



RAINBOW SPRING GROUP AND RAINBOW RIVER AND SILVER SPRINGS AND UPPER SILVER RIVER BASIN MANAGEMENT ACTION PLAN (BMAP)

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Water Quality Restoration Program
Florida Department of Environmental Protection

Ocala, FL | Oct. 30, 2024



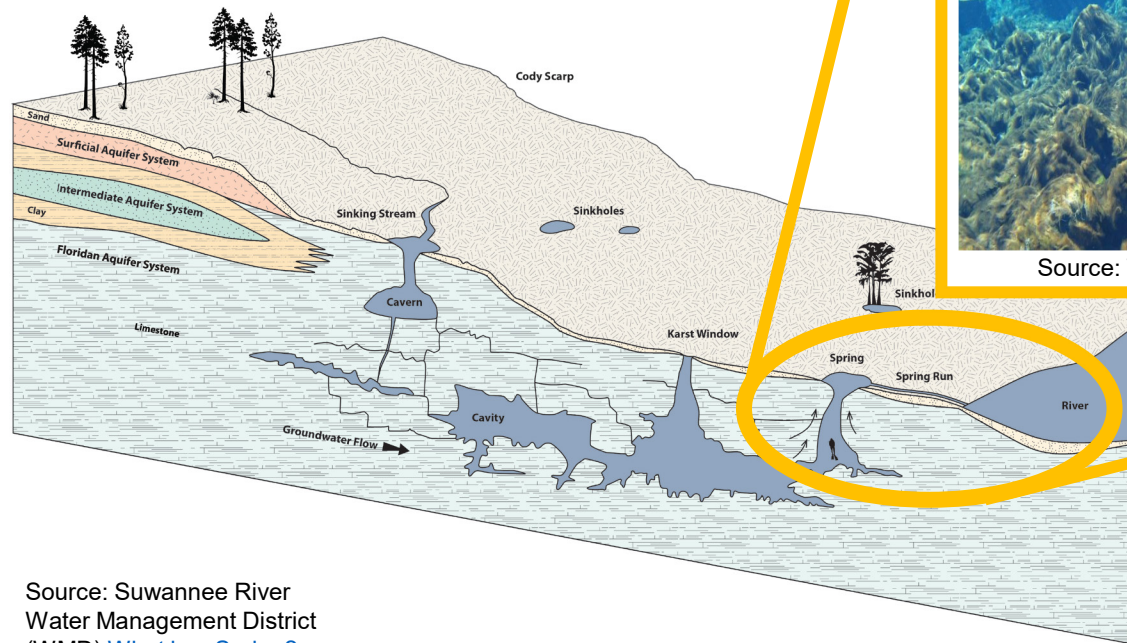
AGENDA

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





BACKGROUND SPRINGS RESTORATION



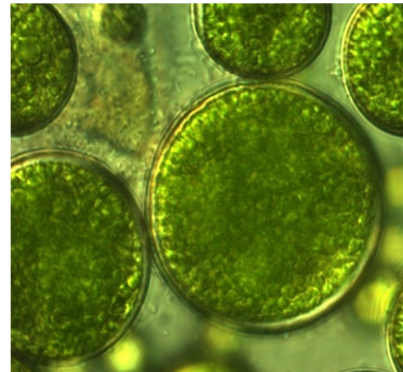
Source: Suwannee River
Water Management District
(WMD) [What is a Spring?](#)

