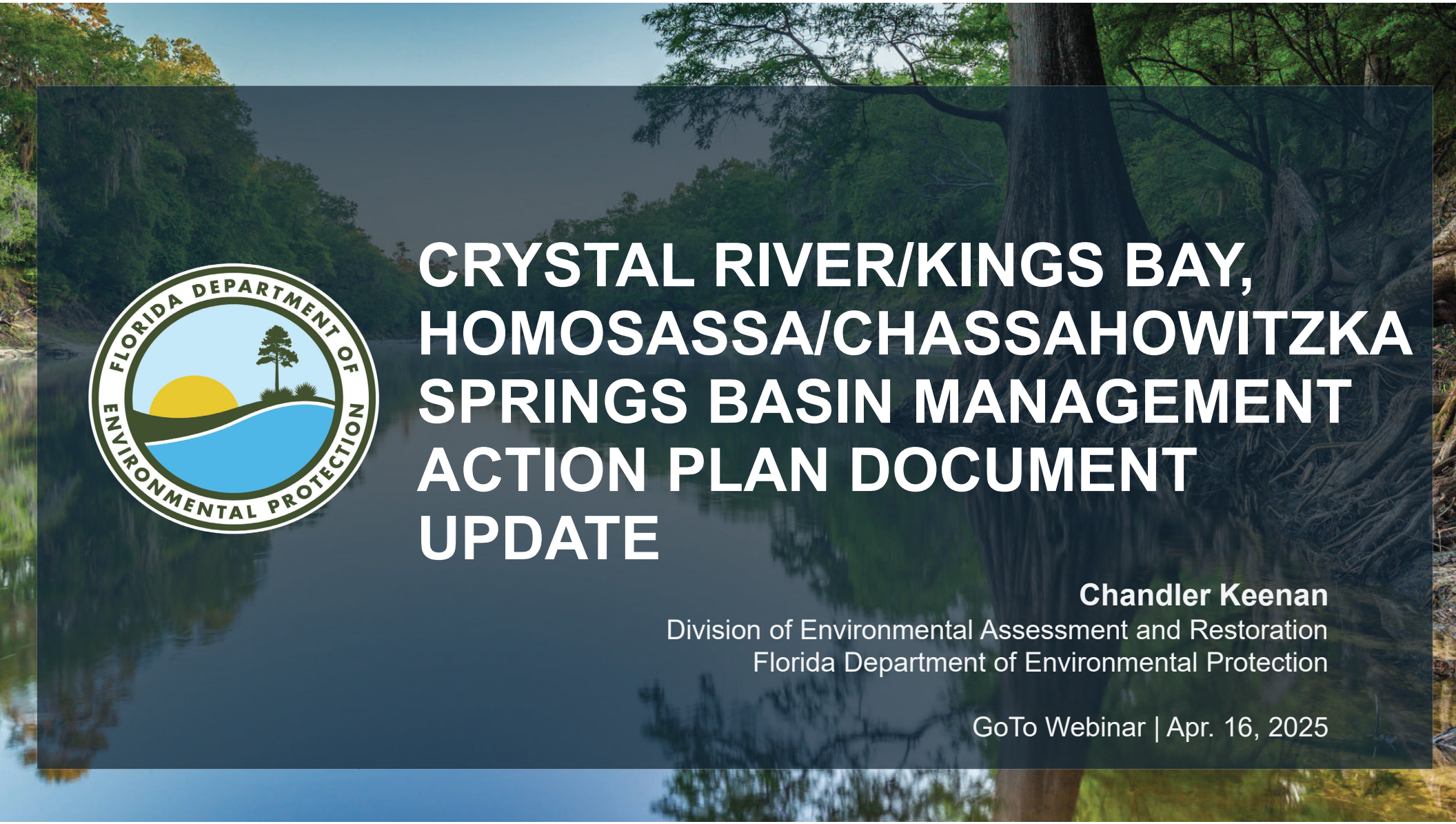

CRYSTAL RIVER/KINGS BAY, HOMOSASSA/CHASSAHOWITZKA SPRINGS BASIN MANAGEMENT ACTION PLAN DOCUMENT UPDATE

Chandler Keenan
Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection

GoTo Webinar | Apr. 16, 2025

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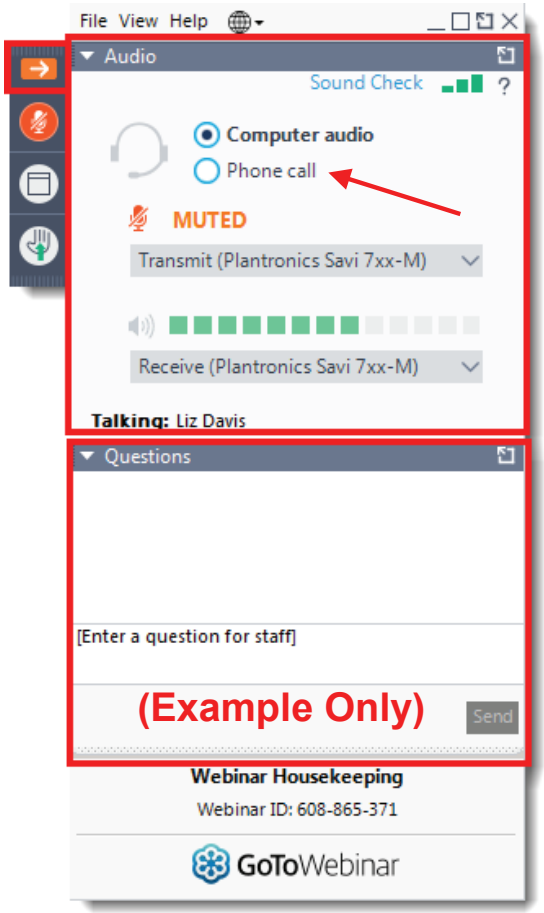


AGENDA

- Basin Management Action Plan (BMAP) Background.
- Review of Previous Meetings.
- Document Update Walk-through.
- Next Steps.

Photo Credit: USFWS

KEY BMAP COMPONENTS

- Total maximum daily loads (TMDLs) being addressed.
- Area addressed by the restoration plan.
- Identify sources.
- Phased implementation approach.
- Milestones.
- Projects and management strategies.
- Future growth impacts.

Projects to meet the TMDL:

- Implementation timeline.
- Commitment to projects.
- Expected water quality improvement from projects and management strategies.

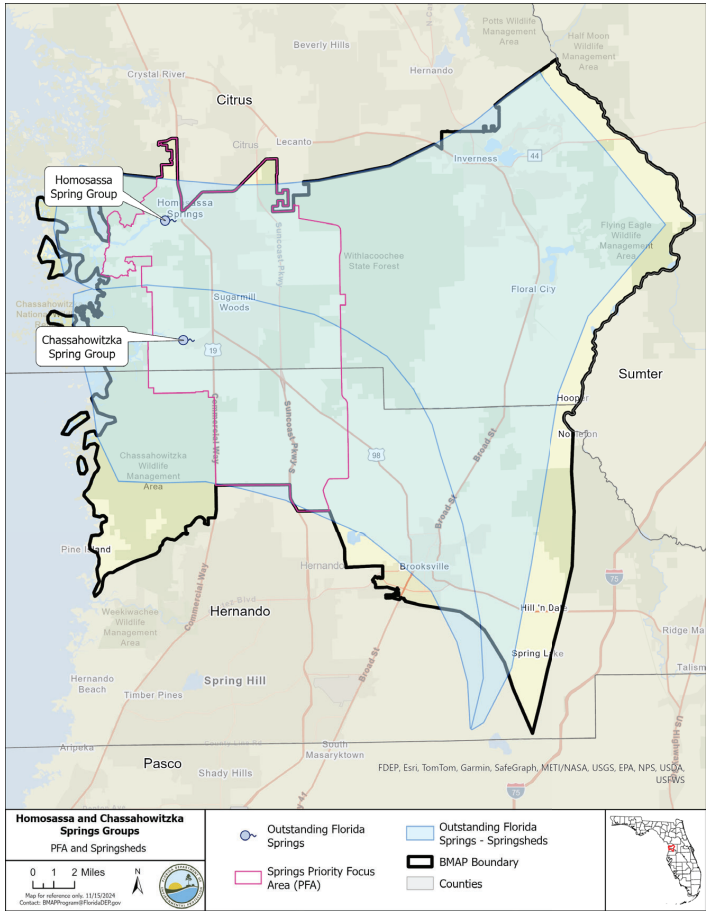
Process to assess progress toward achieving the TMDL:

- Monitoring plan.
- Project reporting.
- Periodic follow-up meetings.
- Water quality analyses.

