



CRYSTAL RIVER/KINGS BAY AND HOMOSASSA- CHASSAHOWITZKA SPRINGS GROUPS BASIN MANAGEMENT ACTION PLANS (BMAPS)

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

Brooksville, FL | Nov. 7, 2024



AGENDA

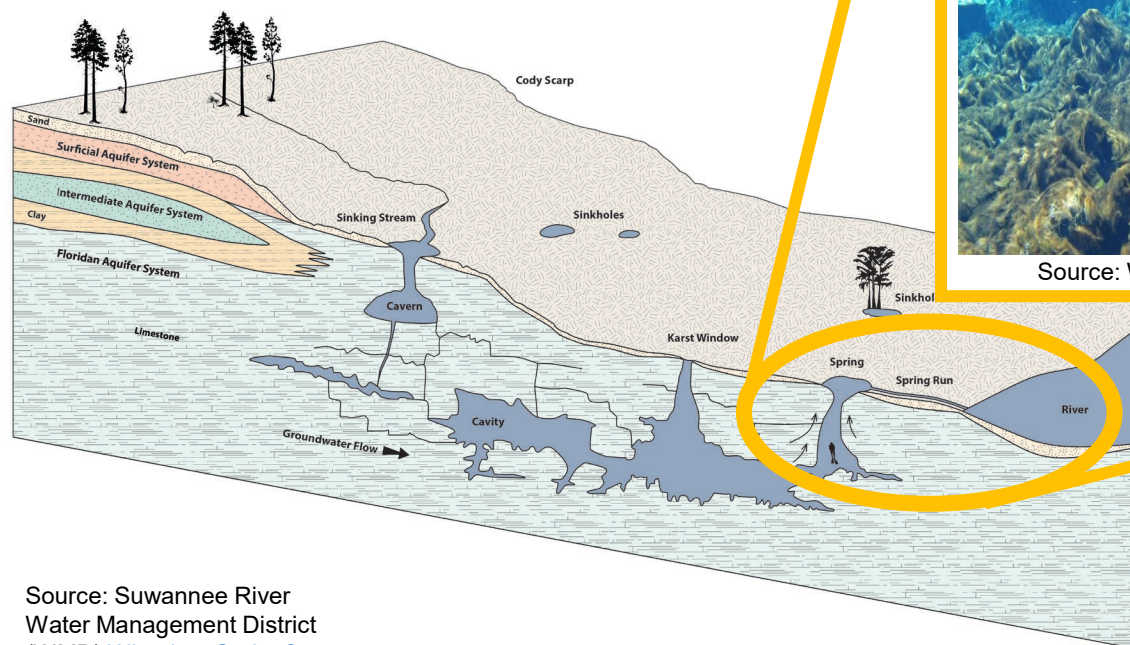
- Background.
- Analysis results summary.
- Basin required reductions.
- Entity required reductions.
- Poster session.





BACKGROUND

SPRINGS RESTORATION



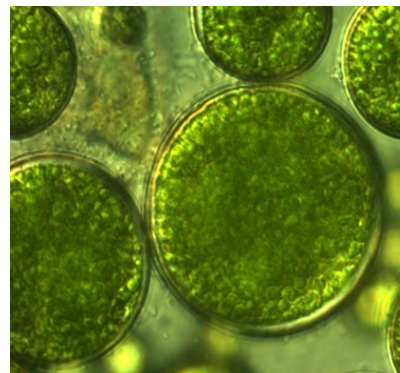
Source: Suwannee River
Water Management District
(WMD) [What is a Spring?](#)

