NIRL-B	Active	28.202759	-80.6587	Biological	Bi-annual
SJRWMD	IRLSG029	NIRL-B	Active	28.150472	-80.634	Biological	Bi-annual
SJRWMD	IRLSG030	NIRL-B	Active	28.103965	-80.6126	Biological	Bi-annual
SJRWMD	IRLSG076	NIRL-A	Active	28.753873	-80.838	Biological	Bi-annual
SJRWMD	IRLSG087	NIRL-B	Active	28.476656	-80.7267	Biological	Bi-annual
SJRWMD	IRLSG089	NIRL-A	Active	28.753238	-80.787	Biological	Bi-annual
SJRWMD	IRLSG090	NIRL-A	Active	28.643492	-80.8154	Biological	Bi-annual
SJRWMD	IRLSG093	NIRL-A	Active	28.559604	-80.7199	Biological	Bi-annual
SJRWMD	IRLSG094	NIRL-B	Active	28.254828	-80.68	Biological	Bi-annual
SJRWMD	IRLSG095	NIRL-B	Active	28.109403	-80.5866	Biological	Bi-annual
SJRWMD	IRLSG099	NIRL-B	Active	28.521231	-80.7792	Biological	Bi-annual
SJRWMD	IRLSG100	NIRL-A	Active	28.704514	-80.7767	Biological	Bi-annual
SJRWMD	IRLTBC	NIRL-A	Active	28.8209	-80.8601	Tributary	Monthly

Entity	Station ID	Project Zone	Status	Latitude	Longitude	Station Type	Frequency
SJRWMD	IRLUPEGWR	NIRL-B	Active	28.1270	-80.6454	Tributary	Monthly
SJRWMD	IRLUPHC	NIRL-B	Active	28.1612	-80.6554	Tributary	Monthly
USGS	02248380	NIRL-A	Active	28.7362	-80.7546	Flow	Continuous
USGS	02249007	NIRL-B	Active	28.1270	-80.6454	Flow	Continuous
Volusia	ODIX	NIRL-A	Active	28.8051	-80.8604	Tributary	Bi-monthly
Volusia	TC2	NIRL-A	Active	28.8252	-80.8572	Tributary	Bi-monthly

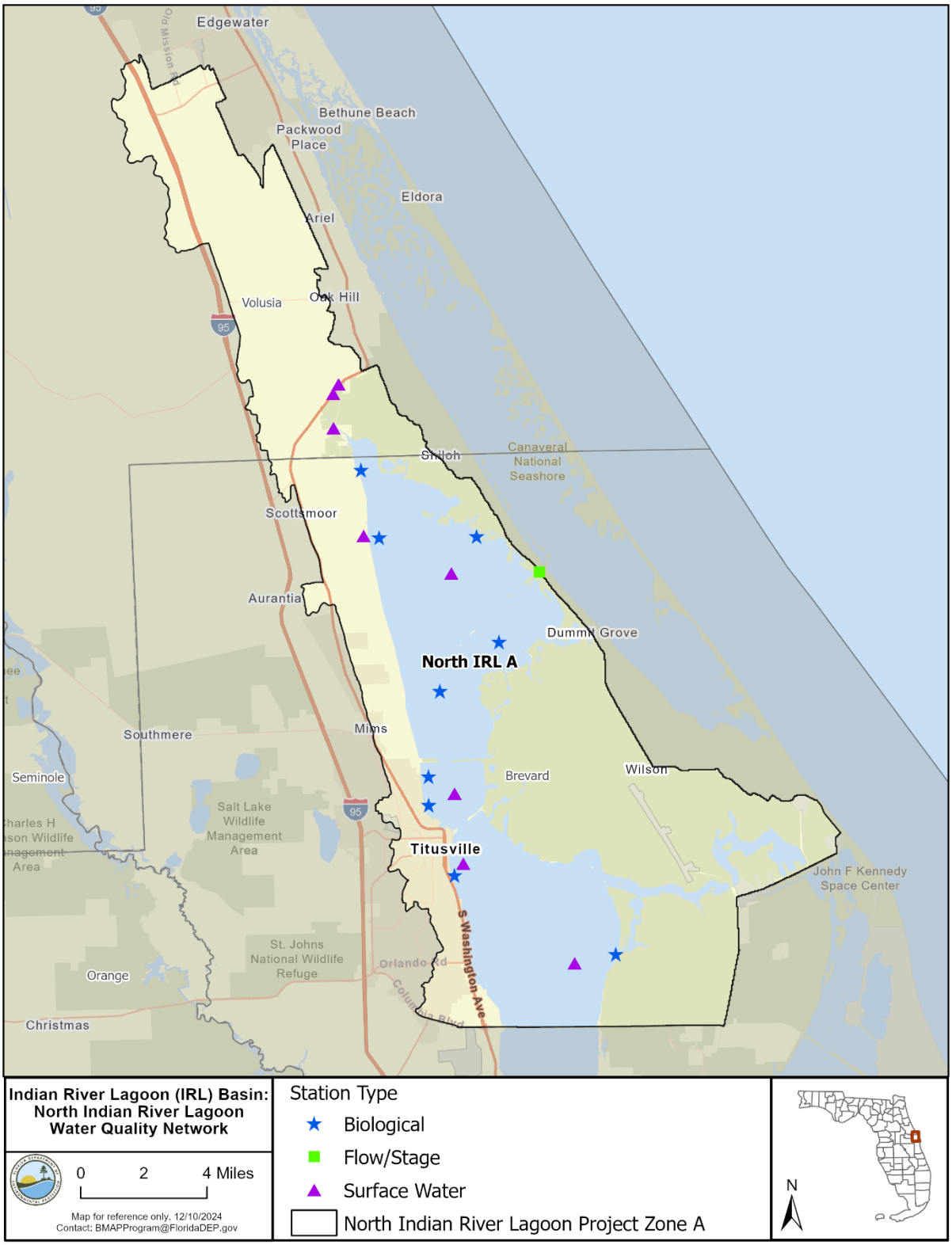

Figure 4. Monitoring network in the NIRL Project Zone A

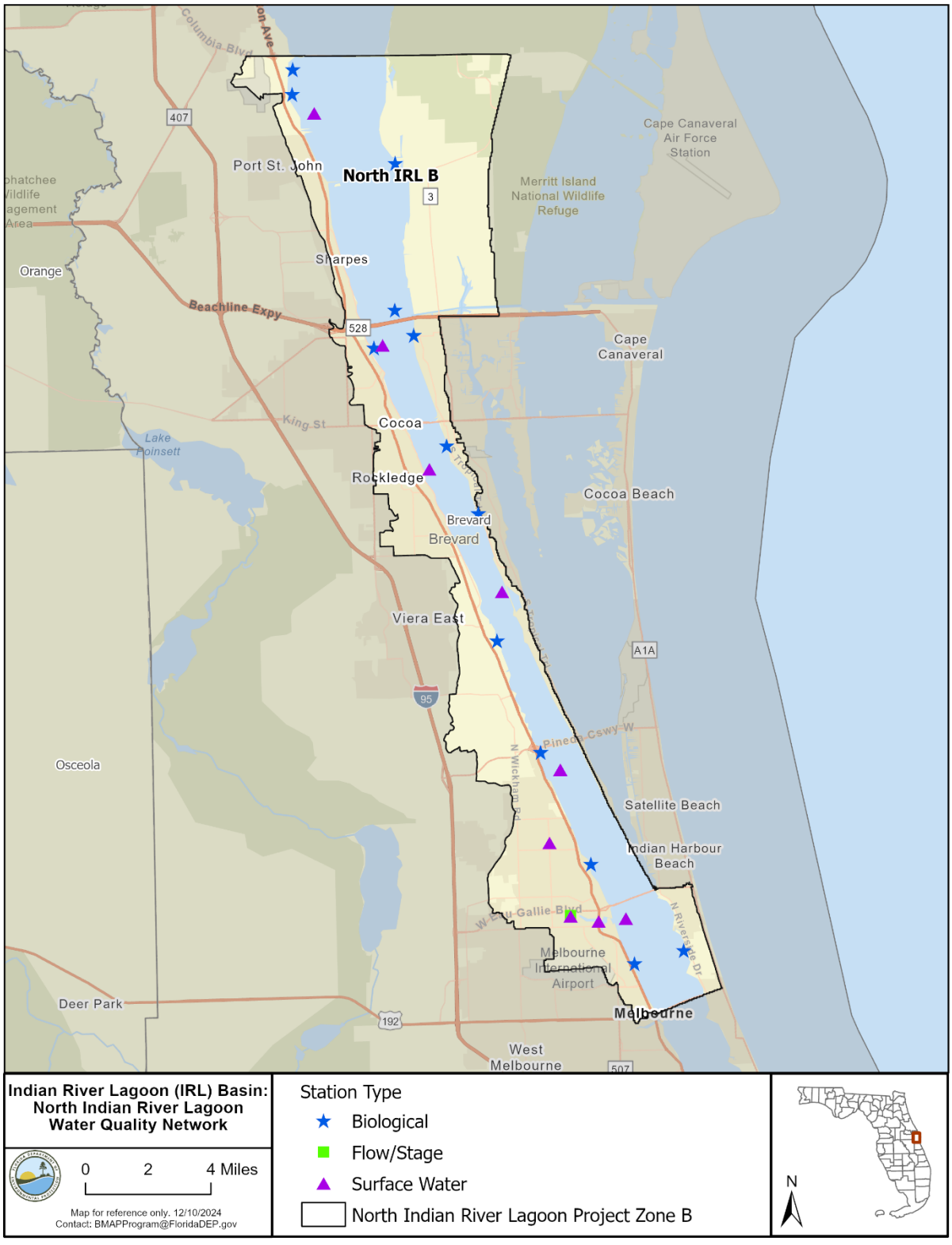

Figure 5. Monitoring network in the NIRL Project Zone B

2.1.3. Data Management and Assessment

In 2017, the Florida Watershed Information Network (WIN) replaced the Florida Storage and Retrieval (STORET) Database. WIN now serves as the primary repository of ambient water quality data for the state of Florida. Water quality data from the WIN database are used for Impaired Surface Waters Rule (IWR) assessments and TMDL development. Ambient water quality data collected as part of the BMAP will be uploaded into WIN for long-term storage and availability. All BMAP data providers have agreed to upload ambient water quality data to WIN at least quarterly, upon the completion of the appropriate quality assurance/quality control (QA/QC) checks.

Other data relevant to monitoring restoration efforts, such as the extent and abundance of seagrass coverages, groundwater quality, and storm events, may be collected. Stakeholders agree to provide these data to other BMAP partners on request, and when appropriate, for inclusion in BMAP data analyses and adaptive management evaluations. Data used to assess the biological health of streams and lakes may be provided to DEP staff in the Watershed Assessment Section. For more information on submitting external biological data, visit the DEP website.

The water quality data will be analyzed periodically to determine trends in water quality in the lagoon. Specific statistical analyses were not identified during BMAP development; however, commonly accepted methods of data analysis will be used.

2.1.4. Quality Assurance/Quality Control

Stakeholders participating in the monitoring plan must collect water quality data in a manner consistent with the DEP standard operating procedures (SOPs) for QA/QC. The most current version of these procedures can be downloaded from the DEP website. For BMAP-related data analyses, entities should use National Environmental Laboratory Accreditation Council (NELAC) National Environmental Laboratory Accreditation Program (NELAP)–certified laboratories or other labs that meet the certification and other requirements outlined in the DEP SOPs.

2.2. Water Quality Trends

As the majority of the data collected in the NIRL BMAP water quality monitoring network (WQMN) is supplied by the SJRWMD, station status and trends assessments are also conducted by the SJRWMD annually. Assessment results of the 2023 status and trends report is referenced in **Table 12**. Note that all ranges are expressed as low, medium or high relative to each other, and high values do not necessarily indicate poor water quality – i.e. data from the SJRWMD status and trends assessment is not compared to TMDL or DEP Water Quality Assessment Standards. Additional details may be found in **Appendix H** on the specific methodology of the assessment. See **Appendix A** for link to information about the trends analysis.

Table 12. Water quality trends for monitoring stations in NIRL BMAP area

Subbasin	Project Zone	Station	Total Nitrogen (mg/L as N)	Total Phosphorus (ug/L as P)
NIRL	NIRL-A	IRLBFRR	High-range, Stable	High-range, Stable
NIRL	NIRL-B	IRLEGU	Mid-range, Decreasing (<5%)	High-range, Stable
NIRL	NIRL-A	IRLI02	Mid-range, Stable	Low-range, Increasing (<5%)
NIRL	NIRL-A	IRLI06	Mid-range, Stable	Mid-range, Increasing (<5%)
NIRL	NIRL-A	IRLI07	Mid-range, Stable	Low-range, Increasing (<5%)
NIRL	NIRL-A	IRLI09E	Mid-range, Stable	Low-range, Stable
NIRL	NIRL-B	IRLI10	Mid-range, Increasing (<5%)	Mid-range, Increasing (<5%)
NIRL	NIRL-B	IRLI13	High-range, Increasing (<5%)	Mid-range, Increasing (<5%)
NIRL	NIRL-B	IRLI15	High-range, Increasing (<5%)	Mid-range, Increasing (<5%)
NIRL	NIRL-B	IRLI16	Mid-range, Stable	Mid-range, Stable
NIRL	NIRL-B	IRLI18	Mid-range, Increasing (<5%)	Mid-range, Increasing (<5%)
NIRL	NIRL-B	IRLI21	Mid-range, Stable	Mid-range, Increasing (<5%)
NIRL	NIRL-A	IRLIRCMTITUS01	Mid-range, Insufficient Data	Low-range, Insufficient Data
NIRL	NIRL-A	IRLTBC	Mid-range, Decreasing (<5%)	High-range, Stable
NIRL	NIRL-B	IRLUPEGWR	Mid-range, Stable	High-range, Increasing (<5%)
NIRL	NIRL-B	IRLUPHC	Mid-range, Increasing (<5%)	Mid-range, Increasing (<5%)

2.3. Bathymetry

Bathymetry is the measurement of the bottom depths of a waterbody and is important for understanding how the seagrass deep edge migrates across the lagoon as time passes. The current bathymetric dataset used by the SJRWMD and SFWMD was collected in 1995 and has been used in all of the seagrass assessments to date. Additional methods of mapping the lagoon bathymetry need to be pursued to assess the change in the deep edge where seagrass has historically been found.

2.4. Hot Spot Analysis

2.4.1. Approach

To better prioritize and focus resources to most efficiently achieve restoration in the NIRL BMAP, DEP developed the hot spot analysis approach. This approach uses measured data collected throughout the watershed to evaluate TN and TP concentrations. This process is not intended to be a management strategy under Chapter 403.067, F.S. The benchmarks are not intended to measure progress towards restoration or compliance; they will only be used to prioritize resources.

The measured nutrient concentrations were compared with selected benchmarks to identify areas that should be the highest priority for restoration. Four statistics are calculated for the whole

BMAP and are used to compare against each station average: TN or TP concentration average, TN or TP 90th percentile, TN or TP standard deviation, and TN or TP percent frequency of samples over the BMAP threshold. Stations are assigned a rank of 0, 1, or 2 for each category, as shown in **Figure 6.** The scores for each category are summed by station to determine an overall rank.

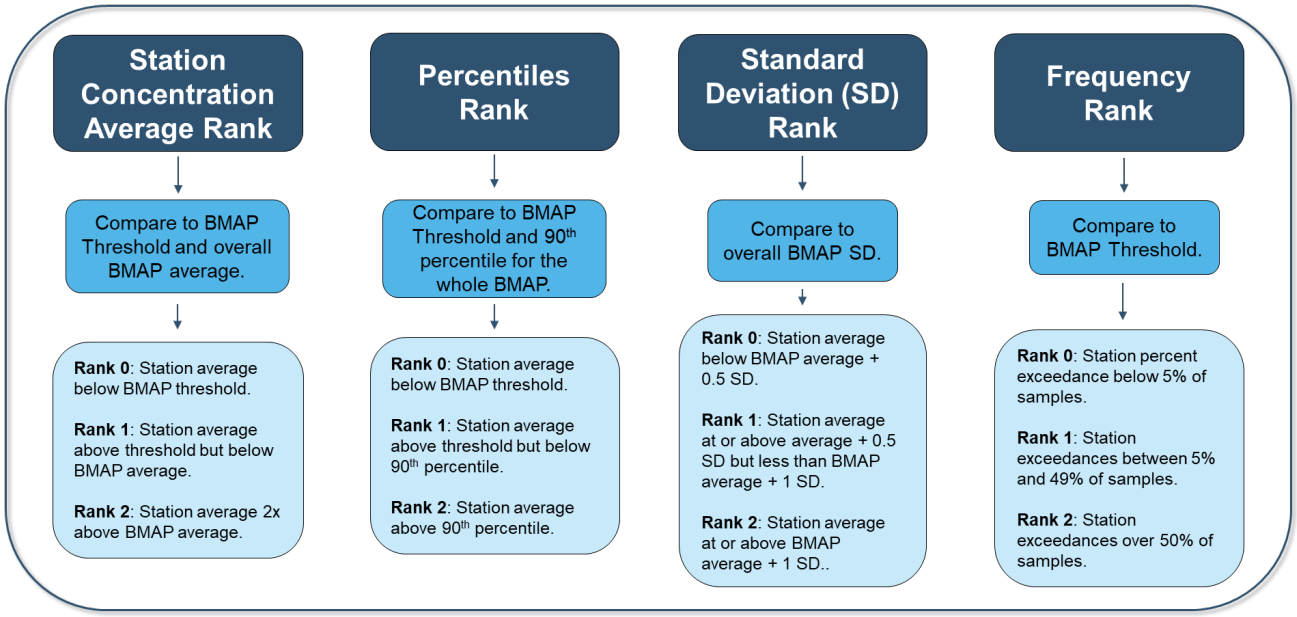

Figure 6. Summary of hot spot analysis approach

2.4.2. Results

Figure 7 and **Figure 8** show the spatial results of the TN and TP hot spot analysis in NIRL for the period of record 2019 to 2023. This analysis focused on monitoring stations with at least two years of data and at least four samples per year. No outliers were removed. To be included in the analysis, each station must have at least four samples per year and at least two years of data. This analysis will continue to be reviewed and completed as needed.

Figure 7. Total nitrogen hot spots in the NIRL

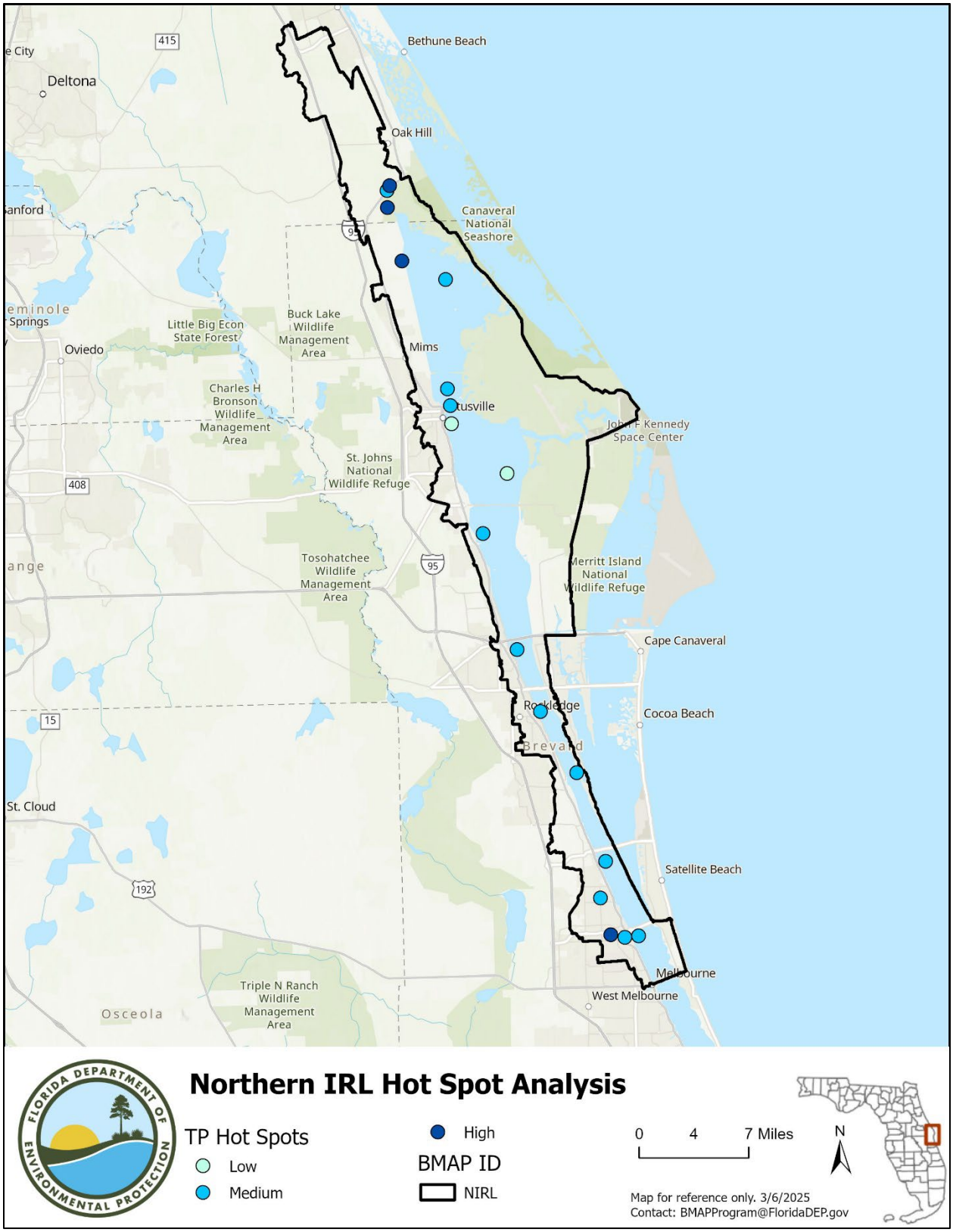

Figure 8. Total phosphorus hot spots in the NIRL

Section 3. Modeling, Load Estimates, and Restoration Approaches

3.1 BMAP Modeling

The seagrass depth limits were developed by SJRWMD based on a series of photo-interpreted seagrass coverages from 1943 through 2001. DEP reviewed these models and the seagrass depth limits and used them to develop the IRL TMDLs that were adopted by rule (Gao 2009). For the original 2023 BMAP, nutrient loading estimates were calculated using the Pollutant Load Screening Model (PLSM) which was developed by SJRWMD to represent year 2000 loading (Adkins et al. 2004) in most of the IRL Watershed (excluding the IRL south of the Indian River County –St. Lucie County boundary).