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.**

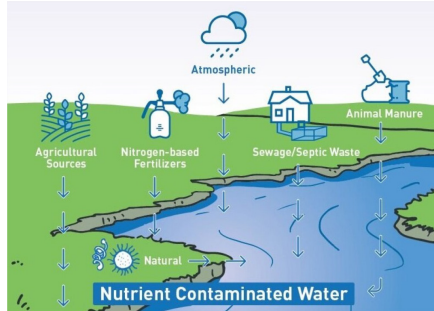


Source: Florida Geological Survey
- Rainbow Spring #4



BACKGROUND SPRINGS RESTORATION

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



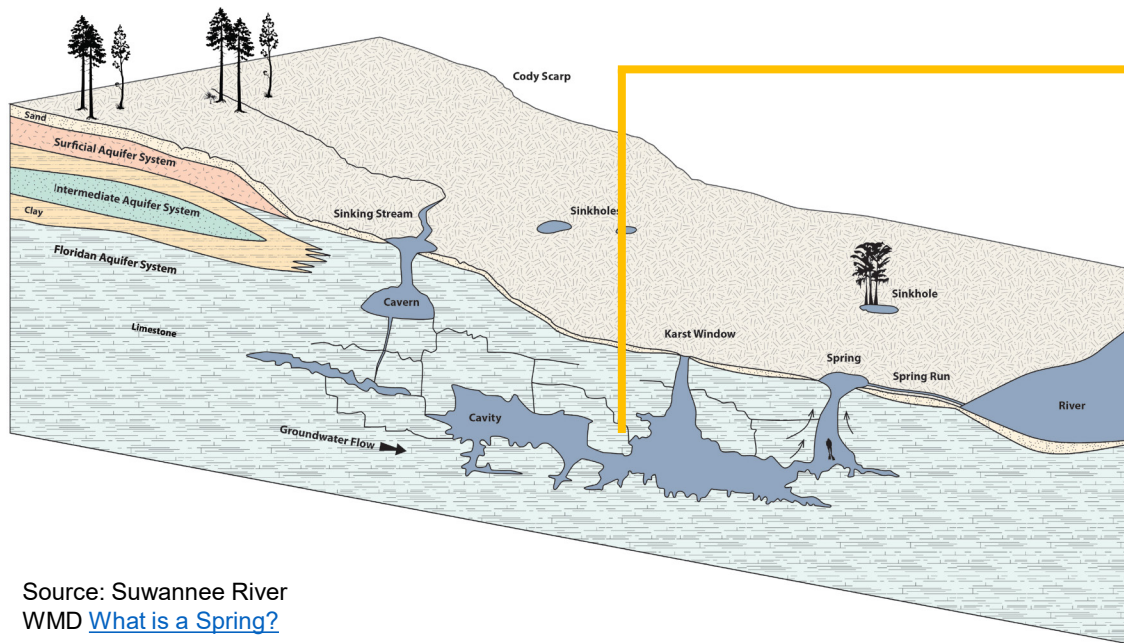
Source: Beta Analytics

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

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

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.