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.**

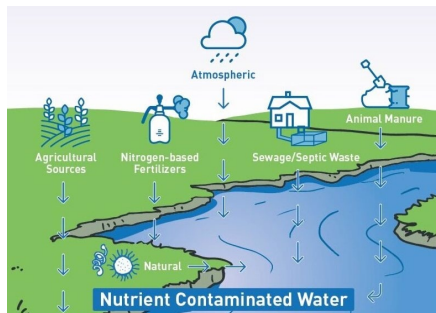


Source: Florida Geological Survey
- Rainbow Spring #4



BACKGROUND SPRINGS RESTORATION

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



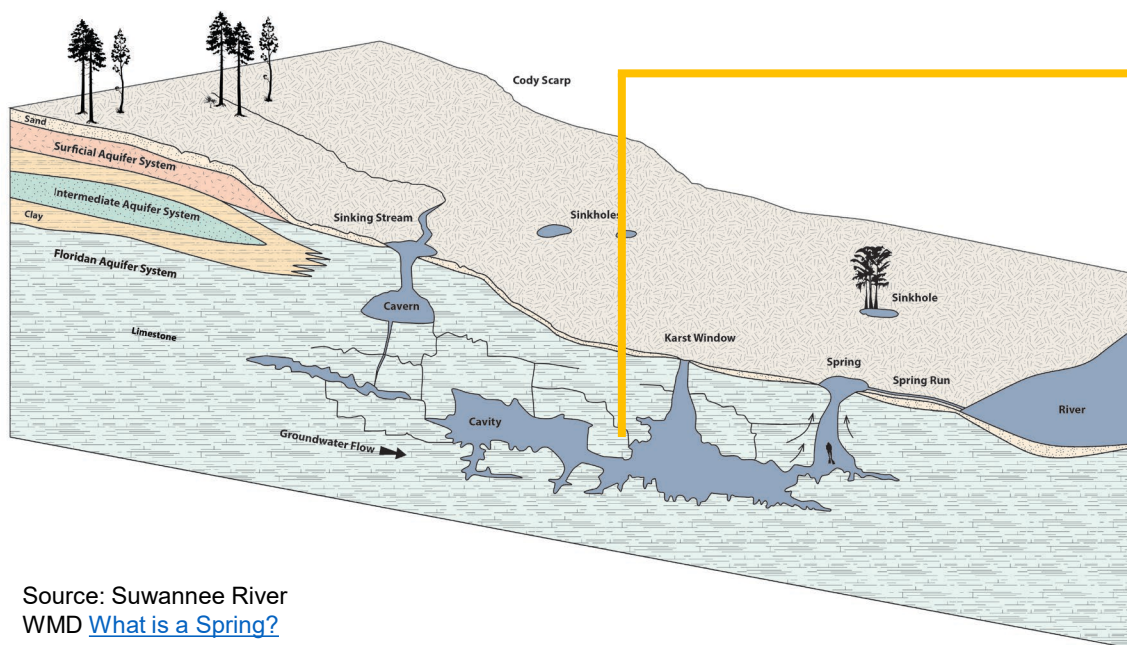
Source: Beta Analytics

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 targets.



