# Local Fertilizer Ordinances: A Low-Cost Tool to Protect Our Waters


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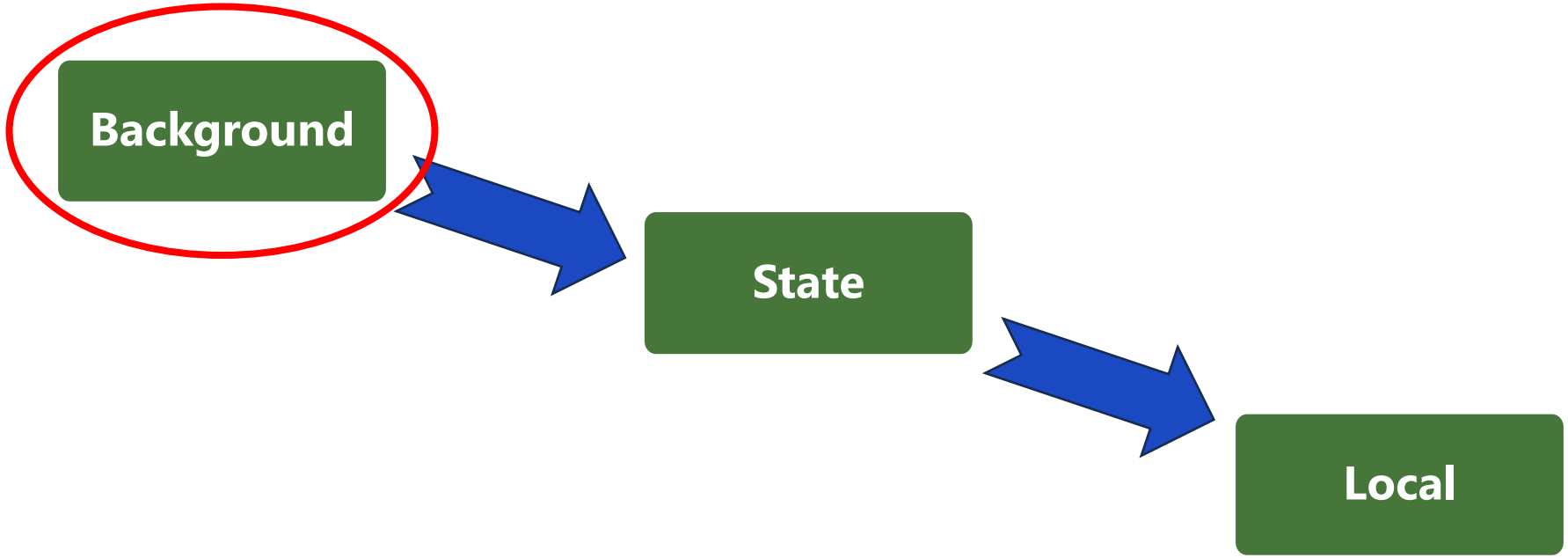
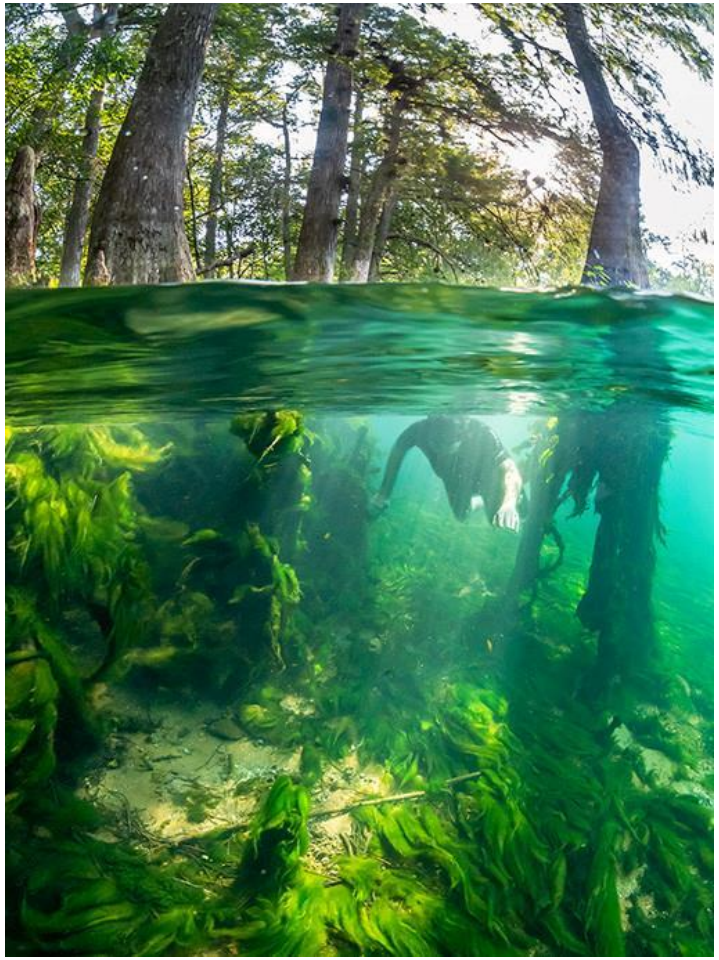
**Orange County**
**Environmental Protection Division**




**2025 FSA Annual Conference**
**June 13, 2025**


Background
State
Local

# Fertilizer is a source of nutrients, including nitrogen and phosphorus, to Florida waterbodies.





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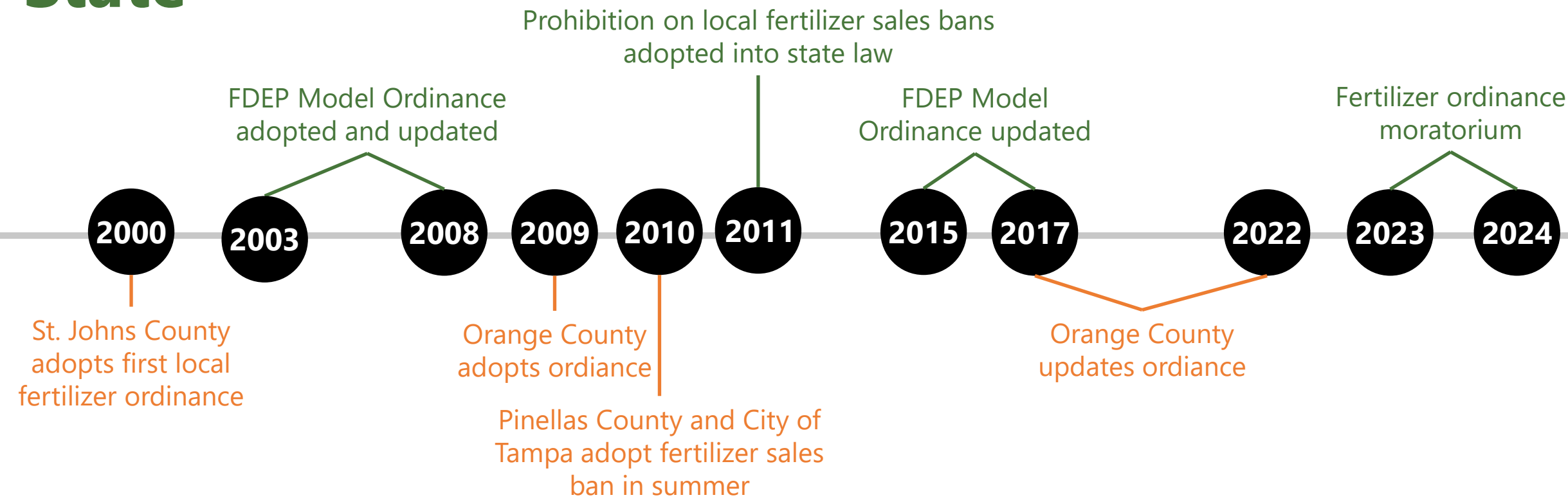
# Fertilizer ordinances have been used as a tool to mitigate nutrient impacts on water quality for 25 years in Florida.

## State




## Local



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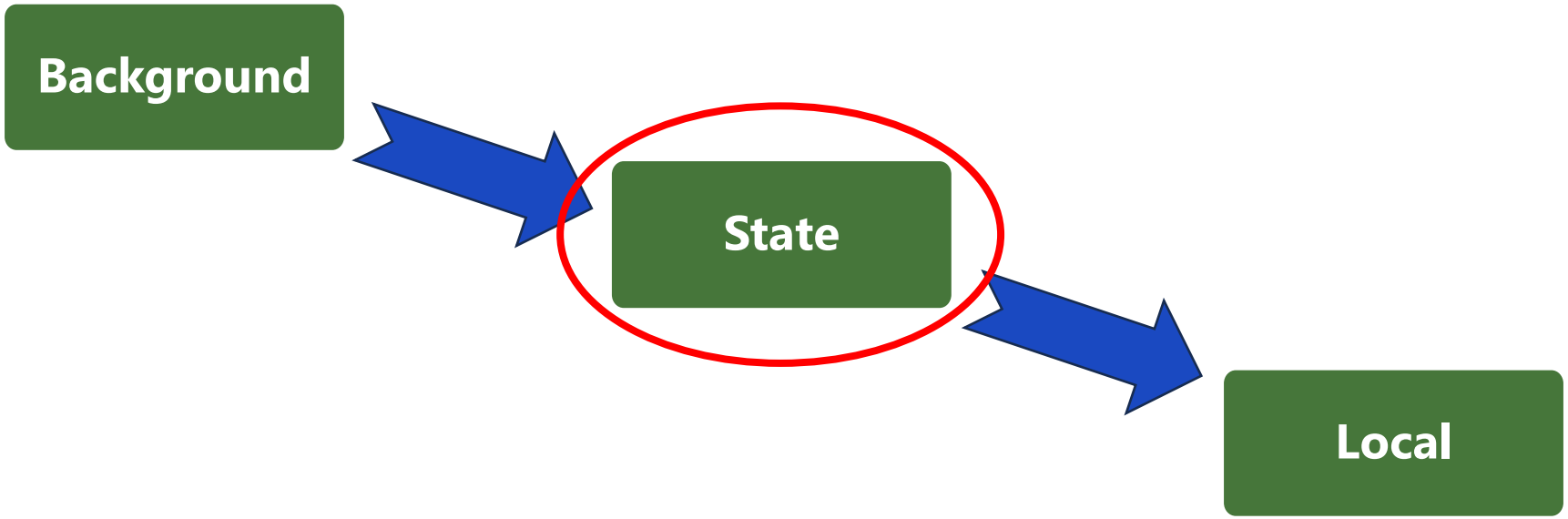
Background
State
Local

# The FDEP Model Ordinance was developed as a tool to reduce nutrient source impacts on Florida waters.

Florida Department of Environmental Protection

MODEL ORDINANCE FOR
FLORIDA-FRIENDLY FERTILIZER USE ON URBAN LANDSCAPES

[alternate title: MODEL ORDINANCE FOR
FLORIDA-FRIENDLY USE OF FERTILIZER ON URBAN LANDSCAPES]
2015

[Note: Title revision for clarity. There is no defined Florida-Friendly fertilizer product, as timing, chemistry, grade, amount, site-specific conditions and application practices all affect "Florida-friendliness".]

https://ffl.ifas.ufl.edu/media/fflifasufledu/docs/dep-fert-modelord.pdf

## Overview

(1) Incorporated into state law

(2) Regulates fertilizer application, management, and training

(3) Requires local government compliance

- Ordinance adopted on or after 2009
- Fall within a watershed of a nutrient-impaired waterbody
- Minimum requirement



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# FDEP Model Ordinance allows local governments to adopt stricter standards.