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



Source: Florida Geological Survey
- Rainbow Spring #4

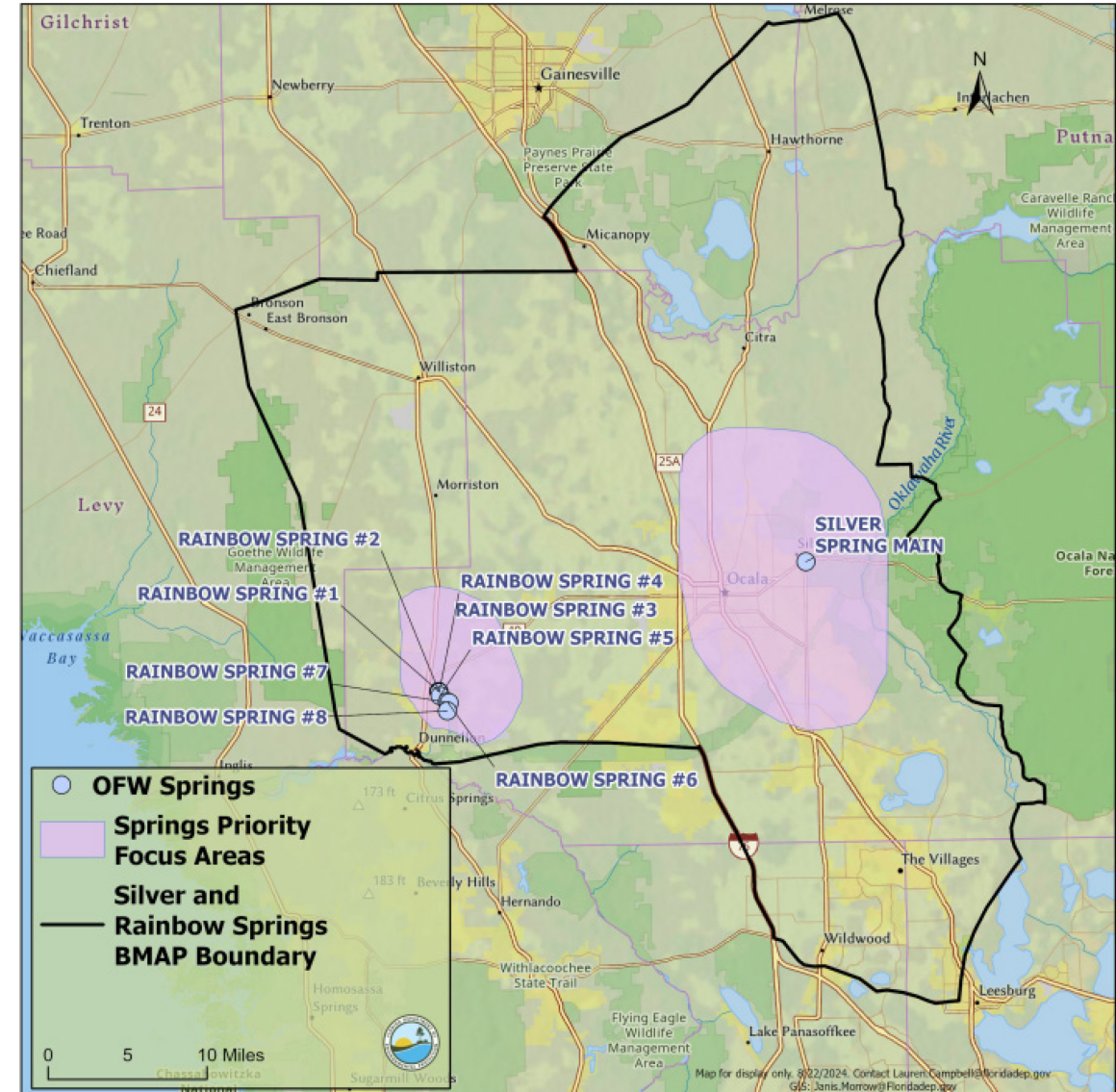


BMAP BACKGROUND

- The Rainbow Spring Group and Rainbow River and Silver Springs and Upper Silver River BMAP area is approximately 1,668 square miles.
- It includes areas of Alachua, Putnam, Levy, Marion, Lake and Sumter counties.

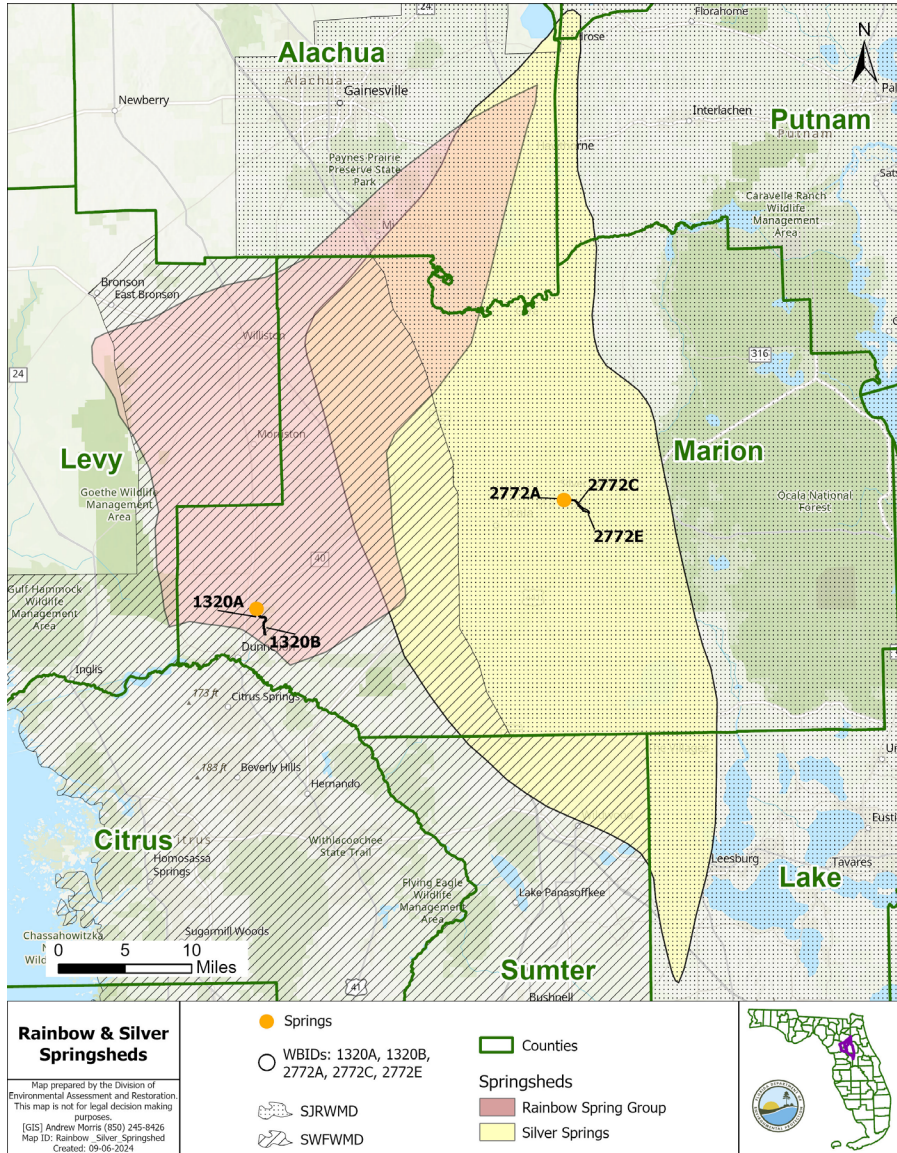
Waterbody	Waterbody Identification (WBID)	Parameter	TMDL (mg/L)
Rainbow Springs Group and Rainbow Springs Group Run	1320A, 1320B	Nitrate, as monthly average	0.35
Silver Springs, Silver Springs Group, and Upper Silver River	2772A, 2772C, 2772E	Nitrate, as monthly average	0.35

