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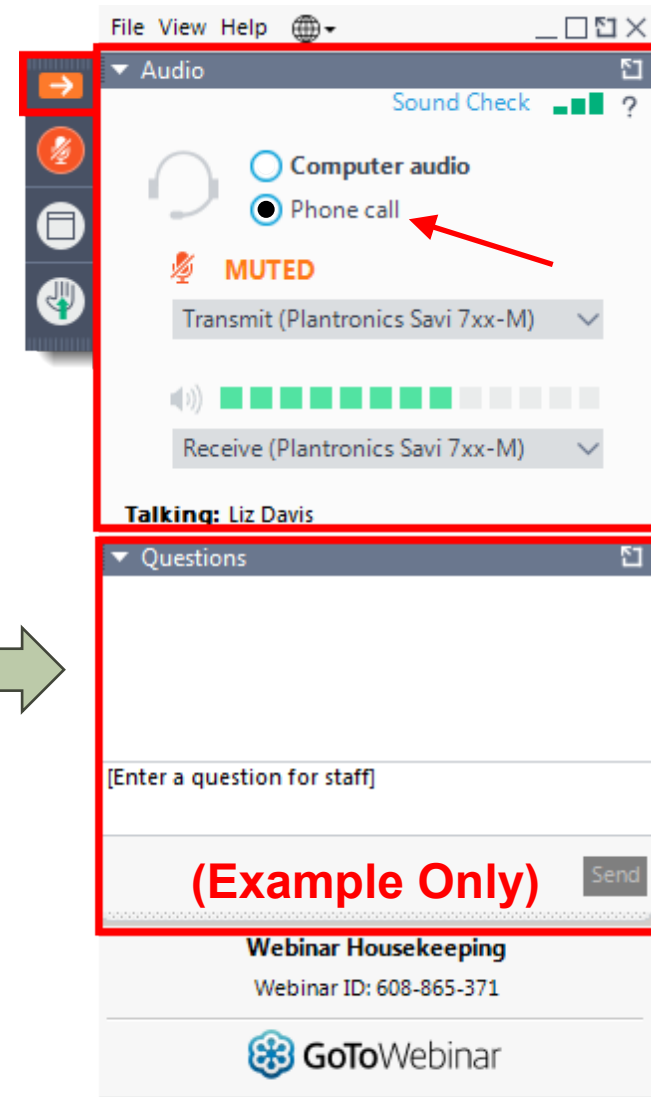
Join audio:

- Choose **Phone Call** and dial using the information provided.
- Or choose **Computer Audio** to use your computer's speakers for audio.
- Attendee audio will be muted.

Submit questions and comments via the Questions panel. If you would like to unmute and ask your questions, please specify that in the Questions Panel.

If viewing this webinar as a group, please provide a list of attendees via the Questions panel.

Note: Today's presentation is being recorded and will be provided on the FTP after the webinar.





WEKIWA SPRING AND ROCK SPRINGS BASIN MANAGEMENT ACTION PLAN UPDATES

Charles "Ryne" Nimmo, Environmental Consultant
Sam Hankinson, Professional Geologist II
Water Quality Restoration Program
Florida Department of Environmental Protection
GoTo Webinar | May 29, 2024



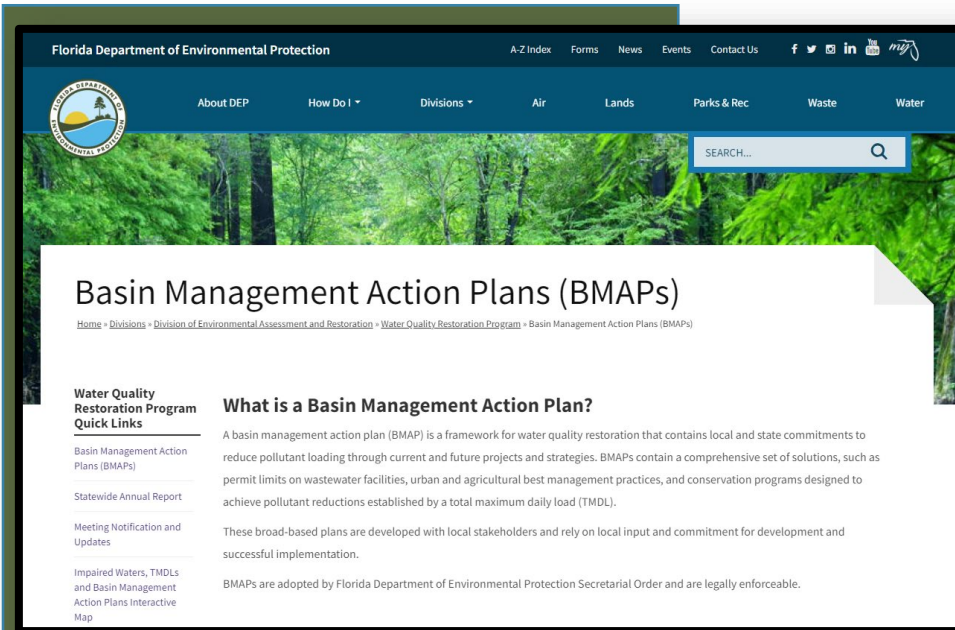
AGENDA

- Basin Management Action Plan (BMAP) Overview.
- Nitrogen Source Inventory Loading Tool (NSILT).
 - Updates.
 - Draft Results.
- Spring Vent Load Analysis.
- Next Steps - BMAP Updates.
 - Draft Allocation Approach.
 - Milestones.





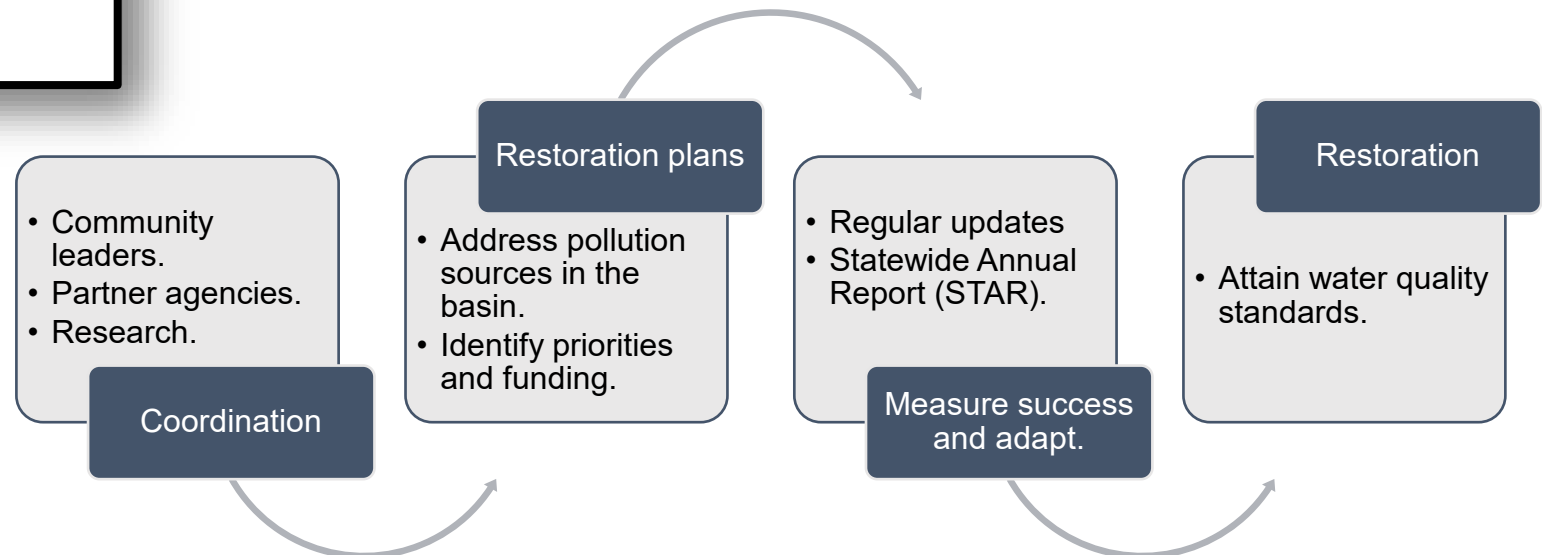
BASIN MANAGEMENT ACTION PLANS (BMAPs)



One of DEP's methods for **restoring water quality** in an impaired waterbody.

Basin management action plans (BMAPs) are:

- Developed with stakeholder input.
- Adopted by DEP Secretarial Order.
- Enforceable.
- Implemented through a phased approach.
- Reported on annually.
- Updated regularly.





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.

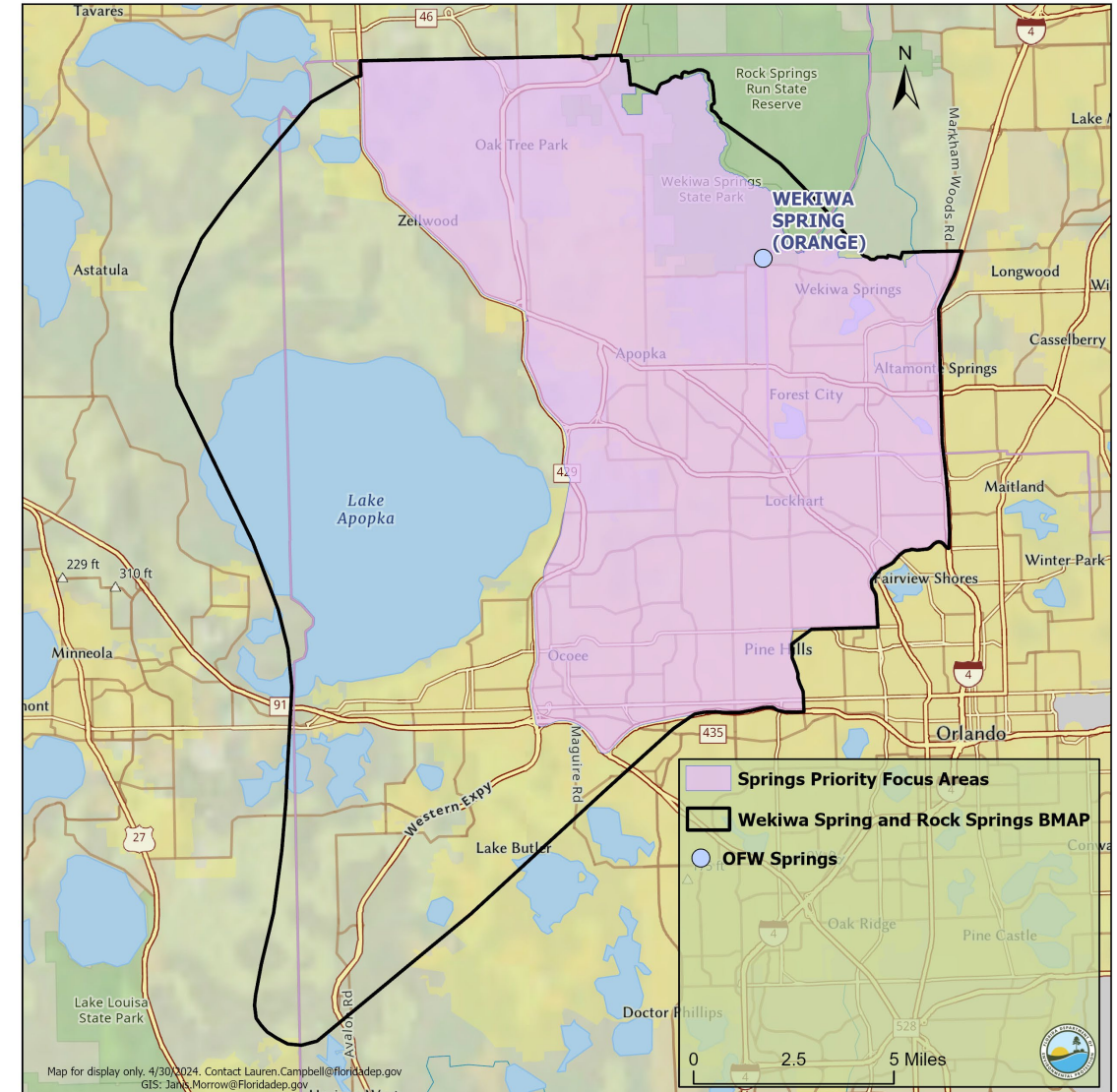
Process to assess progress toward achieving the TMDL:

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



WEKIWA SPRING AND ROCK SPRINGS BMAP

- BMAP area is approximately 183,165 acres or 286 square miles in Orange, Lake and Seminole Counties.
- Wekiwa Spring forms the headwater of the Wekiva River, a tributary to the St. Johns River. Rock Springs discharges into Rock Springs Run, which then joins the Wekiva River.
- A TMDL established targets to be protective of the aquatic flora and fauna.
- Monthly average nitrate target of 0.286 milligrams per liter (mg/L) of nitrate and 0.065 mg/L of total phosphorus (TP).