(a) The local government has demonstrated…that additional or more stringent standards than the model ordinance ***are necessary*** in order to adequately address urban fertilizer contributions to nonpoint source nutrient loading to a water body.

(b) The local government documents that it has ***considered all relevant scientific information***…



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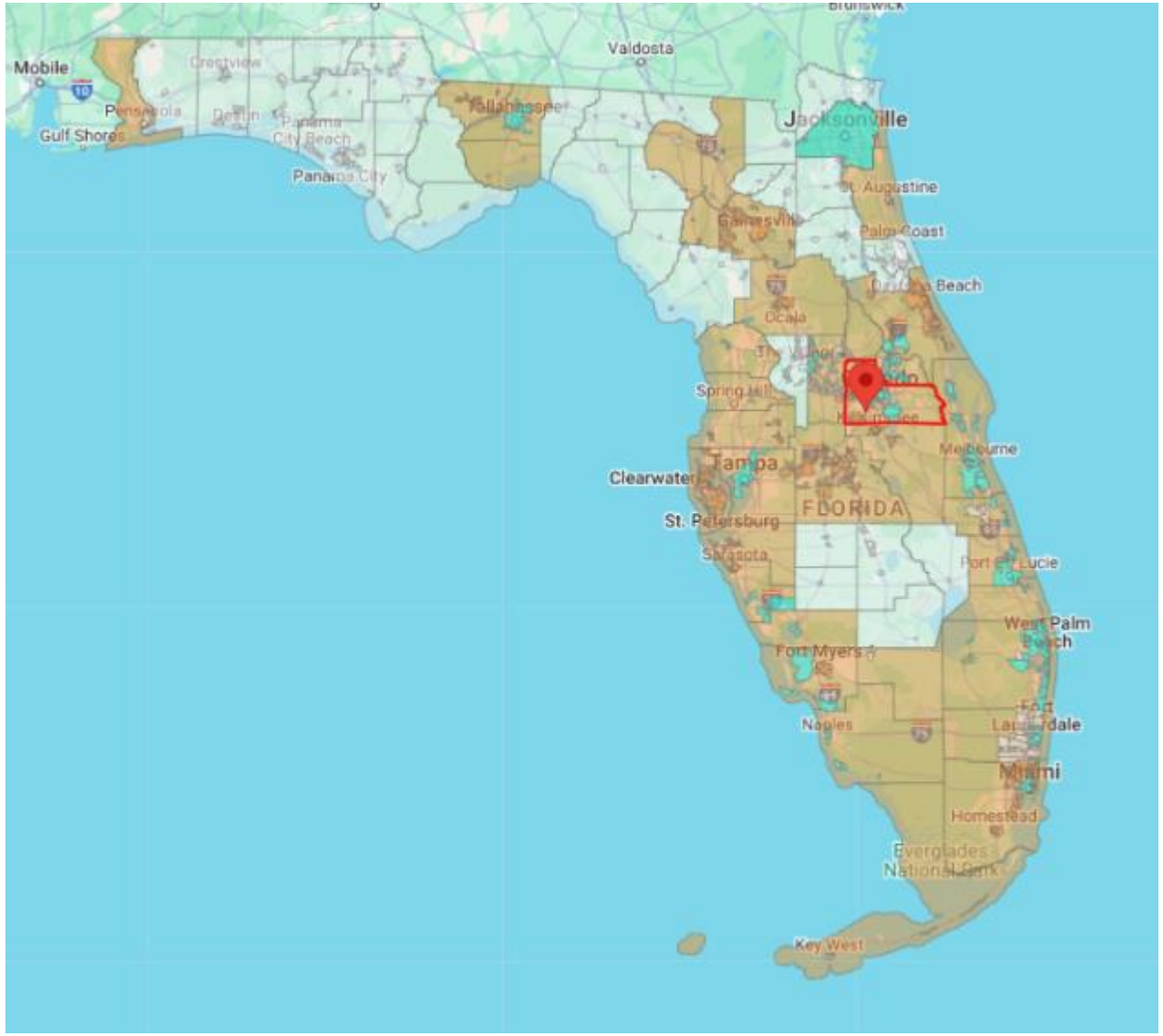
# Many municipalities have adopted their own stricter fertilizer ordinances.

**Over 120 local ordinances**




Source: https://ffl.ifas.ufl.edu/fertilizer/



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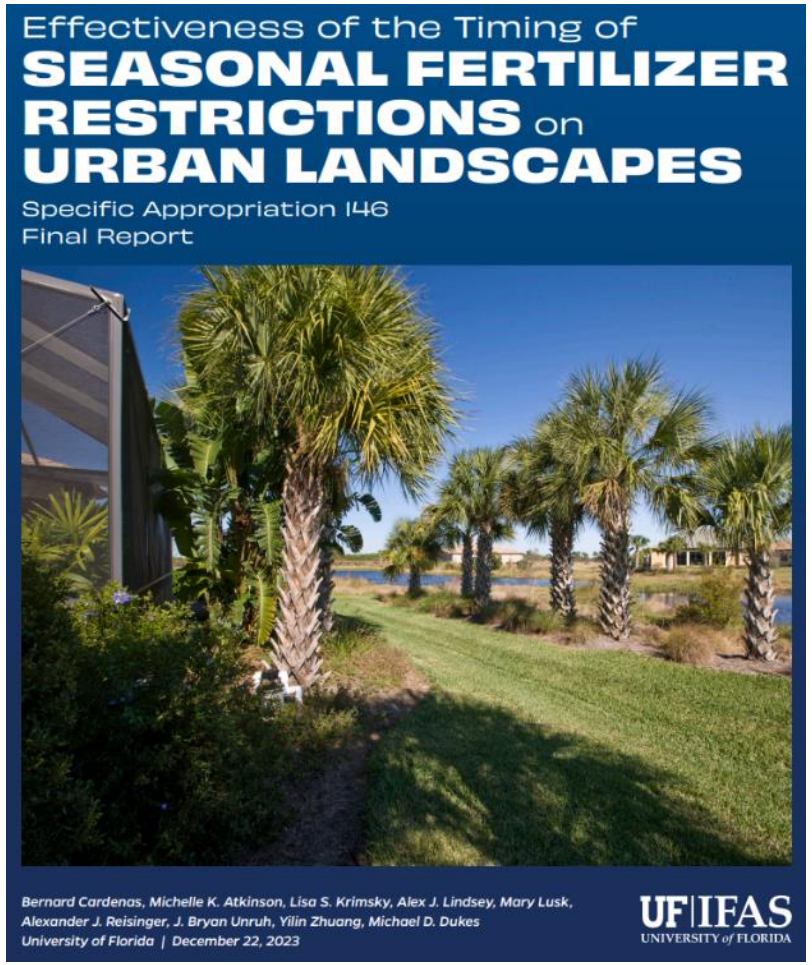
# In response, a fertilizer ordinance moratorium was put in place during 2023 Florida legislative session.




"...evaluate the **effectiveness of the timing of seasonal fertilizer restrictions** on urban landscapes toward achieving nutrient target objectives for waterbodies statewide."

Expired: July 1, 2024

Source: clue.ifas.ufl.edu/pdf/effectiveness-of-timing-of-seasonal-fertilizer-restrictions-on-urban-landscapes.pdf



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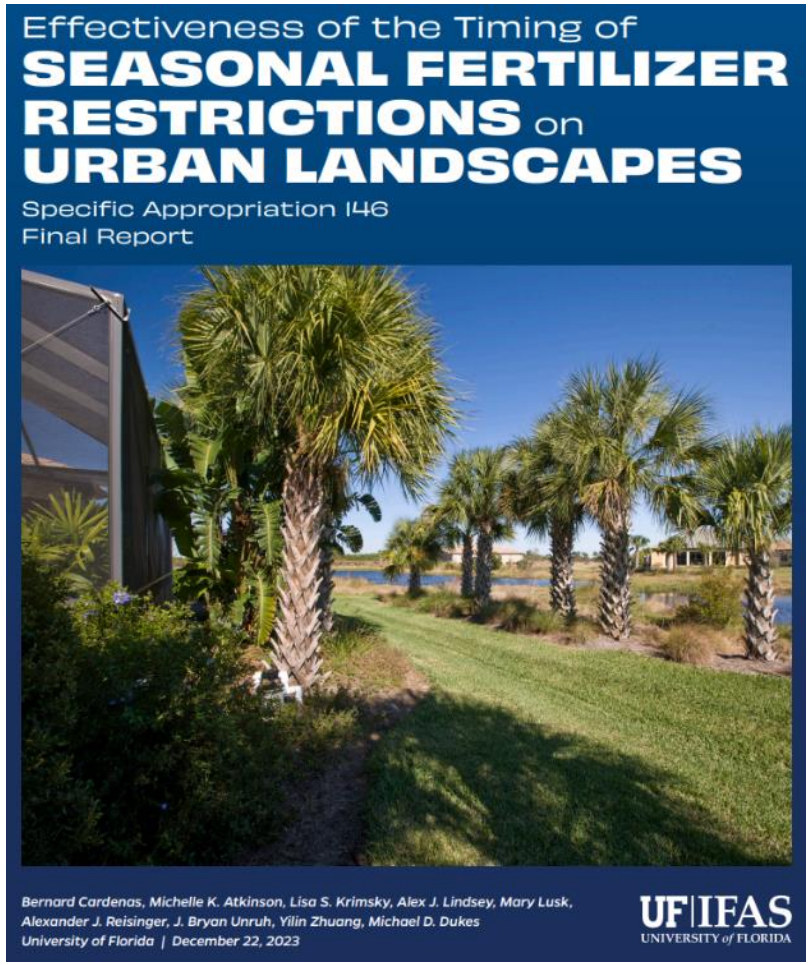
# What does the UF/IFAS study say?




"**multiple sources of nutrients** in urban watersheds with potential to contribute to nutrient pollution of Florida's waterbodies…important to place the various sources in context with each other to learn which sources might be the most important in a **given location and time**."

**Not enough existing** evidence to conclude fertilizer ordinances are **effective or not effective** in achieving nutrient target objectives.

