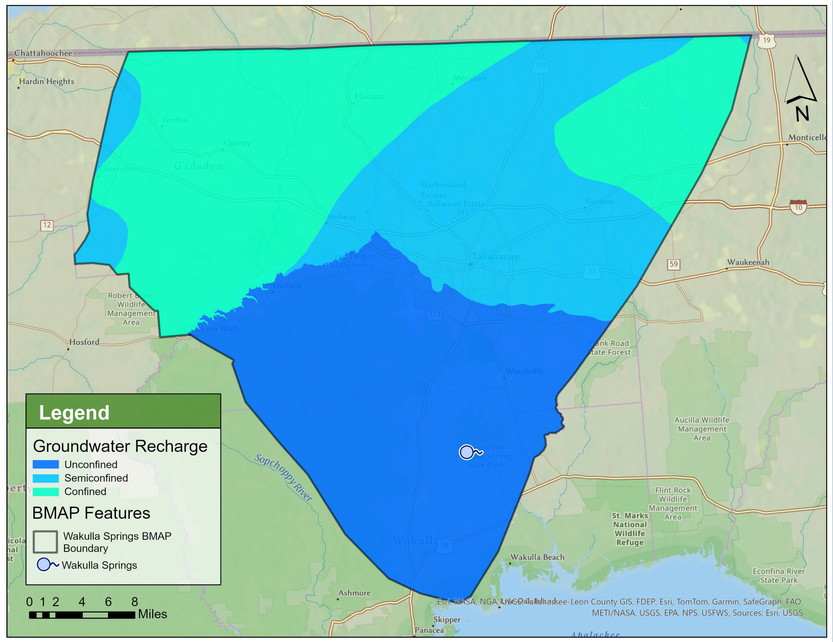
UPPER WAKULLA RIVER AND WAKULLA SPRING BASIN SUMMARY

Outstanding Florida Springs Public Meetings, Fall 2024

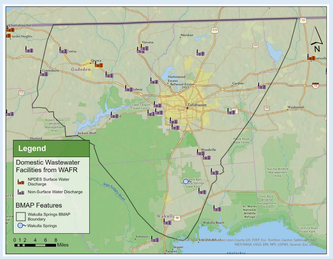
Wakulla Springs Basin Management Action Plan (BMAP)

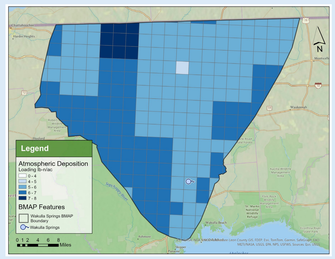


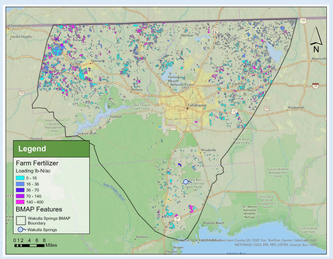
Nitrogen Source Loading

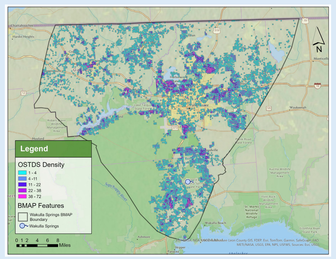
Nitrogen Loading: Nitrogen loading was estimated using the Nitrogen Source Inventory Loading Tool (NSILT). This is an evaluation tool that uses the best available data to estimate loading to the land surface from a variety of nitrogen sources. The calculations apply biochemical attenuation and hydrogeological attenuation factors to estimate the loading effects on groundwater quality. Sources reviewed include:

- Atmospheric Deposition.
- Wastewater Treatment Facilities.
- Onsite Sewage Treatment and Disposal Systems (OSTDS).
- Urban Turfgrass Fertilizer.
- Sports Turfgrass Fertilizer.
- Sports Turfgrass Fertilizer.
- Farm Fertilizer.
- Livestock Waste.
- Dairies (not in the Wakulla BMAP).
- Biosolids (not in the Wakulla BMAP).

