



Florida Department of Environmental Protection
Division of Environmental Assessment and Restoration

***Wekiva River, Rock Springs Run, and
Little Wekiva Canal
Basin Management Action Plan
(BMAP)***

***Moira R. Homann
February 22, 2017***





Agenda

- Welcome and Opening Remarks.
 1. Onsite Sewage Treatment and Disposal Systems (OSTDS) Remediation Plan.
 - Recap Items.
 - New Items.
 - Orange County FDOH
 - Florida Onsite Wastewater Association
 2. Priority Focus Area.
 3. Public Comments.
 4. Adjourn OSTDS Committee.

----- 5 minute break -----

 1. 2016-1 Requirements Review/Springshed Nitrogen Sources
 2. Annual Updates Wekiva River, Rock Springs Run, and Little Wekiva Canal BMAP.
 3. Urban Turfgrass Discussion.
- Next Meeting Date.
- Adjourn.



Florida Department of Environmental Protection

Division of Environmental Assessment and Restoration

Wekiva River, Rock Springs Run, and Little Wekiva Canal BMAP OSTDS Remediation Plan





Agenda

- Welcome and Opening Remarks.
- OSTDS Remediation Plan.
 - Sunshine Law Reminders.
 - Recap Items.
 - a) Posting Information.
 - b) Feedback on Education Efforts.
 - New Items/Discussion.
 - a) Cluster Wastewater Systems – *Roxanne Groover, Florida Onsite Wastewater Association (FOWA)*
 - b) An Overview of the Florida Department of Health (FDOH) Onsite Sewage Program – *Bart Harriss, Orange County FDOH*
- Priority Focus Area.
- Public Comments.
- Adjourn OSTDS Committee.



Sunshine Law Reminders

- The OSTDS Advisory Committee will operate under the Sunshine Laws (Article 1, Section 24, Florida Constitution and Section 286.011, Florida Statutes [F.S.]).
- Discussion or any form of communication between committee members on matters reasonably expected to come before the committee is **prohibited** outside of a publicly noticed meeting.
 - Communication includes but not limited to phone calls, writing, texting, and emailing another committee member.
 - Discussion between a committee member and non-committee members, including staff, is permissible.
 - Discussion of committee topics between a committee member and their alternate representative is permissible.



Recap Posting Items

- Updated OSTDS Education Priorities and Projects Submitted by Stakeholders available [here](#).
- Homeowner Questions (submitted by Bob Samson/Charles Whitaker) available [here](#).
- "Be Floridian" residential fertilizer campaign information:
 - Website - <http://befloridian.org/>.
 - Presentation available [here](#).
- Priority Focus Area (PFA) files:
 - Document - [Methodology for Establishing Priority Focus Area](#).
 - [Geographic Information System \(GIS\) shapefiles](#).
- Florida Section 319 Grant information available [here](#).



Education Priorities on OSTDS – Submitted by Stakeholders (as of 02/20/2017) - **DRAFT**

Recommended Target Audiences/Stakeholders

Recommended Target Audiences/Stakeholders	Altamonte Springs	Apopka	Eustis	Maitland	Mount Dora	Oakland	Ocoee	Orlando	Tavares	Winter Garden	FDACS	FDOT	Florida Expressway	Turnpike Authority	Friends of Wekiva	Lake County	Lake Co. Health Dept.	Orange County	Orange County Health Dept.	Sanlando	Seminole County	Seminole County Health Dept.	SJRWMD	Astatula	Wekiva River Aquatic Preserve	Wekiwa Springs State Park	FOWA
Elected Official															X			X			X						X
Homeowners	X							X				X			X	X		X									X
State Park																											
Commercial Business								X																			
Homeowner Associations								X										X			X						
OSTDS Industry												X				X											
Builders	X											X				X											
Golf Courses																											
Temporary Populations – Tourists																											
Real Estate	X														X						X						X



Education Priorities on OSTDS – Submitted by Stakeholders (as of 02/20/2017) - **DRAFT**

Recommended Message/Stakeholders

Recommended Message/Stakeholders	Altamonte Springs	Apopka	Eustis	Maitland	Mount Dora	Oakland	Ocoee	Orlando	Tavares	Winter Garden	FDACS	FDOT	Florida Expressway	Turnpike Authority	Friends of Wekiva	Lake County	Lake Co. Health Dept.	Orange County	Orange County Health Dept.	Sanlando	Seminole County	Seminole County Health Dept.	SJRWMD	Astatula	Wekiva River Aquatic Preserve	Wekiwa Springs State Park	FOWA
Process																											
Cost to Homeowners												X			X	X		X			X						
Environmental Benefit	X											X			X			X			X					X	
General Costs																											
Timeframe of Disruption																											
Comparables																X											
Passive versus Active Systems												X															
Evidence/Studies	X														X	X										X	
Simple Message																										X	
Actual Sewer Costs																											
Actual Enhancement Costs	X																X				X						
Simple message + environmental benefit + actual maintenance cost*								X																			
Process + Comparables + Environmental Benefit*								X																			
Process + Cost to Homeowners + Actual Sewer Costs*								X																			



Education Priorities on OSTDS – Submitted by Stakeholders (as of 02/20/2017) - **DRAFT**

Recommended Materials & Resources/ Stakeholders

Recommended Materials & Resources/ Stakeholders	Altamonte Springs	Apopka	Eustis	Maitland	Mount Dora	Oakland	Ocoee	Orlando	Tavares	Winter Garden	FDACS	FDOT	Florida Expressway	Turnpike Authority	Friends of Wekiva	Lake County	Lake Co. Health Dept.	Orange County	Orange County Health Dept.	Sanlando	Seminole County	Seminole County Health Dept.	SJRWMD	Astatula	Wekiva River Aquatic Preserve	Wekiwa Springs State Park	FOWA
Florida Onsite Wastewater Association Public Service Announcements for Maintenance	X															X											X
Homeowner Association Newsletters	X							X				X			X	X		X			X						
Utility Inserts / mailers								X				X				X		X									
Fairs and Events								X				X															X
Pamphlets for Homebuyers from Real Estate Binders	X														X			X			X						
FYN															X												X
Social Media																					X						



Stakeholder OSTDS Education Projects – Submitted by Stakeholders (as of 02/20/2017) - **DRAFT**

Lead Entity	Priority Ranking	Project Name	Description	Project Type	Milestone (5-, 10-, or 15-yr)	Cost Estimate (planning level)	Funding		Status (Underway, Planned, or Completed)	Estimated Completion Date
							Source	Amount		
City of Orlando (Streets and Stormwater Div)		Campaign Title > To Be Determined	Provide information to audiences through: Annual mailer + Annual HOA Newsletters + Social Media + Fair and Events		1-2 years	Unknown but funding is available				
City of Orlando (Wastewater Div)		Campaign Title > To Be Determined	Provide information to audiences through: Social Media + Fair and Events		1-2 years	Unknown but funding is available				
City of Orlando (Streets and Stormwater Div)		Campaign Title > To Be Determined	Provide information to audiences through: Annual mailer + Annual HOA Newsletters + Social Media + Fair and Events		3-5 years	Unknown but funding is available				
City of Orlando (Wastewater Div)		Campaign Title > To Be Determined	Provide information to audiences through: Social Media + Fair and Events		3-5 years	Unknown but funding is available				
City of Orlando (Streets and Stormwater Div)		Campaign Title > To Be Determined	Billboard ad		3-5 years	Unknown but funding is available				
City of Orlando (Streets and Stormwater Div)		Campaign Title > To Be Determined	Provide information to audiences through: Annual mailer + Annual HOA Newsletters + Social Media + Fair and Events		6-10 years	Unknown but funding is available				
City of Orlando (Wastewater Div)		Campaign Title > To Be Determined	Provide information to audiences through: Social Media + Fair and Events		6-10 years	Unknown but funding is available				
Seminole Co./P.W.		Education	Develop + Implement OSTDS Education Program		1-2 years	\$50,000-\$100,000				



Pilot Project – Outreach and Social Marketing Campaign (OSTDS or Fertilizer)

Phase	Funding and Contracting	Pre-Campaign	Campaign	Post-Campaign
Purpose	- Obtain funding for campaign - Select consultant(s) to complete social marketing research and develop and implement campaign	- Know the audience - Identify barriers and benefits - Define campaign objectives	- Change behavior - Use a strategic communications approach - Carefully consider communication channels	Evaluate performance
Objectives	Secure funding and experienced consultant(s)	- Determine the following for the audience: - Awareness of issue - Attitudes and values - Current practices	- Awareness by audience that: - Their actions affect the issue - Actions can be taken by them to remedy issue - Behavior change	Observe behavior change
Actions	- Prepare and submit grant application - Prepare request for qualifications (RFQ) - Complete RFQ process and place consultant(s) under contract	- Conduct collaborative work sessions with lead entity - Develop survey, implement, and analyze results - Conduct focus groups	- Develop message(s) - Develop branding/graphics - Prepare products (direct mail, billboards, radio ads, tv ads, etc.) - Implementation (billboards; radio, tv and print advertisements; promo items, etc.)	Develop survey, implement, and analyze results
Costs (Estimated)*	Staff time and cost	\$30,000	\$240,000	\$30,000
Schedule	Year 1	Year 2	Years 3-4	Year 5

**Costs are estimated from budget information for the Southwest Florida Water Management District annual "Restoring our Springs!" campaign as well as University of Florida-Institute of Food and Agricultural Sciences' anticipated costs for implementation of its Outstanding Florida Springs OSTDS campaign in 2017/2018.*

