DeLeon Spring, Gemini Springs and Volusia Blue Spring Basin Management Action Plans

October 29, 2024 at 2:00 PM EDT

In-person

Lyonia Environmental Center
2150 Eustace Ave.
Deltona, FL 32725

Agenda

- DeLeon Spring, Gemini Springs, and Volusia Blue Spring Basin Management Action Plans (BMAP) Overview.
- Analysis results summary.
- Basin required reductions.
- Entity required reductions.
- Poster Session.

Please note the FTP site for documents pertaining to the various BMAPs:
publicfiles.dep.state.fl.us - /DEAR/BMAP/
For more information, contact: Lauren Campbell at (850) 245-8083 Lauren.Campbell@FloridaDEP.gov.

DELEON SPRING, GEMINI SPRINGS AND VOLUSIA BLUE SPRING BASIN MANAGEMENT ACTION PLAN UPDATES

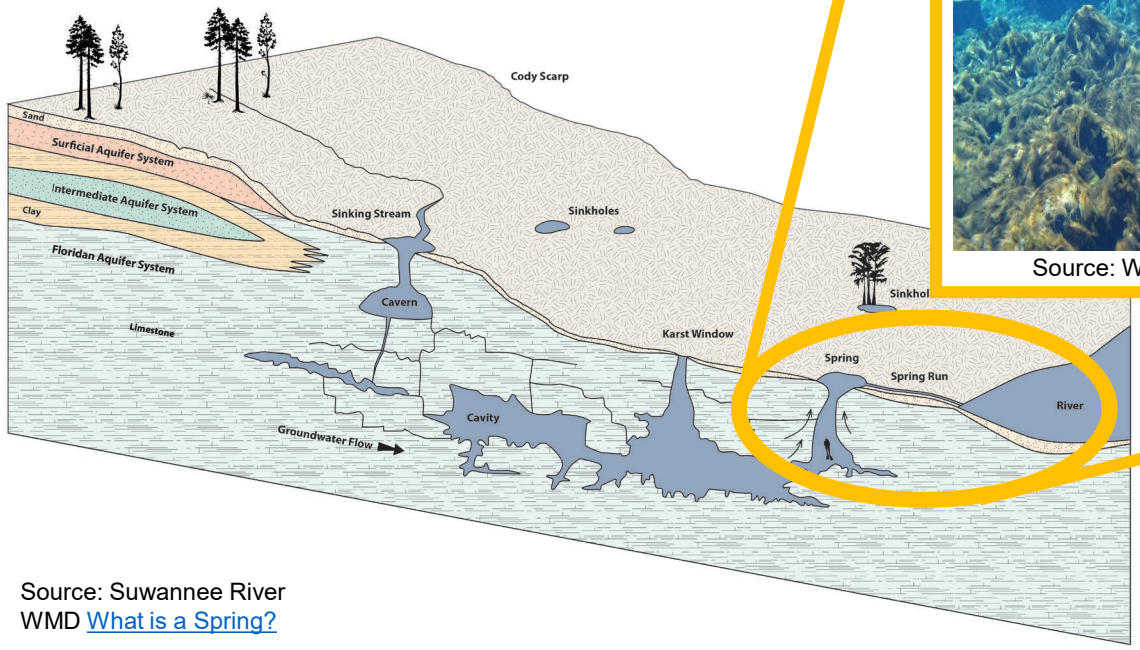
Lauren Campbell PhD, Environmental Administrator
Division of Environmental Assessment and Restoration/
Water Quality Restoration Program
Florida Department of Environmental Protection

Deltona, FL | Oct. 29, 2024

AGENDA

- Background.
- Analysis results summary.
- Basin required reductions.
- Entity required reductions.
- Poster session.

BACKGROUND
SPRINGS RESTORATION

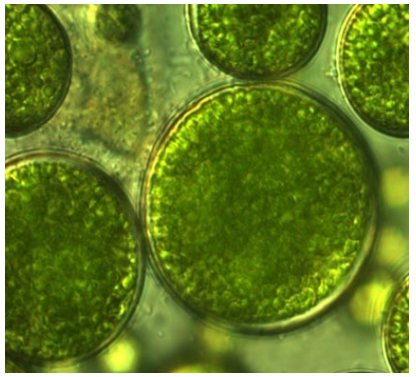


Source: Suwannee River WMD [What is a Spring?]

Impairment: Not meeting water quality standards.

Source: Weeki Wachee TMDL

Algae growth can be caused by **excess nutrients.**



Source: Shutterstock

Total maximum daily load (TMDL): The maximum amount of a pollutant that a waterbody can receive and still maintain its designated uses. **This represents the target for restoration.**

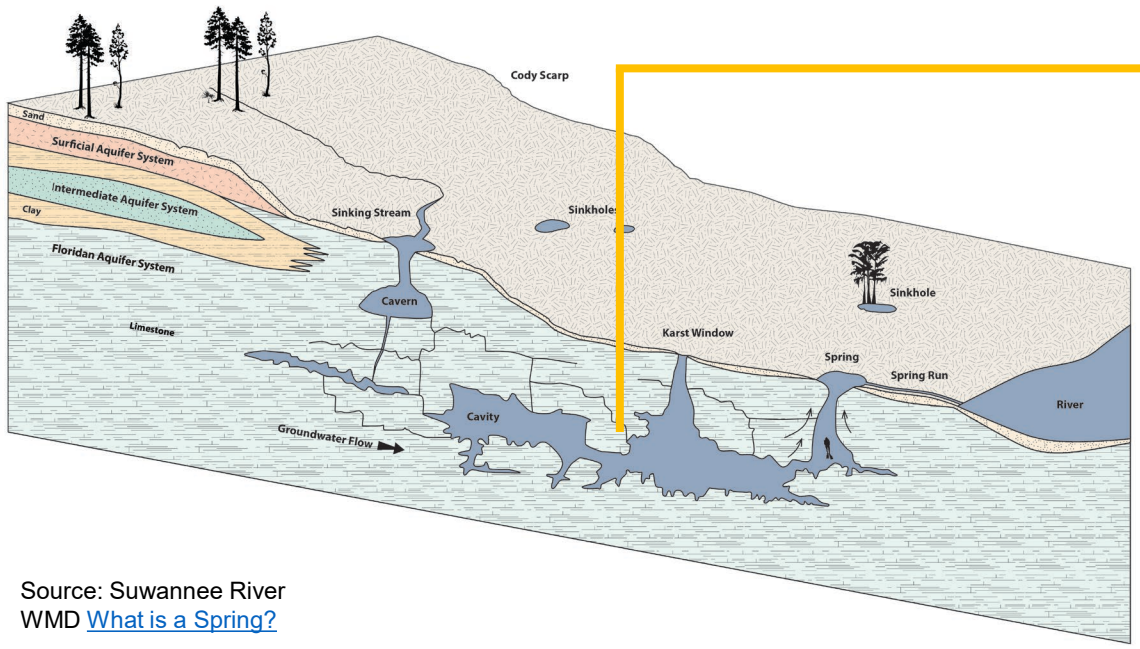
Source: Florida Geological Survey - Rainbow Spring #4

BACKGROUND
SPRINGS RESTORATION

Excess nutrients come from **sources on the landscape.**

Source: Beta Analytics

BMAP Projects: Efforts that result in the reduction or prevention of nutrients to the waterbodies addressed by the BMAP.



Source: Suwannee River WMD [What is a Spring?]

Complex groundwater dynamics lead to variable travel times to the spring vent.

Water quality monitoring is performed through a network of surface water, spring vent and groundwater stations to assess waterbodies and measure progress towards restoration goals.

BMAP: Basin Management Action Plan

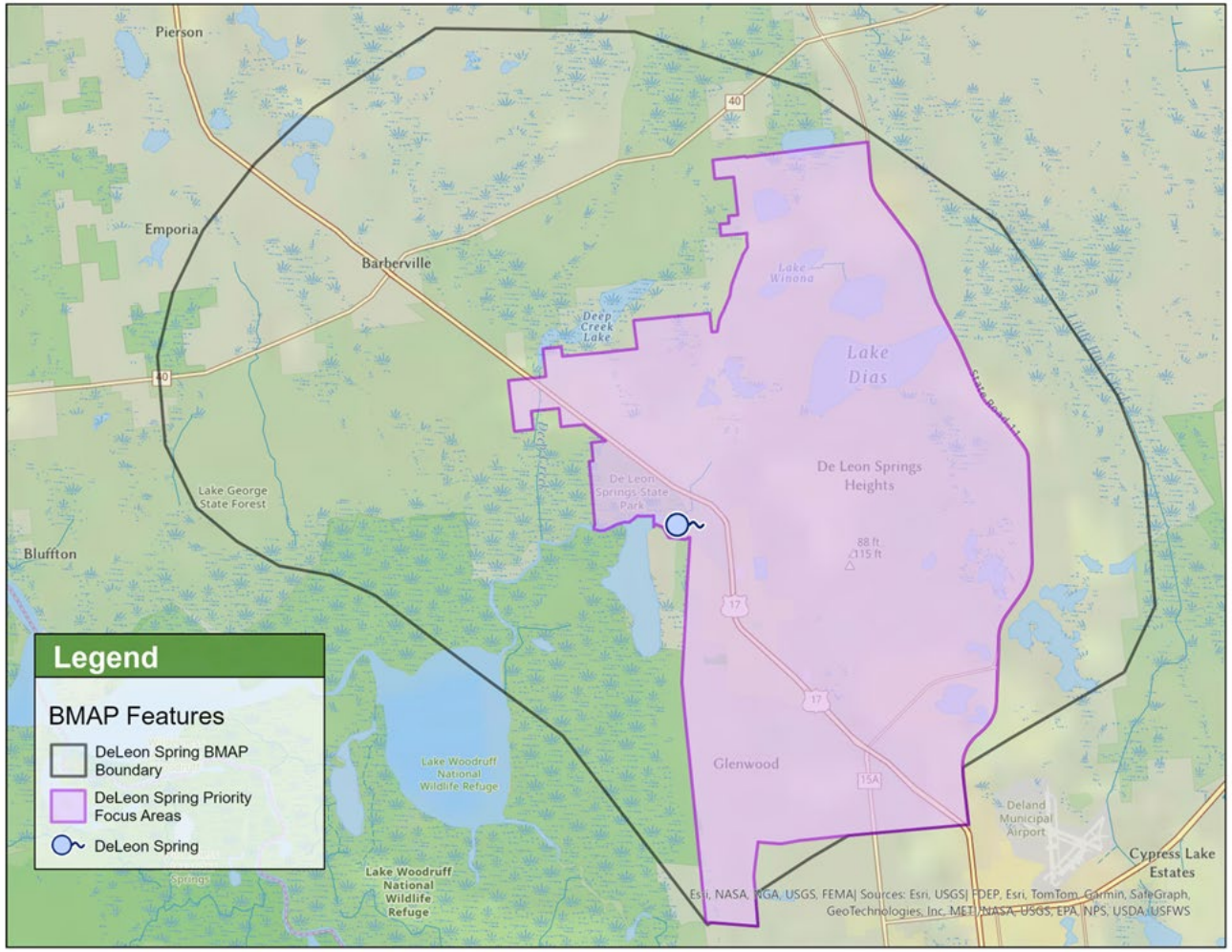
BMAP: An adaptive framework for water quality restoration that contains a comprehensive set of solutions developed to achieve the pollutant reductions established by a TMDL.