STAKEHOLDERS

BACKGROUND

Responsible stakeholders:

- City of Altamonte Springs.
- City of Apopka.
- City of Maitland.
- City of Ocoee.
- City of Orlando.
- City of Winter Garden.
- Lake County.
- Orange County.
- Orange County Utilities.
- Utilities, Inc. of Florida.
- Seminole County.
- Town of Oakland.
- Turnpike Enterprises.
- Wekiwa State Park.

Responsible agencies:

- Florida Department of Agriculture and Consumer Services (DACS).
- Florida Department of Environmental Protection (DEP).
- Florida Department of Health.
- Florida Department of Transportation.
- Florida Department of Health in Lake County.
- Florida Department of Health in Orange County.
- Florida Department of Health in Seminole County.
- St. Johns River Water Management District (SJRWMD).

Other interested stakeholders:

- Environmental Interests.
- Florida Fish and Wildlife Conservation Commission.
- Friends of Wekiva River.



CLEAN WATERWAYS ACT: TIMELINE

June 12, 2023

Final Order signed by the Secretary.



July 12, 2023

Deadline for written explanation of potential exemption to be submitted to the department.



Feb. 1, 2024

Deadline for submitting draft onsite sewage treatment and disposal system (OSTDS) remediation and/or wastewater treatment plans for the department's review.



Aug. 1, 2024

Deadline for submitting complete OSTDS remediation and/or wastewater treatment plans to the department.

The nutrient BMAPs included in the Final Order require these plans.



HB 1379: ENVIRONMENTAL PROTECTION

Increased protection for Outstanding Florida Springs (OFS).

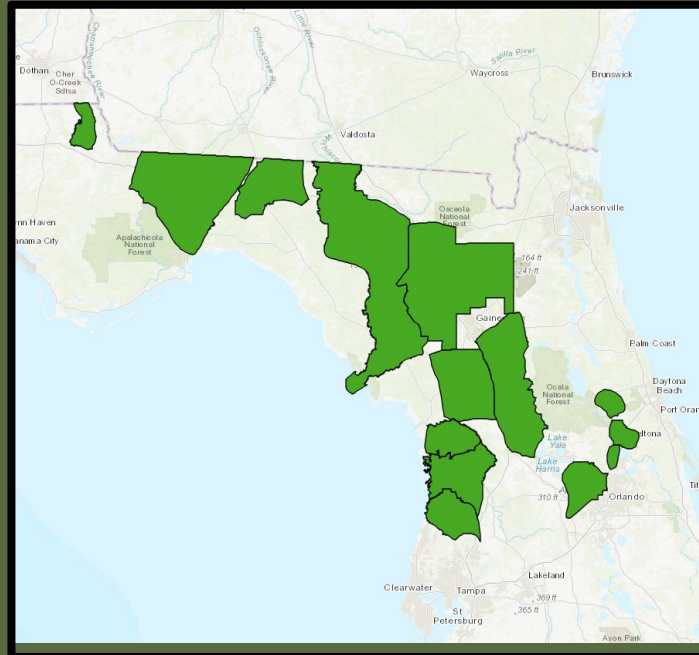
Strengthens Water Quality Protections and BMAPs.

HB1379

Improves Local Government Long-Term Comprehensive Planning.

Expands Funding Opportunities to Address Water Quality Impairments.

Expanded prohibitions in OFS to entire BMAP area. (section 373.811, Florida Statutes [F.S.]



- New conventional OSTDS where sewer is available.
- New domestic wastewater disposal facilities with permitted capacities of 100,000 gallons per day or more, unless they meet Advanced Waste Treatment (AWT) standards.
- New HAZMAT disposal facilities.
- Land application of Class A or B biosolids not in accordance with a DEP-approved nutrient management plan.
- New agricultural operations not implementing best management practices (BMPs), measures necessary to achieve pollution reduction levels or groundwater monitoring plans.

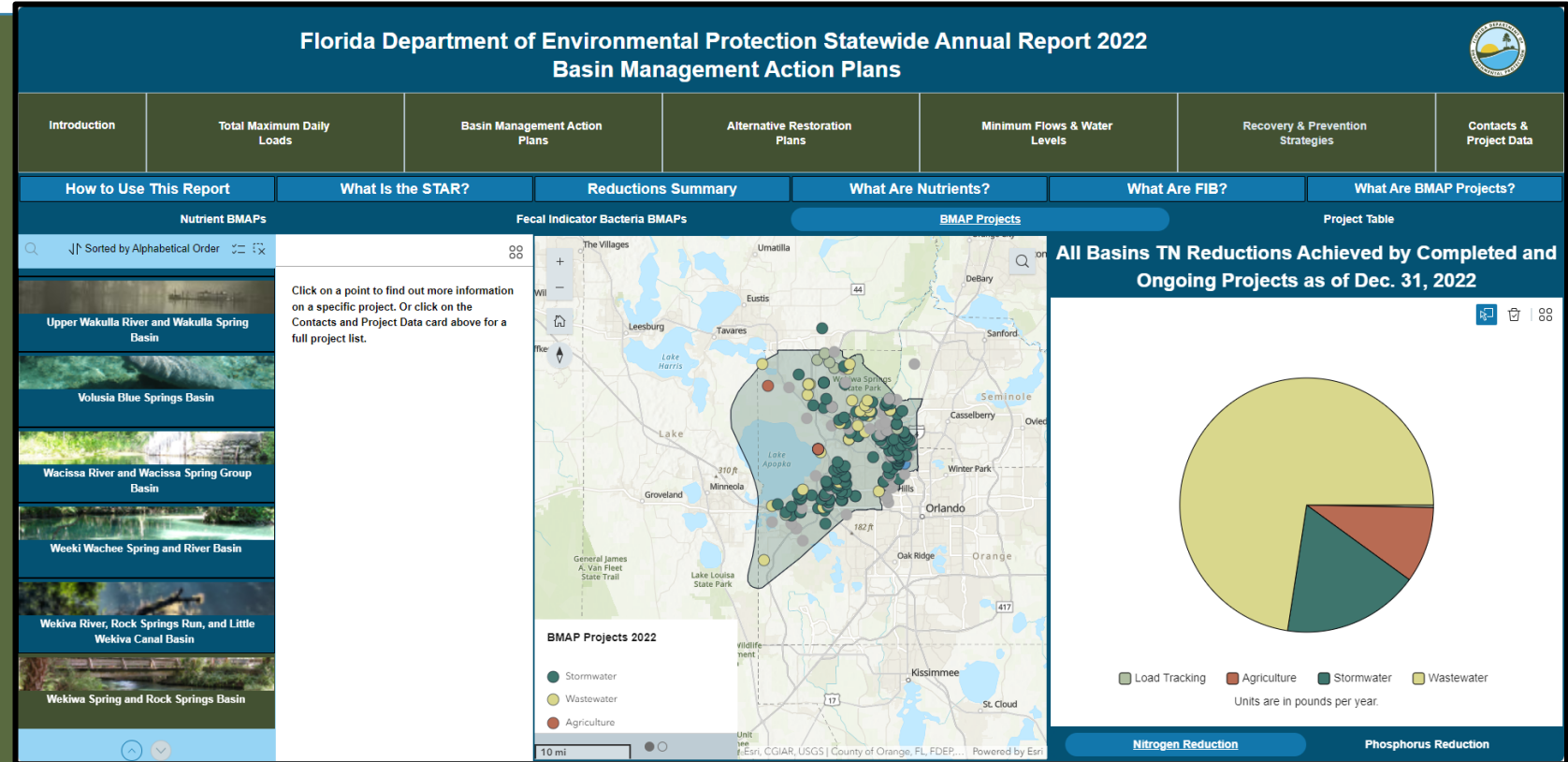


STAR

STATEWIDE ANNUAL REPORT – PROJECT REPORTING

What is the STAR?

- Summarizes accomplishments in the BMAPs statewide.
- Reports on restoration projects and management strategies.
- Published July 1 of each year.
- Currently in the process of project updates and verification for STAR 2023.





PRELIMINARY STAR RESULTS FOR 2023

WEKIWA SPRING AND ROCK SPRINGS BMAP

Project Status	Count of Projects
Planned	26
Ongoing	35
Underway	43
Completed	207
Total	311

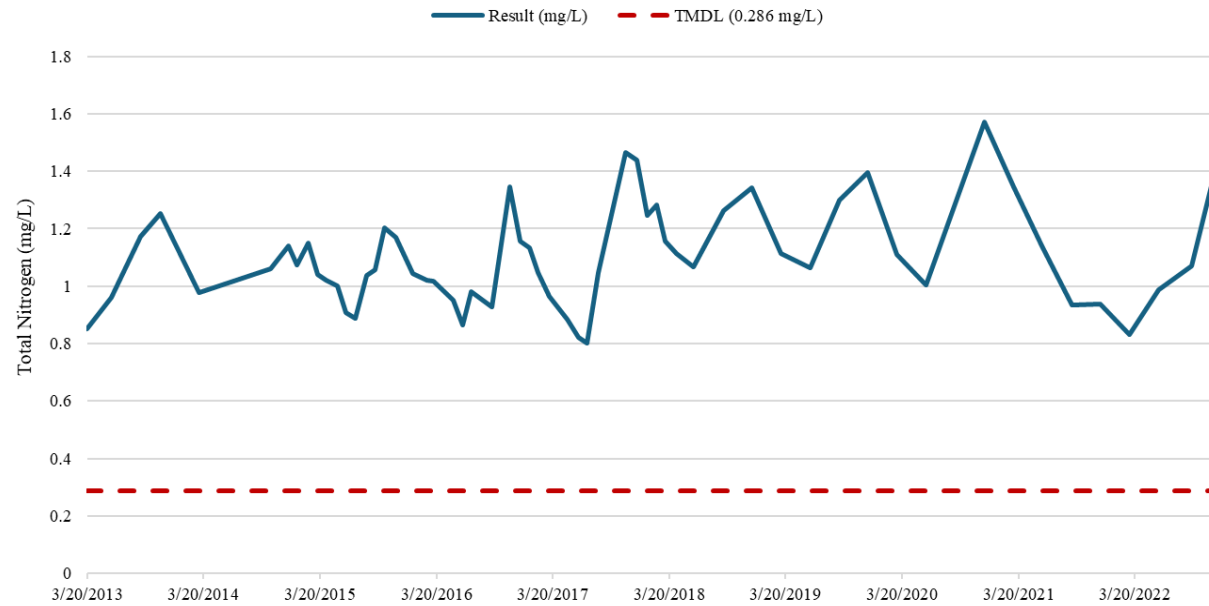
As of Dec. 31, 2023, verified projects in the Wekiwa Spring and Rock Springs BMAP have reduced 108,304 **lbs./yr.** of total nitrogen (TN).