BACKGROUND

HOMOSASSA/CHASSAOWITZKA SPRINGS

- BMAP area is approximately 340,609 acres.
- Impaired for the nitrate form of nitrogen.
- TMDL is an annual average target of 0.23 milligrams per liter (mg/L) of nitrate.



BACKGROUND

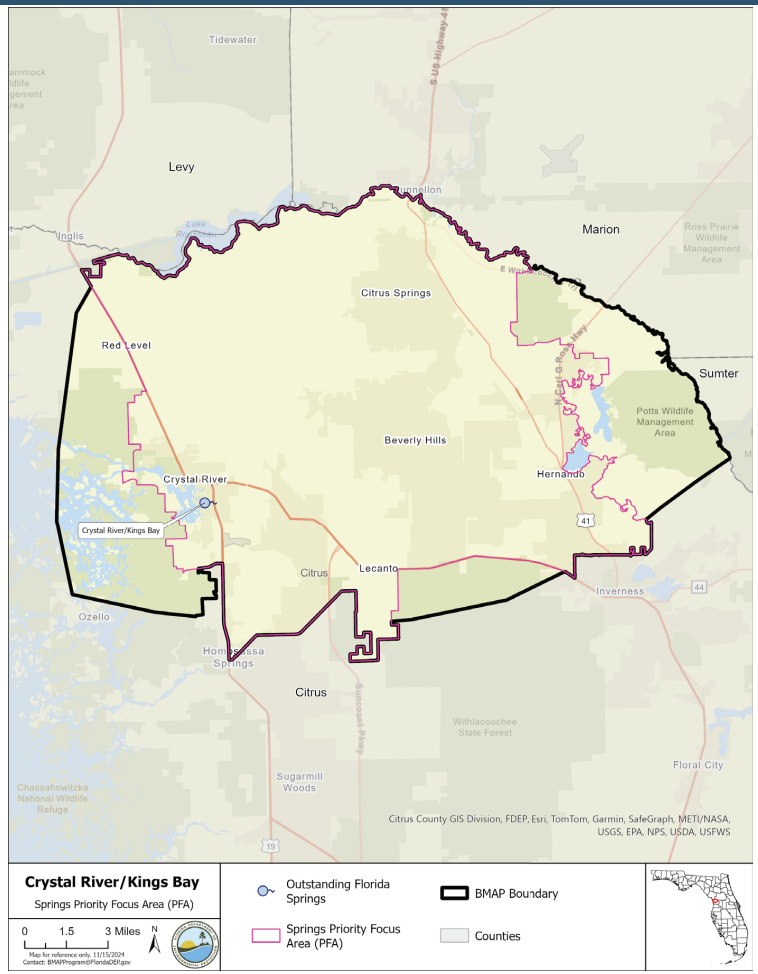
HOMOSASSA/CHASSAOWITZKA SPRINGS BMAP STAKEHOLDERS

Type of Entity	Name
Responsible Entities	Agriculture Citrus County City of Brooksville City of Inverness Hernando County
Responsible Agencies	County Health Departments Florida Department of Agriculture and Consumer Services (DACS) Florida Department of Environmental Protection (DEP) Florida Department of Transportation (DOT) — District 7 Southwest Florida Water Management District
Other Interested Stakeholders	Residents/Homeowners Florida Farm Bureau Florida Native Plant Society Florida Onsite Wastewater Association Homosassa River Alliance Save the Manatee Club Septic Contractors Sierra Club Adventure Coast Group U.S. Fish and Wildlife Service — Chassahowitzka National Wildlife Refuge

BACKGROUND

CRYSTAL RIVER/KINGS BAY

- BMAP area is approximately 178,753 acres.
- Impaired for the nitrate form of nitrogen.
- TMDL is an annual average target of 0.23 mg/L of nitrate.



BACKGROUND

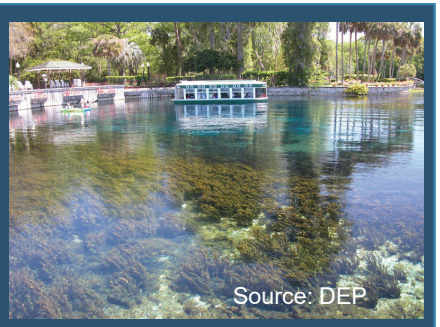
CRYSTAL RIVER/KINGS BAY SPRINGS BMAP STAKEHOLDERS

Type of Entity	Name	
Responsible Entities	Agriculture Citrus County City of Crystal River Private Golf Courses Private Wastewater Treatment Facilities	
Responsible Agencies	County Health Departments DACS DEP DOT — District 7 Southwest Florida Water Management District	
Other Interested Stakeholders	Residents/Homeowners Duke Energy Florida Farm Bureau Florida Onsite Wastewater Association Gulf Archaeology Research Institute Kings Bay Rotary Kings Bay Springs Alliance Save Crystal River	Save the Manatee Club St. Martins Marsh Aquatic Preserve University of Florida Institute of Food and Agricultural Sciences — Citrus County Extension Service U.S. Fish and Wildlife Service — Crystal River National Wildlife Refuge Septic System Contractors

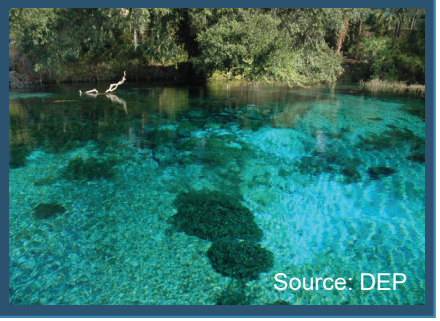
BMAP UPDATE COMPONENTS

ADOPT BY JULY 1, 2025

- Nitrogen Source Inventory Loading Tool (NSILT) updates.
- Spring vent load analyses updates.
- Entity allocation development.
- Establish five-year milestones for project implementation.
- Incorporate the 2020 Clean Waterways Act, 2023 House Bill (HB) 1379 and 2024 HB 1557 requirements.
- Incorporate regional projects.
- Future growth.
- Water quality data evaluation:
  - Evaluation of the monitoring network (spring vent and groundwater).
  - Water quality analyses.
- Evaluate further onsite sewage treatment and disposal systems (OSTDS) provisions.
- Evaluate the need for advanced wastewater treatment (AWT) or other more stringent effluent limits for domestic wastewater treatment facilities (WWTF).


Source: DEP


Source: DEP


Source: DEP

PREVIOUS MEETINGS

Summary of BMAP update meetings (held in 2024):

- **January Public Meeting**
  - Virtual
  - Overview of NSILT methodology updates (all springs basins)
- **May Public Meeting**
  - Virtual
  - Legislative requirements and basin specific analyses
- **October/November Public Meeting**
  - In person
  - Basin and entity allocated reductions, poster session
- **Entity Specific Meetings**
  - Throughout summer and fall
  - Meetings with responsive stakeholders to discuss reduction allocations and project lists

Source: Crystal River and Kings Bay | WaterMatters.org

DRAFT DOCUMENT

Section 1: Background

Section 2: Implementation

Section 3: Monitoring and Reporting

Section 4: Commitment to Plan Implementation

Section 5: References

Appendices

Legislation

TMDLs

BMAP Requirements

BMAP Area

Priority Focus Area (PFA)

Other Scientific and Historical Information

Stakeholder Involvement

Best Management Practices (BMPs) Adopted by Rule

DRAFT DOCUMENT

Section 1: Background

Section 2: Implementation

Section 3: Monitoring and Reporting

Section 4: Commitment to Plan Implementation

Section 5: References

Appendices

Pollutant Loads

Load Reduction Strategy

Allocated Reductions

Management Strategies

OSTDS

WWTF

Urban Turfgrass Fertilizer (UTF)

Sports Turfgrass Fertilizer (STF)