Source: Florida Geological Survey - Rainbow Spring #4

DELEON SPRING BMAP

- BMAP area is approximately 65,392 acres located in Volusia County.
- Impaired for the nitrate form of nitrogen.
- TMDL is an annual average target of 0.35 mg/L of nitrate.

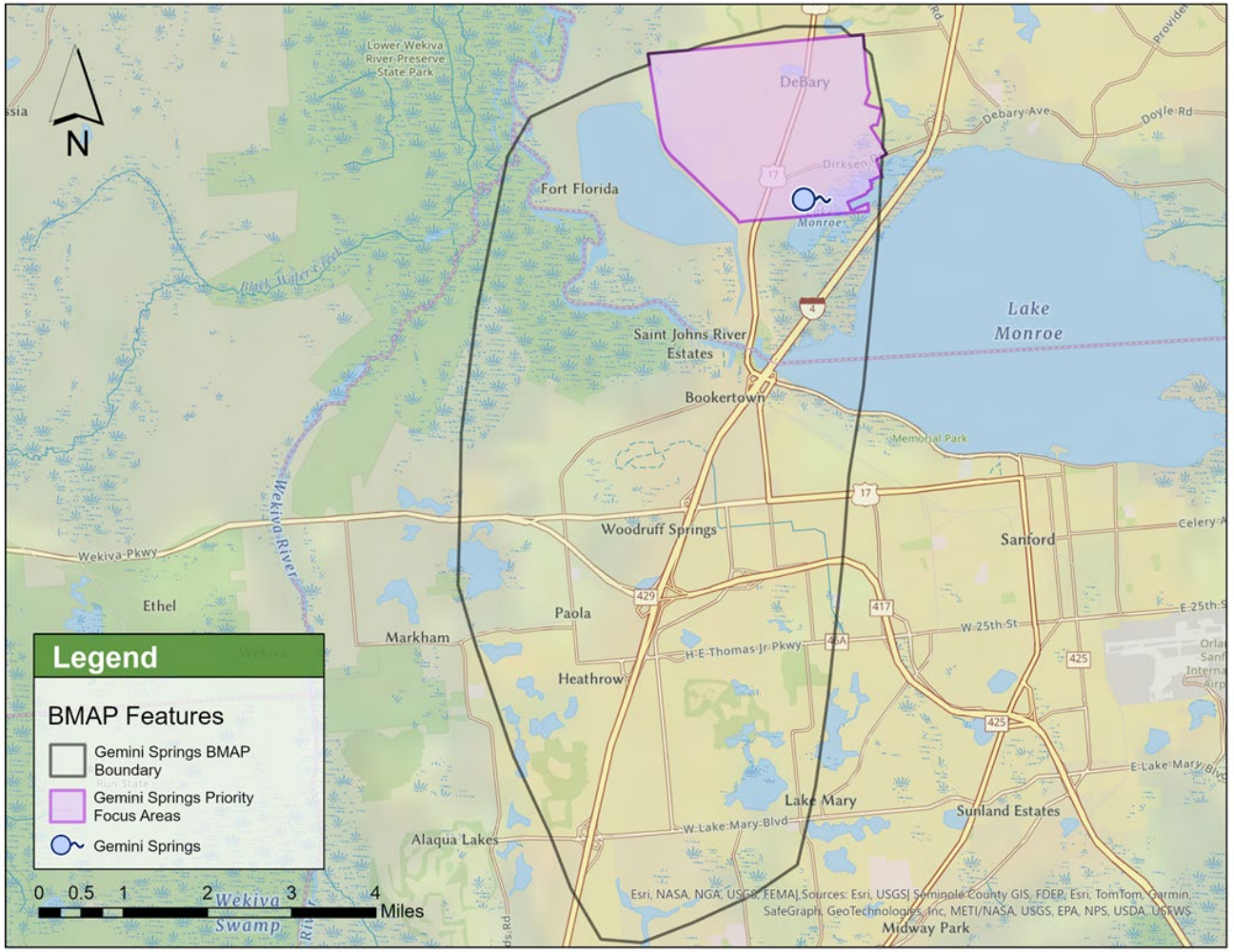
Type of Entity	Name
Responsible Stakeholders	Volusia County
Responsible Agencies	Florida Department of Agriculture and Consumer Services Florida Department of Environmental Protection Florida Department of Health St. Johns River Water Management District
Other Interested Stakeholders	1000 Friends of Florida Agricultural Producers Blue Springs Alliance Citizens/Homeowners East Central Florida Regional Planning Council Florida Department of Transportation Florida Farm Bureau Florida Onsite Wastewater Association Save the Manatee Club Septic Contractors Volusia Water Authority



GEMINI SPRINGS BMAP

- BMAP area is approximately 27,290 acres in Seminole and Volusia counties.
- Impaired for the nitrate form of nitrogen.
- TMDL is an annual average target of 0.35 mg/L of nitrate.

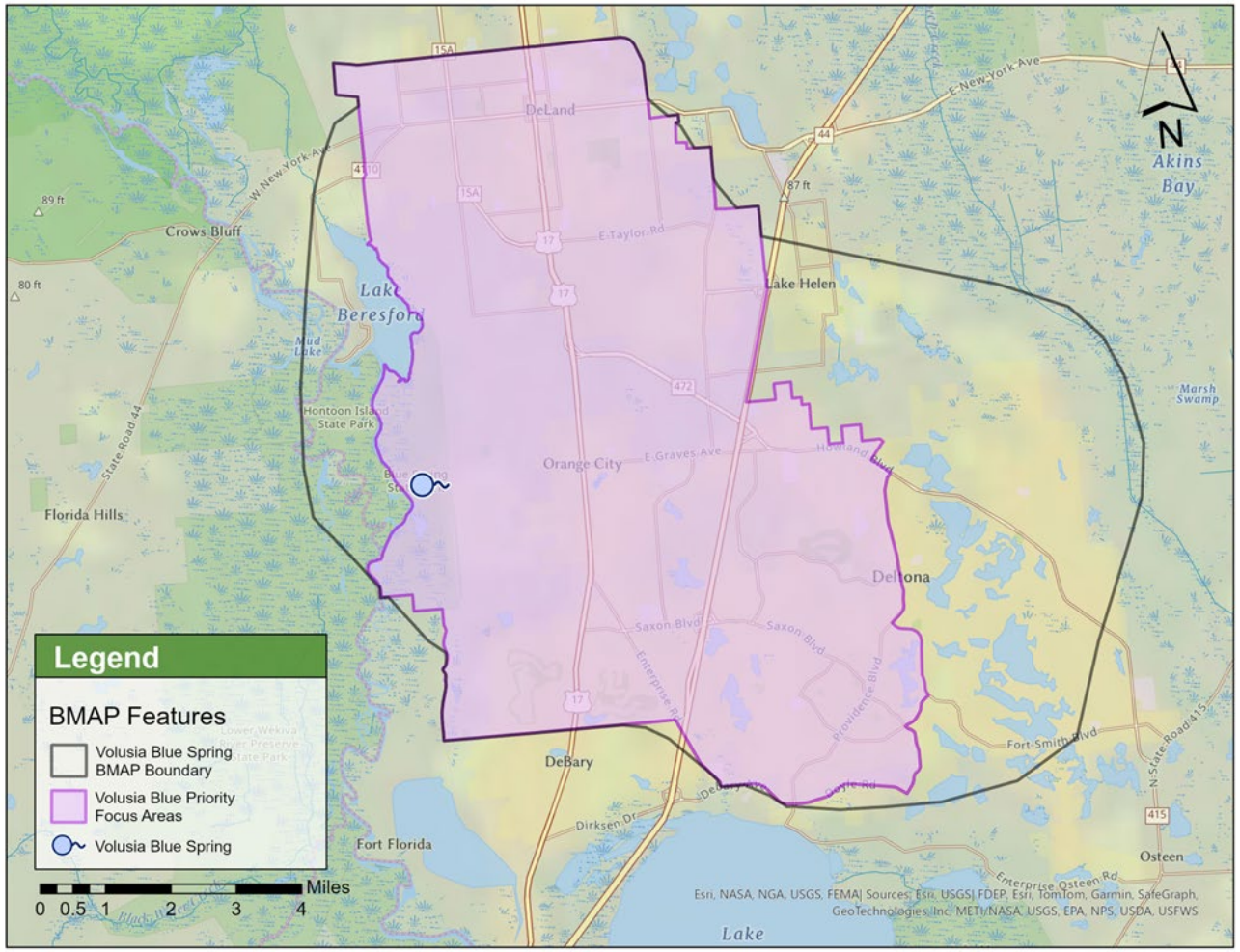
Type of Entity	Name
Responsible Stakeholders	City of DeBary City of Lake Mary City of Sanford Seminole County Volusia County
Responsible Agencies	Florida Department of Agriculture and Consumer Services Florida Department of Environmental Protection Florida Department of Health Florida Department of Transportation St. Johns River Water Management District
Other Interested Stakeholders	Agricultural Producers Blue Springs Alliance Citizens/Homeowners East Central Florida Regional Planning Council Florida Farm Bureau Florida Onsite Wastewater Association Save the Manatee Club Septic Contractors Volusia Blue Audubon Volusia Water Alliance



VOLUSIA BLUE SPRING BMAP

- BMAP area is approximately 69,102 acres in Volusia County.
- Impaired for the nitrate form of nitrogen.
- TMDL is a monthly average target of 0.35 mg/L of nitrate.