Source: clue.ifas.ufl.edu/pdf/effectiveness-of-timing-of-seasonal-fertilizer-restrictions-on-urban-landscapes.pdf



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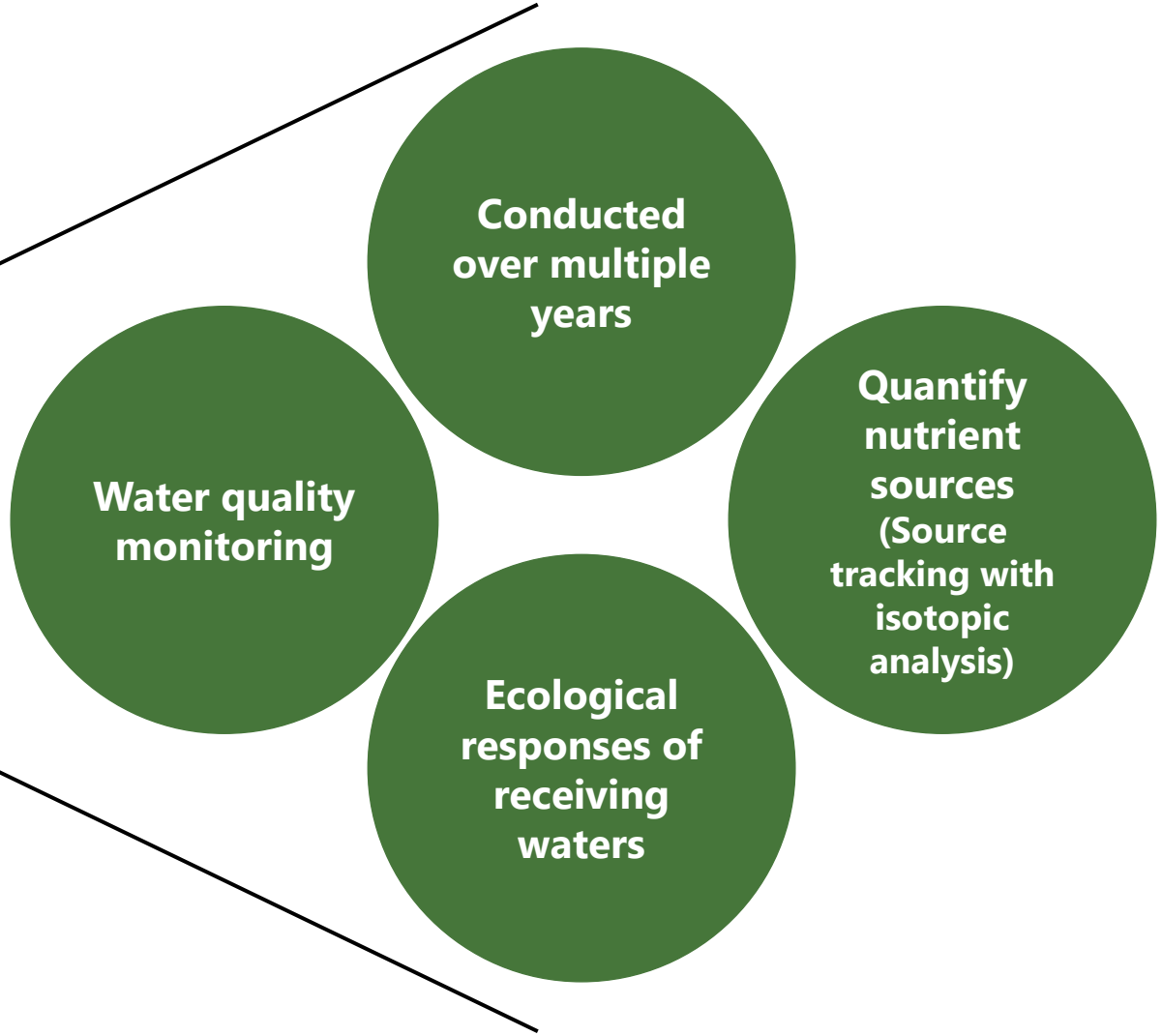
# What does the UF/IFAS study call for?

## Additional Study

- Evaluate Different Nutrient Sources
- Evaluate Fertilizer Type, Timing and Amount
- Address Knowledge and Compliance Gaps Related to Ordinances
- Develop Site-Specific Strategies

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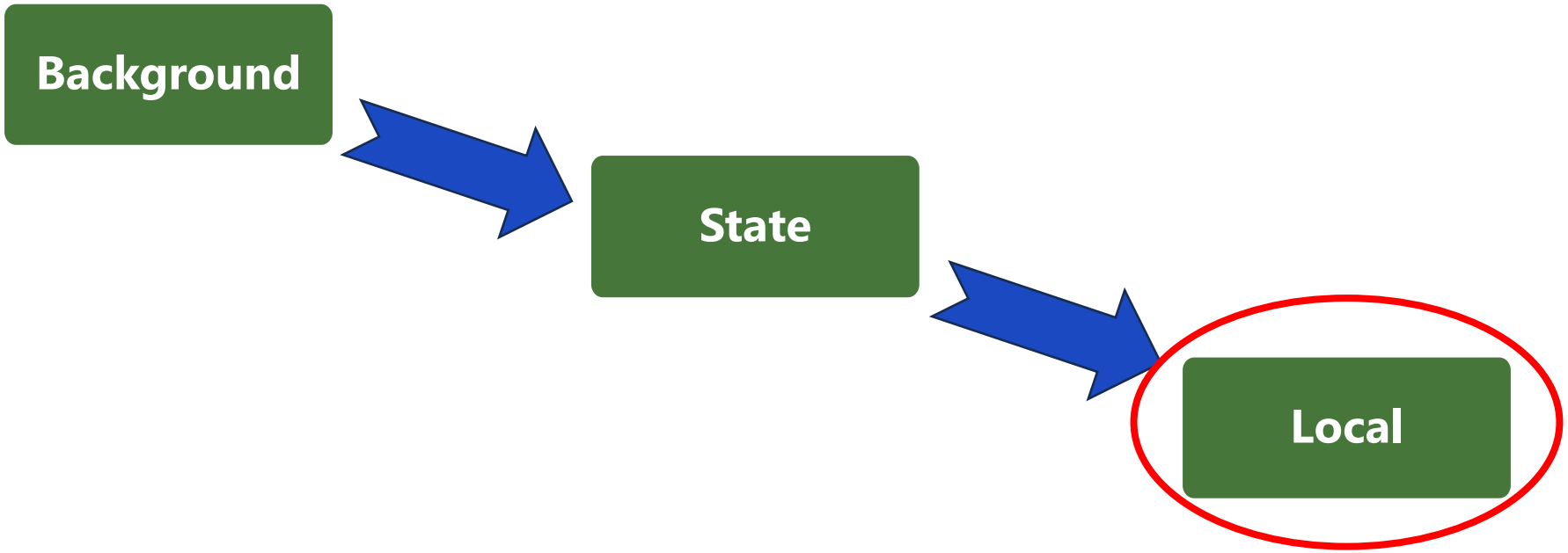
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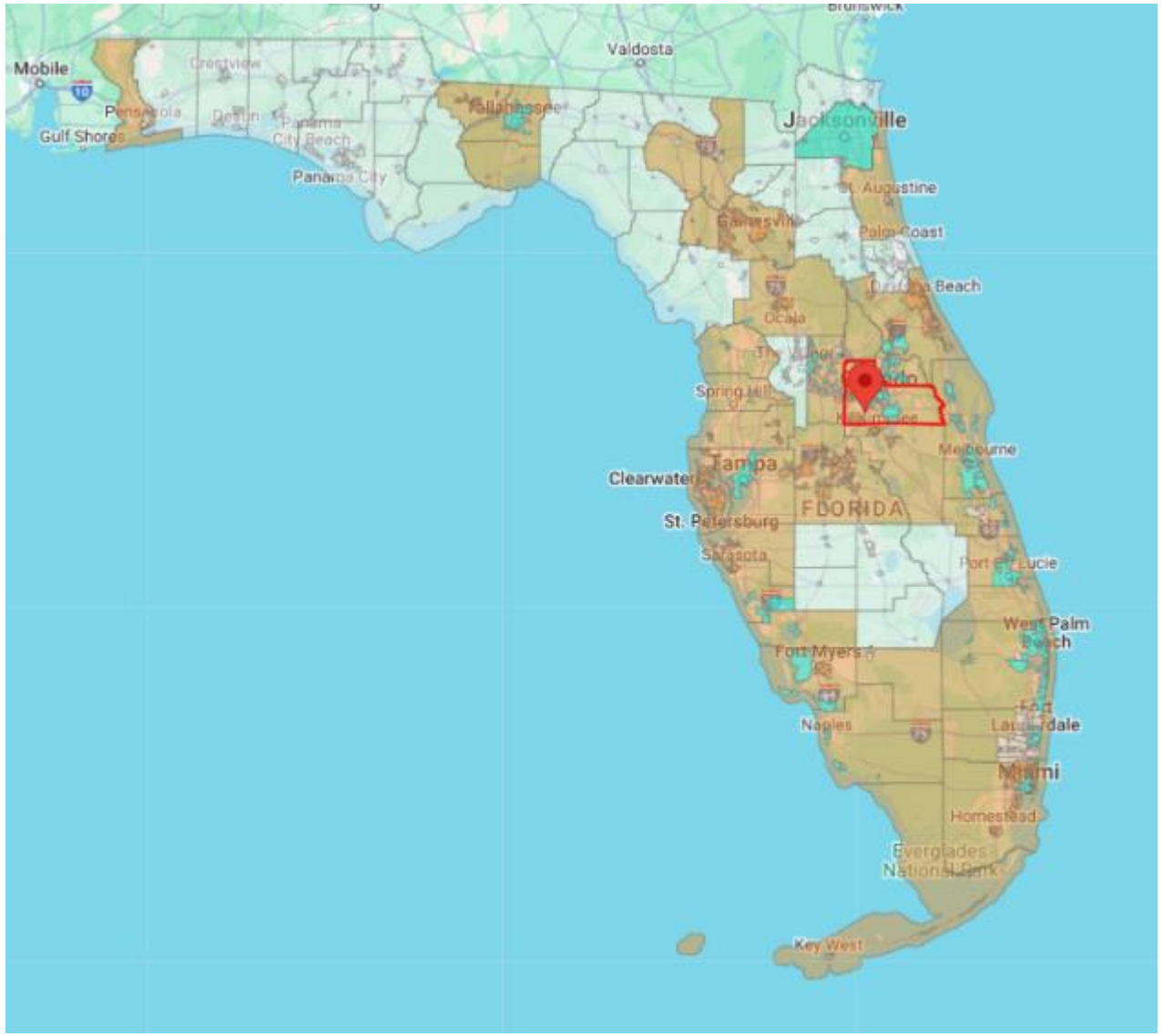


Source: https://ffl.ifas.ufl.edu/fertilizer/



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# What do other municipalities think about their fertilizer ordinance? We surveyed 14 counties and 8 cities.

## All

Professional Certification
Annual N Limit
No P Without Test

## Most

Restricted Application Period
SRN Requirement
Fertilizer-Free Buffer

## Few (<50%)

Retail Signage
Reclaimed Water Language
Fertilizer Sales Ban

| Location | Ordinance Component | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Professional Training | Professional Certification/Proof | Annual N Limitation | No P Without Test | Restricted Application Period | Slow-Release N Requirement | Fertilizer-Free Waterway Buffer | Retail Sign Requirement | Reclaimed Water Language | Fertilizer Sales Ban |
| **County** | | | | | | | | | | |
| Alachua | X | X | X | X | X | X | X | X | | |
| Brevard | X | X | X | X | X | X | X | X | | |
| Charlotte | X | X | X | X | X | X | X | | | |
| Citrus | X | X | X | X | X | X | X | | | |
| Hernando | X | X | X | X | X | X | X | | | |
| Hillsborough | X | X | X | X | X | X | X | | X | |
| Indian River | X | X | X | X | X | X | X | | | |
| Lee | X | X | X | X | X | X | X | | | |
| Martin | X | X | X | X | X | X | X | X | X | |
| Monroe | X | X | X | X | X | X | X | | | |
| Orange | X | X | X | X | X | X | X | X | X | |
| Pinellas | X | X | X | X | X | X | X | X | X | X |
| Seminole | X | X | X | X | X | X | X | | X | |
| Volusia | X | X | X | X | X | X | X | | | |
| **City** | | | | | | | | | | |
| Bonita Springs | X | X | X | X | X | X | X | X | X | |
| Cape Canaveral | X | X | X | X | X | X | X | | | |
| Cape Coral | X | X | X | X | X | X | X | | | |
| Indian Harbour Beach | X | X | X | X | X | X | X | | | |
| Orlando | X | X | X | X | | | X | | | |
| Sanibel | X | X | X | X | X | X | X | X | X | |
| Tampa | X | X | X | X | X | X | | X | | X |
| Vero Beach | X | X | X | X | X | X | X | | | |

**Conducted by Applied Ecology, Inc.**



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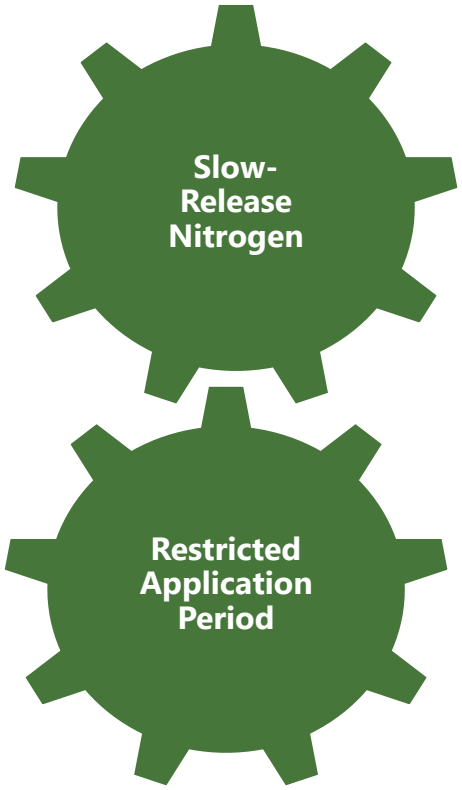
# What do other municipalities think about their fertilizer ordinance?

