Wacissa Spring Group Basin Management Action Plan Updates

May 6, 2024 at 1:00 PM EDT

Via Webinar
Webinar Registration Link:
https://attendee.gotowebinar.com/register/1003234430180168790

Agenda

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

Please note the FTP site for documents pertaining to the various BMAPs:
publicfiles.dep.state.fl.us - /DEAR/BMAP/Outstanding Florida Springs BMAPs/
For more information on the Wacissa Spring BMAP, contact: Sam Hankinson at (850) 245-8086
Samuel.Hankison@FloridaDEP.gov.

WEBINAR HOUSEKEEPING

Attendee Participation

Open your control panel.

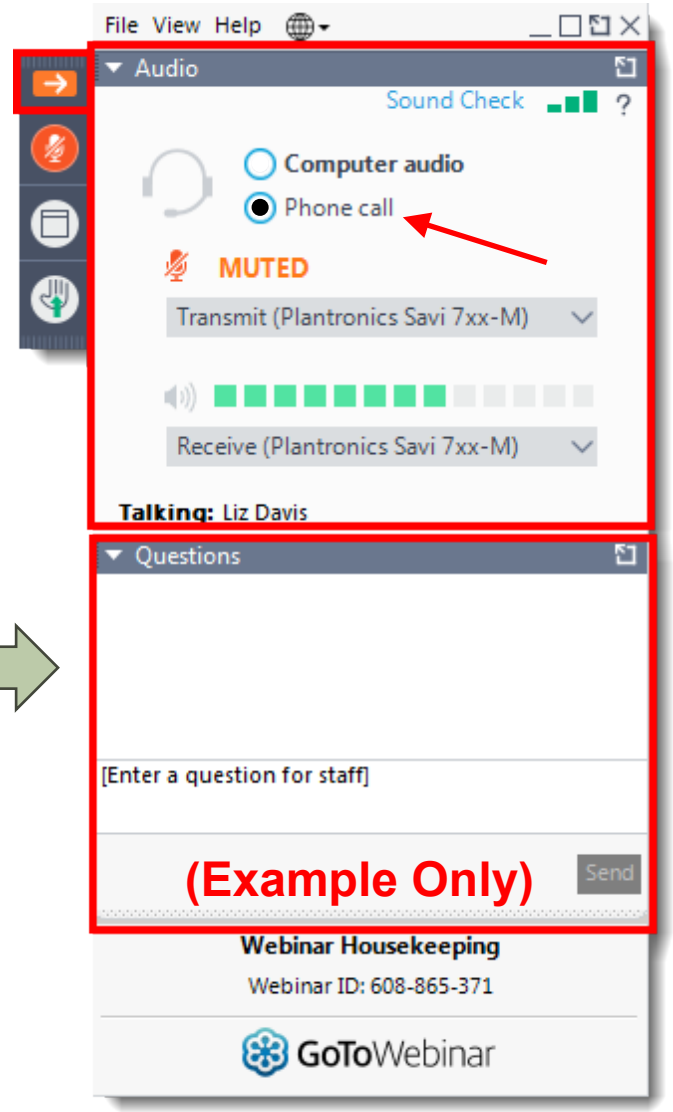
Join audio:

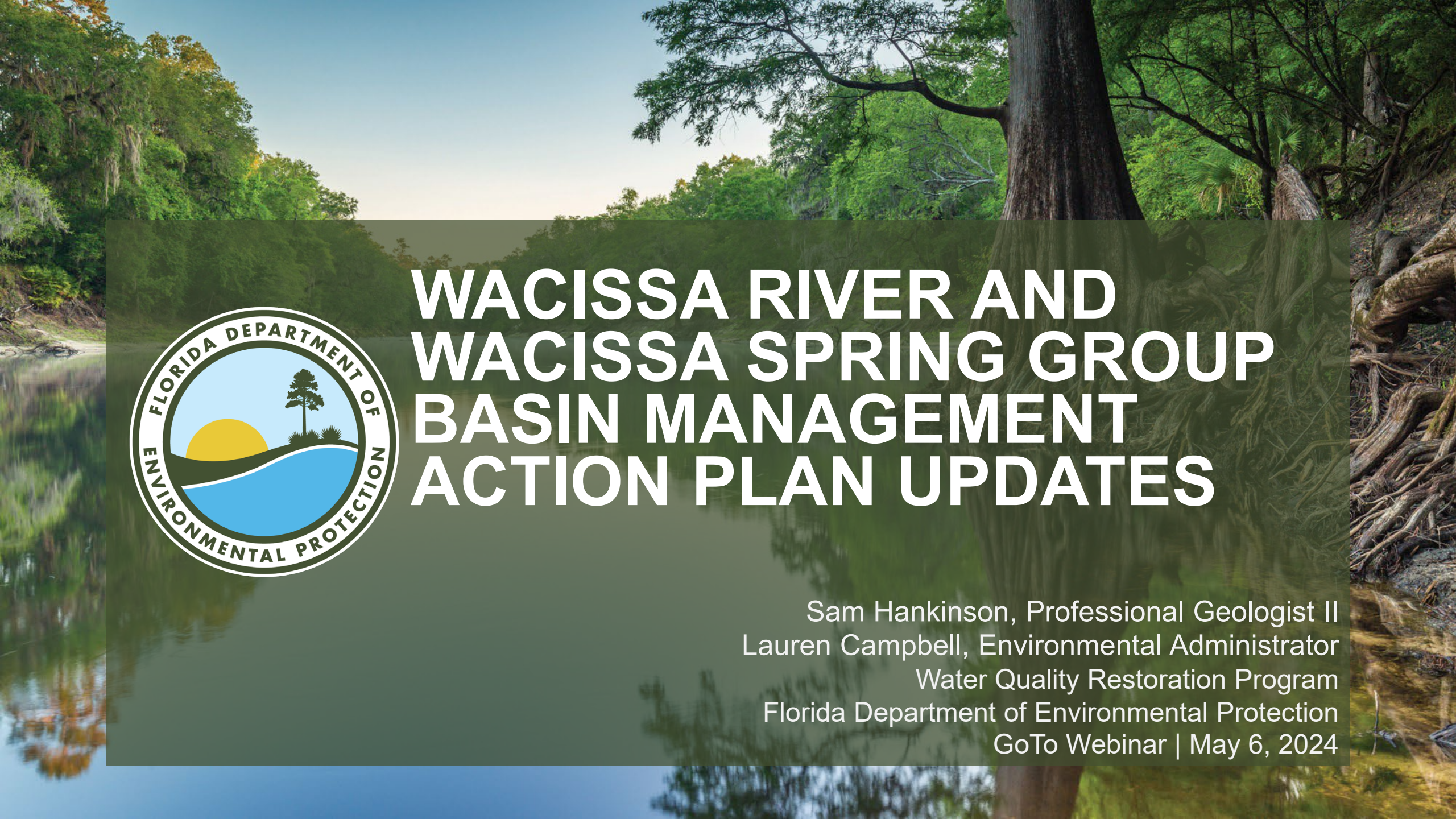
- Choose **Phone Call** and dial using the information provided.
- Or choose **Computer Audio** to use your computer's speakers for audio.
- Attendee audio will be muted.

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.





WACISSA RIVER AND WACISSA SPRING GROUP BASIN MANAGEMENT ACTION PLAN UPDATES

Sam Hankinson, Professional Geologist II
Lauren Campbell, Environmental Administrator
Water Quality Restoration Program
Florida Department of Environmental Protection
GoTo Webinar | May 6, 2024

AGENDA

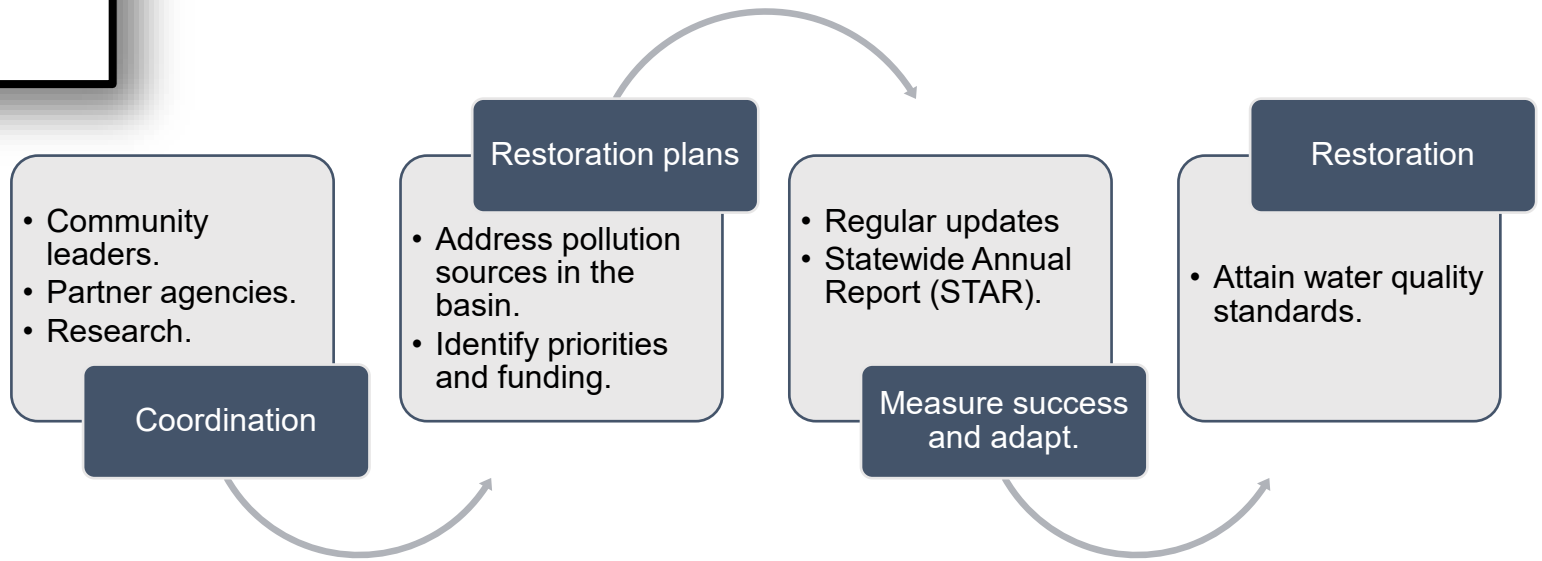
- Basin Management Action Plan (BMAP) Overview.
- Nitrogen Source Inventory Loading Tool (NSILT).
  - Updates.
  - Draft Results.
- Spring Vent Load Analysis.
- Next Steps - BMAP Updates.
  - Draft Allocation Approach.
  - Milestones.

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:

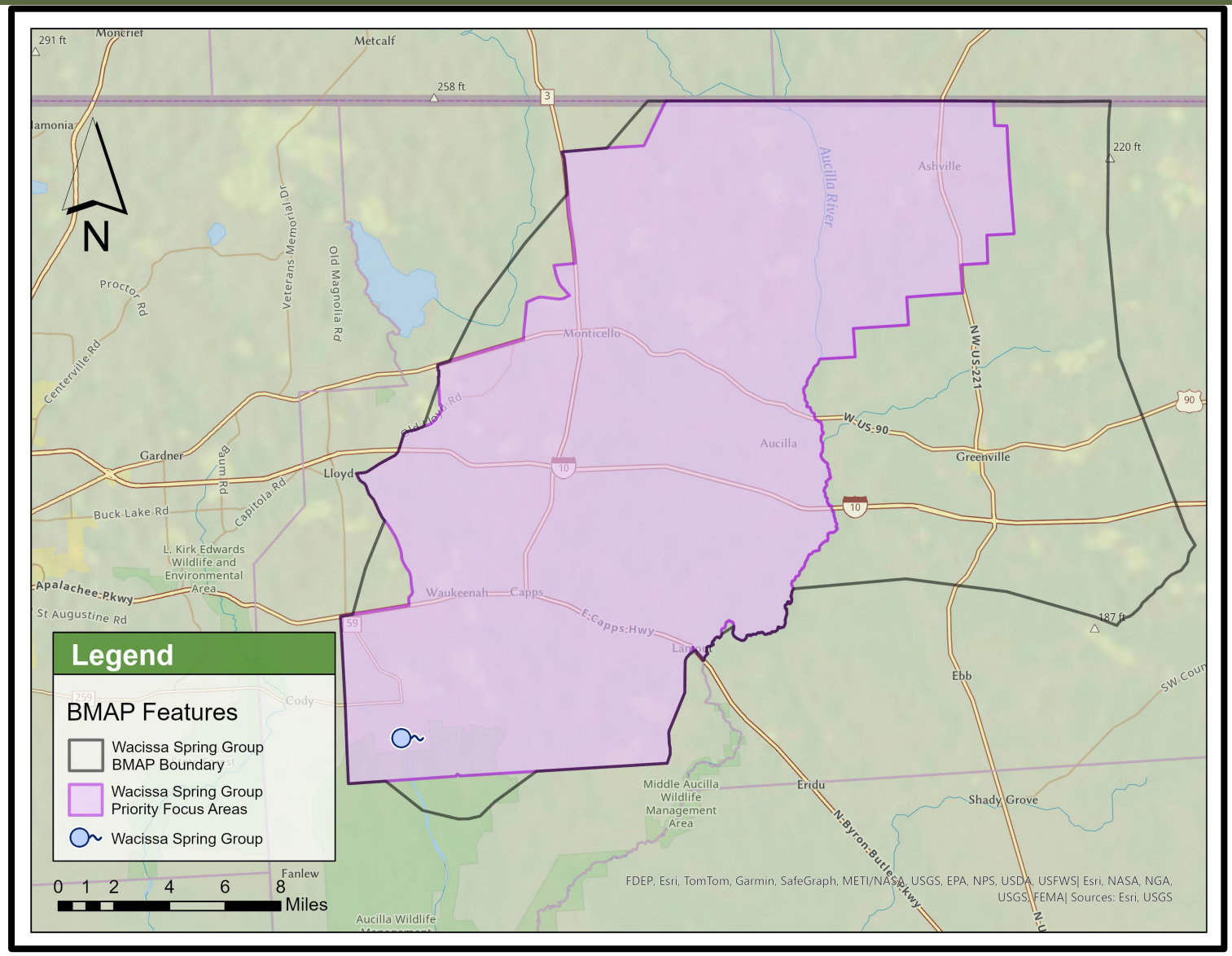
- Implementation timeline.
- Commitment to projects.
- Expected water quality improvement from projects and management strategies.