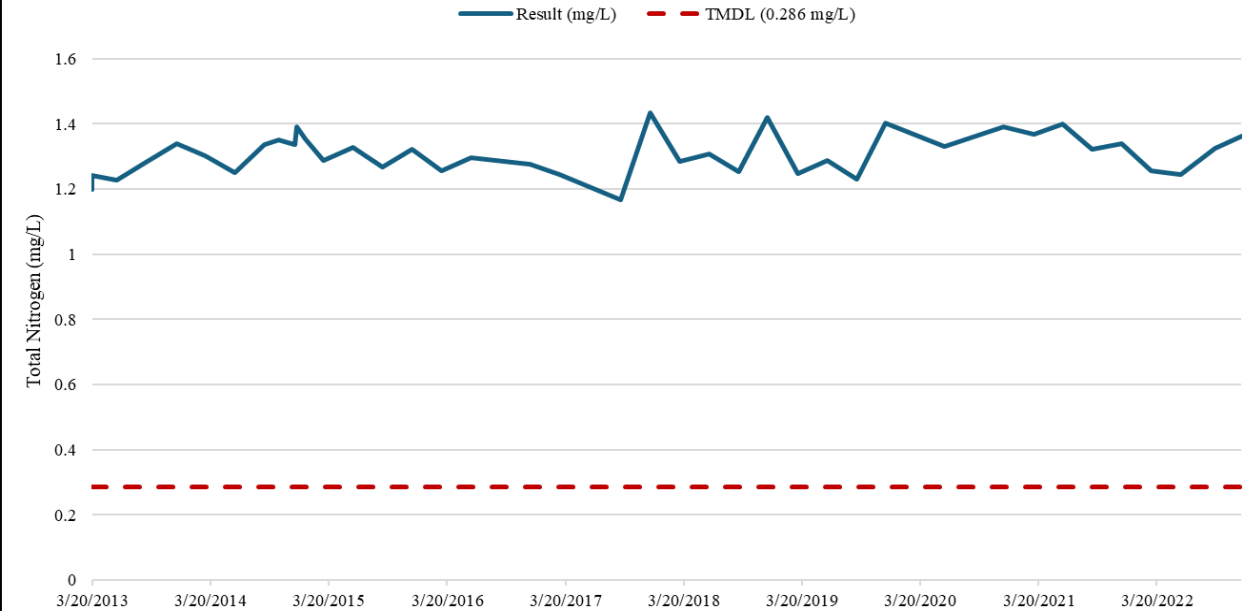
WATER QUALITY DATA

SPRING VENT

Wekiwa Spring Total Nitrogen Concentration
Station 73688



Rock Springs Total Nitrogen Concentration
Station 73667





SPRINGS BIOASSESSMENT WORKGROUP

Working group members:

- Florida Department of Environmental Protection's (DEP) Division of Environmental Assessment and Restoration.
- St. Johns River Water Management District (SJRWMD).
- Southwest Florida Water Management District (SWFWMD).

Tasks:

- Provide recommendations for the use of bioassessment tools to support springs BMAP objectives.
- Identify and track biological responses in spring systems to assist in determining if water quality restoration strategies implemented to reduce nitrate loading to groundwater are effective in restoring healthy biological conditions.

Challenges:

- Need consistent bioassessment monitoring tools to assess condition and changes in plant and algal communities.
- Identify most appropriate tool or modification to assess unique conditions associated with spring systems.

Four pilot study springs identified were Wacissa Springs, Ichetucknee Springs, Wakulla Springs, and Wekiwa Springs.



DATA UPLOAD

WATERSHED INFORMATION NETWORK (WIN)

- Through both the Watershed Information Network (WIN) and Florida STORET (STOrage and RETrieval) data repositories, DEP implements Florida statutory requirements, DEP rule requirements and U.S. Environmental Protection Agency (EPA) funding requirements for management of environmental (non-regulatory) data for the state.
- Data from WIN are used by DEP for standards development, Impaired Waters Rule (IWR) assessments, TMDL development, reasonable assurance plans, alternative restoration plans, **BMAP development and assessment** and for providing data as required to EPA and to the public.
- WIN data can be retrieved through the WIN Reports and Extracts menu at: <https://prodenv.dep.state.fl.us/DearWin/>.
- Data providers to WIN and STORET include Division of Environmental Assessment and Restoration and other DEP entities, water management districts, cities, counties, other state agencies, universities, private and volunteer organizations.
- If your entity is collecting ambient water quality data, please upload it to WIN.



WIN COORDINATORS

WIN Coordinator	DEP District Area or Role	Phone	Email
Justin Nelson	Northeast, Northwest, Southeast	850-245-8510	Justin.M.Nelson@FloridaDEP.gov
Casey Marston	South, Southwest	850-245-8049	Casey.Marston@FloridaDEP.gov
Lisa Schwenning	SPA (STORET Public Access), WQX (U.S. EPA Water Quality Exchange)	850-245-8509	Lisa.Schwenning@floridaDEP.gov
Jason Storrs	Central, Statewide	850-245-8467	Jason.Storrs@FloridaDEP.gov



BMAP UPDATES

ADOPTED BY JULY 1, 2025

- Nitrogen Source Inventory Loading Tool (NSILT) updates.
- Spring vent load analyses.
- Entity allocation development.
- Future growth.
- Establish five-year milestones for project implementation.
- Incorporate additional projects.
- Incorporate Clean Waterways Act (SB 712) requirements.
- Incorporate HB 1379 requirements.
- Incorporate regional projects.
- Water quality data evaluation:
 - Evaluation of the monitoring network (spring vent and groundwater).
 - Water quality trend analyses.
- Evaluate further OSTDS provisions.
- Evaluate AWT or other more stringent effluent limits.
- Update the BMAP documents.



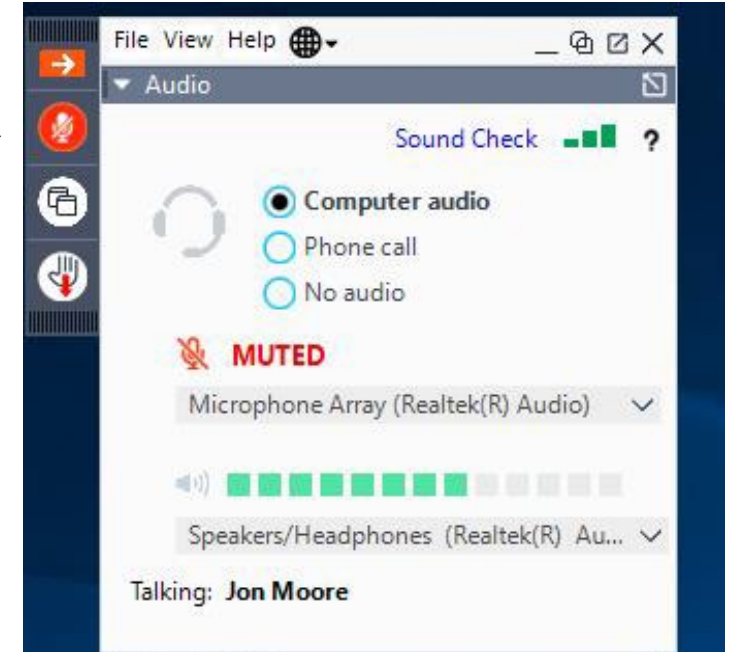


BMAP MEETING

PUBLIC QUESTIONS PERIOD

Verbal Questions

- We ask that questions and comments be limited to **three minutes** so that we may hear from everyone.
- Please type in the chat if you would like to unmute yourself and ask a question or comment.



Written Comments

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





NITROGEN SOURCE INVENTORY LOADING TOOL (NSILT) UPDATES

- NSILT Process.
- Methodology review for sources:
 - Atmospheric deposition.
 - Wastewater treatment facilities.
 - OSTDS.
 - Urban turfgrass fertilizer.
 - Sports turfgrass fertilizer.
 - Farm fertilizer.
 - Livestock waste.
- Draft results.





NSILT GENERAL PROCESS SUMMARY

Estimate loading to land surface for each source category.

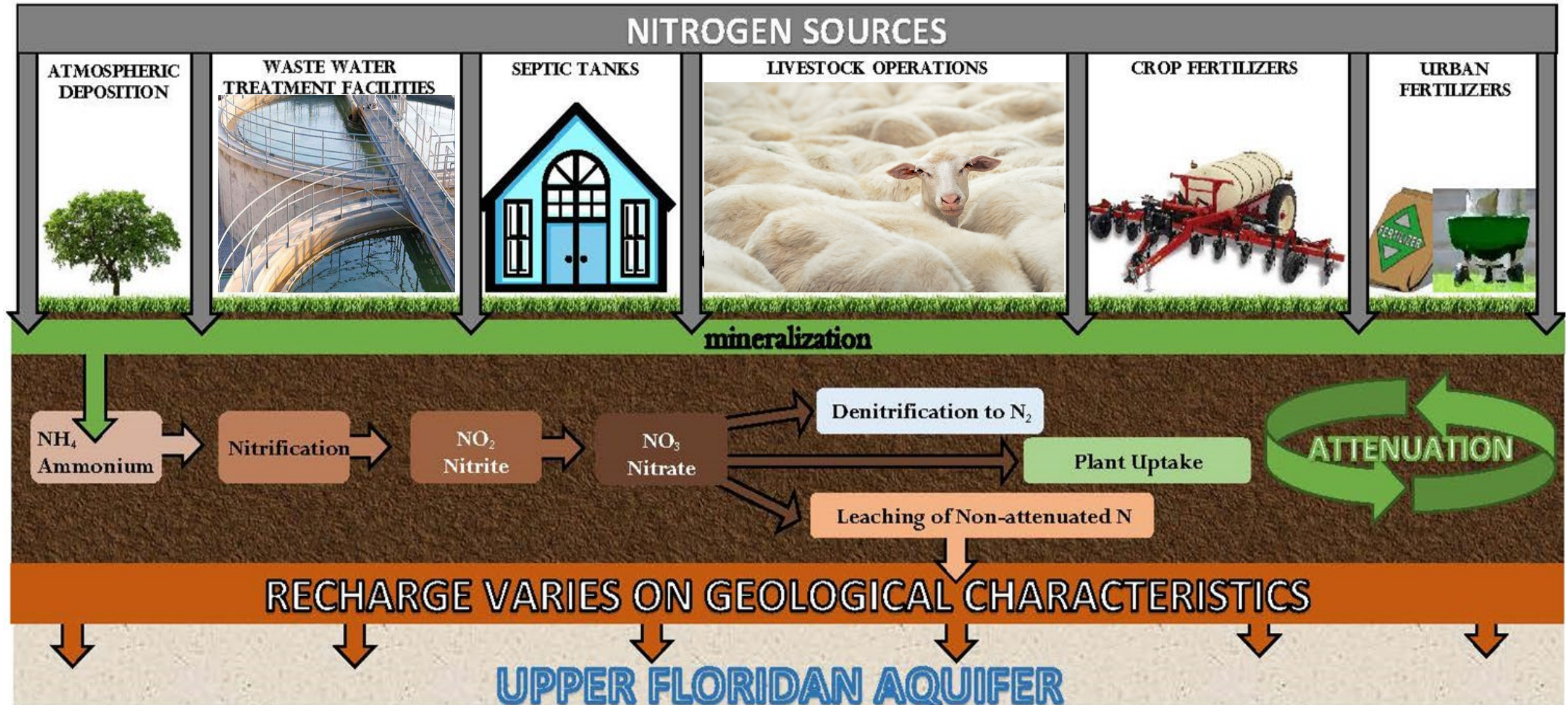
Apply a source specific, literature derived biochemical attenuation factor to surface loading estimate.

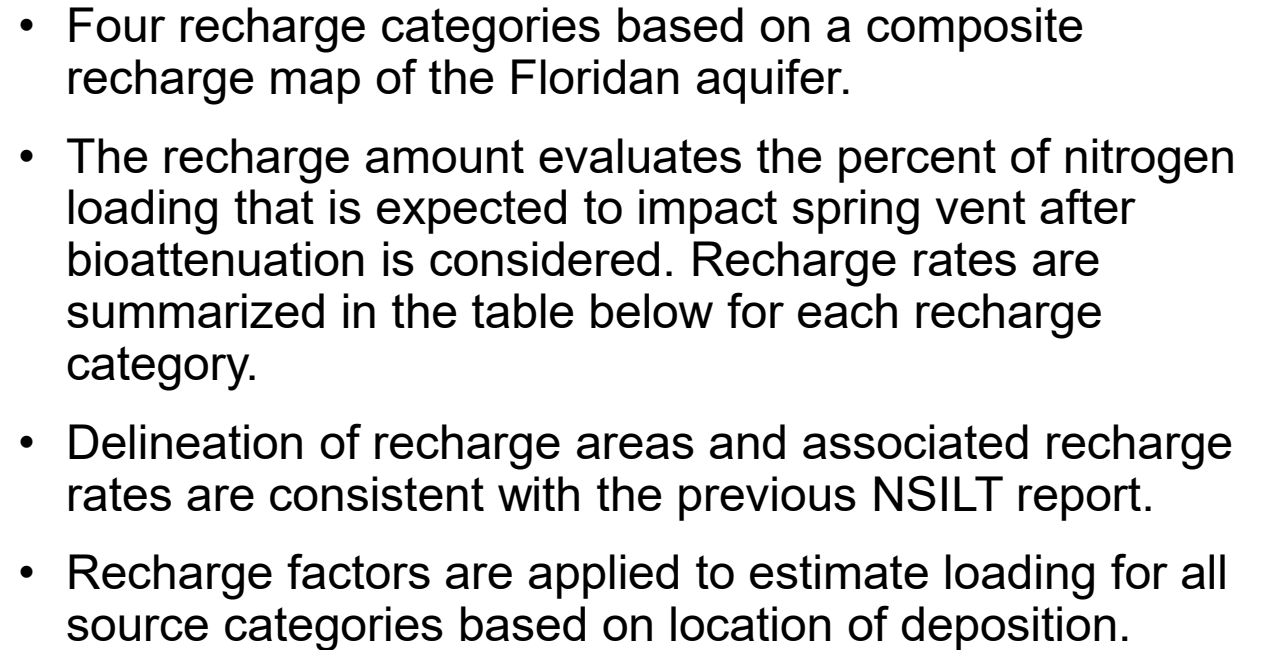
Apply a location specific recharge factor to surface loading estimate.