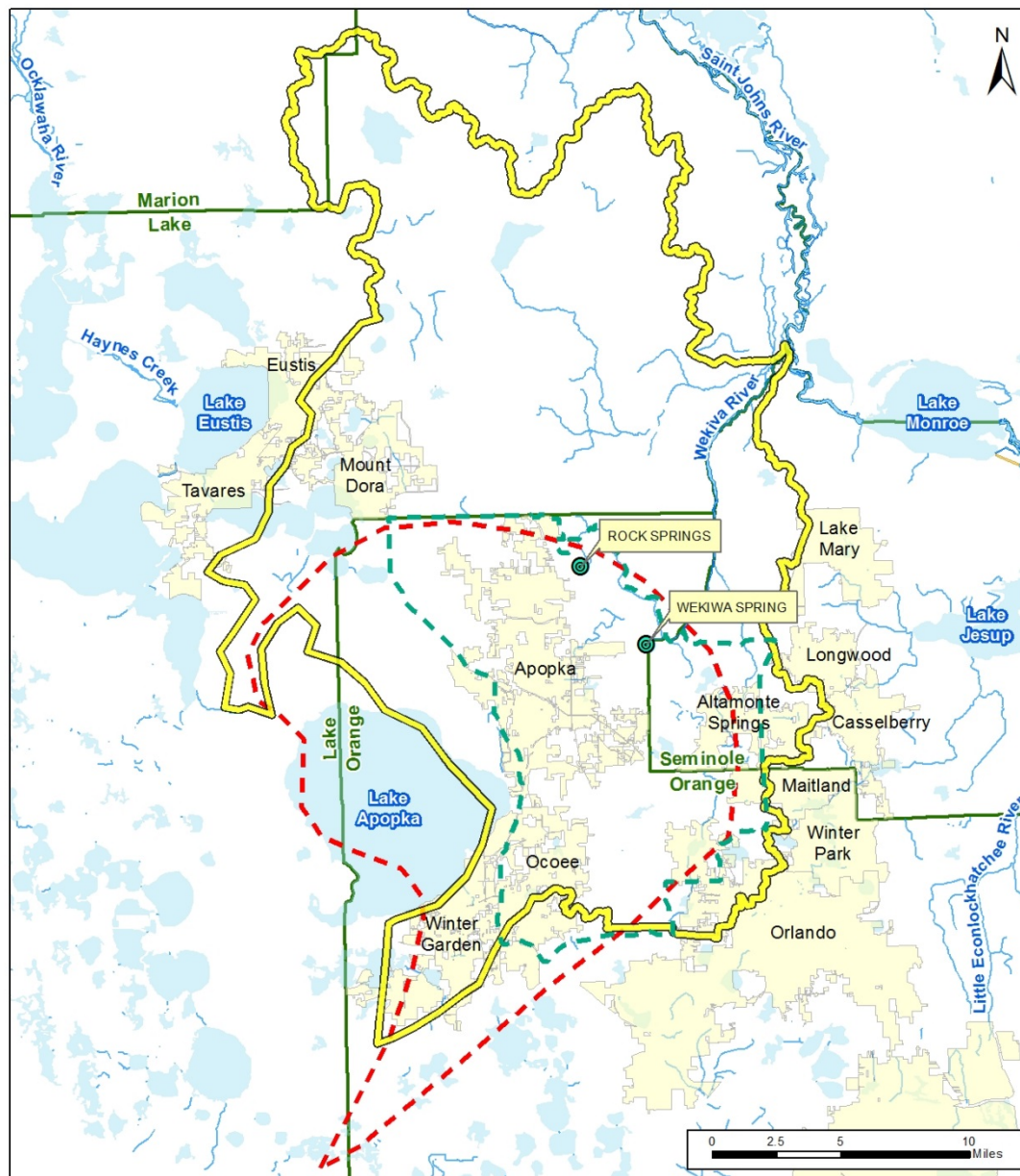


DRAFT PFA



PFA - Steps for Determination

- Establish the springshed for the priority spring(s) – Wekiwa and Rock.
- Identify regions within the contributing area where greatest recharge occurs.
- Identify regions within the springshed where the Floridan Aquifer is most vulnerable.
- Consider nitrogen load.
- Consider groundwater travel time in creating PFA boundaries.
- Identify regions within the contributing area where soil conditions are most favorable for leaching of nitrogen from surface sources
- Identify regions within the contributing area to exclude or include based on land use and potential for pollutant sources to occur.
- Create PFA boundaries that correspond with understood and identifiable boundaries.



Wekiva BMAP Springshed

Map prepared by the Division of Environmental Assessment and Restoration. This map is not for legal decision making purposes.
Map ID: Wekiwa_Springshed_100716
[GIS] Benjamin M. Miller@dep.state.fl.us
[BMAP] M. Oira Homann@dep.state.fl.us
Created: 10-07-16

Cities

Wekiva BMAP Area

Draft PFA

Wekiva/Rock Combined Springshed

Springs

Stream/River

Lake/Pond

Counties





Wekiva PFA

- PFA boundary developed by overlaying geographic information system (GIS) coverages of the following:
 - Recharge.
 - Vulnerability.
 - Soils.
 - Conservation lands.
 - Potential contaminant nitrogen source information.



Wekiva PFA (cont'd)

- The PFA includes the following:
 - Region in the northeastern part of the combined springshed - area includes high groundwater recharge/vulnerability conditions and soil conditions that tend to leach nitrogen.
 - Modeled areas of higher nitrogen loading from OSTDS.
 - An area within the springshed over which groundwater travel to the springs could occur within 1 year or less.
 - Interconnected areas of urban development, areas of OSTDS, agricultural areas and wastewater treatment facilities which all have potential to contribute to nitrogen enrichment in the aquifer and springs.
 - Conservation land boundaries, natural features, political boundaries and roads in the area were also considered in the development of a readily identifiable boundary.



Wekiva PFA (cont'd)

- **Proposed PFA**

- Is in Orange and Seminole Counties.
- Includes parts of the following cities: Apopka, Ocoee, Altamonte Springs, Maitland, and Orlando.
- Includes unincorporated areas of Orange and Seminole Counties as well as all or parts of the following communities: Zellwood, South Apopka, Wekiwa Springs, Clarcona, Pine Hills, Lockhart, Forest City, Eatonville, Fairview Shores, and Paradise Heights. The proposed PFA also includes Wekiwa Springs State Park and Kelly Park, which contain Wekiwa and Rock Springs, respectively.



An Overview of the Florida Department of Health Onsite Sewage Program

Bart Harriss - FDOH

Orange County



Wekiva River Basin BMAP
OSTDS Advisory Committee Meeting
*An Overview of the Florida Department of
Health Onsite Sewage Programs*

February 22, 2017

Bart Harriss, RS, CPM

Environmental Manager, Environmental Health Services
Florida Department of Health In Orange County

Audra N. Burchfield, MPS

Environmental Specialist III, Environmental Health Services
Florida Department of Health In Orange County

TOPICS COVERED

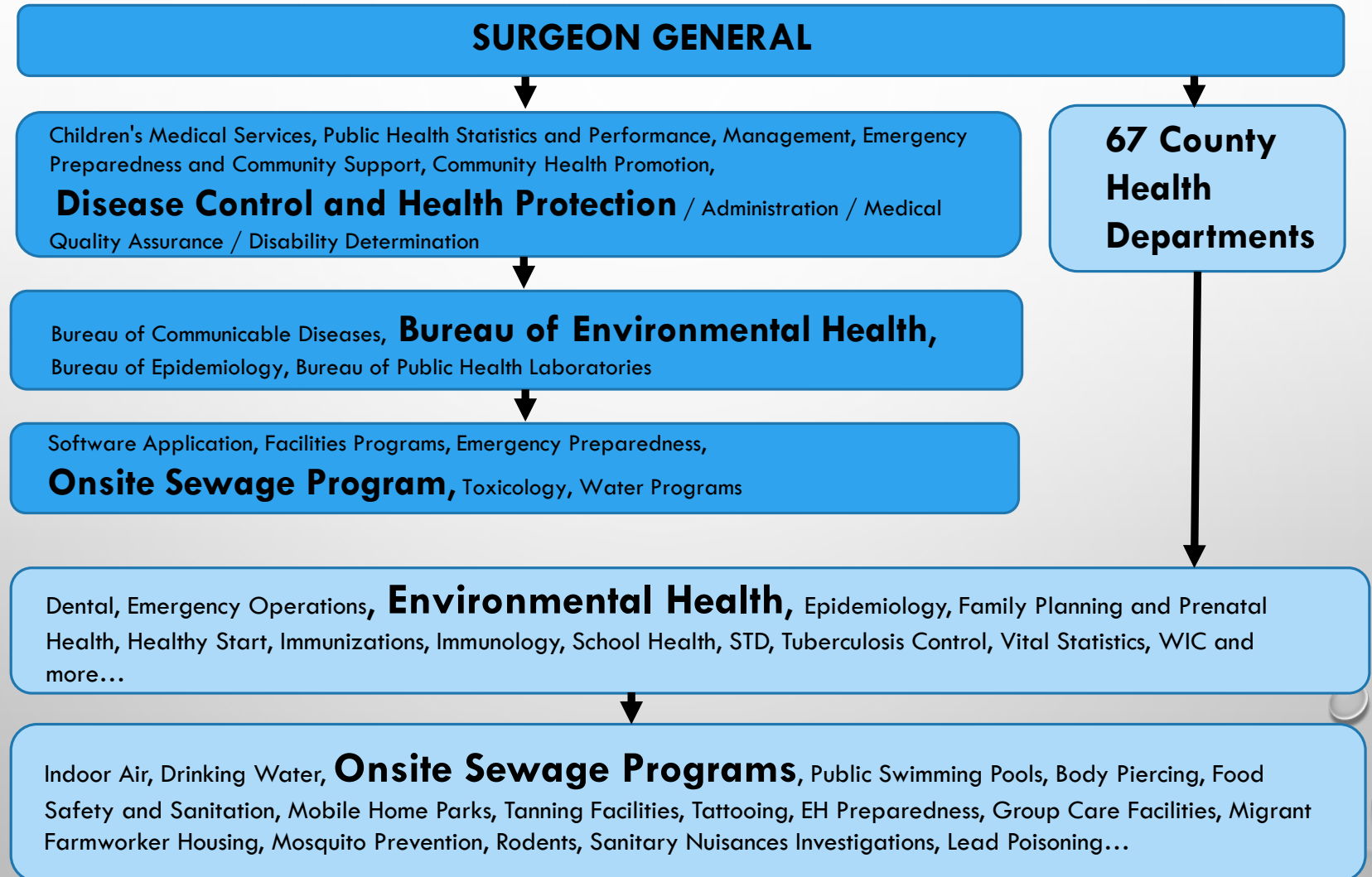
- DOH STRUCTURE/AUTHORITY/JURISDICTION
- CENSUS/STATISTICS
- PERMITS AND APPLICATION PROCESS
- WEKIVA PROTECTION ACT / BMAP
- RULE/PROGRAM UPDATE



MISSION

TO PROTECT, PROMOTE & IMPROVE THE HEALTH OF ALL
PEOPLE IN FLORIDA THROUGH INTEGRATED STATE,
COUNTY, & COMMUNITY EFFORTS.

STRUCTURE



AUTHORITY (ONSITE PROGRAMS)

LAW

- 381.0065, FLORIDA STATUTES
- 489 PART III, FLORIDA STATUTES

RULE

- CHAP. 64E-6, FLORIDA ADMINISTRATIVE CODE

JURISDICTION (ONSITE PROGRAMS)

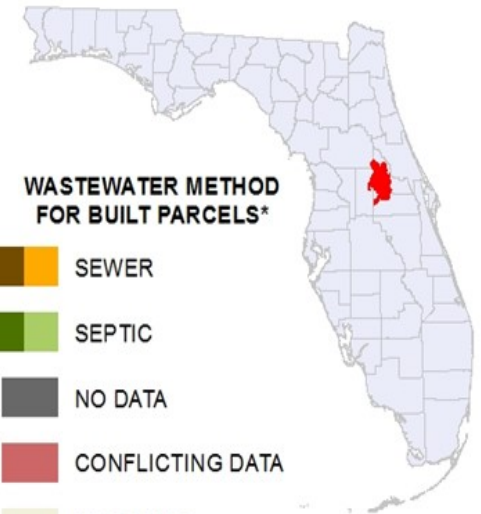
- ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS (OSTDS)
- SEWER AVAILABILITY
- DOMESTIC FLOWS OF 10,000 GPD OR LESS
- COMMERCIAL SEWAGE FLOW OF 5,000 GPD OR LESS
- REGULATION AND MAINTENANCE TO PREVENT GROUNDWATER CONTAMINATION
- PRESERVE THE PUBLIC HEALTH

Florida Water Management Inventory

Wekiva Basin BMAP Area

Wastewater

2016



WASTEWATER METHOD FOR BUILT PARCELS*

- SEWER
- SEPTIC
- NO DATA
- CONFLICTING DATA
- NOT BUILT

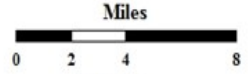
Interstate

US Highway

County Boundary

Wekiva BMAP Boundary

* Includes parcels with unknown Built status. Percentages do not include parcels where wastewater is not applicable.



1:259,203
Albers Equal Area NAD83 HARN

This map is based on sources of varied accuracy and scale provided by multiple organizations. FDOH assumes no liability for the use of this map and associated data.