Through cooperative local effects, the MS4 permittees within the Brevard County section of the IRL (17 entities) partnered in a study to update and refine the information that was used in the PLSM and associated IRL TMDLs. One outcome of this study was the development of the geographic information system- (GIS-) based Spatial Watershed Iterative Loading (SWIL) model, which incorporated more data, recent conditions, and temporally fine datasets. SWIL is a custom ESRI ArcGIS toolset, originally designed to provide a continuous monthly simulation of runoff over a 16-year period (Applied Ecology 2019).

3.1.1 SWIL Modeling

The SWIL model uses input parameters derived from observed datasets to create a spatial and temporal representation of nutrient loads and volumes for the IRL watershed. The SWIL model estimates the volume of water, TN, and TP loads discharged by segmenting the hydrological and nutrient contributions of subsurface flow and direct rainfall runoff. The contributions from portions of a basin are determined by land use, soil type, precipitation, evapotranspiration, peer-reviewed event mean concentrations, and runoff coefficients (Applied Ecology 2024).

The initial version of SWIL (SWIL 1.0) was developed in 2012, and updates were made over time to improve execution, processing time, and calibration. SWIL 4.0 was used by DEP in the 2021 BMAP Update. Following the BMAP update in 2021, stakeholders requested updates to the SWIL model given the rapid growth occurring within the basin. DEP began this effort in 2021, through a contract with Applied Ecology, to update the SWIL model to create SWIL 5.0. The updated model will incorporate new land use, rainfall, soils, and event mean concentration information. These updates are expected to lead to an overall better model for estimating nutrient loading in the watershed as a planning tool for reducing loads allocated to stakeholders. After the SWIL model refinement (SWIL 5.0) is complete, DEP will reevaluate and, if necessary, adopt another iteration of the NIRL BMAP, most likely before 2030. The next iteration will include updated loading estimates and required reductions.

DEP providing revised starting loads and allocations is an expected part of the iterative BMAP process where loading estimates are reassessed as land uses and other loading sources change over time as well as the response of environmental conditions to improved loading rates are

assessed. Responsible entities and agencies should expect periodic adjustments to their reduction assignments during the BMAP process.

The SWIL Model starting loads for each project zone are described in **Table 13**.

Table 13. NIRL SWIL Model, Version 4.0, starting loads

Project Zone	Starting TN Load (lbs/yr)	% Total Load TN	Starting TP Load (lbs/yr)	% Total Load TP
NIRL A	399,161	53	46,021	48
NIRL B	359,923	47	50,203	52
NIRL Totals	**759,084**	**100**	**96,224**	**100**

3.1.2 Allocation Process

The allocation process remains the same as the 2021 BMAP. To generate average annual TN and TP loads from the IRL Watershed, SWIL Version 4.0 was run using rainfall inputs that were thought to be from a representative period covering various conditions from high to low rainfall years. The outputs from this model run were used to generate a GIS-based Load Estimation Tool (LET) that included annual average loads from the watershed and was the basis of the allocation calculations.

The LET based on the SWIL Model can produce polygon outputs with loading data included. The determination of each entity's loading was performed using the LET and a GIS process. Through a series of GIS steps, polygons were generated for each stakeholder. GIS data were used to overlay and unite the area within the BMAP boundary associated with each entity's jurisdictional boundary or the codes from the model land cover data related to natural and agricultural lands. The union overlay process was layered sequentially, as follows:

1. Dispersed Water Management (DWM) or Comprehensive Everglades Restoration Plan (CERP) projects.
2. A percentage of atmospheric deposition was removed from the loading calculations.
3. Roads (FDOT and Florida's Turnpike Enterprise).
4. WCDs and improvement district canals and rights-of-way.
5. Remaining estuary and tributary area with land use codes of 5000.
6. Natural lands (land use codes 3000 [not including 3300], 4000, and 6000).
7. Agriculture (land use codes 2000 and 3300).
    a. Agricultural fertilizer (land use codes 3300).
    b. Livestock waste (land use codes 3300).

8. Urban fertilizer, OSTDS, WWTF Reuse
    a. CDDs, if they meet the criteria.
    b. Municipalities.
    c. Remaining area assigned to each county.

3.1.3 Required Reductions

The assigned required reductions are based off the starting loads and allocation approach used in the 2021 BMAP. However, following BMAP adoption, DEP worked with responsible entities to make corrections to the LET based on the identification of additional natural land areas and other local considerations. The assigned required reductions below are a result of those corrections. The TN and TP reductions required by each entity are shown in **Table 14** and **Table 15**, respectively.

Table 14. TN load required reductions by entity (lbs/yr)

* = Adjusted using the natural load per acre.

Lead Entity	Project Zone A (lbs/yr)	Project Zone B (lbs/yr)	Total (lbs/yr)
Agricultural Producers	20,550	4,714	25,264
Brevard County	27,759	64,506	92,265
City of Cocoa	0	8,837	8,837
City of Edgewater	1,959	0	1,959
City of Melbourne	0	34,378	34,378
City of Oak Hill	269	0	269
City of Rockledge	0	11,322	11,322
City of Titusville	37,334	2,619	39,953
FDOT District 5	4,325	3,640	7,965
Kennedy Space Center	9,730	2,423	12,153
Town of Indialantic	0	664	664
Town of Palm Shores	0	787	787
Volusia County	16,679	0	16,679
Totals	**118,604***	**133,891***	**252,495**

Table 15. TP load required reductions by entity (lbs/yr)

* = Adjusted using the natural load per acre.

Entity	Project Zone A	Project Zone B	Total
Agricultural	3,522	958	4,480
Brevard County	4,809	12,667	17,476
City of Cocoa	0	1,726	1,726
City of Edgewater	297	0	297
City of Melbourne	0	6,292	6,292
City of Oak Hill	40	0	40

Entity	Project Zone A	Project Zone B	Total
City of Rockledge	0	2,135	2,135
City of Titusville	6,224	474	6,698
FDOT District 5	631	641	1,272
Kennedy Space Center	1,422	353	1,775
Town of Indialantic	0	131	131
Town of Palm Shores	0	148	148
Volusia County	2,724	0	2,724
Totals	**19,669***	**25,524***	**45,193**

3.1.1 Project Credit Process

Updated in the 2021 BMAP and with additional projects added annually after that time, the LET (based on SWIL Version 4.0) was used to calculate updated TN and TP baseloads from all existing project treatment areas in the BMAP. The DEP BMP Efficiencies Guidance document was used to determine the appropriate credit calculations for the various project types. Some project types that have credits based on measured data or weighed material, such as street sweeping, did not need to be updated using the LET.

3.2 Project Zones

There are two project zones in the NIRL. All projects identified as part of this BMAP are listed by project zone in **Appendix B**. For projects that treat lands in multiple project zones, the nutrient reductions provided in the table are only the estimated reductions for the project zone specified. To calculate the total benefits from these projects, credits from all project zones treated by the project should be summed. The table of existing and planned projects lists those projects submitted by stakeholders to help meet their obligations under the BMAP. Information in the tables was provided by the lead entity and is subject to change as the project develops and more information becomes available. In **Appendix B, Table B-1** and **Table B-2** show progress towards the required TN and TP load reductions allocated to each project zone from projects completed through October 2024.

It should be noted that only projects completed in 2000 and beyond are eligible for BMAP credit. Since the treatment input data for the hydrology calibration was from an earlier period in the model simulation, most projects beyond permit requirements installed from 2000 onward were not included in the calibration and are not well represented in the SWIL Model loading estimates. Therefore, projects completed from 2000 onward are eligible for BMAP credit. Projects completed prior to 2000 are accounted for in the period of record used for calibration of the SWIL Model, Version 4.0.

The projects and management strategies are ranked with a priority of high, medium, or low. Projects with a "completed" status were assigned a low priority. Projects classified as "underway" were assigned a medium priority because some resources have been allocated to these projects, but additional assistance may be needed for the projects to be completed. A high

priority was assigned to projects listed as "planned," as well as certain "ongoing" projects (i.e., "street sweeping," "catch basin inserts/inlet filter clean out," "public education efforts," "fertilizer cessation," "fertilizer reduction," or "aquatic vegetation harvesting").

3.3 Basinwide Sources Approach

3.3.1 Agriculture

3.3.1.1 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 WMD or FDACS, in consultation with DEP, must conduct a reevaluation of the BMPs. If a reevaluation of the BMPs is needed, FDACS will also include DEP, the appropriate WMD, and other partners in the reevaluation and BMP update processes.

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 BRL BMAP was then determined by comparing the FSAID 11 ALG and total acreage of the BMAP boundary. Based on FSAID 11, the total agricultural land in the BMAP is 44 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 GIS to calculate the acres of agricultural land in an enrolled parcel. **Table 16** summarizes agricultural lands within the NIRL BMAP based on the FSAID 11 and the results of the FDACS unenrolled agricultural lands characterization.

Table 16. Agricultural lands in the NIRL Basin by crediting location

* Enrollment information current as of June 30, 2024.

Crediting Location	Agricultural Acres	Unenrolled - Unlikely Enrollable Acres	Agricultural Acres - Adjusted	Agricultural Acres Enrolled*
A	5,285	2,205	3,080	804
B	1,413	545	869	236

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. Currently, no producers are conducting water quality monitoring in lieu of implementing BMPs. Although it is anticipated that additional enrollment in agricultural BMPs along with more frequent implementation verification site visits by FDACS will increase nutrient reductions from agricultural nonpoint sources, it is also recognized that further reductions, beyond the implementation of required owner-implemented BMPs, will be necessary to achieve the TMDLs.

Other reductions associated with the implementation and modification of BMPs may be realized through ongoing studies, data collection, and water management district initiatives. These additional projects and activities are to be implemented in conjunction with the BMP program, which needs to achieve full enrollment with verification to ensure that the BMAP goals are achieved.

3.3.1.2 Dairies and Other Concentrated 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 dairy 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 in the permit and implemented in accordance with the monitoring plan.

3.3.1.3 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 water management district.

3.3.1.4 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.

3.3.1.5 Silviculture

The Florida Forest Service within FDACS is the lead agency responsible for assisting landowners, loggers and forestry professionals with silviculture BMP implementation as well as conducting statewide silviculture BMP training and compliance monitoring. The Florida Forest Service 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 Florida Forest Service and thereby committing to follow BMPs during all current and future forestry operations.

3.3.1.6 Agricultural Cooperative Regional Elements (ACEs)

Section 403.067, F.S., requires FDACS, DEP and agricultural producers to work together to establish ACEs 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.

Addressing nutrient loading from agricultural sources in Florida's waterways requires collective action and partnership among key stakeholders. 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 statutorily required 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 storage and/or 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 or innovative projects funded through existing or enhanced cost share programs administered by FDACS or the water management districts.

While FDACS is assigned the lead role on project solicitation, development, selection and implementation, FDACS 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 annual workshops to identify potential regional projects. Identified regional 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 regional 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 collection of water quality monitoring data. The default performance measures will be the expected range of pollutant removal efficiencies. Tools may be needed to determine the effectiveness of projects, such as modeling.

FDACS will report on projects annually through DEP's Statewide Annual Report 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.

Agricultural nonpoint sources contribute 6% of the TN and 7% of the TP nutrient sources in the NIRL BMAP. The department has determined that additional measures, in combination with state-sponsored regional projects, BMPs and other management strategies included in the NIRL BMAP, are necessary to achieve the TMDLs. Pursuant to subparagraph 403.067(7)(e)1., F.S., an ACE is required in this BMAP.

Most agricultural lands are engaged in row crop production. **Table 17** shows the crop types within the NIRL BMAP.

Table 17. Dominant crop types within the NIRL BMAP

Crop Type	Acres
Row Crops	1,484
Grazing Land	1,239
Citrus	247

Targeting future funding toward precision agriculture, manure management, innovative technologies or soil health practices, including combining practices where applicable, to address nutrient impacts from row crop production on a regional scale could provide additional reductions.

FDACS will continue to work with key stakeholders in the BRL 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 D**.

3.3.1.7 Description of BMPs Adopted by Rule

Appendix D provides detailed information on BMPs and agricultural practices in the BMAP area. **Table 18** identifies the adopted BMPs and BMP manuals relevant to this BMAP.

Table 18. 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 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
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

Agency	F.A.C. Chapter	Chapter Title
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
Florida Forest Service	5I-6	Best Management Practices for Silviculture
DEP	62-330	Environmental Resource Permitting

3.3.2 Urban Stormwater

Urban stormwater is a considerable source of nutrient loading to the NIRL, and many urban areas are already regulated under the 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 plans (SWMPs) 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.

Additionally, in accordance with Section 403.067, F.S., if an MS4 permittee is identified in an area with an adopted BMAP, the permittee must comply with the adopted provisions of the BMAP that specify activities to be undertaken by the permittee. If the permittee discharges stormwater to a waterbody with an adopted TMDL pursuant to Chapter 62-304, F.A.C., then the permittee must revise its SWMP to address the assigned wasteload in the TMDL.

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., the new rule establishes requirements for applicants to demonstrate, through calculations or modeling, that the future stormwater management systems would provide additional treatment to meet new Environmental Resource Permits stormwater treatment performance standards for an 80% reduction for TP and 55% reduction for TN, along with additional requirements that would apply where a project discharges to Outstanding Florida Waters or impaired waters. Additional permitting requirements to protect ground water can be found within the Stormwater Applicant Handbook Volume I, Section 8.5.2.

3.3.2.1 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. Urban structural projects completed since January 1, 2000, and planned in the future were eligible for BMAP credit. Urban structural projects only received credit for the portion of the load reduction that was over and above any permit requirements. This criterion was needed because permit conditions are established to prevent impacts from the new development and do not contribute to water quality improvement.

Public education and outreach efforts and nonstructural projects were eligible for BMAP credit regardless of when they were implemented because these efforts were excluded in the SWIL model. Estimates of TN and TP reductions from street sweeping and BMP clean out were made using a tool developed by the Florida Stormwater Association in 2012, based on data collected by Sansalone et al. (2011) that uses the volume or weight of material removed to estimate the pounds of TN and TP removed.

3.3.2.2 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 within the BMAP must obtain a certification for golf course BMPs (UF-IFAS Florida Golf Course Best Management Practices Program) 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 F**. 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.

3.3.3 Wastewater Treatment

3.3.3.1 Facility Improvements and Effluent Limits

DEP issues permits for facilities and activities to discharge wastewater to surface waters and groundwaters of the state. DEP is authorized by the U.S. EPA to issue permits for discharges to surface waters under the NPDES Program. Permits for discharges to groundwaters 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. Section 403.086, F.S. requires that beginning July 1, 2025, in the IRL or any river, canal, bay, bayou, sound, or other tributary thereto, sewage disposal facilities may not dispose any wastes without providing advanced waste treatment or a more stringent treatment standard if the department determines the more stringent standard is necessary to achieve the TMDL.

The nitrogen and phosphorus effluent limits set forth in **Table 19** and **Table 20** 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. DEP will evaluate the need for more stringent nutrient effluent limits as appropriate.

Table 19. Nitrogen effluent limits for WWTFs

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

Facility Capacity (mgd)	Surface Water Discharges (mg/L)	WWTFs Listed in Appendix G (mg/L)	WWTFs Not Listed in Appendix G – Rapid Rate Land Application (RRLA) Effluent Disposal System (mg/L)	WWTFs Not Listed in Appendix G – All Other Disposal Methods, Including Reuse (mg/L)
Greater than or equal to 0.5	3	3	3	10
Less than 0.5 and greater than or equal to 0.01	3	3	6	10
Less than 0.01	3	N/A	10	10

Table 20. Phosphorus effluent limits for WWTFs

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

Facility Capacity (mgd)	Surface Water Discharges (mg/L)	WWTFs Listed in Appendix G (mg/L)	WWTFs Not Listed in Appendix G – Rapid Rate Land Application (RRLA) Effluent Disposal System (mg/L)	WWTFs Not Listed in Appendix G – All Other Disposal Methods, Including Reuse (mg/L)
Greater than or equal to 0.5	1	1	1	6

Facility Capacity (mgd)	Surface Water Discharges (mg/L)	WWTFs Listed in Appendix G (mg/L)	WWTFs Not Listed in Appendix G – Rapid Rate Land Application (RRLA) Effluent Disposal System (mg/L)	WWTFs Not Listed in Appendix G – All Other Disposal Methods, Including Reuse (mg/L)
Less than 0.5 and greater than or equal to 0.01	1	1	3	6
Less than 0.01	1	N/A	6	6

Where the law does not provide for 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 and report these sampling results in the discharge monitoring reports 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.

3.3.3.2 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 G** are subject to the nitrogen and phosphorus limits set forth in section 403.086, F.S. The facilities listed in **Appendix G** 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. 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 in the BMAP, are required to meet AWT standards for TN and TP in accordance with section 403.086, F.S.

3.3.3.3 WWTF 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, water management districts (WMDs), and public and private domestic WWTFs 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 23-0122 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.

3.3.3.4 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.

3.3.3.5 Biosolids and Septage Application Processes

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.

3.3.4 OSTDS

In accordance with section 373.469, F.S., beginning on January 1, 2024, unless previously permitted, the installation of new OSTDS were prohibited within the Banana River Lagoon BMAP, Central Indian River Lagoon BMAP, North Indian River Lagoon BMAP, and Mosquito Lagoon RAP areas where a publicly owned or investor-owned sewerage system is available as defined in paragraph 381.0065(2)(a), F.S. Where central sewerage is not available, only enhanced nutrient-reducing OSTDS or other wastewater treatment systems that achieve at least 65% nitrogen reduction are authorized.

Also in accordance with section 373.469, by July 1, 2030, any commercial or residential property with an existing OSTDS located within the Banana River Lagoon BMAP, Central Indian River Lagoon BMAP, North Indian River Lagoon BMAP, and Mosquito Lagoon RAP areas must connect to central sewer if available or upgrade to an enhanced nutrient-reducing OSTDS or other wastewater treatment system that achieves at least 65% nitrogen reduction.

3.3.4.1 BMAP OSTDS Remediation Plan

This BMAP contains a remediation plan for OSTDS consisting of management actions, including those described in **Appendix B** and updated annually through the statewide reporting process, 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, 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. Each OSTDS remediation plan for this BMAP must contain the information outlined in DEP Final Order 23-0122. Stakeholders 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 several factors, including location, how they are addressed, and the amount of attenuation that occurs.

3.3.4.2 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.

3.3.5 Funding Opportunities

Chapter 2023-169, L.O.F., expanded grant opportunities for local governments and eligible entities working to address a TMDL. Previously, grant funding was available for specific project types, including septic-to-sewer, AWT expansion or upgrades, and OSTDS upgrades. Now, through the Water Quality Improvement Grant program, eligible entities can also apply for grant funding for stormwater, regional agricultural projects, and a broader suite of wastewater projects including collection systems and domestic wastewater reuse. Projects are prioritized that have the maximum nutrient load per project, demonstrate project readiness, are cost-effective, have a cost-share by the applicant (except for Rural Areas of Opportunity), have previous state commitment and are in areas where reductions are most needed.

Chapter 2024-180, L.O.F., created a program to expeditiously review new and innovative enhanced nutrient-reducing OSTDS to reduce the nutrients entering Florida's waterways.

Section 4. Compliance and Adaptive Management

4.1 Economic Benefits of the IRL System

The IRL is a valuable ecological and economic asset for the state of Florida and the counties that border the lagoon and its tributaries. It is considered one of the most biologically diverse estuaries in North America and was recognized as part of the National Estuary Program (NEP) in 1990. The lagoon directly and indirectly supports a large part of the region's and the state's economy. The basin supports the multimillion-dollar Indian River citrus industry and boat and marine sales industries. Finfish and shellfish harvesting from the lagoon also contribute to local economies.

An economic study prepared by the East Coast Florida Regional Planning Council (ECFRPC) and Treasure Coast Regional Planning Council (TCRPC) (ECFRPC and TCRPC 2016) estimated the total annual value of the lagoon's benefits at $7.6 billion, measured in 2014 dollars. This does not include the estimated $934 million in annualized real estate value added for property located on or near the IRL (Hazen and Sawyer 2008). The study area spanned from Ponce de Leon Inlet in Volusia County to the Jupiter Inlet in Palm Beach County, and included all of Brevard, Indian River, St. Lucie, and Martin counties. The economic analysis was primarily conducted using the Impact Analysis for Planning (IMPLAN) Regional Economic Input/Output Model, which estimates direct, indirect, and induced economic effects, as outlined in **Figure 9.**

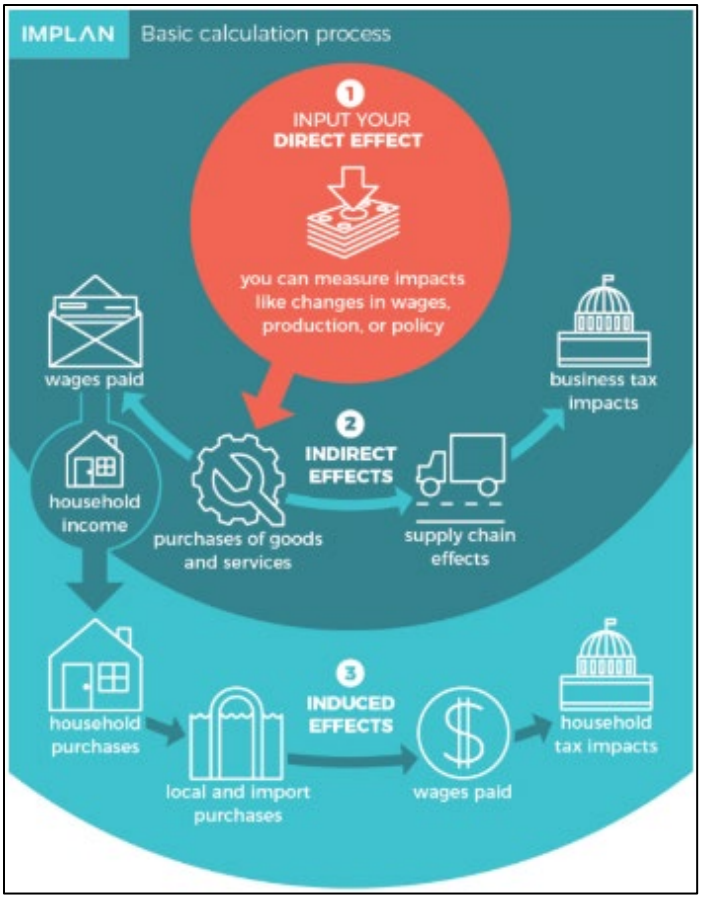

Figure 9. IMPLAN Model calculation process

The primary IRL-related industry groups identified in the study are living resources, marine industries, recreation and visitor-related, resource management, and defense and aerospace. The breakdown of the monetary contribution to the IRL regional economy is shown in **Figure 10**

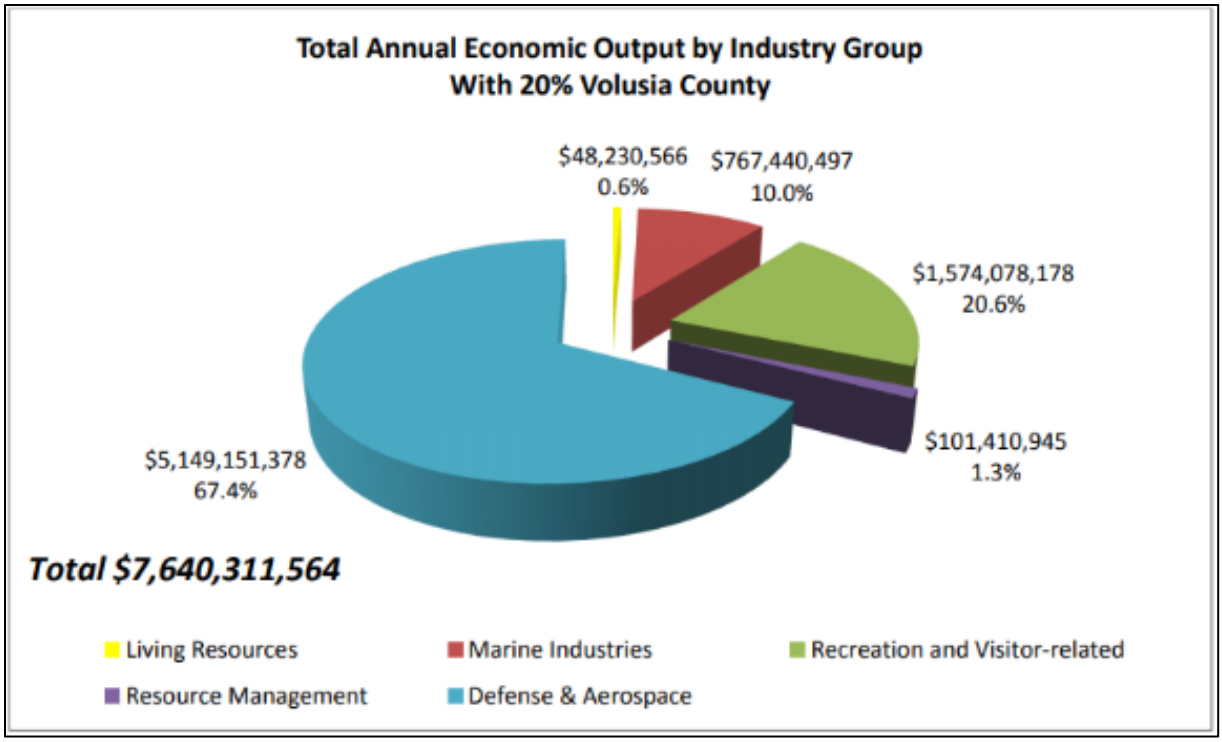

Figure 10. Total annual economic output by industry group in the IRL region, 2014

Money spent on recreation and visitor-related activities generated $1.57 billion of economic benefit. In 2014, over 7.4 million visitors traveled to the IRL region. Between 2.3 and 3.5 million visitors to the IRL region participate in IRL-related recreation, and each visitor spends an average of $162 a day. By 2025, the IRL region is anticipated to receive over 11 million visitors annually.