Agriculture

Atmospheric Deposition

Future Growth

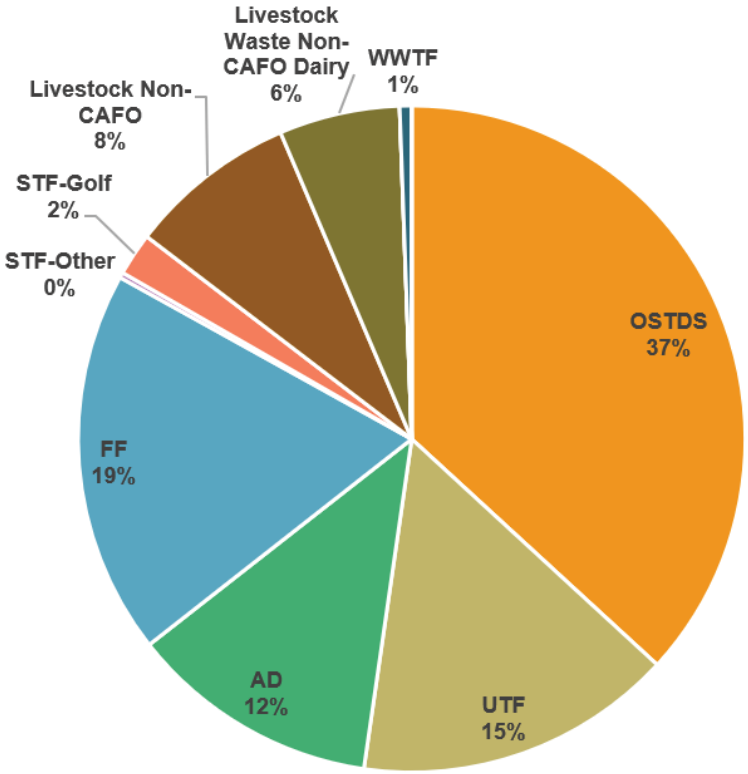
Funding Opportunities

POLLUTANT LOADS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Loading to groundwater by source in the Homosassa Springshed

Nitrogen Source	Total Nitrogen (TN) Load to Groundwater (lbs/yr)	% Contribution
OSTDS	215,178	37%
UTF	90,284	15%
Atmospheric Deposition (AD)	70,808	12%
Farm Fertilizer (FF)	108,876	19%
STF	1,514	<1%
STF – Golf	12,135	2%
Livestock Waste (LW)	89,761	15%
Biosolids	0	0%
WWTFs	3,382	1%
Total	**584,121**	**100%**



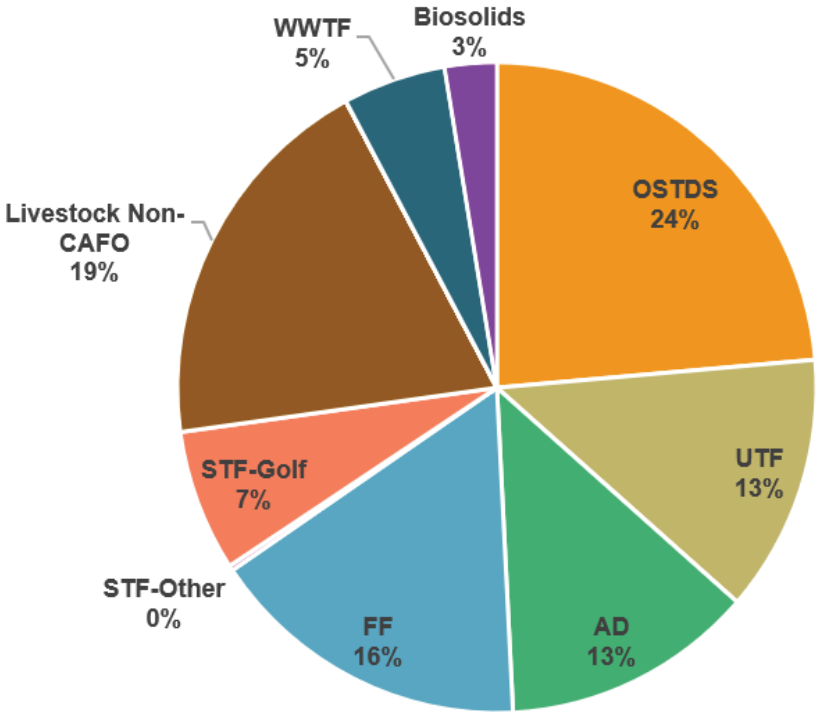
lbs/yr = pounds/year

POLLUTANT LOADS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Loading to groundwater by source in the Chassahowitzka Springshed

Nitrogen Source	TN Load to Groundwater (lbs/yr)	% Contribution
OSTDS	81,452	24%
UTF	44,183	13%
AD	43,944	13%
FF	56,274	16%
STF	878	<1%
STF – Golf	24,300	7%
LW	66,674	19%
Biosolids	9,043	3%
WWTF	17,972	5%
Total	**344,719**	**100%**

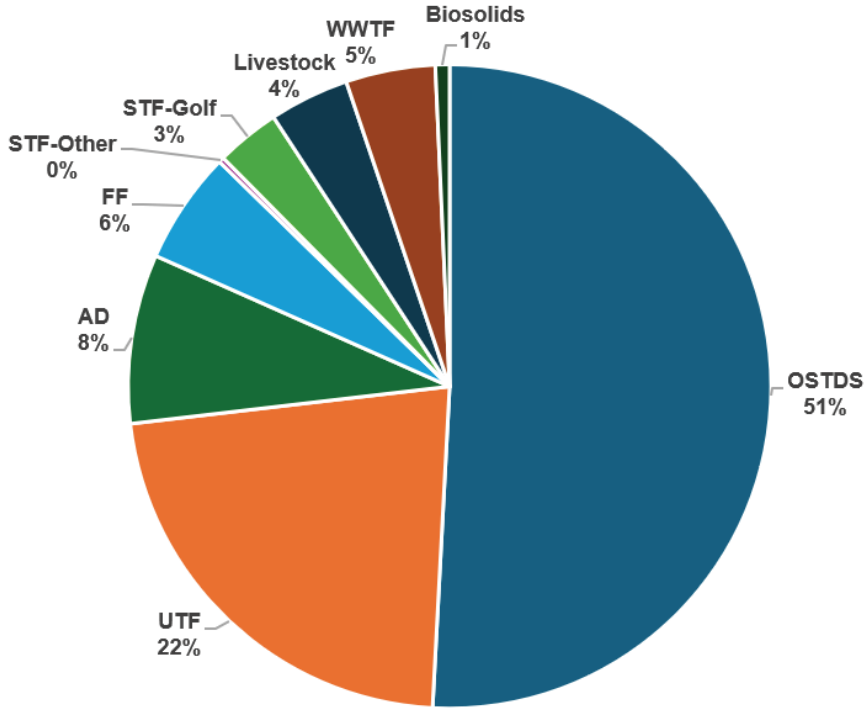


POLLUTANT LOADS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Loading to groundwater by source in the Crystal River/Kings Bay BMAP

Nitrogen Source	TN Load to Groundwater (lbs/yr)	% Contribution
OSTDS	413,555	51%
UTF	181,417	22%
AD	69,099	8%
FF	45,930	6%
STF	28,283	3%
LW	32,668	4%
Biosolids	5,782	1%
WWTFs	36,607	5%
Total	**813,340**	**100%**



LOADING ALLOCATION

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Description	Homosassa Nitrogen Loads (lbs/yr)	Chassahowitzka Nitrogen Loads (lbs/yr)	Notes Regarding Data Used
Total Load at Spring Vents	271,301	207,128	Upper 95% confidence interval – nitrate and flow data 2012 to 2022.
TMDL Load	94,924	82,543	TMDL targets of 0.23 mg/L and using the same flow data and proportions.
Percent Reductions	65%	60%	Calculated reduction needed based on the total load at the spring vent and the TMDL load.
NSILT Load	584,121	344,719	Total load to groundwater from the updated NSILT.
Required Reductions	**379,746**	**207,344**	**Percent reduction multiplied by the NSILT load.**

LOADING ALLOCATION

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

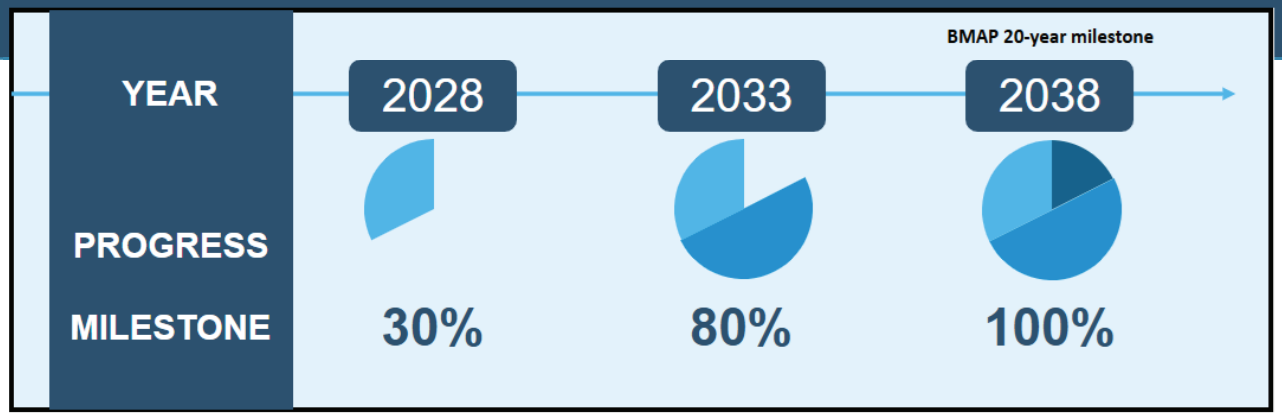
Description	Crystal River/Kings Bay Nitrogen Loads (lbs/yr)	Notes Regarding Data Used
Total Load at Spring Vents	453,400	Upper 95% confidence interval — nitrate and flow data from 2012 to 2022 (0.48 mg/L and 572.75 cfs).
TMDL Load (October 2023)	259,009	TMDL target of 0.23 mg/L and using the spring vent flow data and proportions from 2012 to 2022.
Percent Reductions	43%	Calculated reduction needed based on the total load at the spring vent and the TMDL load.
Total NSILT Load (October 2023)	813,340	Total load to groundwater from the updated NSILT.
Required Reductions	**348,712**	**Percent reduction multiplied by the NSILT load.**