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

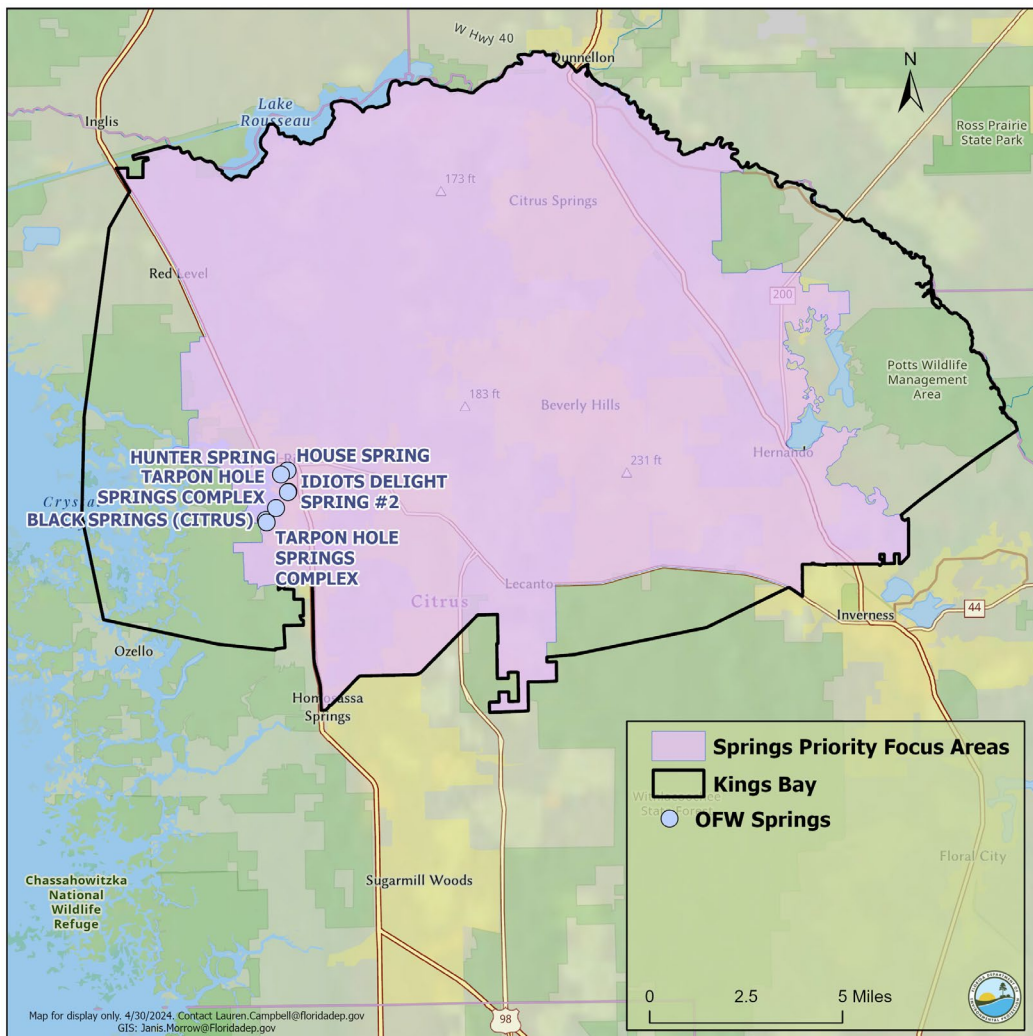


Source: Florida Geological Survey
- Rainbow Spring #4



BACKGROUND

CRYSTAL RIVER-KINGS BAY



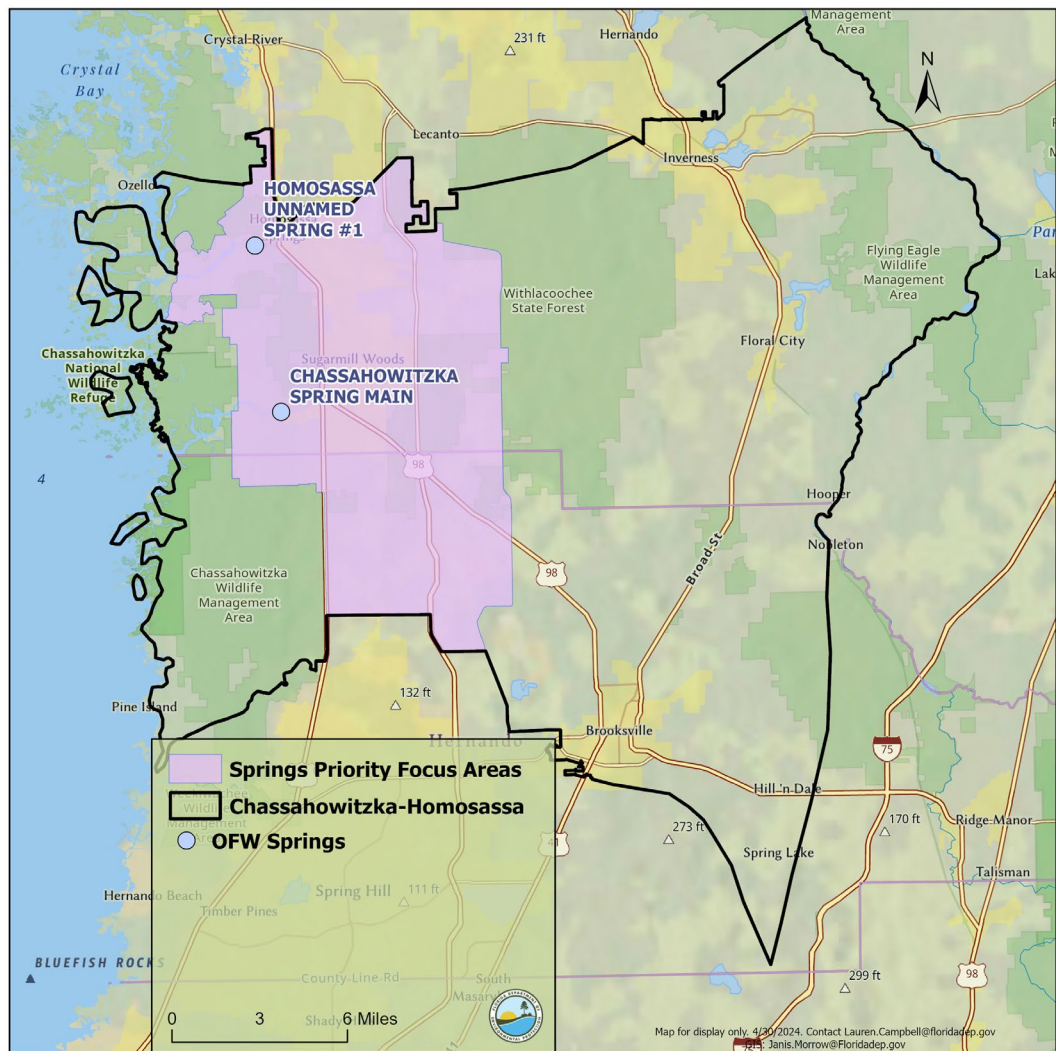
Type of Entity	Name
Responsible Stakeholders	Citrus County
	City of Crystal River
	Agricultural producers
	Golf courses
Responsible Agencies	Florida Department of Agriculture and Consumer Services
	Florida Department of Environmental Protection
	Florida Department of Health
	Southwest Florida Water Management District