Type of Entity	Name
Responsible Stakeholders	City of DeBary City of DeLand City of Deltona City of Lake Helen City of Orange City Volusia County
Responsible Agencies	Florida Department of Agriculture and Consumer Services Florida Department of Environmental Protection Florida Department of Health Florida Department of Transportation St. Johns River Water Management District
Other Interested Stakeholders	Blue Spring Alliance Florida Fish and Wildlife Conservation Commission Florida Onsite Wastewater Association Homeowners/Citizens Save the Manatee Club Stetson University University of Florida Institute of Food and Agricultural Sciences



BILLS AND LEGISLATION
SUMMARY

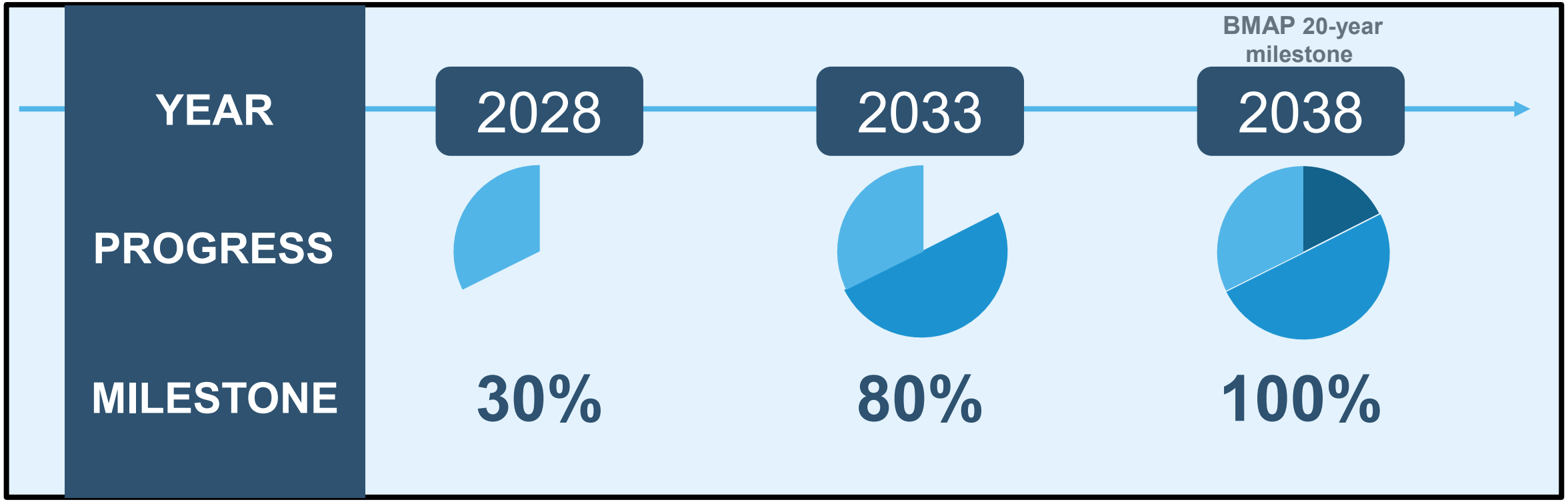
- Florida Watershed Restoration Act (section 403.067, Florida Statutes (F.S.)).
- Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.)
- 2020 Senate Bill (SB) 712 - Clean Waterways Act.
- 2023 House Bill (HB) 1379.
- 2024 HB 1557.

Summary of latest updates:

- Prohibition on new conventional onsite sewage treatment and disposal system (OSTDS) where sewer is available on lots one acre or less.
- Wastewater treatment plans and OSTDS remediation plans.
- List of projects to meet five-year milestones.
- Agricultural Cooperative Regional Elements.
- For spring BMAPs, prohibitions expanded from PFA to the entire BMAP.
- Advanced waste treatment (AWT) required for more types of effluent, including reclaimed water.

BMAP MILESTONES

FIVE-, 10-, AND 15-YEAR MILESTONES/REDUCTION SCHEDULE



Assessment of progress toward these milestones must be conducted every five years and revisions to the plan must be made as appropriate. BMAPs use an adaptive management approach that allows for incremental load reductions through the implementation of projects and management strategies; however, the restoration target – the TMDL – remains the same.

BMAP UPDATES
DRAFT LOADING SUMMARY

DeLeon Spring- Total Reduction Needed to Meet the TMDL		
	Nitrogen Loads (lbs-N/yr)	**Information**
Total Load at Spring Vents (October 2023)	30,556	Upper 95 % confidence interval – nitrate and flow data 2012-2022
TMDL Load	16,278	TMDL target is 0.35 mg/L and using the same flow data and proportions
Percent Required Reductions	47%	Based on Spring Vent Load and TMDL Load
Total NSILT Load (October 2023)	153,756	2023 NSILT
Required Reductions	71,846	Proportional decrease in NSILT load

cfs: Cubic feet per second.
mg/L: milligram per liter.

BMAP UPDATES

DRAFT LOADING SUMMARY

Gemini Springs- Total Reduction Needed to Meet the TMDL		
	Nitrogen Loads (lbs-N/yr)	**Information**
Total Load at Spring Vents (October 2023)	26,467	Upper 95 % confidence interval – nitrate and flow data 2012-2022
TMDL Load	6,948	TMDL target is 0.35 mg/L and using the same flow data and proportions
Percent Required Reductions	74%	Based on spring vent Load and TMDL load
Total NSILT Load (October 2023)	68,891	2023 NSILT
Required Reductions	50,807	Proportional decrease in NSILT load

BMAP UPDATES
DRAFT LOADING SUMMARY

Volusia Blue Spring- Total Reduction Needed to Meet the TMDL		
	Nitrogen Loads (lbs-N/yr)	**Information**
Total Load at Spring Vents (October 2023)	196,247	Upper 95 % confidence interval – nitrate and flow data 2012-2022
TMDL Load	96,649	TMDL target is 0.35 mg/L and using the same flow data and proportions
Percent Required Reductions	51%	Based on Spring Vent Load and TMDL Load
Total NSILT Load (October 2023)	594,824	2023 NSILT
Required Reductions	301,881	Proportional decrease in NSILT load

REDUCTIONS

DRAFT SPRINGSHED REQUIRED REDUCTIONS

- The spring vent percentage was used to determine the required reduction for most source categories.
- For wastewater treatment facilities, reduction was determined based on the BMAP effluent standards and requirements recently adopted in state law.
- For agricultural sources, an assumed reduction of 15% will be achieved if crop producers are enrolled in the Florida Department of Agriculture and Consumer Services (DACS) BMP program and implement BMPs, and a reduction of 10% will be achieved if all livestock producers enroll in the DACS BMP program and implement BMPs. The remainder of reductions allocated to agricultural sources will be addressed through a combination of regional projects, ACE, cost-share projects and innovative technologies.

REDUCTIONS

DRAFT SPRINGSHED REDUCTIONS

DeLeon Spring Nitrogen Source	Allocations by Source (lbs-N/yr)	Percent of Total Reduction
Atmospheric Deposition (AD)	6,179	8.59%
Onsite Sewage Treatment and Disposal System (OSTDS)	28,115	39.09%
Wastewater Treatment Facility (WWTF)	1,873	2.60%
Farm Fertilizer (BMP Implementation)	5,122	7.12%
Livestock Waste-NonCAFO (BMP Implementation)	1,346	1.87%
Other Agriculture	16,200	22.52%
Urban Turf Fertilizer (UTF)	12,992	18.06%
Sports Turf Fertilizer (STF)	98	0.14%
Total	**71,925**	**100.00%**

REDUCTIONS

DRAFT SPRINGSHED REDUCTIONS

Gemini Springs BMAP Nitrogen Source	Allocations by Source (lbs-N/yr)	Percent of Total Reduction
Atmospheric Deposition (AD)	1,926	3.79%
Onsite Sewage Treatment and Disposal System (OSTDS)	31,952	62.89%
Wastewater Treatment Facility (WWTF)	35	0.07%
Farm Fertilizer (BMP Implementation)	29	0.06%
Livestock Waste-NonCAFO (BMP Implementation)	9	0.02%
Other Agriculture	170	0.33%
Urban Turf Fertilizer (UTF)	14,884	29.29%
Sports Turf Fertilizer (STF) -Golf	1,200	2.36%
Sports Turf Fertilizer (STF) -Other	45	0.09%
Regional Projects	557	1.10%
Total	**50,807**	**100.00%**

REDUCTIONS

DRAFT SPRINGSHED REQUIRED REDUCTIONS

Volusia Blue Spring Nitrogen Source	Allocations by Source (lb-N/yr)	Percent of Total Reduction
Atmospheric Deposition (AD)	11,134	3.69%
Onsite Sewage Treatment and Disposal System (OSTDS)	221,994	73.54%
Wastewater Treatment Facility (WWTF)	10,417	3.45%
Farm Fertilizer (BMP Implementation)	583	0.19%
Livestock Waste-NonCAFO (BMP Implementation)	405	0.13%
Other Agriculture	3,040	1.01%
Urban Turf Fertilizer (UTF)	46,581	15.43%
Sports Turf Fertilizer (STF) -Golf	5,750	1.90%
Sports Turf Fertilizer (STF) -Other	488	0.16%
Regional Projects	1,490	0.49%
Total	**301,881**	**100.00%**

REDUCTIONS

DRAFT ENTITY REQUIRED REDUCTIONS

- All local municipalities will be allocated reduction targets based on the loading estimated to occur under their jurisdiction from wastewater, OSTDS and urban fertilizer.
- Agriculture will be allocated based on reduction targets.
- Private wastewater treatment facilities will be required to meet advanced waste treatment standards or other BMAP wastewater requirements through permits.
- Golf courses will be required to develop nutrient management plans.