The study also estimated the cost of a sustainable IRL-based economy and return on investment for achieving water quality and seagrass restoration goals for the IRL. The annualized cost of achieving the nutrient load reductions required by the four BMAPs that span the entire area was estimated at $230 million. When compared with the $7.6 billion valuation of the region's average annual economic output, the return on investment from achieving water quality and seagrass restoration goals is 33 to 1. Therefore, investing in projects and programs to improve the lagoon's water quality and seagrass beds is not only important for environmental considerations but also to improve the regional economy.

4.2 Future Growth Management Strategies

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 required local governments to amend their comprehensive plans with the following 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 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 acceptable level of service.
    - Schedule of capital improvements, which may include privately funded projects.
    - Must include a list of projects necessary to achieve the pollutant load reductions attributable to the local government, as established in a BMAP.
    - The plan must include a general sanitary sewer, solid waste, drainage, potable water, and natural groundwater aquifer recharge element correlated to principals and guidelines for future land use.
    - 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 nutrient-reduction measures before the development is complete. DEP recommends that all 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 review efforts. If an increase in loading occurs an entity may receive additional reduction requirements that will require additional restoration actions by the responsible entity to remediate impact.

4.2.1 Future Growth Analysis

An analysis was done to consider the impacts of future population growth on loading from wastewater sources using per-person estimations calculated for portions of the population estimated to be on OSTDS and those connected to central sewer.

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 the 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 ("developable 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.

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 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, described below. DEP's Domestic Wastewater Program estimates each person in Florida generates 100 gallons of wastewater per day. For OSTDS, DOH estimates each person in Florida generates 10 lbs TN/yr. UF-IFAS estimates each person in Florida generates 10 mg/L TP (Lusk, 2011). A generalized 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 turfgrass 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 lands 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 Harper 2007 Stormwater Evaluation. 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 treating to AWT standards (3mg/L TN or less and 1mg/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 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 treating to AWT standards 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 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 treating to 6 mg/L TN and 3 mg/L TP by 2040. This scenario also assumes that all future OSTDS will be conventional systems with the only nitrogen treatment provided by soil attenuation. For urban development, this scenario represents an extreme growth future where 17% of developable land is converted to low density residential.

Based on the methodology above, and using TN as an example, **Table 21** shows the estimated future nitrogen loads from wastewater and urban 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 nitrogen 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 21. Estimated nitrogen load from future growth in the NIRL

Entity	2040 Additional Population	2040 TN Loading (lbs/yr) Scenario 1	2040 TN Loading (lbs/yr) Scenario 2	2040 TN Loading (lbs/yr) Scenario 3
Brevard County	11,803	6,661	8,022	15,989
Cocoa	745	421	445	887
Edgewater	811	459	1,140	2,274
Indialantic	59	34	37	73
Melbourne	3,427	1,657	1,700	3,384
Oak Hill	55	31	77	154
Palm Shores	122	69	99	197
Rockledge	1,019	575	693	1,380
Titusville	2,308	1,109	1,138	2,266
Volusia County	3,289	1,860	4,620	9,218
Basin Totals	**23,639**	**12,876**	**17,970**	**35,822**

Scenario 1, representing a future in which local communities have pursued infrastructure expansion and the highest treatment levels of wastewater, resulted in an additional basin load of 12,876 lbs-TN/yr. Scenario 3, representing a future in which local communities have maintained the status quo in terms of both rate of service connections, treatment levels and OSTDS maintenance, resulted in an additional basin load of 35,822 lbs-TN/yr. When compared to the results of the overall TN load in the BMAP area (759,084 lbs-TN/yr), it is estimated that growth in the basin could result in a 2% to 5% increase in nitrogen loading to the groundwater by 2040.

This broad analysis is not being used to determine allocated reductions for responsible entities, but does help shed light on how loading in the basin might change in the coming decades without comprehensive local and regional planning. Future development will likely result in an increase in loading from stormwater and wastewater sources. These changes 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. This analysis did not capture all local considerations or complexities of mixed land use.

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 changes in 2040 loading under Scenarios 1 and 2 already have a high rate of sewering in their jurisdiction. The analysis also identifies which entities have the potential for higher nitrogen reduction requirements under the BMAP if population growth trends continue as expected without major changes to wastewater management practices.

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 nutrients associated with urban stormwater and fertilizer use. 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. DEP encourages local governments to incorporate water quality considerations when developing and implementing local ordinances, comprehensive plans, stormwater planning, and septic incentive programs in areas of urban expansion.

4.3 Compliance

4.3.1 TMDL Compliance

The intent of the TMDLs is to recover the deeper water seagrass habitats, with the biological response of the seagrass being the most important factor in evaluating the success of achieving TMDL targets. To assess progress for the IRL Basin towards the median seagrass depth limit target, a two-step process was used in the Project Zones A and B. For the 2013 implementation of the BMAP, DEP conducted this two-step evaluation using seagrass data from 2003, 2005, 2006, 2007, and 2009, which were the latest datasets available at the time of the analysis. Project Zone A was determined to be compliant with both Step 1 and Step 2 in 2013. Therefore, stakeholders in Project Zone A were not required to make additional reductions at the time and were not assigned detailed allocations in the first iteration of the BMAP. Project Zone B was not compliant and stakeholders in this zone were assigned detailed allocations in the first iteration of the BMAP. In the 2021 NIRL BMAP, neither Project Zone A nor Project Zone B were compliant, so responsible entities were assigned detailed allocations in all project zones.

In 2024, the evaluation was conducted using the 2017, 2019, 2021, and 2023 seagrass mapping data, which were the latest datasets available at that time. **Figure 11** and **Figure 12** show the results of both steps of the 2024 evaluation for Project Zones A and B, respectively. None of the project zones with TMDLs were compliant. As indicated in the 2013 BMAP, DEP assigns detailed allocations in project zones where compliance is not maintained.

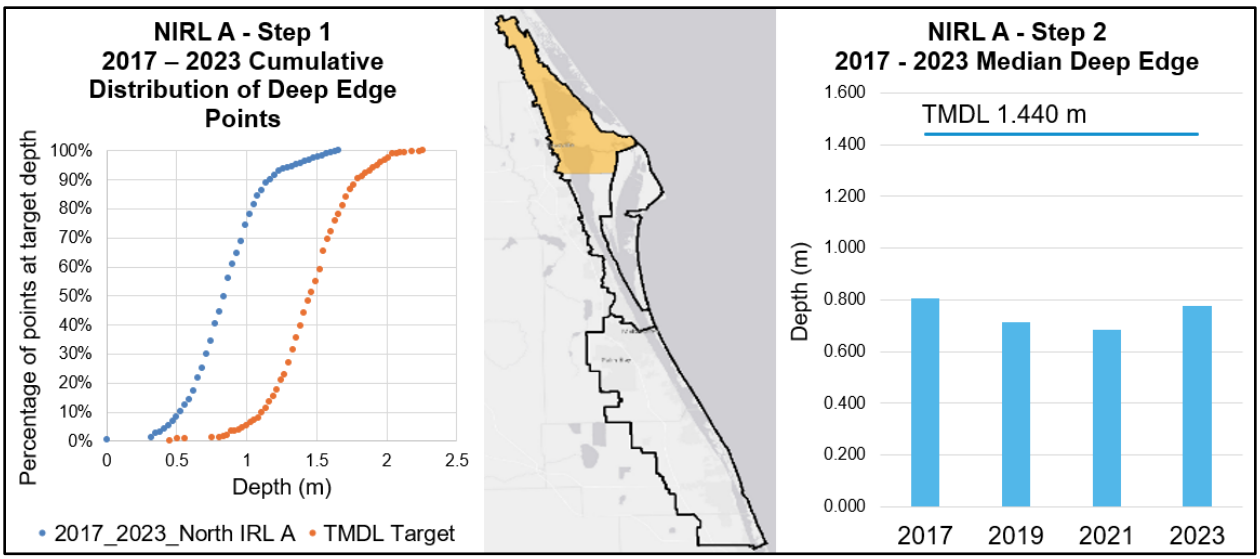

Figure 11. NIRL Project Zone A seagrass evaluation results for compliance step 1 and step 2

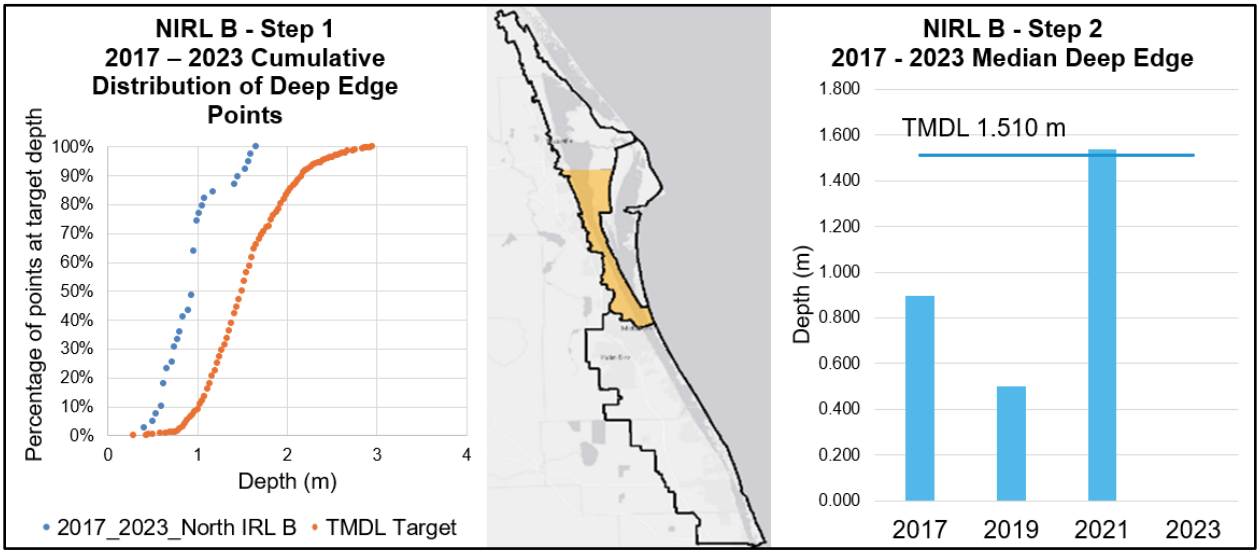

Figure 12. NIRL Project Zone B seagrass evaluation results for compliance step 1 and step 2

Table 22. Seagrass compliance results, step 1

Step 1	NIRL A	NIRL B
2007 – 2013	Fail	Fail
2009 – 2015	Fail	Fail
2011 – 2017	Fail	Fail
2013 – 2019	Fail	Fail
2015 – 2021	Fail	Fail
2017 – 2023	Fail	Fail

Table 23. Summary of seagrass compliance results, step 2

Note: Parentheses indicate number of years passing of those assessed for the compliance period of record.

Step 2	NIRL A	NIRL B
2007 – 2013	Fail (0 of 4)	Fail (0 of 4)
2009 – 2015	Fail (0 of 4)	Fail (0 of 4)
2011 – 2017	Fail (0 of 4)	Fail (0 of 4)
2013 – 2019	Fail (0 of 4)	Fail (0 of 4)
2015 – 2021	Fail (0 of 4)	Fail (0 of 4)
2017 – 2023	Fail (0 of 4)	Fail (1 of 4)

4.3.2 BMAP Compliance

In addition to IRL TMDL compliance and the measurement of seagrass deep edge recovery, there are other compliance elements related to the BMAP. DEP has set BMAP TN and TP reduction milestones for the years 2025 and 2030 to ensure that significant progress will be made in each five-year increment prior to the 2035 total reduction deadline. The percent reductions in the milestones apply to the total BMAP required reductions; so as various entities implement their projects, the overall milestones are also being met. Individual entities must achieve compliance by meeting their own required reductions by the 2035 deadline, as well as show progress towards the BMAP milestones by planning and implementing projects.

Section 5. References

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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:
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
NELAP Certified Laboratory Search: https://floridadep.gov/dear/florida-dep-laboratory/content/nelap-certified-laboratory-search
FDACS BMPs: https://www.fdacs.gov/Agriculture-Industry/Best-Management-Practices-BMPs
FDACS BMP and Field Staff Contacts: https://www.fdacs.gov/Divisions-Offices/Agricultural-Water-Policy
Florida Administrative Code (Florida Rules): https://www.flrules.org/
Florida Stormwater Rule: https://floridadep.gov/water/engineering-hydrology-geology/content/erp-stormwater-resource-center
SJRWMD Water Quality Trends: https://www.sjrwmd.com/data/water-quality/#status-trends
University of Florida Institute of Food and Agricultural Sciences Research: http://research.ifas.ufl.edu/
Trends analysis story map: https://www.sjrwmd.com/data/water-quality/#status-trends
Link to data: https://www.sjrwmd.com/static/waterquality/All_Data_Status_Trends_2023.csv