TMDL: total maximum daily load.
mg/L: milligrams per liter.





RAINBOW AND SILVER SPRINGS TMDL SPRINGSHEDS



The decision to merge the BMAP areas was based on the following considerations:

- **The two spring systems have a zone of interaction that influences the movement and direction of groundwater flow. There is no clear delineation between the two systems' groundwater contributing areas.**
- Management strategies and policies implemented to address pollutant sources are the same for both spring systems.
- Marion County has the largest land area within both springsheds — approximately 60% of Silver Springs and 65% of the Rainbow Spring Group. The City of Ocala also spans both areas.
- For these systems, a single BMAP provides greater consistency in local jurisdiction planning and policymaking.



STAKEHOLDERS

Local Governments:

- Marion County.
- Alachua County.
- Lake County.
- Sumter County.
- Levy County.
- Putnam County.
- City of Ocala.
- City of Dunnellon.
- City of Belleview.
- The Villages.
- City of Wildwood.
- On Top of the World.
- Town of McIntosh.
- City of Williston.
- Town of Bronson.
- City of Leesburg.
- City of Micanopy.
- City of Hawthorne.
- Town of Lady Lake.
- Town of Reddick.
- City of Fruitland Park.

Other Responsible Entities:

- Agricultural Producers.
- Private Wastewater Treatment Facilities.
- Private Golf Courses.

Regional and State Agencies:

- Florida Department of Agriculture and Consumer Services (DACS).
- Florida Department of Environmental Protection (DEP), including Silver Springs State Park and Rainbow Springs State Park, Ocklawaha River Aquatic Preserve, and Rainbow Springs Aquatic Preserve.
 - Florida Department of Health.
 - Florida Department of Health in Marion County.
 - Florida Department of Health in Alachua County.
 - Florida Department of Health in Levy County.
 - Florida Department of Transportation District 2.
 - Florida Department of Transportation District 5.
 - St. Johns River Water Management District.
 - Southwest Florida Water Management District.

Homeowners, the public and any other interested parties.



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:

- No new conventional onsite sewage treatment and disposal systems (OSTDS) on lots one acre or less.
- Wastewater treatment plans and OSTDS remediation plans from local governments.
- List of identified project to meet five-year milestones.
- Agricultural Cooperative Regional Elements (ACE).
- For the spring BMAPs, prohibitions expanded from priority focus area (PFA) to the entire BMAP.
- Advanced waste treatment (AWT) required for more types of effluent, including certain reclaimed water.



ACE

- Cooperative Agricultural Regional Water Quality Improvement Elements include a collaborative framework for identifying, prioritizing and implementing regional projects that address nutrient loading from agricultural operations in Florida's waterways.
- Continuous efforts among key stakeholders, including:
 - DEP.
 - DACS.
 - WMDs.
 - Agricultural producers.
 - Local communities.