REDUCTIONS

DRAFT ENTITY REQUIRED REDUCTIONS

DeLeon Spring BMAP Entity	Milestone 2028 Required Reductions lbs-N/yr (30%)	Milestone 2033 Required Reductions lbs-N/yr (80%)	Milestone 2038 Required Reductions lbs-N/yr (100%)
Volusia County	12,364	32,971	41,213
Wiley M. Nash WRF*	313	836	1,045
Private WWTFs*	246	655	819
Agriculture (BMPs)	1,941	5,175	6,468
Ag-Cooperative Regional Elements and Cost Share	4,860	12,960	16,200

*Reductions for these entities will be tracked through permits and compliance actions.

REDUCTIONS

DRAFT ENTITY REQUIRED REDUCTIONS

Gemini Springs BMAP Entity	Milestone 2028 Required Reductions lbs-N/yr (30%)	Milestone 2033 Required Reductions lbs-N/yr (80%)	Milestone 2038 Required Reductions lbs-N/yr (100%)
City of DeBary	12,080	32,212	40,266
City of Lake Mary	759	2,024	2,530
City of Sanford	285	761	952
Seminole County	1,023	2,727	3,409
Private WWTF*	1	2	2
Private Golf Courses*	288	767	957
Agriculture (BMPs)	12	30	38
Ag-Cooperative Regional Elements and Cost Share	51	136	170
Regional Projects	167	445	557

*Reductions for these entities will be tracked through permits and compliance actions.

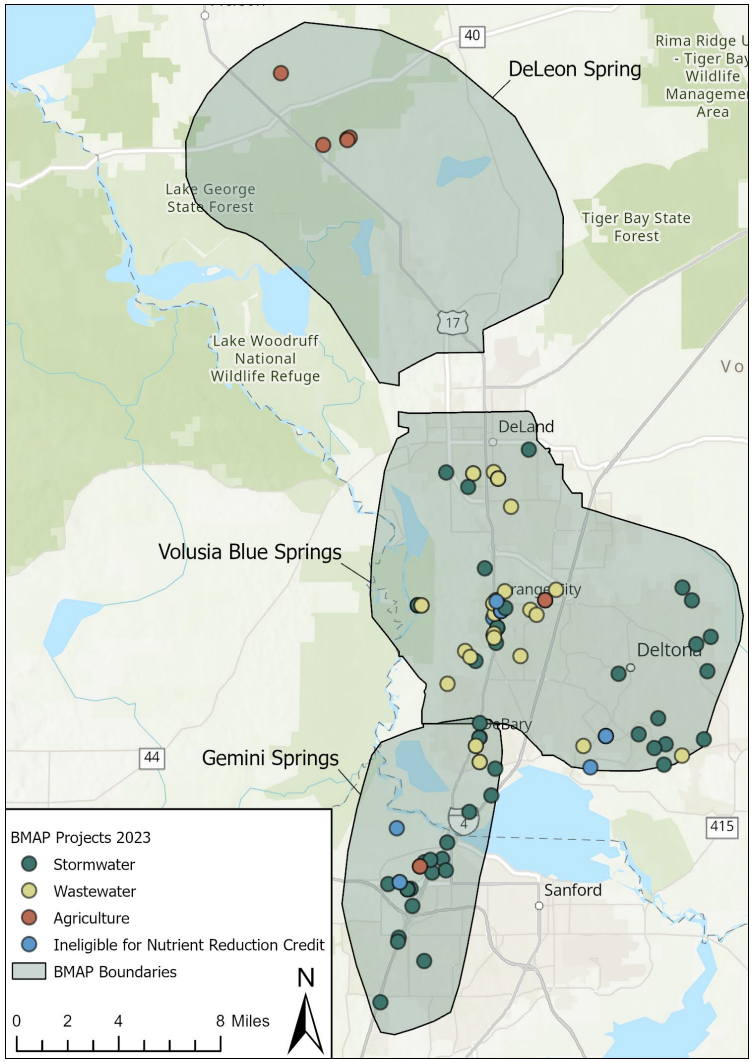
REDUCTIONS

DRAFT ENTITY REQUIRED REDUCTIONS

Volusia Blue Spring BMAP Entity	Milestone 2028 Required Reductions lbs-N/yr (30%)	Milestone 2033 Required Reductions lbs-N/yr (80%)	Milestone 2038 Required Reductions lbs-N/yr (100%)
City of DeBary	2,308	6,155	7,694
City of DeLand	12,311	32,829	41,036
City of Deltona	40,029	106,745	133,432
City of Lake Helen	1,827	4,871	6,089
City of Orange City	4,905	13,080	16,351
Volusia County	22,273	59,394	74,243
Blue Spring State Park	45	121	151
Private WWTFs*	146	388	484
Private Golf Courses*	1,725	4,601	5,750
Agriculture (BMPs)	296	790	988
Ag-Cooperative Regional Elements and Cost Share	912	2,432	3,040
Regional Projects	447	1,192	1,490

*Reductions for these entities will be tracked through permits and compliance actions.

PROJECTS



Under HB 1379, responsible entities must report on projects that demonstrate how they intend to meet the five-year milestones.

- It is critical to the BMAP program that entities plan for and report projects and project updates to the state through the Statewide Annual Report (STAR) process.
- All projects needed to fulfill milestones should be included in the STAR report, even if a funding source has not been identified.
- Reporting projects in the STAR allows the state to evaluate funding needs and prioritize projects to promote maximum environmental benefit and to meet milestones.

UPCOMING SCHEDULE

May-Aug. 2024

Individual meetings on allocations and milestones with BMAP stakeholders.

Aug.1, 2024

Final wastewater and OSTDS plans due from stakeholders.

Aug. - Nov. 2024

BMAP Portal opened early for project collection. Public meetings on allocations.

Technical analyses, project identification and BMAP document drafting.

June - Dec. 2024

Final draft BMAP documents and public meetings.

Dec. 2024 - Jan. 2025

Statutory deadline to update nutrient BMAPs.

July 1, 2025

RESOURCES

BMAP WEBSITE AND STORY MAPS

Florida Springs Basin Management Action Plans (BMAPs)

Welcome to the Florida Springs Basin Management Action Plan (BMAP) StoryMap

The springs BMAPs are developed with specific provisions for the protection and restoration of the state's Outstanding Florida Springs. This story map focuses on the springs-related BMAPs; for more details about other BMAPs or more information about the BMAP program in general, visit https://floridadep.gov/bmaps.

* The story map will display differently depending on the screen size and resolution being used. Story map best viewed in Chrome or Firefox.

Overview

The Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.) provides for the protection and restoration of the state"s Outstanding Florida Springs (OFS), which comprise 24 first magnitude springs, 6 additional named springs, and their associated spring runs. The act provides specific requirements for OFS BMAPs beyond those

1 Legislative Requirements

2 Crystal River - Kings Bay BMAP StoryMap

3 DeLeon Spring Story Map

4 Gemini Springs Story Map

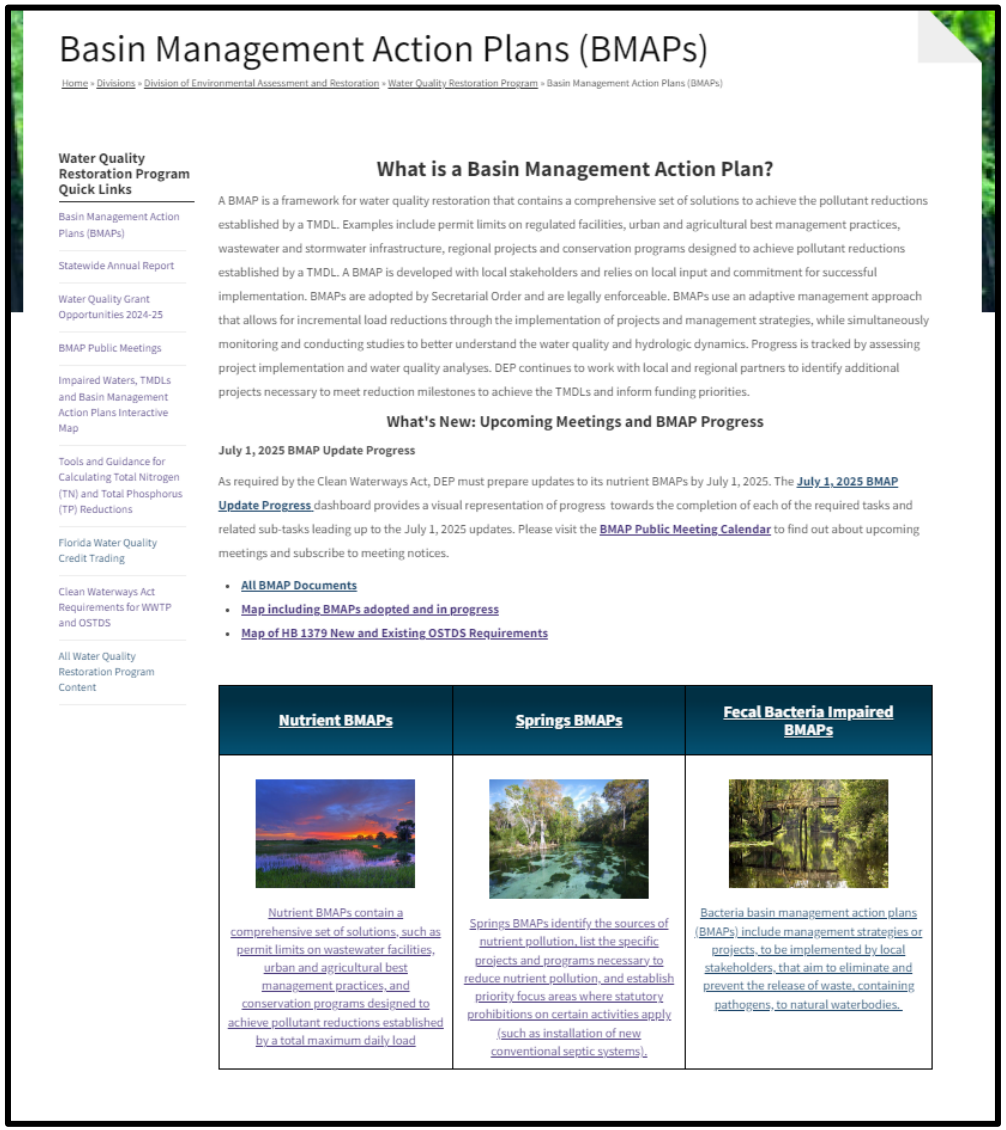
5 Homosassa and Chassahowitzka Springs...