28Mar2016

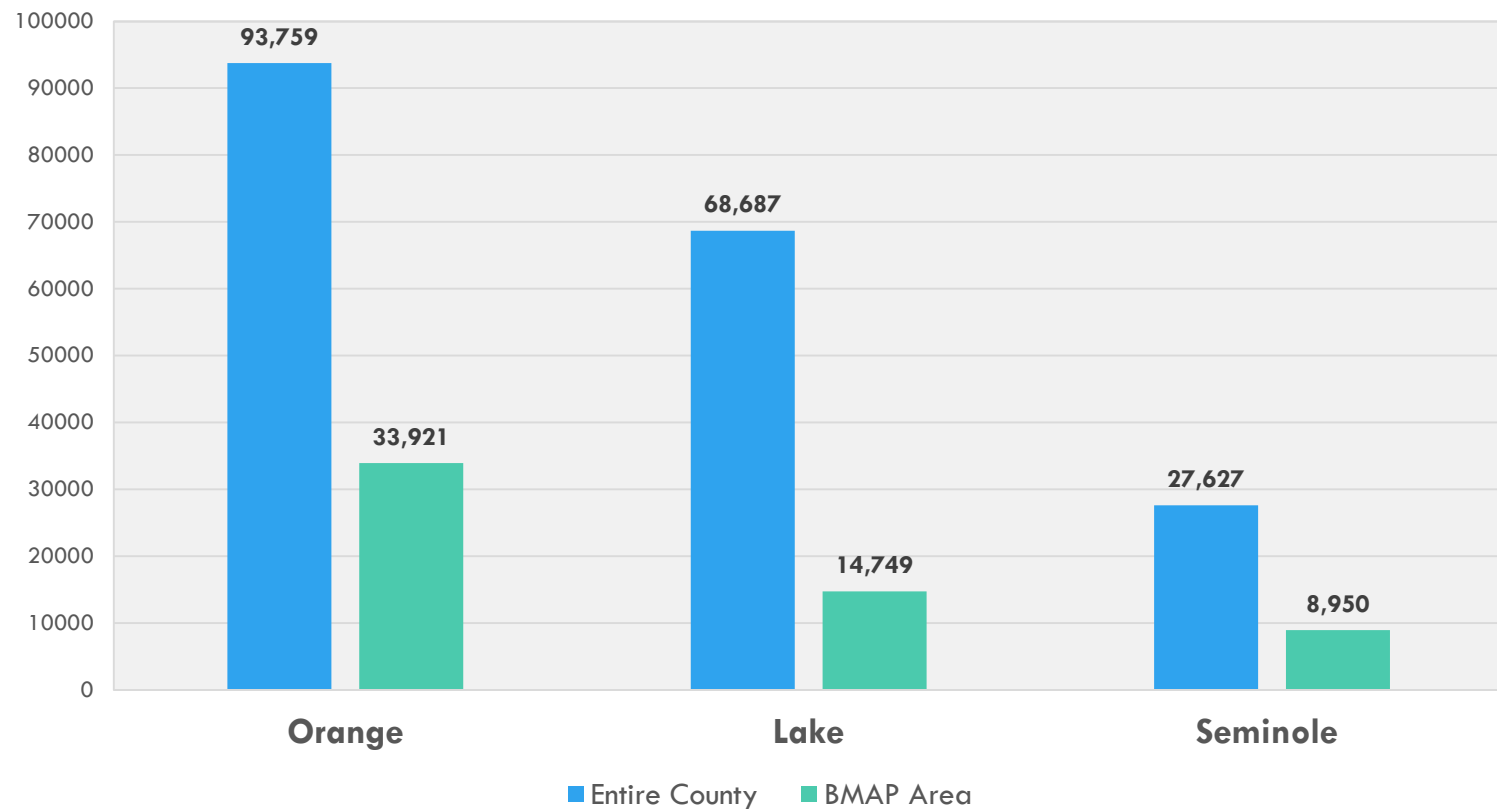
Total Est. Septic:
57,717

SEWER PARCELS	SEPTIC PARCELS	UNKNOWN PARCELS
 82,377 Known (44.9%)	 17,021 Known (9.3%)	 1,090 Conflicting Data (0.6%)
 14,296 Likely (7.8%)	 40,696 Likely (22.2%)	 3,437 No Data (1.9%)

CENSUS/STATISTICS

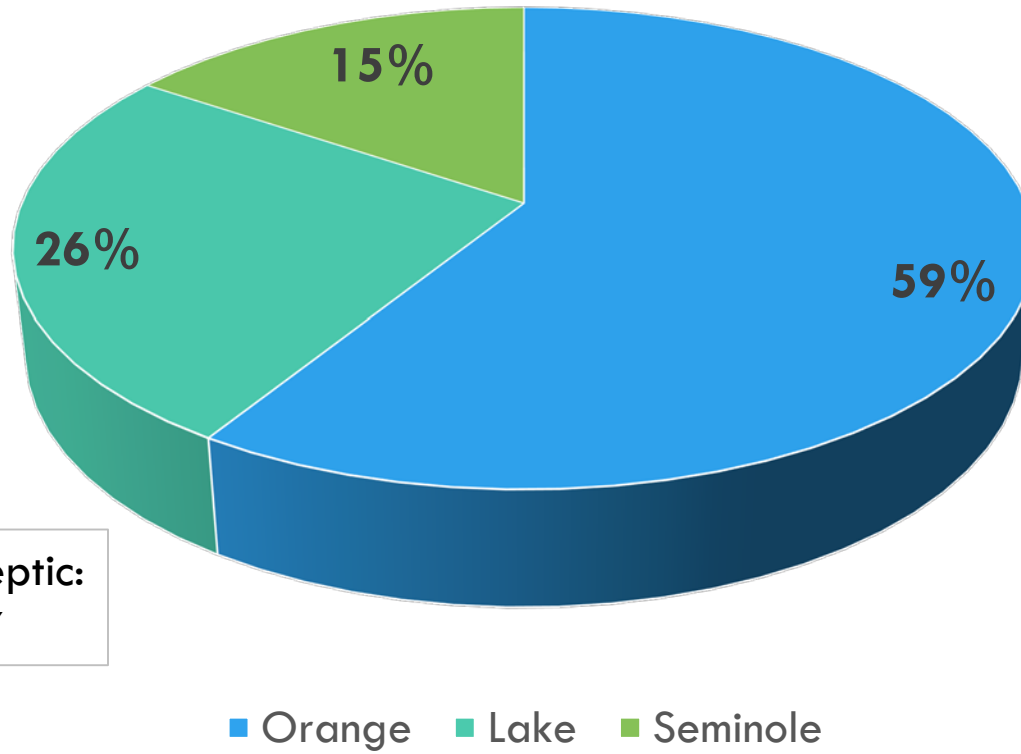
Total OSTDS Installed Orange/Lake/Seminole & Wekiva BMAP Area

FLORIDA WATER MANAGEMENT INVENTORY - 2016



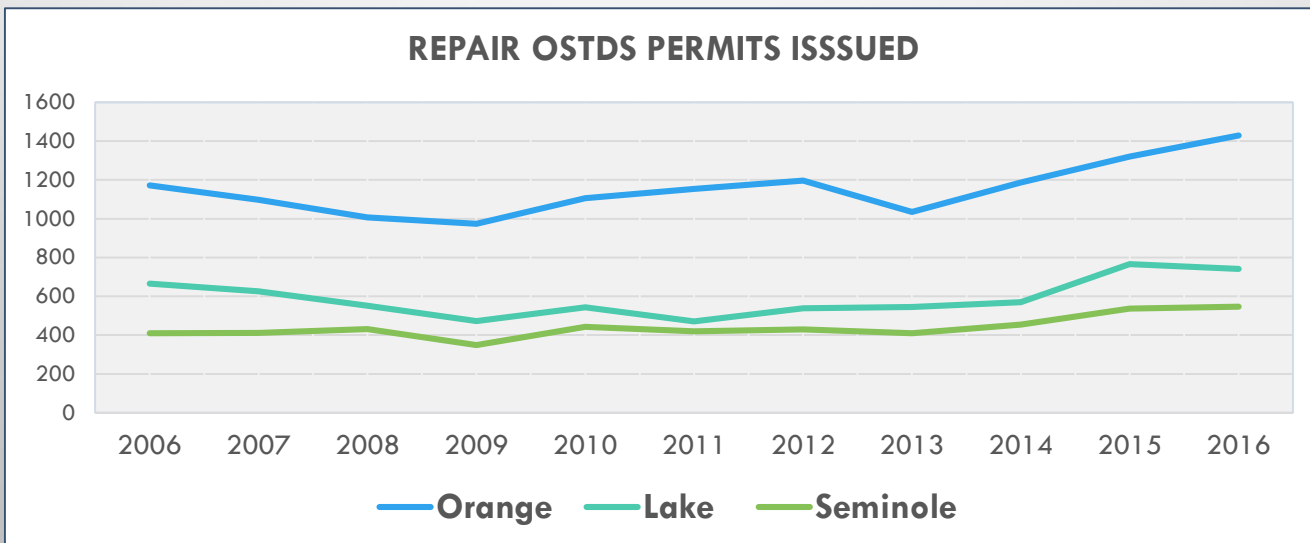
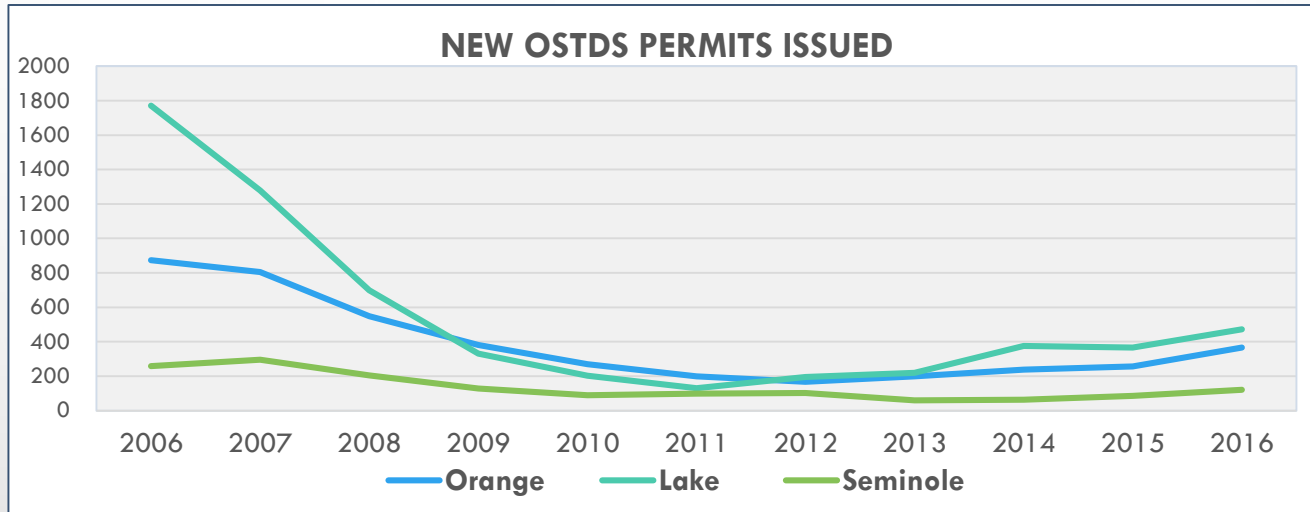
CENSUS/STATISTICS

Total OSTDS Installed - Wekiva BMAP AREA
FLORIDA WATER MANAGEMENT INVENTORY - 2016