LOADING TO GROUNDWATER.



NITROGEN CYCLE AND ATTENUATION



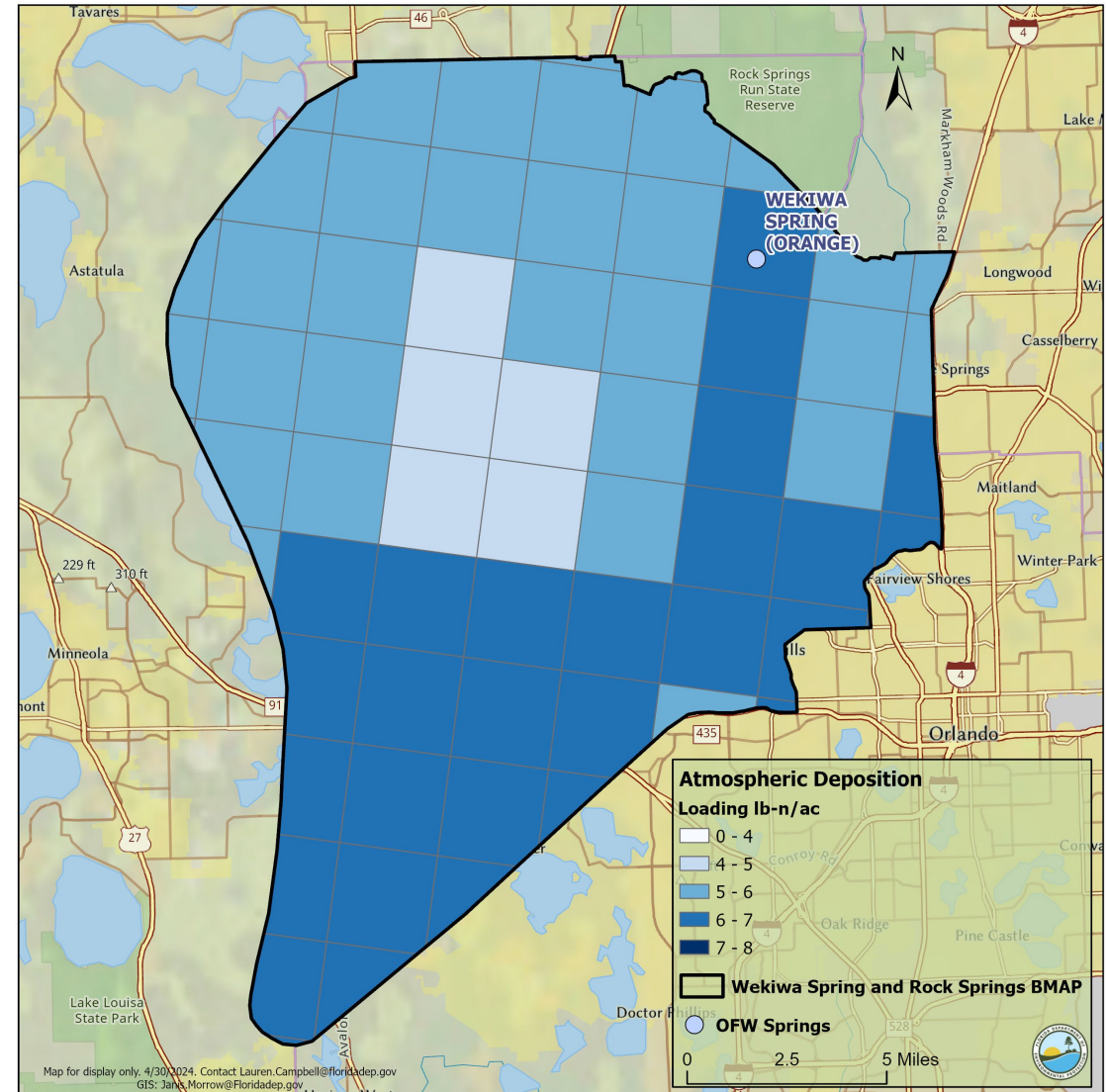


Recharge to Groundwater	
Category	Rate
High	90%
Medium	50%
Low	10%
Discharge	0%



ATMOSPHERIC DEPOSITION (AD)

- Atmospheric deposition (AD) of nitrogen was estimated using a nationwide model developed by the Total Deposition Science Committee and EPA called the Total Deposition (TDEP) model.
- AD estimates from 2019 and 2020 were averaged to estimate annual loading.
- An estimated 966,497 pounds of nitrogen from AD are loaded annually at the land surface within the Wekiwa Spring and Rock Springs BMAP.
- An estimated 55,034 pounds of nitrogen are loaded to the Floridan aquifer annually from AD after attenuation and recharge have been considered.
- Methodology is consistent with previous NSILT.

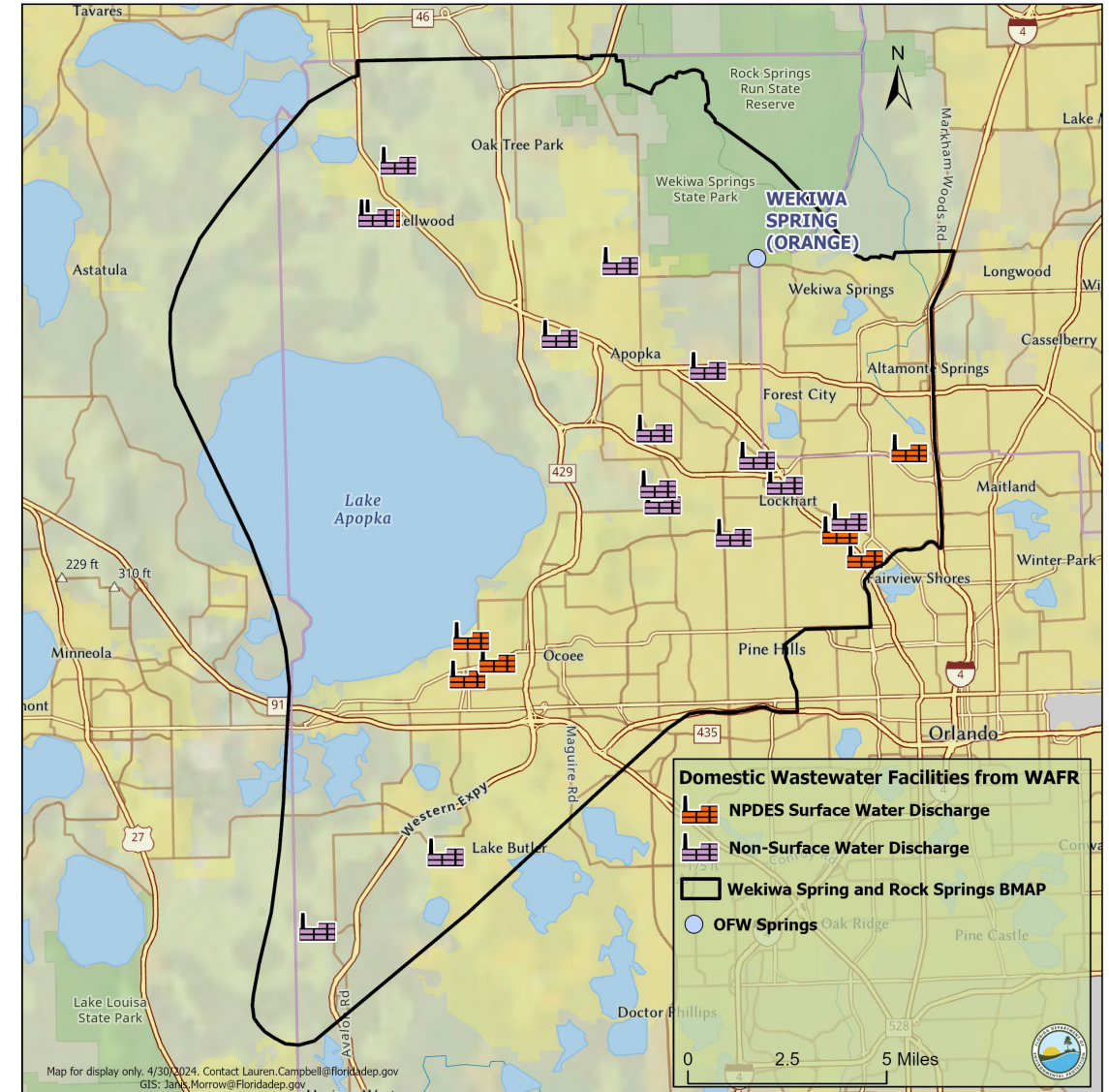




WASTEWATER TREATMENT FACILITIES

- Wastewater Facility Regulation (WAFR) information was reviewed to determine the location of all wastewater treatment facilities (WWTFs), as well as their effluent application or disposal sites.
- Discharge monitoring report (DMR) data collected by WAFR from 2019 to 2021 were reviewed to determine effluent discharge volume and total nitrogen (TN) concentration for each disposal stream.
- Effluent disposal sites evaluated include reuse, disposal in a rapid infiltration basin (RIB), sprayfield, or wetland. Each method has its own estimated attenuation factor.

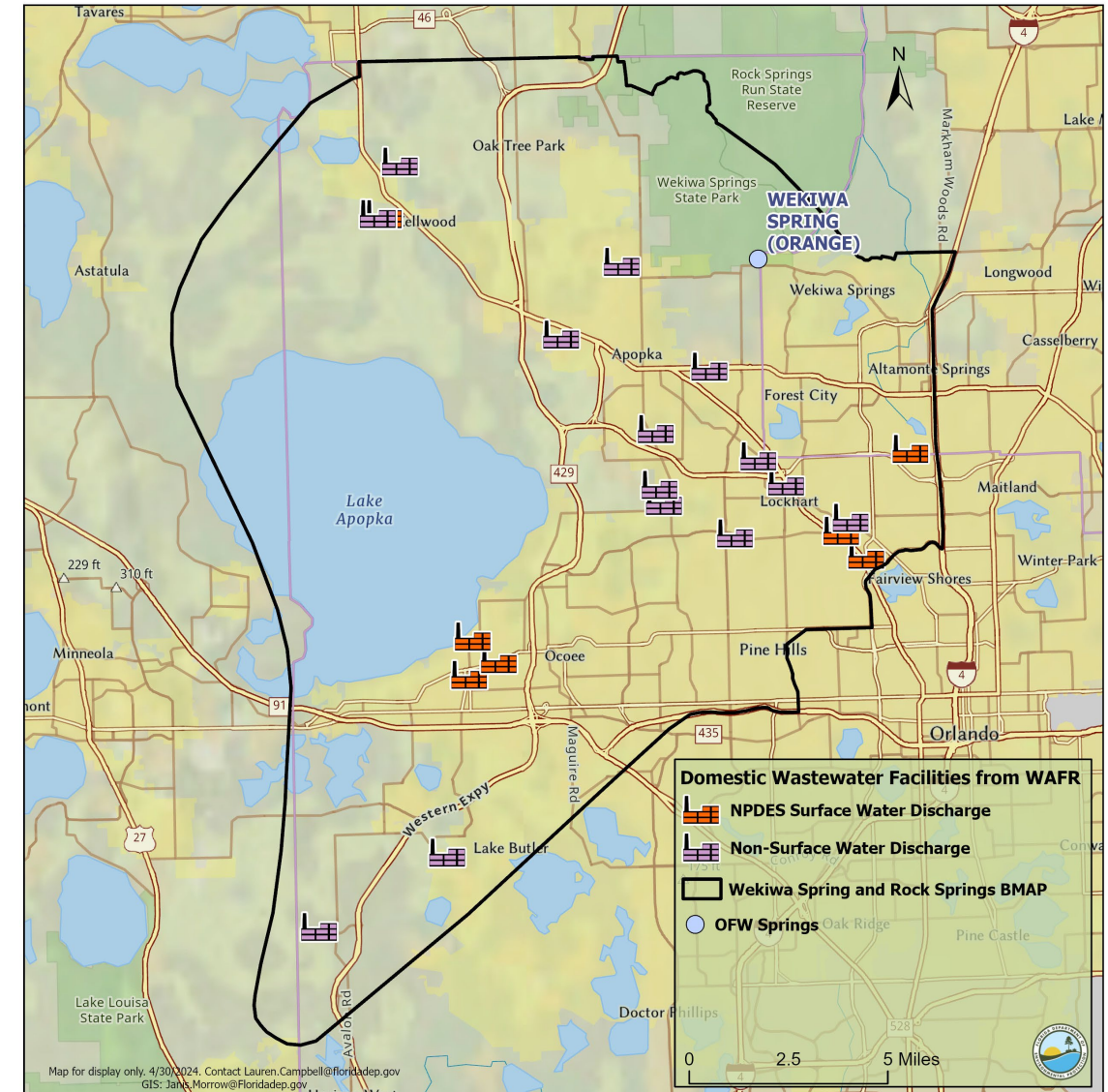
Wastewater Treatment Effluent Attenuation			
Reuse	RIB	Sprayfield	Wetland
75%	25%	60%	85%