Appendix B. Project List by Project Zone

Table B-1. Existing and planned projects in Project Zone A

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2769	Brevard County	NA	BC-001	Old Dixie Highway 601	Sediment trap.	BMP Cleanout	Ongoing	NA	TBD	TBD	A	$2,000.00
2797	Brevard County	DEP; Titusville	BC-002	Chain of Lakes Pond	Wet detention Regional Pond.	Wet Detention Pond	Completed	2010	3530	945	A	$2,051,405.00
2796	Brevard County	Cape Canaveral; Cocoa; Cocoa Beach; Grant-Valkaria; Indian Harbour Beach (IHB); Malabar; Melbourne; West Melbourne	BC-003	Education Efforts	FYN; landscape, irrigation, fertilizer, and pet waste ordinances; PSAs; pamphlets; website, Illicit Discharge Program. ILA for Public Education.	Education Efforts	Ongoing	NA	2300	351	A	$0.00
2795	Brevard County	SOIRL	BC-004	Scottsmoor I	Advanced denitrification with iron enhanced sand filter and baffle box treatment train.	Biosorption Activated Media (BAM)	Completed	2023	1603	435	A	$1,892,041.00
2794	Brevard County	DEP; City of Titusville	BC-005	Chain of Lakes Southern Expansion Phase 1	Completion of additional detention.	Wet Detention Pond	Completed	2014	284	317	A	$3,200,000.00
2793	Brevard County	Not provided	BC-006	Chain of Lakes Reuse	Installing reuse from the pond.	Stormwater Reuse	Completed	2005	TBD	TBD	A	$0.00
2792	Brevard County	TBD	BC-007	Scottsmoor C	Advanced denitrification & iron enhanced sand filter. Baseflow passes through a 2nd generation baffle box, then an exfiltration trench to the sand filter. Then it is routed to 2 separate denitrification bioreactors with BAM (mulch and Nutrigone).	BMP Treatment Train	Completed	2023	1009	265	A	$1,256,279.00
3000	Brevard County	Not provided	BC-058	Street Sweeping	Monthly street sweeping.	Street Sweeping	Ongoing	NA	110	71	A	$0.00
3002	Brevard County	NA	BC-059	Baffle Box/Sediment Trap Cleaning	Quarterly baffle box/sediment trap cleaning.	BMP Cleanout	Ongoing	NA	TBD	TBD	A	$250,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3003	Brevard County	DEP	BC-060	Huntington Road	Installation of vegetative floating island into an exiting detention pond.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2016	249	38	A	$45,788.00
3096	Brevard County	DEP	BC-068	Multiple Ditch Outfall Denitrification D1	Providing base flow/groundwater treatment in open drainage basins.	Biosorption Activated Media (BAM)	Canceled	2019	NA	NA	A	$900,000.00
3060	Brevard County	SOIRL	BC-074	Flounder Creek Pond Denitrification Retrofit	Design and installation of a bioreactor at the outfall of an existing stormwater pond.	Biosorption Activated Media (BAM)	Underway	2025	TBD	TBD	A	$444,930.00
3047	Brevard County	Not provided	BC-075	Huntington Ave. Pond Denitrification Retrofit	Design and installation of a bioreactor at the side bank of an existing stormwater pond.	Biosorption Activated Media (BAM)	Underway	2026	TBD	TBD	A	$652,093.00
3052	Brevard County	All Cities	BC-081	Education Efforts	Fertilizer video, rain barrel workshops, Facebook page, bus wrap, and billboard.	Education Efforts	Ongoing	NA	NA	NA	A	$50,000.00
3062	Brevard County	SOIRL	BC-091	Kingsmill Aurora Phase II	Construction of 5 ac pond with weirs, drop structures, etc. Duplicate with BC-46.	Wet Detention Pond	Canceled	NA	NA	NA	A	$0.00
3063	Brevard County	NA	BC-092	Baffle Box/Sediment Trap Cleaning	Increasing cleanout frequency to quarterly.	BMP Cleanout	Ongoing	NA	1	1	A	$0.00
4452	Brevard County	SOIRL	BC-094	Johns Rd Pond BAM - BB#62 (Actually located in 51)	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the pond or the bottom of the swale.	Biosorption Activated Media (BAM)	Completed	2020	348.71	173.3	A	$0.00
4453	Brevard County	SOIRL	BC-095	Burkholm Rd BAM - BB#100	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the ditch.	Biosorption Activated Media (BAM)	Completed	2020	723.69	124.34	A	$161,000.00
4454	Brevard County	SOIRL	BC-096	Carter Rd BAM- BB#115	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the pond or the bottom of the swale.	Biosorption Activated Media (BAM)	Completed	2020	534.36	72.3	A	$176,000.00
4455	Brevard County	SOIRL	BC-097	Wiley Rd BAM - BB#193	Adding a media to remove nitrogen by denitrification. The media will be added to	Biosorption Activated Media (BAM)	Completed	2021	TBD	TBD	A	$179,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					the side slope of the pond or the bottom of the swale.							
5348	Brevard County	SOIRL; MRC	BC-101	Grass Clippings Campaign Phase 1	Not provided.	Enhanced Public Education	Ongoing	NA	NA	NA	A	$6,667.00
5350	Brevard County	SOIRL	BC-102	Education Efforts	Fertilizer, grass clippings, and septic system maintenance.	Enhanced Public Education	Ongoing	NA	NA	NA	A	$187,500.00
5352	Brevard County	SOIRL	BC-103	Mims Muck Removal Interstitial Treatment	The treatment of muck dredging spoil site out-flow water for the removal of nitrogen and phosphorus.	Muck Removal/Restoration Dredging	Completed	2018	TBD	TBD	A	$2,162,286.00
5353	Brevard County	LF; SOIRL	BC-104	Countyline Ditch Road - BB#10	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the pond or the bottom of the swale.	Biosorption Activated Media (BAM)	Completed	2020	196.28	55.99	A	$200,000.00
5354	Brevard County	LF; SOIRL	BC-105	BB#141 Irwin Ave Woodchip Bioreactor	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the pond or the bottom of the swale.	Biosorption Activated Media (BAM)	Completed	2021	TBD	TBD	A	$164,000.00
5355	Brevard County	LF; SOIRL	BC-106	Huntington Road BAM - BB#22	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the pond or the bottom of the swale.	Biosorption Activated Media (BAM)	Completed	2021	104.44	18.71	A	$114,000.00
5356	Brevard County	SOIRL	BC-107	Sunset Ave BAM - BB#26	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the pond or the bottom of the swale.	Biosorption Activated Media (BAM)	Completed	2022	648.45	125.68	A	$130,000.00
5643	Brevard County	SOIRL	BC-110	County Stormwater Pond Vegetation Harvesting	Aquatic vegetation harvesting of stormwater pond.	Aquatic Vegetation Harvesting	Completed	2021	NA	NA	A	$30,000.00
5645	Brevard County	SOIRL	BC-112	Titusville Railroad East Muck Dredging	Muck removal of an estimated 562,000 cubic yards.	Muck Removal/Restoration Dredging	Planned	2030	TBD	TBD	A	$52,828,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5646	Brevard County	SOIRL	BC-113	Titusville Railroad West Muck Dredging	Muck removal of an estimated 339,000 cubic yards.	Muck Removal/Restoration Dredging	Planned	2030	TBD	TBD	A	$31,866,000.00
5649	Brevard County	SOIRL	BC-116	National Aeronautics and Space Administration Causeway East Muck Dredging & Interstitial Treatment	Muck removal and interstitial treatment of an estimated 415,000 cubic yards.	Muck Removal/Restoration Dredging	Planned	2033	TBD	TBD	A	$39,010,000.00
6270	Brevard County	SOIRL	BC-117	North IRL Zone A Quick Connects 2021	Septic systems connected via quick connect to sanitary sewer for Briarwood Mobile Home Park - 19 systems. Credits of 183 lbs-TN/yr are accounted for in Credit Sharing project as project is 100% funded by SOIRL.	OSTDS Phase Out	Completed	2021	0	NA	A	$381,895.00
7087	Brevard County	DEP; SOIRL	BC-117a	North IRL A Quick Connects 2023	Connected 1 property in NIRL A from septic to sanitary sewer.	OSTDS Phase Out	Completed	2023	0	NA	A	$12,000.00
6295	Brevard County	SOIRL	BC-119	North IRL Zone A Septic Upgrades 2021	Conventional septic system upgrades to advanced nitrogen reducing treatment. 6 of the 10 were in-ground nitrogen reducing bacteria using Bold & Gold. Credits of 96 lbs-TN/yr are accounted for in Credit Sharing project as project is 100% funded by SOIRL.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2021	0	NA	A	$183,700.00
7100	Brevard County	Florida Legislature; SOIRL	BC-119a	NIRL A Septic Upgrades 2023	Completed 3 septic upgrades; Conventional septic system upgrades to advanced nitrogen reducing treatment, NSF-45 meeting at least 65% TN reduction.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2023	43.1	NA	A	$49,670.00
6180	Brevard County	SOIRL	BC-121	Johns Road Pond Denitrification Retrofit Basin 62	Pond denitrification retrofit.	BMP Treatment Train	Completed	2023	315.11	88.96	A	$315,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
6858	Brevard County	Brevard County	BC-133	Chain of Lakes Vegetation Harvesting 2022	Harvested 298,920 pounds of aquatic vegetation.	Aquatic Vegetation Harvesting	Completed	2022	NA	NA	A	$0.00
6914	Brevard County	Brevard County; City of Titusville	BC-142	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	1864.8	272.8	A	$0.00
7146	Brevard County	SOIRL	BC-145	Chain of Lakes Pond C Aquatic Vegetation Harvesting 2023	Harvested 793,558 pounds of aquatic vegetation (water hyacinth) from Chain of Lakes Pond C.	Aquatic Vegetation Harvesting	Completed	2023	TBD	TBD	A	$0.00
7145	Brevard County	SOIRL	BC-146	Chain of Lakes B Aquatic Vegetation Harvesting 2023	Harvested 2,498,230 pounds of aquatic vegetation from Chain of Lakes pond B.	Aquatic Vegetation Harvesting	Completed	2023	TBD	TBD	A	$0.00
3170	City of Edgewater	Not provided	EW-1	Education Efforts	FYN; landscape, irrigation, fertilizer, and pet waste ordinances; PSAs; pamphlets; website, Illicit Discharge Program. Classroom presentations, HOA/Civic Group presentations, Employee educational presentations.	Education Efforts	Ongoing	NA	162	22	A	$0.00
3054	City of Titusville	SOIRL	BC-83	St. Theresa Basin TMDL Improvements	SOIRL-19. 2nd generation baffle box with media. Same project as TV-19.	Baffle Boxes- Second Generation	Completed	2019	NA	NA	A	$375,250.00
3055	City of Titusville	SOIRL	BC-84	South Street Basin TMDL Improvements	SOIRL-20. Three 2nd generation baffle boxes with media. Same project as TV-18.	Baffle Boxes- Second Generation	Completed	2019	NA	NA	A	$475,125.00
3056	City of Titusville	SOIRL	BC-85	La Paloma Basin TMDL Improvements	SOIRL-21. 2nd generation baffle box with media. Same project as TV-20.	Baffle Boxes- Second Generation	Completed	2019	NA	NA	A	$375,250.00
3046	City of Titusville	SOIRL	BC-89	Osprey Water Reclamation Nutrient Removal Upgrade	SOIRL-02. Wastewater Treatment Facility Upgrade-NIRL-Titusville TV-33.	WWTF Nutrient Reduction	Underway	2023	NA	NA	A	$13,500,000.00
5370	City of Titusville	SOIRL	BC-99	Coleman Basin TMDL Improvements - Coleman Pond MAPS	Installation of floating islands within a 1 acre City owned pond located within	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2019	NA	NA	A	$35,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					the Chain of Lakes basin. Same project as TV-17.							
3124	City of Titusville	Brevard County	TV-01	Area 1 Stormwater Improvements	Upsize existing storm pipes and enclose the Florida Ditch; water directed to TV-02.	Wet Detention Pond	Completed	2010	1334	365	A	$2,151,510.00
3114	City of Titusville	Brevard County; Parrish Medical Center (PMC); Brevard Community College (BCC); SJRWMD	TV-02	Chain of Lakes Regional Stormwater Pond	Construction of a regional park featuring wetlands, treatment ponds, and recreational features.	Wet Detention Pond	Completed	2010	759	191	A	$3,521,489.00
3113	City of Titusville	DEP; SJRWMD	TV-03	Draa Field Stormwater Park	Water quality treatment for Area 2 drainage basin.	Wet Detention Pond	Completed	2016	394	103	A	$1,810,000.00
3112	City of Titusville	DEP; SJRWMD	TV-04	St. Johns Basin Stormwater Improvements	Construction of a 3. 5-acre wet detention pond to treat runoff from mixed use lands prior to discharge to the lagoon.	Wet Detention Pond	Completed	2014	82	10	A	$2,024,000.00
3111	City of Titusville	DEP; SJRWMD	TV-05	St. Johns Basin Stormwater Improvements	Installation of a baffle box downstream of the pond to treat runoff from mixed use lands prior to discharge to the lagoon.	Baffle Boxes- Second Generation	Completed	2011	1553	176	A	$167,343.00
3110	City of Titusville	DEP; SJRWMD; FCT; Florida Recreation Development Assistance Program (FRDAP); FDOT	TV-06	Spaceview Park	Alum treatment.	Stormwater - Alum Injection System	Completed	2007	571	143	A	$2,727,394.00
3109	City of Titusville	NA	TV-07	Education Efforts	Irrigation, fertilizer, pet waste management, and landscaping ordinances; pamphlets, presentations, website, Illicit Discharge Program.	Education Efforts	Ongoing	NA	3093	496	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3132	City of Titusville	NA	TV-08	Street Sweeping	Approximately 2,006,375 lbs. of debris were removed in North A during the reporting period.	Street Sweeping	Ongoing	NA	1130	724	A	$188,120.00
3140	City of Titusville	NA	TV-11	Senior Center Pond Floating Islands	Floating islands within a wet detention pond.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2015	447	58	A	$52,536.00
3139	City of Titusville	DEP	TV-12	Senior Center Ponds Littoral Zone Plantings	Littoral vegetation plantings around an already existing wet detention pond.	BMP Treatment Train	Completed	2016	NA	NA	A	$50,000.00
3138	City of Titusville	DEP	TV-13	Royal Oak Littoral Zone Plantings	Littoral vegetation plantings around an already existing wet detention pond.	BMP Treatment Train	Completed	2016	NA	NA	A	$50,000.00
3137	City of Titusville	DEP	TV-14	Main Street Baffle Box with BAM	2nd generation baffle box with media.	Baffle Boxes- Second Generation with Media	Completed	2018	2137	338	A	$393,363.00
3136	City of Titusville	DEP	TV-15	Sycamore Street Baffle Box with BAM	2nd generation baffle box with media.	Baffle Boxes- Second Generation with Media	Completed	2018	2052	329	A	$570,517.72
3135	City of Titusville	DEP	TV-16	Knox Mc Rae Baffle Box	2nd generation baffle box with media.	Baffle Boxes- Second Generation with Media	Completed	2018	308	52	A	$225,000.00
3125	City of Titusville	SOIRL; Brevard County	TV-17	Coleman Basin TMDL Improvements	Managed aquatic plant system within a one acre pond. Credits of 637 lbs-TN/yr and 94 lbs-TP/yr are accounted for in Credit Sharing project as project is 100% funded by SOIRL.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2019	0	0	A	$11,437.50
3133	City of Titusville	SOIRL; Brevard County; SJRWMD	TV-18	South Street Basin TMDL Improvements	Three 2nd generation baffle boxes with media. SOIRL project.	Baffle Boxes- Second Generation with Media	Completed	2019	1294.1	205	A	$635,125.00
3142	City of Titusville	Brevard County	TV-19	St. Theresa Basin TMDL Improvements	2nd generation baffle box with media.	Baffle Boxes- Second Generation with Media	Completed	2019	2008.7	323.6	A	$375,000.00
3131	City of Titusville	SOIRL; Brevard County	TV-20	La Paloma Basin TMDL Improvements	2nd generation baffle box with media. SOIRL project.	Baffle Boxes- Second Generation with Media	Completed	2019	1941.9	309.1	A	$428,280.00
3130	City of Titusville	SJRWMD; SOIRL	TV-21	THS Basin TMDL Improvements	2nd generation baffle box with media.	Baffle Boxes- Second Generation with Media	Completed	2021	1497	236	A	$332,000.00
3129	City of Titusville	TBD	TV-22	Brevard Street Basin TMDL Improvements	Catch basins with BAM Media.	LID- Tree Boxes/Tree Wells	Underway	2025	120	21	A	$224,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3128	City of Titusville	Brevard County SOIRL	TV-23	St. Johns 2nd Baffle Box TMDL Improvements (West St)	2nd generation baffle box with media.	Baffle Boxes- Second Generation with Media	Completed	2023	1673	241	A	$362,450.00
3127	City of Titusville	Brevard County; SOIRL	TV-24	Marina Basin TMDL Improvements - Osprey Pond MAPS	Osprey Pond MAPS. Credits of 260 lbs-TN/yr and 38 lbs-TP/yr are accounted for in Credit Sharing project as project is 100% funded by SOIRL.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2020	0	0	A	$60,000.00
3100	City of Titusville	TBD	TV-25	Grace Basin TMDL Improvements	Catch basins with BAM media.	LID- Tree Boxes/Tree Wells	Underway	2025	112	21	A	$224,000.00
3141	City of Titusville	Private Development	TV-26	Miracle City Basin TMDL Improvements	2nd generation baffle box.	Baffle Boxes- Second Generation	Completed	2018	11	1	A	$0.00
3115	City of Titusville	TBD	TV-27	South Marina Basin TMDL Improvements (Hollow Glen Baffle Box)	Installation of a second generation baffle box fitted with nutrient reducing media.	Baffle Boxes- Second Generation with Media	Planned	2025	TBD	TBD	A	$568,106.00
3089	City of Titusville	TBD	TV-28	S.R. 50 Basin TMDL Improvements	Future project.	BMP Treatment Train	Planned	TBD	TBD	TBD	A	$0.00
3088	City of Titusville	Brevard County SOIRL	TV-29	Commons & City Hall Basin Tree Boxes	Installation of bioretention tree boxes within the stormwater system for the Commons and City Halls basins.	LID- Tree Boxes/Tree Wells	Underway	2025	80	15	A	$492,800.00
3087	City of Titusville	Brevard County SOIRL	TV-30	Sand Point Park Baffle Box	Baffle Box with media & observation lid.	Baffle Boxes- Second Generation with Media	Completed	2024	314	46.1	A	$281,200.00
3086	City of Titusville	TBD	TV-31	Riverview Street Basin TMDL Improvements	Future project.	BMP Treatment Train	Planned	TBD	TBD	TBD	A	$0.00
3085	City of Titusville	TBD	TV-32	Hamilton Ave Baffle Box	A second generation baffle box with nutrient reducing media.	Baffle Boxes- Second Generation with Media	Underway	2025	1550	209	A	$360,000.00
3084	City of Titusville	Brevard County; SOIRL	TV-33	Osprey Water Reclamation Nutrient Removal Upgrade	Nitrogen effluent reduction of reclaimed water.	WWTF Nutrient Reduction	Completed	2023	15210	342	A	$13,500,000.00
5371	City of Titusville	SOIRL; Brevard County	TV-34	Draa Field Pond MAPS	Managed aquatic plant system within a 3 acre pond and direct conveyance. SOIRL project.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2021	36.6	5.5	A	$48,750.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5372	City of Titusville	Brevard County; SOIRL	TV-35	Draa Field Vegetation Harvesting	One-time aquatic vegetation harvesting of a 3 acre pond.	Aquatic Vegetation Harvesting	Completed	2021	410.68	51.8	A	$115,261.40
5655	City of Titusville	Brevard County	TV-36	Marina B Pond MAPS	Managed aquatic plant system within a 1 acre pond. SOIRL project.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2021	12.9	1.7	A	$17,242.00
6182	City of Titusville	TBD	TV-37	Blanton Park Baffle Box	Second generation baffle box with media.	Baffle Boxes- Second Generation with Media	Completed	2023	1472.4	236.2	A	$362,450.00
6916	City of Titusville	Brevard County; City of Titusville	TV-39	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	7554.5	1106	A	$0.00
7224	City of Titusville	NA	TV-41	Tenneesse St Baffle Box	Installation of a second generation baffle box with nutrient reducing media near Tennessee St.	Baffle Boxes- Second Generation with Media	Planned	2027	1779.34	238.33	A	$0.00
7190	City of Titusville	NA	TV-42	Septic to Sewer Area 18	Septic to sewer conversion of 5 septic tanks on Riveredge Dr.	OSTDS Phase Out	Planned	2027	48.13	NA	A	$1,060,000.00
7191	City of Titusville	NA	TV-43	Septic to Sewer Area 15	Conversion of 7 septic tanks to sewer along S. Washington Ave.	OSTDS Phase Out	Planned	2027	67.38	NA	A	$3,180,000.00
7192	City of Titusville	NA	TV-44	Septic to Sewer Area 11	Phase out of 246 septic tanks in the area of Park & Barna.	OSTDS Phase Out	Planned	2029	2368	NA	A	$4,370,000.00
3032	FDACS	NA	FDACS-01	Credit for Changes in Land Use	Credit for changes in land use. Project canceled in 2020. Land use change occurred prior to land use date in the new model.	Land Use Change	Canceled	NA	NA	NA	A	$0.00
4837	FDACS	Agricultural Producers	FDACS-03	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Acres treated based on FDACS June 2024 Enrollment and FSAID XI. Reductions based on FDACS June 2024 Enrollment and SWIL - LET.	Agricultural BMPs	Ongoing	NA	353	39	A	$0.00
5609	FDACS	Agricultural Producers	FDACS-05	Cost-Share BMP Projects	Cost-share projects paid for by FDACS.	Agricultural BMPs	Ongoing	NA	0	0	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3074	FDOT District 5	NA	FDOT-01	Education Efforts	IDDE training, brochures, and NDPES flyer.	Education Efforts	Ongoing	NA	60	8	A	$0.00
3082	FDOT District 5	NA	FDOT-02	Street Sweeping	Street sweeping.	Street Sweeping	Ongoing	NA	571	311	A	$0.00
3090	FDOT District 5	NA	FDOT-03	Fertilizer Cessation	Elimination of fertilizer use along the rights-of-way.	Fertilizer Cessation	Completed	2005	595	0	A	$0.00
5612	FDOT District 5	NA	FDOT-23	FM 406869-4 79000-4068694-02 Pond 12B	Six lane Brevard C/L to SR44	Wet Detention Pond	Completed	2016	0	0	A	$0.00
5613	FDOT District 5	NA	FDOT-24	FM 406869-4 79000-4068694-04 Swales	Six lane Brevard C/L to SR44	Grass swales without swale blocks or raised culverts	Completed	2016	136	17	A	$0.00
5614	FDOT District 5	NA	FDOT-25	FM240812 79210-3505-01 WRA B	Add lanes/reconstruct from I-95 to Air Park Rd.	Wet Detention Pond	Completed	2006	9	2	A	$0.00
5615	FDOT District 5	NA	FDOT-26	FM240812 79210-3505-02 Pond C	Add lanes/reconstruct from I-95 to Air Park Rd.	Dry Detention Pond	Completed	2006	8	1	A	$0.00
5616	FDOT District 5	NA	FDOT-27	FM240812 79210-3505-03 Pond D	Add lanes/reconstruct from I-95 to Air Park Rd.	Dry Detention Pond	Completed	2006	10	1	A	$0.00
5617	FDOT District 5	NA	FDOT-28	FM240811 79210-3504-01 Pond 1	Add lanes/reconstruct from Air Park Rd to US 1.	Wet Detention Pond	Completed	2006	5	2	A	$0.00
6800	FDOT District 5	NA	FDOT5-30	FM: 440424-1	NASA Causeway pond 3 (bridge replacement).	Wet Detention Pond	Underway	2025	NA	NA	A	$0.00
3208	Kennedy Space Center	NA	KSC-01	Landscape Fertilizer Reduction	Fertilizer use reduced from 60 tons/year in 2000 to 20 tons/year in 2010; formula changed from rapid nitrogen release 16-4-8 to slow nitrogen release, phosphate-free 15-0-15.	Fertilizer Reduction	Completed	2009	312	44	A	$0.00
3207	Kennedy Space Center	NA	KSC-02	Citrus Grove Termination Roberts Road	Grove lease termination resulted in abandonment of previously fertilized areas.	Land Use Change	Completed	2010	TBD	TBD	A	$0.00
3206	Kennedy Space Center	NA	KSC-03	Citrus Grove Termination Schwartz Road	Grove lease termination resulted in abandonment of previously fertilized areas. Accounted for in 2020 BMAP update.	Land Use Change	Canceled	2010	NA	NA	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3205	Kennedy Space Center	NA	KSC-04	Storage Building L5-0734	Demolition of facility resulted in loss of impervious area and change of land use.	Land Use Change	Completed	2010	TBD	TBD	A	$0.00
3195	Kennedy Space Center	NA	KSC-05	Support Building L5-0683	Demolition of facility resulted in loss of impervious area and change of land use.	Land Use Change	Completed	2010	TBD	TBD	A	$0.00
3203	Kennedy Space Center	NA	KSC-06	Shuttle Landing Facility - missing from model	Runoff is captured and treated before discharging to the lagoon.	Wet Detention Pond	Completed	Prior to 2013	1598	341	A	$0.00
3201	Kennedy Space Center	NA	KSC-07	Launch Pad 39A	This area is a closed basin.	Non-contributing Basin	Completed	2014	1296	165	A	$0.00
3200	Kennedy Space Center	NA	KSC-08	Launch Pad 39B	This area is a closed basin.	Non-contributing Basin	Completed	2014	2587	287	A	$0.00
3199	Kennedy Space Center	NA	KSC-09	Schwartz Road Drainage System - missing from model	Closed system that ultimately drains to the northwest before discharging to an impoundment area adjacent to the lagoon.	Impoundment	Completed	2014	1714	229	A	$0.00
3198	Kennedy Space Center	NA	KSC-10	Warehouse/Processing Area - missing from model	Receives treatment from permitted stormwater treatment systems.	Wet Detention Pond	Completed	2014	36	8	A	$0.00
5618	Kennedy Space Center	NA	KSC-17a	NASA Parkway West	Missing from Model. Ditch along south side of NASA Parkway West, ends before the lagoon.	Grass swales without swale blocks or raised culverts	Completed	2014	49	10	A	$0.00
2784	Kennedy Space Center	NA	KSC-18	Demolition of Facility J6-2377	Demolition of facility resulted in loss of impervious area and change of land use.	Land Use Change	Completed	2014	TBD	TBD	A	$0.00
5656	Kennedy Space Center	NA	KSC-20	Landscape Fertilizer Reduction	Total Fertilizer use at KSC reduced form 20 tons 2010 to 4 tons 2020. Of that reduction, 12.5% applies to N-IRL zone A.	Fertilizer Reduction	Underway	2020	TBD	TBD	A	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3066	Volusia County	Not provided	VC-01	Education Efforts	Irrigation, fertilizer, pet waste management, and landscaping ordinances; pamphlets, presentations, website, illicit discharge program.	Education Efforts	Ongoing	NA	1382	199	A	$0.00
3065	Volusia County	Not provided	VC-02	Roadside Ditch Cleaning	Roadside ditch cleaning.	BMP Cleanout	Canceled	NA	NA	NA	A	$0.00
3064	Volusia County	Not provided	VC-03	Open Channel Cleaning	Open channel cleaning; digging sediment out of open channels.	BMP Cleanout	Canceled	NA	NA	NA	A	$0.00
5373	Volusia County	NA	VC-04	Fertilizer Ordinance	Fertilizer restrictions including summer ban on nitrogen and phosphorus. Reductions included in VC-01.	Regulations, Ordinances, and Guidelines	Ongoing	NA	NA	NA	A	$0.00
5658	Volusia County	DEP	VC-05	Ariel Canal Stormwater Treatment Facility	Enhance the existing treatment system to increase efficiency.	Biosorption Activated Media (BAM)	Underway	TBD	1300	210	A	$0.00
5659	Volusia County	Not provided	VC-06	Lighthouse Cove Stormwater Treatment Facility	Provide retrofit wet detention treatment.	Biosorption Activated Media (BAM)	Planned	TBD	760	180	A	$0.00
7135	Volusia County	DEP; Volusia County	VC-08	Conversion to Advanced Wastewater Treatment & Expansion for the Protection of North Indian River Lagoon	To decrease nutrient loading within North IRL, this project is currently in design to: 1) convert treatment process to advanced wastewater treatment to increase nutrient removal, and 2) expand treatment capacity from 0.6 to 1.2 MGD.	WWTF Upgrade	Underway	2026	TBD	TBD	A	$26,850,000.00