6 Jackson Blue and Merritts Mill Pond BMAP Story Map

7 Rainbow Springs Group and Rainbow Springs Group Run...

8 Santa Fe River BMAP Story Map

9 Silver Springs and Upper Silver River BMAP Story Map



SUBSCRIBER PAGE

HOW TO CONTACT US

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THANK YOU

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FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

OVERVIEW - BASIN MANAGEMENT ACTION PLANS (BMAPS)

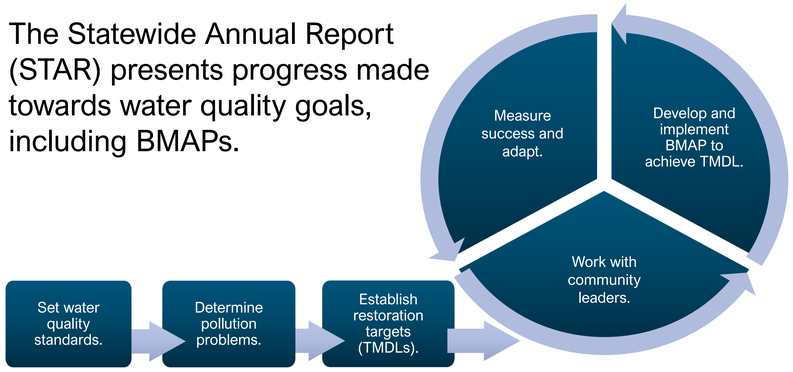
Outstanding Florida Springs Public Meetings, Fall 2024

Water Quality Framework

The Florida Department of Environmental Protection (DEP) monitors and assesses Florida's surface water and groundwater quality, including Outstanding Florida Springs.

DEP and partner agencies maintain and expand monitoring networks to provide water quality data for decision making.

The Statewide Annual Report (STAR) presents progress made towards water quality goals, including BMAPs.



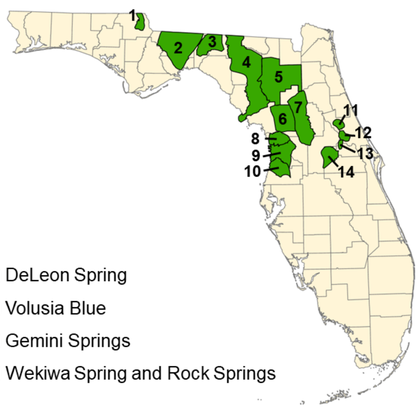
Outstanding Florida Springs BMAPs

A BMAP provides a water quality restoration framework to implement total maximum daily loads (TMDLs).

There are currently 13 BMAPs targeting the restoration of 24 Outstanding Florida Springs.

Springs BMAPs

1. Jackson Blue
2. Wakulla Spring
3. Wacissa
4. Suwannee
5. Santa Fe
6. Rainbow Springs
7. Silver Springs
8. Kings Bay-Crystal River
9. Chassahowitzka-Homosassa
10. Weeki Wachee
11. DeLeon Spring
12. Volusia Blue
13. Gemini Springs
14. Wekiwa Spring and Rock Springs



BMAP Legislation

Authority and responsibility for BMAPs is outlined in the following Florida Statutes (F.S.):

Florida Watershed Restoration Act (section 403.067, F.S) - Outlines the process for identifying impaired waters and the strategies to restore them, including cooperative plans, known as BMAPs.

Florida Springs and Aquifer Protection Act (sections 373.801 - .813, F.S.) -Provides for the protection and restoration of the state's Outstanding Florida Springs, which is comprised of 24 first-magnitude springs, six additional named springs and their associated spring runs.

Recent amendments to the above laws include:
2020 - Promotes resilient wastewater infrastructure and utilities; requires local governments to develop wastewater treatment facility (WWTF) plans and onsite sewage treatment and disposal system (OSTDS) remediation plans.

2023 - Requires a list of identified projects to achieve the five-year milestones in BMAPs and agricultural cooperative regional water quality improvement elements; adds requirements for local comprehensive planning; requires more stringent domestic wastewater treatment standards; expands eligibility for grant opportunities; and expands prohibitions in springs BMAP areas.

2024 - Requires advanced treatment of reclaimed water within BMAPs and requires private domestic wastewater facilities to coordinate with local governments in the development of wastewater treatment plans.

BMAP Components and Updates

Key Elements of BMAPs:
- The TMDL(s) that define the restoration targets.
- Physical description of the waterbody and contributing area.
- Description of the monitoring network and water quality.
- Identification of the pertinent pollution sources.
- Identification of responsible stakeholders.
- List of projects and strategies to reduce nutrient loading.

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Recent Updates:
- 2023 Nitrogen Source Inventory Loading Tool (NSILT).
- Spring Vent Analyses.
- Evaluation and expansion of the monitoring network.
- Local OSTDS and wastewater remediation plans.
- Determination of entity allocations and milestones.
- Evaluation of milestone progress with stakeholders.

New Additions to the Springs BMAPs:
- More detailed groundwater analyses.
- Updated spring vent water quality analyses.
- Incorporation of law requirements adopted 2020-24.
- Entity allocations.

BMAP Timeline

2018
Outstanding Florida Springs BMAPs adopted.

2020
Clean Waterways Act signed into Florida law.

2023
NSILT and spring vent analyses are updated with methodology revisions.

2025
Statutory deadline for updated nutrient BMAPs.

2028
Next BMAP milestone for entity reductions.

2018 | 2019 | 2020 | 2021 | 2022 | 2023 | **2024** | 2025 | 2026 | 2027 | 2028

January 2024
Public meeting about updated NSILT methodology.

May 2024
BMAP updates public meetings. Responsible entity meetings.

August 2024
Final OSTDS Remediation Plans and WWTF Plans due.

October 2024
Public meetings about allocated reductions and milestone progress.

December 2024
Final Draft BMAP documents and public meetings.

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FLORIDA SPRINGS – AN OVERVIEW

Outstanding Florida Springs Public Meetings, Fall 2024

Springshed Diagram

The diagram below represents an overview of the complex processes that impact water flow through a spring system. It also shows how human behaviors on the landscape affect nitrogen pollution in the groundwater. Eventually, groundwater flows back to the surface through the Outstanding Florida Springs (OFS). Pollutants from the surface can travel long distances, negatively impacting water quality and the biology of springs and rivers. The variable distances and underground conditions means it can take time to observe water quality improvements at the spring vent from restoration projects being implemented on the land surface across the springshed.

OFS

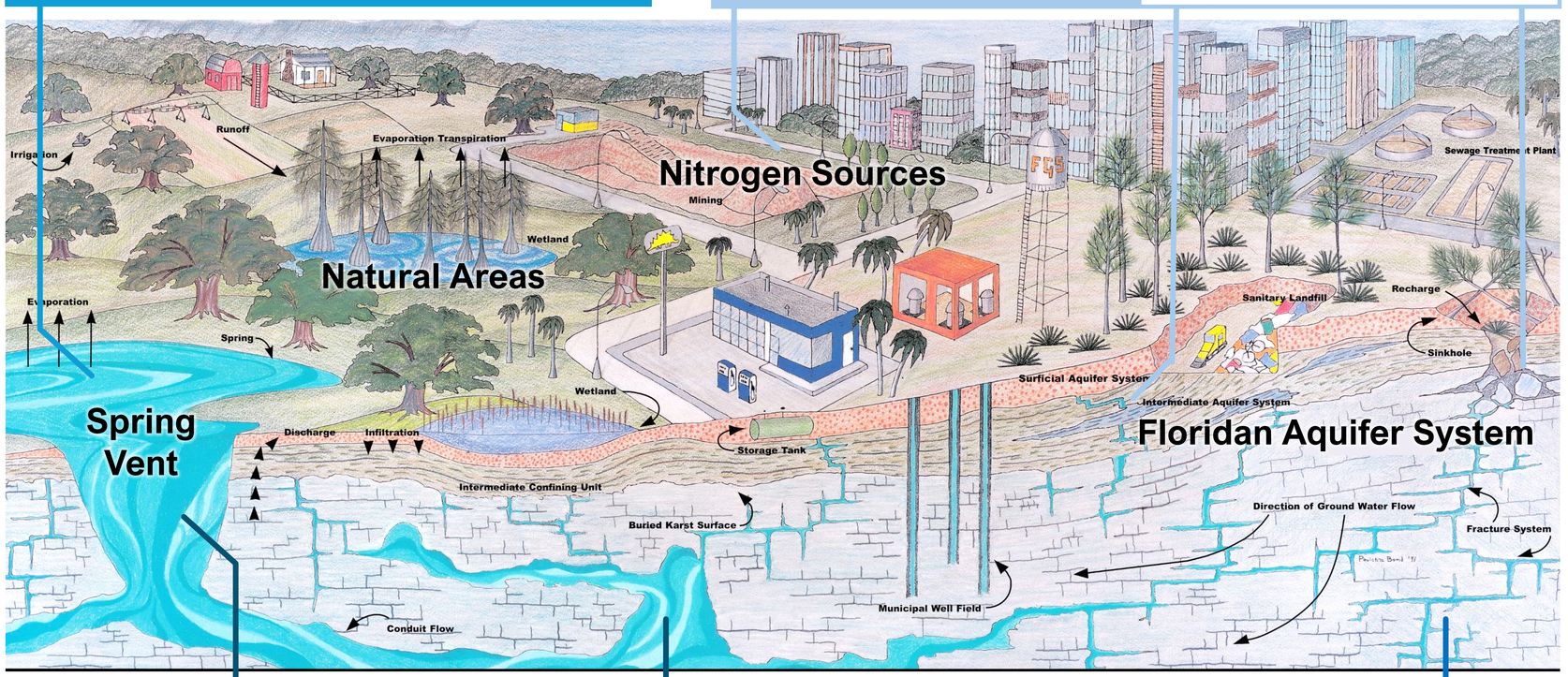
OFS includes all historic first magnitude springs and their associated spring runs as determined by DEP, using the most recent Florida Geological Survey springs bulletin (66), as well as the following additional springs and their associated spring runs: DeLeon Springs, Peacock Springs, Poe Springs, Rock Springs, Wekiwa Springs and Gemini Springs.