**Primary Motivation**

**Key Components**




**Awareness & Compliance**

**Community Feedback**



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# That brings us to Orange County…


- **600+ named lakes**
- **9 river/creek systems**
- **Wekiwa & Rock Springs (Outstanding Florida Springs)**
- **Wekiva River (1 of 2 Wild & Scenic Rivers in Florida, State Aquatic Preserve, OFW)**
- **Econlockhatchee River, Butler Chain of Lakes (OFW)**
- **Headwaters of the Everglades**



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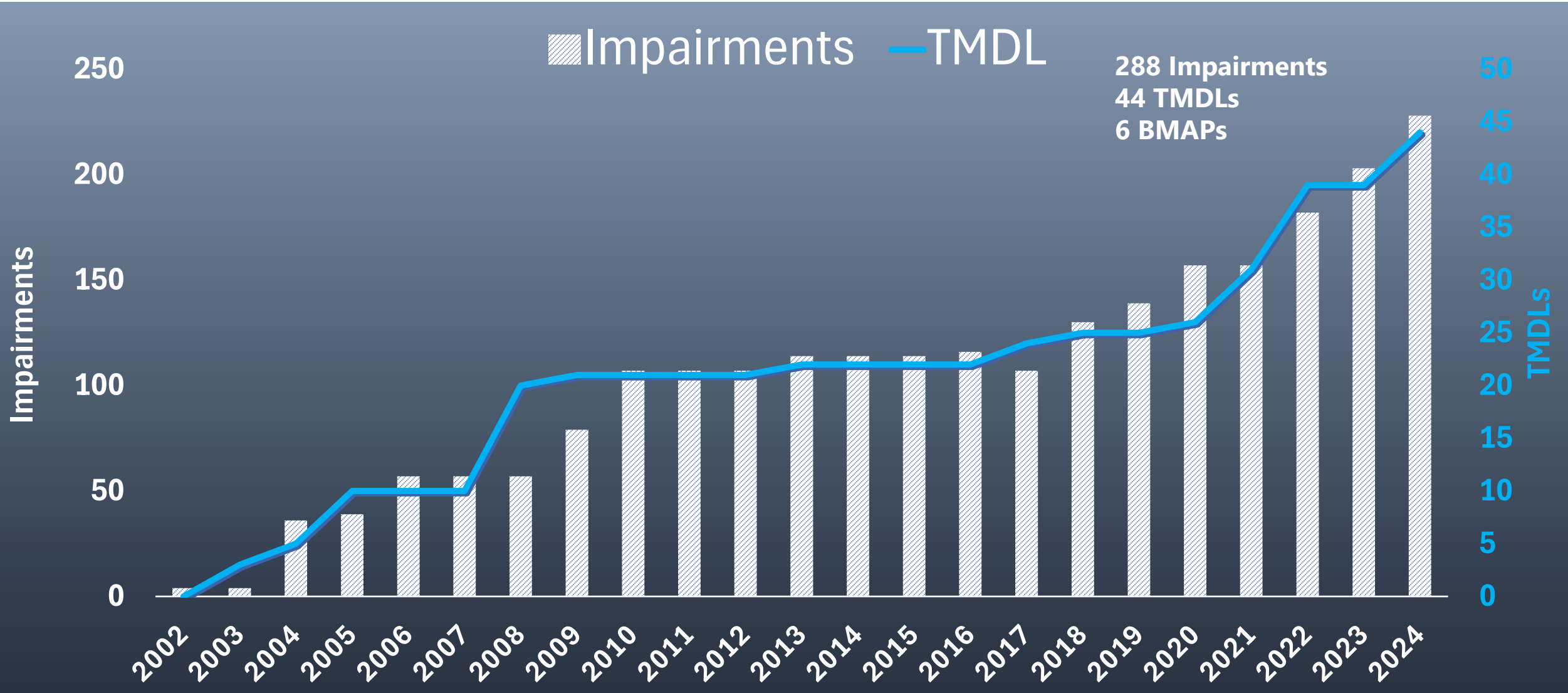
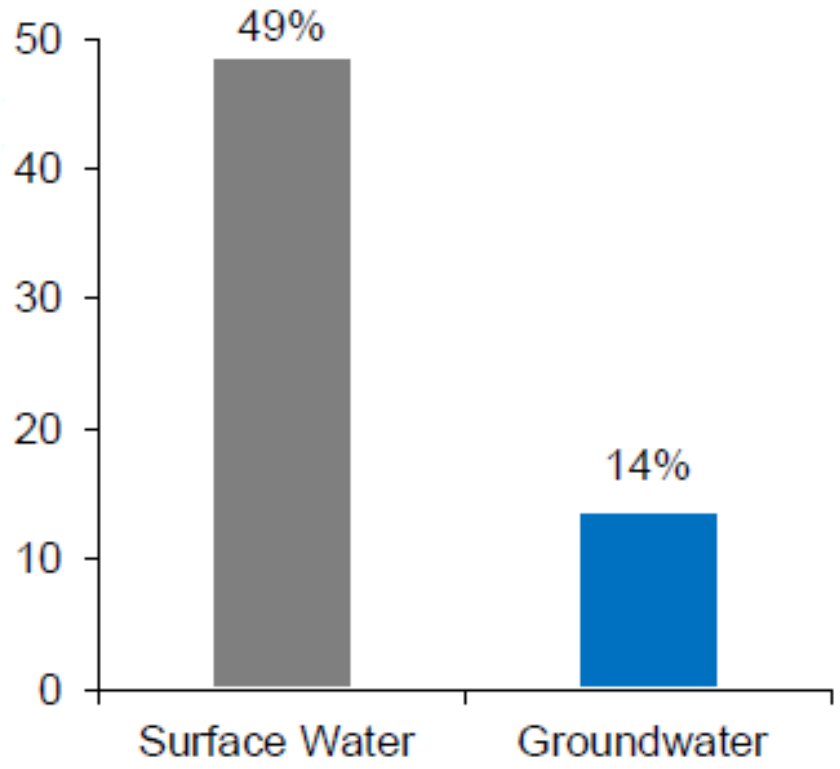
# Water quality impairments are increasing…



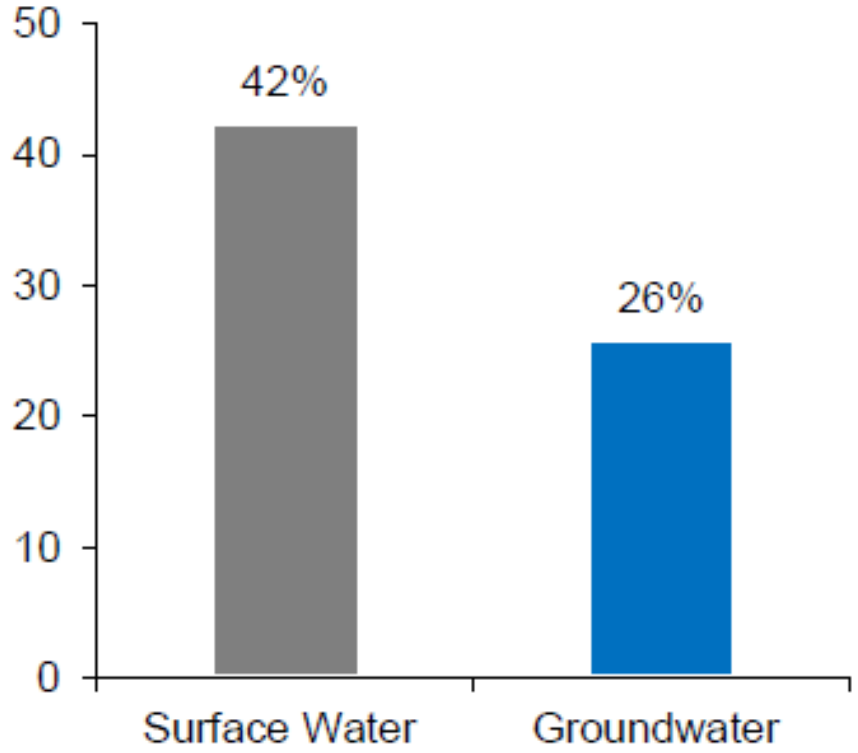

Impairments based on all verified impaired, ongoing restorations, adopted TMDLs, and Study List of unincorporated and incorporated areas in Orange County
TMDLs include adopted, draft, and priority lists of unincorporated and incorporated areas

# Based on 18 lake assessments, nitrogen enters Orange County lakes through surface water and groundwater.

## Water Inflow




## Nitrogen Loads



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# Wekiwa Spring and the Wekiva River are also important water resources in Orange County.