Table B-2. Existing and planned projects in Project Zone B

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2791	Brevard County	NA	BC-008	Twin Lakes North	Construction of a baffle box.	Baffle Boxes- First Generation	Completed	2014	0	0	B	$0.00
2790	Brevard County	NA	BC-009	Twin Lakes South	Construction of a baffle box.	Baffle Boxes- First Generation	Completed	2014	0	0	B	$20,082.00
3058	Brevard County	DEP	BC-010	Lucas Place 640 Baffle Box	Construction of a baffle box. Baffle box was replaced by a second generation baffle box and is credited in BC-33.	Baffle Boxes- First Generation	Canceled	2003	NA	NA	B	$36,835.00
3041	Brevard County	DEP	BC-011	Rockledge Drive 2055	Construction of a baffle box.	Baffle Boxes- First Generation	Completed	2008	0	0	B	$61,094.00
3042	Brevard County	Not provided	BC-012	Rockledge and Riverwoods Baffle Box	Construction of a baffle box. Baffle box was replaced by a second generation baffle box and is credited in BC-38.	Baffle Boxes- First Generation	Canceled	2000	NA	NA	B	$47,686.00
3043	Brevard County	DEP	BC-013	Anchor Lane	Construction of a baffle box.	Baffle Boxes- First Generation	Completed	2000	1	1	B	$49,560.00
3044	Brevard County	Not provided	BC-014	Kelmore Baffle Box	Construction of a baffle box.	Baffle Boxes- First Generation	Completed	2003	5	4	B	$21,817.00
3040	Brevard County	DEP	BC-015	Puesta Del Sol 735 Baffle Box	Construction of a baffle box.	Baffle Boxes- First Generation	Completed	2003	0	0	B	$24,953.00
3039	Brevard County	SJRWMD	BC-016	Tequesta Harbor Baffle Box	Construction of a baffle box.	Baffle Boxes- First Generation	Completed	2009	1	0	B	$27,582.00
3038	Brevard County	NRCS	BC-017	Broadway Boulevard Pond	Construction of a detention pond to treat runoff.	Wet Detention Pond	Completed	2000	304	95	B	$553,169.00
3037	Brevard County	Not provided	BC-018	Fairglen Elementary School Pond	Construction of a detention pond to treat runoff.	Wet Detention Pond	Completed	2003	215	57	B	$730,869.00
3036	Brevard County	DEP	BC-019	Lake George	Construction of a detention pond to treat runoff.	Wet Detention Pond	Completed	2010	1409	442	B	$347,255.00
3035	Brevard County	Not provided	BC-020	Merritt Island Courthouse Pond	Construction of a detention pond to treat runoff.	Wet Detention Pond	Completed	2003	5	1	B	$95,584.00
3034	Brevard County	Not provided	BC-021	Parkway Drive Phase 2 Pond	Construction of a detention pond to treat runoff.	Wet Detention Pond	Completed	2004	7148	1921	B	$1,817,720.00
3033	Brevard County	Not provided	BC-022	Street Sweeping	Monthly Street Sweeping 786 curb lane miles.	Street Sweeping	Ongoing	NA	636	408	B	$106,665.04
3018	Brevard County	Cape Canaveral; Cocoa; Cocoa	BC-023	Education Efforts	FYN; landscape, irrigation, fertilizer, and pet waste	Education Efforts	Ongoing	NA	8392	1245	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
		Beach; IHB; Malabar; Melbourne; West Melbourne			ordinances; PSAs; pamphlets; website, Illicit Discharge Program. ILA for Public Education.							
3031	Brevard County	DEP	BC-024	Pine Island Phase I and II	Two Wet Detention Ponds (80-acres & 23 acres) with Gravity Flow and Pump Station.	Wet Detention Pond	Completed	2015	13154	3504	B	$4,131,255.00
3045	Brevard County	NA	BC-025	Merritt Island Airport	NA	Wet Detention Pond	Canceled	NA	2	0	B	$0.00
3029	Brevard County	DEP	BC-026	Pines Industrial	Construction of a pond to treat runoff where no treatment was provided.	Wet Detention Pond	Completed	2020	TBD	TBD	B	$822,000.00
3028	Brevard County	DEP	BC-027	Johnson Junior High	Discharge regulation, phosphorus reduction, and denitrification. Biosorption activated media added.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2017	1417	200	B	$499,416.43
3027	Brevard County	DEP	BC-028	Florida Boulevard	Installation of floating vegetative islands for Nutrient uptake.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2014	57	5	B	$40,772.00
3026	Brevard County	DEP	BC-029	Fairglen Elementary	Installation of floating vegetative islands for Nutrient uptake.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2017	38	3	B	$34,996.00
3025	Brevard County	DEP	BC-030	Port St. John B	Installation of floating vegetative islands for Nutrient uptake.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	Prior to 2013	57	8	B	$16,308.00
3024	Brevard County	DEP	BC-031	Wickham Park North	Installation of floating vegetative islands for Nutrient uptake.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2017	1255	180	B	$75,428.00
3023	Brevard County	DEP	BC-032	West Avenue 6600	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2017	98	12	B	$15,000.00
3022	Brevard County	DEP	BC-033	Lucas Place	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	9	1	B	$12,507.00
3021	Brevard County	DEP	BC-034	Indian River Isles	Upgrading a 1st Generation to a 2nd generation baffle box	Baffle Boxes- Second Generation	Completed	Prior to 2013	68	7	B	$30,844.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					by adding the nutrient separating screen.							
3020	Brevard County	DEP	BC-035	Granada Street 1030 East	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	146	17	B	$15,000.00
3071	Brevard County	DEP	BC-036	Haverhill Avenue	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	89	11	B	$35,857.00
3070	Brevard County	DEP	BC-037	Manth Avenue	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	126	15	B	$12,507.00
3069	Brevard County	Not provided	BC-038	Rockledge and Riverwoods Boulevard Rockledge	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	6	1	B	$15,000.00
2990	Brevard County	DEP	BC-039	Alamanda Indian Harbour Beach	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	5	1	B	$12,507.00
2997	Brevard County	DEP	BC-040	River Shore 1848 Indialantic	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	5	1	B	$31,751.00
2988	Brevard County	DEP	BC-041	River Shore 1925 Indialantic	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	35	4	B	$12,507.00
2987	Brevard County	DEP	BC-042	Cedar Lane Indialantic	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	7	1	B	$12,507.00
2983	Brevard County	DEP	BC-043	Riverview 9856 Indialantic	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	TBD	TBD	B	$15,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2985	Brevard County	DEP	BC-044	Riverview 9864 Indialantic	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	TBD	TBD	B	$15,000.00
2984	Brevard County	DEP	BC-045	Oak Ridge Indialantic	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	Prior to 2013	219	26	B	$15,000.00
2981	Brevard County	SOIRL	BC-046	Kingsmill-Aurora Phase 2	Expansion of a Wet Detention Pond and adding Denitrification to pond slope.	Wet Detention Pond	Underway	2025	3354	916	B	$1,600,000.00
2982	Brevard County	NA	BC-047	Sediment Trap, Grated Inlet Basket, Inlet Weir Cleaning	Annual maintenance, removing captured debris from structures.	BMP Cleanout	Ongoing	NA	TBD	TBD	B	$392,105.00
2986	Brevard County	DEP	BC-048	Merritt Ridge 3A	Alum pond.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	Prior to 2013	4	1	B	$100,362.00
2989	Brevard County	DEP	BC-049	Lake George	Installation of floating vegetative islands. Wet pond credited in BC-19.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2017	282	27	B	$51,200.00
3008	Brevard County	Not provided	BC-050	Wickham Park	The provided treatment volume is .17 ac-It.	Stormwater Reuse	Completed	2010	TBD	TBD	B	$0.00
3016	Brevard County	Not provided	BC-051	Ellington Park	Construction of a wet detention pond.	Stormwater Reuse	Completed	2005	532	76	B	$0.00
3015	Brevard County	Not provided	BC-052	Rockledge Barton Park Reuse	Barton Park Pond was constructed by Rockledge. Brevard Parks withdraws water for irrigation for Rockledge Park.	Stormwater Reuse	Completed	2009	275	39	B	$0.00
3014	Brevard County	Not provided	BC-053	Florida Boulevard Pond	Construction of a wet detention pond.	Wet Detention Pond	Completed	2002	176	30	B	$350,384.00
3006	Brevard County	DEP	BC-054	McIver South	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2013	5	1	B	$12,507.00
3013	Brevard County	DEP	BC-055	651 Franklyn	Upgrading a 1st Generation to a 2nd generation baffle box	Baffle Boxes- Second Generation	Completed	2013	25	3	B	$12,507.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					by adding the nutrient separating screen.							
2991	Brevard County	Not provided	BC-056	Fountainhead	Removing vegetation from a wet detention pond.	Aquatic Vegetation Harvesting	Completed	2014	401	65	B	$39,274.00
3012	Brevard County	DEP	BC-057	Fiske	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2014	138	16	B	$12,507.00
3004	Brevard County	DEP	BC-061	Port St. John C	Installation of vegetative floating island into an exiting detention pond.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2016	19	3	B	$14,062.00
3017	Brevard County	DEP	BC-062	Shoreview Circle	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2015	6	1	B	$11,270.00
3007	Brevard County	DEP	BC-063	Granada West	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2015	15	2	B	$11,220.00
2998	Brevard County	DEP	BC-064	Shoreview Lane	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2015	12	1	B	$24,543.44
3009	Brevard County	DEP	BC-065	Sunset Park North	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen.	Baffle Boxes- Second Generation	Completed	2015	42	5	B	$11,170.00
3010	Brevard County	DEP	BC-066	Oak Street	Upgrading a 1st Generation to a 2nd generation baffle box by adding the nutrient separating screen. Project accounted for in CIRL-BC-02 and is outside the NIRL boundary.	Baffle Boxes- Second Generation	Canceled	2015	NA	NA	B	$10,895.00
2992	Brevard County	DEP	BC-068a	Multiple Ditch Outfall Denitrification D1	Providing base flow/groundwater treatment in open drainage basins.	Biosorption Activated Media (BAM)	Canceled	2019	NA	NA	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
2993	Brevard County	DEP	BC-069	Multiple Ditch Outfall Denitrification D4 (replace by individual Basin #s/names)	Providing base flow/groundwater treatment in open drainage basins.	Biosorption Activated Media (BAM)	Canceled	NA	NA	NA	B	$0.00
2994	Brevard County	Not provided	BC-070	Otter Creek Basin D4	Providing base flow/groundwater treatment in open drainage basins.	Biosorption Activated Media (BAM)	Canceled	NA	NA	NA	B	$0.00
2995	Brevard County	SJRWMD	BC-071	Suntree In-Channel Denitrification D4	Providing base flow/groundwater treatment in open drainage basins. Type of media is charcoal and gravel. Measured removal averaged 2.11% for TN.	Biosorption Activated Media (BAM)	Completed	2019	TBD	NA	B	$71,000.00
2996	Brevard County	DEP	BC-072	Multiple Ditch Outfall Denitrification D5	Providing base flow/groundwater treatment in open drainage basins. Replaced with individual basin projects..	Biosorption Activated Media (BAM)	Canceled	NA	NA	NA	B	$0.00
3005	Brevard County	SJRWMD	BC-073	Eau Gallie Area Muck Dredging	Removed an estimated 600,000 cubic yards of muck.	Muck Removal/Restoration Dredging	Canceled	NA	NA	NA	B	$0.00
3048	Brevard County	Not provided	BC-077	Merritt Ridge 2B D2	Not provided.	Grass swales without swale blocks or raised culverts	Completed	2016	3	0	B	$45,000.00
3049	Brevard County	Not provided	BC-078	Merritt Ridge 2E D2	Wet detention pond construction.	Wet Detention Pond	Planned	TBD	290	73	B	$720,000.00
3051	Brevard County	NA	BC-080	Wickham Park Solar Bee	Installing a mixer to reduce the amount of algae and cyanobacteria on an existing pond.	BMP Treatment Train	Completed	2018	NA	NA	B	$36,561.00
3019	Brevard County	All Cities	BC-081a	Education Efforts	Fertilizer video, rain barrel workshops, Facebook page, bus wrap, and billboard.	Education Efforts	Ongoing	NA	NA	NA	B	$0.00
3059	Brevard County	MIRA; SOIRL	BC-088	MIRA Phase 1 Septic Removal	SOIRL -2 Septic to sewer project with 30 connections. 17 connections were off of Tropical Trail and 13	OSTDS Phase Out	Completed	2020	TBD	TBD	B	$3,138,098.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					connections were off of MIRA Phase 2, but fall in the NIRL.							
4451	Brevard County	SOIRL	BC-093	N. Wickham Road Upflow Filter - BB#1298	Upflow filter with Biosorption Activated Media installed within existing detention pond system to remove nitrogen from baseflow.	Biosorption Activated Media (BAM)	Completed	2019	1026.12	178.43	B	$125,000.00
4456	Brevard County	SOIRL	BC-098	Broadway Pond BAM - BB#832	Adding a media to remove nitrogen by denitrification. The media will be added to the side slope of the pond.	Biosorption Activated Media (BAM)	Completed	2020	TBD	TBD	B	$269,650.00
5347	Brevard County	SOIRL; Brevard Zoo	BC-100	Bomalaski Oyster Bar	Construct 100 linear foot oyster reef.	Creating/ Enhancing Oyster Reefs	Completed	2018	NA	NA	B	$8,900.00
5349	Brevard County	SOIRL; MRC	BC-101a	Grass Clippings Campaign Phase 1	Not provided.	Enhanced Public Education	Ongoing	NA	NA	NA	B	$0.00
5351	Brevard County	SOIRL	BC-102a	Education Efforts	Fertilizer, grass clippings, and septic system maintenance.	Enhanced Public Education	Ongoing	NA	NA	NA	B	$0.00
5357	Brevard County	SJRWMD; SOIRL	BC-108	MIRA Phase 1 Septic to Sewer	Connect approximately 11 properties to a central sewer system. See BC-088. Project canceled as entered as duplicate. Please see ProjID 3059 for updated and completed data.	OSTDS Phase Out	Canceled	NA	NA	NA	B	$0.00
5644	Brevard County	SOIRL	BC-111	Rockledge A Muck Dredging	Muck removal of an estimated 115,000 cubic yards.	Muck Removal/Restoration Dredging	Planned	2035	TBD	TBD	B	$10,810,000.00
5647	Brevard County	DEP; Florida Legislature; SOIRL	BC-114	Eau Gallie Northeast Muck Dredging	Muck removal of an estimated 307,278 cubic yards.	Muck Removal/Restoration Dredging	Planned	2028	TBD	TBD	B	$23,771,954.00
5648	Brevard County	DEP; SJRWMD; SOIRL	BC-115	South Central Zone C Septic to Sewer	Connecting 151 parcels to sewer.	OSTDS Phase Out	Underway	2025	TBD	TBD	B	$10,320,255.00
6271	Brevard County	SOIRL	BC-118	North IRL Zone B Quick Connects 2021	Septic phase out via quick connect - 16 properties/tanks in NIRL Zone B. Credits of 154 lbs-TN/yr are accounted	OSTDS Phase Out	Completed	2021	0	NA	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					for in Credit Sharing project as project is 100% funded by SOIRL.							
7090	Brevard County	Florida Legislature; SOIRL	BC-118a	NIRL B Quick Connects 2023	NIRL B Quick Connects 2023, completed 7 connections from septic to sanitary sewer.	OSTDS Phase Out	Completed	2023	152.4	NA	B	$81,645.87
6296	Brevard County	SOIRL	BC-120	North IRL Zone B Septic Upgrades 2021	Conventional septic system upgrades to advanced nitrogen reducing treatment, NSF-45 meeting at least 65% TN reduction. Credits of 106 lbs-TN/yr are accounted for in Credit Sharing project as project is 100% funded by SOIRL.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2021	0	NA	B	$219,086.90
7101	Brevard County	Florida Legislature; SOIRL	BC-120a	NIRL B Septic Upgrades 2023	Completed 29 septic upgrades; Conventional septic system upgrades to advanced nitrogen reducing treatment, NSF-45 meeting at least 65% TN reduction.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2023	794.53	NA	B	$626,572.43
6589	Brevard County	DEP; SOIRL	BC-122	South Beaches Zone A Septic to Sewer	Connect 37 properties.	OSTDS Phase Out	Planned	2027	TBD	TBD	B	$2,215,160.00
6799	Brevard County	DEP; SOIRL	BC-123	South Central Zone A Septic to Sewer	Connect 101 properties.	OSTDS Phase Out	Planned	2028	TBD	TBD	B	$11,985,437.00
6563	Brevard County	SOIRL	BC-124	Sharpes Zone A Septic to Sewer	Connect 186 properties to sewer.	OSTDS Phase Out	Planned	2029	TBD	TBD	B	$8,936,805.00
6603	Brevard County	SOIRL	BC-125	North Merritt Island Zone E Septic to Sewer	Connect 223 properties.	OSTDS Phase Out	Planned	2028	TBD	TBD	B	$14,493,227.00
6604	Brevard County	DEP; SOIRL	BC-126	South Central Zone D Septic to Sewer	Connect 94 properties.	OSTDS Phase Out	Planned	2028	TBD	TBD	B	$5,100,000.00
6591	Brevard County	DEP; SOIRL; State Legislation	BC-127	South Beaches Zone P Septic to Sewer	Connect 9 properties to sewer.	OSTDS Phase Out	Planned	2027	TBD	TBD	B	$714,800.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
6590	Brevard County	DEP; SOIRL	BC-128	South Beaches Zone O Septic to Sewer	Connect 2 properties to sewer.	OSTDS Phase Out	Planned	2027	TBD	TBD	B	$230,225.00
6606	Brevard County	SOIRL	BC-129	Sharpes Zone B Septic to Sewer	Connect 136 properties.	OSTDS Phase Out	Planned	2028	TBD	TBD	B	$6,460,394.00
6607	Brevard County	SOIRL	BC-130	Cocoa Zone C Septic to Sewer	Connect 61 properties.	OSTDS Phase Out	Planned	2028	TBD	TBD	B	$18,000,000.00
6828	Brevard County	Brevard County	BC-131	Wickham Park South	Harvested 445880 pounds of aquatic vegetation.	Aquatic Vegetation Harvesting	Completed	2022	NA	NA	B	$0.00
6826	Brevard County	Brevard County	BC-132	Pine Island Conservation Area Vegetation Harvesting 2022	Harvested 32,280 pounds of aquatic vegetation.	Aquatic Vegetation Harvesting	Completed	2022	NA	NA	B	$0.00
6832	Brevard County	SOIRL	BC-134	Ace Pond (Horseshoe Pond) Vegetation Harvesting 2022	Harvested 190,580 pounds of aquatic vegetation.	Aquatic Vegetation Harvesting	Completed	2022	NA	NA	B	$0.00
6806	Brevard County	DEP; SOIRL	BC-135	North Indian River Lagoon Septic Upgrades 2022	Completed 19 septic upgrades; Conventional septic system upgrades to advanced nitrogen reducing treatment; Legislative Appropriates totals $450,000 and will support septic upgrades in all 3 BMAPs. All credits of 393 lbs-TN/yr in credit sharing projects.	Onsite Sewage Treatment and Disposal System (OSTDS) Enhancement	Completed	2022	0	NA	B	$418,723.00
6841	Brevard County	Brevard County	BC-136	Mockingbird Lane Vegetation Harvesting 2022	Harvested 52,730 pounds of aquatic vegetation.	Aquatic Vegetation Harvesting	Completed	2022	NA	NA	B	$0.00
6822	Brevard County	DEP; SOIRL	BC-137	North Indian River Lagoon Quick Connects 2022	Connected 10 properties to sewer in Central Indian River Lagoon. Legislative appropriations awarded $585,000 for quick connects for IRL. Credits of 71 lbs-TN/yr are accounted for in Credit Sharing project as	OSTDS Phase Out	Completed	2022	0	NA	B	$180,785.50

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					project is 100% funded by SOIRL.							
6829	Brevard County	Brevard County	BC-138	Wickham Park North Vegetation Harvesting 2022	Harvested 443,090 pounds of aquatic vegetation.	Aquatic Vegetation Harvesting	Completed	2022	NA	NA	B	$0.00
6833	Brevard County	Brevard County	BC-139	Albin Street Vegetation Harvesting 2022	Harvested 57,340 pounds of aquatic vegetation.	Aquatic Vegetation Harvesting	Completed	2022	NA	NA	B	$0.00
6839	Brevard County	Brevard County	BC-140	Fairglen Elementary Vegetation Harvesting 2022	Harvested 26,040 pounds of aquatic vegetation.	Aquatic Vegetation Harvesting	Completed	2022	NA	NA	B	$0.00
6844	Brevard County	SJRWMD; SOIRL	BC-141	Oak Point Mobile Home Park	Connected 108 mobile homes to sewer from aging package plant.	Decommission/ Abandonment	Completed	2022	NA	NA	B	$629,000.00
6915	Brevard County	Brevard County; City of Cocoa; City of Melbourne; City of Rockledge; City of Titusville; Town of Palm Shores	BC-143	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	1622.5	233.9	B	$0.00
7143	Brevard County	SOIRL	BC-144	Chase Hammock Lakes Pond Aquatic Vegetation Harvesting 2023	Harvested 263,020 pounds of aquatic vegetation from the Chase Hammock Lakes pond.	Aquatic Vegetation Harvesting	Completed	2023	TBD	TBD	B	$0.00
7148	Brevard County	Brevard County	BC-147	Albin Street Pond Aquatic Vegetation Harvesting 2023	Harvested 19,060 pounds of aquatic vegetation (water lettuce) from the Albin Street pond.	Aquatic Vegetation Harvesting	Completed	2023	TBD	TBD	B	$0.00
7142	Brevard County	SOIRL	BC-148	Mitchell Ellington Pond Aquatic Vegetation Harvesting 2023	Harvested 102,060 pounds of aquatic vegetation from Mitchell Ellington Pond.	Aquatic Vegetation Harvesting	Completed	2023	TBD	TBD	B	$0.00
7152	Brevard County	SOIRL	BC-149	Johnson Junior High Pond	Diverting flow from a pond using a thirsty duck flow regulator, with denitrification and phosphorus removal system.	Biosorption Activated Media (BAM)	Completed	2018	187.14	59.61	B	$291,008.57