Impairment

Currently, 24 of the 30 OFS are impaired for the nitrate form of nitrogen. Anthropogenic sources of nitrogen such as human waste, livestock waste, farm fertilizer, urban fertilizer and other sources contribute to nitrate loading that results in an ecological imbalance.

Vulnerability evaluates how easily pollutants from the surface can impact groundwater quality.

Recharge occurs when rain or irrigation water infiltrates through the soil and enters an underlying aquifer system.



Monitoring

Spring vent monitoring is performed by DEP and partner agencies to measure progress towards meeting the total maximum daily loads (TMDLs).

Groundwater monitoring is performed by DEP and partner agencies to understand how nutrient loading and reduction activities impact water traveling to the spring vent.

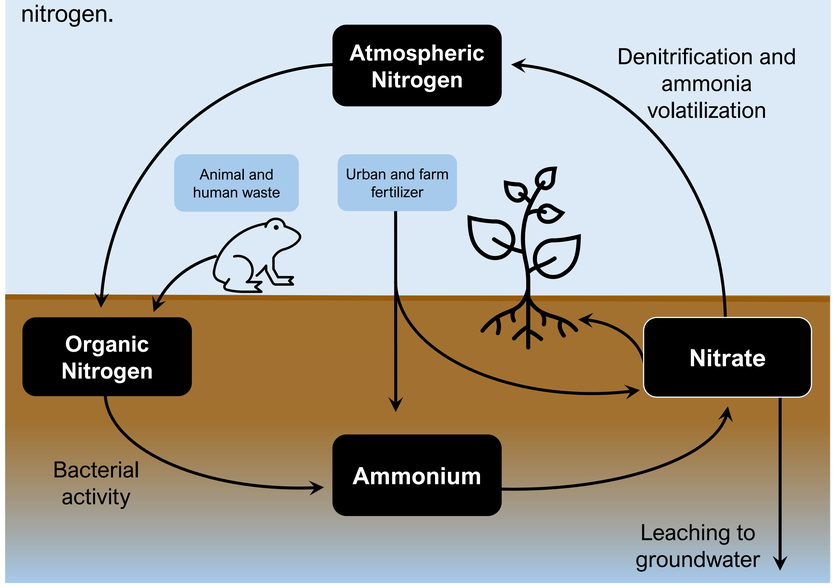
Karst Limestone

The Floridan aquifer is contained in limestone units that underly the state. Karst limestone results from the dissolution of calcium carbonate rock by acidic rainwater, creating voids and channels that result in sinkholes, conduits and springs. Water can travel rapidly from high recharge areas to spring vents through karst features.

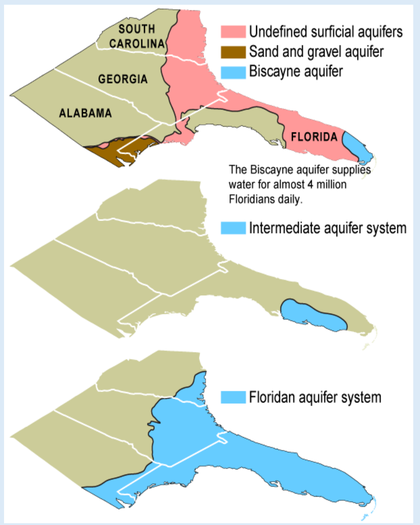
The Nitrogen Cycle

Nitrogen goes through biological, physical and chemical processes as it travels through the environment. This series of interactions is known as the nitrogen cycle.

Attenuation of nitrogen refers to the processes of immobilization, denitrification, volatilization and cation exchange that prevent leaching of nitrogen.



Florida's Aquifer Systems



The Floridan Aquifer underlies the entire state of Florida and is the source water for the state's springs.

In some areas of the state, a surficial aquifer system separates the Floridan Aquifer from the land surface.

In most OFS areas, the Floridan Aquifer is largely unconfined and vulnerable to leaching of nitrogen from the land surface.

[Springshed diagram: FGS PR5]

[Aquifer diagram: St. Johns River Water Management District (SRJWMD)]

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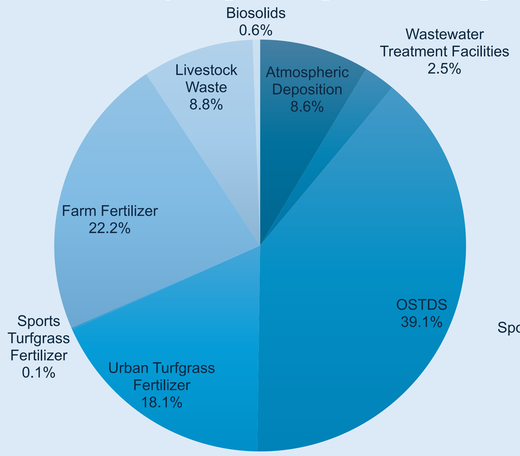
DELEON SPRING, GEMINI SPRINGS AND VOLUSIA BLUE SPRING BASIN SUMMARIES

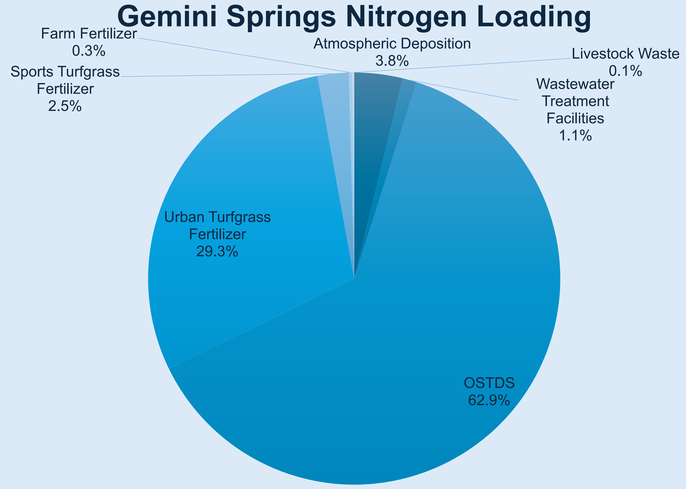
DeLeon Spring Nitrogen Loading



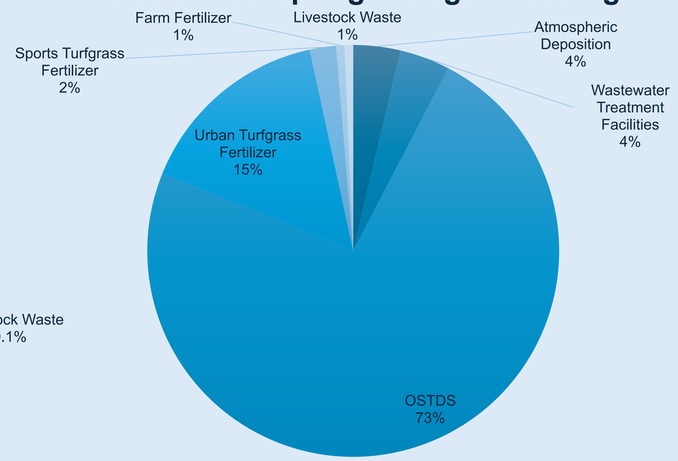
DeLeon Spring	
Nitrogen Source	Loading to Groundwater (lbs-N/yr)
Atmospheric Deposition	13,224
Wastewater Treatment Facilities	3,812
OSTDS	60,192
Urban Turfgrass Fertilizer	27,804
Sports Turfgrass Fertilizer	211
Farm Fertilizer	34,148
Livestock Waste	13,459
Biosolids	906
Total	153,756

Gemini Springs	
Nitrogen Source	Loading to Groundwater (lbs-N/yr)
Atmospheric Deposition	2,612
Wastewater Treatment Facilities	766
OSTDS	43,325
Urban Turfgrass Fertilizer	20,218
Sports Turfgrass Fertilizer	1,688
Farm Fertilizer	192
Livestock Waste	89
Total	68,891

Gemini Springs Nitrogen Loading

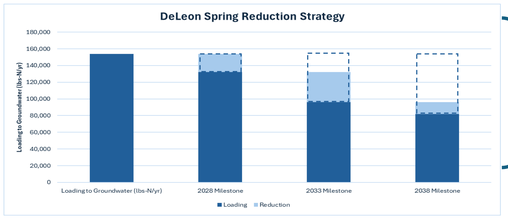


Volusia Blue Spring Nitrogen Loading

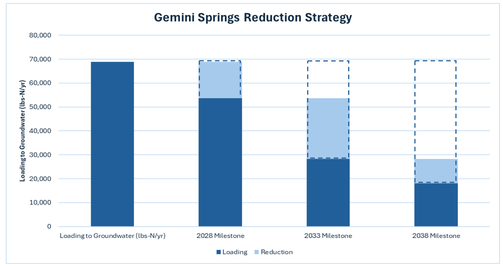


Volusia Blue Spring	
Nitrogen Source	Loading to Groundwater (lbs-N/yr)
Atmospheric Deposition	21,938
Wastewater Treatment Facilities	23,461
OSTDS	437,414
Urban Turfgrass Fertilizer	91,784
Sports Turfgrass Fertilizer	12,291
Farm Fertilizer	3,885
Livestock Waste	4,051
Total	594,824

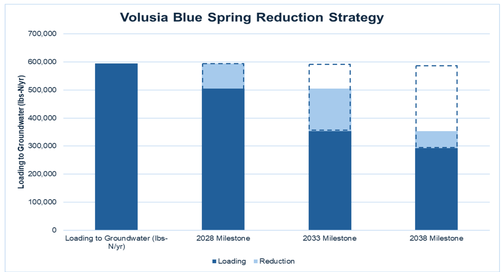
Nitrogen Reduction Strategy



BMAP Goal: 47% Reduction in Loading to Groundwater (71,846 lbs-N/yr).