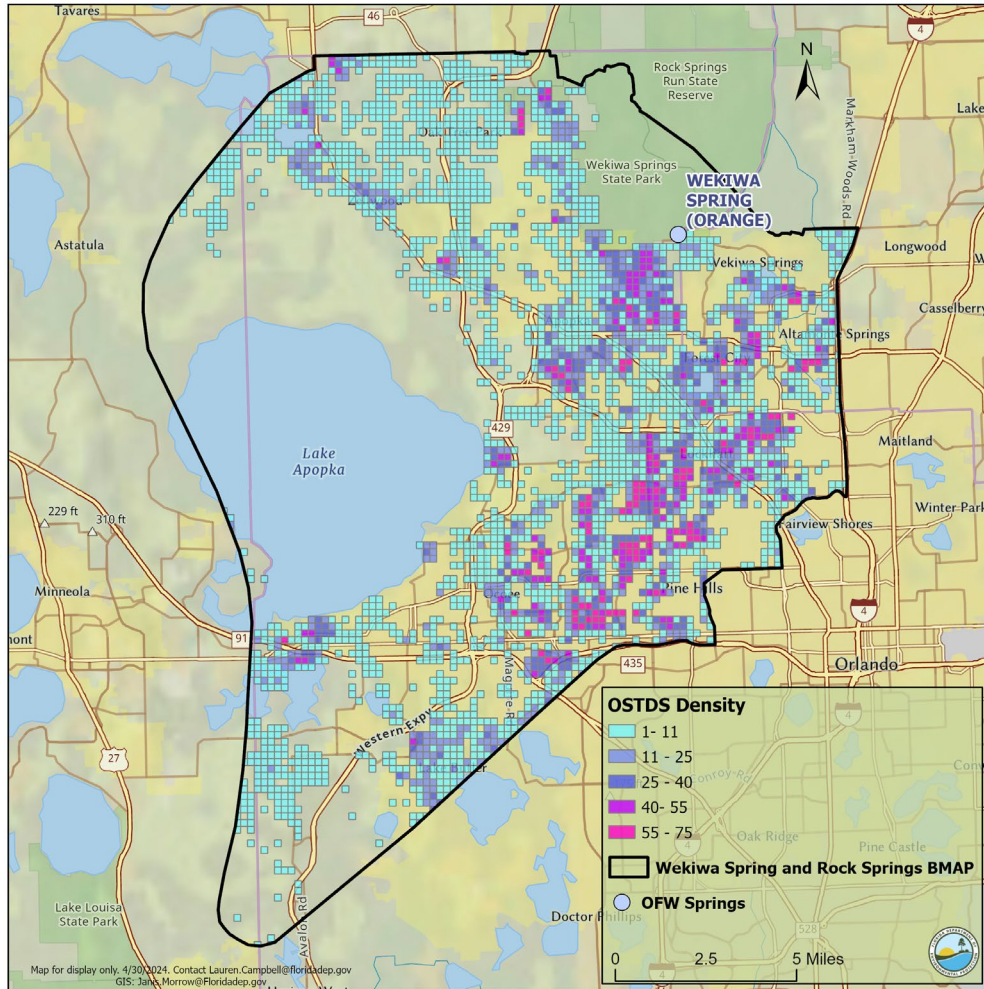
WASTEWATER TREATMENT FACILITIES

- An estimated 754,875 pounds of nitrogen per year are applied to the land surface for all facilities and all disposal methods.
- In the Wekiwa Spring and Rock Springs BMAP, reuse is the most common disposal method, followed by RIBs and sprayfields.
- After recharge and attenuation factors are applied, it is estimated that 134,595 pounds of nitrogen per year are loaded to the Floridan aquifer from WWTFs in the Wekiwa Spring and Rock Springs BMAP.





ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS (OSTDS)

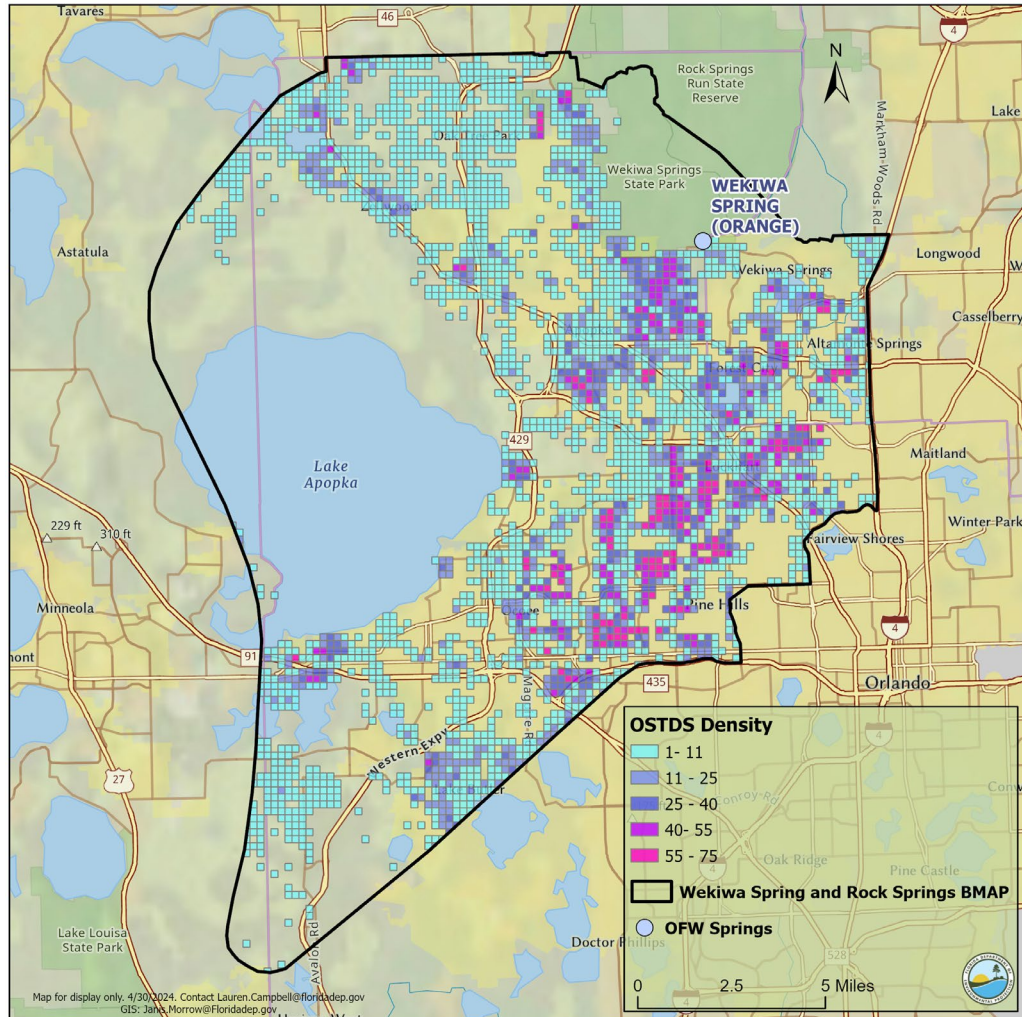


*Density is per 300-meter by 300-meter grid cell.

- Florida Water Management Inventory (FLWMI) data was used to estimate the number of OSTDS within the Wekiwa Spring and Rock Springs BMAP (updated 2021-22).
- Parcels identified as "known septic", "likely septic", and "somewhat likely septic" were considered to have one septic system per parcel.
- 2020 U.S. Census data was used to estimate the average persons per household (pph) for Jefferson and Madison Counties.
- Estimated loading of 10 lbs.-N/year per person (Armstrong, 2015).
- Estimated load per tank is based on multiplying the average persons per household by loading per person.
- Credited enhanced nutrient reducing OSTDS with a 50% reduction in TN loading from the existing condition.
- Loading from OSTDS is estimated to attenuate at 30%.



ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS (OSTDS)



- There are an estimated 41,392 OSTDS within the Wekiwa Spring and Rock Springs BMAP.
- There are an estimated 15 advanced nitrogen removing OSTDS within the Wekiwa Spring and Rock Springs BMAP.
- An estimated 1,165,446 pounds of nitrogen per year are loaded to drainfields annually from OSTDS within the Wekiwa Spring and Rock Springs BMAP.
- An estimated 628,072 pounds of nitrogen per year are loaded to groundwater after recharge and attenuation factors are applied.

*Density is per 300-meter by 300-meter grid cell.



URBAN TURF FERTILIZER

- Urban turfgrass fertilizer (UTF) loading was evaluated separately for single family residential, non-single family residential and sports turfgrass.
- Sports turfgrass loading includes the application of fertilizers to both sports fields and golf courses.
- Loading from urban turfgrass fertilizers are estimated to attenuate at 70%.



Source: Pexels



URBAN TURF FERTILIZER

Single Family Residential Fertilization:

- 2021 Florida Department of Revenue Cadastral information was used to determine size and value of single-family residential parcels.
- Assumed 27.8% of parcel as impervious area (Tilley & Slonecker, 2006).
- Assumed one acre maximum for fertilized area for single family residential parcels greater than one acre in the Wekiwa Spring and Rock Springs BMAP.
- Assumed likelihood to fertilize rate is based on home value. Three tiers of home value considered.
- Fertilizer application rates are informed by local survey information and the Green Industries Best Management Practice (GIBMP) manual.

Wekiwa Spring Lawn Care Source	
Service	33%
Self	51%
None	16%

Wekiwa Spring Application Rates			
Self Application Rates	Percent of Self Lawn Care Source	Application Rate (lbs/N/ac/application)	Number of Applications
BMP	20.00%	26.136	5.00
Low	75.00%	30.490	2.88
High	5.00%	43.560	2.88



URBAN TURF FERTILIZER NON-SINGLE FAMILY RESIDENTIAL

- SJRWMD land use/land cover data was used to estimate non-single family residential UTF application acreage estimates. Land use data year is dependent on the water management district with all data updated between 2019 and 2022.
- Fifteen land cover codes were assumed to be likely to receive fertilizer.

WMD Land Cover Code	Percent Impervious	Percent of Pervious area Receiving Fertilizer
1220: Medium Density, Mobile Home Units	32.6%	17.7%
1230: Medium Density, Mixed Units (Fixed and Mobile Home Units)	32.6%	15.4%
1320: High Density, Mobile Home Units	44.4%	20.7%
1330: Multiple Dwelling Units, Low Rise	44.4%	27.8%
1340: High Density, Multiple Dwelling Units, High Rise (Four Stories or More)	44.4%	32.8%
1400: Commercial and Services	72.2%	31.3%
1411: Shopping Centers	72.2%	31.3%
1480: Cemeteries	8.3%	42.2%
1700: Institutional	34.4%	43.3%
1710: Educational	30.3%	60.6%
1720: Religious	39.9%	37.7%
1740: Medical and Health Care	72.2%	33.8%
1750: Governmental	35.4%	41.0%
1850: Parks and Zoos	12.5%	44.9%
1860: Community Recreational Facilities	12.5%	59.8%

- Impervious area was estimated using a United States Geological Survey (USGS) study (Tilley & Slonecker, 2006). Percent impervious area was dependent on the land use category.
- The area of pervious surface expected to receive fertilizer was evaluated by local land cover data. The percentage of pervious area evaluated to be bare ground or grass surface was applied to the estimated pervious areas of the 15 land cover codes to then estimate the area expected to receive fertilization.