Process to assess progress toward achieving the TMDL:

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

WACISSA BMAP

- BMAP area is approximately 327,585 acres/511.8 square miles.
- The Wacissa Spring Group is impaired for the nitrate form of nitrogen.
- Total maximum daily load (TMDL) is 0.24 mg/L of nitrate for Wacissa Spring Group and 0.20 mg/L of nitrate for the Wacissa River, as monthly arithmetic mean target.



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 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).

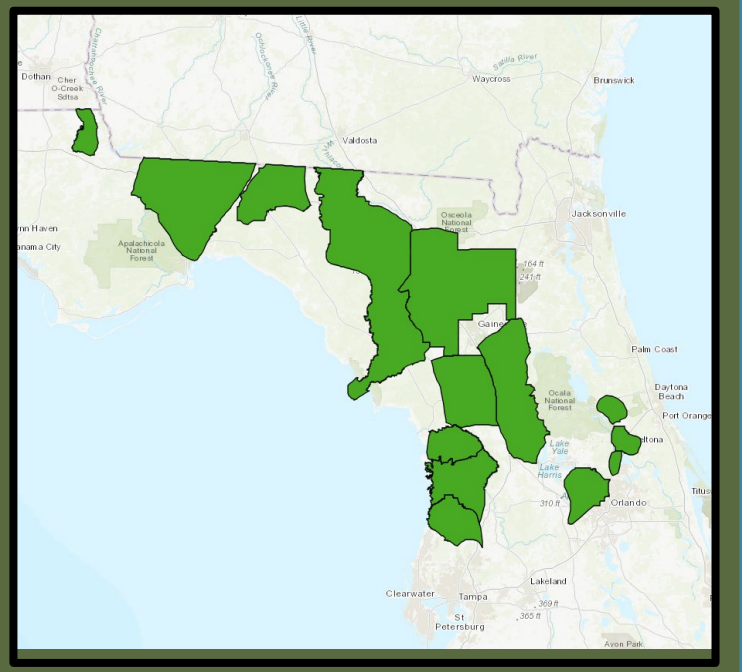
Strengthens Water Quality Protections and BMAPs.

HB1379

Improves Local Government Long-Term Comprehensive Planning.

Expands Funding Opportunities to Address Water Quality Impairments.

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

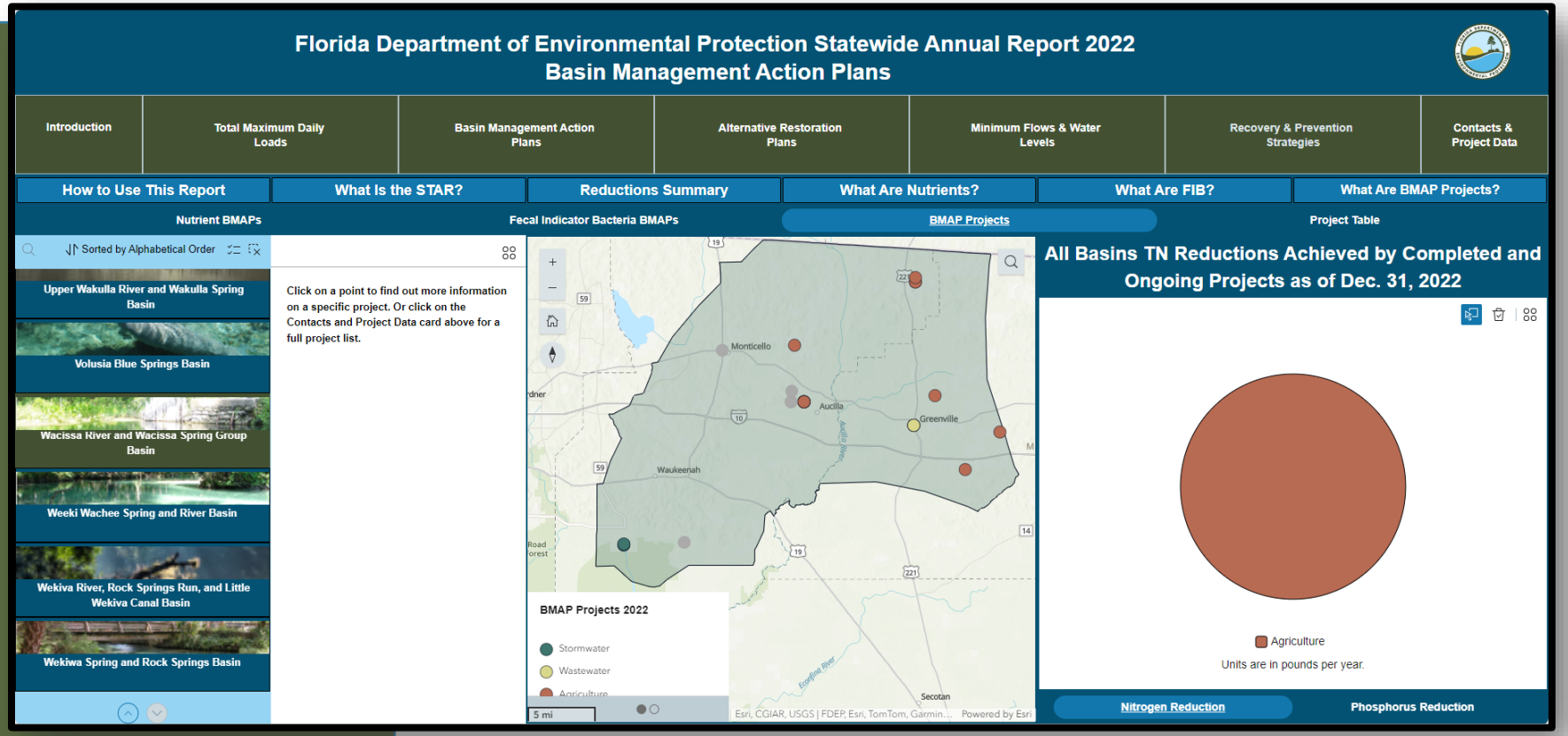


- New conventional Onsite Sewage and Treatment Disposal System (OSTDS) where sewer is available.
- New domestic wastewater disposal facilities with permitted capacities of 100,000 gallons per day or more, unless they meet Advanced Wastewater Treatment (AWT) standards.
- New HAZMAT disposal facilities.
- 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

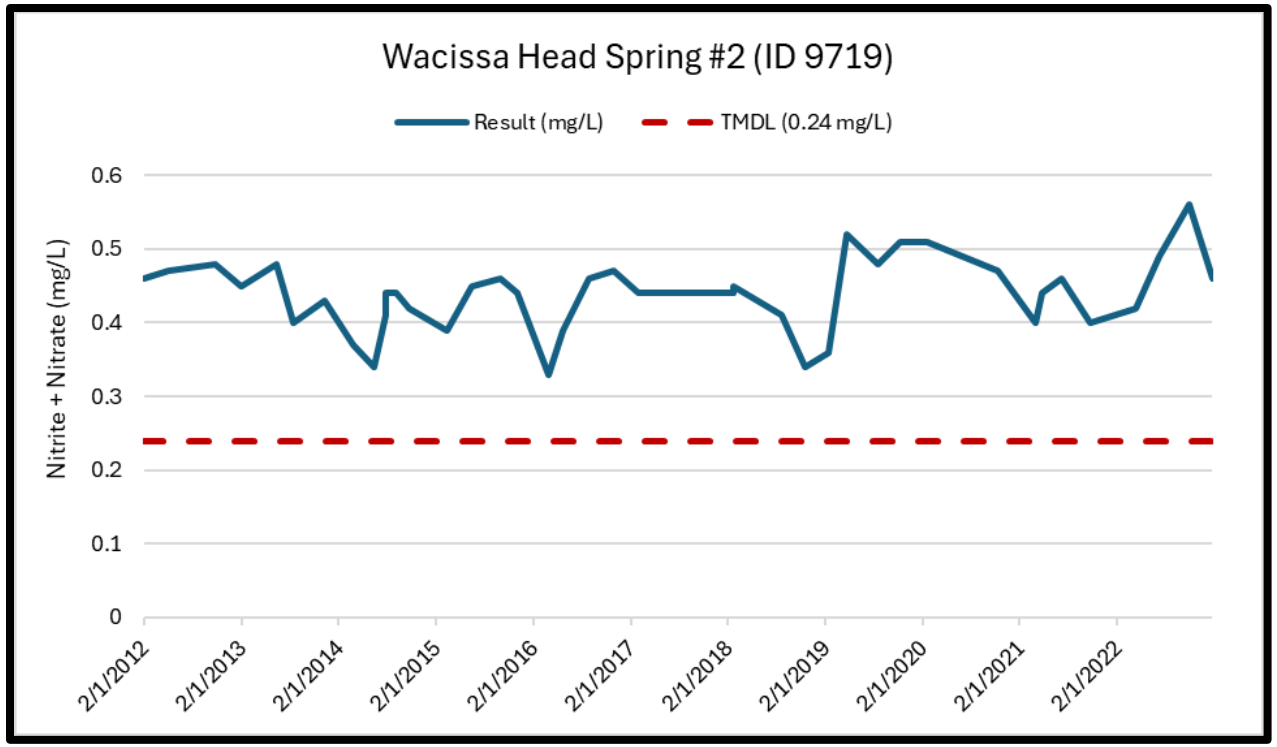
WACISSA BMAP

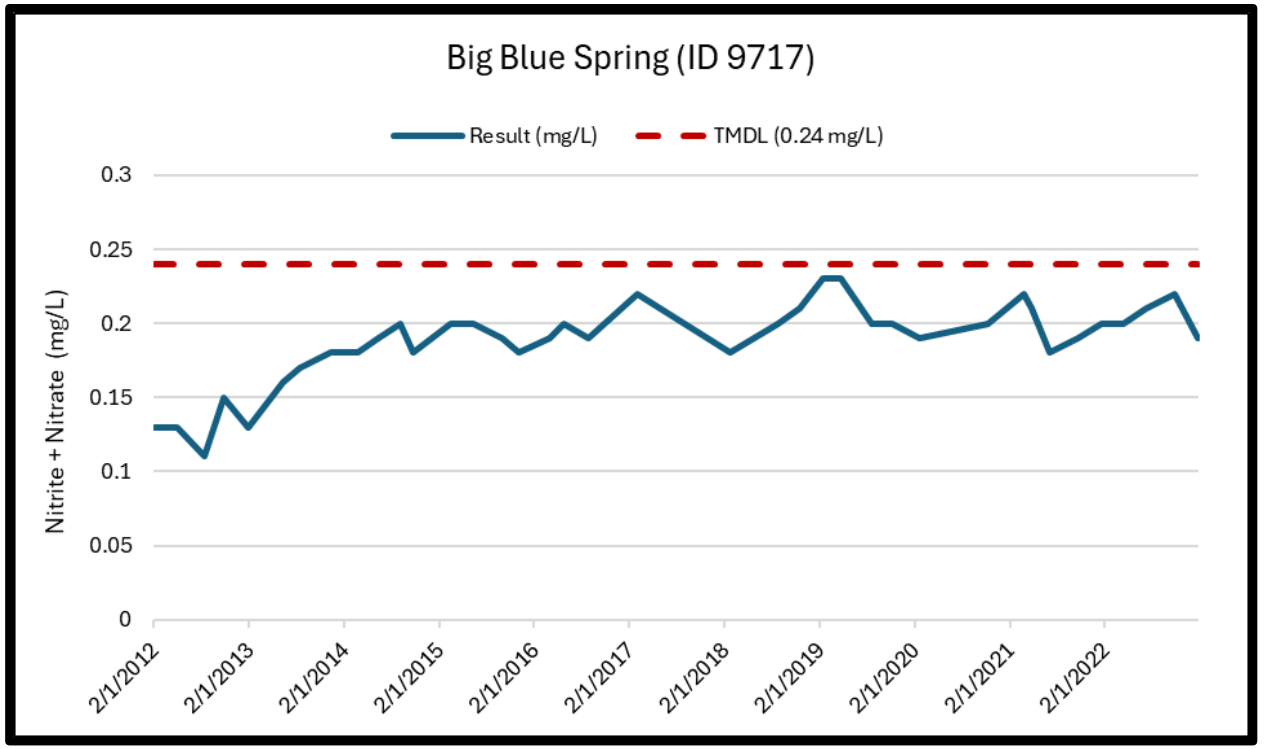
Project Status	Count of Projects
Planned	8
Ongoing	3
Underway	11
Completed	10
Total	**32**

As of Dec. 31, 2023, verified projects in the Wacissa BMAP have reduced **23,086 lbs./yr.** of total nitrogen (TN).