Waterbody or Spring Name	Waterbody Identification (WBID) Number	Parameter	TMDL (mg/L)
Kings Bay	1341	TN, annual average	0.28
Kings Bay	1341	TP, annual average	0.032
Hunter Spring	1341C	Nitrate, annual average	0.23
Hunter Spring	1341C	Orthophosphate, annual average	0.028
House Spring	1341D	Nitrate, annual average	0.23
House Spring	1341D	Orthophosphate, annual average	0.028
Idiot's Delight Spring	1341F	Nitrate, annual average	0.23
Idiot's Delight Spring	1341F	Orthophosphate, annual average	0.028
Tarpon Spring	1341G	Nitrate, annual average	0.23
Tarpon Spring	1341G	Orthophosphate, annual average	0.028
Black Spring	1341H	Nitrate, annual average	0.23
Black Spring	1341H	Orthophosphate, annual average	0.028



BACKGROUND

HOMOSASSA AND CHASSAHOWITZKA SPRING GROUPS



Type of Entity	Name
Responsible Stakeholders	Citrus County
	City of Brooksville
Responsible Stakeholders	City of Inverness
	Hernando County
Responsible Stakeholders	Agricultural producers
	Golf courses
Responsible Agencies	Florida Department of Agriculture and Consumer Services
	Florida Department of Environmental Protection
	Florida Department of Health
	Southwest Florida Water Management District

Waterbody or Spring Name	Waterbody Identification (WBID) Number	Parameter	TMDL (mg/L)
Homosassa #1 Spring	1345G	Nitrate, annual average	0.23
Homosassa #2 Spring	1345G	Nitrate, annual average	0.23
Homosassa #3 Spring	1345G	Nitrate, annual average	0.23
Pumphouse Springs	1345G	Nitrate, annual average	0.23
Trotter Springs	1345G	Nitrate, annual average	0.23
Bluebird Springs	1348A	Nitrate, annual average	0.23
Hidden River Main Spring	1348E	Nitrate, annual average	0.23
Hidden River #2 Spring	1348E	Nitrate, annual average	0.23
Chassahowitzka Main Spring	1348Z	Nitrate, annual average	0.23
Chassahowitzka #1 Spring	1348Z	Nitrate, annual average	0.23
Crab Creek Spring	1348Z	Nitrate, annual average	0.23
Baird #1 Spring	1348D	Nitrate, annual average	0.23
Ruth Spring	1348D	Nitrate, annual average	0.23
Betejay Spring	1361B	Nitrate, annual average	0.23
Chassahowitzka River-Baird Creek	1348D	TN, annual average	0.25



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 5-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.
 - Water management districts.
 - Agricultural producers.
 - Local communities.