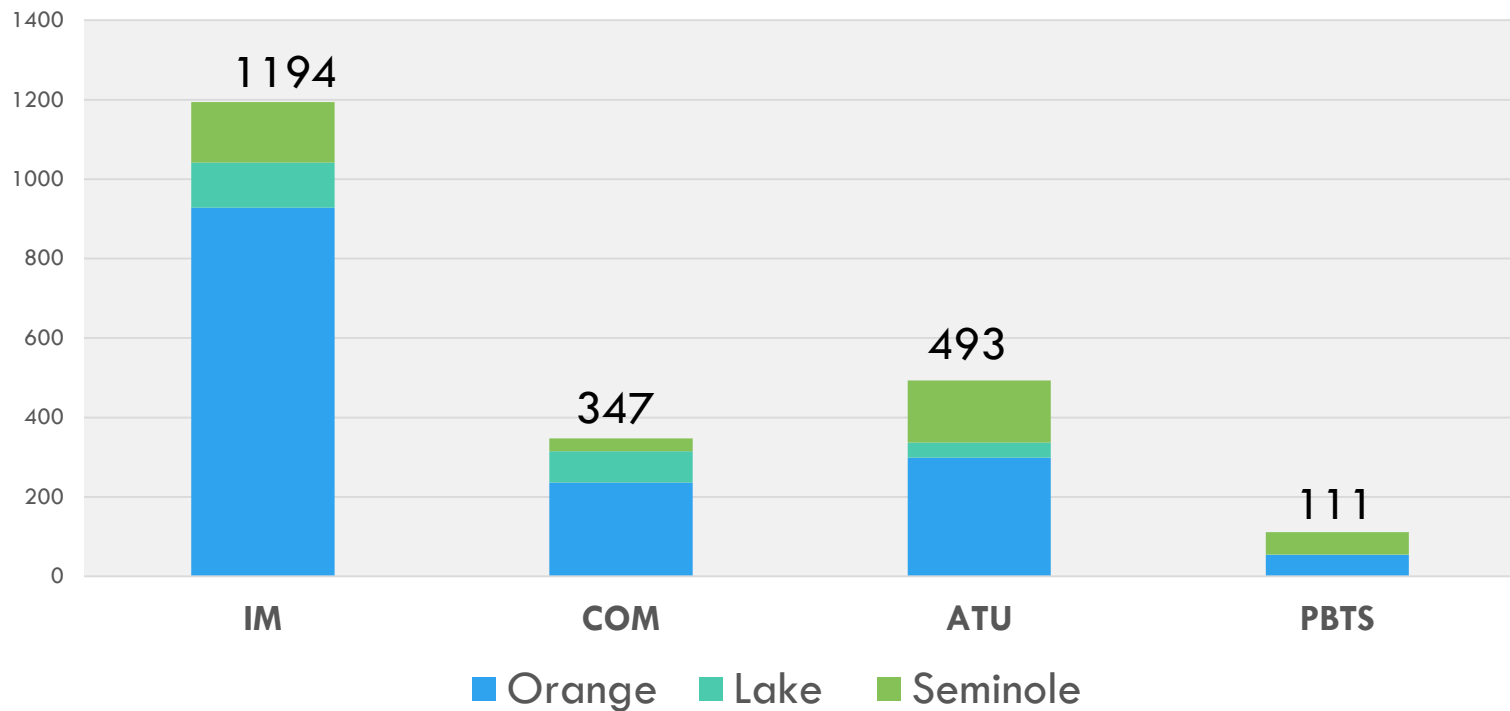
Total Est. Septic:
57,717

CENSUS/STATISTICS



CENSUS/STATISTICS

Total Operating Permits in Orange, Lake and Seminole Counties



PERMIT AND APPLICATION PROCESS

CONSTRUCTION/APPR	OPERATING PERMITS	SERVICE PERMITS
NEW	INDUSTRIAL/ MANUFACTURING	SEPTAGE DISPOSAL
REPAIR	COMMERCIAL SEWAGE	TEMPORARY TOILET
MODIFICATION	ATU	ATU MAINTENANCE
EXISTING APPROVAL	PBTS	TANK MANUFACTURER
HOLDING TANKS		
ABANDONMENTS		

- COMPLAINT INVESTIGATIONS – SANITARY NUISANCES/ILLEGAL OSTDS CONTRACTING

PERMIT AND APPLICATION PROCESS

- **SUBMIT COMPLETE APPLICATION AND FEES**
 - SITE PLAN, FLOOR PLAN, SITE EVALUATION/SOIL ANALYSIS, ENGINEERING DETAILS IF REQUIRED
- **ISSUE OR DENY PERMIT**
 - IF DENIED – RESUBMIT INFO FOR APPLY FOR VARIANCE
- **SYSTEM INSTALLED**
 - (BY LICENSED SEPTIC TANK CONTRACTOR OR STATE LICENSED PLUMBER)
- **INSPECTION BY DOH**
 - APPROVED OR DISAPPROVED

WEKIVA PROTECTION ACT/BMAP

- WEKIVA RIVER BASIN COMMISSION
- PUBLIC/LOCAL GOVERNMENT/STATE
GOVERNMENT/HOMEOWNERS ASSOC MEETINGS
- OSTDS RESEARCH
*(FLORIDA ONSITE SEWAGE NITROGEN REDUCTION
STRATEGIES STUDY)*
- WEKIVA BMAP WORKING GROUP
- WEKIVA BMAP OSTDS ADVISORY COMMITTEE

QUESTIONS





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BUREAU OF ENVIRONMENTAL HEALTH

Decentralized Onsite Systems

Roxanne L. Groover, FOWA

February 2017

EPA & the Decentralized Wastewater Partnership

- ▶ In 1996, EPA published a “*Response to Congress on the Use of Decentralized Wastewater Treatments Systems.*” EPA concluded that decentralized (septic) systems are an integral component of our nation’s wastewater infrastructure and can protect public health and water quality if they are properly planned, sited, designed, installed and maintained.
- ▶ *The EPA Decentralized Wastewater Memorandum of Understanding (MOU) Partnership, created in 2005, has served as an ongoing cooperative relationship between the EPA and Signatory Organizations to effectively and collaboratively address management and performance issues pertaining to decentralized systems.*
 - ▶ *Additional MOUs signed in 2008 & 2011*

2014 Decentralized Wastewater Management MOU

- ▶ **National Association of Towns and Townships (NATaT)**
- ▶ **National Association of Wastewater Technicians (NAWT)**
- ▶ **National Environmental Health Association (NEHA)**
- ▶ **National Environmental Services Center (NESC)**
- ▶ **National Onsite Wastewater Recycling Association, Inc. (NOWRA)**
- ▶ **Rural Community Assistance Partnership (RCAP)**
- ▶ **Water Environment Federation (WEF)**
- ▶ **Association of Clean Water Administrators (ACWA)**
- ▶ **Ground Water Protection Council (GWPC)**
- ▶ **State Onsite Regulators Alliance (SORA)**
- ▶ **Water Environment Research Foundation (WERF)**
- ▶ **Association of State Drinking Water Administrators (ASDWA)**
- ▶ **Association of State and Territorial Health Organizations (ASTHO)**
- ▶ **Center for Disease Control and Prevention (CDC)/Agency for**
- ▶ **Toxic Substances and Disease Registry (ATSDR)**
- ▶ **NSF International**
- ▶ **International Association of Plumbing and Mechanical Officials (IAPMO)**
- ▶ **National Rural Water Association (NRWA)**
- ▶ **National Association of Home Builders (NAHB)**

WHAT IS DECENTRALIZED WASTEWATER TREATMENT?

- ▶ Decentralized wastewater treatment consists of a variety of approaches for collection, treatment, and dispersal/reuse of wastewater for individual dwellings, industrial or institutional facilities, clusters of homes or businesses, and entire communities.
- ▶ An evaluation of site-specific conditions is performed to determine the appropriate type of treatment system for each location.
- ▶ These systems are a part of permanent infrastructure and can be managed as stand-alone facilities or be integrated with centralized sewage treatment systems.

WHAT IS DECENTRALIZED WASTEWATER TREATMENT (cont.)?

These systems can:

- ▶ Serve on a variety of scales including individual dwellings, businesses, or small communities;
- ▶ Treat wastewater to levels protective of public health and water quality;
- ▶ Comply with municipal and state regulatory codes; and
- ▶ Work well in rural, suburban and urban settings.

WHY DECENTRALIZED WASTEWATER TREATMENT?

- ▶ Decentralized wastewater treatment can be a smart alternative for communities considering new systems or modifying, replacing, or expanding existing wastewater treatment systems. For many communities, decentralized treatment can be:
 - ▶ **Cost-effective and economical**
 - ▶ • Avoiding large capital costs
 - ▶ • Reducing operation and maintenance costs
 - ▶ • Promoting business and job opportunities
 - ▶ **Green and sustainable**
 - ▶ • Benefiting water quality and availability
 - ▶ • Using energy and land wisely
 - ▶ • Responding to growth while preserving green space
 - ▶ **Safe in protecting the environment, public health, and water quality**
 - ▶ Protecting the community's health
 - ▶ Reducing conventional pollutants, nutrients, and emerging contaminants
 - ▶ Mitigating contamination and health risks associated with wastewater

THE BOTTOM LINE

- ▶ Decentralized wastewater treatment can be a sensible solution for communities of any size and demographic. Like any other system, decentralized systems must be properly designed, maintained, and operated to provide optimum benefits. Where they are determined to be a good fit, decentralized systems help communities reach the triple bottom line of sustainability: good for the environment, good for the economy, and good for the people.

Various Case Studies

- ▶ <https://www.epa.gov/sites/production/files/2015-06/documents/decentralized-case-studies-2012.pdf>
- ▶ Five Management Models
 - ▶ Homeowner Awareness
 - ▶ Maintenance Contract
 - ▶ Operating Permit
 - ▶ Responsible Management Entity (RME) – 3rd Party
 - ▶ Responsible Management Entity (RME) - Ownership

Model 2 – Maintenance Contracts

- ▶ **Albemarle, North Carolina ,**
- ▶ **Keuka Lake, New York,**
- ▶ **Lake Panorama, Iowa**

ALBEMARLE REGION, NORTH CAROLINA

PROBLEM

Rivers and streams of the Albemarle Region of North Carolina are nutrient-sensitive and require nutrient input controls such as upgrades for wastewater treatment plants and septic systems. Both strategies are being pursued by state and local officials. Much of the area is unsuitable for conventional gravity-flow individual systems due to low-permeability clay soils and high water tables. In past decades, these limitations prompted the extensive use of sand-lined trench leaching systems in the region. A 1991 study found that 30% of those systems were malfunctioning and posing risks to groundwater and surface water quality.

SOLUTION

Local governments authorized a regional management entity to inventory and monitor individual wastewater systems, improve system management, and develop site-specific design criteria for new and replacement systems incorporating advanced treatment technologies.

KEUKA LAKE WATERSHED, NEW YORK

PROBLEM

Approximately 20,000 residents in the Keuka Lake watershed rely on groundwater and the lake for their drinking water. Nearly all of the residents in the watershed also depend on individual wastewater systems that are densely positioned and that discharge to the soil for treatment. However, testing revealed that poorly maintained individual onsite systems were contributing excessive levels of bacteria to the lake and contaminating drinking water wells.

SOLUTION

Eight municipalities formed a regional watershed cooperative that implemented a uniform permitting and inspection program to identify and repair or replace malfunctioning treatment systems. As a result, Keuka Lake's water quality ranks among the highest of the water bodies in the Finger Lakes region.

LAKE PANORAMA, IOWA

PROBLEM

Residential growth is a challenge in unsewered resort communities like Lake Panorama, Iowa, due to the need to protect lake water quality from septic system impacts. Lake Panorama is one of the largest private lake resort communities in Iowa. Installing conventional, soil-discharging wastewater systems is difficult in this community because of steep slopes, ravines, low-permeability soils, and small and oddly shaped lots.

SOLUTION

The community created a management district to accommodate growth and protect water resources through the use of advanced, clustered, and innovative onsite wastewater treatment systems.

Management Model 3: Operating Permits

- ▶ **Hamilton County, Ohio**
- ▶ **Monroe County, Florida**
- ▶ **The Sea Ranch, California**
- ▶ **Auburn Lake Trails, California**

MONROE COUNTY, FLORIDA

PROBLEM

Monroe County, Florida, is home to the Florida Keys and a complex and dynamic marine ecosystem—including the world's third-largest coral reef. The county is also home to 30,000 individual wastewater systems that may contribute to excessive nutrients in near shore and offshore waters, leading to the deterioration of the reef and marine resources. Additionally, more stringent wastewater treatment standards adopted by the state also created challenges for conventional onsite systems.

SOLUTION

A state wastewater treatment standards law targeting Monroe County now requires the countywide use of advanced nutrient reduction systems, renewable operating permits, maintenance contracts, and annual inspections.