WATER QUALITY DATA

WACISSA SPRING GROUP NITRATE DATA



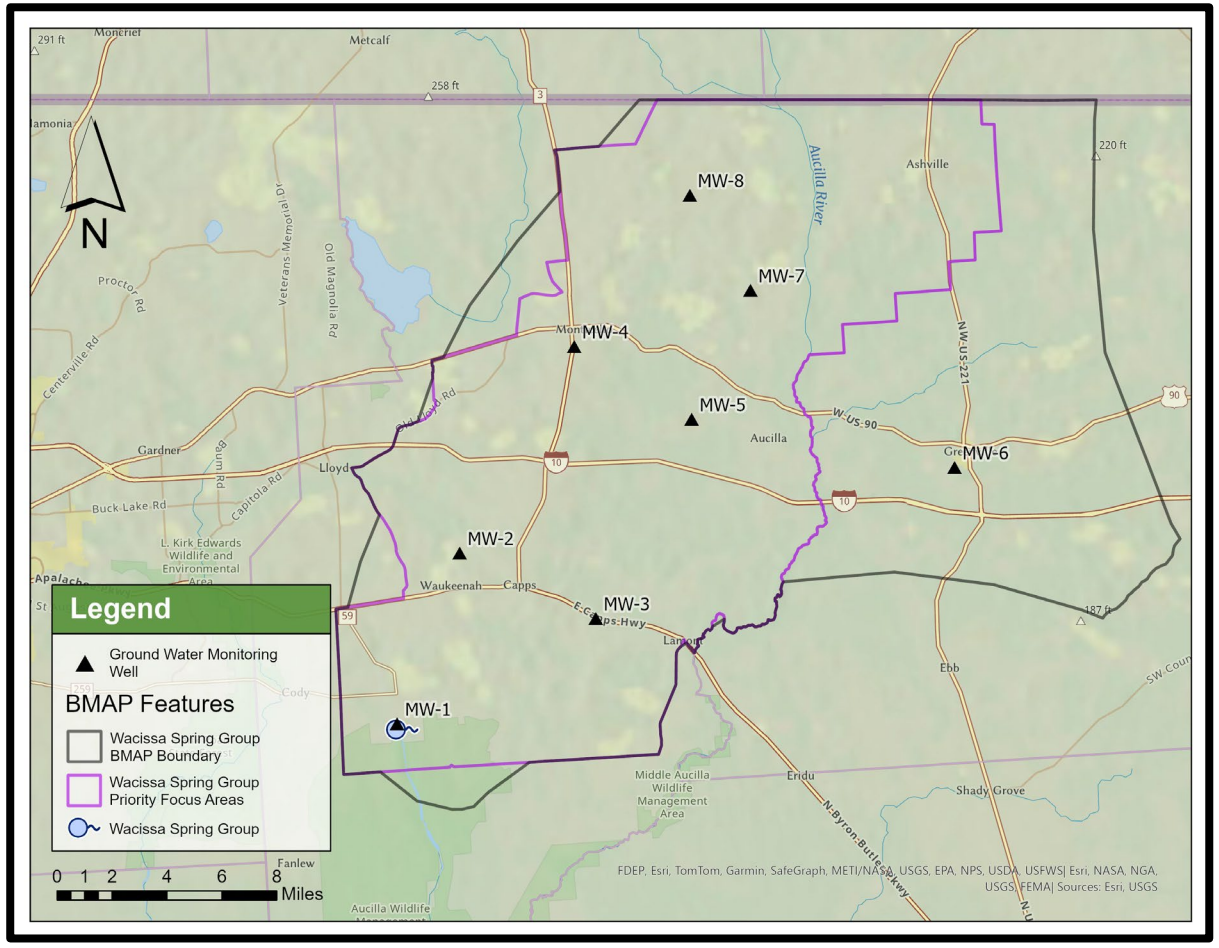


WATER QUALITY DATA

GROUNDWATER WELL NITRATE DATA

Eight groundwater wells were drilled in the Wacissa BMAP in 2023 to expand the groundwater monitoring well network to capture impacts from the land surface across diverse land uses and address spatial data gaps.

Groundwater Well ID	Nitrate (mg/L) Dec 2023
MW-1	0.1
MW-2	0.1
MW-3	0.37
MW-4	0.23
MW-5	2.7
MW-6	0.51
MW-7	0.1
MW-8	0.1



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 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/.

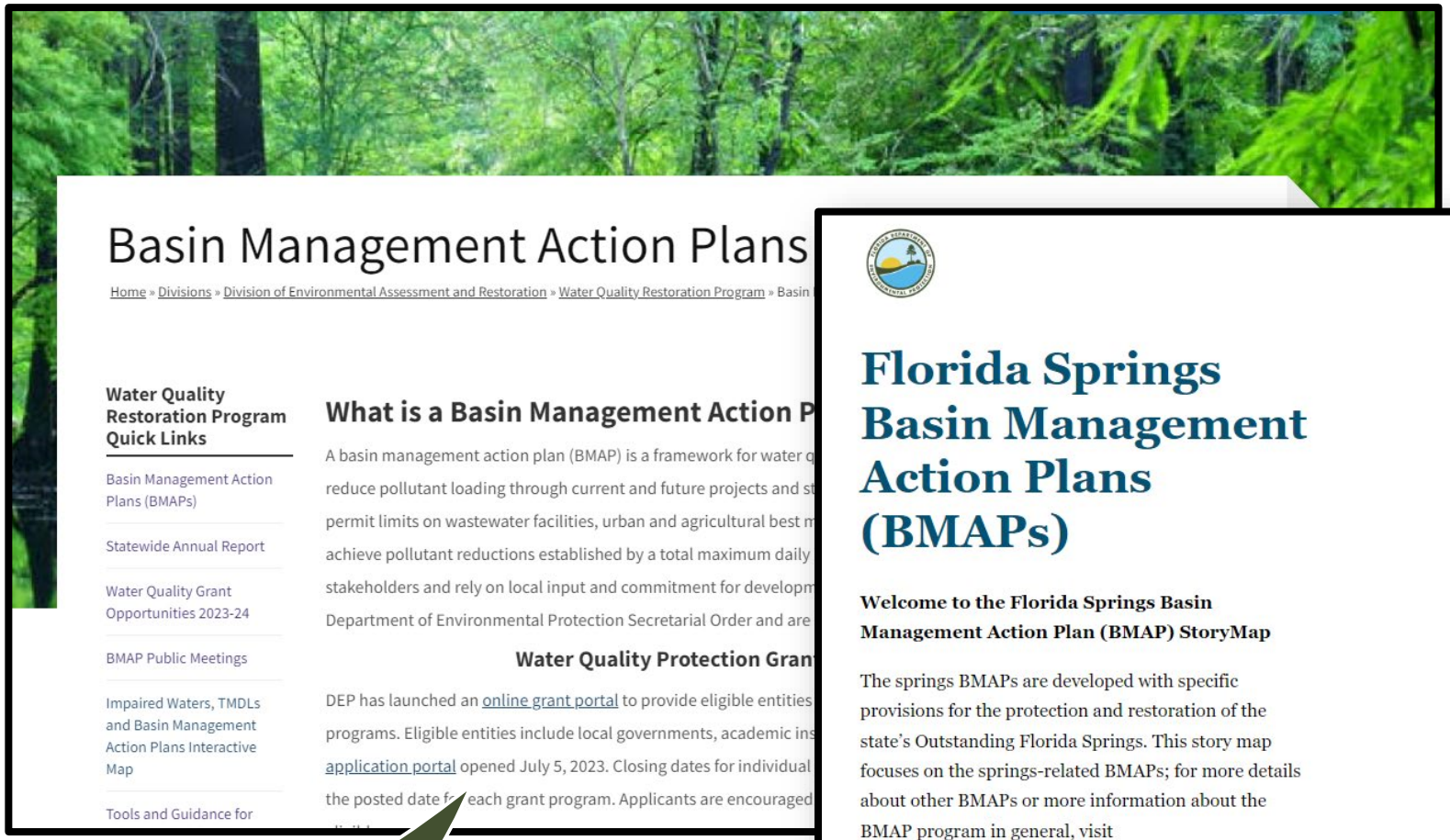
- Data providers to WIN and STORET include Division of Environmental Assessment and Restoration (DEAR) and other DEP entities, water management districts, cities, counties, other state agencies, universities, private and volunteer organizations.

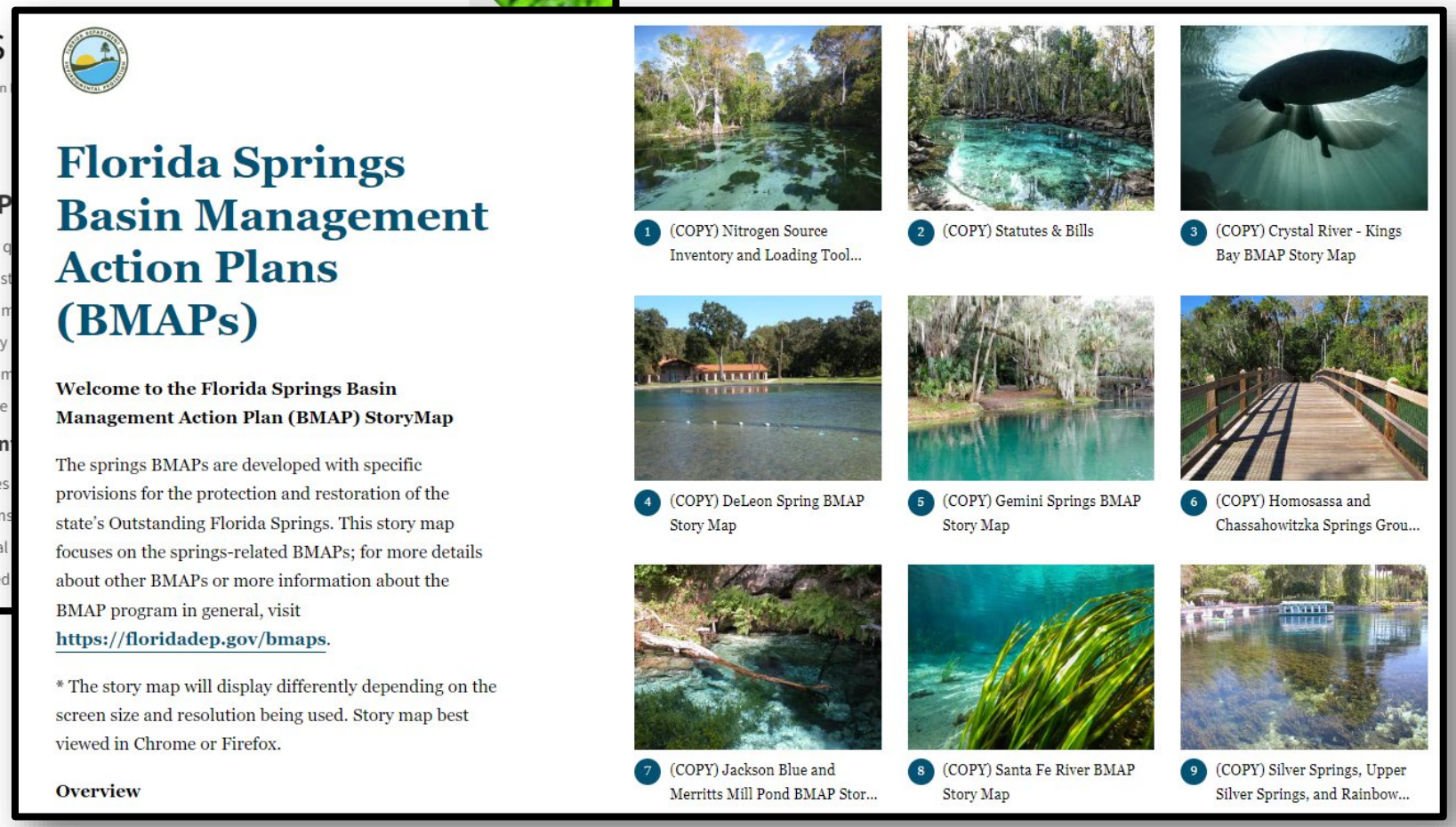
- If your entity is collecting ambient water quality data, please upload it to WIN.

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

RESOURCES
BMAP WEBSITE AND STORYMAP



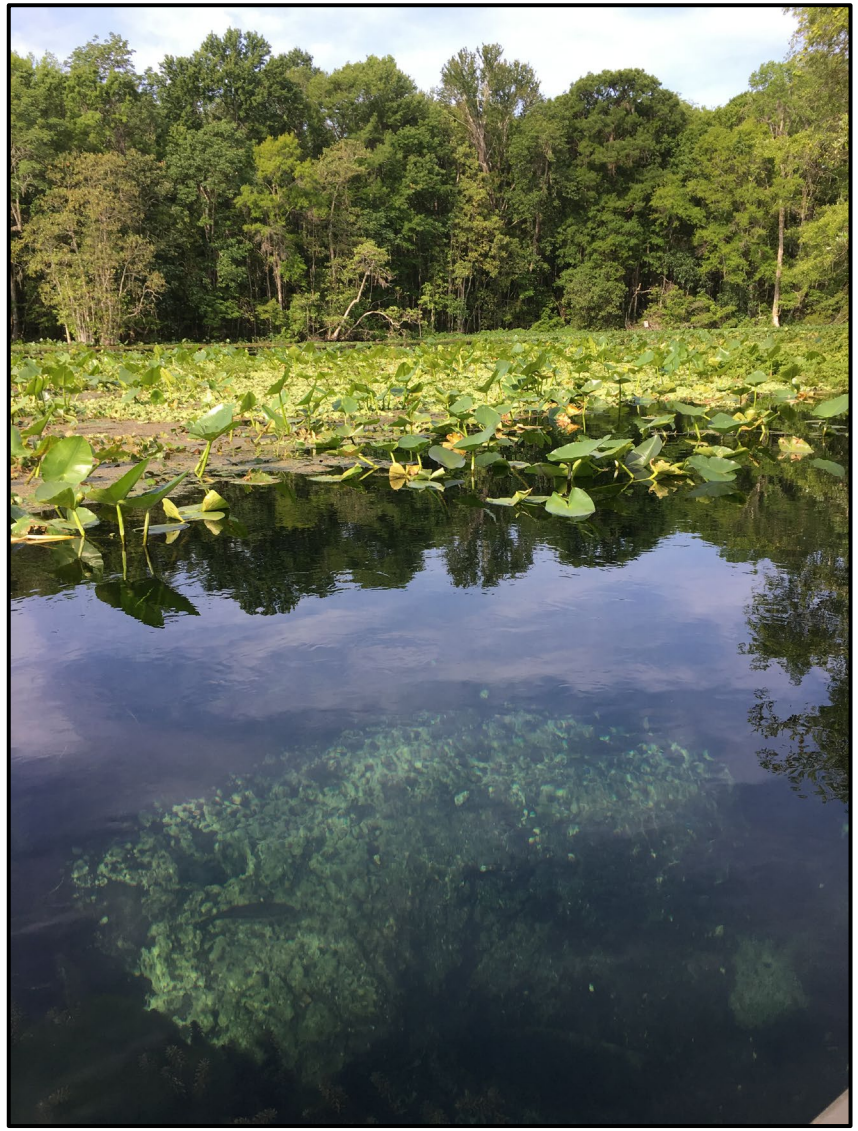


BMAP UPDATES

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.