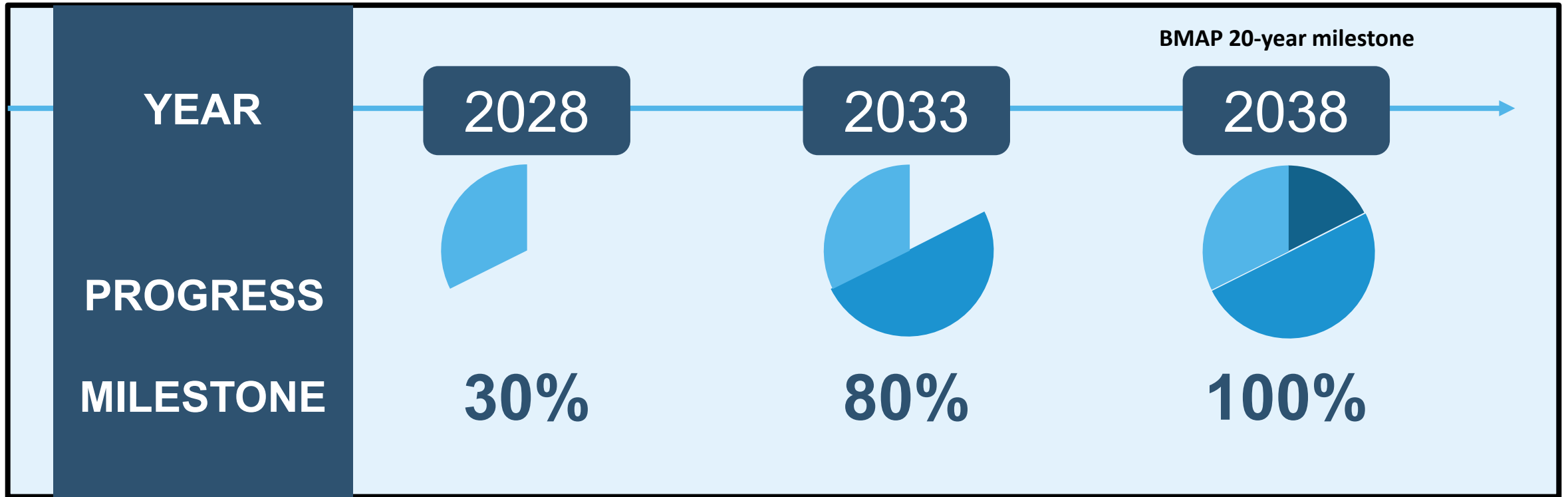
ACE

- 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 BACKGROUND

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.



BASIN ANALYSES

DRAFT LOADING SUMMARY – KINGS BAY

	Kings Bay Nitrogen Loads (lbs-TN/yr)	Source
Total Load at Spring Vents (October 2023)	453,400	Upper 95% confidence interval - nitrate data 2012-2022 and flow data from Crystal River and proportioned based on studies.
TMDL Load	259,009	TMDL target is 0.23 mg/L and using the same flow data from 2012-2021.
Percent Required Reductions	43%	
Total NSILT Load (October 2023)	813,340	2023 NSILT.
Required Reductions	348,712	Proportional decrease in NSILT load.

cfs: cubic feet per second

mg/L: milligram per liter



KINGS BAY REDUCTIONS

DRAFT SPRINGSHED REDUCTIONS

Nitrogen Source	Allocations by Source (lb-N/yr)	Percent of Total Reduction
Atmospheric Deposition*	29,626	8.39%
Onsite Sewage Treatment and Disposal System	171,965	48.72%
Wastewater Treatment Facility	25,323	7.17%
Farm Fertilizer (BMP Enrollment)	6,890	1.95%
Livestock Waste-NonCAFO (BMP Enrollment)	3,267	0.93%
Ag-Cooperative Regional Elements (CRE)	26,021	7.37%
Urban Turfgrass Fertilizer	77,781	22.03%
Sports Turf-Golf	11,201	3.17%
Sports Turf-Other	925	0.26%
Total	352,998	100.00%

- The spring vent reduction of 43% was used to determine the required reduction for most categories.
- For wastewater treatment facilities, reduction was determined based on the BMAP effluent standards.
- For agricultural sources, an estimated reduction of 15% will be achieved when crop producers are enrolled in the DACS Best Management Practice (BMP) program and implement BMPs, and a reduction of 10% will be achieved when all livestock producers enroll in the DACS BMP program and implement BMPs. The remaining allocated reduction to agricultural will be addressed through a combination of regional projects, ACE, innovative technologies and cost-share projects.