**Nitrate**

- Impaired
- TMDLs
- BMAP

**Phosphorus**



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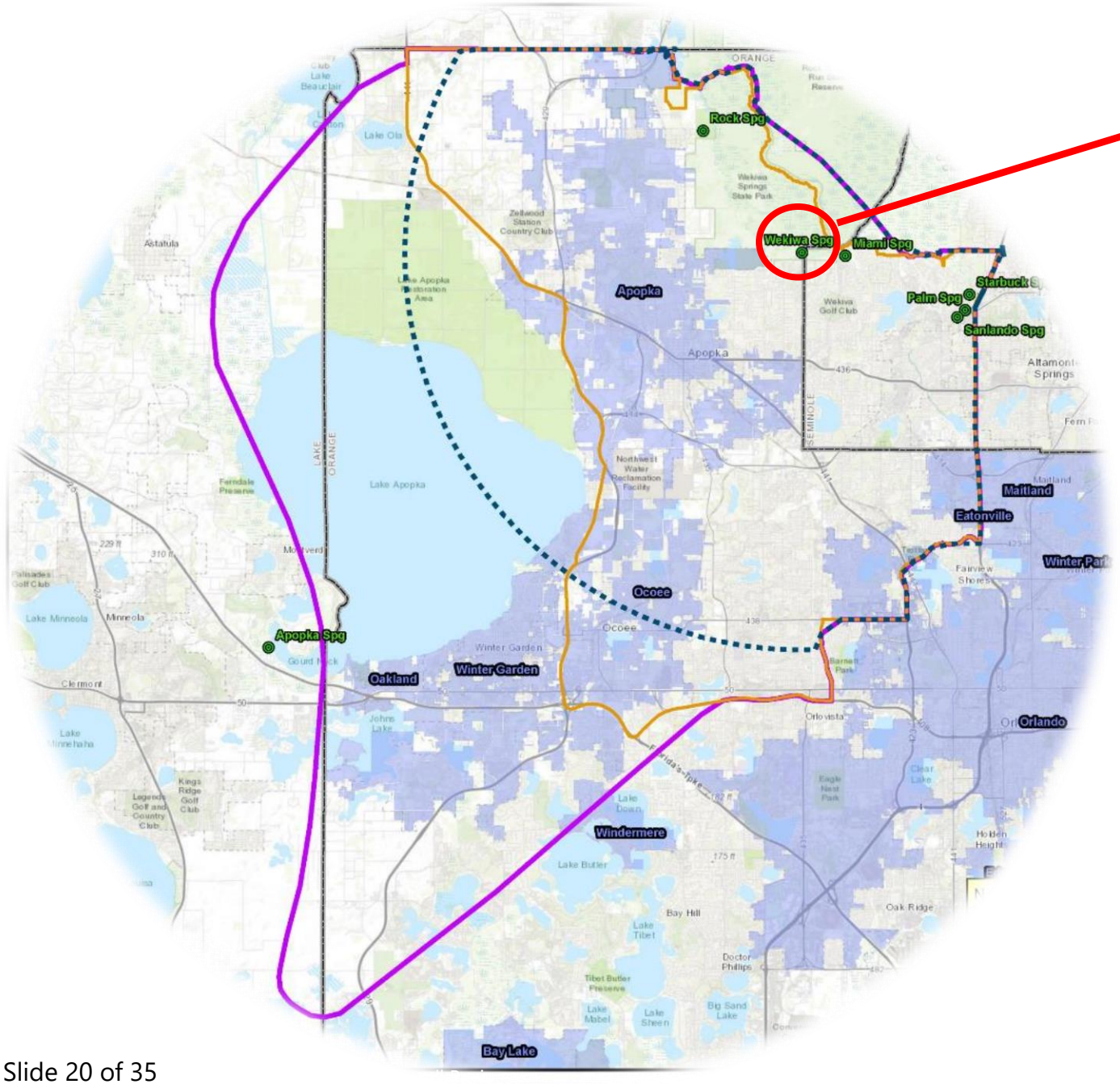
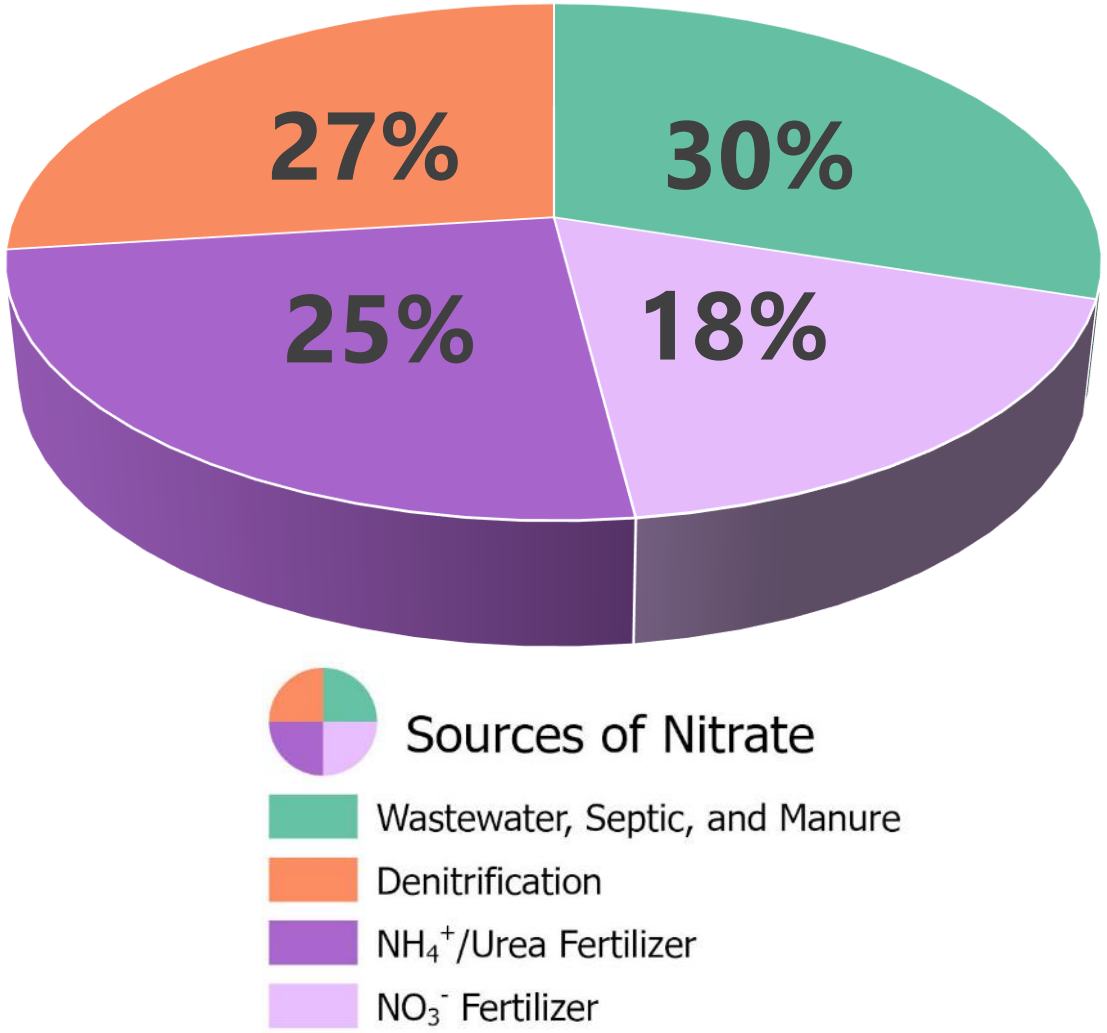

Rock Spg
Wekiwa Spg
Miami Spg
Starbuck S
Palm Spg
Sanlando Spg
Apopka
Altamonte Springs
Maitland
Eatonville
Winter Park
Ocoee
Apopka Spg
Oakland
Winter Garden
Orlando
Windermere
Bay Lake
Springs
UFA 1-Year Travel
Priority Focus Area
BMAP
Orange County
Cities

# Isotopic source tracking indicates fertilizer nitrogen is the primary nitrate source in Wekiwa Spring.




***>40% of nitrate*** **at spring vent attributed to fertilizer.**



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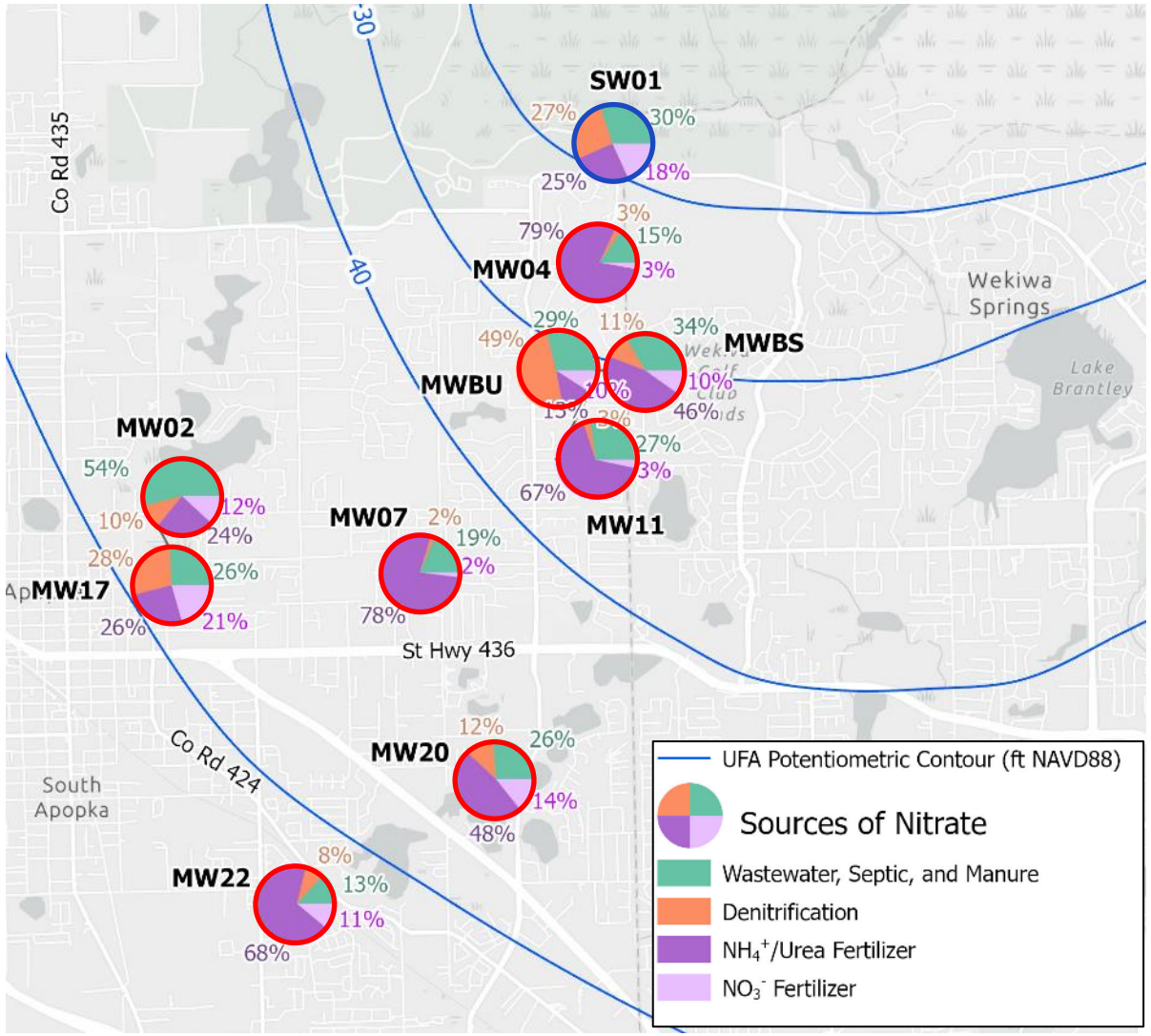
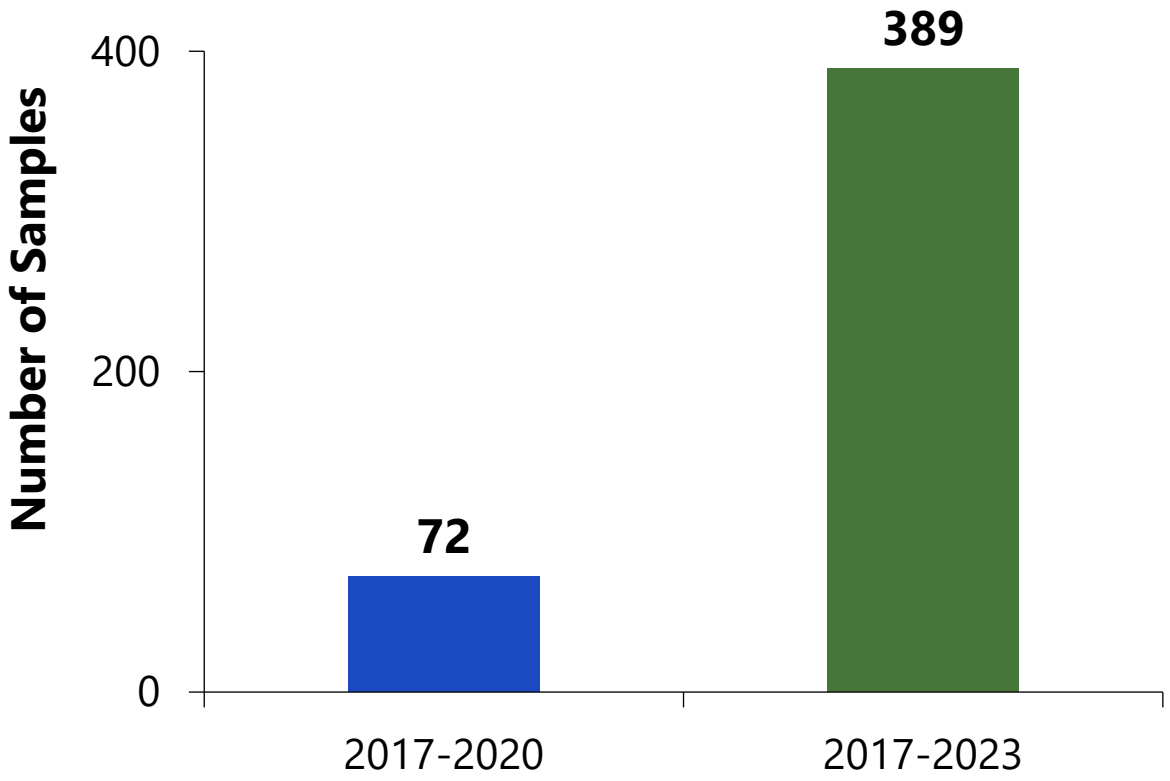
# Isotopic source tracking indicates fertilizer nitrogen is the primary nitrate source in Wekiwa Spring.