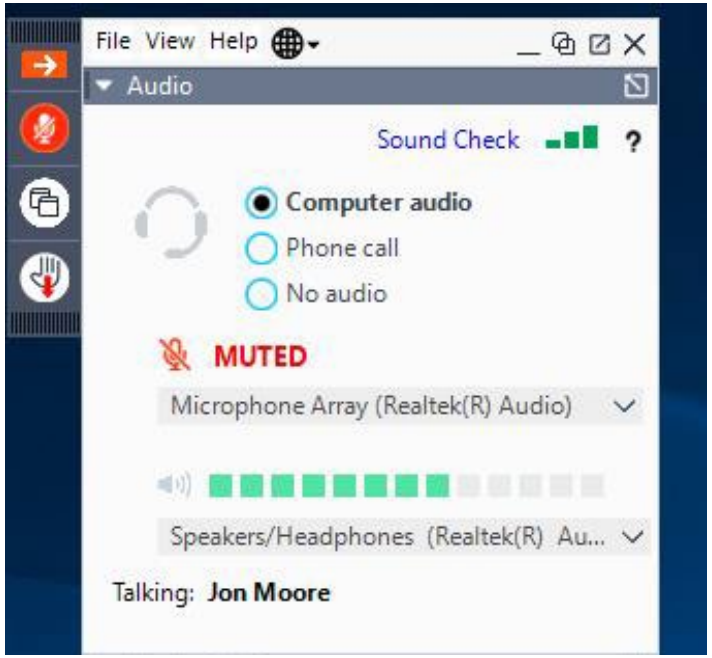


WACISSA SPRING GROUP BMAP MEETING
PUBLIC QUESTIONS PERIOD

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.
  - Biosolids (no sites in Wacissa BMAP).
- Draft results.

NSILT GENERAL PROCESS SUMMARY

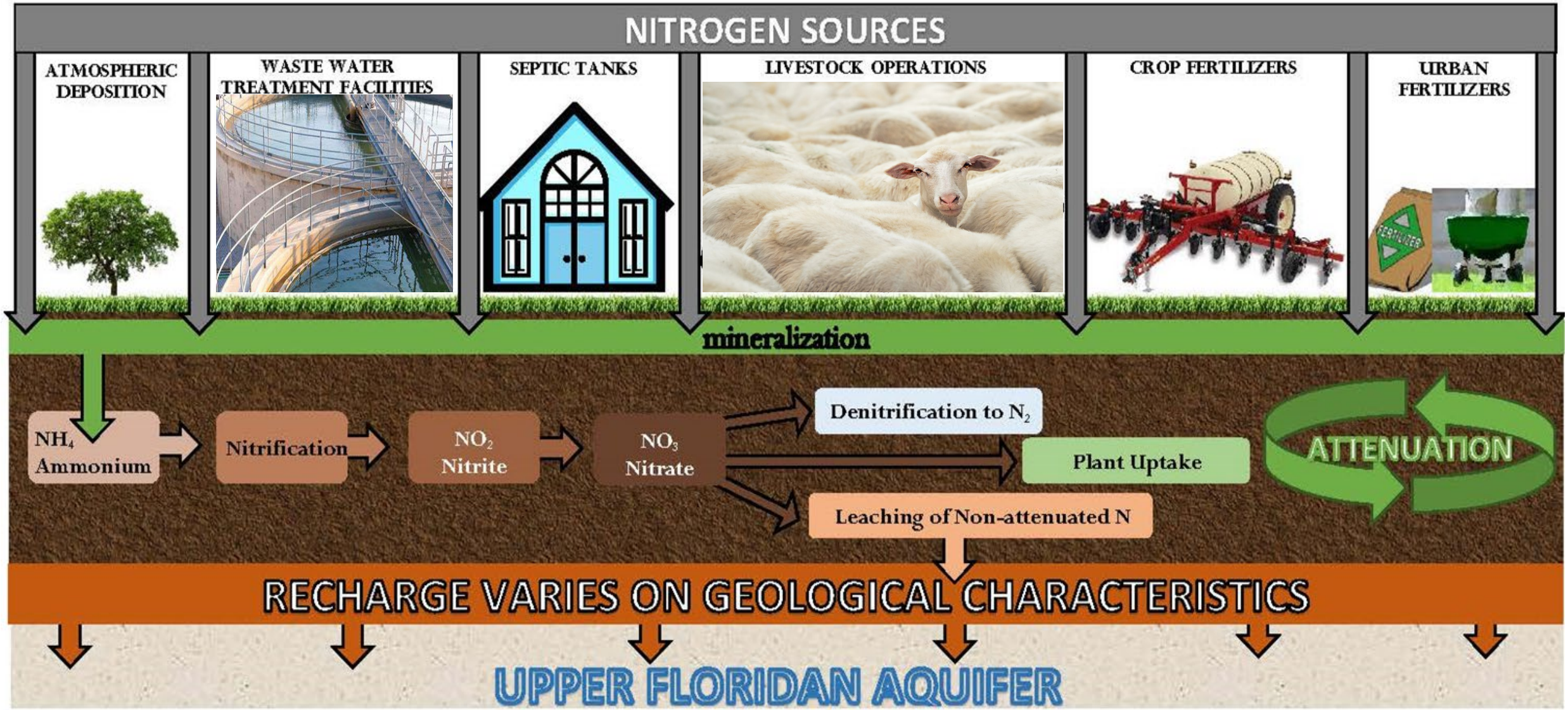
Estimate loading to land surface for each source category.

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

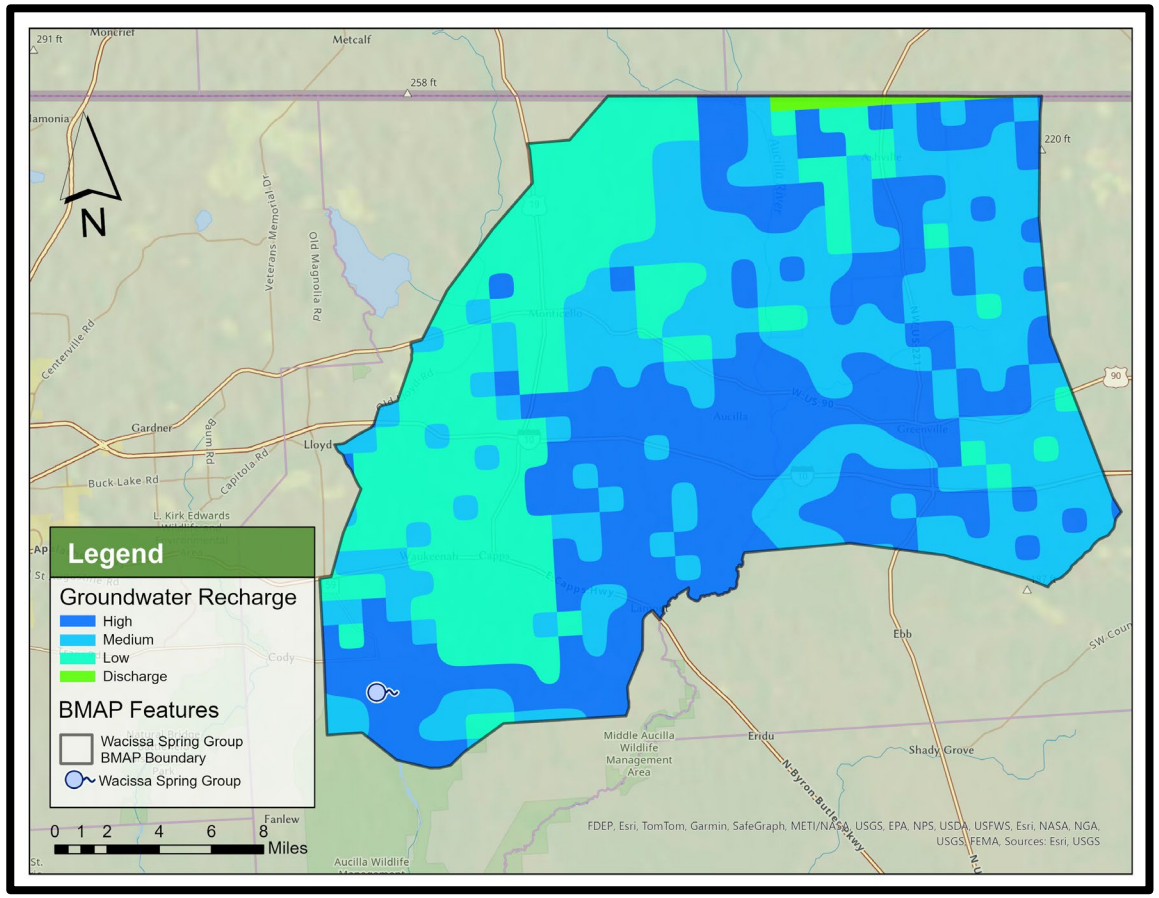
Apply a location specific recharge factor to surface loading estimate.

LOADING TO GROUNDWATER.

NITROGEN CYCLE AND ATTENUATION



RECHARGE TO GROUNDWATER

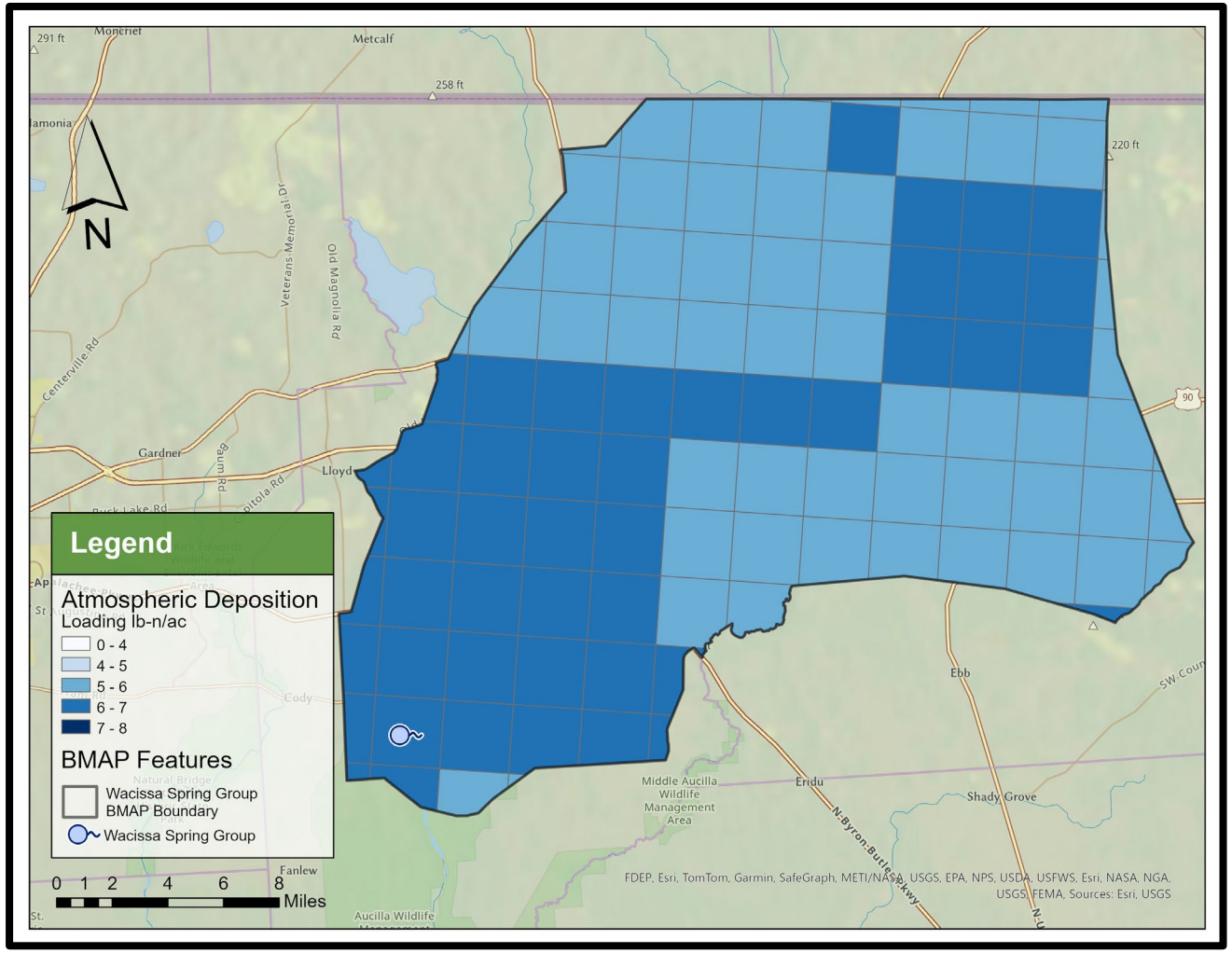


- The Wacissa BMAP is divided into four recharge categories based on a composite recharge map of the Floridan aquifer .
- The recharge amount evaluates the percent of nitrogen loading that is expected to impact spring vent after bioattenuation is considered. Recharge rates are summarized in the table below for each recharge category.
- Delineation of recharge areas and associated recharge rates are consistent with the previous NSILT report.
- Recharge factors are applied to estimate loading for all source categories based on location of deposition.