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
7464	Brevard County	ARPA	BC-157	Lake Washington & Croton Road Pond Retrofit	The proposed stormwater retrofit to the Lake Washington at Croton Rd. wet pond utilizes the Martin Treatment Wetland System paired with turbidity curtains to optimize nutrient removal.	Stormwater System Upgrade	Underway	2026	TBD	TBD	B	$198,000.00
7460	Brevard County	SOIRL	BC-160	Sand Dollar Canal - Basin 1398	Design and installation of a denitrification bioreactor and sediment removal system.	Denitrification Walls	Underway	2026	TBD	TBD	B	$1,698,024.00
7461	Brevard County	ARPA	BC-161	Ruby St -Basin 2420	Construction of a wet pond with denitrification outfall to treat stormwater discharge.	Wet Detention Pond	Underway	2026	TBD	TBD	B	$1,067,036.00
7467	Brevard County	ARPA	BC-162	N. Wickham Rd. & Conservation PL. Pond Retrofit	The proposed stormwater retrofit to N. Wickham Rd. & Conservation PL. wet pond utilizes the Martin Treatment Wetland System paired with turbidity curtains to optimize nutrient removal.	Stormwater System Upgrade	Underway	2026	TBD	TBD	B	$289,395.00
7463	Brevard County	ARPA	BC-163	Waelti Drive Pond Retrofit	The proposed stormwater retrofit to the Waelti Drive wet pond utilizes the Martin Treatment Wetland System paired with turbidity curtains to optimize nutrient removal.	Stormwater System Upgrade	Underway	2026	TBD	TBD	B	$235,000.00
3053	City of Cocoa	SOIRL	BC-82	Stormwater Project - NIRL - Cocoa - Church St Type II Baffle Box	SOIRL-14. See CC-17.	Baffle Boxes- Second Generation	Completed	2018	NA	NA	B	$233,455.00
3072	City of Cocoa	SJRWMD	CC-01	Bracco Pond B	SOIRL-01.	Wet Detention Pond	Completed	2014	1609	491	B	$35,000.00
2999	City of Cocoa	SJRWMD	CC-02	Bracco Expansion Area	Provide the community with a park along the ponds.	Wet Detention Pond	Completed	2010	104	28	B	$570,762.00
3204	City of Cocoa	EPA; SJRWMD	CC-03	Cocoa Village Park	Subsurface detention storage that is part of a redevelopment project of the Cocoa Village Park and Riverwalk Esplanade areas.	Dry Detention Pond	Completed	2018	14	2	B	$330,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3162	City of Cocoa	Rockledge; SOIRL	CC-04	Morris Pond	Joint project with the City of Rockledge to accommodate previously untreated runoff.	Wet Detention Pond	Completed	2010	60	16	B	$247,480.00
2778	City of Cocoa	NA	CC-05	North Brevard Avenue Stormwater Treatment Facility	Hydrodynamic separators that remove sediment, trap debris and separate floating oils from runoff.	Hydrodynamic Separators	Completed	2003	NA	2	B	$83,610.00
2766	City of Cocoa	SJRWMD	CC-06	North Fiske Stormwater Retention Facility	Wet detention pond to reduce the discharge of stormwater runoff into surface waters in the state by complete on-site storage.	100% On-site Retention	Completed	2009	16	2	B	$330,000.00
2765	City of Cocoa	NA	CC-07	Suntree Baffle Box #1 on 2116 IRD	Capture previously untreated runoff.	Baffle Boxes- Second Generation	Completed	2014	11	1	B	$80,000.00
2764	City of Cocoa	NA	CC-08	Street Sweeping	Pavement cleaning by sweeping, vacuum, or cleaning.	Street Sweeping	Ongoing	NA	405	260	B	$80,000.00
2763	City of Cocoa	NA	CC-09	Bracco Supplemental Water Supply	Joint project with the WWTP to provide reclaimed water.	WWTF Diversion to Reuse	Completed	2014	1103	108	B	$1,200,000.00
2762	City of Cocoa	Community Development Block Grant (CDBG)	CC-10	Diamond Square Stormwater Improvements	Retrofit existing storm sewer in Dimond Square, including the construction of a wet detention pond.	Wet Detention Pond	Completed	2011	41	4	B	$210,000.00
2761	City of Cocoa	NA	CC-11	Education Efforts	Fertilizer ordinance.	Education Efforts	Ongoing	NA	637	93	B	$0.00
2787	City of Cocoa	Space Coast Transportation Planning Organization (SCTPO); FDOT	CC-12	Peachtree St. Reconstruction	Roadway and stormwater improvements.	Stormwater System Rehabilitation	Completed	2016	NA	NA	B	$1,700,000.00
2767	City of Cocoa	NA	CC-13	Cocoa Riverfront Park	Amphitheatre and stormwater improvements. Same as Project Number CC-03 where information is captured. Recommend removing from list.	Stormwater System Rehabilitation	Completed	2016	NA	NA	B	$162,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3163	City of Cocoa	NA	CC-14	Control Gate	Flood control gate installed at Bracco pond outfall.	Control Structure	Completed	2016	NA	NA	B	$28,587.00
3164	City of Cocoa	SCTPO; FDOT	CC-15	Florida Avenue Improvements	Infiltration through pervious pavers and then ultimately to the AT&T pond.	BMP Treatment Train	Completed	2017	TBD	TBD	B	$3,344,222.00
3165	City of Cocoa	SJRWMD	CC-16	AT&T Detention Pond Retrofit	Incoming inlets will have 2nd generation baffle boxes.	BMP Treatment Train	Completed	2017	391	54	B	$297,877.00
3166	City of Cocoa	SJRWMD; SOIRL	CC-17	Church Street Baffle Box	The goal of this project is to capture and treat stormwater that flows untreated and directly into the Indian River Lagoon.	Baffle Boxes- Second Generation with Media	Completed	2018	201.22	25.88	B	$173,620.00
3177	City of Cocoa	NA	CC-18	John Garren Street Realignment & Parking	Roadway and stormwater improvements.	BMP Treatment Train	Canceled	NA	NA	NA	B	$0.00
3168	City of Cocoa	NA	CC-19	Brevard Ave. Bioretention and Tree Preservation	Roadway and stormwater improvements.	BMP Treatment Train	Canceled	NA	NA	NA	B	$0.00
3160	City of Cocoa	SOIRL	CC-20	U.S. 1 and Forrest Ave. Stormwater Treatment Facility	Develop a dry detention stormwater facility adjacent to U.S. 1.	Dry Detention Pond	Underway	2022	TBD	TBD	B	$1,220,000.00
4457	City of Cocoa	FEMA	CC-21	Broadmoor Acres and Fiske Blvd. Drainage Improvements	Roadway and stormwater improvements.	Stormwater System Rehabilitation	Planned	2022	NA	NA	B	$3,100,000.00
4458	City of Cocoa	NA	CC-22	Cocoa Waterfront Stormwater Study	Stormwater Study for the Cocoa waterfront.	Study	Completed	2019	NA	NA	B	$19,700.00
5359	City of Cocoa	Brevard County	CC-23	Septic to Sewer Indian River Drive	Design and Install new sewer along Indian River to provide sewer service and remove septic tank use.	OSTDS Phase Out	Underway	TBD	4922	NA	B	$8,000,000.00
5360	City of Cocoa	NA	CC-24	Annual Sewer Inspection	Annual sewer inspection and maintenance.	Sanitary Sewer Inspections	Ongoing	NA	NA	NA	B	$0.00
5361	City of Cocoa	NA	CC-25	Diamond Square Stormwater PS Feasibility Study	PS study for pumping stormwater across US 1 to Church Street baffle box.	Study	Completed	2020	NA	NA	B	$26,620.00

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5650	City of Cocoa	SOIRL	CC-26	Pineda Stormwater Pond Floating Wetlands	Installation of floating wetlands and harvesting to remove nutrients.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2019	20	4	B	$14,336.00
5651	City of Cocoa	SOIRL	CC-27	North and South Lakemont Stormwater Ponds Floating Wetlands	Installation of floating wetlands and harvesting to remove nutrients. DEP approved credits of 53 lbs-TN/yr and 9 lbs-TP/yr were proportioned for SOIRL credit sharing.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2021	39.2	6.7	B	$43,250.00
6635	City of Cocoa	SOIRL	CC-28	North Fiske Stormwater Pond Floating Wetlands	Installation of floating wetlands at the North Fiske Stormwater Pond in the City of Cocoa.	Floating Islands/ Managed Aquatic Plant Systems (MAPS)	Completed	2022	349.06	47.33	B	$50,000.00
6918	City of Cocoa	City of Cocoa; City of Melbourne; City of Rockledge; City of Titusville; Town of Palm Shores; Brevard County	CC-29	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	620.5	89.5	B	$0.00
7220	City of Cocoa	NA	CC-30	Jerry Sellers WRF Advanced Wastewater Treatment (AWT) Improvements	Replace internal recycle pumps and add a new carbon system with two storage tanks and two peristaltic metering pumps as part of AWT improvements.	WWTF Upgrade	Underway	2025	6199	2066	B	$3,126,000.00
3057	City of Melbourne	SOIRL	BC-86	Stormwater Project - NIRL - Melbourne - Cliff Creek Baffle Box	SOIRL-34. MEL-21.	Baffle Boxes- Second Generation	Completed	2020	NA	NA	B	$347,781.00
3073	City of Melbourne	SOIRL	BC-87	Stormwater Project - NIRL - Melbourne - Thrush Dr Baffle Box	SOIRL-35. MEL-20.	Baffle Boxes- Second Generation	Completed	2021	NA	NA	B	$322,200.00
3061	City of Melbourne	SOIRL	BC-90	Stewart Rd Dry Retrofit	Stormwater Project - CIRL - Melbourne, SOIRL-39. MEL-27.	Dry Detention Pond	Canceled	2020	NA	NA	B	$18,344.00

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3171	City of Melbourne	NA	MEL-01	Fee and Apollo Drainage Improvements	No treatment is provided within the existing development; complete a water quality addition.	Wet Detention Pond	Completed	2010	17	24	B	$525,161.00
3172	City of Melbourne	NA	MEL-02	Dove Street Pond	No treatment is provided within the existing development; complete a water quality addition.	Wet Detention Pond	Completed	2003	39	10	B	$156,164.00
3173	City of Melbourne	NA	MEL-03	Charles Drive Pipe Replacement	Replaced failing stormwater pipe and created wet detention pond; little to no treatment is provided within existing developments.	Wet Detention Pond	Completed	2010	150	90	B	$462,644.00
3174	City of Melbourne	NA	MEL-04	Wickham Park Pond	Ponds along with piping upgrades help eliminate flooding within the area along with treatment.	Wet Detention Pond	Completed	2004	4181	1111	B	$250,000.00
3175	City of Melbourne	NA	MEL-05	Babcock Street Realignment	Additional treatment was provided for the adjacent drainage basins.	On-line Retention BMPs	Completed	2005	134	19	B	$1,757,186.00
3152	City of Melbourne	NA	MEL-06	Garfield Street Ponds - Lot 12 (North)	Two small dry detention ponds within an existing subdivision (with MEL-7).	Dry Detention Pond	Canceled	NA	NA	NA	B	$0.00
3169	City of Melbourne	NA	MEL-07	Garfield Street Ponds - Lot 24 (South)	Two small dry detention ponds within an existing subdivision (with MEL-6).	Dry Detention Pond	Canceled	NA	NA	NA	B	$0.00
3167	City of Melbourne	NA	MEL-08	Education Efforts	FYN, Irrigation, fertilizer, pet waste management, and landscaping ordinances; pamphlets, presentations, website, Illicit Discharge Program.	Education Efforts	Ongoing	NA	4667	685	B	$0.00
3144	City of Melbourne	NA	MEL-09	Street Sweeping	Street sweeping in the basin and debris removal.	Street Sweeping	Ongoing	NA	701	378	B	$125,000.00
3145	City of Melbourne	DEP	MEL-10	Autumn Woods	Construction of a wet detention pond for water quality treatment.	Wet Detention Pond	Completed	2017	0	0	B	$743,626.00

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3146	City of Melbourne	NA	MEL-11	Participation in FYN	Future participation in FYN Program. Credited in MEL-08.	Education Efforts	Canceled	NA	NA	NA	B	$0.00
3147	City of Melbourne	DEP	MEL-12	South Croton Baffle Box	Dry retention and baffle box.	BMP Treatment Train	Completed	2017	1148	150	B	$438,566.40
3148	City of Melbourne	DEP	MEL-13	Bell Street Baffle Box	Construction of a new baffle box. This project was bid with the Garfield North (MEL-15) and Garfield South (MEL-16) baffle boxes. Funding showing in this line item includes cost all three projects (MEL-13, MEL-15 and MEL-16).	Baffle Boxes- Second Generation with Media	Completed	2017	995	172	B	$864,506.46
3149	City of Melbourne	NA	MEL-14	Paradise Baffle Box	Retrofit existing baffle box to upgrade to second generation.	Baffle Boxes- Second Generation with Media	Completed	2016	784	159	B	$19,000.00
3159	City of Melbourne	DEP	MEL-15	Garfield North Baffle Box	Construction of a new baffle box.	Baffle Boxes- Second Generation with Media	Completed	2017	501	80	B	$0.00
3151	City of Melbourne	DEP	MEL-16	Garfield South Baffle Box	Construction of a new baffle box.	Baffle Boxes- Second Generation with Media	Completed	2017	92	15	B	$0.00
3143	City of Melbourne	DEP; SOIRL	MEL-17	Sherwood Stormwater Quality Project	Construction of a two wet detention pond, two rain gardens and a baffle box for a subdivision without any treatment.	Wet Detention Pond	Completed	2022	1414.17	252.32	B	$2,168,800.00
3153	City of Melbourne	SJRWMD	MEL-18	Croton Road (Lime) Baffle Box	Installation of baffle box.	Baffle Boxes- Second Generation with Media	Completed	2016	98	17	B	$260,660.00
3154	City of Melbourne	NA	MEL-19	Young Street Existing Baffle Box Upgrade	Upgrade existing 1st generation baffle boxes to 2nd generation baffle boxes with BAM.	Baffle Boxes- Second Generation with Media	Completed	2016	48	12	B	$20,000.00
3155	City of Melbourne	SOIRL	MEL-20	Thrush Drive Baffle Box (BC-87)	Baffle Box - 2nd generation with media filter.	Baffle Boxes- Second Generation with Media	Completed	2021	1143.4	229.52	B	$609,844.00
3156	City of Melbourne	SOIRL	MEL-21	Cliff Creek Baffle Box (BC-86)	Baffle Box - 2nd generation with media filter.	Baffle Boxes- Second Generation with Media	Completed	2020	1654.2	266.36	B	$863,866.00
3157	City of Melbourne	SOIRL	MEL-22	Riverside Drive Septic to Sewer Conversion	Providing for 12 lots to be converted to municipal sewer.	OSTDS Phase Out	Underway	TBD	TBD	TBD	B	$215,000.00

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3179	City of Melbourne	SOIRL	MEL-23	Leewood Forest Wetland and Baffle Box	The proposed project consists of construction a wetland treatment area and baffle box to provide stormwater quality treatment.	Constructed Wetland Treatment	Planned	TBD	TBD	TBD	B	$2,590,000.00
3150	City of Melbourne	NA	MEL-24	South Sarno Drainage Improvements	Retrofit existing ditch system to include dry detention shelves.	Dry Detention Pond	Completed	2015	1239	173	B	$2,227,000.00
3176	City of Melbourne	NA	MEL-25	Sarno Road Turn Lane	Dry detention above needs for turn lane construction.	Dry Detention Pond	Completed	2018	7	1	B	$560,000.00
3180	City of Melbourne	SOIRL	MEL-26	Apollo/GA Baffle Box	2nd generation baffle box with BAM.	Baffle Boxes- Second Generation with Media	Underway	2023	TBD	TBD	B	$0.00
3181	City of Melbourne	SOIRL	MEL-27	Stewart Road WQ Project	Installation of BAM filter box on existing culvert.	Biosorption Activated Media (BAM)	Canceled	NA	NA	NA	B	$0.00
4459	City of Melbourne	SOIRL	MEL-28	Cherry Street Baffle Box	2nd generation baffle box with BAM.	Baffle Boxes- Second Generation with Media	Underway	2023	1017	161	B	$550,000.00
4460	City of Melbourne	SOIRL	MEL-29	Spring Creek Baffle Box	2nd generation baffle box with BAM.	Baffle Boxes- Second Generation with Media	Underway	2023	813	123	B	$450,000.00
4461	City of Melbourne	SOIRL	MEL-30	Brevard County Partnership Projects	Project approved by the SOIRL Project Plan not built by the City of Melbourne.	BMP Treatment Train	Underway	TBD	TBD	TBD	B	$0.00
5362	City of Melbourne	SOIRL; SRF Loan	MEL-31	Grant Street Water Reclamation Facility Improvements	Improvements include rehabilitation of major treatment elements and structures of facility.	WWTF Nutrient Reduction	Underway	2023	TBD	TBD	B	$10,038,000.00
5363	City of Melbourne	TBD	MEL-32	Dove Street Pond Retrofit	Retrofitting of existing pond to enhance treatment potential.	BMP Treatment Train	Planned	TBD	TBD	TBD	B	$0.00
5364	City of Melbourne	TBD	MEL-33	Melbourne Cemetery Baffle Box	2nd generation baffle box with BAM.	Baffle Boxes- Second Generation with Media	Planned	TBD	TBD	TBD	B	$0.00
5365	City of Melbourne	TBD	MEL-34	FEC/NASA Baffle Box	2nd generation baffle box with BAM.	Baffle Boxes- Second Generation with Media	Canceled	NA	NA	NA	B	$0.00
5366	City of Melbourne	TBD	MEL-35	Melbourne High Baffle Box	2nd generation baffle box with BAM.	Baffle Boxes- Second Generation with Media	Canceled	NA	NA	NA	B	$0.00
5652	City of Melbourne	SOIRL; DEP; Legislative	MEL-36	South Central F (Pineapple) Septic to Sewer	Septic conversion for a minimum of 51.	OSTDS Phase Out	Underway	2025	TBD	NA	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
5653	City of Melbourne	City; DEP; SOIRL	MEL-37	Kent/Villa Espana Septic to Sewer	Septic conversion.	OSTDS Phase Out	Underway	2025	TBD	NA	B	$0.00
5654	City of Melbourne	SOIRL; City; DEP	MEL-38	Bowers Septic to Sewer	Septic conversion.	OSTDS Phase Out	Planned	2025	TBD	NA	B	$0.00
6812	City of Melbourne	SOIRL	MEL-39	Grant Place Baffle Box	2nd Generation baffle box with BAM.	Baffle Boxes- Second Generation with Media	Completed	2022	451.5	69.9	B	$0.00
6636	City of Melbourne	City of Melbourne; Florida Legislature; SOIRL	MEL-40	Harbor City Treatment Train - Box #1	Installation of a second generation baffle box with BAM on an existing 84in RCP pipe.	Baffle Boxes- Second Generation with Media	Completed	2023	951.9	120.3	B	$750,000.00
6919	City of Melbourne	Brevard County; City of Cocoa; City of Melbourne; City of Rockledge; City of Titusville; Town of Palm Shores	MEL-41	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	3046.2	439.1	B	$0.00
3050	City of Rockledge	SOIRL	BC-79	Breeze Swept Septic to Sewer	Hook up to sewer - SOIRL-01. Same as ROCK-26.	OSTDS Phase Out	Completed	2017	NA	NA	B	$3,400,000.00
3182	City of Rockledge	SOIRL	ROCK-01	Orange Avenue Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2009	19	2	B	$8,600.00
3183	City of Rockledge	SOIRL	ROCK-02	Barton Avenue Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2009	51	7	B	$9,350.00
3184	City of Rockledge	Not provided	ROCK-03	Hardee Circle Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box	Baffle Boxes- Second Generation	Completed	2009	26	3	B	$43,420.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.							
3194	City of Rockledge	Not provided	ROCK-04	Rockledge Avenue Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2004	70	8	B	$21,448.00
3186	City of Rockledge	Not provided	ROCK-05	Bougainvillea Drive Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2000	58	7	B	$29,495.00
3178	City of Rockledge	Not provided	ROCK-06	Park Avenue Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2007	23	3	B	$52,529.00
3188	City of Rockledge	Not provided	ROCK-07	Little John Lane Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the	Baffle Boxes- Second Generation	Completed	2004	22	3	B	$60,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					water in the bottom of the box, thereby preventing leaching of the nutrients.							
3189	City of Rockledge	Not provided	ROCK-08	Fernwood Drive Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	Prior to 2013	23	3	B	$55,750.00
3190	City of Rockledge	Not provided	ROCK-09	Valencia Drive Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2008	42	5	B	$58,960.00
3191	City of Rockledge	Not provided	ROCK-10	Knollwood Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2002	44	5	B	$68,248.00
3192	City of Rockledge	Not provided	ROCK-11	Sutton Street Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2011	15	2	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3193	City of Rockledge	Not provided	ROCK-12	River Groves Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2011	13	2	B	$0.00
3126	City of Rockledge	Not provided	ROCK-13	Summer Place Baffle Box	The second generation (nutrient separating) baffle box includes a wire mesh box that captures vegetative debris, litter, and other materials from settling in the water in the bottom of the box, thereby preventing leaching of the nutrients.	Baffle Boxes- Second Generation	Completed	2011	17	2	B	$35,000.00
3075	City of Rockledge	Not provided	ROCK-14	Sweet Street Swale	Swales are designed to infiltrate a defined quantity of runoff (the treatment volume) through the permeable soils of the swale floor and side slopes into the shallow ground water aquifer immediately following a storm event.	Grass swales without swale blocks or raised culverts	Completed	2011	28	4	B	$10,000.00
3158	City of Rockledge	Not provided	ROCK-15	Community Park of Rockledge Regional Facility Phase 1	"Wet detention" means the collection and temporary storage of stormwater in a permanently wet impoundment in such a manner as to provide for treatment through physical, chemical, and biological processes with subsequent gradual release of the stormwater.	Wet Detention Pond	Completed	2004	14	2	B	$50,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3093	City of Rockledge	Not provided	ROCK-16	Pineland Park Unit Three	"Wet detention" means the collection and temporary storage of stormwater in a permanently wet impoundment in such a manner as to provide for treatment through physical, chemical, and biological processes with subsequent gradual release of the stormwater.	Wet Detention Pond	Completed	2009	0	0	B	$100,000.00
3094	City of Rockledge	DEP	ROCK-17	Barton Park Regional Detention System	"Wet detention" means the collection and temporary storage of stormwater in a permanently wet impoundment in such a manner as to provide for treatment through physical, chemical, and biological processes with subsequent gradual release of the stormwater.	Wet Detention Pond	Completed	2010	2598	670	B	$2,600,000.00
3095	City of Rockledge	Not provided	ROCK-18	Florida Avenue Stormwater Facility	"Wet detention" means the collection and temporary storage of stormwater in a permanently wet impoundment in such a manner as to provide for treatment through physical, chemical, and biological processes with subsequent gradual release of the stormwater.	Wet Detention Pond	Completed	2010	38	18	B	$435,000.00
3092	City of Rockledge	Not provided	ROCK-19	Police Department Pond	"Wet detention" means the collection and temporary storage of stormwater in a permanently wet impoundment in such a manner as to provide for	Wet Detention Pond	Completed	2010	13	3	B	$350,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
					treatment through physical, chemical, and biological processes with subsequent gradual release of the stormwater.							
3097	City of Rockledge	Not provided	ROCK-20	Huntington Lakes I	"Wet detention" means the collection and temporary storage of stormwater in a permanently wet impoundment in such a manner as to provide for treatment through physical, chemical, and biological processes with subsequent gradual release of the stormwater.	Wet Detention Pond	Completed	2014	15	4	B	$950,000.00
3001	City of Rockledge	Not provided	ROCK-21	Street Sweeping	Pavement cleaning by sweeping, vacuum, or washing.	Street Sweeping	Ongoing	NA	794	337	B	$0.00
3107	City of Rockledge	Not provided	ROCK-22	Treatment Missing from Model	Wet detention ponds - missing from model. Project canceled after model update.	BMP Missing from Model	Canceled	Prior to 2013	NA	NA	B	$0.00
3099	City of Rockledge	Not provided	ROCK-23	Education Efforts	Irrigation, fertilizer, pet waste management, and landscaping ordinances; pamphlets, presentations, website, illicit discharge program. Video "Know Your Waterways".	Education Efforts	Ongoing	NA	1660	239	B	$7,385.00
3091	City of Rockledge	Not provided	ROCK-24	Huntington Lakes II	Project provides treatment to some of the basin that leads into ROCK-17.	Wet Detention Pond	Completed	2016	298	34	B	$900,000.00
3101	City of Rockledge	Not provided	ROCK-25	Aquatic Harvesting	Data is collected by location in yards; determining method to convert to dry weight.	Aquatic Vegetation Harvesting	Completed	2015	TBD	TBD	B	$0.00
3161	City of Rockledge	SOIRL	ROCK-26	Breeze Swept Septic Phase-out	Estimates will be calculated using the latest version of ArcNLET for the septic tank phase out.	OSTDS Phase Out	Completed	2017	2309.7	NA	B	$3,700,000.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3123	City of Rockledge	Not provided	ROCK-27	River Ridge Non Discharge	Nondisharge dry retention basin.	100% On-site Retention	Completed	2015	305	44	B	$0.00
3122	City of Rockledge	Not provided	ROCK-28	Southwest Gus Hipp Conveyance	Add BAM for denitrification to major canal in the city.	BMP Treatment Train	Completed	2019	TBD	TBD	B	$17,000.00
3121	City of Rockledge	Not provided	ROCK-29	Gus Hipp Pond	Conversion of borrow pit to a wet detention pond.	Wet Detention Pond	Planned	TBD	TBD	TBD	B	$335,000.00
3120	City of Rockledge	Not provided	ROCK-30	Public Works Pond 1	Enlarge current retention area.	Dry Detention Pond	Completed	2017	5	1	B	$5,000.00
3119	City of Rockledge	Not provided	ROCK-31	Public Works Pond 2	Enlarge current retention area.	Dry Detention Pond	Completed	2017	7	1	B	$10,000.00
3118	City of Rockledge	Not provided	ROCK-32	School Triangle Pond	Create dry detention pond on city-owned land.	Dry Detention Pond	Completed	2017	1	0	B	$20,300.00
3108	City of Rockledge	Not provided	ROCK-33	Barton Park Irrigation	Use wet pond (Barton Lake) for irrigation.	Stormwater Reuse	Planned	TBD	TBD	TBD	B	$0.00
3116	City of Rockledge	Not provided	ROCK-34	Winchester Cove Non Discharge	Nondisharge dry retention basin.	100% On-site Retention	Completed	2015	18	3	B	$0.00
4462	City of Rockledge	Not provided	ROCK-35	Florida Ave and Dixie Lane Swale	Grass swale with blocks or culverts.	Grass swales with swale blocks or raised culverts	Completed	2018	95	13	B	$5,000.00
5367	City of Rockledge	NA	ROCK-36	WWTP EQ Basin Nutrient Uptake (AWT Phase 1)	Nutrient reduction.	WWTF Nutrient Reduction	Underway	2024	16872	7352	B	$9,976,197.86
5368	City of Rockledge	NA	ROCK-37	WWTP Biosolids	Sludge gravity belt thickener and rehab of existing sludge digesters.	WWTF Upgrade	Underway	2024	NA	NA	B	$5,420,802.14
5369	City of Rockledge	Not provided	ROCK-38	Rockled Indian River Dr	Septic to Sewer.	Wastewater Service Area Expansion	Planned	TBD	NA	NA	B	$0.00
6920	City of Rockledge	Brevard County; City of Cocoa; City of Melbourne; City of Rockledge; City of Titusville; Town of Indialantic; Town of Palm Shores	ROCK-39	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	883.3	127.2	B	$0.00
7028	City of Rockledge	NA	ROCK-40	WWTP Nutrient Uptake (AWT Phase 2)	Conversion of existing WWTF to an Advanced Waste Treatment Facility.	WWTF Nutrient Reduction	Planned	2028	TBD	TBD	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3134	City of Titusville	NA	TV-09	Education Efforts	Irrigation, fertilizer, pet waste management, and landscaping ordinances; pamphlets, presentations, website, illicit discharge program.	Education Efforts	Ongoing	NA	314	42	B	$0.00
3117	City of Titusville	NA	TV-10	Street Sweeping	Approximately 205,725 lbs of debris removed from North B during the reporting period.	Street Sweeping	Ongoing	NA	116	74	B	$188,120.00
6564	City of Titusville	Brevard County SOIRL	TV-38	Riverfront Center NRF Boxes	This project consists of installation of three Nutrient Removing Filtration System (NRFS) Boxes with biosorption activated media within the Riverfront Center Basins. The boxes will be installed offline within the existing stormwater system.	Biosorption Activated Media (BAM)	Completed	2024	417.7	60	B	$899,895.00
6917	City of Titusville	Brevard County; City of Cocoa; City of Melbourne; City of Rockledge; City of Titusville; Town of Palm Shores	TV-40	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	17.3	2.4	B	$0.00
3030	FDACS	NA	FDACS-02	Credit for Changes in Land Use	Credit for changes in land use. Project canceled in 2020. Land use change occurred prior to land use date in the new model.	Land Use Change	Canceled	NA	NA	NA	B	$0.00
4838	FDACS	Agricultural Producers	FDACS-04	BMP Implementation and Verification	Enrollment and verification of BMPs by agricultural producers. Acres treated based on FDACS June 2024 Enrollment and FSAID XI. Reductions based on FDACS June 2024 Enrollment and SWIL - LET.	Agricultural BMPs	Ongoing	NA	247	29	B	$0.00
5610	FDACS	Agricultural Producers	FDACS-06	Cost-Share BMP Projects	Cost-share projects paid for by FDACS.	Agricultural BMPs	Ongoing	NA	0	1	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3080	FDOT District 5	NA	FDOT-04	70010-3517-01 French Drains	Missing from Model. French Drain system along State Road 5 from University Boulevard to Aurora Road. Project canceled. Start date prior to 2000. BMP is accounted for in new model.	BMP Missing from Model	Canceled	NA	NA	NA	B	$0.00
3079	FDOT District 5	NA	FDOT-05	70100-3544-01 French Drains	Missing from Model. Add lanes East of H. Humphrey Bridge to Sykes Creek Parkway. Project canceled. Start date prior to 2000. BMP is accounted for in new model.	BMP Missing from Model	Canceled	NA	NA	NA	B	$0.00
3078	FDOT District 5	NA	FDOT-06	70020-3501-01 Pond 1	Missing from Model. State Road 5 -Add lanes and reconstruct from Aurora Road to Post Road.	Wet Detention Pond	Completed	2004	0	0	B	$0.00
3077	FDOT District 5	NA	FDOT-07	70020-3501-02A Pond 2A	Missing from Model. State Road 5 -Add lanes and reconstruct from Aurora Road to Post Road.	Wet Detention Pond	Completed	2004	0	0	B	$0.00
3076	FDOT District 5	NA	FDOT-08	70020-3501-02B Pond 2B	Missing from Model. State Road 5 -Add lanes and reconstruct from Aurora Road to Post Road.	Wet Detention Pond	Completed	2004	0	0	B	$0.00
3098	FDOT District 5	NA	FDOT-09	70020-3501-03 Pond 3	Missing from Model. State Road 5 -Add lanes and reconstruct from Aurora Road to Post Road.	Wet Detention Pond	Completed	2004	0	0	B	$0.00
3081	FDOT District 5	NA	FDOT-10	70020-3501-04 Pond 4	Missing from Model. State Road 5 -Add lanes and reconstruct from Aurora Road to Post Road.	Dry Detention Pond	Completed	2004	0	0	B	$0.00
3083	FDOT District 5	NA	FDOT-11	70020-3549-01 Pond 1	Missing from Model. State Road 5 - Add lanes and reconstruct from Post Road to State Road 404.	Wet Detention Pond	Completed	2005	0	0	B	$0.00