Management Model 4: Responsible Management Entity (RME) Operation and Maintenance

Elements of Management Model 4

- ▶ Management Model 4 includes two key elements:
 - ▶ **Professional operation and maintenance services provided through an RME (public or private)**
 - ▶ **Regulatory agency oversight provided through operating permits issued directly to the RME**
- ▶ Management Model 4 programs typically involve:
 - ▶ **The RME has responsibility and legal authority to operate the systems in order to meet regulatory and performance requirements**
 - ▶ **The regulatory agency oversees and issues permits to the RME in order to ensure compliance**
 - ▶ **The RME inspects systems and conducts routine operation and maintenance**
 - ▶ **System owners pay for new construction, repairs, upgrades, and system replacement that the RME implements**

Management Model 4: Responsible Management Entity (RME) Operation and Maintenance

- ▶ **Otter Tail Lake, Minnesota**
- ▶ **Peña Blanca, New Mexico**

OTTER TAIL LAKE, MINNESOTA

PROBLEM

The community around Otter Tail Lake in western Minnesota saw a decline in lake water quality. An environmental assessment revealed that substandard wastewater systems, untreated sewage discharges to surface waters, and intensive shoreline development contributed to high levels of phosphorus in the lake, causing elevated algae growth and an overall decline in water quality.

SOLUTION

The community formed a management district to identify and repair/replace malfunctioning systems and manage the wastewater treatment systems of four townships situated on six area lakes.

The district's actions resulted in documented water quality improvements. For example, surface water monitoring of the lake has revealed declining phosphorus and algae concentrations and overall improved water quality. Nitrate concentrations have dropped from 1 mg/L to approximately 0.2 mg/L; Secchi depth has increased from 2.4 feet to about 4 feet.

PEÑA BLANCA, NEW MEXICO

PROBLEM

Outdated, neglected, or nonexistent wastewater systems posed a public health risk to the 800 citizens of Peña Blanca, New Mexico. Open cesspools and seepage pits emptied into yards and irrigation canals. Surveys revealed that 86% of the individual wastewater systems needed repair or replacement. Residents rejected a proposed centralized sewer system that would have cost \$3.1 million.

SOLUTION

The community opted to repair or replace 133 of the existing 185 treatment systems with the water and sanitation district serving as the operator/manager of the upgraded and new facilities.

RESULTS

The decentralized wastewater option was less than half of the projected cost of central sewage treatment for the 133 homes served by repaired or replaced systems. Sewage surfacing and cesspool discharges throughout the community no longer occur. Post-construction groundwater monitoring found nitrate levels at 1 mg/L or less in the project area, far below the 10 mg/L standard for groundwater used as drinking water.

Management Model 5: RME Ownership

Management Model 5 includes these key elements:

- RME ownership and management of treatment systems**
- Risk evaluation and prioritization when planning and designing systems**
- Permit requirements with performance criteria for system operation**
 - Procedures for conducting compliance monitoring and tracking**
- Certification program requirements for service providers**
- Oversight of rate structure and financial management**

Management Model 5: RME Ownership

- ▶ **Blacksburg, Virginia**
- ▶ **Phelps County, Missouri**
- ▶ **Shannon City, Iowa**

PHELPS COUNTY, MISSOURI

PROBLEM

In 1995, Missouri adopted more stringent public health regulations for individual systems on lots of three acres or less. To comply with those regulations, property owners in Phelps County needed to upgrade their individual systems. The need to upgrade systems was underscored by the fact that local lenders would not make loans on houses that were not in compliance with state rules.

SOLUTION

County leaders and the local water supply district expanded services to allow the water district to own and operate decentralized systems that provide affordable and sustainable wastewater treatment.

RESULTS

The county now manages eight clustered systems with septic tank effluent pumps that serve 415 residential units, rather than 450 individual septic systems. The clustered systems serve as upgraded systems for the homes that previously had malfunctioning systems. Actual effluent quality for the clustered systems ranges from 4 to 9 mg/L for biochemical oxygen demand and 1 to 8 mg/L for total suspended solids. Fecal coliform levels have been in the range of 10 colony-forming units per 100 milliliters of effluent. In addition, local officials believe that the elimination of hundreds of old septic system leachfields has improved groundwater quality, based on the higher quality effluent being discharged from the new systems.

The Water Supply District serves as the RME in Phelps County, Missouri. The district owns and operates eight recirculating sand filters.



BLACKSBURG, VIRGINIA

PROBLEM

Blacksburg, Virginia, like many growing communities, faced the challenge of meeting development needs with a decentralized system or extending the existing centralized sewer system. The town considered factors such as cost, construction-related traffic disruptions, floodplain and creek impacts due to centralized sewer main construction, collection system infiltration/inflow and leakage, treatment effectiveness, and other factors.

SOLUTION

The town established a workgroup to evaluate wastewater treatment system alternatives. After careful review, Blacksburg chose to conduct a pilot project to test the feasibility of a decentralized, clustered system.

RESULTS

Selection of the STEP/STEG system has saved the community more than \$1 million in construction, with operation and maintenance costs similar to that of conventional centralized systems. The town's public works department conducts annual inspections of each STEP/STEG system and pumps the 200 septic tanks as needed. The program estimates that pumping should occur every seven years and estimates an average cost of \$150 per tank.

SHANNON CITY, IOWA

PROBLEM

Small communities like Shannon City face significant challenges in managing individual wastewater systems. The small, rural community had neither the technical nor financial resources to support upgrades of substandard systems and remove straight pipe discharges draining untreated sewage into city ditches.

SOLUTION

City officials partnered with the Southern Iowa Rural Water Association (SIRWA) authority to design, build, own, and operate individual and clustered wastewater systems for the community.

RESULTS

In 2003 and 2004, SIRWA placed 34 peat filters, eight lateral line absorption systems, and one existing gravity-fed, single-pass sand filter into operation. SIRWA chose the peat filter system because of its small footprint and ease of media replacement compared with a sand filter. The installed systems replaced non-functioning septic systems with appropriate wastewater treatment units and eliminated straight pipe sewage discharges into roadsides, other ditches, and surface waters. The new systems comply with IDNR operating permit requirements and function properly with centralized management.

Community Onsite Wastewater Cluster System

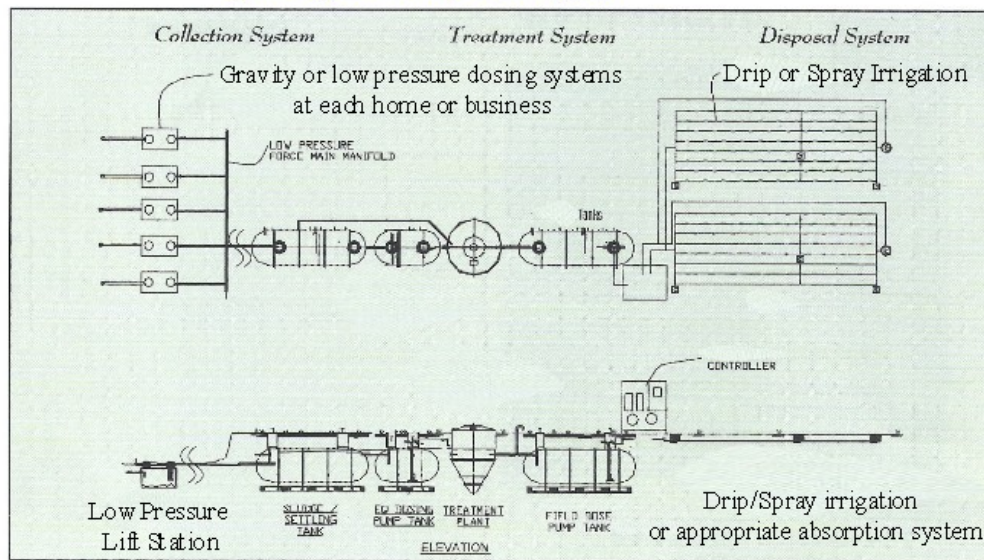


Rural Community Development



Basic Schematic

Typical System Component Layout



EPA's Resources

- ▶ <https://www.epa.gov/septic>

Questions/Comments?



Cluster Wastewater Systems

Roxanne Groover - FOWA



Wrap Up – OSTDS Meeting

- Public Comments.
- Next meeting date April/May timeframe.
- Other comments/announcements.
- Action items.
- Adjourn OSTDS Committee.



Florida Department of Environmental Protection

Division of Environmental Assessment and Restoration

Wekiva River, Rock Springs Run, and Little Wekiva Canal BMAP Annual Update





Agenda

- Review
 - BMAP
 - 2016-1 Requirements Review
 - Springshed Nitrogen Sources
- Urban Turfgrass Discussion
- Annual Progress Report Updates.
 - Update on Activities Over the Past Year.
 - SJRWMD
 - DEP
 - FDACS
 - Friends of Wekiva River
 - Seminole County
 - Sanlando
- Summary and Action Items
- Next Meeting Date.
- Adjourn.



-
- Wekiva BMAP**
Study Area and Municipalities
- Map prepared by the Division of Environmental Assessment and Restoration,
this map is not for legal decision making purposes.
Map ID: Wekiva_BMAP_StudyArea_Munic_I
Created: 10-14-2015
- Legend:**
- Springs
 - Wekiva Study Area
 - Wekiva BMAP
 - WBIDs
 - Wekiva Spring Cluster Springshed
 - Florida Counties
- TIGER 2010 Cities**
- | | |
|-------------------|---------------|
| Altamonte Springs | Mount Dora |
| Apopka | Ocoee |
| Eustis | Orlando |
| Lake Mary | Tavares |
| Longwood | Winter Garden |
| Maitland | Winter Park |



Summary of Projects Listed in the BMAP

Projects in the BMAP

- Stormwater Structural BMPs
 - Stormwater Treatment Systems
 - Stormwater System Rehabilitation
 - Dredging and Drainage Improvements
- Agricultural BMPs
 - Agriculture acreage enrolled in BMPs
 - Remaining Acres to Enroll
- Special Studies/Research, Data Collection and Planning
- Education and Outreach
 - Public education coordination
- Conservation Land Acquisition
 - Land Preservation
 - Wetland Rehabilitation
- Stormwater Operation and Maintenance and Street Sweeping
 - Erosion Retention
 - Exotics Removal
 - Street Sweeping
 - Dirt Road Paving
 - Inspections
- OSTDS Conversion
 - Individual septic phase out to sewer
- Wastewater Reuse
 - Improvements and extensions of reclaimed water
- Wastewater Collection System Maintenance
 - Inspections and maintenance

New Projects Submitted

- 42 new projects submitted - projects were completed or started during the reporting period (November 1, 2015-October 31, 2016)
 - Completed - 18
 - Underway - 24
- They include:
 - Alum injection
 - Aquatic vegetation harvesting
 - Public education
 - Regulations, ordinances, and guidelines
 - Retention BMPs
 - Stormwater management
 - Stormwater reuse
 - Street sweeping
 - Swales with blocks or raised culverts
 - Treatment train
 - Wastewater infrastructure management
 - Wet detention pond
 - Muck removal/ dredging
 - Shoreline planting
 - Nutrient filter



Annual Progress Report

- Describes the activities that occurred during the reporting period: November 1, 2015 through October 31, 2016.
- Report will include the following:
 - Project updates.
 - Status.
 - Nutrient reductions associated with project implementation efforts (structural/non-structural).
 - Agriculture enrollment in BMPs.
 - Water quality and biological community update.
- Annual report, drafted by early/mid-March.