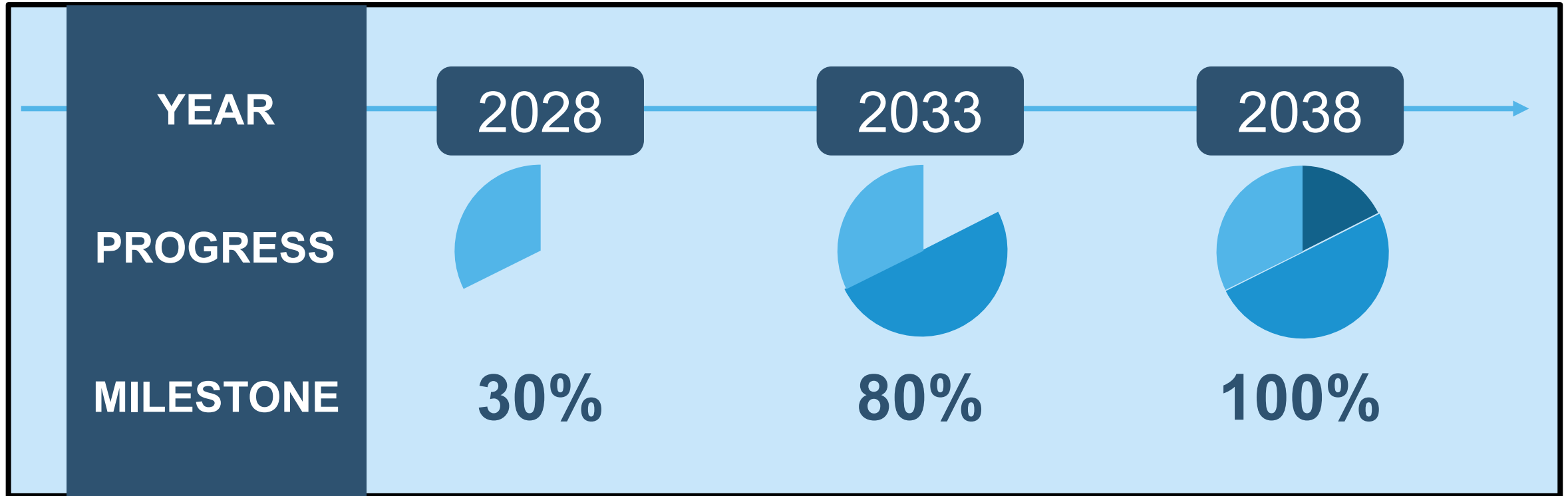
ACE

- Engaging producers in the decision-making process is key to this element and ensures that projects are practical, feasible and tailored to the needs and realities of agricultural operations.
- Partner agencies work in annual cycles to provide technical support, regulatory guidance and funding opportunities, enhancing the implementation and success of regional water quality improvement initiatives.



BMAP MILESTONES

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



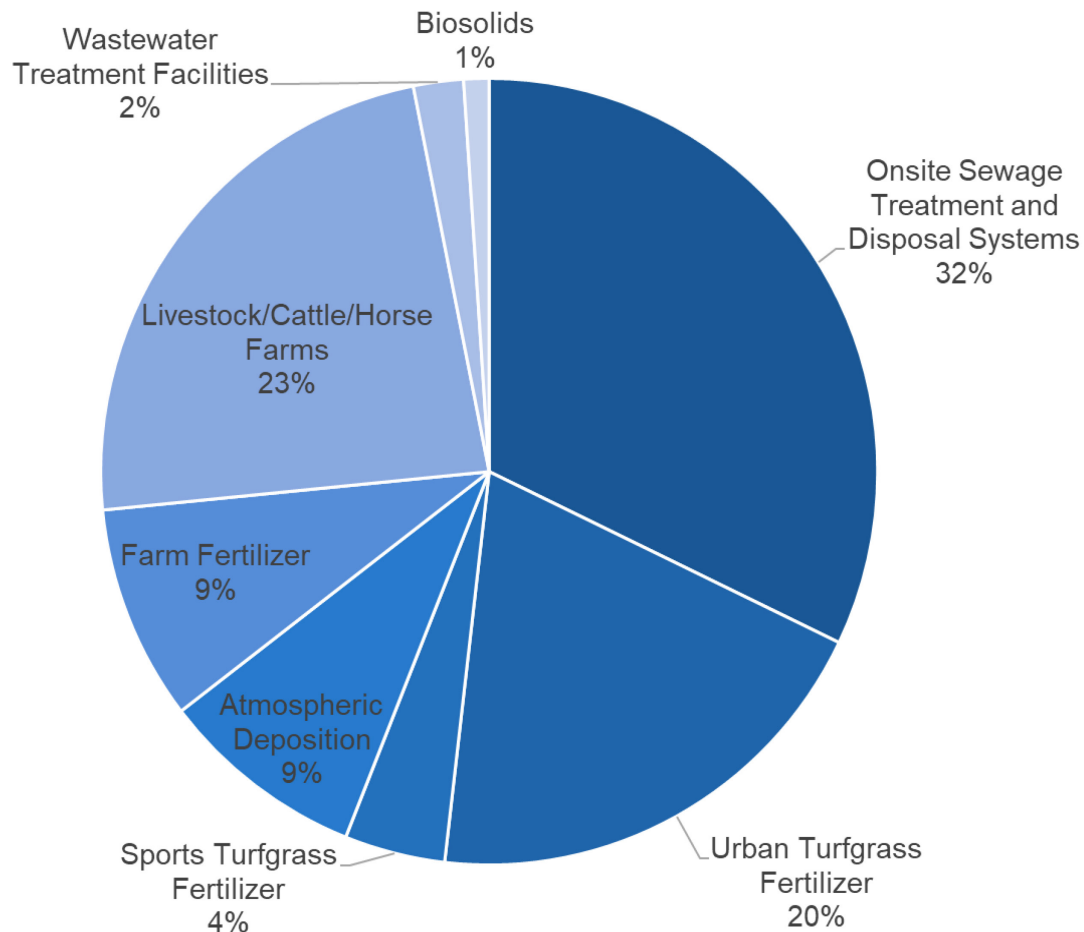
Assessment of progress toward these milestones must be conducted every five years and revisions to the plan must be made as appropriate. BMAPs use an adaptive management approach that allows for incremental load reductions through the implementation of projects and management strategies; however, the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