**Fertilizer is a *significant nitrate source* in groundwater near the spring.**

# Isotopic source tracking indicates fertilizer nitrogen is the primary nitrate source in Wekiwa Spring.




**Similar results**

**Additional water quality data helped validate initial isotopic mixing model.**



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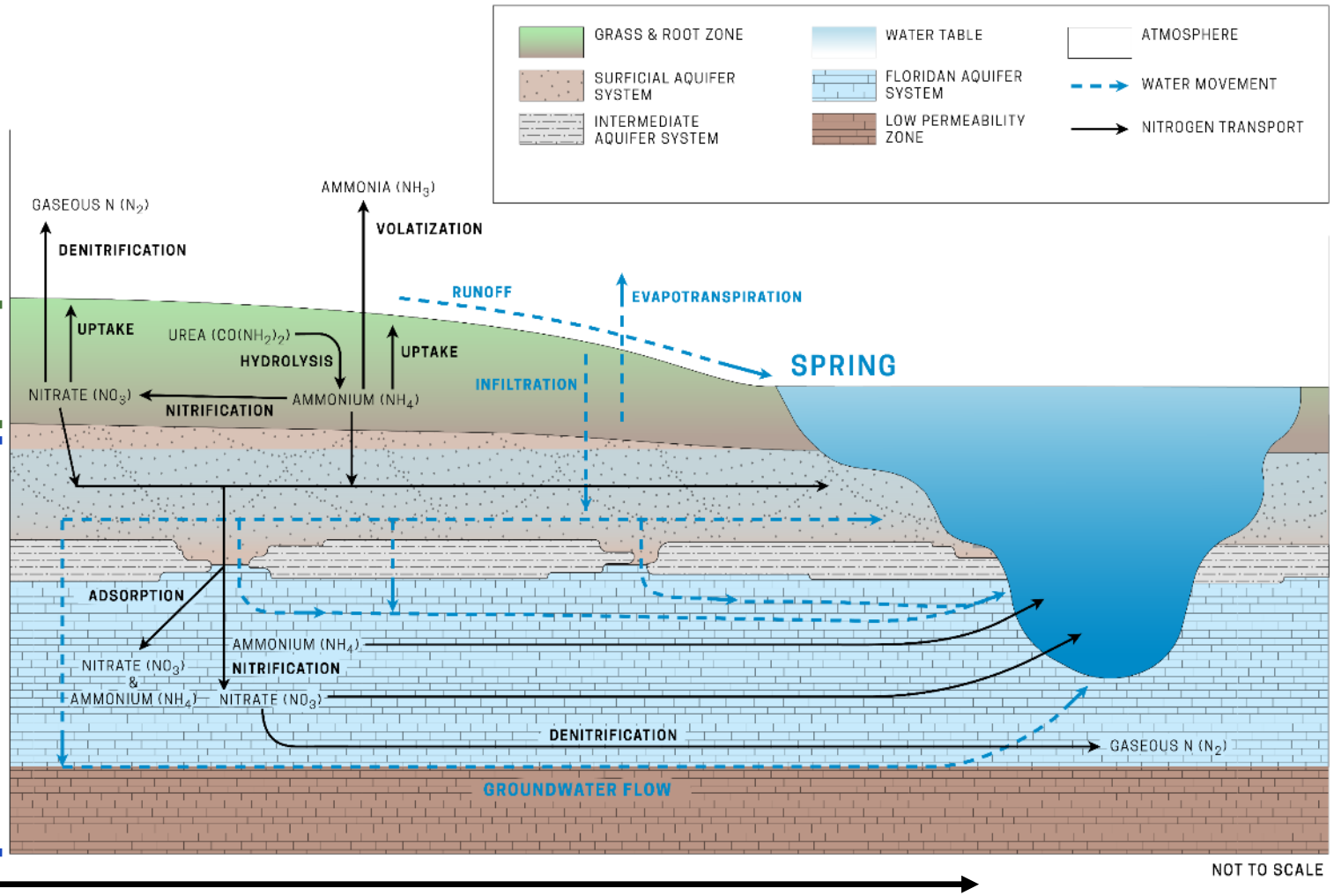
# Water quality modeling has been conducted to explore the sources, fate, and transport of fertilizer nitrogen.

**Fertilizer Nitrogen**

**(1) Vadose Zone Model (HYDRUS)**

**(2) Groundwater Model (MODFLOW + RT3D)**



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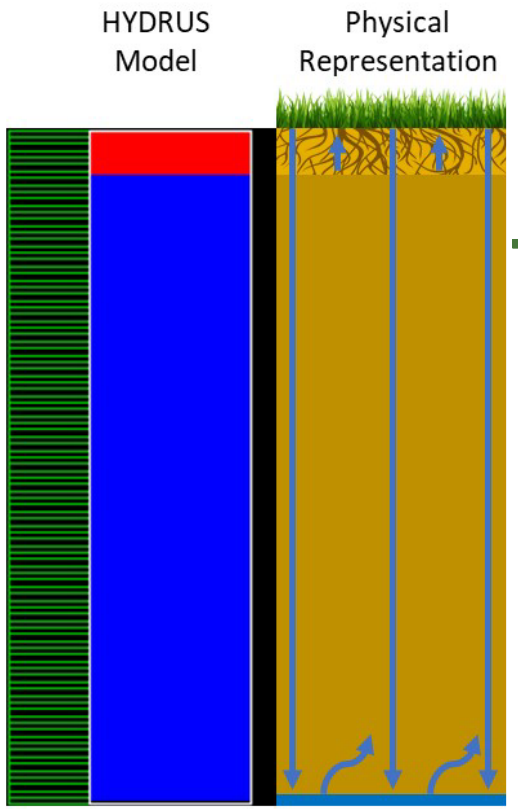
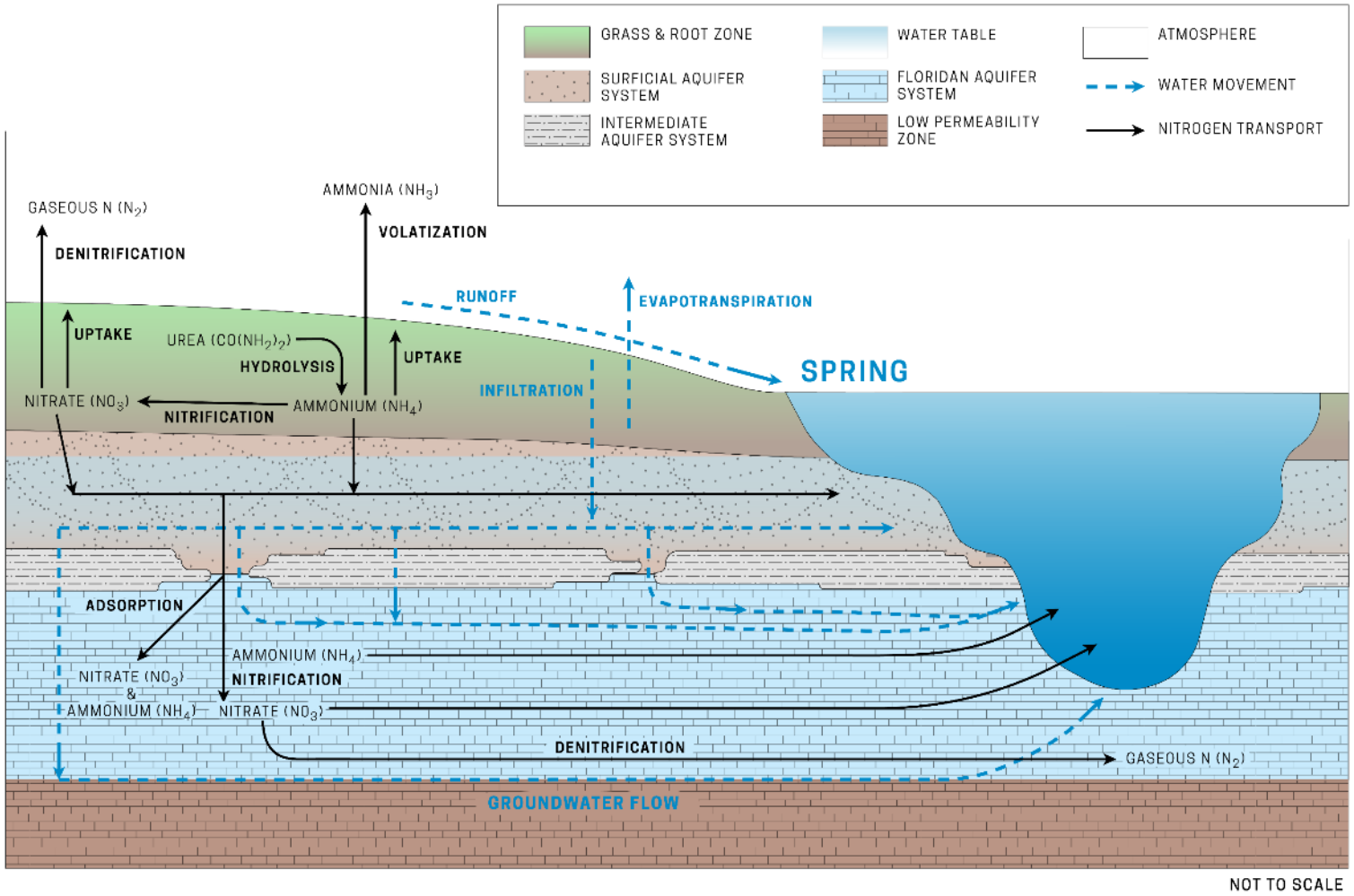
# Water quality modeling has been conducted to explore the sources, fate, and transport of fertilizer nitrogen.