cfs – cubic feet per second

MILESTONES/REDUCTION SCHEDULE

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

- Consistent with statutes, entities must provide a list of projects and strategies to DEP that show how entities will meet their required reductions to achieve the next upcoming BMAP milestone, even if the identified project or strategy will not be completed by the milestone.
- All projects needed to achieve milestone targets should be included in the Statewide Annual Report (STAR), even if a funding mechanism is not currently identified, as this information gives the state an understanding of the support is necessary to achieve BMAP goals and assists with the prioritization of projects.
- It is critical for each BMAP that entities plan for and report projects and project updates to the state through the STAR process.



MILESTONES/REDUCTION SCHEDULE

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

- Responsible entities must submit a **sufficient list** of additional projects and management strategies to DEP by **Jan. 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 project list, then specific project identification efforts must be submitted **by Jan. 14, 2026**:
  - These responsible entities must submit project identification efforts whose purpose and timeline will provide projects to meet the 5-year milestone.
  - These efforts create a compliance schedule that must reflect the urgency of defining, funding and implementing projects to meet the upcoming and future 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.

ENTITY ALLOCATIONS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Timeline

- 2028: 30%
- 2033: (+50%) 80%
- 2038: (+20%) 100%

2028 5-year milestone required reductions by entity in the Chassahowitzka Spring Group

Entity	2028 Milestone Assigned Reductions (30%) TN (lbs/yr)	Total Assigned Reductions TN (lbs/yr)
Citrus County	5,303	17,678
City of Brooksville	1,873	6,244
Hernando County	18,759	62,531
Agriculture	23,949	79,829
Private WWTFs*	264	880
Private Golf Courses*	4,374	14,579
Total, All Reductions	**54,522**	**181,741**

*List of facilities and golf courses is included in the BMAP document.

ENTITY ALLOCATIONS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Chassahowitzka Spring Group

Entity	2028 Milestone Assigned Reductions (30%) (lbs/yr)	TN Completed and Ongoing Project Credits (lbs/yr)	TN Reductions from Planned and Underway Projects* (Not Verified) (lbs/yr)	Total Projected** Project TN Reductions by Entity Through 2028 (lbs/yr)
Citrus County	5,303	434	0	434
City of Brooksville	1,873	486	0	486
Hernando County	18,759	1,641	0	1,641
Agriculture	23,949	16,824	0	16,824
Private WWTFs	264	0	0	0
Private Golf Courses	4,374	0	0	0
Total, All Reductions	**54,522**	**19,385**	**0**	**19,385**

* Planned and underway project reduction estimates are not verified by DEP.

** Projected reductions include projects with a project status of completed, ongoing, planned and underway.

ENTITY ALLOCATIONS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Timeline

- 2028: 30%
- 2033: (+50%) 80%
- 2038: (+20%) 100%

2028 5-year milestone required reductions by entity in the Homosassa Spring Group

Entity	2028 Milestone Assigned Reductions (30%) TN (lbs/yr)	Total Assigned Reductions TN (lbs/yr)
Citrus County	51,532	171,775
City of Inverness	3,396	11,320
Hernando County	5,023	16,745
Agriculture	38,741	129,137
Private WWTFs*	317	1,057
Private Golf Courses*	2,366	7,888
Regional Projects	262	874
Total, All Reductions	**100,114**	**333,713**

*List of facilities and golf courses is included in the BMAP document.

ENTITY ALLOCATIONS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Homosassa Spring Group

Entity	2028 Milestone Assigned Reductions (30%)(lbs/yr)	TN Completed and Ongoing Project Credits (lbs/yr)	TN Reductions from Planned and Underway Projects* (Not Verified) (lbs/yr)	Total Projected** Project TN Reductions by Entity Through 2028 (lbs/yr)
Citrus County	51,532	3,167	4,198	7,365
City of Inverness	3,396	618	8,174	8,792
Hernando County	5,023	380	0	380
Agriculture	38,741	44,226	0	44,226
Private WWTFs	317	0	0	0
Private Golf Courses	2,366	0	0	0
Regional Projects	262	9	0	9
Total, All Reductions	**100,114**	**48,400**	**12,372**	**60,772**

* Planned and underway project reduction estimates are not verified by DEP.

** Projected reductions include projects with a project status of completed, ongoing, planned and underway.

ENTITY ALLOCATIONS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Timeline

- 2028: 30%
- 2033: (+50%) 80%
- 2038: (+20%) 100%

2028 5-year milestone required reductions by entity in the Crystal River/Kings Bay BMAP

Entity	2028 Milestone Assigned Reductions (30%) TN (lbs/yr)	Total Assigned Reductions TN (lbs/yr)
Citrus County	77,661	258,870
City of Crystal River	1,456	4,854
Agriculture	10,853	36,177
Private WWTFs*	3,687	12,289
Private Golf Courses*	3,360	11,201
Total, All Reductions	**97,017**	**323,392**

lbs/yr = pounds/year
*List of facilities and golf courses is included in the BMAP document.

ENTITY ALLOCATIONS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Crystal River/Kings Bay BMAP

Entity	2028 Milestone Assigned Reductions (30%) (lbs/yr)	TN Completed and Ongoing Project Credits (lbs/yr)	TN Reductions from Planned and Underway Projects* (Not Verified) (lbs/yr)	Total Projected** Project TN Reductions by Entity Through 2028 (lbs/yr)
Citrus County	77,661	8,024	1,870	9,894
City of Crystal River	1,456	986	2,785	3,771
Agriculture	10,853	12,506	0	12,506
Private WWTFs	3,687	0	0	0
Private Golf Courses	3,360	0	0	0
Total, All Reductions	**97,017**	**21,516**	**4,655**	**26,171**

* Planned and underway project reduction estimates are not verified by DEP.

** Projected reductions include projects with a project status of completed, ongoing, planned and underway.

WASTEWATER
SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Recent legislative updates have expanded the requirements for addressing wastewater sources within BMAPs.

Clean Waterways Act (2020)

- Requires local governments within a nutrient BMAP to develop wastewater treatment plans and/or OSTDS remediation plans to be incorporated into BMAP updates.

Reclaimed Water Senate Bill (SB) 64 (2021)

- Subsection 403.064(16), Florida Statutes (F.S.), requires domestic wastewater utilities that dispose of effluent, reclaimed water or reuse water by surface water discharge to submit for DEP review and approval, a plan for eliminating non-beneficial surface water discharge by Jan. 1, 2032.
  - A utility must fully implement the approved plan by Jan. 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 Jan. 1, 2028.

WASTEWATER
SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Recent legislative updates have expanded the requirements for addressing wastewater sources within BMAPs.

Environmental Protection HB 1379 (2023)

- Requires facilities discharging to a waterbody impaired for nutrients or subject to a BMAP to upgrade to AWT within 10 years.
- Requires applicants for new septic systems serving lots of one acre or less within BMAPs to connect to central sewer if available, or if unavailable, to install an enhanced nutrient-reducing system or other wastewater system that achieves a nitrogen reduction of 65%.

Environmental Protection HB 1557 (2024)

- Requires advanced treatment of reclaimed water within BMAPs (403.086, F.S.).
- DEP has determined that the use of reclaimed water is causing or contributing to the nutrient impairments being addressed in this BMAP area.
- The facilities listed in the BMAP — Appendix D have 10 years from BMAP adoption to meet the applicable AWT standards.

WASTEWATER
SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

The nitrogen effluent limits 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 these BMAPs.

Nitrogen effluent limits for wastewater facilities

Facility Capacity (gpd)	Surface Water Discharges (mg/L)	WWTFs Not Listed in Appendix G — Rapid Rate Land Application Effluent Disposal System (mg/L)	WWTFs Not Listed in Appendix G — All Other Disposal Methods, Including Reuse (mg/L)
Greater than 100,000	3	3	3
20,000 to 100,000	3	3	6
Less than 20,000	3	6	6

gpd = gallons per day.
mg/L = milligrams per liter.