NSILT – RAINBOW AND SILVER COMBINED

DRAFT RESULTS

Percent Contribution by Source



Rainbow Spring Group and Rainbow River and Silver Springs and Upper Silver River BMAP Area	
Source	Estimated Annual Loading (lbs-N/yr)
Atmospheric Deposition	336,808
Wastewater Treatment Facilities	81,898
Onsite Sewage Treatment and Disposal Systems	1,265,209
Urban Turfgrass Fertilizer	774,333
Sports Turfgrass Fertilizer	164,784
Farm Fertilizer	348,742
Livestock/Cattle/Horse	921,420
Biosolids	41,561
Total	3,934,755



BMAP UPDATES

DRAFT LOADING SUMMARY

	Nitrogen Loads (lbs-N/yr)	Source
Total Load at Spring Vents (October 2023)	4,313,434	Upper 95 % confidence interval – nitrate and flow data 2012-2022
TMDL Load	872,682	TMDL target is 0.35 mg/L and using the same flow data and proportions
Percent Required	80%	
Total NSILT Load (October 2023)	3,934,755	2023 NSILT
Required Reductions	3,138,686	Proportional decrease in NSILT load

mg/L: milligram per liter



REDUCTIONS

DRAFT SPRINGSHED REDUCTIONS

Nitrogen Source	Allocations by Source (lbs-N/yr)	Percent of Total Reduction
Atmospheric Deposition*	268,665.39	8.56%
Onsite Sewage Treatment and Disposal Systems	1,009,235.82	32.15%
Wastewater Treatment Facilities	42,277.73	1.35%
Farm Fertilizer (BMP Implementation)	52,311.37	1.67%
Livestock Waste-NonCAFO (BMP Implementation)	92,142.01	2.94%
Other Agriculture	860,231.29	27.41%
Urban Turf	617,671.96	19.68%
Sports Turf	131,445.15	4.19%
Regional Projects*	64,705.24	2.06%
Total	3,138,686	100.00%

* Not allocated to entities.

CAFO: confined animal feeding operation.

- An 80% reduction, as determined in the spring vent analysis, is used to determine the required reduction for most categories.
- For WWTFs, estimated reduction is determined based on meeting required effluent standards.
- For agricultural sources, an estimated reduction of 15% will be achieved when all crop producers are enrolled in the DACS Best Management Practice (BMP) program and implement BMPs, and an estimated reduction of 10% is when all livestock producers enroll in the DACS BMP program and implement BMPs. The remaining allocated reduction to agriculture will be addressed through a combination of regional projects, ACE, innovative technologies and cost-share projects.