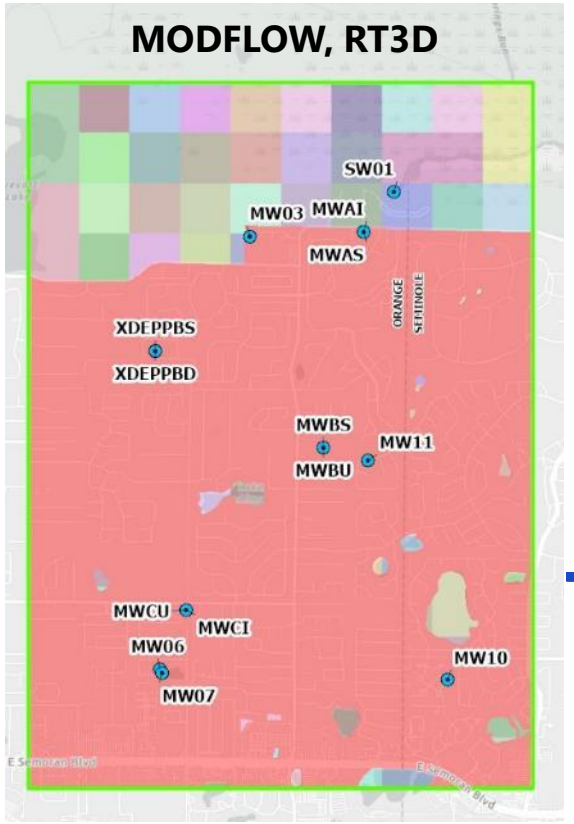
## Load to Groundwater

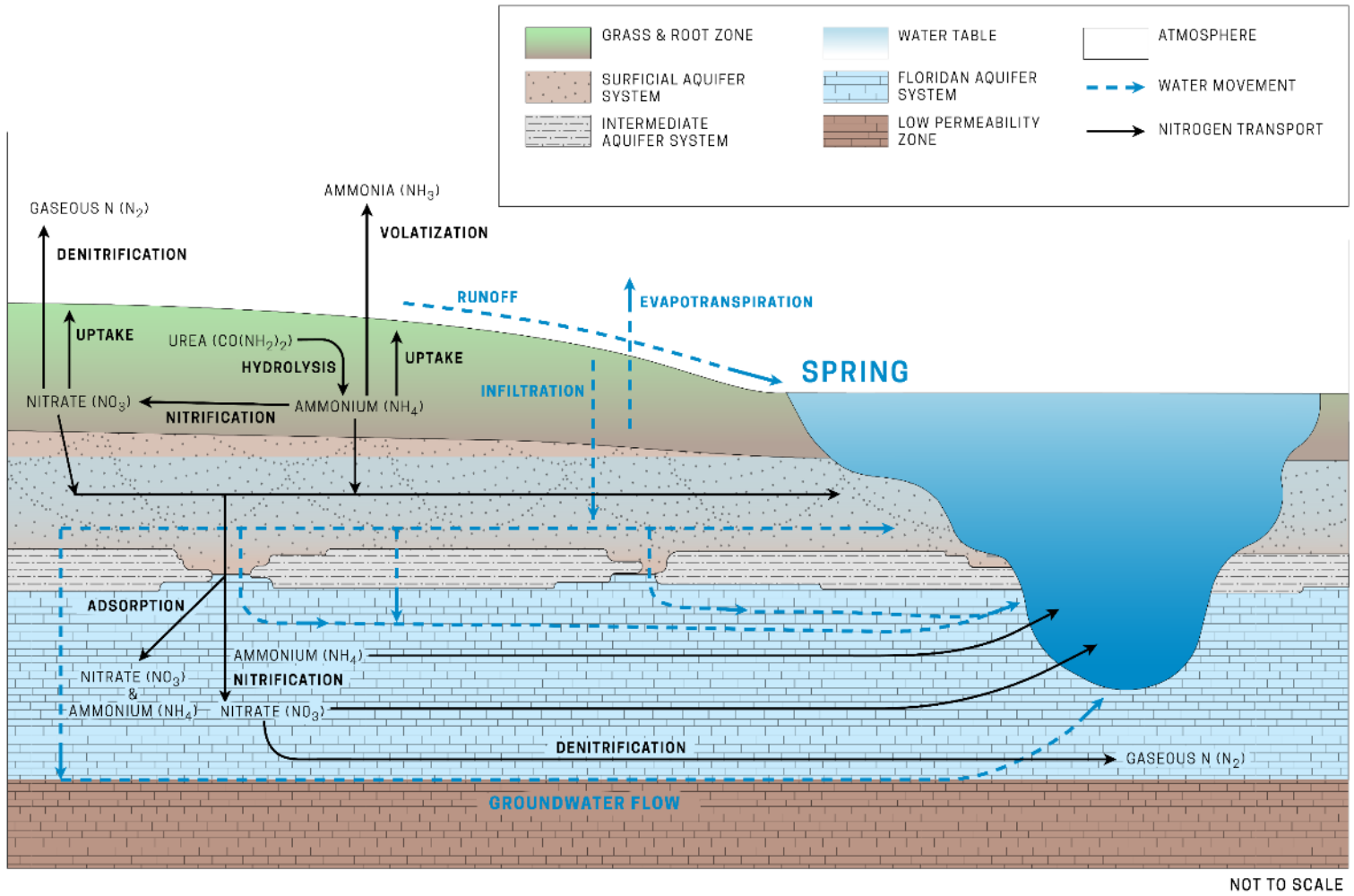


# Water quality modeling has been conducted to explore the sources, fate, and transport of fertilizer nitrogen.

## Load to Spring



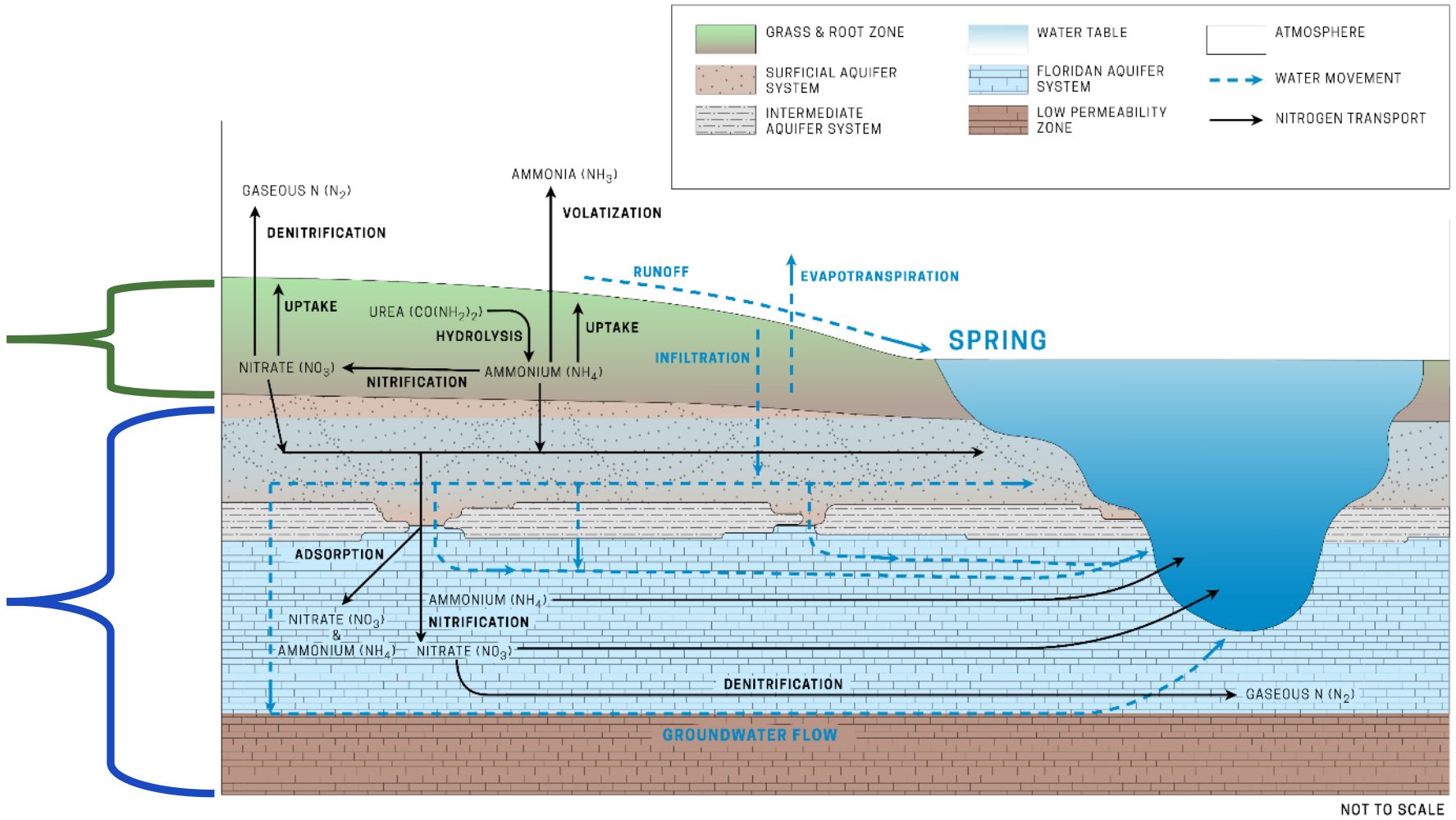
# Water quality modeling has been conducted to explore the sources, fate, and transport of fertilizer nitrogen.