KINGS BAY REDUCTIONS

DRAFT ENTITY REQUIRED REDUCTIONS

Entity	2028 Milestone (30%)	2033 Milestone (80%)	2038 Milestone (100%)
Citrus County	77,661	207,096	258,870
City of Crystal River	1,456	3,884	4,854
Agriculture	10,853	28,942	36,178
Private Wastewater Facilities	3,680	9,814	12,268
Private Golf Courses*	3,361	8,962	11,202

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

- All local municipalities are allocated reduction targets based on the loading estimated to occur under their jurisdiction from wastewater, septic systems and urban fertilizers.
- Private wastewater treatment facilities will be required to meet effluent standards through permits.
- New management strategies will provide assurance golf courses are using fertilizers appropriately.

Reductions in this table reflect overall allocated reductions in the Kings Bay BMAP area. Some entities will have responsibilities in multiple springsheds and BMAPs.



BASIN ANALYSES

DRAFT LOADING SUMMARY – HOMOSASSA-CHASSAHOWITZKA

	Homosassa Nitrogen Loads (lbs-TN/yr)	Chassahowitzka Nitrogen Loads (lbs-TN/yr)	Source
Total Load at Spring Vents (October 2023)	271,301	207,128	Upper 95% confidence interval - nitrate and flow data from 2012-2022 (nitrate assessed for all spring vents and updated flows used where available).
TMDL Load	94,924	82,543	TMDL target is 0.23 mg/L and using the same flow data.
Percent Required Reductions	65%	60%	
Total NSILT Load (October 2023)	588,612	352,488	2023 NSILT.
Required Reductions	382,666	212,017	Proportional decrease in NSILT load.



HOMOSASSA-CHASSAHOWITZKA REDUCTIONS

DRAFT SPRINGSHED REQUIRED REDUCTIONS

Nitrogen Source	Homosassa		Chassahowitzka	
	Allocations by Source (lb-N/yr)	Percent of Total Reduction	Allocations by Source (lb-N/yr)	Percent of Total Reduction
Atmospheric Deposition*	46,033	12.03%	26,432	11.64%
Onsite Sewage Treatment and Disposal System	139,891	36.56%	48,993	21.57%
Wastewater Treatment Facility	1,326	0.35%	11,236	4.95%
Farm Fertilizer (BMP Enrollment)	16,331	4.27%	8,441	3.72%
Livestock Waste-NonCAFO (BMP Enrollment)	8,194	2.14%	6,667	2.94%
Ag-Cooperative Regional Elements (CRE)	104,611	27.34%	64,721	28.50%
Urban Turfgrass Fertilizer	56,532	14.77%	31,249	13.76%
Sports Turf-Golf	7,888	2.06%	14,579	6.42%
Sports Turf-Other	984	0.26%	528	0.23%
Regional Projects*	874	0.23%	14,280	6.29%
Total	382,664	100.00%	227,126	100.00%

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



HOMOSSASSA-CHASSAHOWITZKA REDUCTIONS

DRAFT ENTITY REQUIRED REDUCTIONS

Entity	2028 Milestone (30%)	2033 Milestone (80%)	2038 Milestone (100%)
Citrus County	56,836	151,562	189,453
City of Inverness	2,254	6,010	7,512
Hernando County	26,068	69,515	86,894
City of Brooksville	1,483	3,955	4,944
Agriculture	301,405	835,747	208,966
Private Wastewater Facilities*	581	1,550	1,938
Private Golf Courses*	6,740	17,974	22,468