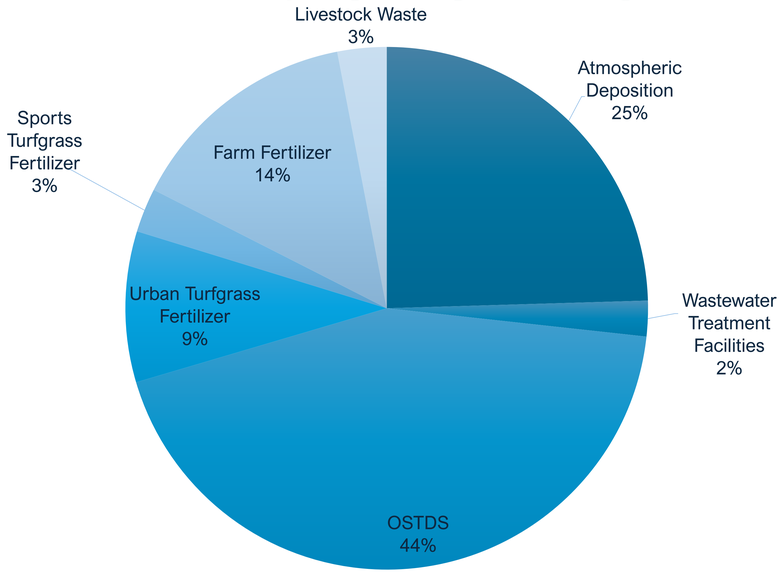








Wakulla Spring Nitrogen Loading



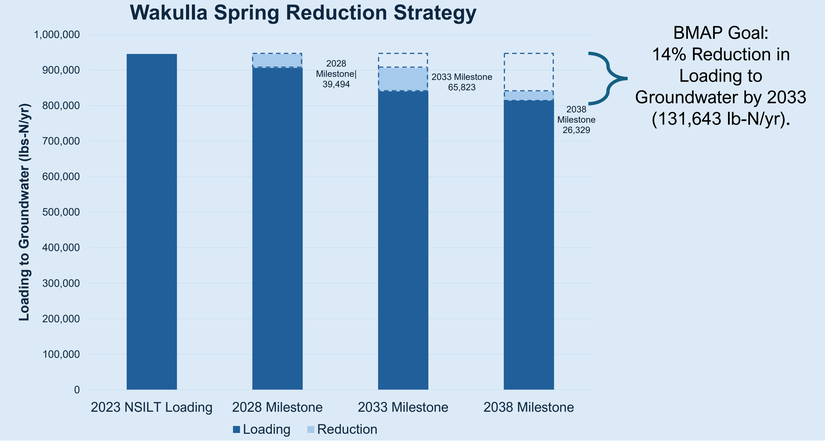
Nitrogen Source	Loading to Groundwater (lbs-N/yr)
Atmospheric Deposition	232,007
Wastewater Treatment Facilities	20,794
OSTDS	413,225
Urban Turfgrass Fertilizer	88,255
Sports Turfgrass Fertilizer	25,799
Farm Fertilizer	136,907
Livestock Waste	28,722
Total	945,708

Nitrogen Reduction Approach

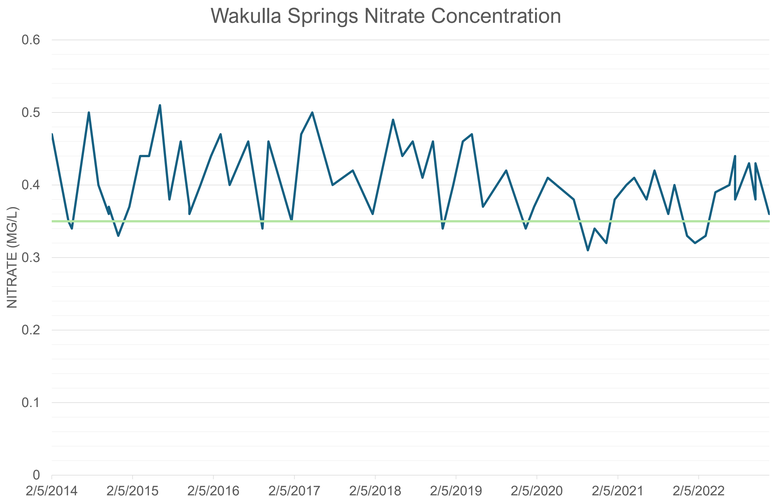
	Nitrogen Loads (lbs-N/yr)	Source
Total Load at Spring Vents (August 2023)	627,101	Upper 95% confidence interval - nitrate data and flow data from years 2013 to 2022 (0.41 mg/L and 784.42 cfs)
TMDL Load (August 2023)	539,806	TMDL target is 0.35 mg/L and using the same flow data from years 2013 to 2022 (784.42 cfs)
Percent Required Reduction	14%	
Total NSILT Load (October 2023)	945,688	2023 NSILT
New Required Reduction	131,643	Proportional decrease in NSILT load