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

ATMOSPHERIC DEPOSITION (AD)

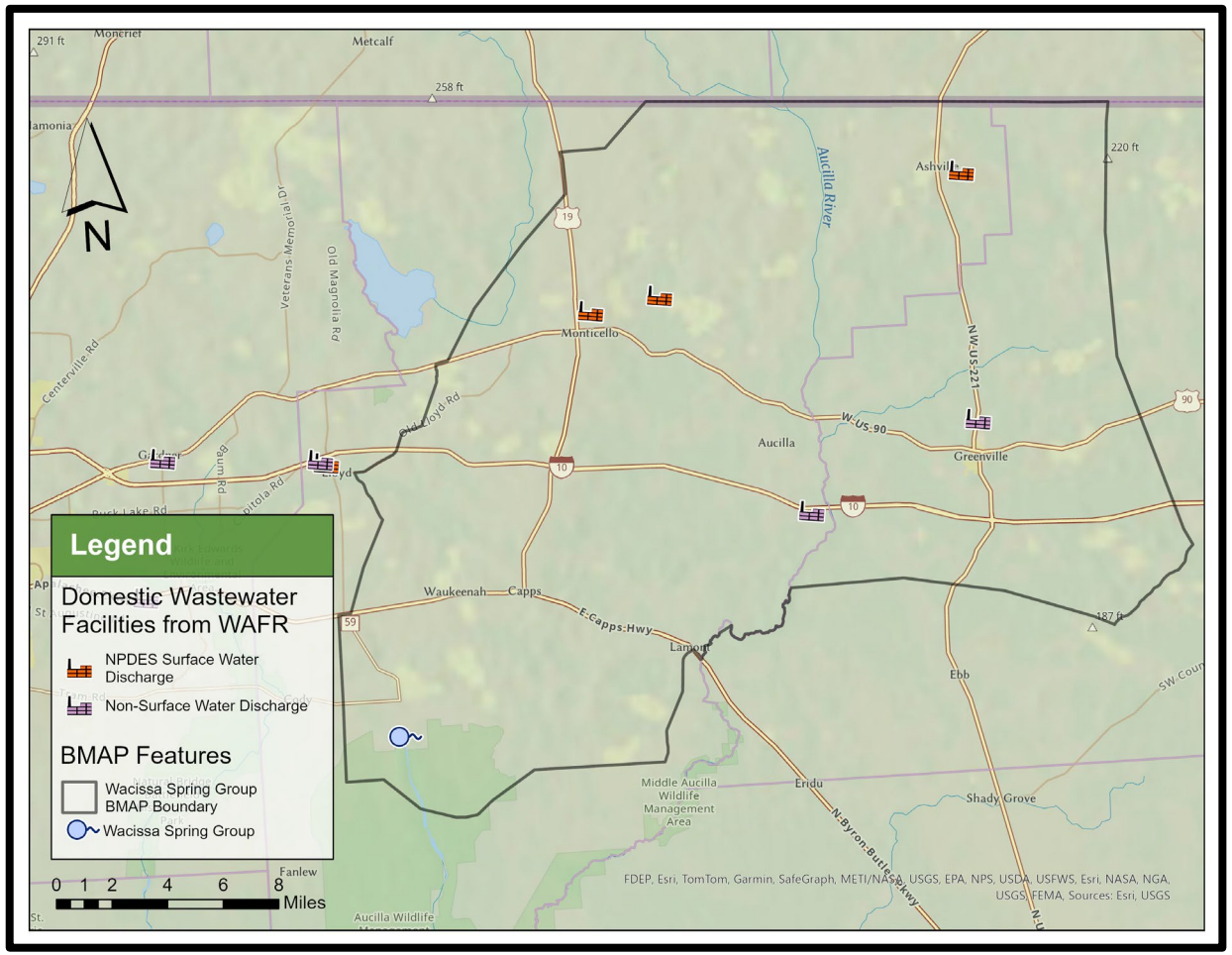
- Atmospheric deposition (AD) of nitrogen was estimated using a nationwide model developed by the Total Deposition Science Committee and U.S. Environmental Protection Agency (EPA) called the Total Deposition (TDEP) model.
- AD estimates from 2019 and 2020 were averaged to estimate annual loading in the Wacissa BMAP.
- An estimated 1,964,460 pounds of nitrogen from AD are loaded annually at the land surface within the Wacissa BMAP.
- An estimated 105,275 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 facilities, 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, absorption field or wetland. Each method has its own estimated attenuation factor.

Wastewater Treatment Effluent Attenuation				
Reuse	RIB	Sprayfield	Absorption Field	Wetland
75%	25%	60%	50%	85%

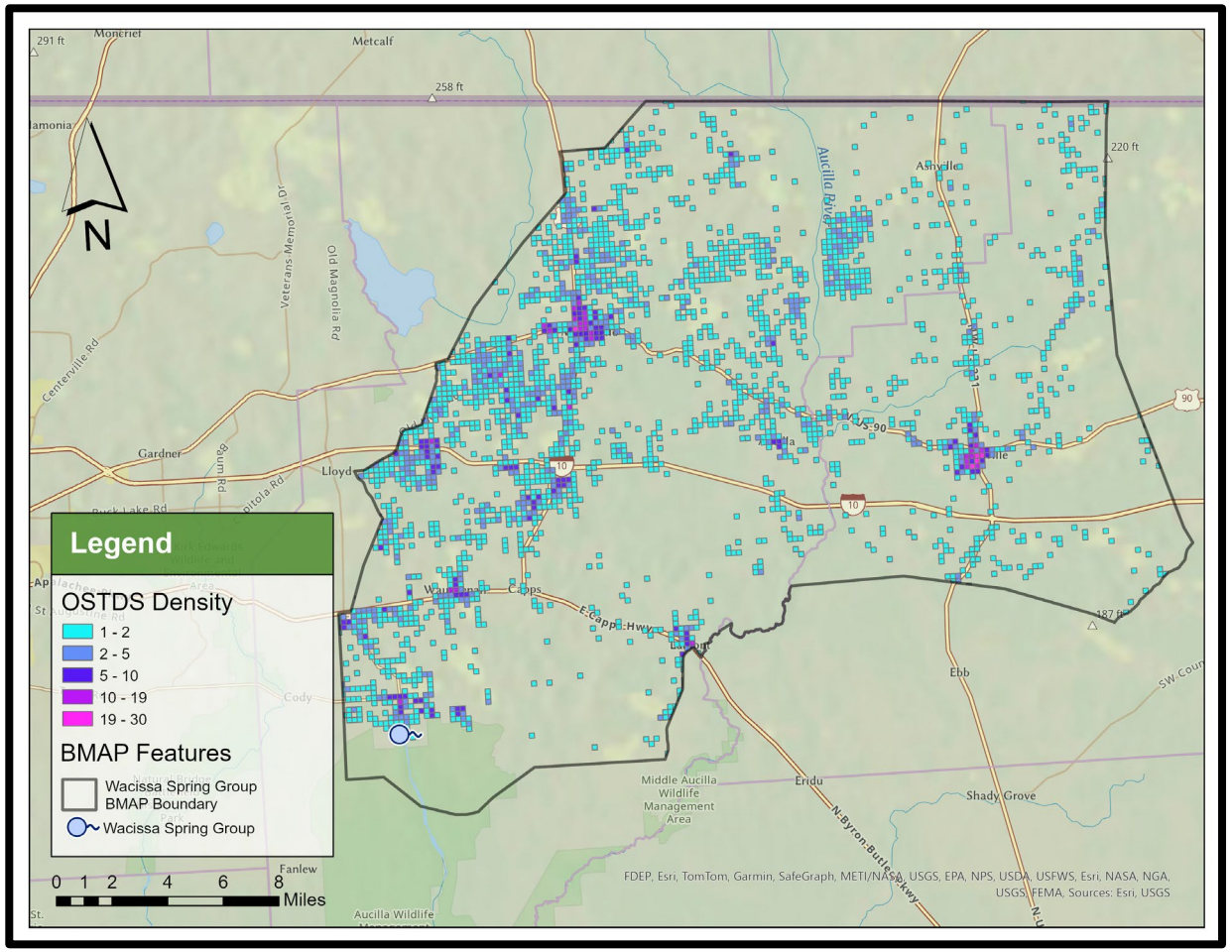


WASTEWATER TREATMENT FACILITIES

Wacissa Spring Group					
County	Facility ID	Facility Name	Disposal Type	Recharge Type at Disposal Site	Gross TN Average Load (lbs/yr)
Jefferson	FL0027839	Monticello, City of - WWTP	Sprayfield	Low	6,210
Jefferson	FLA011642	Jefferson Correctional Institution WWTF	Sprayfield	High	1,602
Jefferson	FLA011642	Jefferson Correctional Institution WWTF	Reuse (golf, residential, etc.)	High	2,077
Jefferson	FLA011641	DOT Rest Area, I-10 & Aucilla River WWTF	Sprayfield	High	524
Madison	FLA011658	Greenville WWTF	Sprayfield	High	14,008

- An estimated 24,422 pounds of nitrogen per year are applied to the land surface for all facilities and all disposal methods.
- In the Wacissa BMAP, sprayfield application is the most common disposal method (91.5%) with the remainder being used for reuse (8.5%).
- After recharge and attenuation factors are applied, it is estimated that 6,524 pounds of nitrogen per year are loaded to the Floridan aquifer from wastewater treatment facilities in the Wacissa BMAP.

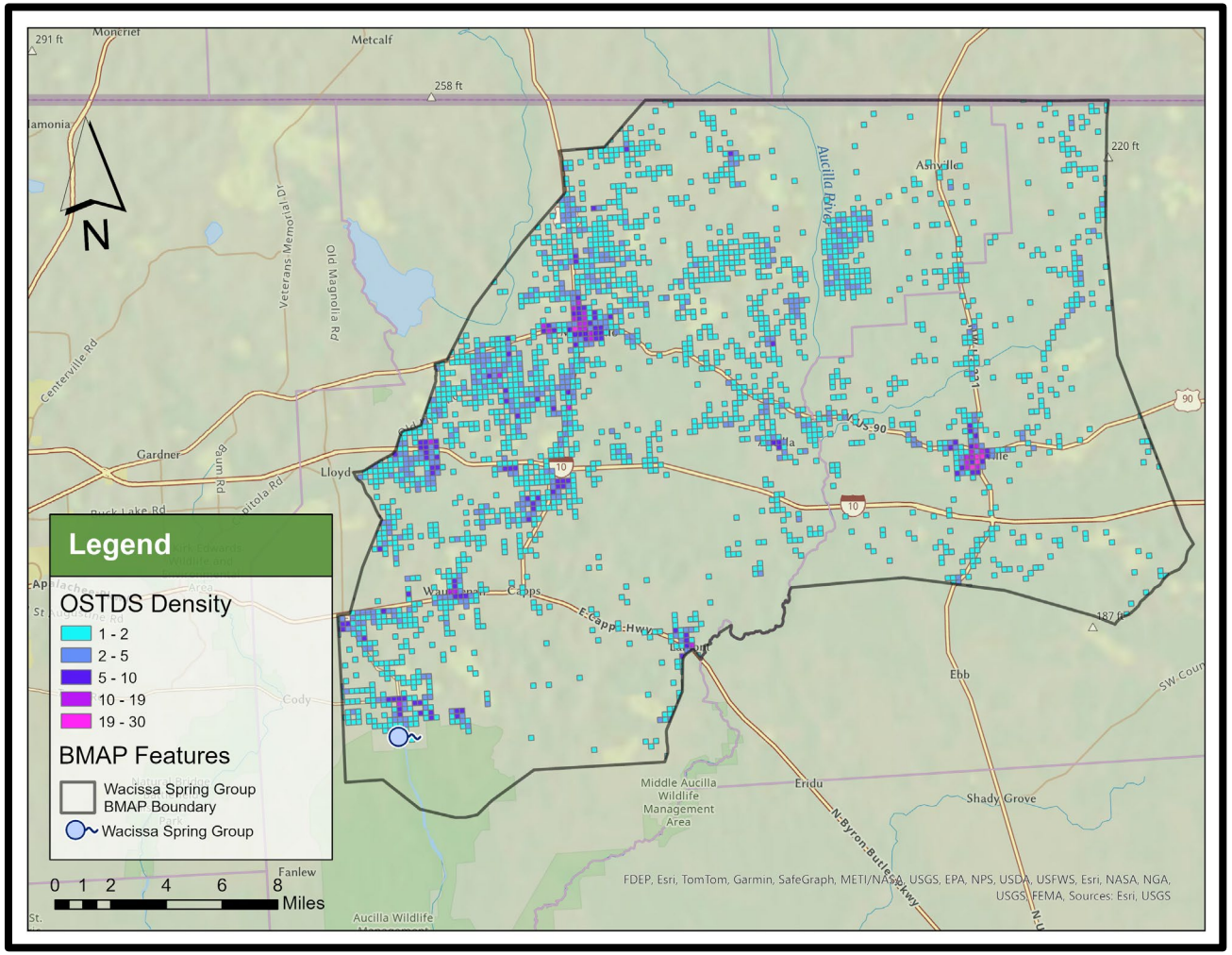
ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS (OSTDS)



*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 Wacissa BMAP (updated 2021-2022).
- 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 lb-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)

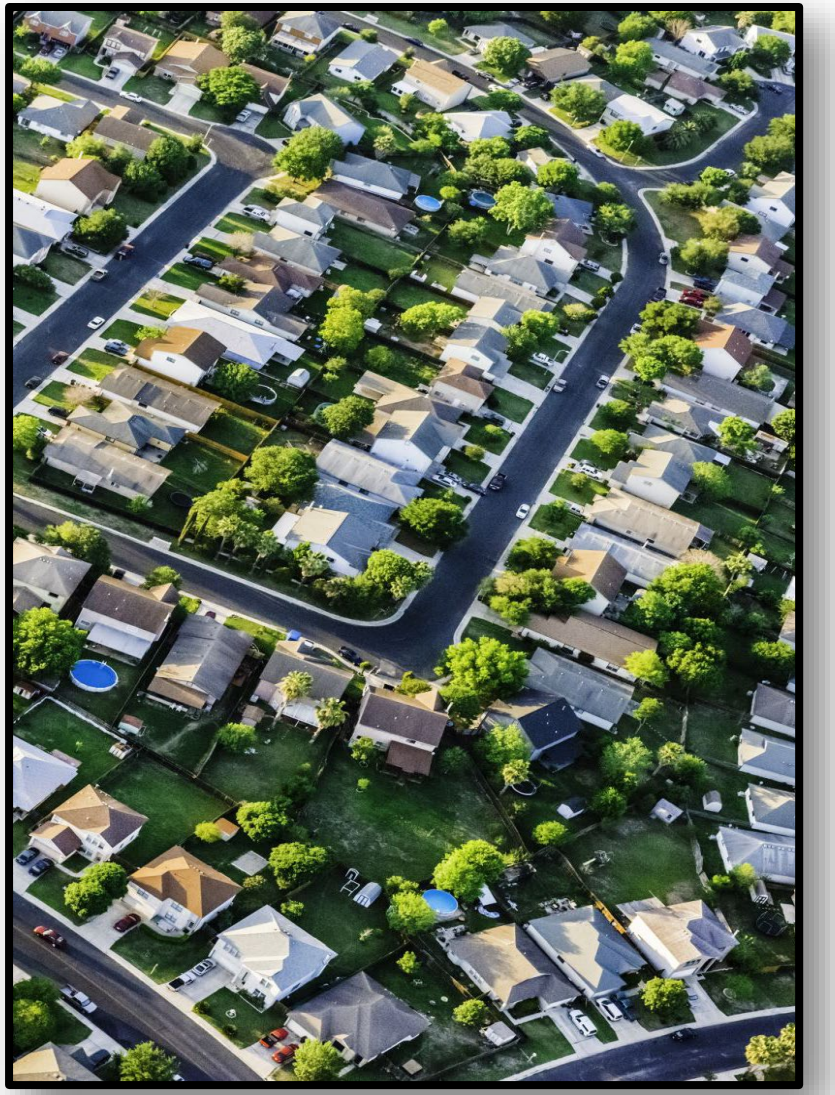


*Density is per 300-meter by 300-meter grid cell.