URBAN TURF FERTILIZER

- Estimated fertilizer application rates for non-single family residential fertilized areas were based on an evaluation of the GIBMP Manual. It is estimated that fertilizer is applied at a rate of 3 lbs.-N/1,000 ft² to fertilized turfgrass in the region.
- In total, it is estimated that 1,178,202 lb-N/year are applied to the land surface in single family residential areas, and 209,514 lb-N/year are applied to the land surface in non-single family residential areas within the Wekiwa Spring and Rock Springs BMAP.
- With attenuation and recharge factors considered, it is estimated that 250,155 lbs.-N/year is loaded to groundwater from single family residential sources, and 47,269 lbs.-N/year is loaded to groundwater from non-single family residential sources.
- Total of 297,425 lbs.-N/year is loaded to groundwater from UTF.



SPORTS TURFGRASS FERTILIZER (STF)

Sports turfgrass fertilizer is a combination of golf course and other sports turfgrass areas:

- BMAP areas were evaluated to identify active golf courses.
- Previous NSILT estimates of other STF areas were used in this evaluation to estimate loading from this source.
- Fertilizer application rates and area from the previous NSILT were used to estimate current nutrient loading where information was available.
- An estimated 165,068 lbs.-N/year are applied to the land surface and 33,037 lbs.-N/year is loaded to the groundwater from STF in the Wekiwa Spring and Rock Springs BMAP.



Source: Pexels



SPORTS TURFGRASS FERTILIZER (STF)

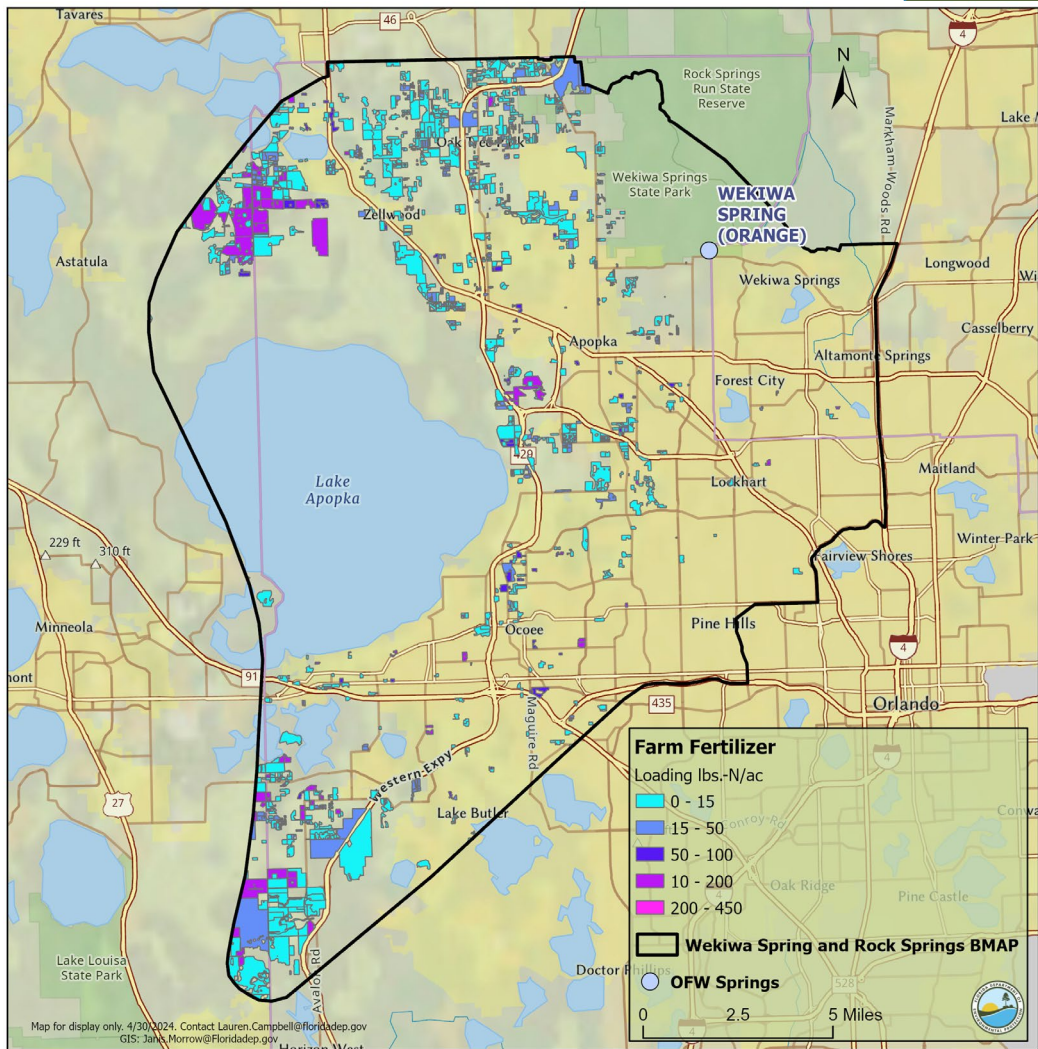
- Acreage for operating golf courses were consistent with the previous NSILT evaluation.
- Golf course application rates were updated based on a study of regional golf course practices published by HortTechnology (Shaddox, et al., 2023).
- It is estimated that 135,396 lbs.-N/year is applied to the land surface at golf courses.
- When attenuation and recharge are considered, it is estimated that 26,227 lbs.-N/year is loaded to groundwater from golf courses.

County	Golf Course	Regional Rate or Site Specific Rate	Land Area (Ac)				N Input (lb-N/yr)			
			High	Medium	Low	Discharge	High	Medium	Low	Discharge
Orange	Stoneybrook West	Regional		136	18			13,028	1,743	
Orange	Sweetwater Golf & Country Club	Regional	103	14			9,871	1,362		
Orange	West Orange Country Club	Regional			158				15,171	
Orange	Lake Orlando Golf Club	Site	121							
Orange	Highland/Lake/Grove Courses At Errol Estate Country Club	Site	373							
Orange	Forest Lake Golf Club	Regional	229				21,913			
Orange	Zellwood Station Country Club	Regional	353				33,795			
Orange	Windermere Country Club	Site	1	154						
Orange	Crooked Cat/Tooth Courses At Oc National Golf Center	Regional		137	124			13,135	11,881	
Orange	North/South/West Courses At Rock Springs Ridge Golf Club	Site	318							
Seminole	Wekiva Golf Club	Regional	131	10			12,529	968		
Seminole	Links At 434	Site	32	0						

Golf Course Study Rate		
Application Rate	95.832	lb-N/ac
% fertilized	100%	



FARM FERTILIZER



- Florida Statewide Agricultural Irrigation Demand 9 (FSAID 9) data layer published in 2021 was analyzed to estimate acreage of all crop types within each recharge category.
- Application rates previously used in the NSILT were reviewed by the Florida Department of Agriculture and Consumer Services (DACS), water management districts and University of Florida Institute of Food and Agricultural Science (UF/IFAS).
- For all crops besides pasture and nurseries, loading to land surface was calculated by multiplying the acreage of a given crop type by the estimated fertilizer application rate.
- Loading from farm fertilizer (FF) is estimated to attenuate at 80%.



FARM FERTILIZER (FF)

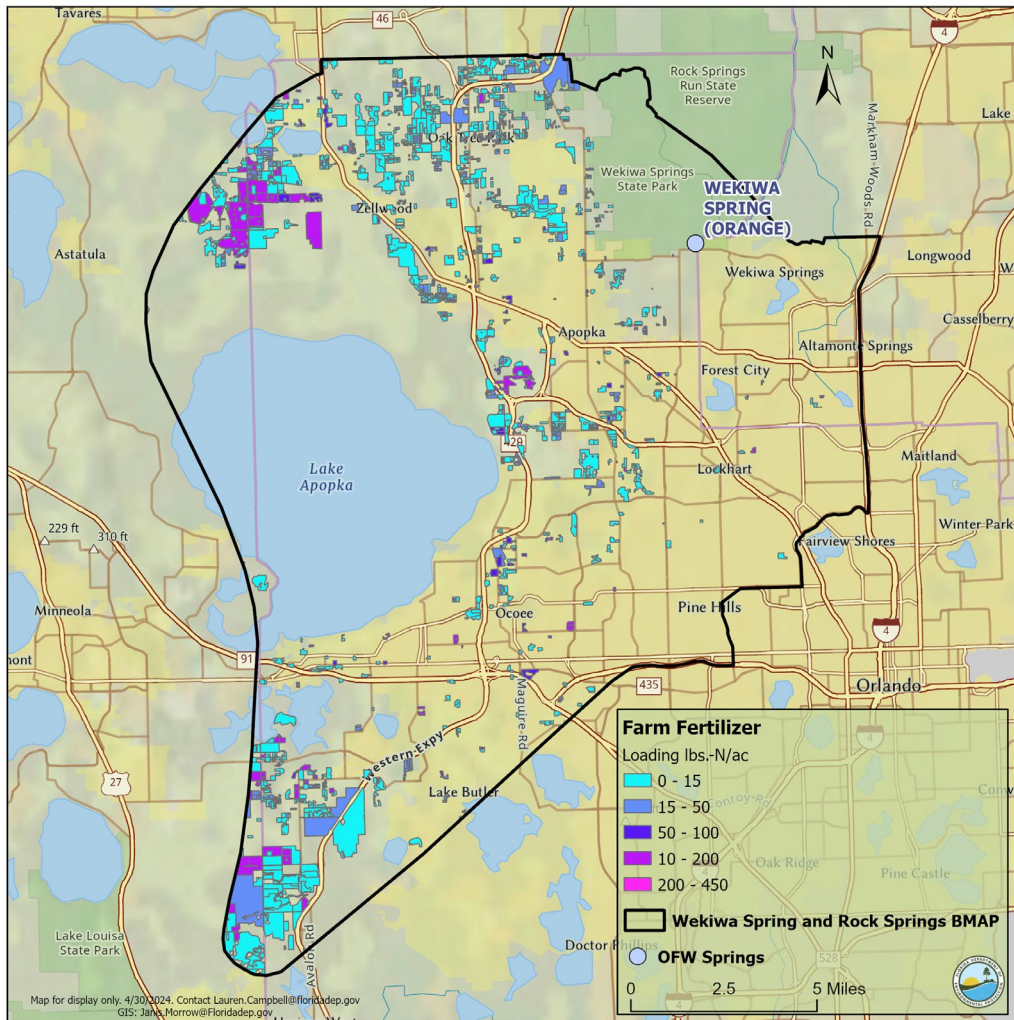
Nursery Crops	Fertilizer Application Rate (lb-N/acre)	Effective Application Rate (lb-N/acre)
Asparagus Fern	90	21.6
Aspidistra	90	21.6
Container Nursery	150	36
Coontie Fern	90	21.6
Fern	90	21.6
Field Nursery	90	21.6
Leatherleaf	90	21.6
Liriope	90	21.6
Nurseries and Vineyards	90	21.6
Nursery	90	21.6
Ornamentals	90	21.6
Pittosporum	90	21.6
Timber Nursery	50	12
Tree Nurseries	90	21.6

Crop	Fertilizer Application Rate (lb-N/acre)	Effective Application Rate (lb-N/acre)
Grass Pasture	80	16
Horse Farms	50	10
Improved Pastures	50	10
Pasture	50	10

- For nurseries that use containers:
 - A reduction of 20% of the FSAID 9 land area was made to account for plant spacing.
 - A reduction of 70% of loading was estimated to account fertilizer being applied to containers that hold the nutrients longer.
- Adjustment to fertilizer application rates were made to pastureland that utilize field rotation.
 - Fertilizer was estimated to be applied to 20% of pasturelands annually.



FARM FERTILIZER



- In total, it is estimated that 500,862 lbs.-N/year from farm fertilizer and 26,130 lbs.-N/year from nurseries are applied to the land surface from crop production within the Wekiwa Spring and Rock Springs BMAP.
- When recharge and attenuation are applied, it is estimated that 48,239 lbs.-N/year from FF and 7,353 lbs.-N/year from nurseries are loaded to the Floridan aquifer annually.