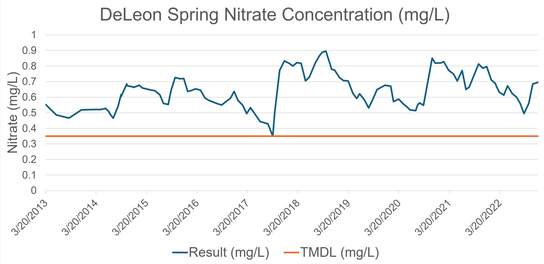


BMAP Goal: 76% Reduction in Loading to Groundwater (50,807 lbs-N/yr).

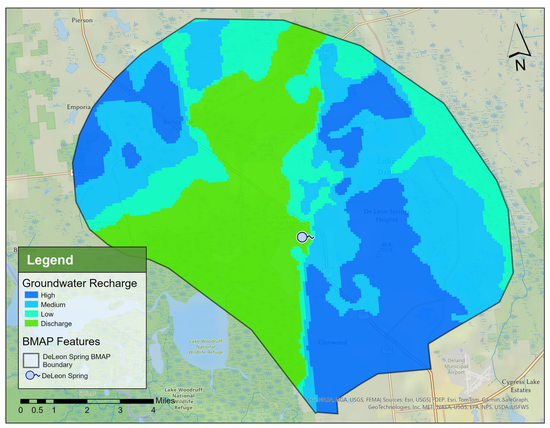


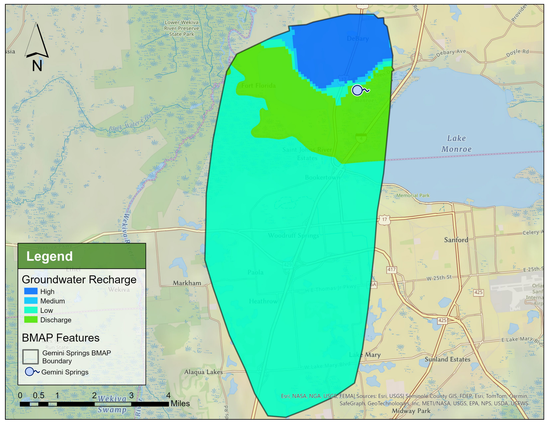
BMAP Goal: 51% Reduction in Loading to Groundwater (301,881 lbs-N/yr).

DeLeon Spring Nitrate Concentration (mg/L)

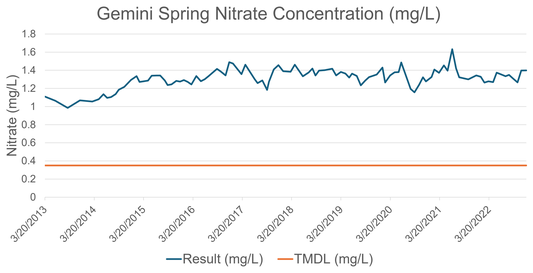


mg/L: Milligrams per liter.

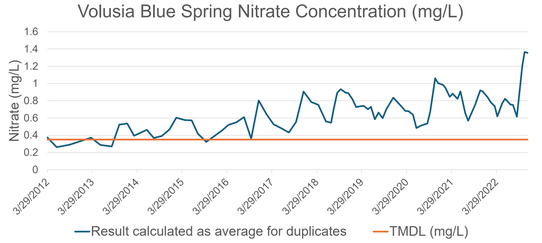


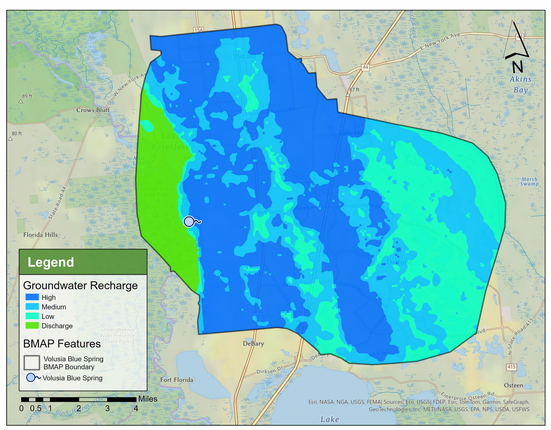


Gemini Spring Nitrate Concentration (mg/L)



Volusia Blue Spring Nitrate Concentration (mg/L)





Spring Vent Analysis

DeLeon Spring- Total Reduction Needed to Meet the TMDL		
	Nitrogen Loads (lbs-N/yr)	Information
Total Load at Spring Vents (October 2023)	30,556	Upper 95% confidence interval – nitrate and flow data 2012-2022.
TMDL Load	16,278	TMDL target is 0.35 mg/L and using the same flow data and proportions.
Percent Required Reductions	47%	Based on Spring Vent Load and TMDL Load.
Total NSILT Load (October 2023)	153,756	2023 NSILT.
Required Reductions	71,846	Proportional decrease in NSILT load.

Gemini Springs- Total Reduction Needed to Meet the TMDL		
	Nitrogen Loads (lbs-N/yr)	Information
Total Load at Spring Vents (October 2023)	26,467	Upper 95% confidence interval – nitrate and flow data 2012-2022.
TMDL Load	6,948	TMDL target is 0.35 mg/L and using the same flow data and proportions.
Percent Required Reductions	74%	Based on spring vent Load and TMDL load.
Total NSILT Load (October 2023)	68,891	2023 NSILT.
Required Reductions	50,807	Proportional decrease in NSILT load.

Volusia Blue Spring- Total Reduction Needed to Meet the TMDL		
	Nitrogen Loads (lbs-N/yr)	Information
Total Load at Spring Vents (October 2023)	196,247	Upper 95% confidence interval – nitrate and flow data 2012-2022.
TMDL Load	96,649	TMDL target is 0.35 mg/L and using the same flow data and proportions.
Percent Required Reductions	51%	Based on Spring Vent Load and TMDL Load.
Total NSILT Load (October 2023)	594,824	2023 NSILT.
Required Reductions	301,881	Proportional decrease in NSILT load.

Recent spring flow and nitrate concentration data were reviewed to evaluate the nitrate load at the spring vent in current conditions. The difference in current discharge load and the TMDL load was evaluated.

A proportional decrease in loading to groundwater in the spring basin is required to achieve the reductions necessary at the spring vent.

Lbs-N/yr: Pounds of nitrogen per year.
OSTDS: Onsite Sewage Treatment and Disposal System.
NSILT: Nitrogen Source Inventory Loading Tool.
BMAP: Basin Management Action Plan.

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DELEON SPRING, GEMINI SPRINGS AND VOLUSIA BLUE SPRING BASIN MANAGEMENT ACTION PLANS (BMAPS)

Allocated Reductions, Milestones and Progress

DeLeon Spring-Basin Reductions

Deleon Spring Nitrogen Source	Allocations by Source (lbs-N/yr)	Percent of Total Reduction
Atmospheric Deposition (AD)*	6,179	8.59%
Onsite Sewage Treatment and Disposal System (OSTDS)	28,115	39.09%
Wastewater Treatment Facility (WWTF)	1,873	2.60%
Farm Fertilizer (BMP Enrollment)	5,122	7.12%
Livestock Waste-NonCAFO (BMP Enrollment)	1,346	1.87%
Other Agriculture	16,200	22.52%
Urban Turf Fertilizer (UTF)	12,992	18.06%
Sports Turf Fertilizer (STF)	98	0.14%
Total	**71,925**	**100.00%**

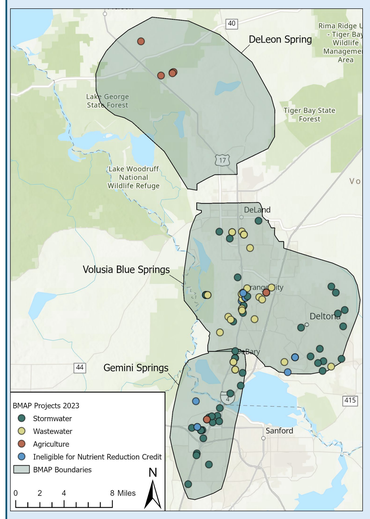
Gemini Springs-Basin Reductions

Gemini Springs BMAP Nitrogen Source	Allocations by Source (lbs-N/yr)	Percent of Total Reduction
Atmospheric Deposition (AD)*	1,926	3.79%
Onsite Sewage Treatment and Disposal System (OSTDS)	31,952	62.89%
Wastewater Treatment Facility (WWTF)	35	0.07%
Farm Fertilizer (BMP Enrollment)	29	0.06%
Livestock Waste-NonCAFO (BMP Enrollment)	9	0.02%
Other Agriculture	170	0.33%
Urban Turf Fertilizer (UTF)	14,884	29.29%
Sports Turf Fertilizer (STF) -Golf	1,200	2.36%
Sports Turf Fertilizer (STF) -Other	45	0.09%
Regional Projects*	557	1.10%
Total	**50,807**	**100.00%**

Volusia Blue Spring-Basin Reductions

Volusia Blue Spring Nitrogen Source	Allocations by Source (lb-N/yr)	Percent of Total Reduction
Atmospheric Deposition (AD)*	11,134	3.69%
Onsite Sewage Treatment and Disposal System (OSTDS)	221,994	73.54%
Wastewater Treatment Facility (WWTF)	10,417	3.45%
Farm Fertilizer (BMP Enrollment)	583	0.19%
Livestock Waste-NonCAFO (BMP Enrollment)	405	0.13%
Other Agriculture	3,040	1.01%
Urban Turf Fertilizer (UTF)	46,581	15.43%
Sports Turf Fertilizer (STF) -Golf	5,750	1.90%
Sports Turf Fertilizer (STF) -Other	488	0.16%
Regional Projects*	1,490	0.49%
Total	**301,881**	**100.00%**

Project Map



- Project collection and reporting are crucial to the successful implementation and management of BMAPs.
- Projects are reported to the Florida Department of Environmental Protection (DEP) annually through the Statewide Annual Report (STAR) process.
- Stakeholders are required to report projects that are being implemented or planned to achieve their reduction targets, along with an estimate of expected nutrient loading benefits and financial costs.
- While the loading evaluation and entity allocations were determined by source, nutrient reduction credits can be earned through projects addressing any source.
- Reduction milestones must be met to ensure sufficient progress towards restoration.