- There are an estimated 5,212 OSTDS within the Wacissa BMAP.
- There is one advanced nitrogen removing OSTDS within the Wacissa BMAP.
- An estimated 116,645 pounds of nitrogen per year are loaded to drainfields annually from OSTDS within the Wacissa BMAP.
- An estimated 35,872 pounds of nitrogen per year are loaded to groundwater after recharge and attenuation factors are applied.

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%.



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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 0.5 acres maximum for fertilized area for single family residential parcels greater than 0.5 acres in the Wacissa 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.

Lawn Care Source	
Service	19.00%
Self	16.00%
None	65.00%

Self Application Rates	Percent of Self Lawn Care Source	Application Rate (lbs/N/ac/application)	Number of Applications
BMP	20.00%	26.136	1.880
Low	75.00%	30.490	1.880
High	5.00%	43.560	1.880

URBAN TURF FERTILIZER
NON-SINGLE FAMILY RESIDENTIAL

- Water management district 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

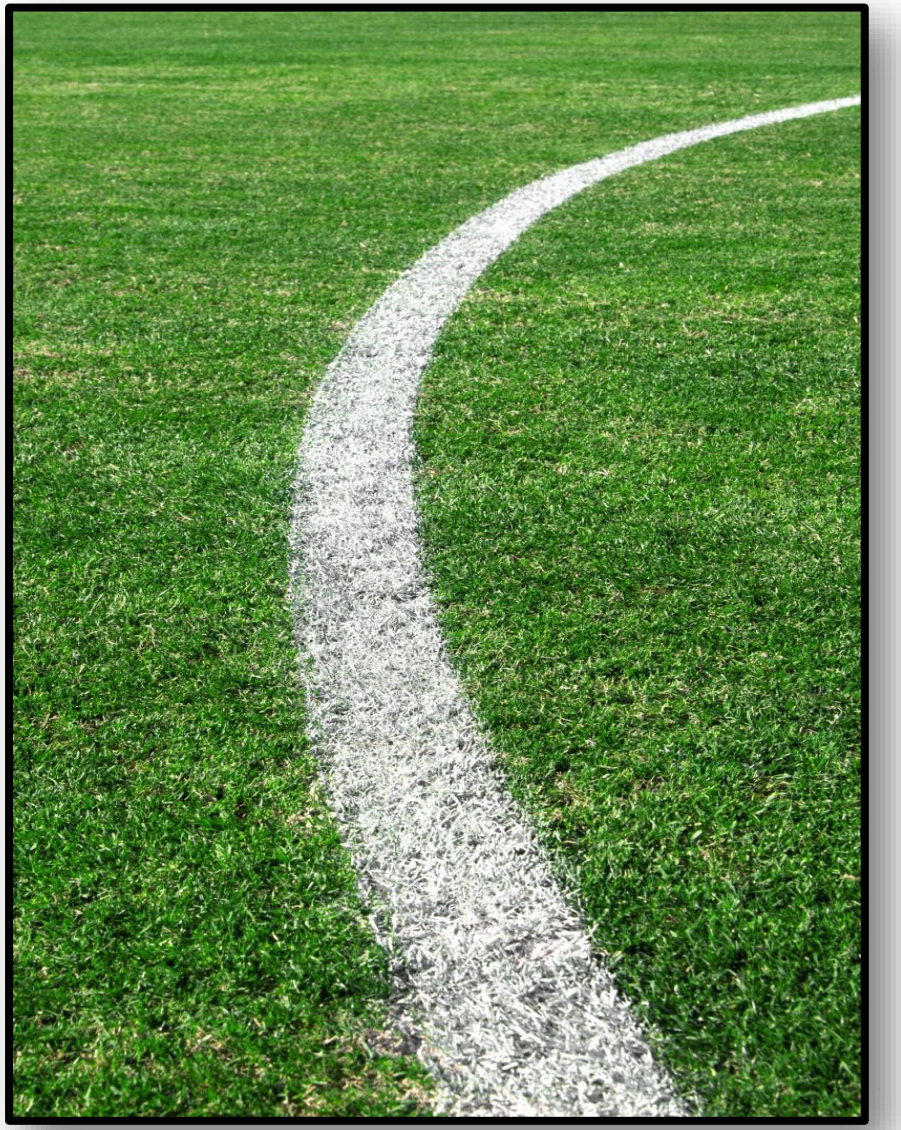
- Estimated fertilizer application rates for non-single family residential fertilized areas were based on an evaluation of the GIBMP Manual. It is estimated that fertilizer is applied at a rate of 2.5 lb-N/1,000 ft^2 to fertilized turfgrass in the region.
- In total, it is estimated that 20,886 lb-N/year are applied to the land surface in single family residential areas, and 17,064 lb-N/year are applied to the land surface in non-single family residential areas within the Wacissa Springs BMAP.
- With attenuation and recharge factors considered, it is estimated that 2,065 lb-N/year is loaded to groundwater from single family residential sources, and 1,594 lb-N/year is loaded to groundwater from non-single family residential sources, for a total of 3,659 lb-N/year 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.

Wacissa Springs	Acres of Sports Turfgrass				Loading (lb-N/year)			
	High	Medium	Low	Discharge	High	Medium	Low	Discharge
Jefferson County	8		13.39		349	0	583	0



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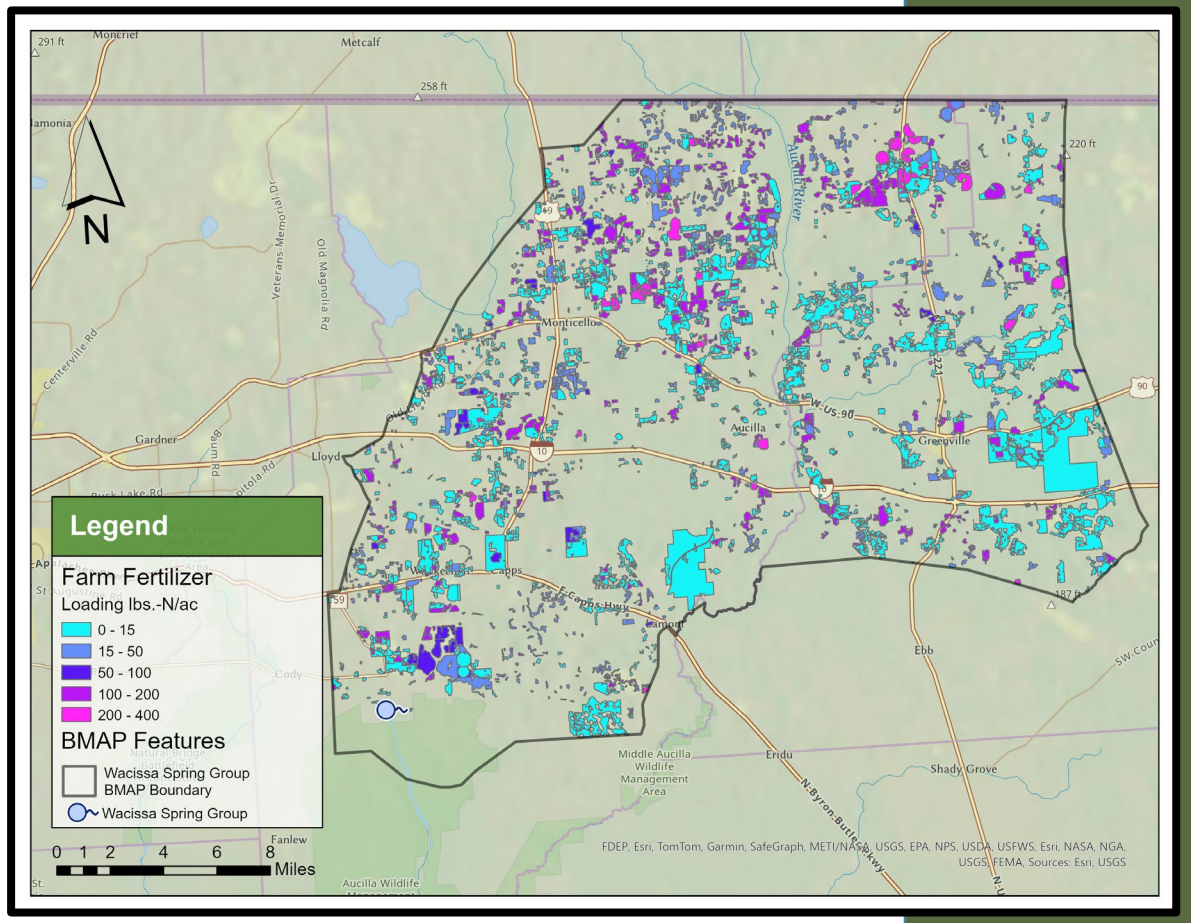
SPORTS TURFGRASS FERTILIZER (STF)

- Golf courses operating within the Wacissa BMAP were reviewed.
- Acreage for operating 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 11,883 lb-N/year is applied to the land surface at golf courses.
- When attenuation and recharge are considered, it is estimated that 356 lb-N/year is loaded to groundwater from golf courses.

Jefferson									
Golf Course	Regional Rate or Site Specific Rate?	Land Area (Ac)				N Input (lb-N/yr)			
		High	Medium	Low	Discharge	High	Medium	Low	Discharge
Jefferson Country Club	Regional			124		-	-	11,883	-

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 (FDACS), 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%.

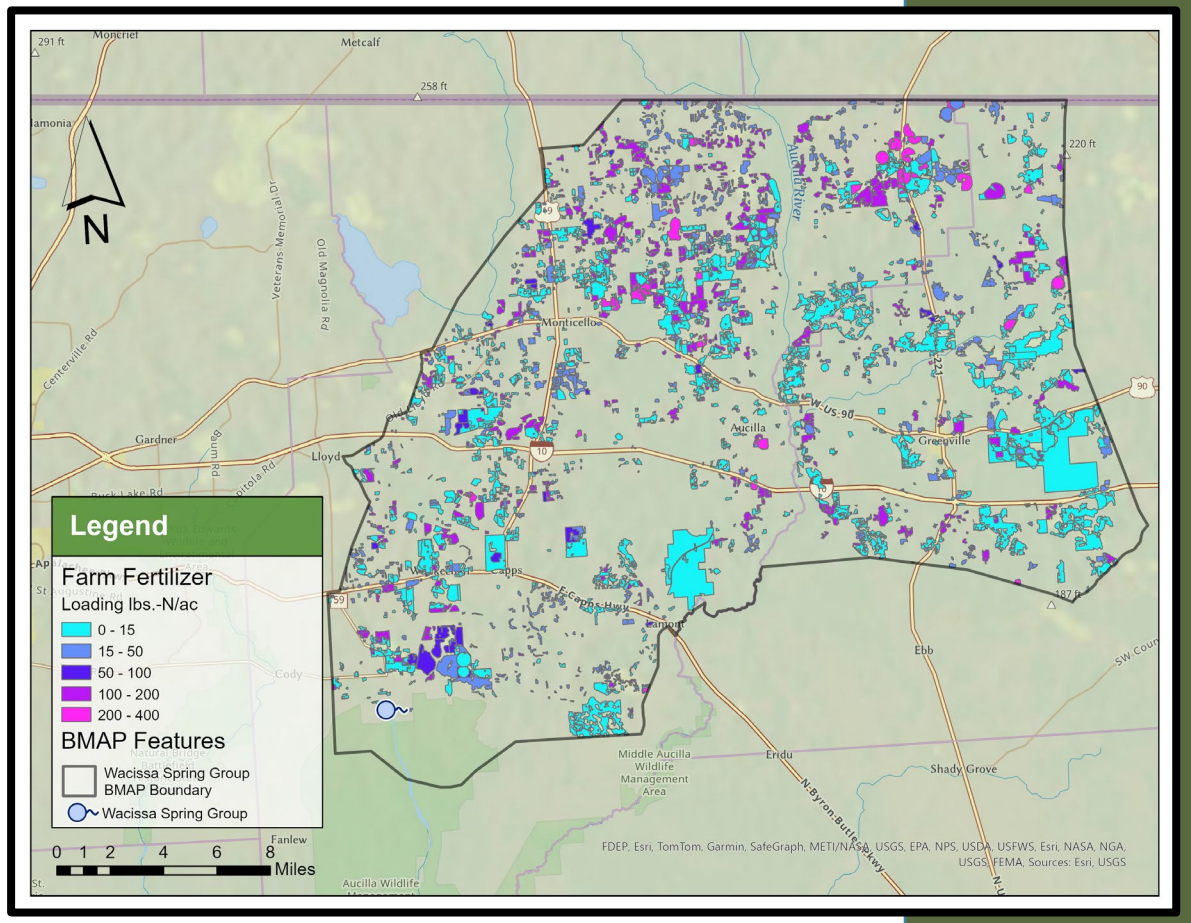
FARM FERTILIZER (FF)

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 2,971,442 pounds of nitrogen per year are applied to the land surface from crop production within the Wacissa BMAP.
- When recharge an attenuation are applied, it is estimated that 270,052 pounds of nitrogen per year are loaded to the Floridan aquifer annually from farm fertilizer.