EXISTING OSTDS REMEDIATION

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Section 373.807, F.S.

- Requires BMAPs to include an OSTDS remediation plan if OSTDS contribute at least 20% of nonpoint source nitrogen pollution, or if DEP determines OSTDS remediation is needed to achieve the TMDL.

Homosassa and Chassahowitzka Springs

- This remediation plan establishes a remediation policy (**Appendix E**) applicable to **all existing OSTDS** within **the PFA on lots of all sizes.**
- The remediation plan was updated to also establish a remediation policy requiring any **new OSTDS** within **the PFA on lots of all sizes** to be an enhanced nutrient reducing system.

Crystal River/Kings Bay

- This remediation plan establishes a remediation policy (**Appendix E**) applicable to **all existing OSTDS** within **the PFA on lots of all sizes.**
- The remediation plan was updated to also establish a remediation policy requiring any **new OSTDS** within **the PFA on lots of all sizes** to be an enhanced nutrient reducing system.

EXISTING OSTDS REMEDIATION

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Subsection 403.067(7)(a)9., F.S.

- Requires local governments to develop an OSTDS remediation plan 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.
- These BMAPs contain a remediation plan for OSTDS consisting of management actions, including those described in **Appendix B** in the draft BMAP documents.

Source: DEP

WASTEWATER
SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Biosolids

- To provide assurance that nitrogen losses to surface water and groundwater are minimized from the permitted application of biosolids and septage in the BMAP, requirements in accordance with Chapter 62-640, Florida Administrative Code (F.A.C.), apply to newly-permitted application sites and existing application sites upon permit renewal.

Source: DEP

URBAN TURFGRASS
SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Fertilizer Ordinance

- Subsection 373.807(2), F.S., requires local governments with jurisdictional boundaries within an OFS to develop, enact and implement a fertilizer ordinance by July 1, 2017.

Stormwater

- The National Pollutant Discharge Elimination System (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 a Municipal Separate Storm Sewer System (MS4) permit and designate eligible entities as regulated MS4s, in accordance with Chapter 62-624, F.A.C.
- Chapter 62-330 F.A.C. (2024).
  - Updated Florida's stormwater rule for design criteria and to strengthen the operation and maintenance requirements.
  - Applicants must demonstrate a level of treatment sufficient to accomplish the greater of the following nutrient load reduction criteria through calculations or modeling that the future stormwater management systems would provide additional treatment to meet new Environmental Resource Permits stormwater treatment performance standards of 80% reduction for Total Phosphorous (TP) and 55% reduction for TN or post-development condition average annual loading of nutrients does not exceed the predevelopment condition nutrient loading, along with additional requirements that would apply where a project discharges to Outstanding Florida Waters or impaired waters.

SPORTS TURFGRASS
SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Sports Turfgrass and Golf Courses

- Sporting facilities are required to follow the 2025 Sports Turf BMP Manual.
  - DEP and University of Florida/Institute of Food and Agricultural Sciences (UF/IFAS) are collaborating the develop this manual.
- Superintendents of golf courses within the BMAP must obtain a certification for golf course BMPs under section 403.9339, F.S., and all golf courses must implement the BMPs described in the 2021 DEP golf course BMP manual.
- All golf courses located within a BMAP are required to submit a Nutrient Management Plan (NMP).
  - A draft NMP must be submitted to DEP within one year of BMAP adoption and a final document is due two years after adoption.

AGRICULTURE

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Dairy Operations with Confined Animal Feeding Operations (CAFO) Permits, Chapter 62-670, F.A.C.

- Waste storage ponds must be lined and demonstrate no leaking.
- Sampling for TN and TP or land-applied effluent/wastewater must be included in the monitoring plan.

Livestock Operations Without CAFO Permits

- Section 403.067, F.S., requires livestock operations not large enough to require a NPDES CAFO permit must enroll in and implement the applicable DACS BMP Program **OR**
- Conduct a monitoring program approved by DEP or the applicable water management district.

Aquaculture

- Chapter 597, F.S., required DACS to create a program 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.

Silviculture

- 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.

AGRICULTURE

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Agricultural Cooperative Regional Elements (ACE)

- Section 403.067, F.S., requires the DACS, DEP and agricultural producers to work together to establish an ACE.
- DACS 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.
- DACS is assigned the lead role on project solicitation, development, selection and implementation; however, they will work closely with all the key stakeholders, including DEP as a partner agency, to define and identify regional projects that will be included in the BMAP.
- DACS and DEP will work together to track progress on agricultural water quality projects under the ACE framework through the development of performance metrics and evaluation of water quality monitoring data in the basin.
- DACS will report on projects annually through the DEP STAR process and during BMAP update and/or development.
- Projects and other management strategies implemented through the ACE will be evaluated cooperatively by partner agencies using the predetermined performance metrics.

ATMOSPHERIC DEPOSITION
SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

- Atmospheric sources of nutrients are local, national and international.
- Recent data indicate that the deposition of nitrogen has been generally decreasing in Florida with an up to 55% decrease in atmospheric deposition by 2028 possibly as result of the following:
  - Power plant fuel source changes.
  - Air treatment upgrades.
  - Increased use of electric vehicles.
  - Decreasing mobile sources.
- No specific nitrogen reductions were assigned to this source category in this BMAP.
- Atmospheric deposition sources and trends will be re-evaluated periodically.

FUTURE GROWTH

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Assessed additional loading to the basin by 2040 under different growth management scenarios.

- 2040 population “additional people” based on Bureau of Business and Economic Research (BEBR) medium growth projections per county.
- Growth distributed to jurisdictional boundaries based on available land area.
- Determined percentage of population sewered based on Florida Water Management Inventory (FLWMI) parcel to point data.
- Applied per person loading values for portions of future population on centralized sewer or OSTDS.
- Assumed increase in urban turfgrass loading based on percentage of available acres developed using low and high intensity landscaping, based on a general percent turf cover and turfgrass species fertilization rates.
- Ran three management scenarios to look at loading by entity, source and overall basin.

FUTURE GROWTH

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Scenario 1

By 2040:

- **90%** or more of **new population** is connected to central sewer.
- All wastewater treating to **3 mg/L.**
- Remainder of new population has **enhanced OSTDS.**
- **2% of available land** developed using **low intensity** landscaping (10% turf cover using centipede grass).

Scenario 2

By 2040:

- **New population** is connected to central sewer at **same rate as today.**
- All wastewater treating to **3 mg/L.**
- Remainder of new population has **enhanced OSTDS.**
- **10% of available land** developed using **low intensity** landscaping (10% turf cover using centipede grass).

Scenario 3

By 2040:

- **New population** is connected to central sewer at **same rate as today**.
- All wastewater treating to **6 mg/L.**
- Remainder of new population has **conventional OSTDS.**
- **17% of available land** developed using **high intensity** landscaping (25% turf cover using St. Augustine grass).

FUTURE GROWTH ANALYSIS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Homosassa/Chassahowitzka

Entity	2040 People	Scenario 1 TN (lbs/yr)	Scenario 2 TN (lbs/yr)	Scenario 3 TN (lbs/yr)
Inverness	469	260	628	7,257
Citrus County	9,522	5,409	20,640	163,069
Brooksville	829	333	729	7,913
Hernando County	13,540	9,510	36,303	178,007
Total	**24,360**	**15,513**	**58,300**	**356,245**

2040 Loading — Basin Totals

Scenario 1 Total	Scenario 2 Total	Scenario 3 Total
15,513	**58,300**	**356,245**

In every scenario, additional loading is expected in the basin by 2040 due to increasing populations. Entities should be working now to both remediate existing loading and plan to mitigate loading from future growth.

FUTURE GROWTH ANALYSIS

SECTION 2: IMPLEMENTATION TO ACHIEVE TMDL

Crystal River/Kings Bay

Entity	2040 People	Scenario 1 TN (lbs/yr)	Scenario 2 TN (lbs/yr)	Scenario 3 TN (lbs/yr)
Citrus County	14,087	9,796	40,556	281,872
Crystal River	401	212	563	6,848
Total	**14,488**	**10,009**	**41,119**	**288,720**

2040 Loading — Basin Totals

Scenario 1 Total	Scenario 2 Total	Scenario 3 Total
10,009	**41,119**	**288,720**

In every scenario, additional loading is expected in the basin by 2040 due to increasing populations. Entities should be working now to both remediate existing loading and plan to mitigate loading from future growth.