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3106	FDOT District 5	NA	FDOT-12	70020-3549-02 Pond 2	Missing from Model. State Road 5 - Add lanes and reconstruct from Post Road to State Road 404.	Wet Detention Pond	Completed	2005	1	0	B	$0.00
3105	FDOT District 5	NA	FDOT-13	70020-3549-03 Pond 3	Missing from Model. State Road 5 - Add lanes and reconstruct from Post Road to State Road 404.	Wet Detention Pond	Completed	2005	0	0	B	$0.00
3104	FDOT District 5	NA	FDOT-14	70020-3549-04 Pond 4	Missing from Model. State Road 5 - Add lanes and reconstruct from Post Road to State Road 404.	Wet Detention Pond	Completed	2005	1	0	B	$0.00
3103	FDOT District 5	NA	FDOT-15	70020-3549-05 Pond 5	Missing from Model. State Road 5 - Add lanes and reconstruct from Post Road to State Road 404.	Wet Detention Pond	Completed	2005	0	0	B	$0.00
3102	FDOT District 5	NA	FDOT-16	70140-3514-01 Pond A	Missing from Model. State Road 3 - Replace Christa McAuliffe Bridge.	BMP Missing from Model	Completed	2013	1	0	B	$0.00
3202	FDOT District 5	NA	FDOT-17	70140-3514-02 Pond B	Missing from Model. State Road 3 - Replace Christa McAuliffe Bridge.	BMP Missing from Model	Completed	2013	0	0	B	$0.00
3185	FDOT District 5	NA	FDOT-18	70120-3518-01 Pond 7	Missing from Model. State Road 518 at State Road 513. Project canceled. Start date prior to 2000. BMP is accounted for in new model.	BMP Missing from Model	Canceled	NA	NA	NA	B	$0.00
3187	FDOT District 5	NA	FDOT-19	70008-3505-01 Pond 1	Missing from Model. From south of State Road 518 (Eau Gallie Causeway) to Banana River Drive. Project canceled. Start date prior to 2000. BMP is accounted for in new model.	BMP Missing from Model	Canceled	NA	NA	NA	B	$0.00
3211	FDOT District 5	NA	FDOT-20	Education Efforts	IDDE training, stormwater brochures, NDPES flyer.	Education Efforts	Ongoing	NA	79	11	B	$0.00
3210	FDOT District 5	NA	FDOT-21	Street Sweeping	Street sweeping.	Street Sweeping	Ongoing	NA	466	254	B	$0.00

ProjID	Lead Entity	Partners	Project Number	Project Name	Project Description	Project Type	Project Status	Estimated Completion Date	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)	Crediting Location	Cost Estimate
3209	FDOT District 5	NA	FDOT-22	Fertilizer Cessation	Elimination of fertilizer use along the rights-of-way.	Fertilizer Cessation	Completed	2005	2785	426	B	$0.00
6289	FDOT District 5	NA	FDOT5-29	FM: 440424-1	NASA Causeway Pond 1 (Bridge Replacement).	Wet Detention Pond	Underway	2025	TBD	TBD	B	$0.00
3197	Kennedy Space Center	NA	KSC-11	Landscape Fertilizer Reduction	Fertilizer use reduced from 60 tons/year in 2000 to 20 tons/year in 2010; formula changed from rapid nitrogen release 16-4-8 to slow nitrogen release, phosphate-free 15-0-15.	Fertilizer Reduction	Completed	Prior to 2013	312	44	B	$0.00
3196	Kennedy Space Center	NA	KSC-12	Citrus Grove Termination Jerome Road West	Grove lease termination resulted in abandonment of previously fertilized areas. Accounted for in 2020 BMAP update.	Land Use Change	Canceled	2010	NA	NA	B	$0.00
2779	Kennedy Space Center	NA	KSC-13	KARS II Racquetball Court M6-0328A	Demolition of facility resulted in loss of impervious area and change of land use.	Land Use Change	Completed	2010	TBD	TBD	B	$0.00
2788	Kennedy Space Center	NA	KSC-14	Visitor Center Storage Building M6-0503	Demolition of facility resulted in loss of impervious area and change of land use.	Land Use Change	Completed	2010	TBD	TBD	B	$0.00
2798	Kennedy Space Center	NA	KSC-15	Causeway Wetland Mitigation	Missing from Model. Existing permitted stormwater treatment pond.	Wet Detention Pond	Completed	2014	22	5	B	$0.00
2786	Kennedy Space Center	NA	KSC-16	Visitors Complex/ NASA Badging Center	Missing from Model. Existing permitted stormwater treatment pond.	Wet Detention Pond	Completed	2014	228	48	B	$0.00
2785	Kennedy Space Center	NA	KSC-17	NASA Parkway West	Missing from Model. Ditch along south side of NASA Parkway West, ends before the lagoon.	Grass swales without swale blocks or raised culverts	Completed	2014	175	32	B	$0.00
2783	Kennedy Space Center	NA	KSC-19	Demolition of Facility M5-1546	Demolition of facility resulted in loss of impervious area and change of land use.	Land Use Change	Completed	2014	TBD	TBD	B	$0.00
5657	Kennedy Space Center	NA	KSC-21	Landscape Fertilizer Reduction	Total Fertilizer use at KSC reduced form 20 tons 2010 to 4 tons 2020. Of that	Fertilizer Reduction	Underway	2020	TBD	TBD	B	$0.00

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					reduction, 12.5% applies to N-IRL zone B.							
5611	SJRWMD	DEP; FIND; Brevard County; City of Melbourne	SJRWMD-01	Eau Gallie River Muck Dredging	Dredging commenced in January 2017 and was completed in 2019. Approximately 633,000 cubic yards of muck were removed, reducing nitrogen and phosphorus from the legacy loads in this tributary.	Muck Removal/Restoration Dredging	Completed	2019	TBD	TBD	B	$23,750,000.00
2782	Town of Indialantic	Not provided	TI-01	Swales North of U.S. 192 Causeway	Swales provide treatment as a part of TI-02 and all reductions are accounted for below.	Grass swales without swale blocks or raised culverts	Completed	2001	NA	NA	B	$0.00
2781	Town of Indialantic	Not provided	TI-02	100% On-Site Retention	Not provided.	100% On-site Retention	Completed	2001	1280	190	B	$0.00
2780	Town of Indialantic	Not provided	TI-03	Education Efforts	Pamphlet, website, and fertilizer ordinance.	Education Efforts	Ongoing	NA	65	10	B	$0.00
3068	Town of Indialantic	DEP	TI-04	Lily Park	Stormwater treatment.	Wet Detention Pond	Completed	2016	TBD	TBD	B	$173,000.00
6922	Town of Indialantic	Brevard County; City of Cocoa; City of Melbourne; City of Rockledge; City of Titusville; Town of Indialantic; Town of Palm Shores	TI-05	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	74.7	10.8	B	$0.00
3067	Town of Palm Shores	Not provided	PS-01	Education Efforts	Fertilizer and landscaping ordinances, pamphlets, and presentations.	Education Efforts	Ongoing	NA	29	4	B	$0.00
6921	Town of Palm Shores	Brevard County; City of Cocoa; City of Melbourne; City of Rockledge; City of Titusville; Town of Indialantic; Town of Palm Shores	PS-02	SOIRL Split 2017 - 2023	SOIRL credit splits.	Credit Sharing	Completed	2023	62	9	B	$0.00

Appendix C. Seagrass Analysis

Process to Conduct the Seagrass Depth Limit Compliance Evaluation

The goal of the IRL Basin TMDLs is to recover the deeper seagrass habitats. The seagrass response is the most important factor in evaluating the success of the nutrient TMDLs. Even if the relationship among nutrient loads and seagrass recovery is not as predicted by the regression model, the load reduction requirements themselves will not determine TMDL success. The assessment of success is based on whether the seagrass grows at sufficient depths.

The TMDL seagrass depth limit targets are based on a union coverage of the seagrass mapping data from 1943, 1986, 1989, 1992, 1994, 1996, and 1999. SJRWMD created this union coverage when it set pollutant load reduction goals for the IRL Basin. The TMDL targets are not based on the full restoration of seagrass depths represented by this union coverage; instead, they were set at 90% of the full restoration estimate. These targets allow for seagrass growth almost to the depths previously seen in the lagoon, while accounting for the fact that changes have been made to the lagoon system that may limit seagrass growth in some areas, such as dredged areas similar to the Intracoastal Waterway.

Compliance with the TMDL seagrass depth limit targets is assessed on a project zone scale using the latest four consecutive data sets of seagrass mapping data. For the assessment years to be compliant with the TMDL seagrass depth limit targets, the data must meet the requirements of a two-step evaluation process.

The first step is a comparison of the TMDL union coverage cumulative frequency distribution curve with the assessment years' union cumulative frequency distribution curve. The cumulative distribution curves show what percentage of the seagrass deep edge is located at different depths. To be compliant, at least 50% of the assessment years' curve, including the median, must be on or to the right of the TMDL curve.

The second step in the evaluation process is a comparison of the TMDL union coverage median value with each assessment year's median value. To be compliant in the second step, at least three of the four assessment year medians must be equal to or greater than the TMDL median. If the seagrass data from the four assessment years are compliant with both steps of the test, the project zone is achieving the TMDL depth limit target.

A series of GIS steps must be conducted to obtain the data necessary to complete the two-step evaluation process. These steps are as follows:

- Start with the seagrass GIS shapefiles for the four latest assessment years and edit these files to include only Categories 9113 and 9116, which represent seagrass. Other categories in the GIS shapefiles represent algae cover, which should not be included in this assessment. The seagrass shapefiles only represent the location of the seagrass beds.

- Use the dissolve function in GIS to create the union file of the assessment years. This union file results in a coverage of where seagrass beds were located during all four assessment years.
- Transform the polygons to a polyline in the assessment years' union file. This polyline represents the edges of the seagrass beds.
- Draw a 15.8-m buffer around the seagrass polyline that is 7.9 m inside and 7.9 m outside the seagrass bed. The bathymetry layer was created by SJRWMD in 1996, and the bathymetry was measured every 15.2 m. The 15.8 m buffer around the seagrass polyline ensures that 1 bathymetry point will be captured in the GIS analysis.
- Intersect the updated bathymetry shapefile with the seagrass coverage file that was transformed into a polyline. This intersection correlates the depth data with the seagrass locations so that depths along the seagrass bed edge can be determined.
- Intersect the deep edge file to each project zone (BRL A, BRL B, North A, North B, Central A, Central SEB, and Central B).
- Use the select by location function to identify and note points within dredged areas. The dredged areas are removed from this coverage because seagrass is not expected to grow in areas that have been dredged.
- Identify and note points that fall below 0.3 m and above 3.5 m from the coverage. This step is needed because seagrass growing at depths less than 0.3 m are likely not light-limited, and seagrass are not expected to grow at depths greater than 3.5 m.
- Identify and note points from the intersections of holes or bare areas, which do not represent the deep edge of the seagrass bed.
- These steps are also followed separately for each assessment year so that the median value can be calculated.

The final points that represent the seagrass deep edge boundary for the assessment years' union coverage are then exported from GIS into Excel to conduct the two-step evaluation. The depth points are sorted from highest to lowest, and the count of the number of points at each depth is determined. The cumulative count is determined by taking the count for the shallowest depth and adding it to the count for the next shallowest point until the counts for all the depths are added together to yield the total number of depth points. The cumulative count at each depth is divided by the total points to determine the percentage of the seagrass points at each depth. These points are then plotted as a curve on a graph for comparison with the TMDL cumulative distribution curve. For the Step 2 evaluation, the median depth point is calculated for each assessment year using Excel. These medians are then compared with the TMDL median to determine compliance.

The maps in **Figure C-1** and **Figure C-2** include the locations of ground truthing conducted before and during aerial surveys. Additionally, the transect locations where SJRWMD conducts seasonal monitoring are shown. For more information on how SJRWMD and partners conduct seagrass surveys, the SJRWMD SOP (SJRWMD 2020) is referenced in **Section 4**.