FARM FERTILIZER

- The most common crop type by acreage within the Wekiwa Spring and Rock Springs BMAP is improved pastures.
- When the fertilizer application rates and the adjustments for pasture and nursery crops are considered, citrus is the crop with the highest estimated loading to land surface within the BMAP.
- When attenuation and recharge factors are applied, citrus is estimated to be the crop contributing the greatest load to groundwater within the basin.

Crop	Application Rate	Total Acres	Loading to Land Surface (lb-N/year)	Loading to Groundwater (lb-N/year)
Citrus	140	1,048	146,687	19,323
Vegetables	150	364	54,626	5,441
Grass Pasture	80	1,902	30,435	4,479
Field Crops	90	303	27,306	4,090
Improved Pastures	50	2,426	24,256	3,348
Strawberries	150	217	32,564	3,256
Container Nursery	150	597	21,494	3,157
Sod	200	684	136,710	1,275
Cabbage Onions Vegetables	175	71	12,389	1,239
Blueberries	100	114	11,367	765



LIVESTOCK WASTE (LW)

- Livestock populations were estimated using 2017 USDA census of agriculture data. USDA population estimates are provided by county.
- FSAID 9 land use was used to evaluate the proportion of livestock land within a BMAP and adjust USDA population estimates.
- Waste factors were multiplied by the estimated animal population to calculate livestock waste loading.
- Loading from livestock waste (LW) is estimated to attenuate at 90%.

Livestock Type	Waste Factor (lb-N/day)
Beef Cattle	0.337
"Other" Cattle	0.31
Calves	0.068
Dairy Cows	0.977
Donkeys	0.1
Horses	0.273
Chicken, Broilers	0.002
Chicken, Layers	0.003
Goats	0.035
Hogs	0.19
Sheep	0.198
Turkeys	0.006



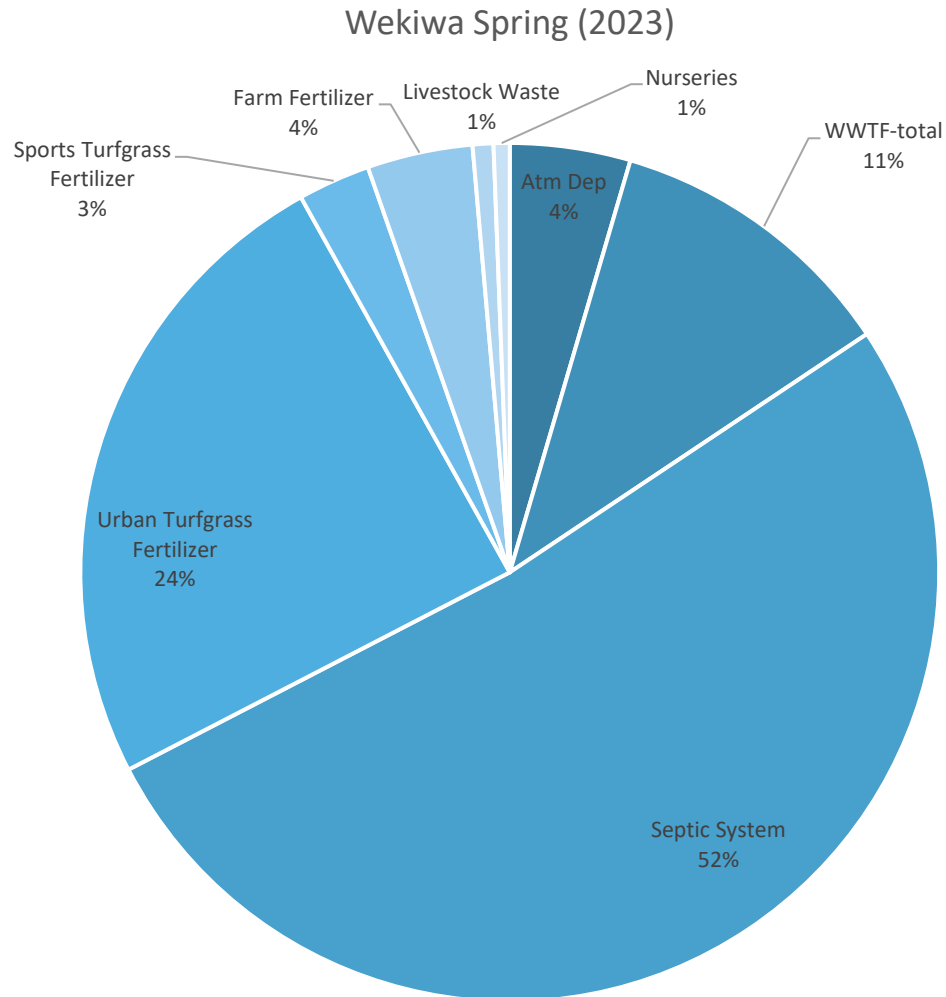
LIVESTOCK WASTE (LW)

Livestock Type	Total Head Count	Loading to Land Surface (lb-N/year)	Loading to Groundwater (lb-N/year)
Beef Cattle	891	109,579	7,790
"Other" Cattle	33	3,737	249
Calves	497	6,190	439
Donkeys	4	178	12
Horses	76	7,649	536
Chicken, Broilers	71	52	4
Chicken, Layers	302	330	24
Goats	108	1,387	99
Hogs	36	2,505	181
Sheep	29	2,107	141
Turkeys	8	20	1

- An estimated total of 133,532 pounds of nitrogen per year are deposited on the land surface from livestock within the Wekiwa Spring and Rock Springs BMAP.
- When recharge and attenuation are applied, an estimated 9,477 pounds of nitrogen per year is loaded to groundwater annually.



DRAFT WEKIWA SPRING AND ROCK SPRINGS NSILT LOADING



Wekiwa Spring and Rock Springs BMAP Area	
Source	Annual Loading (lb-N/year)
Atmospheric Deposition	55,034
Wastewater Treatment Facilities	134,595
Septic Systems	628,072
Urban Turfgrass Fertilizer	297,425
Sports Turfgrass Fertilizer	33,038
Farm Fertilizer	48,239
Livestock Waste	9,477
Nurseries	7,353
Total	1,213,232

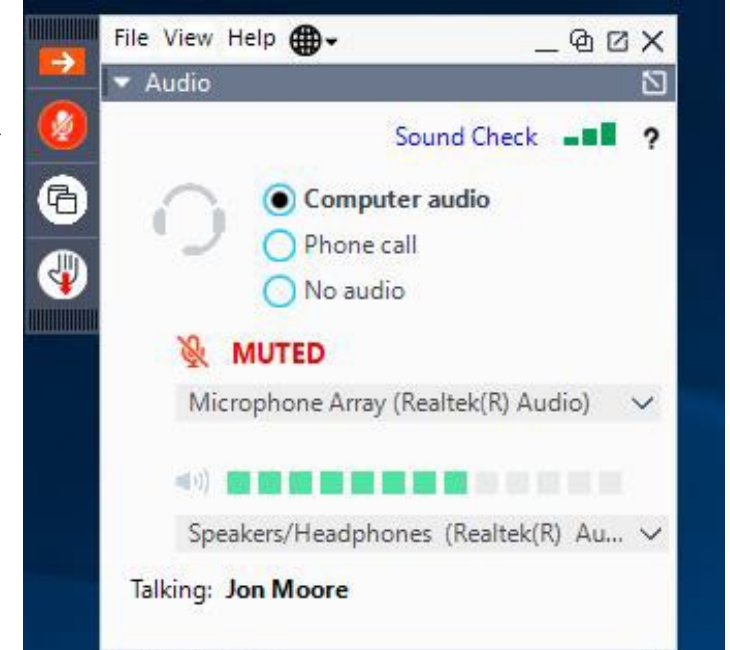


BMAP MEETING

PUBLIC QUESTIONS PERIOD

Verbal Questions

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Written Comments

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BMAP UPDATES

SPRING VENT LOAD ANALYSIS

Calculated the current loading using the most recent 10 years of nitrate and discharge data.

Calculated the percent reduction using the TMDL and current loading.

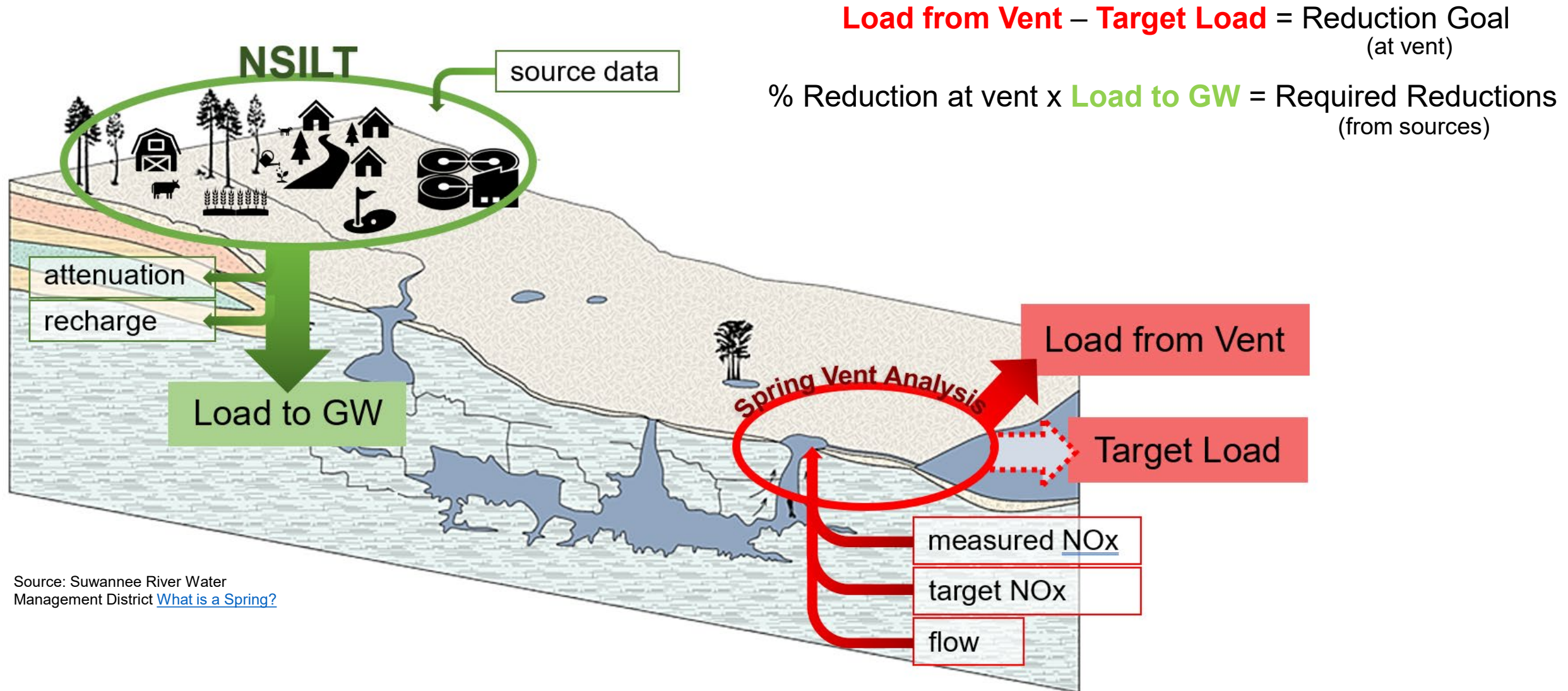
Applied the spring vent percent reduction to the updated NSILT loading.

Estimate the total reduction needed to meet the TMDL.



BMAP UPDATES

SPRING VENT LOAD ANALYSIS



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



BMAP UPDATES

DRAFT WEKIWA SPRING AND ROCK SPRINGS VENT LOAD ANALYSIS

Description	DRAFT Nitrate Loads (lbs.-N/yr.)	Notes Regarding Data Used
Total Load at Spring Vent	286,567	Upper 95% confidence interval - nitrate data and flow data from 2012 to 2022.
TMDL Load	67,705	TMDL target is 0.286 mg/L and using the same flow data from 2012 to 2022.
Required Reduction	218,861	Total Required Reduction of 76% is needed to meet the TMDL.



BMAP UPDATES

ALLOCATION AND REDUCTION APPROACH

- The percent reduction calculated from the spring vent analysis is applied to the estimated NSILT load to determine the overall required reduction needed in the basin.
- Each source will be evaluated for a reduction strategy.
- Responsible entities will receive an allocation based on the combined necessary reductions estimated by source for their area based on the NSILT loading.