REDUCTIONS

DRAFT ENTITY REQUIRED REDUCTIONS

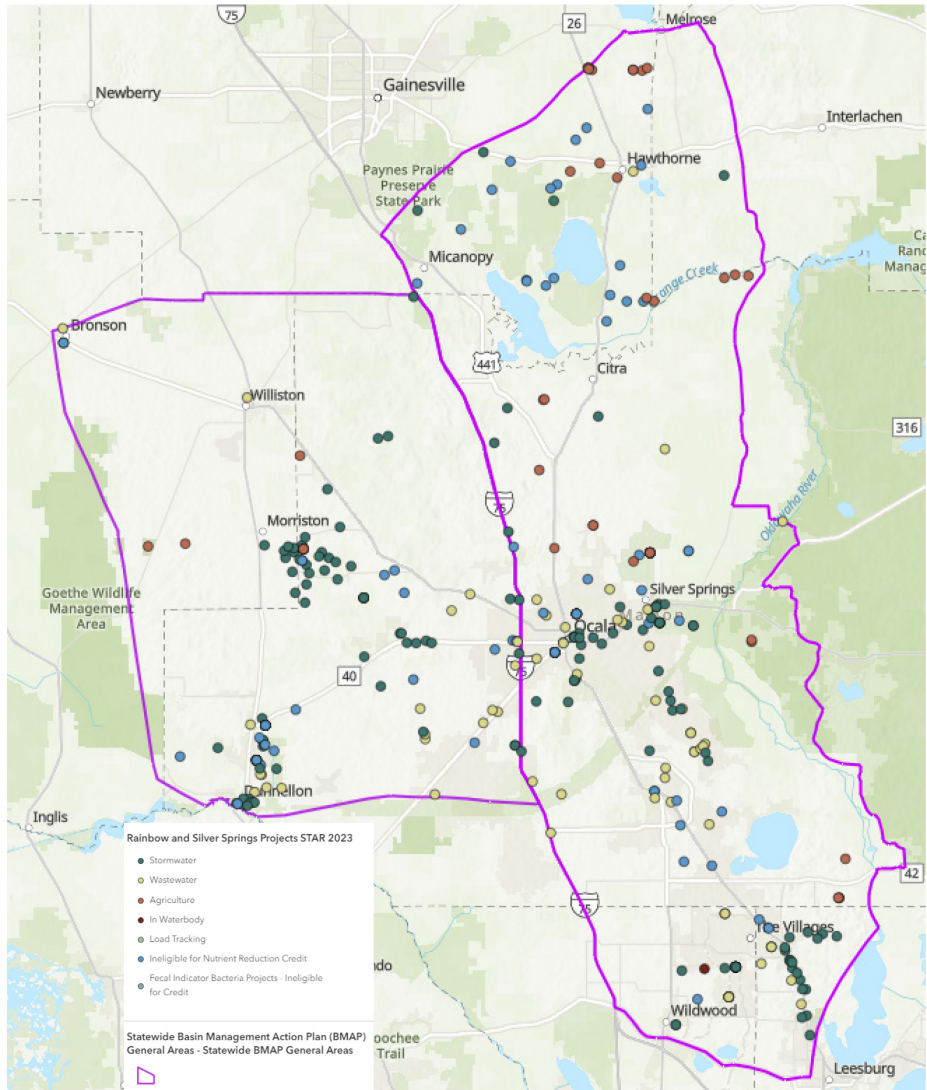
- All local municipalities are allocated reduction targets based on the loading estimated to occur under their jurisdiction from wastewater, OSTDS and urban fertilizer.
- Agriculture is allocated based on reduction targets.
- Private wastewater treatment facilities are required to meet advanced waste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

Entity	2028 Milestone Required Reductions (lbs-N/yr) (30%)	2033 Milestone Required Reductions (lbs-N/yr) (80%)	2038 Milestone Required Reductions (lbs-N/yr) (100%)
Alachua County	4,801	12,803	16,004
Bay Laurel Center CDD	2,555	6,813	8,516
City of Belleview	2,302	6,139	7,674
City of Dunnellon	1,884	5,023	6,279
City of Fruitland Park	5,954	15,878	19,847
City of Hawthorne	646	1,722	2,153
City of Leesburg	307	818	1,023
City of Ocala	31,514	84,036	105,045
City of Wildwood	2,239	5,971	7,464
City of Williston	5,579	14,878	18,598
Lake County	15,749	41,996	52,495
Levy County	24,248	64,660	80,825
On Top of the World	9,201	24,535	30,668
Marion County	356,343	950,249	1,187,811
Putnam County	6,431	17,148	21,435
Sumter County	8,555	22,814	28,518
Town of Bronson	1,042	2,779	3,474
Town of Lady Lake	5,484	14,623	18,279
Town of McIntosh	1,154	3,078	3,848
Town of Micanopy	812	2,165	2,706
Town of Reddick	1,155	3,081	3,851
Villages Center CDD	19,932	53,152	66,440
Agriculture	301,405	835,747	1,004,684
Private Wastewater Facilities*	4,277	11,406	14,257
Private Golf Courses*	27,184	72,490	90,612

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



PROJECTS



HB 1379 (2023) requires responsible entities to report on projects that meet their five-year milestones.