## Load to Groundwater (HYDRUS)

- Application Rates
- Slow-Release Nitrogen
- Restricted Application Period
- Recharge
- Water Table Depths
- Soil Type
- FDEP Model Ordinance vs. Orange County Ordinance

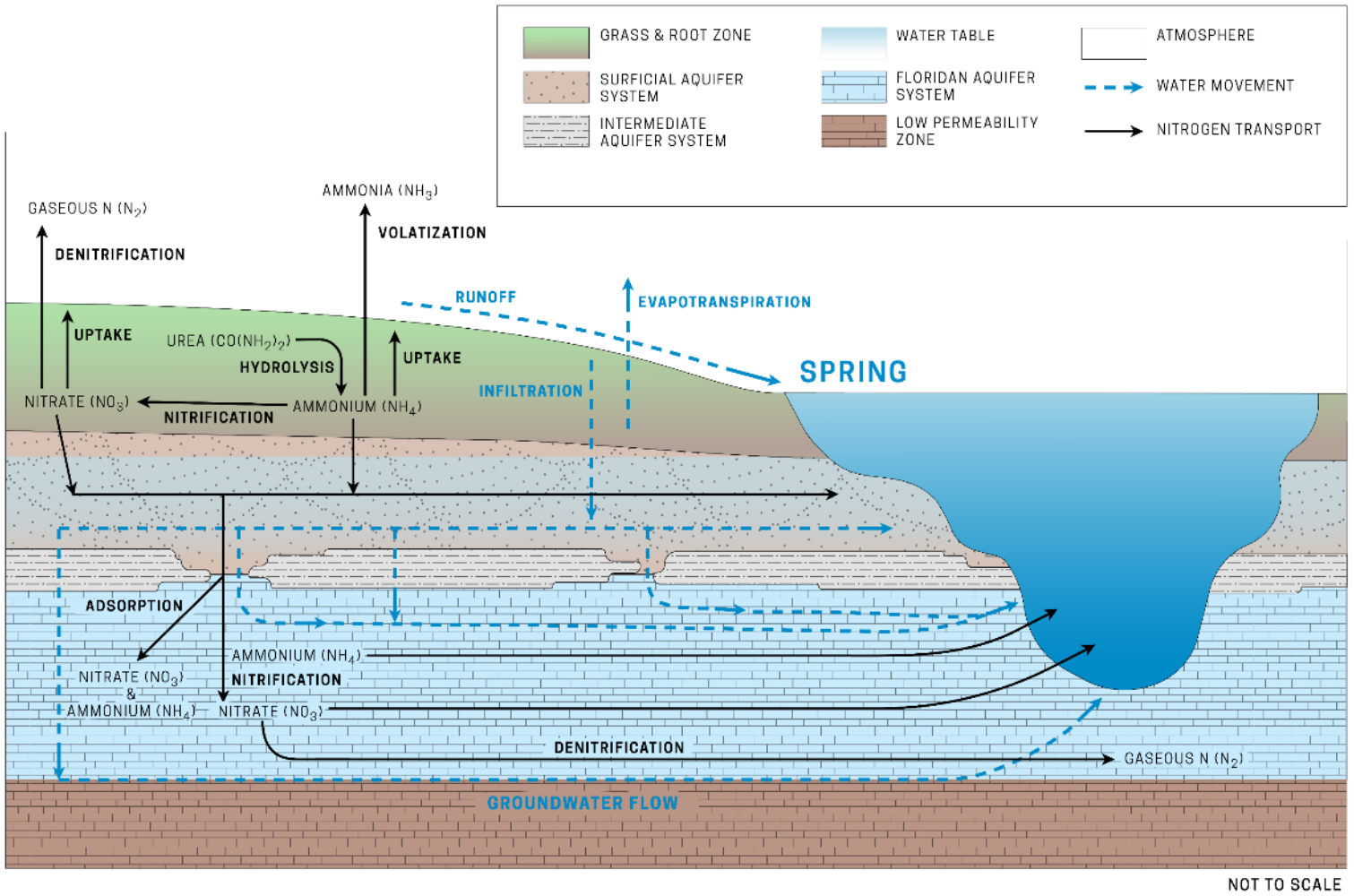
## Load to Spring (MODFLOW)

- Spring Response
- Lag-Time



# Water quality modeling generally indicated…

- ✓ Nitrogen mass applied had the greatest impact on leaching amount
- ✓ Slow-release nitrogen can help reduce leaching
- ✓ Nitrogen moves with water (precipitation, irrigation)
- ✓ Years-to-decades lag-time
- ✓ OC's more restrictive ordinance can reduce leaching compared to FDEP's Model Ordinance



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# Scientific evaluation went into the development and update of Orange County's fertilizer ordinance.

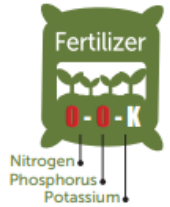

**2009 - Adopted**

**2017 - Updated**

**2022 - Updated**

***Ongoing Monitoring and Evaluation***

## Key Components




From June 1 to September 30, choose zero nitrogen (N) and zero phosphorus (P)


From October 1 to May 31, if using nitrogen fertilizer, it must be at least 65% slow release

Year round, choose fertilizer with zero phosphorus (P)

Limit each application to 1 pound total nitrogen per 1,000 square feet (maximum 3 pounds per year)

Do not fertilize 24 hours before an expected storm or heavy rain

Clean up and properly dispose of fertilizer spills, grass clippings and yard debris to prevent them from entering storm drain inlets

Never apply fertilizer within 25 feet of a natural water body


If hiring a commercial applicator, ensure that they have this decal on their application vehicle

When using a broadcast spreader it must have a deflector shield



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# Orange County has conducted outreach to help facilitate public awareness and compliance.







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# Orange County has conducted outreach to help facilitate public awareness and compliance.






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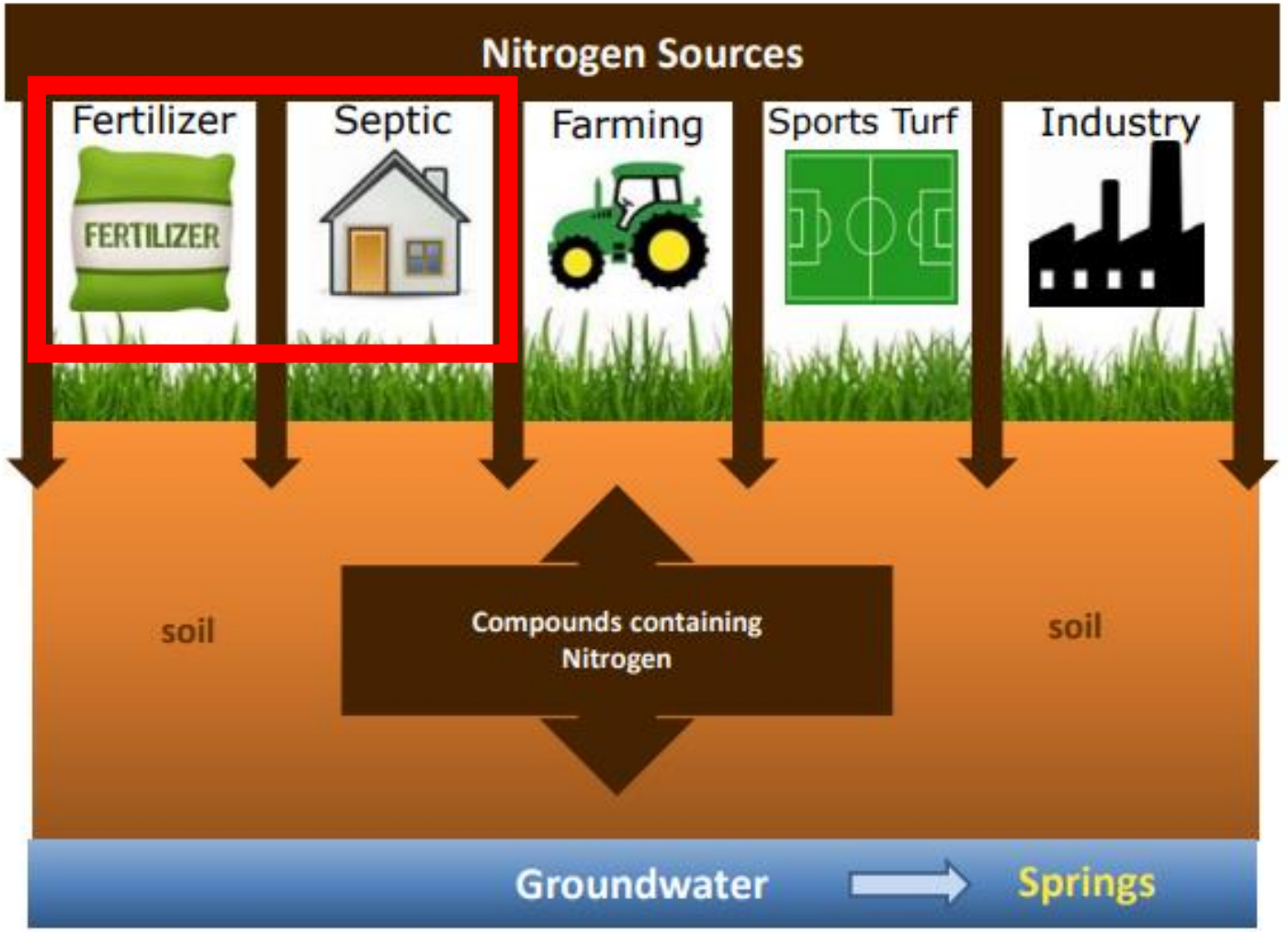
# There are many sources of nitrogen to Florida waterbodies.

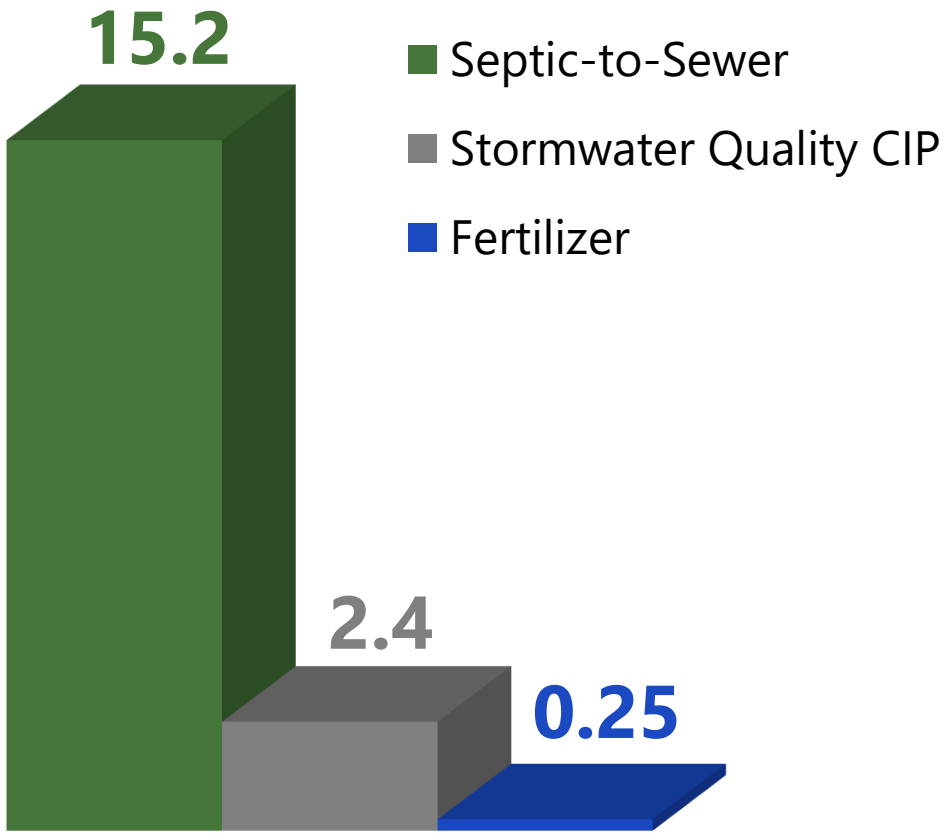



OC Utilities Department 2022

**Fertilizer** and **septic** are the leading nitrogen sources at Wekiwa Spring.

# Fertilizer ordinances can be a cost-effective tool at reducing nutrient loading.

## County Costs
**(in millions $/year)**




## Wekiva Example


- 20 neighborhoods close to Wekiva Spring
- 2,000 septic systems to sewer
- **$150 million**

- ~85,000 septic systems in Orange County
- 16,000 septic systems in Priority Vulnerability Areas around Waterbodies-of-Interest



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# Here are your takeaways!

**(1) There are multiple sources of nitrogen to waterbodies.**

**(2) Fertilizer has been identified as a major nitrogen source to Orange County waterbodies.**

**(3) Local fertilizer ordinances can be a cost-effective tool in the toolkit aimed at protecting our waterbodies.**



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# Thank You!


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