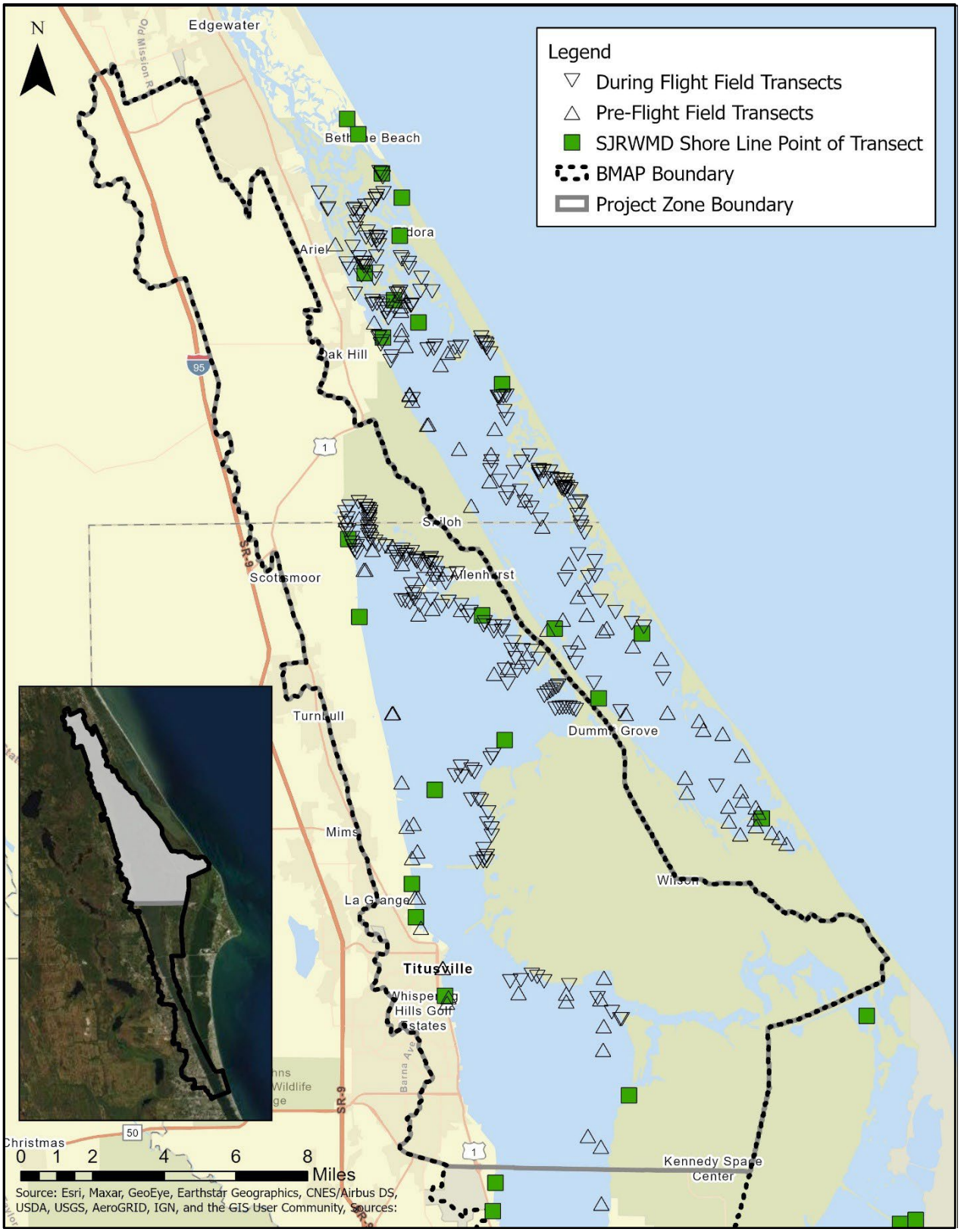

Figure C-1. Map of the seagrass transects in NIRL A

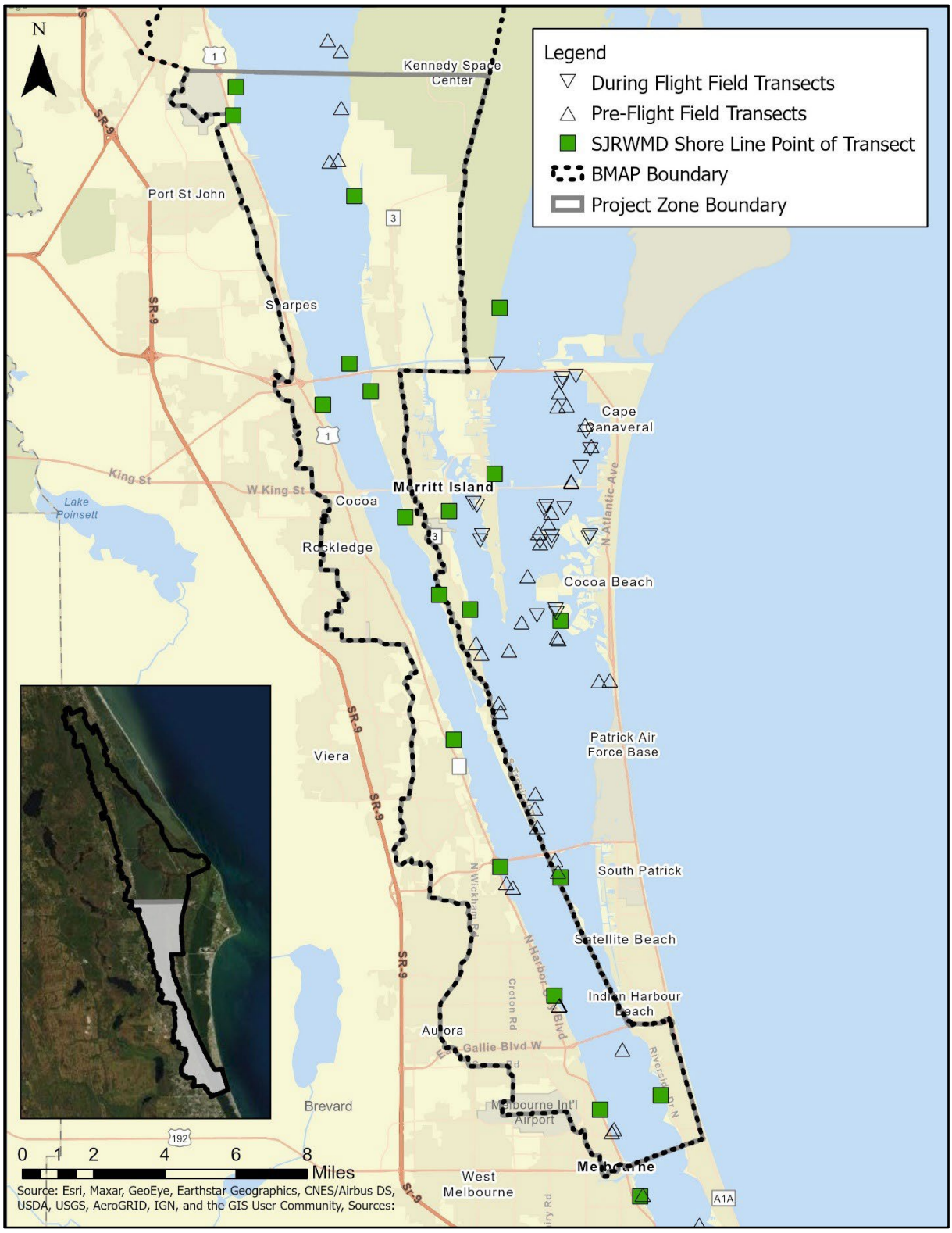

Figure C-2 Map of the seagrass transects in NIRL B

Appendix D. 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

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 bio-solids. 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, Florida Statutes (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 North Indian River Lagoon BMAP, there are 7 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.

Figure D-1 and **Table D-1** show the percentage of agricultural land use within the North Indian River Lagoon 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 D-1. Agricultural land use in the NIRL BMAP

Non-agricultural acres	210,295
Agricultural acres	3,949

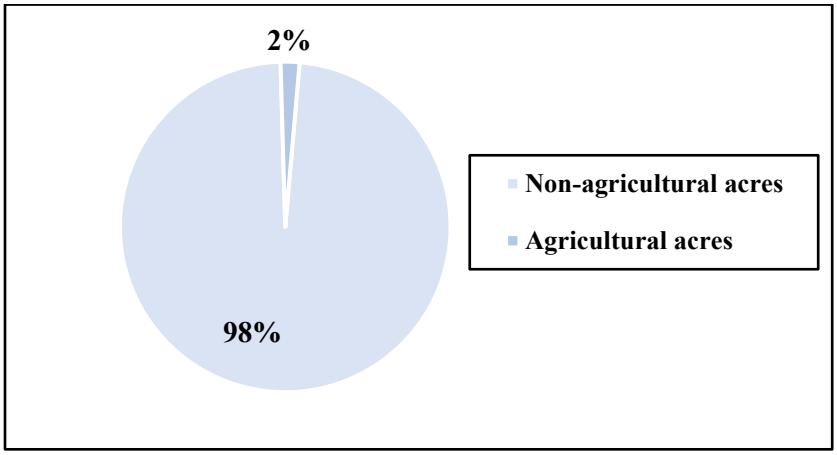

Figure D-1. Agricultural land use in the Banana River Lagoon BMAP

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 D-2. Agricultural lands enrolled in the North Indian River Lagoon BMAP by BMP Program Commodity

Commodity	Agricultural Acres Enrolled	Percent of Agriculture Enrolled in BMPs
Citrus	245	26%
Cow/Calf	587	26%
Fruit/Nut	35	26%
Multiple Commodities	155	26%
Nursery	19	26%
Total	**1,040**	**26%**

Table D-3. Agricultural acres enrolled by commodity and crediting Location

Commodity	Project Zone A (acres)	Project Zone B (acres)
Citrus	226	18
Cow/Calf	521	66
Fruit/Nut	29	6
Multiple Commodities	11	144
Nursery	17	2
Total	804	236
Percent of Agricultural Lands Enrolled in BMPs	26%	27%

As of July 2024, 26% of the agricultural acres in the North Indian River Lagoon BMAP are enrolled in FDACS' BMP program. **Table D-2** and **Table D-3** show the acreages enrolled in the BMP Program by commodity. 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

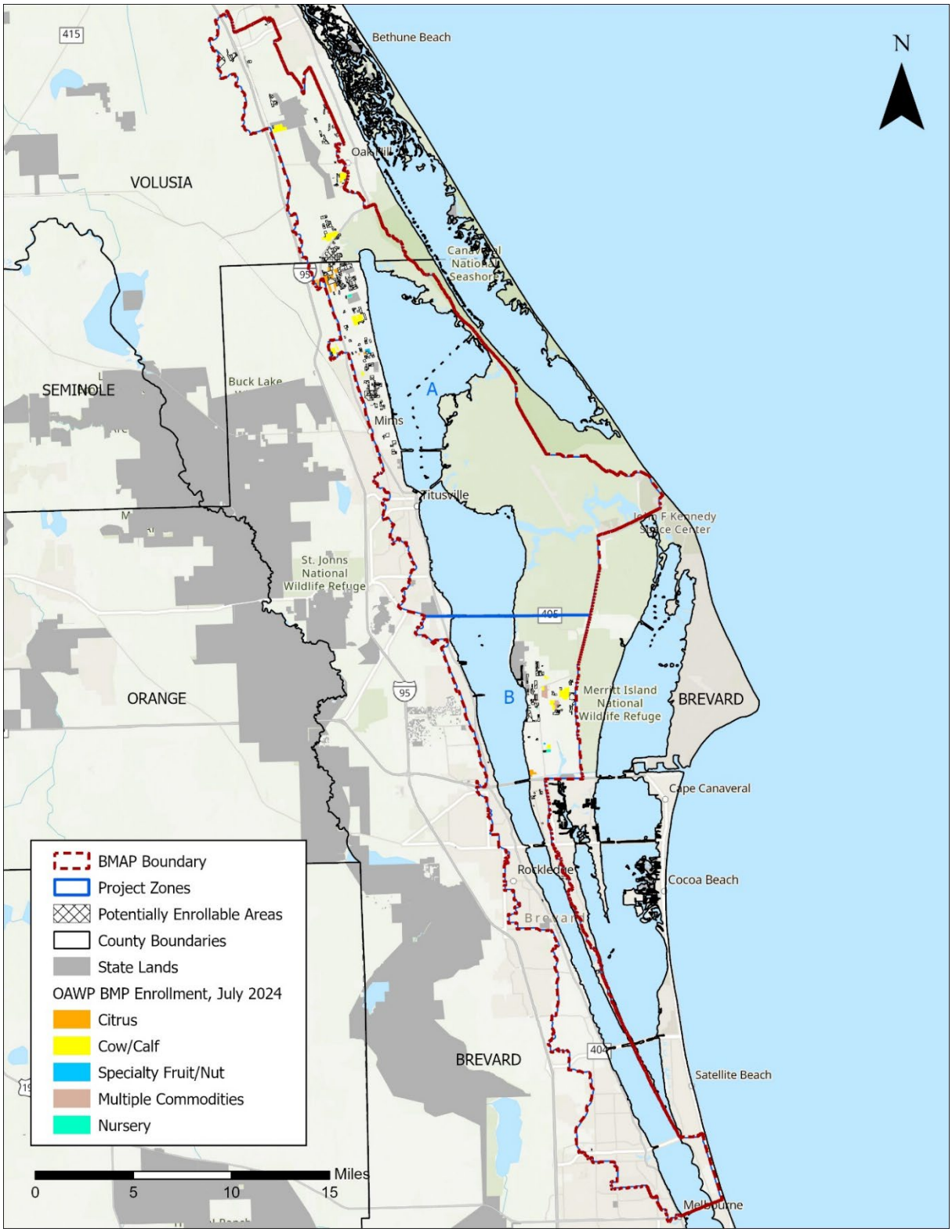

Figure D-2. Agricultural enrollment in the NIRL BMAP

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 D-4 shows the breakdown of agricultural lands within the North Indian River Lagoon BMAP by crediting location based on the FSAID 11 and the results of the FDACS unenrolled agricultural lands characterization.

Table D-4. Agricultural lands in the NIRL BMAP by crediting location

* Enrollment information current as of June 30th, 2024.

Crediting Location	Agricultural Acres	Unenrolled - Unlikely Enrollable Acres	Agricultural Acres - Adjusted	Agricultural Acres Enrolled*
A	5,285	2,205	3,080	804
B	1,413	545	869	236

Indian River Lagoon BMAP Mailout Effort

To increase enrollment rates and verify land uses where additional focus may be required to achieve resource protection, FDACS is sending correspondence to agricultural landowners not currently enrolled in the BMP Program. FDACS determines enrollment eligibility using the land use codes provided by the Florida Department of Revenue and data from local property appraisers' websites indicating that the parcel owner has applied for and received an agricultural tax status as a commercial agricultural operation. FDACS is using a contractor to validate addresses prior to mailing out the letters, facilitate sending out the letters, and respond to questions about the letters. FDACS also coordinates with partner agencies such as the water management districts, extension offices, farm bureau, counties to let them know these efforts would take place and to direct letter

recipients to the OAWP. The letter responses rates and FDACS field staff enrollment assignments are tracked via a GIS web-based application. Landowners that fail to respond to the mailed letter, indicate that they do not want to enroll in the FDACS BMP program, or choose to engage in the water quality monitoring option, are referred to DEP for enforcement. As of February 2024, BMP enrollment within the Indian River Lagoon has increased by almost 14,000 acres due to mail out efforts.

Potentially Enrollable Lands

There are 2,915 acres of potentially enrollable lands within the North Indian River Lagoon BMAP based on the assessment of unenrolled agricultural lands performed by FDACS. **Table D-5** shows the potentially enrollable acreages by crop type. **Figure D-3** shows the count of potentially enrollable parcels based on size classifications used by FDACS.

Table D-5. Potentially enrollable acres by crop type

Crop Type	Acres
Citrus	139
Crops	16
Fallow	1,550
Grazing Land	1,105
Livestock	11
Nursery	50
Open Lands	44
Total	**2,915**

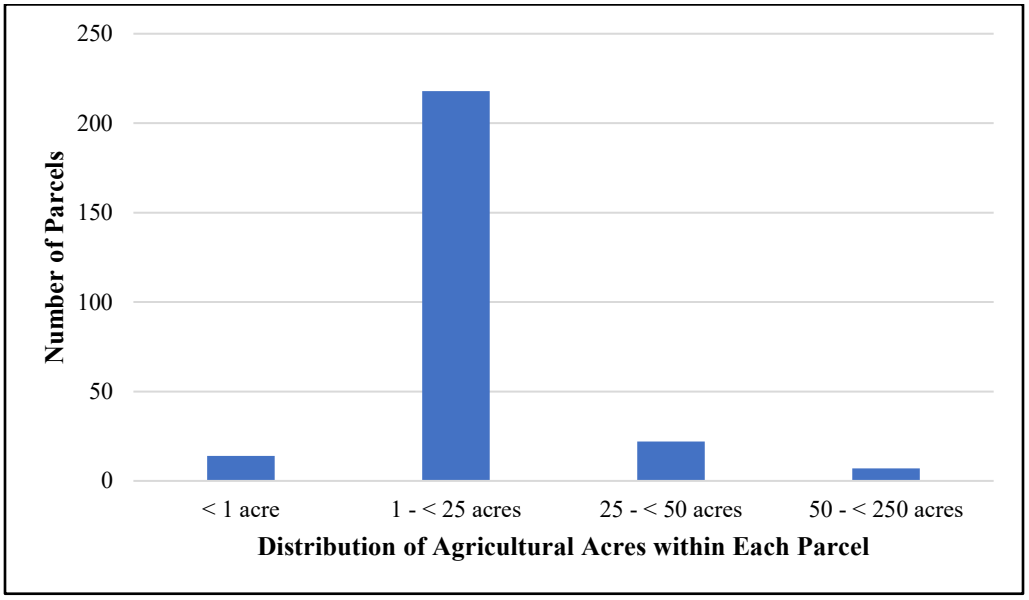

Figure D-3. Count of potentially enrollable parcels by size class in the North Indian River Lagoon

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.

Table D-6 identifies the number of agricultural technologies that received cost-share assistance in the North Indian River Lagoon BMAP area and the associated nutrient reductions[1]. The nutrient reductions were used to develop a methodology to estimate nutrient reductions for NOIs that have received cost-share funding. The NOI boundary, based on property appraiser parcel data, was considered the area treated by the cost-shared agricultural technology or project. For parcels with more than one cost-share project, OAWP identified the order of treatment to determine the reductions for the multiple projects based on each cost-shared agricultural technology. Estimated nutrient reductions from FDACS cost share are shown in **Table D-7**.

Table D-6. Cost share project counts and estimated nutrient reduction efficiencies

Project Types	TN Reduction	TP Reduction	Project Count
Chemigation/fertigation	20%	20%	0
Composting and/or storage project			0
Crop implements			0
Culvert (if culvert is included in parcel with structures for water control it will not be counted as a separate project)	17%	29%	0
Dairy work	50%	50%	0
Drainage improvements, mole drain, ditch cleaning	10%	15%	0
Engineering, surveying, planning, modeling			0
Fence	10%	10%	1
Irrigation improvements, automation	20%	20%	0

[1] Soil and Water Engineering Technology, Inc. (2016). Estimation of Total Phosphorous & Nitrogen Loads Reductions. Soil and Water Engineering Technology, Inc.

Project Types	TN Reduction	TP Reduction	Project Count
Precision ag technology	30%	10%	0
Retention, detention, tailwater recovery, berms (Cow/Calf)	25%	18%	0
Retention, detention, tailwater recovery, berms (VAC, Citrus)	64%	70%	0
Structure for water control	17%	29%	0
Weather station	20%	5%	0
Well, pipeline, trough, pond, heavy use protection	50%	50%	0

Table D-7. Estimated nutrient reductions from FDACS cost share

Crediting Location	Estimated Reductions (TN)	Estimated Reductions (TP)
Project Zone B	112	21

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.

Appendix E. Planning for Additional Management Strategies

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 meet their next 5-year milestone reductions, specific project identification efforts are required to be submitted by January 14, 2026. Any such project identification efforts must define the purpose of and a timeline to identify sufficient projects to meet the upcoming milestone. The project description and estimated completion date for any such project identification effort must be provided and reflect the urgency of defining, funding, and implementing projects to meet the upcoming and future BMAP milestones. 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. Only those entities that provide sufficient project identification efforts will be deemed as possessing a defined compliance schedule. Those entities without an adequate project list nor a defined compliance schedule to meet their upcoming 5-year milestone may be subject to enforcement actions. 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 memorandum of understanding 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 F. Nutrient Management Plan Requirements

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 F-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 F-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. Augustine grass (%)	SeashorePaspalum (%)	Centipedegrass (%)	Zoysia (%)
N	1.95 - 4.63	1.53 - 2.41	2.80 -3.50	1.5 - 2.9	2.04 - 2.36
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	-	-	-

f. 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:

g. ***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.

h. ***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.

i. ***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.

j. ***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.

k. ***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.

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

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

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

WWTP = Wastewater treatment plant. DIW = Deep injection well.

Facility ID	Facility Name
FL0103268	Titusville, City of - North - Osprey WWTF
FLA102750	Port St John Wastewater Treatment Plant
FLA010323	David B Lee Wastewater Treatment Plant
FL0021521	Cocoa, City of - Cocoa Water Reclamation Facility
FL0102679	South Central Regional Wastewater Treatment Plant
FLA017413	Volusia County/Southeast WWTF-7
FL0021571	Rockledge, City Of
FLA102695	Brevard County Utilities Department/Sykes Creek Regional Wastewater Treatment Facility

Appendix H. Methods for SJRWMD Status and Trends Assessment

Surface water quality data in the Indian River Lagoon were analyzed for status and trends from 23 stations in the CIRL, 16 stations in the BRL, and 7 stations in the NIRL. Water quality status is an indication of the condition of a waterbody for a given analyte or parameter (for example, color or total phosphorus). Water quality trends indicate whether a series of analyte or parameter values is increasing or decreasing over time.

Water Quality Status

The status assessment period was five years, from Jan. 1, 2018, to Dec. 31, 2022. At least three years of data during the five-year status assessment period were required to complete the status assessment, and the last year had to be 2022 (2020 for groundwater stations). Water quality status is represented by the median of annual median values from the five-year assessment period. Median values were chosen to represent water quality status as they are not greatly skewed by outliers, and thus serve as a robust indicator of central tendency.

Water quality status is indicated by symbol color in the status and trends maps. For surface water analytes and some springs and groundwater analytes, percentiles were assigned to ranked status results. Ranges of percentiles were established (low: 0th–25th percentile, medium: 25th–75th percentiles, high: 75th–100th percentile) and these three ranges are indicated with different shades of blue color, from light to dark. For most of the springs and groundwater analytes, the range is not based on a percentile distribution, but rather a numerical range. Note that all ranges are expressed as low, medium or high relative to each other, and high values do not necessarily indicate poor water quality.

Water Quality Trends

The trend assessment period was 15 years, from Jan. 1, 2008, to Dec. 31, 2022. At least 10 years of data were required from the 15-year period of record to calculate a trend. The 10-year period of record could be any 10 years within the 15-year period, including periods for which there was a gap in the data, although the last year in the period had to be 2022 (2020 for groundwater stations). Years in the period of record that had more samples than other years were adjusted such that each year was represented by the same number of samples, when possible. Trends were calculated using the nonparametric Mann-Kendall test. A non-seasonal version of the test was used if there were no statistically significant differences between monthly values (Kruskal-Wallis test, $p<0.05$). A seasonal version of the Mann-Kendall test was used if there were significant differences.

Water quality trends are described as increasing trend, decreasing trend, a statistically non-significant trend, or some stations may have insufficient data to conduct a trend analysis. Trends that are changing more than 5% per year are indicated in **Table 12** in **Section 2.2**. Stations may have insufficient data for a variety of reasons. For example, a newly established station that has not been sampled for at least 10 years will have insufficient data for a trend calculation. In some cases, a station will have results for some analytes, but not others. This report does not attempt to analyze the cause or impacts of any trends, nor are the trend results meant to be forecasts. Rather, trends indicate what has happened at the water quality station over the assessment period.

Water Quality Sample Collection and Laboratory Analysis

Water quality data were derived from samples collected primarily by SJRWMD field staff. For surface water and springs monitoring stations, most samples were "grab" samples, which means that they were collected using a technique of either inverting the sample bottle in the water column or pouring sample water from a separate collection device, such as a Van Dorn sampler, into the sample bottle. "Vertically integrated" samples were also included in the surface water and springs assessments. These samples were obtained with the use of a long sampling tube and indicate water quality over a range of depths. Since most waterbodies in the district are shallow and not stratified, data from all depths were used for the assessment, including vertically integrated samples. The samples for all three water resource types were analyzed using U.S. Environmental Protection Agency (EPA) methods at the district's laboratory or at various contract labs.

Water Quality Data Preparation

Prior to use in the assessment, sample data were evaluated and filtered in a multi-step process. Important details of this process are outlined below.

- All sample data were analyzed using both SAS and R software.
- Collection, analysis and processing of water quality samples and data can be an error-prone process, and problems can occur. On those rare occasions, the laboratory will associate qualifier codes with the data. In this assessment, qualifier codes were evaluated and any suspect data were omitted. In addition, any quality assurance samples such as duplicates and blanks were omitted.
- Total nitrogen (TN) was calculated for each day of data from the sum of total Kjeldahl nitrogen (TKN) and total nitrate + nitrite (NO_x), even if NO_x was missing. If TKN was missing, then TN was not calculated. If total NO_x was missing, then dissolved NO_x was used instead, if it was available. Calculated TN was then added to the data set.
- Daily median values were calculated for all data to ensure that there was only one value per day. The daily median value closest to the midpoint of each month was used to represent the month for trend calculations.
- Individual station and analyte datasets that contained more than 5% non-detect values were evaluated for status using survival statistics methods and for trends using the Kendall tau correlation coefficient with an Akritas-Theil-Sen regression estimate (Helsel 2005).
- Analytical results were combined with a spatial representation of sampling locations. The interactive maps were created using an ESRI ArcGIS Online web application template.