Florida Springs and Aquifer Protection Act



Chapter 2016-1 Laws of Florida

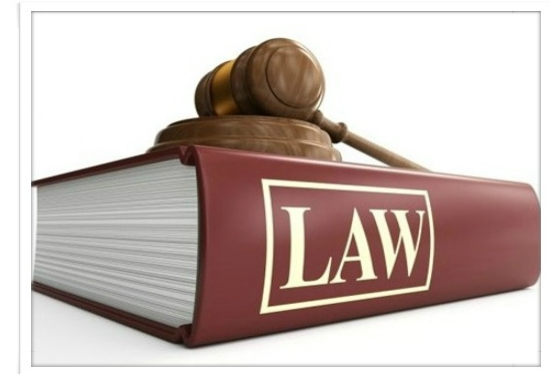
- Florida Springs and Aquifer Protection Act.
- Requires 5-, 10-, 15-, and 20-year goals to achieve TMDLs for each source identified in Nitrogen Source Inventory and Loading Tool (NSILT).
- Revise adopted BMAP to include source specific goals as well as OSTDS Remediation Plan by [July 1, 2018](#).
- Delineate PFA(s).





Requirements of Act

- Local governments within spring BMAP areas must have fertilizer ordinance!
 - [Deadline is July 2017.](#)
 - Department has model ordinance available.
 - Meets Section 403.9337, Florida Statutes (F.S.).
- OSTDS Remediation Plan.
 - Effort kicked off February 2016.
- Within PFA, notification to local governments of 10-2 Environmental Resource Permit (ERP) General Permit.
- Outlines restrictions/prohibitions within PFAs.





PFA Prohibitions

- Directed to new development.
- Prohibition on some activities:
 - Domestic wastewater disposal facilities unless they meet treatment requirements.
 - Applies to $\geq 100,000$ gallons per day unless it meets standard of 3 milligrams per liter (mg/L) on an annual basis or better, if needed.
 - BMAP effluent standards apply in these basins.
 - New hazardous waste disposal facility.
 - Land application of residual unless there is approved nutrient management plan.
 - New OSTDS on lots smaller than 1 acre.
 - **IF** the specific systems conflicts with an OSTDS remediation plan in a BMAP.
 - New agriculture operations that do not implement BMPs or conduct approved monitoring.





Revision of BMAPs

- Law now requires revision of BMAPs to include projected 5-, 10-, 15-, and 20-year goals.
- Meet total maximum daily loads (TMDLs) in 20 years which, for this BMAP, the start date was 2015 and end date is 2035.
- DEP goal to meet reductions in 15 years.
- Propose the following load reduction targets:
 - 5-year: 30 % of total.
 - 10-year: Additional 50 % (80 % of total).
 - 15-year: Remaining 20 % (100 % of total).
 - Use last 5 years to finish up and see results.





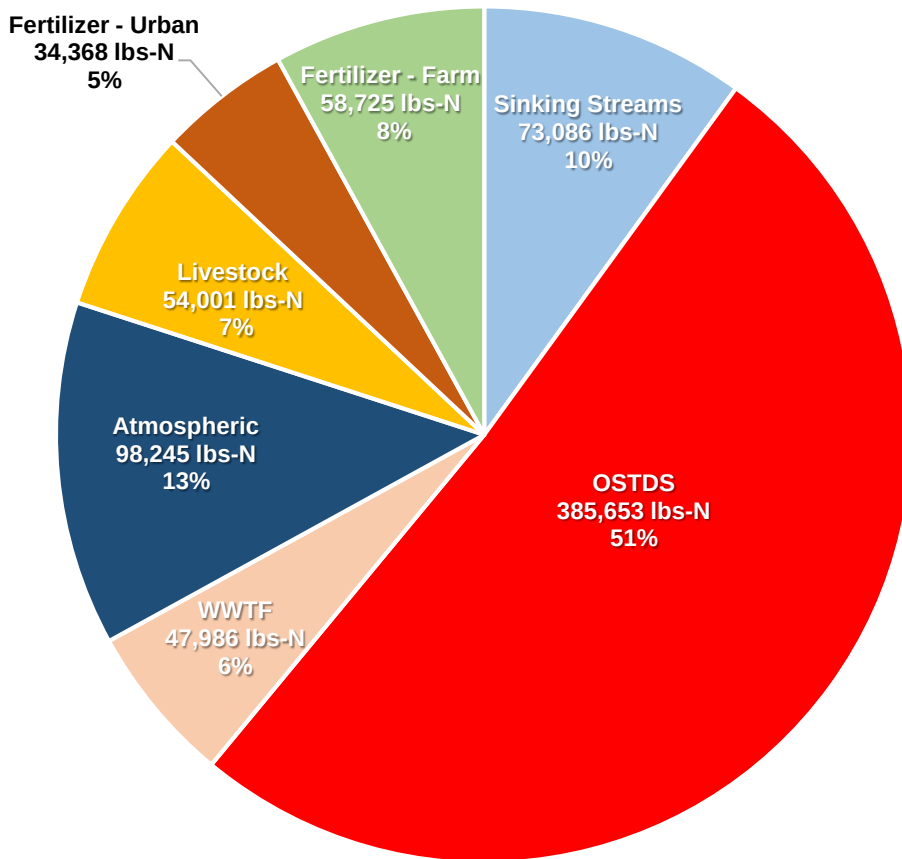
How to Achieve the TMDL?

- Need to develop planning benchmarks or management strategies that set goals for each source.
 - Projects defined that fit within those strategies that will meet specific loading reductions.
 - Projects planned for further out in time will by necessity be more conceptual (less detail confirmed) and the BMAPs will need to be adjusted to accommodate.
- Start with NSILT to define loading. TMDLs define target concentration and the percent reduction needed to achieve water quality standards.





Example – Wakulla NSILT Estimated Loads to Groundwater



- Estimated input of nitrogen loading to Upper Floridan aquifer: 752,063 pounds of nitrogen per year (lbs-N/yr).
 - OSTDS 51 %.
 - Agriculture 15 % (Livestock+Farm Fertilizer).
 - Urban 11 % (wastewater treatment facilities [WWTF]+Urban Fertilizer).
- NSILT provides basis for sources contribution to overall loading.



Example Wakulla Nitrogen Source Reduction Strategy

Source	% of total (752,063 lbs-N/yr)	Total Estimated Load (lbs- N/yr)	Total estimated reduction* [Total groundwater load – TMDL*] (x) %	
Septic Systems	51	385,653	106,551	Controllable loads
Urban Turfgrass Fertilizer	5	34,368	10,446	
Farm Fertilizer	8	58,725	16,714	
Livestock Waste	7	54,001	14,625	
WWTF	6	47,986	12,535	
Atmospheric Deposition	13	98,245	27,160	Uncontrollable loads
Sinking Streams	10	73,086	20,892	

- Load Reduction Targets:

- 5 year--30 % of total.
- 10 year--Additional 50 % (80 % of total).
- 15 year--Remaining 20 % (100 % of total).

*Total estimated reduction:

$$752,063 \text{ lbs-N/yr} - 543,140 \text{ lbs-N/yr} = 208,923 \text{ lbs-N/yr}$$



Example – Wakulla

Nitrogen Source Reduction Strategy (cont'd)

- Set non-controllable loads aside (atmospheric deposition and sinking streams) and deal with controllable load reductions.
 - Atmospheric Deposition
 - Distributed across land surface.
 - Currently no feasible remediation techniques.
 - Set aside to be addressed in later BMAP cycle as tools become available.
 - Not assigned to other sources.
- Yearly -- track load reduction progress and make adjustments as needed.
- At 5 year anniversary:
 - Assess progress.
 - Adjust load reductions as necessary.
 - Determine if atmospheric deposition and sinking stream loads may be allocated.
- Monitor existing groundwater and springs sampling locations.





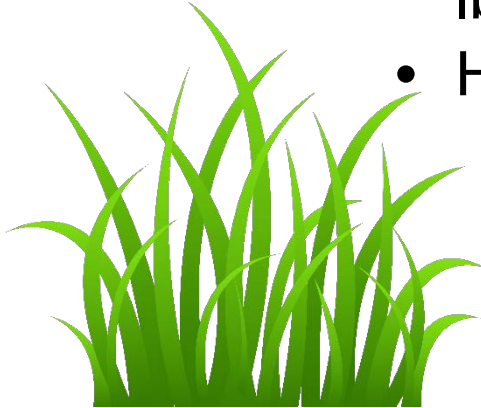
Agricultural Practices – Livestock Waste & Farm Fertilizer

- NSILT will estimate loading to groundwater in pounds per year (lbs/yr) from:
 - Farm fertilizer.
 - Livestock waste.
- Florida Department of Agriculture and Consumer Services (FDACS):
 - Enrollment in Best Management Practices (BMP) Program
 - 5/10/15 year milestones and plans to address groundwater reductions associated with agricultural land uses.
 - Cost share and outreach effort information.



Urban Turfgrass Fertilizer

- NSILT will estimate loading to groundwater in pounds per year (lbs/yr).
- Use that number to estimated reduction of lbs/yr needed.
- How get there?
 - Ordinances.
 - Enforcement.
 - Education.
 - Fertilizer sales bans.
 - New types of fertilizer.
- Source category will include sports turfgrass – golf courses, baseball, football soccer, other fields, parks, etc.





Fertilizer Ordinance

- Florida Springs and Aquifer Protection Act.
- Local governments within spring BMAP area must have fertilizer ordinance!
 - **Deadline is July 2017.**
 - Department has model ordinance available.
 - Meets Section 403.9337, F.S.
 - DEP will be contacting local governments to confirm status.
 - Ordinance is counted as an education credit for urban fertilizer loading.



Annual Report Updates



SJRWMD Water Quality and Cost-Share Program Update

SJRWMD BMAP Update Wekiva River System

**Wekiva BMAP Basin Working Group
22 February 2017**

**Robert A. Mattson, CEP, CSE
Environmental Scientist V
Bureau of Water Resources**

TMDL Targets and Reduction

Nitrate-Nitrite	Rock Springs	Rock Springs Run	Wekiwa Springs	Upper Wekiva River	Lower Wekiva River
Existing Mean (highest nitrate monthly mean - mg/L)	1.50	0.77	1.34	0.88	0.54
Target Nitrate Concentration (mg/L)	0.286	0.286	0.286	0.286	0.286
Percent Reduction	81%	63%	79%	68%	47%
Total Phosphorus	Rock Springs	Rock Springs Run	Wekiwa Springs	Upper Wekiva River	Lower Wekiva River
Existing (highest TP monthly mean – mg/L)	0.084	0.153	0.181	0.168	0.150
Target TP Concentration (mg/L)	0.065	0.065	0.065	0.065	0.065
Percent reduction	23%	58%	64%	61%	57%

Water Quality Monitoring* in the Wekiva River System

- SJRWMD – SWIM related and ambient for FDEP; groundwater
- Seminole County (ambient surface water)
- Lake County (ambient surface water)
- Orange County (surface and groundwater)
- FDEP Florida Geological Survey – Springs
- FDEP Central District – ambient/SCI monitoring; 5-yr assessments of NPDES permits
- USGS (historical)

* - “regional,” ambient monitoring

Summary of Mattson 2012 Water Quality Update

- [NOx] in the headsprings drives (in part) what's in the streams
- [NOx and TP] at this time are usually above the established TMDL targets (springs and streams)
- NOx in Wekiwa and Rock springs appears to be associated with “younger” water; reflecting loading from current land uses



Summary of Mattson 2012 Water Quality Update

- TP in springs appears to, in part, also come from landscape loading (human origin); P also derived from watershed loading downstream
- DO levels in Wekiva River frequently fall below WQ standard (mostly due to natural events)
- Conductivity in Wekiwa Springs indicates more of its flow consists of “older” water from deeper within the Floridan Aquifer