DRAFT DOCUMENT

Section 1: Background

Section 2: Implementation

Section 3: Monitoring and Reporting

Section 4: Commitment to Plan Implementation

Section 5: References

Appendices

Methods for Evaluating Progress

Adaptive Management

Water Quality and Biological Monitoring

Groundwater Analysis

WATER QUALITY MONITORING
SECTION 3: MONITORING AND REPORTING

Primary objectives:

- Measure the water quality and biological response in the impaired springs and groundwater at the beginning of the BMAP period and during implementation.
- Document nutrient trends in the springshed.

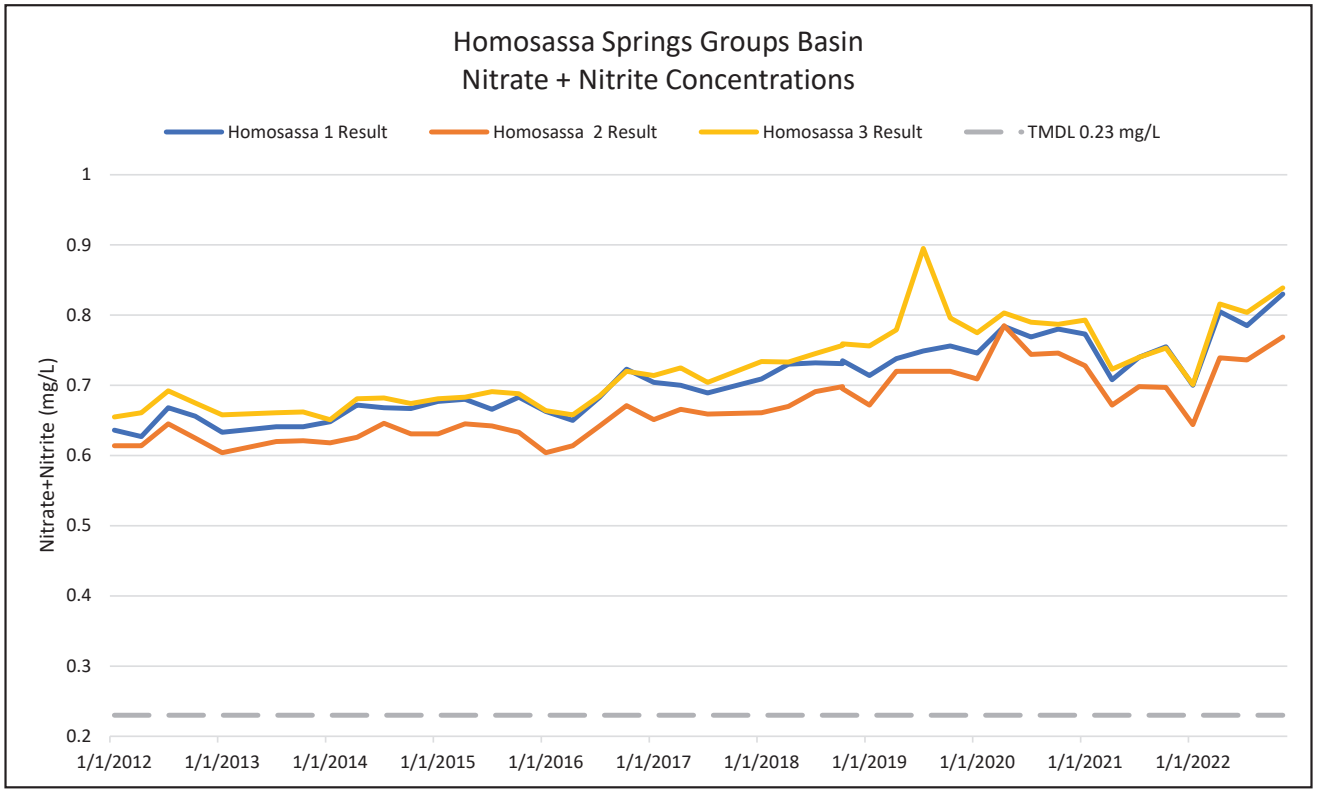
Secondary objectives:

- Identify areas where groundwater data and modeling might help in understanding the hydrodynamics of the system.
- Evaluate groundwater quality trends and nutrient loading to the aquifer across the basin.
- Confirm and refine nutrient removal efficiencies of agricultural and/or urban BMPs, projects and other management efforts

WATER QUALITY MONITORING
SECTION 3: MONITORING AND REPORTING

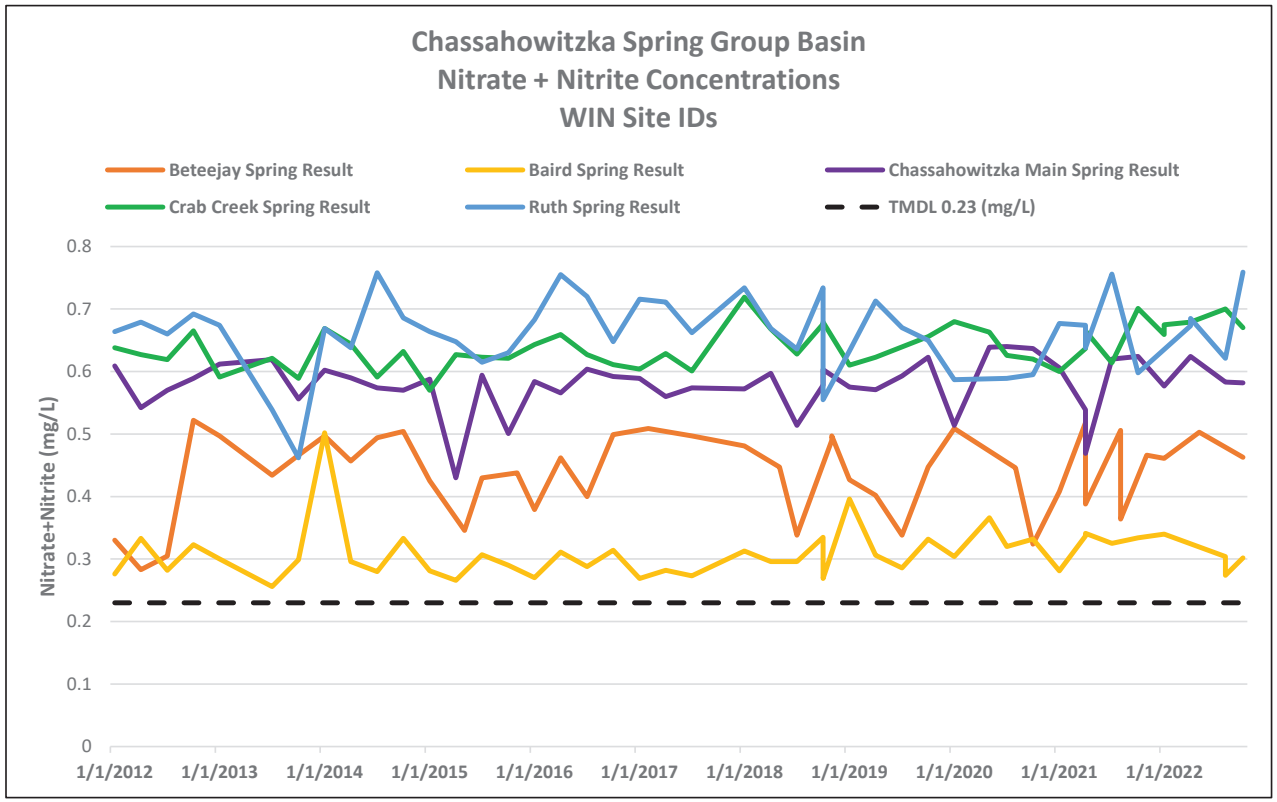
- Available water quality data will be analyzed during BMAP implementation to determine trends in water quality and the health of the biological community.
- A wide variety of statistical methods are available for the water quality trend analyses.
  - The selection of an appropriate data analysis method will depend on the frequency, spatial distribution and period of record available from existing data. Specific statistical analyses were not identified during BMAP development.