- Entities are required to plan and report projects to the state through the Statewide Annual Report (STAR) process. All projects needed to fulfill milestones should be added, even if a funding source has not been identified.
- Reporting projects in the project portal for the STAR allows the state to evaluate funding needs and to assist in prioritizing projects to promote maximum environmental benefit.



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
document 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)

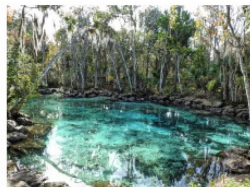
Welcome to the Florida Springs Basin Management Action Plan (BMAP) StoryMap

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

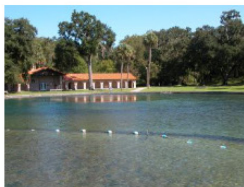
The Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.) provides for the protection and restoration of the state's Outstanding Florida Springs (OFS), which comprise 24 first magnitude springs, 6 additional named springs, and their associated spring runs. The act provides specific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



1 Legislative Requirements



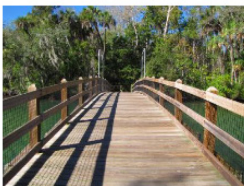
2 Crystal River - Kings Bay BMAP StoryMap



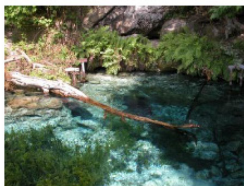
3 DeLeon Spring Story Map



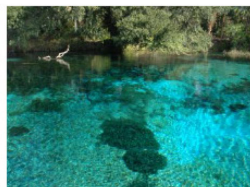
4 Gemini Springs Story Map



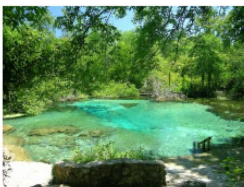
5 Homosassa and Chassahowitzka Springs...



6 Jackson Blue and Merritts Mill Pond BMAP Story Map



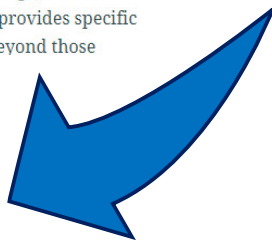
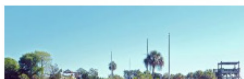
7 Rainbow Springs Group and Rainbow Springs Group Run...



8 Santa Fe River BMAP Story Map



9 Silver Springs and Upper Silver River BMAP Story Map



Basin Management Action Plans (BMAPs)

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Water Quality Restoration Program Quick Links

[Basin Management Action Plans \(BMAPs\)](#)

[Statewide Annual Report](#)

[Water Quality Grant Opportunities 2024-25](#)

[BMAP Public Meetings](#)

[Impaired Waters, TMDLs and Basin Management Action Plans Interactive Map](#)

[Tools and Guidance for Calculating Total Nitrogen \(TN\) and Total Phosphorus \(TP\) Reductions](#)

[Florida Water Quality Credit Trading](#)

[Clean Waterways Act Requirements for WWTTP and OSTDS](#)

[All Water Quality Restoration Program Content](#)

What is a Basin Management Action Plan?

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

What's New: Upcoming Meetings and BMAP Progress

July 1, 2025 BMAP Update Progress

As required by the Clean Waterways Act, DEP must prepare updates to its nutrient BMAPs by July 1, 2025. The [July 1, 2025 BMAP Update Progress](#) dashboard provides a visual representation of progress towards the completion of each of the required tasks and related sub-tasks leading up to the July 1, 2025 updates. Please visit the [BMAP Public Meeting Calendar](#) to find out about upcoming meetings and subscribe to meeting notices.

- [All BMAP Documents](#)
- [Map including BMAPs adopted and in progress](#)
- [Map of HB 1379 New and Existing OSTDS Requirements](#)

Nutrient BMAPs	Springs BMAPs	Fecal Bacteria Impaired BMAPs
 Nutrient BMAPs contain a comprehensive set of solutions, such as permit limits on wastewater facilities, urban and agricultural best management practices, and conservation programs designed to achieve pollutant reductions established by a total maximum daily load	 Springs BMAPs identify the sources of nutrient pollution, list the specific projects and programs necessary to reduce nutrient pollution, and establish priority focus areas where statutory prohibitions on certain activities apply (such as installation of new conventional septic systems).	 Bacteria basin management action plans (BMAPs) include management strategies or projects, to be implemented by local stakeholders, that aim to eliminate and prevent the release of waste, containing pathogens, to natural waterbodies.



SUBSCRIBER PAGE

HOW TO CONTACT US



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THANK YOU

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