Spring Water Quality

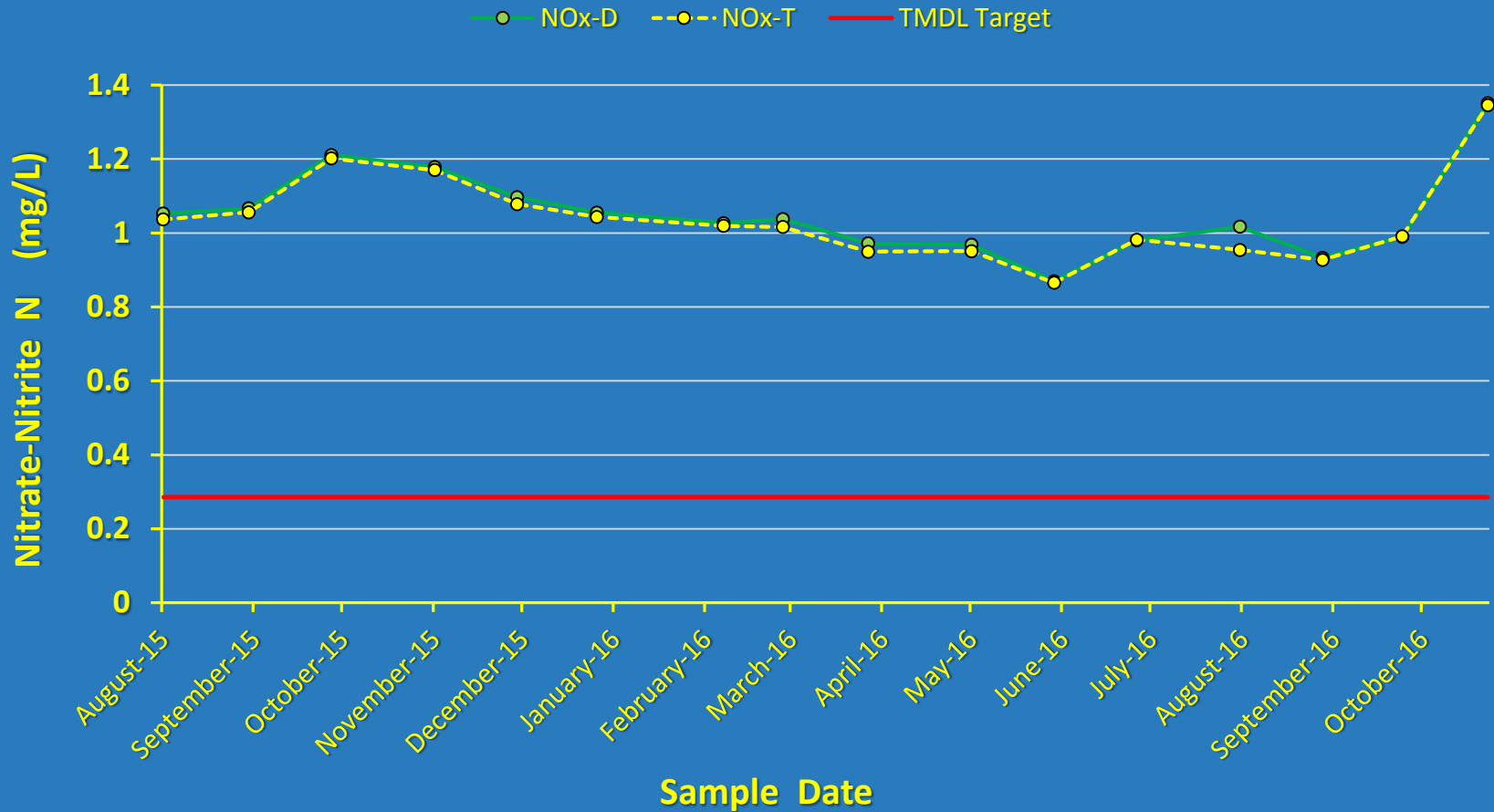
- **Wekiwa Springs**
- **Rock Springs**

SJRWMD data only

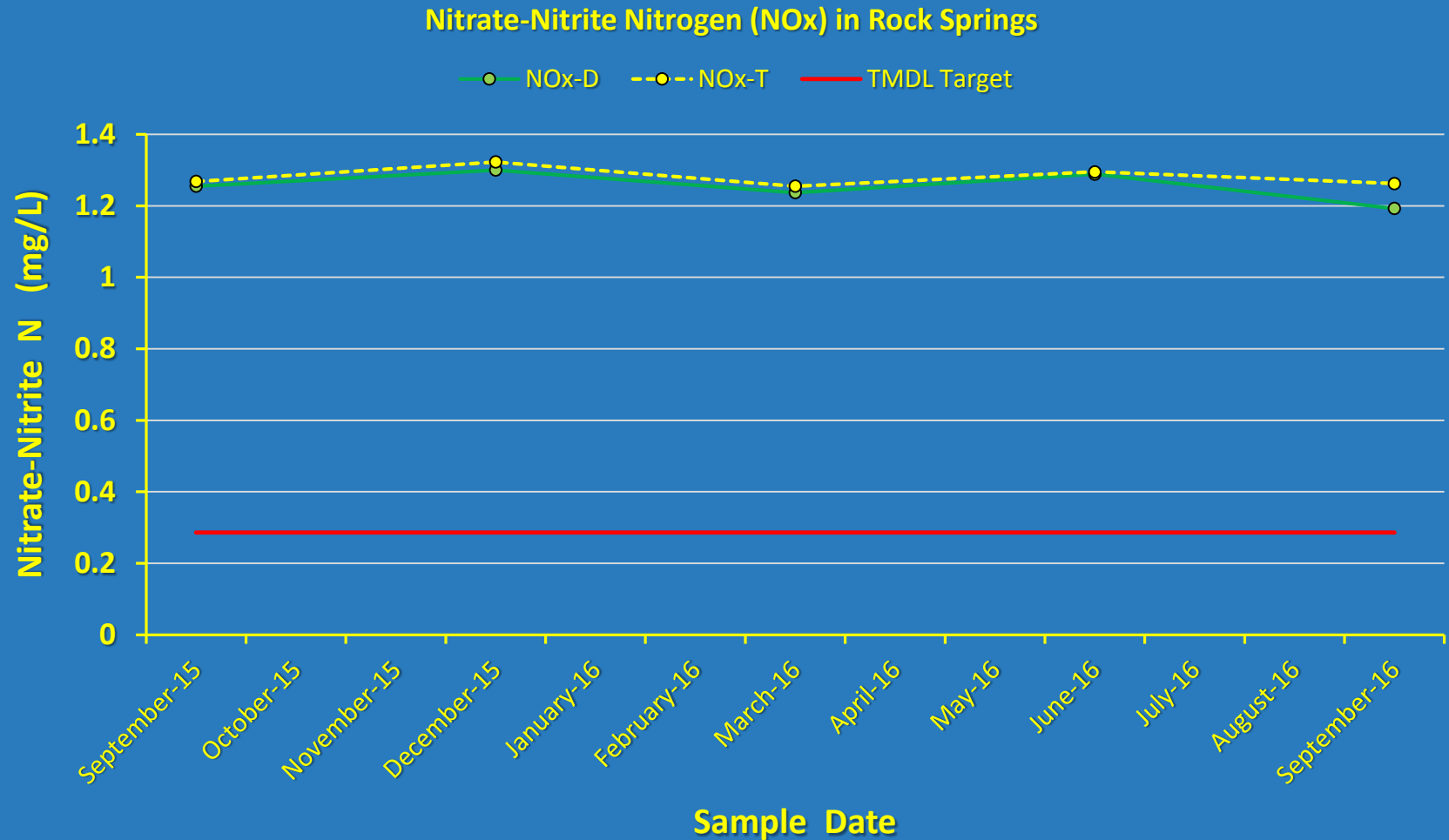


Wekiwa Springs NOx

Nitrate-Nitrite Nitrogen (NOx) in Wekiwa Spring



Rock Springs NOx



Stream Water Quality

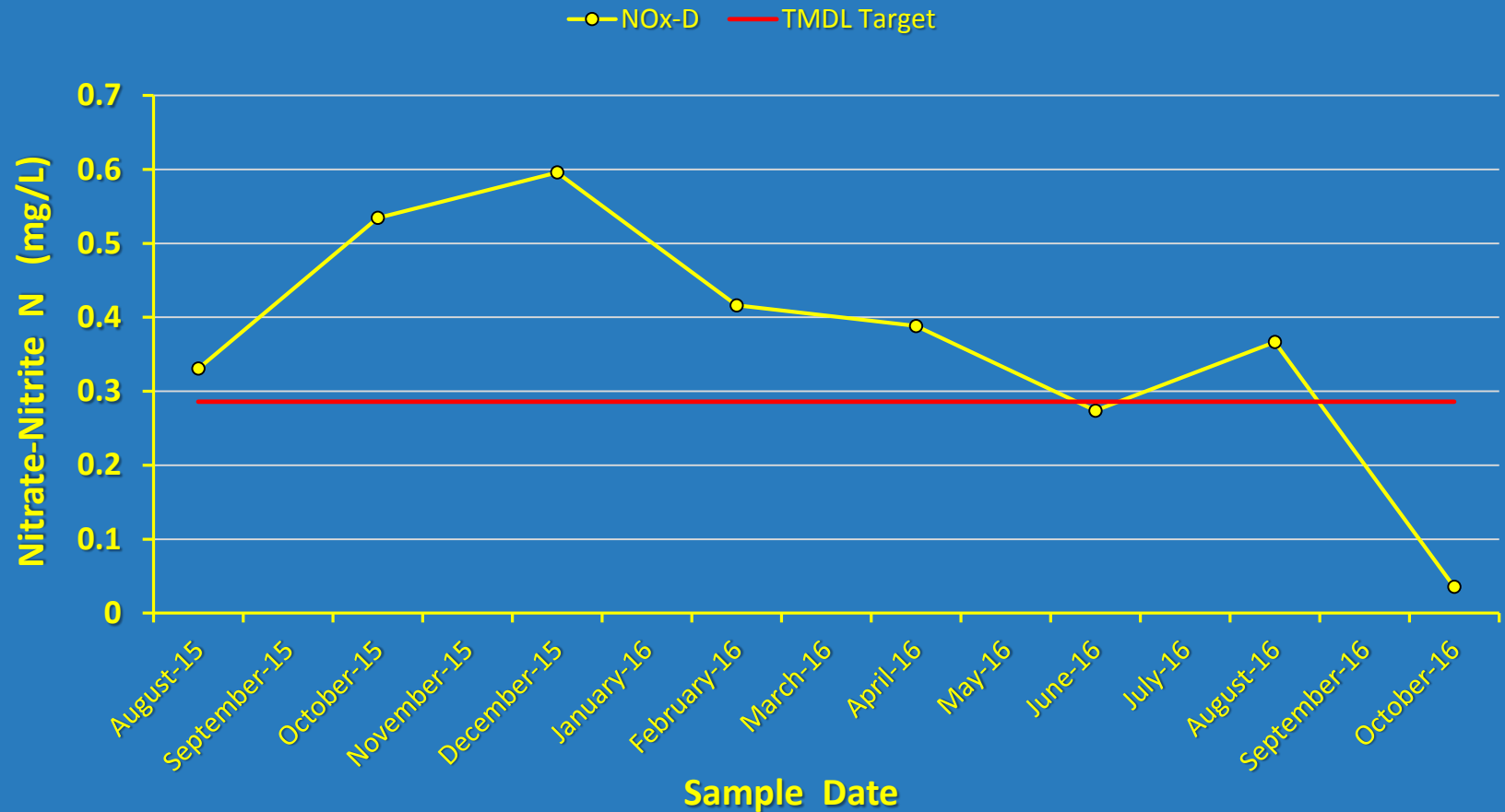
- **Wekiva River at SR 46 (02235000)**

SJRWMD data



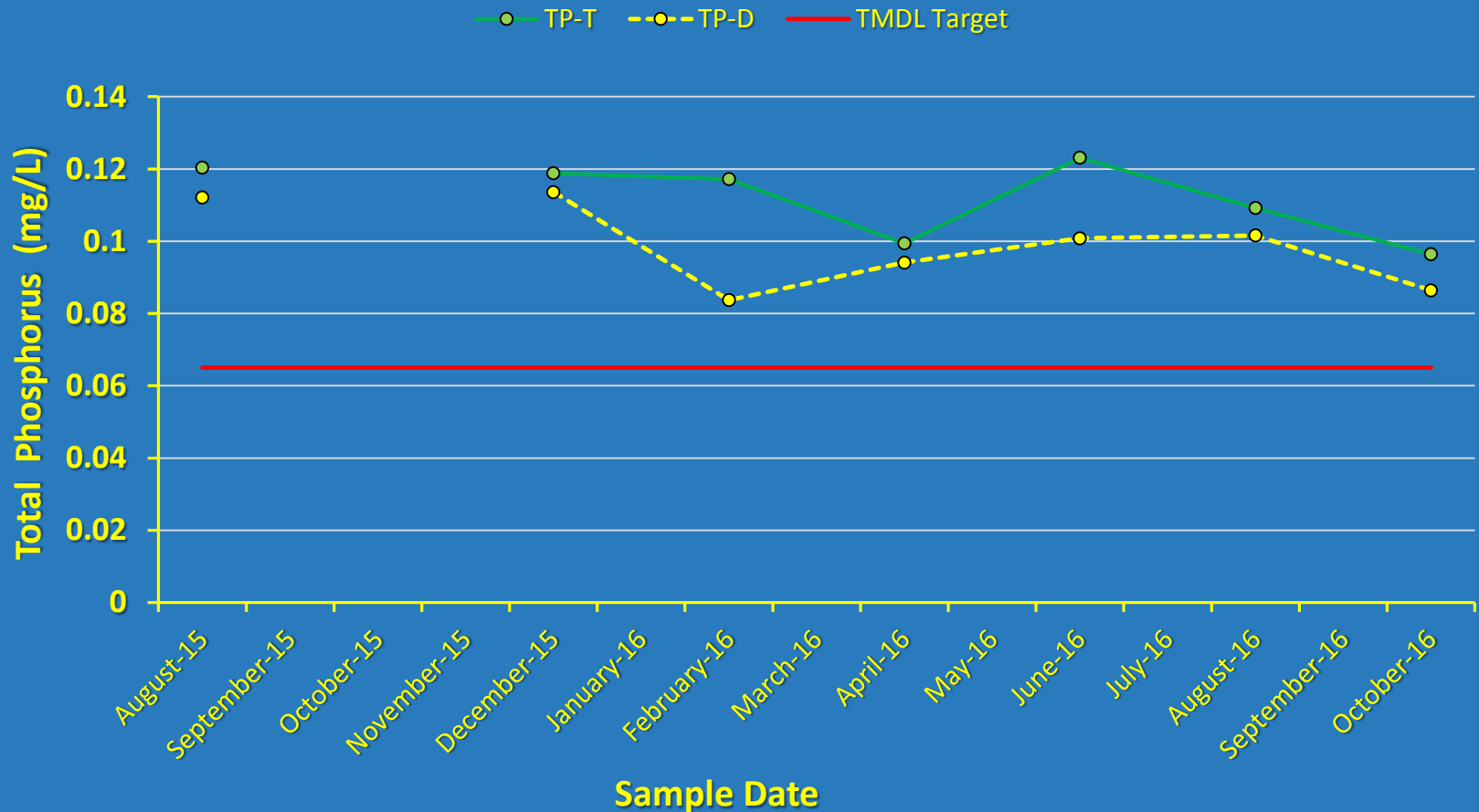
Wekiva River NOx

Nitrate-Nitrite Nitrogen Wekiva River @ SR46



Wekiva River TP

Total Phosphorus Wekiva River @ SR46

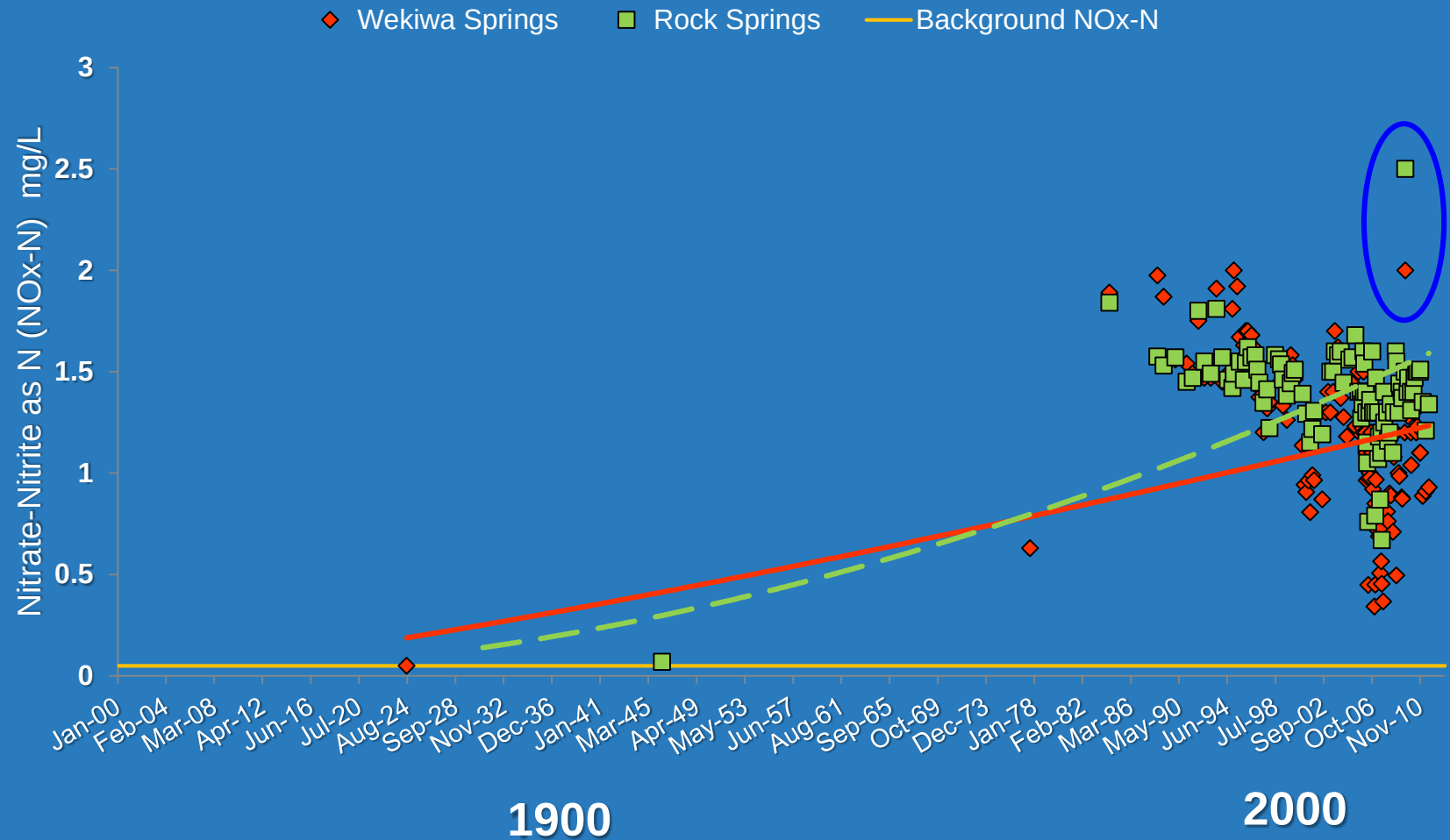