WATER QUALITY MONITORING
SECTION 3: MONITORING AND REPORTING



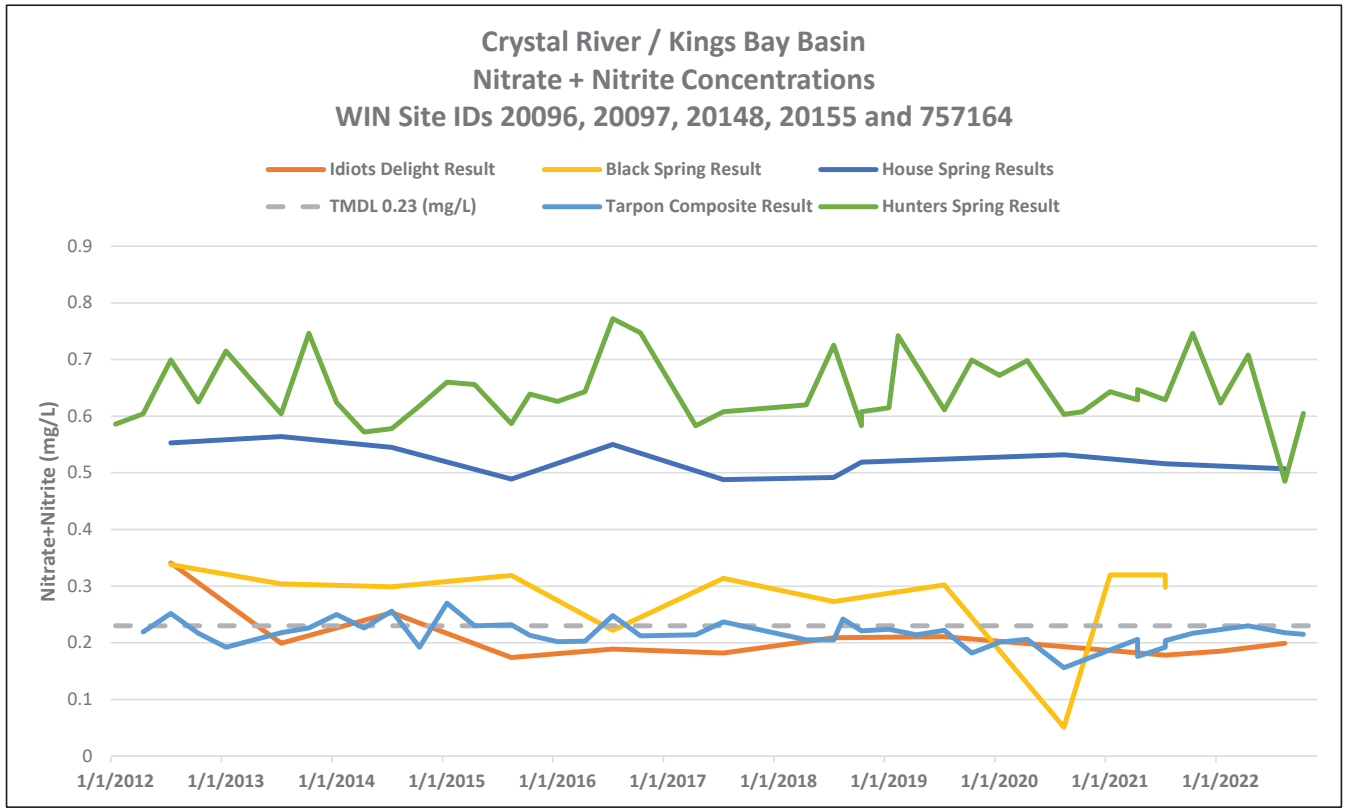
WATER QUALITY MONITORING

SECTION 3: MONITORING AND REPORTING



WATER QUALITY MONITORING

SECTION 3: MONITORING AND REPORTING



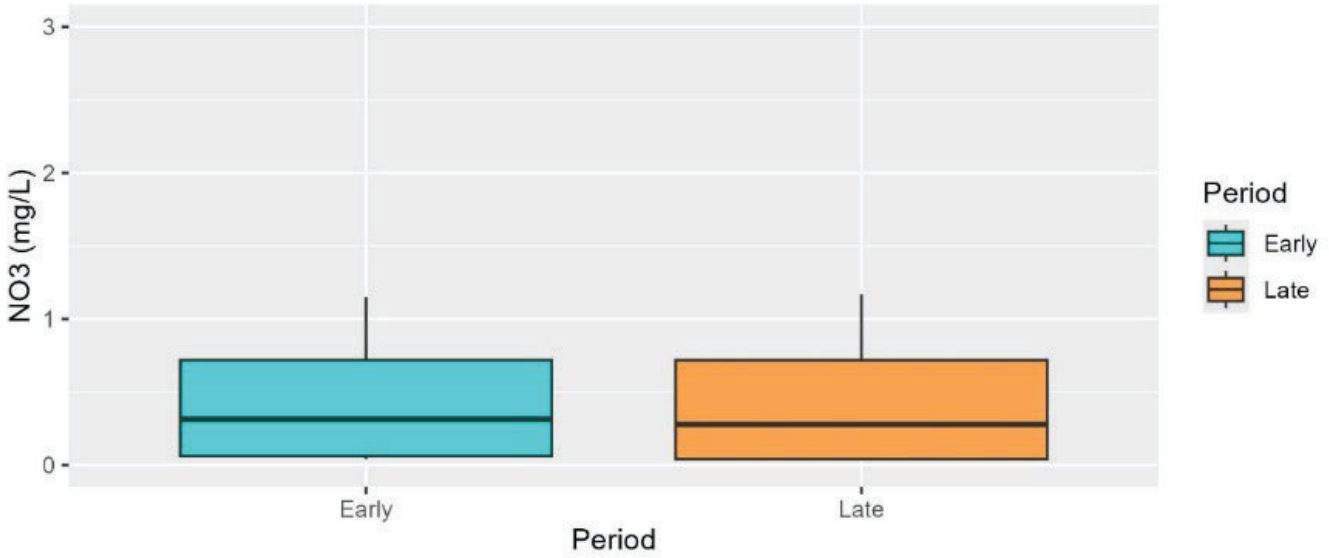
GROUNDWATER MONITORING

SECTION 3: MONITORING AND REPORTING

Groundwater monitoring gives us a look at the health of the aquifer before water discharges at spring vent.

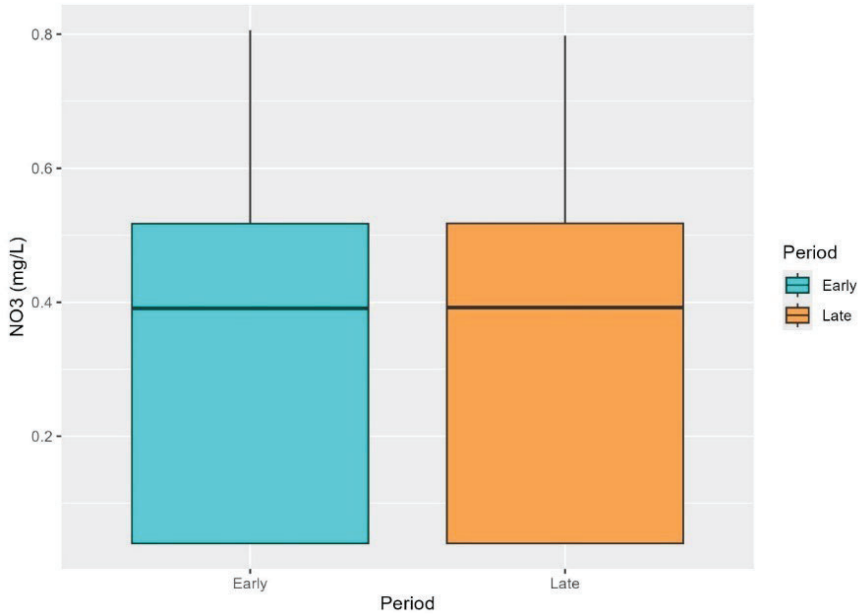
- Uses measured data (nitrate — total and dissolved) from groundwater monitoring wells from DEP's Water Information Network (WIN) and the WMDs.
- A visual analysis was performed using the annual median as boxplots.
- Wells that were sampled regularly through the period of record were considered “fixed”. Wells with inconsistent sampling (i.e. less than four samples over the period of record) were considered “sporadic”.
- Data from the fixed wells were preferred for analyses because comparisons between time periods represent changes in the same set of wells.
- To create the box plots, the period of record was divided into early (2017-2020) and late (2021-2024) subperiods.
- Future considerations:
  - Stratifying data by land use, distance to spring vent, other factors.
  - Trends analysis for multiple 5-year periods to see changes over time.
  - Well specific trends analysis.

WATER QUALITY MONITORING
SECTION 3: MONITORING AND REPORTING



Chassahowitzka and Homosassa Springsheds
Nitrate (NO3) Concentrations of Early and Late periods Without Outliers. In mg/L,
Median Early = 0.34; Median Late = 0.33

WATER QUALITY MONITORING
SECTION 3: MONITORING AND REPORTING



Kings Bay Springshed
NO3 Concentrations of early and late periods.
Median Early = 0.39 mg/L
Median Late = 0.39 mg/L

DRAFT DOCUMENT

Section 1: Background

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Appendices

Adoption Process

Tracking Reductions

Revisions to the BMAP

ADAPTIVE MANAGEMENT
SECTION 4: COMMITMENT TO PLAN IMPLEMENTATION

Tracking Reductions:

- Required loading reductions are expected to be met by 2038.
- Each entity is responsible for implementing management actions to meet their upcoming 5-year milestone.
- The statewide annual report will provide an annual update of progress made in implementing load reductions tracking the implementation status of the management actions listed in the BMAP.