BMAP UPDATES

ALLOCATION AND REDUCTION APPROACH

Onsite Sewage Treatment and Disposal Systems (OSTDS)

- Reduction strategy is initially based on BMAP OSTDS requirements in Appendix D, with additional reductions based on actual loading from OSTDS.

Wastewater Treatment Facilities (WWTF)

- Reduction strategy is based on BMAP effluent requirements in the BMAP document and requirements in Florida law established 2021-2024.

Agriculture

- Reduction strategy based on:
 - BMP enrollment using a 15% reduction applied to farm fertilizer (FF) load to groundwater.
 - BMP enrollment using a 10% reduction applied to livestock waste (LW) and dairies.
 - Any remaining agricultural reductions will be allocated to agricultural regional cooperative elements, which could include regional projects, cost-share practices and innovative technologies.

Atmospheric Deposition (AD)

- Anticipate reductions to be addressed by reductions from other sources or regional projects.



BMAP UPDATES

ALLOCATION AND REDUCTION APPROACH

Urban Turf Fertilizer (UTF)

- Apply the percent reduction to the total UTF load to groundwater and allocate to the applicable local governments.

Sports Turf Fertilizer (STF)

- Apply the percent reduction to the STF load to groundwater and allocate to the applicable governments.

Golf Courses

- Reduction based on requirement of all golf courses to submit information on their implementation of best management practices (BMPs) and a nutrient management plan (NMP) to address their loading.



BMAP UPDATES

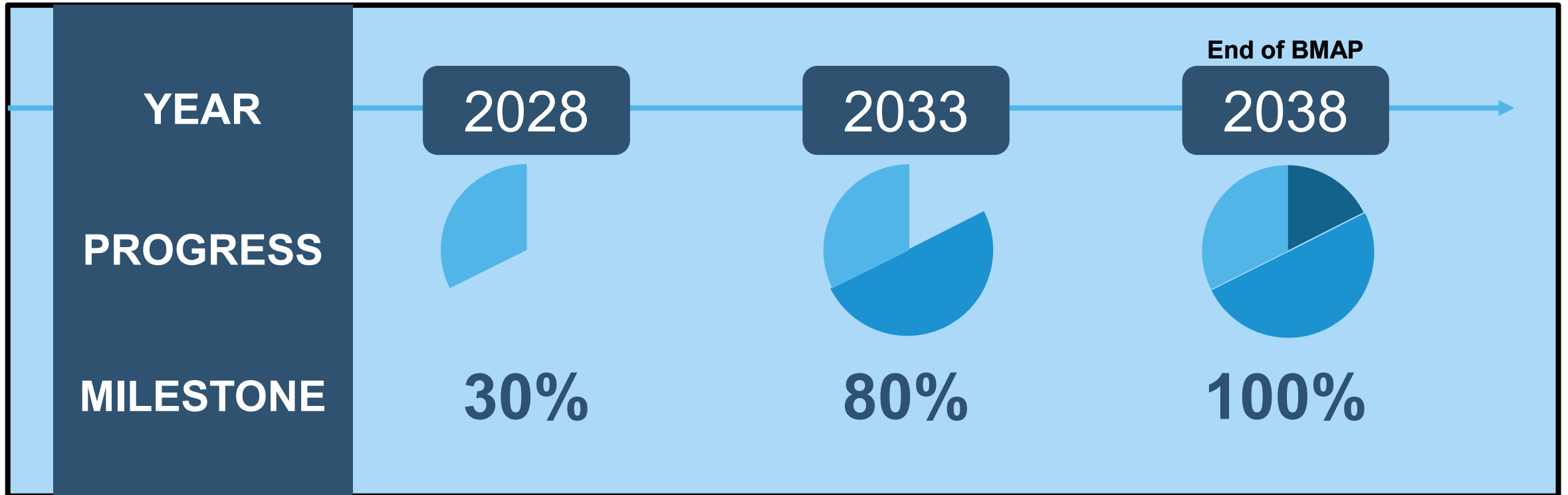
FUTURE GROWTH

- **Domestic Wastewater Projections:**
 - Use wastewater to estimate future growth projections.
 - Start with population growth for each county from Bureau of Economic and Business Research (BEBR).
 - 2040 Medium Growth Projections.
 - Proportion growth for each entity based on land area.
 - Distinguish the future population expected to be served by sewer versus those with OSTDS based on the most recent FLWMI for each BMAP county.
 - Use per person calculations to estimate future loads from WWTF and OSTDS.
- **Agriculture Projections:**
 - Exploring different tools to estimate future changes in agricultural acreage in the BMAPs to estimate changes in agricultural loading.



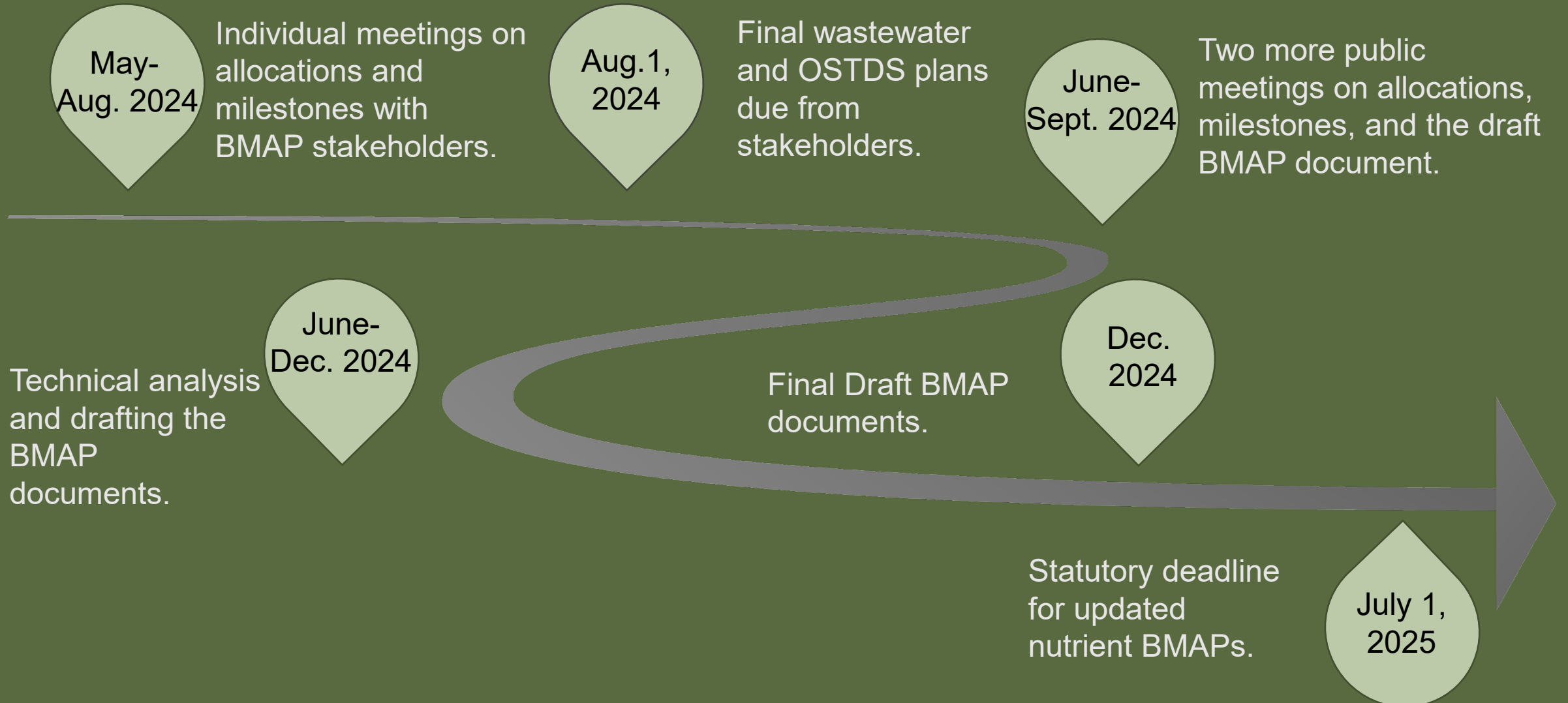
BMAP UPDATES

5-, 10-, AND 15-YEAR MILESTONES/REDUCTION SCHEDULE





SPRINGS BMAP UPDATES TIMELINE





RESOURCES

BMAP WEBSITE AND STORYMAP

Basin Management Action Plans

[Home](#) » [Divisions](#) » [Division of Environmental Assessment and Restoration](#) » [Water Quality Restoration Program](#) » Basin

Water Quality Restoration Program Quick Links

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

[Statewide Annual Report](#)

[Water Quality Grant Opportunities 2023-24](#)

[BMAP Public Meetings](#)

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

[Tools and Guidance for](#)

What is a Basin Management Action Plan

A basin management action plan (BMAP) is a framework for water quality management that reduces pollutant loading through current and future projects and standards, permit limits on wastewater facilities, urban and agricultural best management practices, and other measures to achieve pollutant reductions established by a total maximum daily load. BMAPs are developed in partnership with stakeholders and rely on local input and commitment for development and implementation. BMAPs are required by Department of Environmental Protection Secretarial Order and are

Water Quality Protection Grant

DEP has launched an [online grant portal](#) to provide eligible entities with information about grant programs. Eligible entities include local governments, academic institutions, and non-profit organizations. The [application portal](#) opened July 5, 2023. Closing dates for individual grant programs are listed on the posted date for each grant program. Applicants are encouraged to



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



1 (COPY) Nitrogen Source Inventory and Loading Tool...



2 (COPY) Statutes & Bills



3 (COPY) Crystal River - Kings Bay BMAP Story Map



4 (COPY) DeLeon Spring BMAP Story Map



5 (COPY) Gemini Springs BMAP Story Map



6 (COPY) Homosassa and Chassahowitzka Springs Group...



7 (COPY) Jackson Blue and Merritts Mill Pond BMAP Story...



8 (COPY) Santa Fe River BMAP Story Map



9 (COPY) Silver Springs, Upper Silver Springs, and Rainbow...





RESOURCES

FUNDING OPPORTUNITIES



Florida Department of Environmental Protection
Funding Opportunities

[FloridaDEP.gov/Funding](https://www.floridadep.gov/funding)





SUBSCRIBER PAGE

HOW TO CONTACT US



BMAPProgram@FloridaDEP.gov



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- Eller, K. T., & Katz, B. G. (2017). Nitrogen Source Inventory and Loading Tool: An integrated approach toward restoration of water-quality impaired karst springs. *Journal of Environmental Management*.
- Helgeson, T., & McNeal, M., (2009). A Reconnaissance-Level Quantitative Comparison of Reclaimed Water, Surface Water, and Groundwater.
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- [GI-BMP Manual](#), UF/IFAS Extension, (ufl.edu).



THANK YOU

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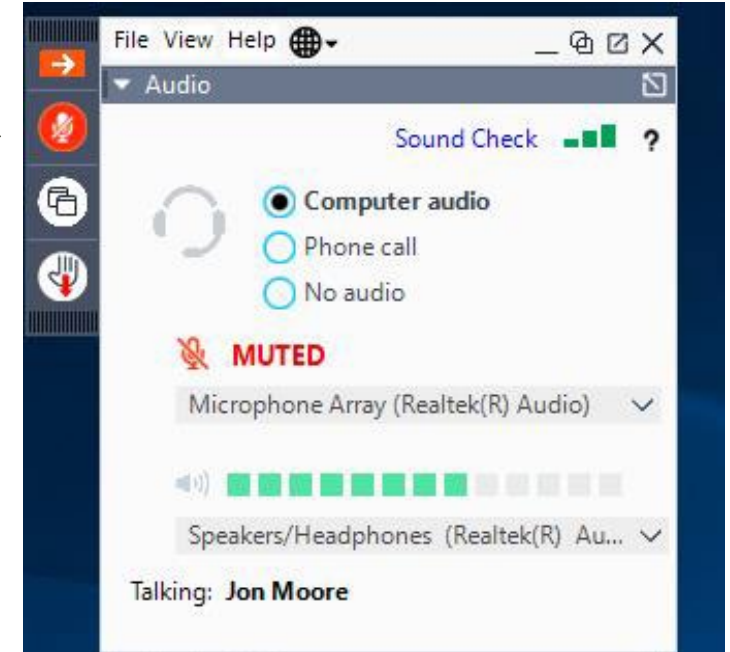


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