lbs-N/yr: Pounds of nitrogen per year.
mg/L: Milligrams per liter.
cfs: Cubic feet per second.

Spring flows and nitrate concentration data were reviewed to evaluate the mass of nitrate discharging from the spring. It was determined that approximately 14% more mass of nitrate is discharged than the waterbody can assimilate without impairment. A proportional decrease in loading is needed to resolve this impairment.

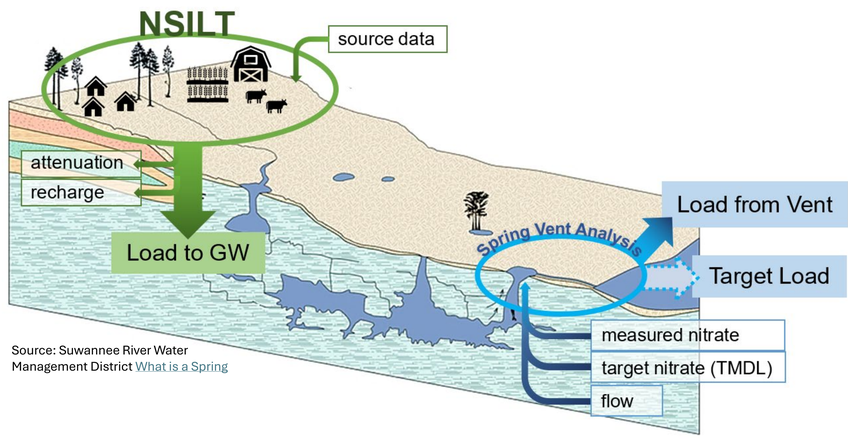


Spring Vent Analysis



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

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



Source: Suwannee River Water Management District What is a Spring

Sam Hankinson, P.G.
Samuel.Hankinson@FloridaDEP.gov
850-245-8086

UPPER WAKULLA RIVER AND WAKULLA SPRING BMAP ALLOCATED REDUCTIONS, MILESTONES AND PROGRESS

Outstanding Florida Springs Public Meetings, Fall 2024

Nitrogen Sources

Nitrogen Source	Allocations by Source (lbs-N/yr)	% of Total Reduction
Atmospheric Deposition*	32,296	24.1%
Onsite Sewage Treatment and Disposal Systems	57,522	42.9%
Wastewater Treatment Facilities	4,862	3.6%
Farm Fertilizer (BMP Implementation)	20,536	15.3%
Livestock Waste (BMP Implementation)	2,872	2.1%
Urban Turfgrass Fertilizer	12,285	9.2%
Sports Turfgrass Fertilizer-Golf	3,272	2.4%
Sports Turfgrass Fertilizer-Other	316	0.2%
Total	133,963	100%

*Not allocated to entities.

Lbs-N/yr: Pounds of nitrogen per year.

BMAP Management Strategies

General Approach for Entity Allocations and Reductions
While the loading evaluation and entity allocations were determined by source, nutrient reduction credits can be earned through implementing projects addressing any source. Reduction milestones must be met to ensure sufficient progress towards meeting the total maximum daily load (TMDL) target.