Revisions to the BMAP:

- Section 403.067, F.S., requires that the plan be revised, as appropriate.
  - Assessment of progress toward 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.

DRAFT DOCUMENT

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Appendices

BMAP UPDATE DOCUMENT
APPENDICES

- **Updated:** Important links.
- **Updated:** Projects to Reduce Nitrogen Sources.
  - Projects submitted by responsible entities through the BMAP portal through October 2024.
  - Includes projects from the 2020 Clean Waterways Act WWTF and OSTDS plans submitted by local governments August 2024.
- **NEW:** Planning for Additional Management Strategies.
  - Examples of project efforts entities can identify to meet their milestone reduction requirements.
- PFA Report.
- **Updated:** OSTDS Remediation Plan.
- **NEW:** Technical Support Information
  - NSILT methodology.
- **NEW**: Wastewater Facilities
  - List of facilities with reclaimed water that are causing or contributing to nutrient impairments.
- **NEW:** Golf Course Nutrient Management Plans.
- **Updated:** Agricultural Enrollment and Reductions (provided by DACS).
- **NEW:** Private Wastewater Treatment Facilities and Private Golf Courses with Allocations.

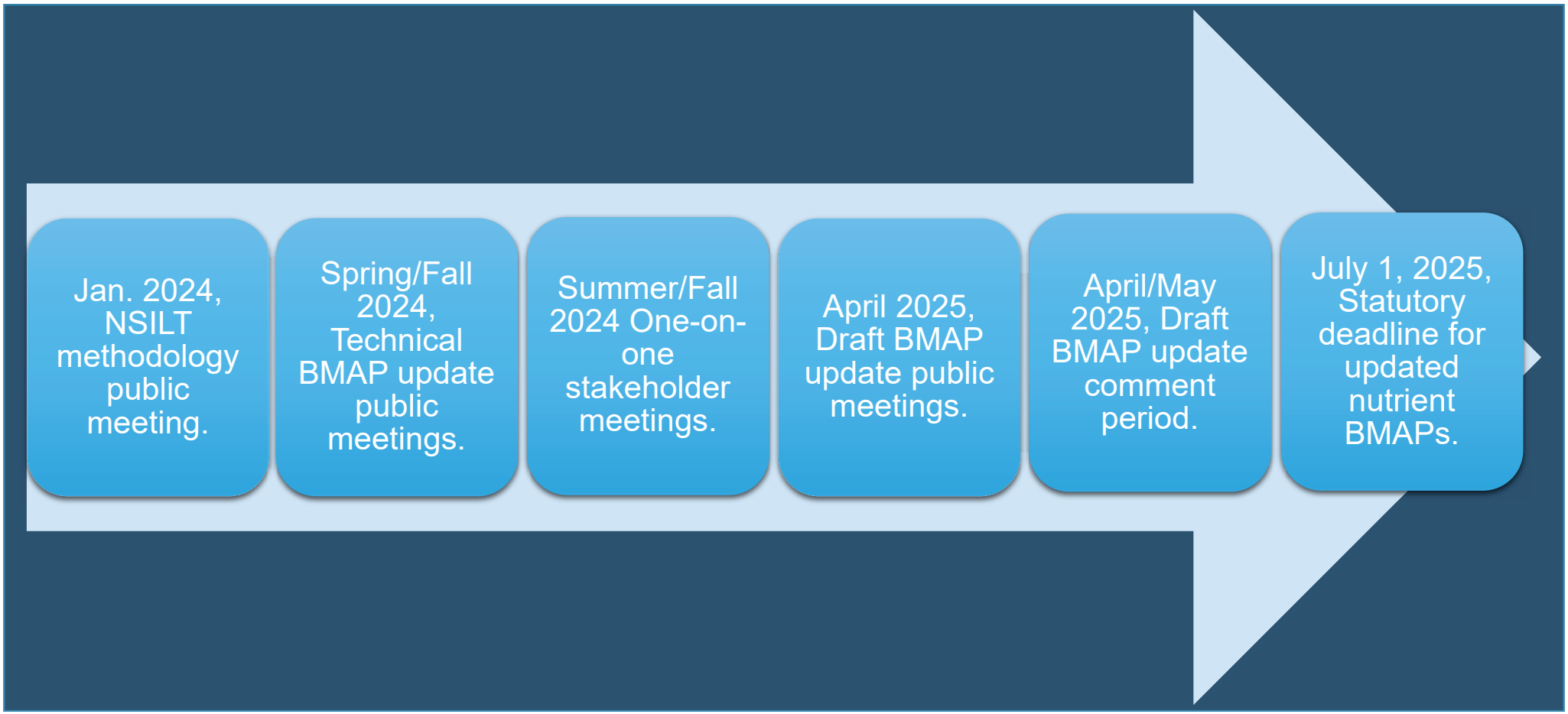
NEXT STEPS

BMAP update document draft review:

- Draft document sent out via GovDelivery **April 9, 2025**.
- Stakeholder review comments due **May 2, 2025**.

Submit comments to:
Moira.Homann@FloridaDEP.gov

UPCOMING SCHEDULE



RESOURCES
BMAP WEBSITE AND STORYMAPS

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

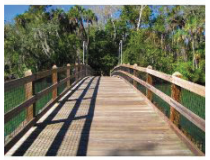
The Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, F.S.) provides for the protection and restoration of the state"s Outstanding Florida Springs (OFS), which comprise 24 first magnitude springs, 6 additional named springs, and their associated spring runs. The act provides specific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

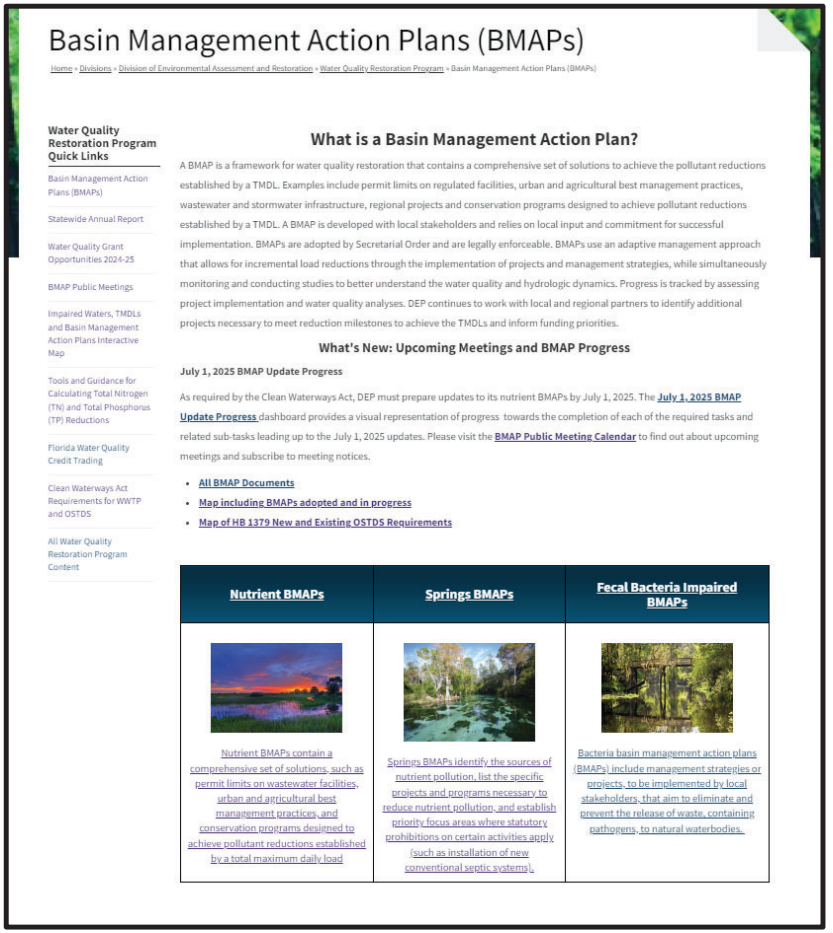

6 Jackson Blue and Merritts Mill Pond BMAP Story Map


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) | Florida Department of Environmental Protection]



BMAP MEETING
PUBLIC QUESTIONS PERIOD

Verbal Questions

- We ask that questions and comments be limited to **two minutes** so that we may hear from everyone.

Written Comments

- Submit written comments concerning today's meeting to: BMAPProgram@FloridaDEP.gov.

THANK YOU

Chandler Keenan
Environmental Administrator

Contact Information:
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Chandler.B.Keenan@FloridaDEP.gov