Entity Required Reductions

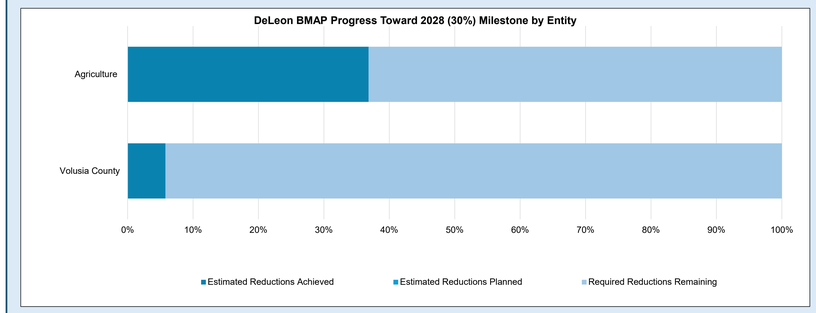
DeLeon Spring BMAP Entity	Milestone 2028 Required Reductions lbs-N/yr (30%)	Milestone 2033 Required Reductions lbs-N/yr (+50%=80%)	Milestone 2038 Required Reductions lbs-N/yr (+20%=100%)
Volusia County	12,364	32,971	41,213
Wiley M. Nash WRF*	313	836	1,045
Private WWTFs*	246	655	819
Agriculture (BMPs)	1,941	5,175	6,468
Ag-Cooperative Regional Elements and Cost Share	4,860	12,960	16,200

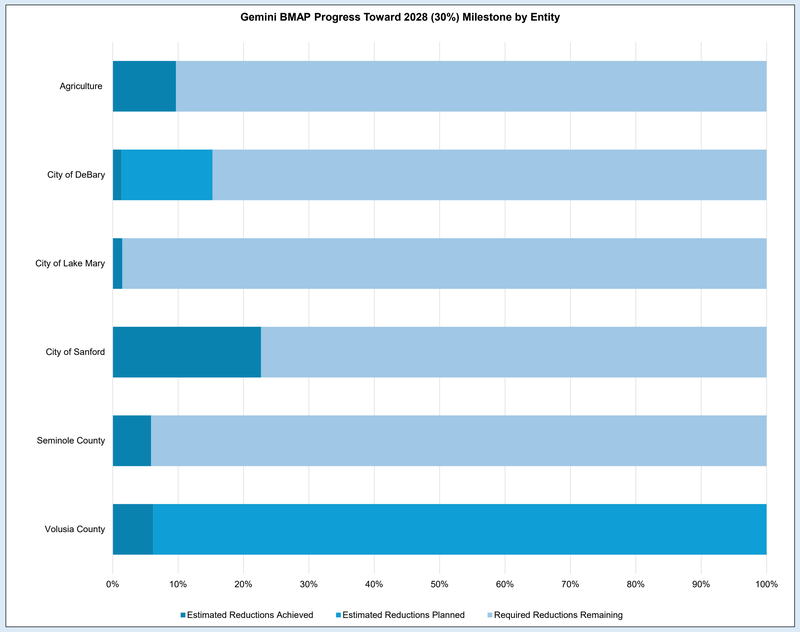
Gemini Springs BMAP Entity	Milestone 2028 Required Reductions lbs-N/yr (30%)	Milestone 2033 Required Reductions lbs-N/yr (+50%=80%)	Milestone 2038 Required Reductions lbs-N/yr (+20%=100%)
City of DeBary	12,080	32,212	40,266
City of Lake Mary	759	2,024	2,530
City of Sanford	285	761	952
Seminole County	1,023	2,727	3,409
Volusia County	-	-	-
Private WWTF*	1	2	2
Private Golf Courses*	288	767	957
Agriculture (BMPs)	12	30	38
Ag-Cooperative Regional Elements and Cost Share	51	136	170
Regional Projects	167	445	557

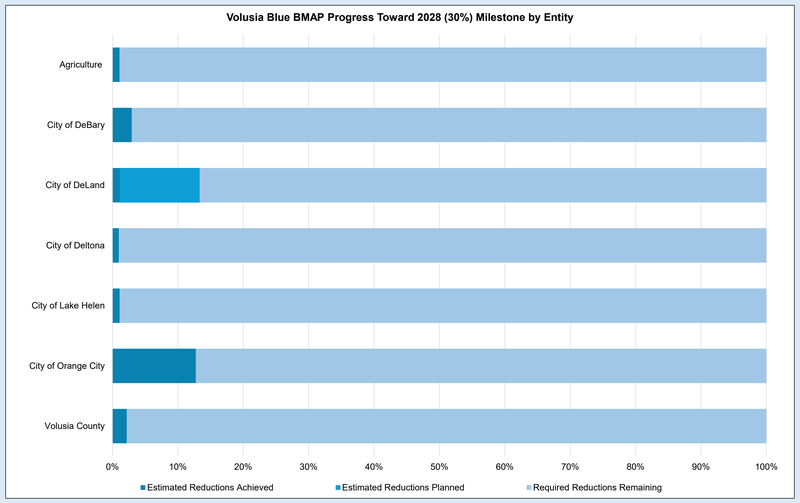
Volusia Blue Spring BMAP Entity	Milestone 2028 Required Reductions lbs-N/yr (30%)	Milestone 2033 Required Reductions lbs-N/yr (+50%=80%)	Milestone 2038 Required Reductions lbs-N/yr (+20%=100%)
City of DeBary	2,308	6,155	7,694
City of Deland	12,311	32,829	41,036
City of Deltona	40,029	106,745	133,432
City of Lake Helen	1,827	4,871	6,089
City of Orange City	4,905	13,080	16,351
Volusia County	22,273	59,394	74,243
Blue Spring State Park	45	121	151
Private WWTFs*	146	388	484
Private Golf Courses*	1,725	4,601	5,750
Agriculture (BMPs)	296	790	988
Ag-Cooperative Regional Elements and Cost Share	912	2,432	3,040
Regional Projects	447	1,192	1,490

*Reductions for these entities will largely be tracked through permits and compliance actions.

Entity 2028 Milestone*







*Estimates through December 2023.

Lb-N/yr: Pounds of nitrogen per year.
BMP: Best management practice.
CAFO: Confined animal feeding operation.

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Florida Department of Environmental Protection (DEP)
DeLeon Spring, Gemini Springs, and Volusia Blue Basin Management Action Plans (BMAPs)
Meeting Summary
October 29, 2024, 2:00 pm – 4:00 pm
Lyonia Environmental Center
2150 Eustace Ave., Deltona, FL 32725

Attendees

Ginger Adair, Volusia County
Lisa Bally, Geosyntec
Tiffany Busby, Wildwood Consulting
Lee Cain, Kimley-Horn
Lauren Campbell, DEP
Patricia Coffey, FDACS
Lauren Dorval, FDACS
Chloe Dougherty, Florida Springs Council
Jessica Fetgatter, DEP
Gerald Fieser, Florida Farm Bureau
Danielle Fitz Patrick, SJRWMD
Agustin Francisco, FDACS
Holly Giles, Volusia County
Tina Gordon, Wildwood Consulting
Roxanne Groover, FOWA
Raichel Gulde, RES
David Hamstra, Pegasus Engineering
Sam Hankinson, DEP
Wayn Hartley, SMC
Moira Homann, DEP
Brian Icerman, Jones Edmunds
Bilal Iftikhar, Orange City
Al Iverson, West Volusia Beacon
Mark Kateli, Florida Native Plant Society
Chandler Keenan, DEP
Robert Lawler, Orange City
Celeste Lyon, RES
Jessica Meinhofer, Walk and Paddle
Roberto Meinhofer, Citizen
Christie Miller, Lyonia Environmental Center
Deborah Milotte, Volusia County
Amy Munizzi, DeLeon Springs Community Association
Daryl Myers, Hanson
Mark Nelson, Jones Edmunds
Joe Parish, Seminole County
Erin Reed, Volusia County
David Rickly, Citizen
Leylah Saavedra, Pegasus Engineering
Tammy Schuler, Hidden Valley
Richard Schuler, Hidden Valley
Mark Schuler, Hidden Valley
Kim Shugar, DEP
Jodi Slater, SJRWMD
Jennifer Spain, Volusia County
John Stanberry, Discovery Academy
Mike Ulrich, Volusia County Utilities
Sara Vanatta, Seminole County
Samantha West, Volusia County
Kelly Young, Volusia County

Presentation

Lauren Campbell gave a brief overview of the DeLeon Spring, Gemini Springs, and Volusia Blue BMAPs, basin required reduction, entity required reductions and the upcoming BMAP schedule. She explained that the total maximum daily loads (TMDLs) are 0.035 milligrams per liter of nitrate. Based on recent water quality data, additional reductions of 47% for DeLeon Spring, 74% for Gemini Springs, and 51% for Volusia Blue Spring are needed to meet the springs water quality target.

Lauren noted that there are some environmental groups specifically listed at the beginning of the BMAP document as interested stakeholders along with a general category of "Environmental Interests." If there are groups that would like to have their organization listed in the 2025 BMAP update as interested stakeholders, please contact Lauren to be added.

Lauren mentioned there have been staff changes at DEP for this BMAP, so please contact her if anyone has questions about the BMAP or about BMAP Portal entries.

Lauren added that comments on the BMAP can be emailed to BMAPProgram@FloridaDEP.gov.

Poster Session

Posters were presented, along with the opportunity for attendees to review BMAP information and ask questions of DEP staff.

Written Comments

Deborah Milotte, Holly Bluff Marina, asked to be added to the BMAP subscription emails.

Mark Kateli asked to have the Cuplet Fern Chapter of the Florida Native Plant Society added to the Interested Stakeholders list in the BMAP.

Action Items

Environmental Interests-- If there are groups that would like to have their organization listed in the 2025 BMAP update, please contact Lauren Campbell to be added.