Source-Specific Management Strategies:

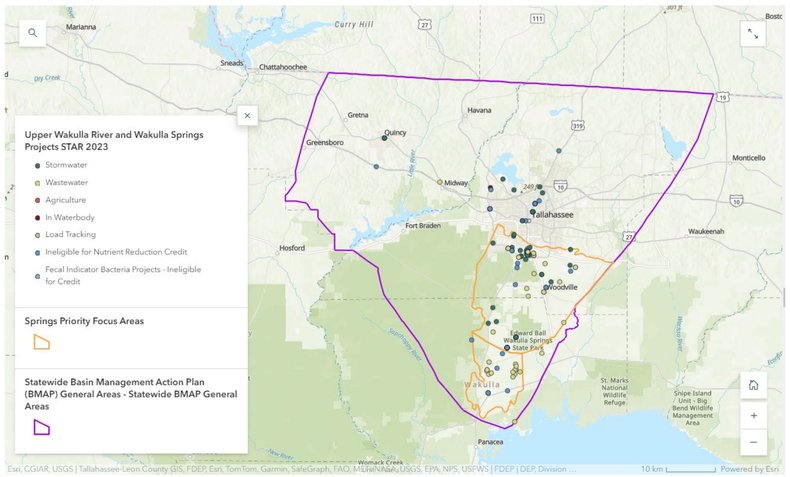
- **Atmospheric Deposition:** Due to continuing air regulations, and fuel switching, emissions of atmospheric nitrogen have been trending downwards in Florida since at least 2005.
- **Onsite Sewage Treatment and Disposal Systems:** New installations or repair permits for conventional septic systems are not permitted on lots 1 acre or less.
- **Wastewater Treatment Facilities:** Facilities must meet advanced waste treatment (AWT) standards if the Florida Department of Environmental Protection (DEP) determines the treatment is needed. Surface water discharges must meet AWT.
- **Farm Fertilizer Best Management Practice (BMPs) Implementation:** An assumed increase of nitrogen efficiency of 15% when a producer enrolls in the Florida Department of Agriculture and Consumer Services (DACS) BMP program and implements BMPs.
- **Livestock Waste BMP Implementation:** An assumed increase of nitrogen efficiency of 10% when a livestock producer enrolls in the DACS BMP program and implements BMPs.
- **Urban Turfgrass Fertilizer:** Ordinances, education, street sweeping and structural stormwater improvements to reduce impact from urban turfgrass fertilization.
- **Sports Turfgrass Fertilizer – Golf:** Operators will be required to develop a nutrient management plan and may be required to monitor to demonstrate that fertilizers are being managed responsibly.
- **Sports Turfgrass Fertilizer – Other:** Owners/operators should follow the Sports Turfgrass BMP manual to ensure fertilizers are managed responsibly.

Projects

Project collection and reporting are crucial to the successful implementation and management of Basin Management Action Plans (BMAPs). Projects are reported to DEP annually through the Statewide Annual Report (STAR) process.

Stakeholders are required to report projects that are being implemented or planned that are needed to achieve reduction targets, along with an estimate of expected nutrient reduction benefits and financial costs.

It is important that all projects needed to achieve milestones are included in the STAR, even if a funding mechanism is not currently identified. This information provides the state information about the funding needed to achieve BMAP goals and assists with prioritizing projects.



Entity Required Reductions and Progress

Entity	2028 Milestone Required Reductions lbs-N/yr (30%)	2033 Milestone Required Reductions lbs-N/yr (80%)	2038 Milestone Required Reductions lbs-N/yr (100%)
Gadsden County	690	1,841	2,301
Town of Greensboro	17	46	57
City of Gretna	21	55	68
Town of Havana	36	96	120
City of Midway	158	422	527
City of Quincy	96	257	321
Jefferson County	52	139	174
Leon County	11,795	31,453	39,317
City of Tallahassee	1,983	5,287	6,609
Wakulla County	6,272	16,726	20,907
Talquin Electric Cooperative Multiple WWTFs	1,112	2,965	3,706
Private WWTFs*	303	809	1,011
Private Golf Courses*	942	2,512	3,140
Agriculture	7,022	18,727	23,408

Progress Achieved Towards the 2028 Milestone

*Estimates through December 2023.

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