FARM FERTILIZER

Crop	Fert Application Rate	Total Acres
Improved Pastures	50	20,593
Hay	180	9,340
Cropland Pastureland	50	3,180
Peanuts	20	2,649
Grass Pasture	80	2,357
Oats	70	1,334
Cotton	110	1,182
Corn (irrigated)	240	1,059
Corn (non-irrigated)	180	786
Pasture	50	757

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

Crop	Fert Application Rate (lb-N/acre)	Loading to Land Surface (lb-N/year)
Hay	180	1,681,162
Corn (irrigated)	240	254,171
Improved Pastures	50	205,935
Cropland Pastureland	50	159,000
Corn (non-irrigated)	180	141,532
Cotton	110	130,056
Oats	70	93,346
Peanuts	20	52,974
Corn Oats	280	44,062
Field Corn	240	43,245

Crop	Fert Application Rate (lb-N/acre)	Loading to Groundwater (lb-N/year)
Hay	180	154,014
Improved Pastures	50	21,964
Corn (irrigated)	240	18,479
Cropland Pastureland	50	15,543
Corn (non-irrigated)	180	13,868
Cotton	110	9,370
Oats	70	7,683
Corn Oats	280	7,647
Peanuts	20	5,214
Field Corn	240	5,119

LIVESTOCK WASTE (LW)

- Livestock populations were estimated using 2017 U.S. Department of Agriculture (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%.
- Loading from dairy cattle was estimated separately.

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)

Estimated Livestock Population	
Livestock Type	Count
Beef Cattle	10,428
"Other" Cattle	3,747
Calves	7,633
Donkeys	166
Horses	1,036
Chicken, Broilers	50,586
Chicken, Layers	12,879
Goats	929
Hogs	267
Sheep	347
Turkeys	43

Livestock Type	Loading to Land Surface (lb-N/year)	Loading to Groundwater (lb-N/year)
Beef Cattle	1,282,617	65,866
"Other" Cattle	423,913	20,908
Calves	94,973	4,826
Donkeys	6,102	293
Horses	103,253	4,989
Chicken, Broilers	36,929	2,359
Chicken, Layers	14,103	868
Goats	11,866	602
Hogs	18,578	1,020
Sheep	25,089	1,228
Turkeys	96	5

- An estimated total of 2,017,520 pounds of nitrogen per year are deposited on the land surface from livestock within the Wacissa BMAP.
- When recharge and attenuation are applied, an estimated 102,964 pounds of nitrogen per year loaded to groundwater annually.

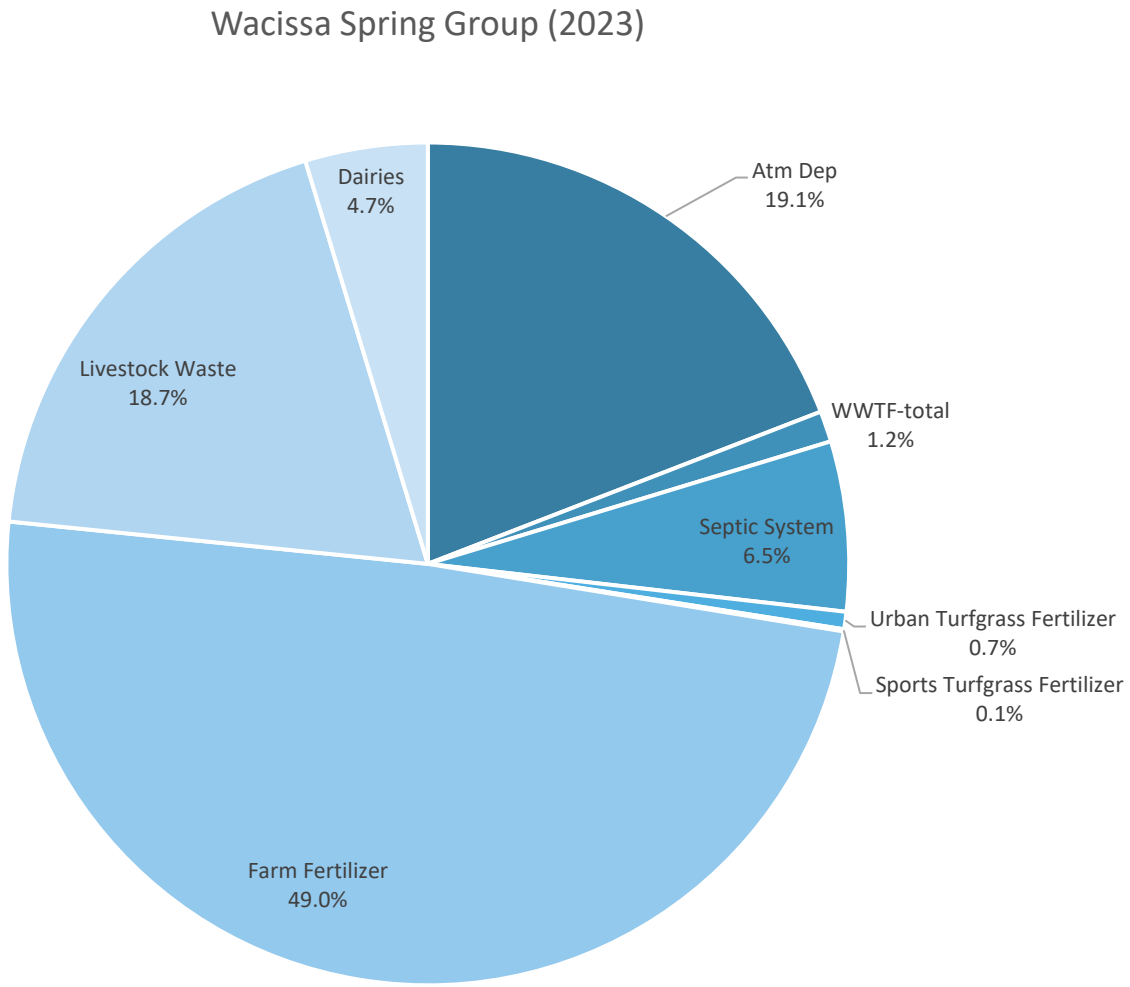
DAIRIES

- There are three dairy operations within the Wacissa BMAP.
- All dairy operations are Confined Animal Feeding Operation (CAFO) dairies operating under permit from DEP.
- To calculate loading from CAFO dairies, information in the Nutrient Management Plans (NMPs) included in the operation permits were reviewed to determine the waste handling processes and expected loading per cow.
- To determine the number of dairy cows at the operation, annual reports submitted for the permit were reviewed. An average of the 2020 and 2021 counts were used to estimate the dairy cows at the operation.
- The loading per cow was multiplied by the number of cows, then nutrient removal processes as described in the NMPs were applied to determine the loading to land surface.
- Dairy waste was estimated to attenuate at 85% for the Wacissa BMAP.
- A total of 435,302 pounds of nitrogen is estimated to be applied to land surface from dairies annually.

- When attenuation and recharge are applied, an estimated 25,864 pounds are loaded to groundwater annually from dairies.

Wacissa Spring Group				
Dairy Name	Facility ID	County	Annual Loading to Land Surface (lb-N/year)	Recharge
Jeffco Dairy	FLA183911	Jefferson	221,381	Medium
Walker and Sons Farm 1	FLA275026	Jefferson	163,488	Low
Walker and Sons Farm 2	FLA165352	Jefferson	50,433	High

DRAFT NSILT LOADING



Wacissa Springs BMAP Area	
Source	**Annual Loading (lb-N/year)**
Atm Dep	105,275
WWTF-total	6,524
Septic System	35,872
Urban Turfgrass Fertilizer	3,659
Sports Turfgrass Fertilizer	468
Farm Fertilizer	270,052
Livestock Waste	102,964
Dairies	25,864
Total	550,679

WACISSA SPRING GROUP BMAP MEETING
PUBLIC QUESTIONS PERIOD

Verbal Questions

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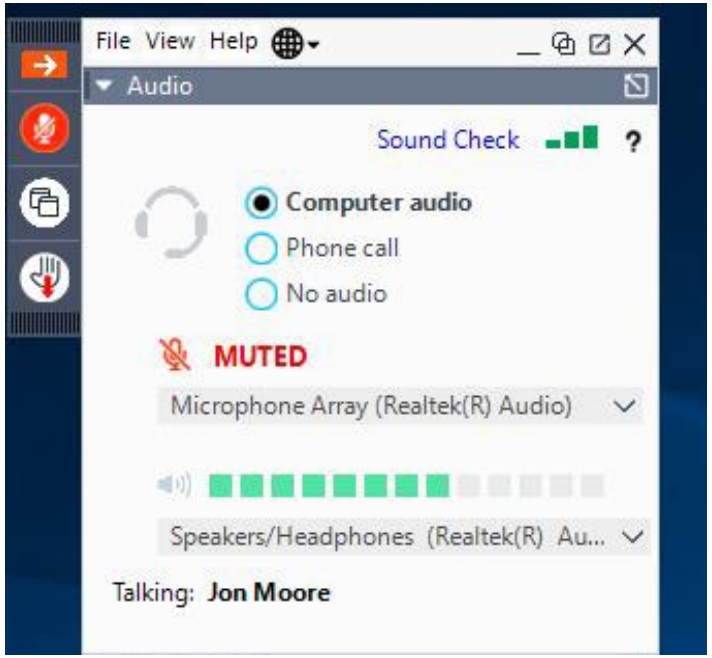


Written Comments

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

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.

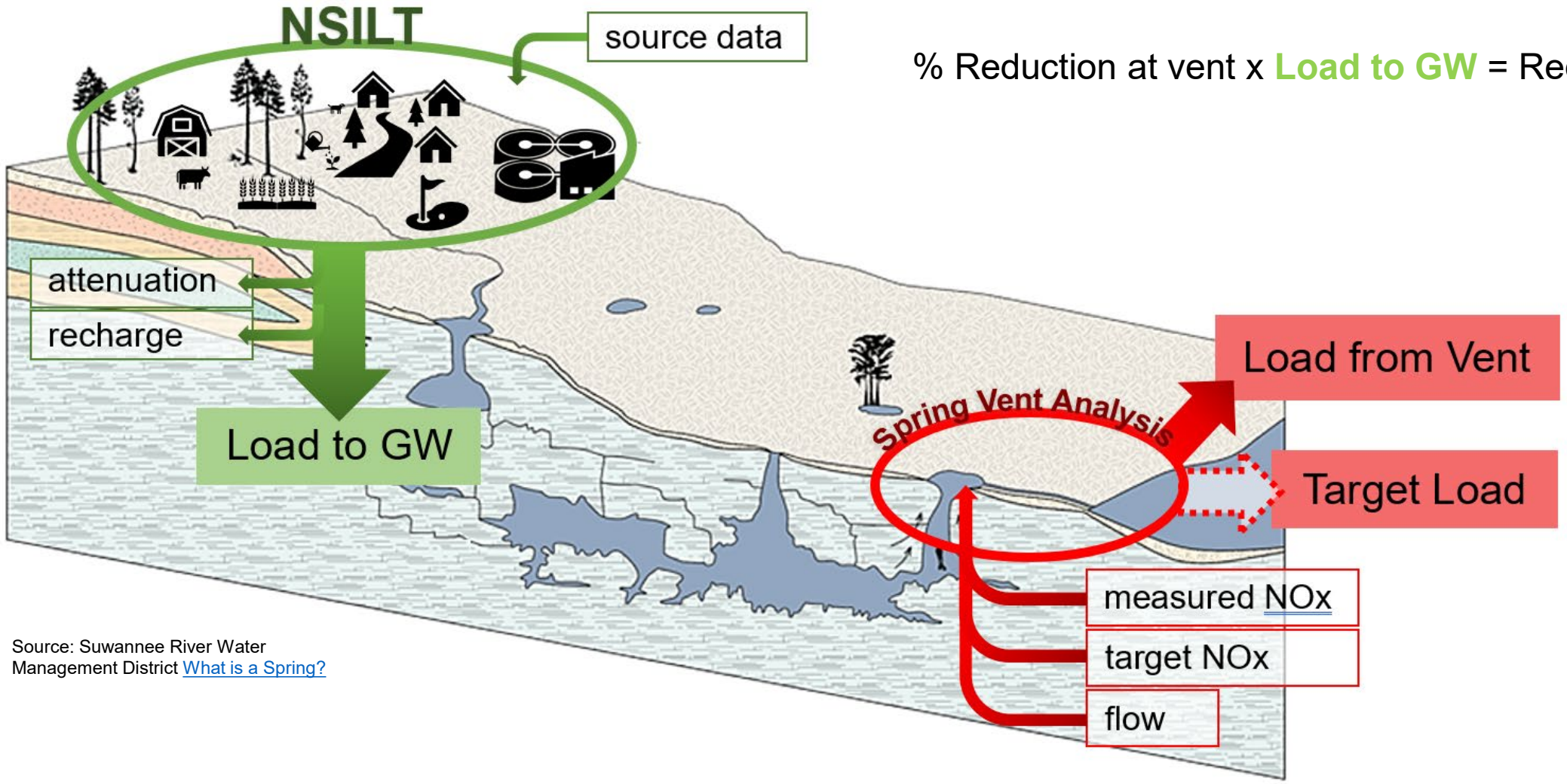
Applied the spring vent percent reduction to the updated NSILT loading.

Estimate the total reduction needed to meet the TMDL.