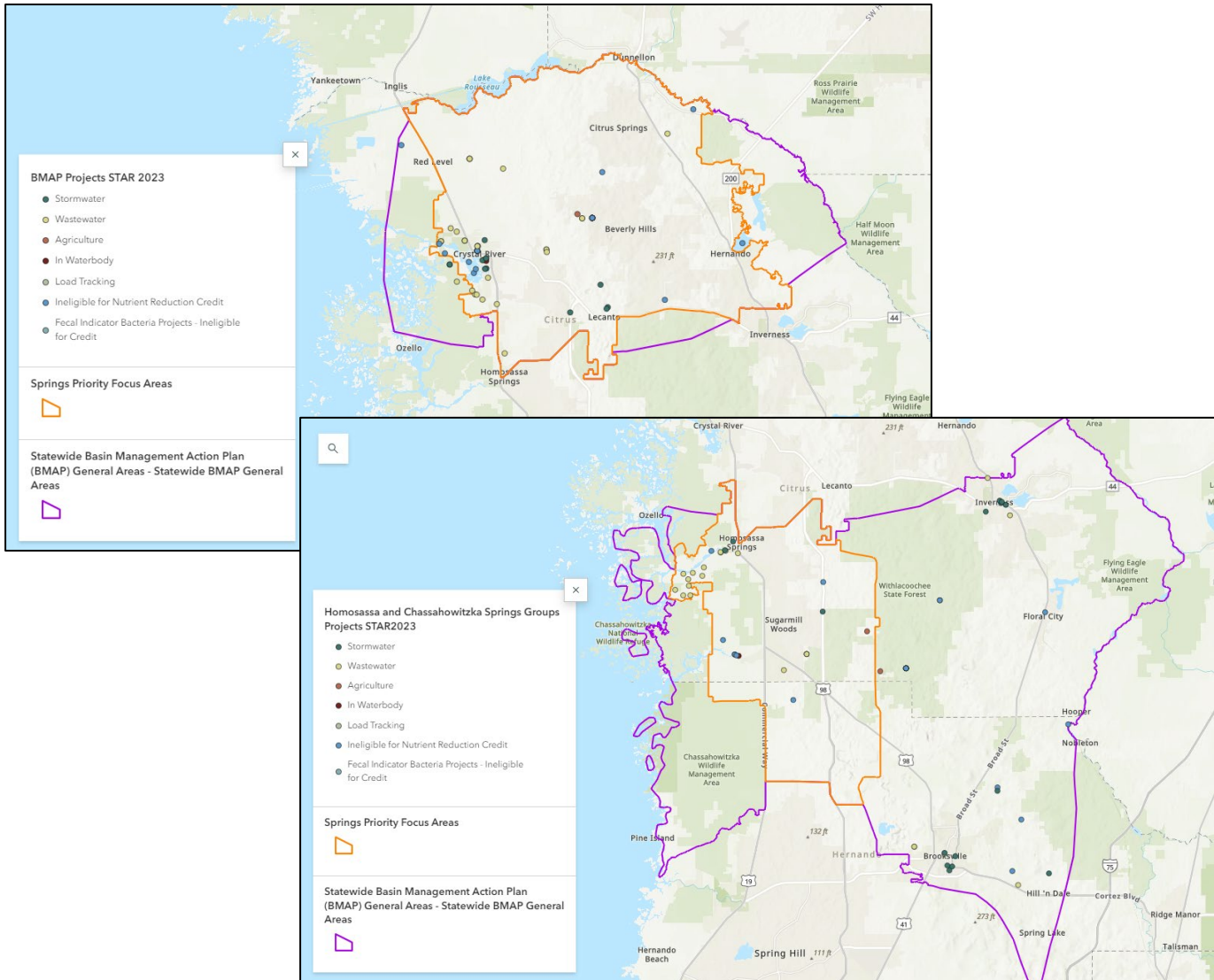
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- Private wastewater treatment facilities will be required to meet effluent standards through permits.
- New management strategies will provide assurance golf courses are using fertilizers appropriately.

Reductions in this table reflect overall allocated reductions in the Homosassa-Chassahowitzka BMAP area. Some entities will have responsibilities in multiple springsheds and BMAPs.



PROJECTS



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

- Entities are required to plan and report projects to the state through the project portal for the Statewide Annual Report (STAR). All projects needed to fulfill milestones should be added, 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.



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)

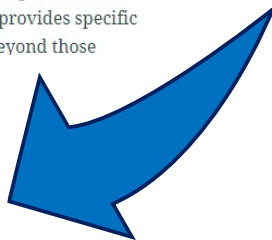
Welcome to the Florida Springs Basin Management Action Plan (BMAP) StoryMap

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

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[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 WWTP 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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