BMAP UPDATES
SPRING VENT LOAD ANALYSIS

Load from Vent – **Target Load** = Reduction Goal
(at vent)

% Reduction at vent x **Load to GW** = Required Reductions
(from sources)



Source: Suwannee River Water Management District What is a Spring?

BMAP UPDATES

DRAFT SPRING VENT LOAD ANALYSIS

Description	DRAFT Nitrate Loads (lb-N/yr)	Notes Regarding Data Used
Total Load at Spring Vent	**184,802**	Upper 95% confidence interval - nitrate data and flow data from 2012 to 2022.
TMDL Load	**108,541**	TMDL target is 0.24 mg/L and using the same flow data from 2012 to 2022.
Required Reduction	**76,261**	Total Required Reduction of 41% 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 based on BMAP OSTDS requirements in Appendix D.

Wastewater Treatment Facilities (WWTF)

- Reduction strategy based on BMAP effluent requirements in the BMAP document.

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 cooperative elements, which could include regional projects, cost-share practices.

Atmospheric Deposition (AD)

- Anticipate reductions to be addressed by reductions from other sources.

BMAP UPDATES

ALLOCATION AND REDUCTION APPROACH

Urban Turf Fertilizer (UTF)

- Apply the 41% reduction to the total UTF load to groundwater and allocate to the applicable local governments.

Sports Turf Fertilizer (STF)

- Apply the 41% 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.

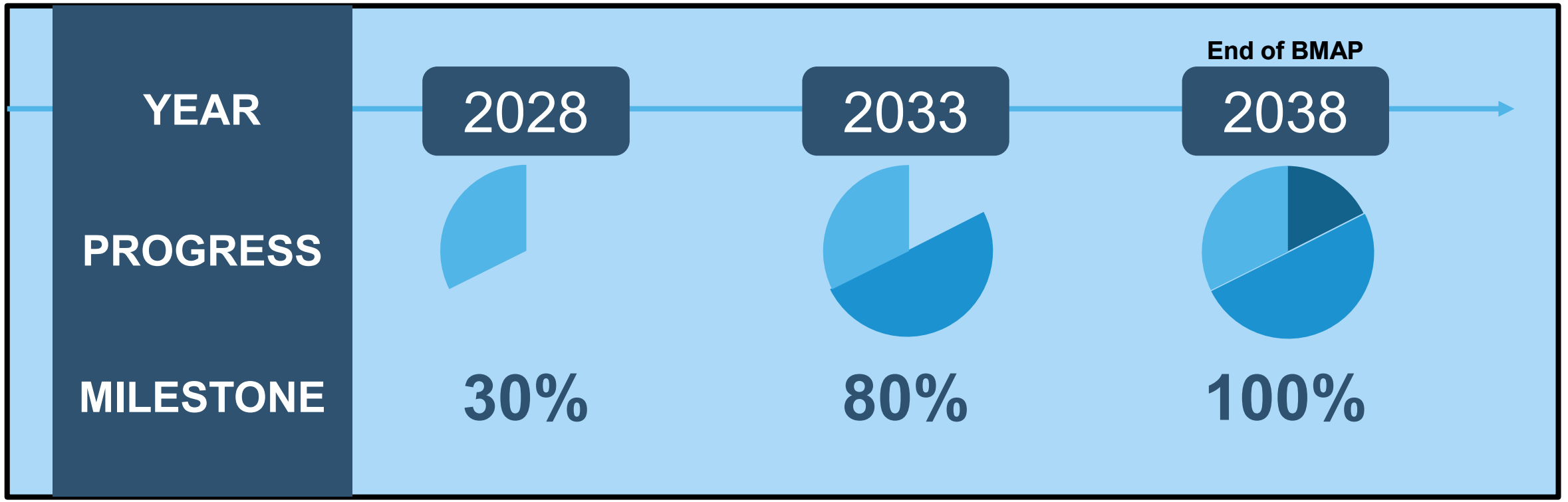
BMAP UPDATES
FUTURE GROWTH

- **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.

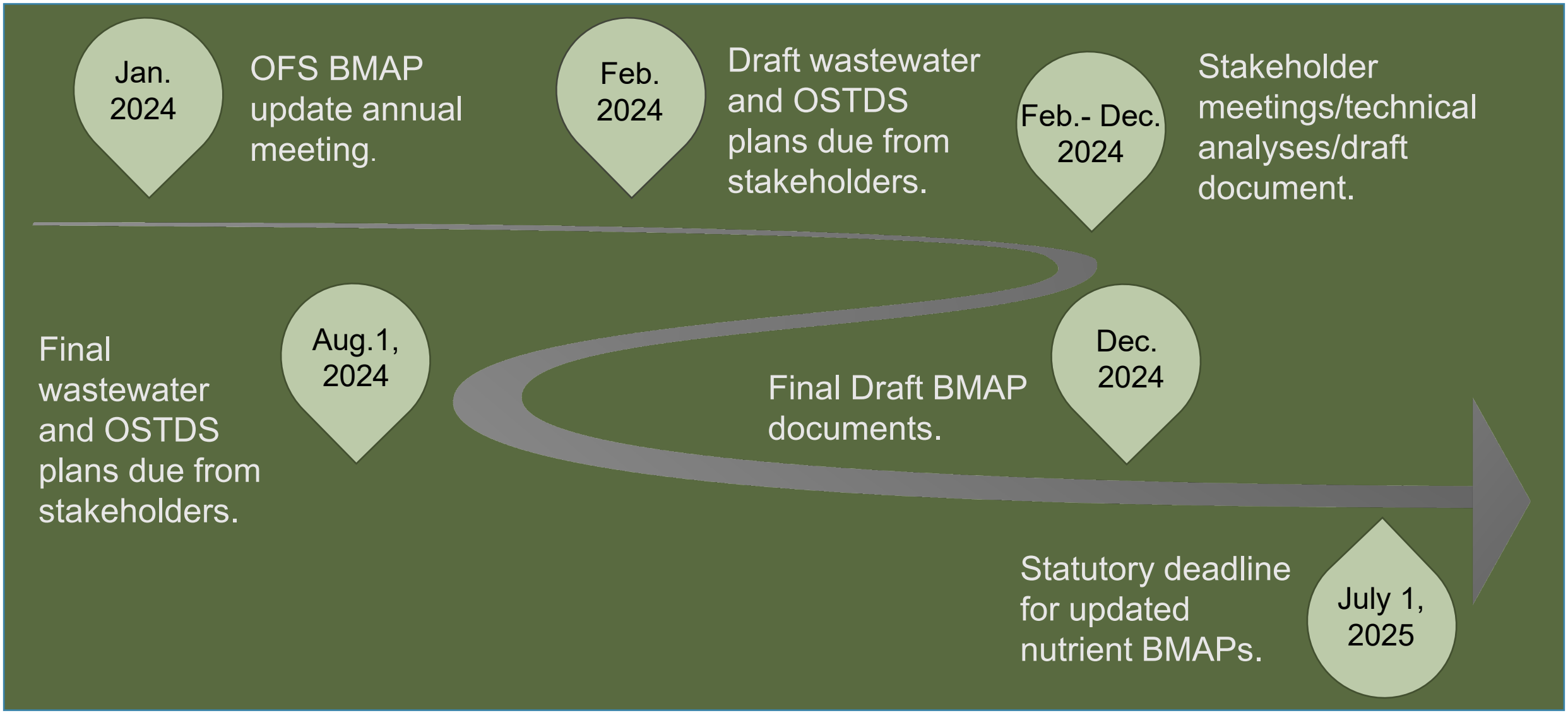
- **Agriculture Projections:**
  - Exploring different tools to estimate future changes in agricultural acreage in the BMAPs to estimate changes in agricultural loading.

BMAP UPDATES

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



SPRINGS BMAP UPDATES TIMELINE



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WACISSA SPRING GROUP BMAP MEETING
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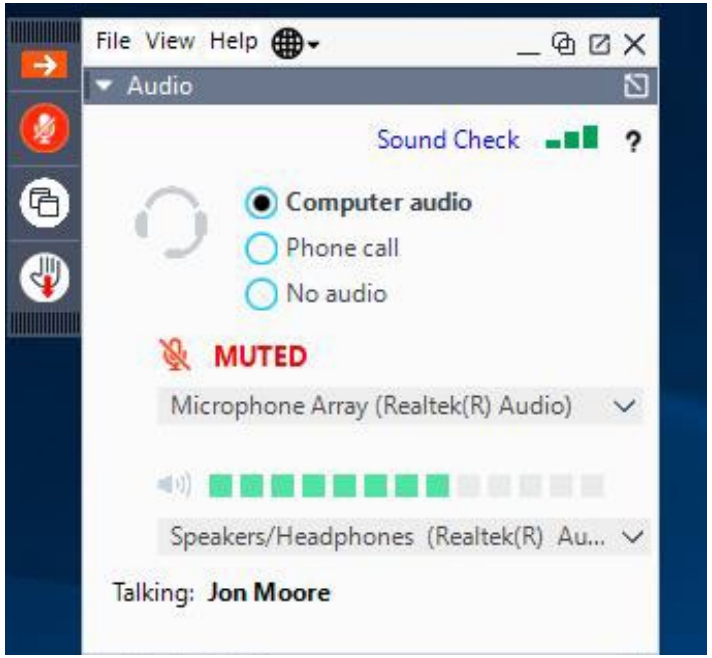

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THANK YOU

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FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

Florida Department of Environmental Protection (DEP)
Wacissa Springs Basin Management Action Plan (BMAP)
Question and Answer (Q&A) Summary
Public Meeting on May 6, 2024
1:00 pm – 1:58 pm
Via GoToWebinar

Attendees

Mitchell Allen, Florida House of Representatives
Stephanie Armstrong, SRWMD
Kelly Aue, University of Florida
Lisa Bally, ATM
Evelyn Becerra, DEP
Connie Becker, DEP
Mercelo Blanco, DEP
Amy Brown, SRWMD
Kayla Brunson, DEP
Tiffany Busby, Wildwood Consulting
Lauren Campbell, DEP
Stacy Cecil, SJRWMD
The Florida Channel, The Florida Channel
Carolin Ciarlariello, DEP
Savannah Cowen, DEP
Eli Curl, FDACS
Chris Denmark, FDACS
SB Dyer, DEP
Kristine Eskelin, SRWMD
Amanda Exposito-Ferree, Atkins-Realis
Jessica Fetgatter, DEP
Corrine Flumerfelt, DEP
Ken Friedman, NWFWMD
Tina Gordon, Wildwood Consulting
Roxanne Groover, FOWA
Raichel Gulde, RES
Sam Hankinson, DEP
Scott Hannahs, CURG
Madeline Hart, FDACS
Ray Hodge, United Dairy Farmers
Moira Homann, DEP
Bryan Hummel, US EPA
Jason Icerman, City of Tallahassee
Roxanne Jones, Citizen
Chandler Keenan, DEP
Scott Knight, Wetland Solutions
Joel Love, UFL
Christine Lynch, Pasco County
Max McAmis, Pasco County
Sean McGlynn, McGlynn Labs
Sky Notestein, Wetland Solutions
Jarek Nowak, FDACS
Chris Peary, DEP
Nicolas Pisarello, ATM
Derek Reiners, FGCU
Keith Rowell, The Florida Conservation Group
Kristin Rubin, Citizen
Jerrick Saquibal, NWFWMD
Kim Shugar, DEP
Karen Snyder, RES
James Sutton, NWFWMD
Douglas Walker, Citizen
Ken Weaver, DEP
Stefani Weeks, Holloway
Benita Whalen, Dispersed Water
Barton Wilder, FDACS
Katrina Yancey, DEP

Wacissa Spring Group BMAP Overview

There were no questions for this section.

Nitrogen Source Inventory Loading Tool (NSILT) Results
Q: How are the tannins being considered in the total maximum daily loads (TMDLs)?
A: This would be a question for the TMDL staff. The TMDL is for nitrate concentrations, but the effects of water color (from tannins) and historic algal levels at different nitrate concentrations are reviewed.

Q: How are the attenuation factors derived--a 70% attenuation for turf grass and 85% attenuation for dairies seems high?
A: Attenuation factors are based on published literature values.

Q: What is the difference between the older NSILTs and the new methodology?
A: After reviewing the assumptions, some factors were changed due to new information being available. Some of the larger changes in the new NSILTs were to the onsite sewage treatment and disposal systems (OSTDS) and urban turf fertilizer (UTF) categories. For OSTDS, the attenuation factor was updated based on additional literature and updated per person loading. For UTF, we used different sources of information to categorize pervious and impervious percentages. For farm fertilizer, nursery loading was changed for all basins where nurseries are present.

Q: Does the spatial assessment estimate conforms with the general findings from the new groundwater monitoring values and, if so, what appears to be the reason for the high 2.7 milligrams per liter (mg/L) for nitrate at monitoring well number 5?
A: We have just started getting the sampling data in December from the new wells, so we have not done a full evaluation of how those values relate to the surrounding land use or what impact the land use may have on those values. DEP plans to review the groundwater data as things progress but need a longer period of record to do an adequate evaluation.

Q: Is achieving advanced wastewater treatment (AWT) for total nitrogen (TN) at wastewater facilities assumed or modeled to achieve the TMDL at the spring vent?
A New and existing wastewater treatment facilities (WWTFs) with a DEP-permitted discharge or disposal area within the BMAP are required to meet the effluent limits listed in the BMAP document. Facilities operating at AWT will contribute to the overall reductions needed throughout the springshed to ultimately achieve the TMDL at the spring vent.

Spring Vent Load Analysis Results
There were no questions during this section.

Next Steps - BMAP Updates
Q: Are there are consequences to the responsible entity for not meeting the 5-, 10-, and 15-year milestones?
A: HB 1379 requires any entity with a specific pollutant load reduction requirement established in a BMAP to identify the projects or strategies that the entity will undertake to meet the current 5-year pollution reduction milestones and submit such projects to DEP for inclusion in the

appropriate BMAP. Entities not meeting their reduction milestones will be considered noncompliant with their BMAP requirements and can receive notices of violation or monetary fines.