Long-Term Temporal NOx Trends

What did the springs used to be?
What has been happening over time?
What are the springs now?



Long-term Nitrate Trends



Submerged Vegetation Survey Work

- Conducted annually by SJRWMD; between April-June since 2009
- 25 transects on the Wekiva River
- 16 transects on Rock Springs Run
- Submerged vegetation and algal cover measured in five (5) replicate 0.25 m² quadrats per transect
- Cover measured using “Braun-Blanquet” scale (1= <5% cover; 5= 75-100% cover)

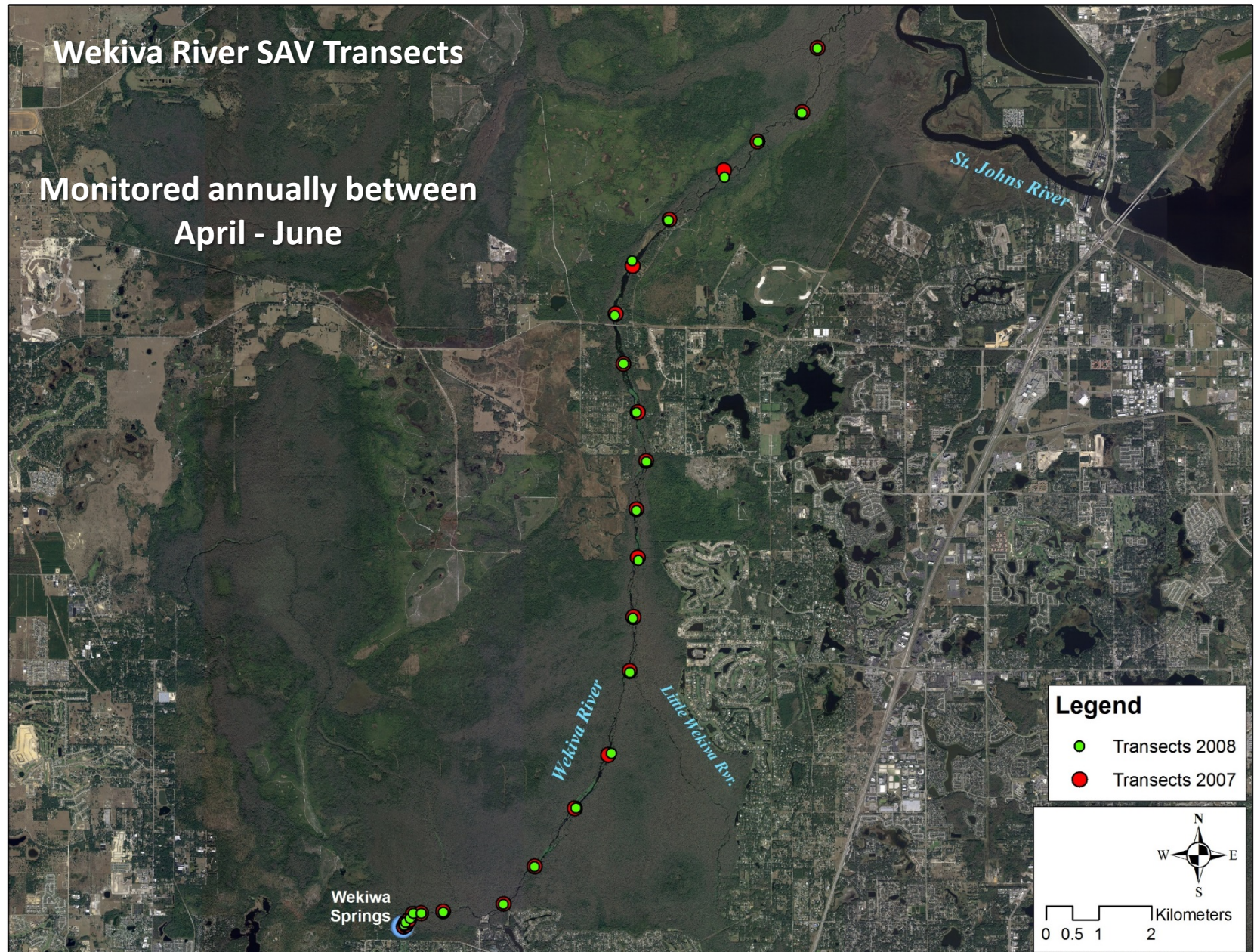


Field Sampling SAV

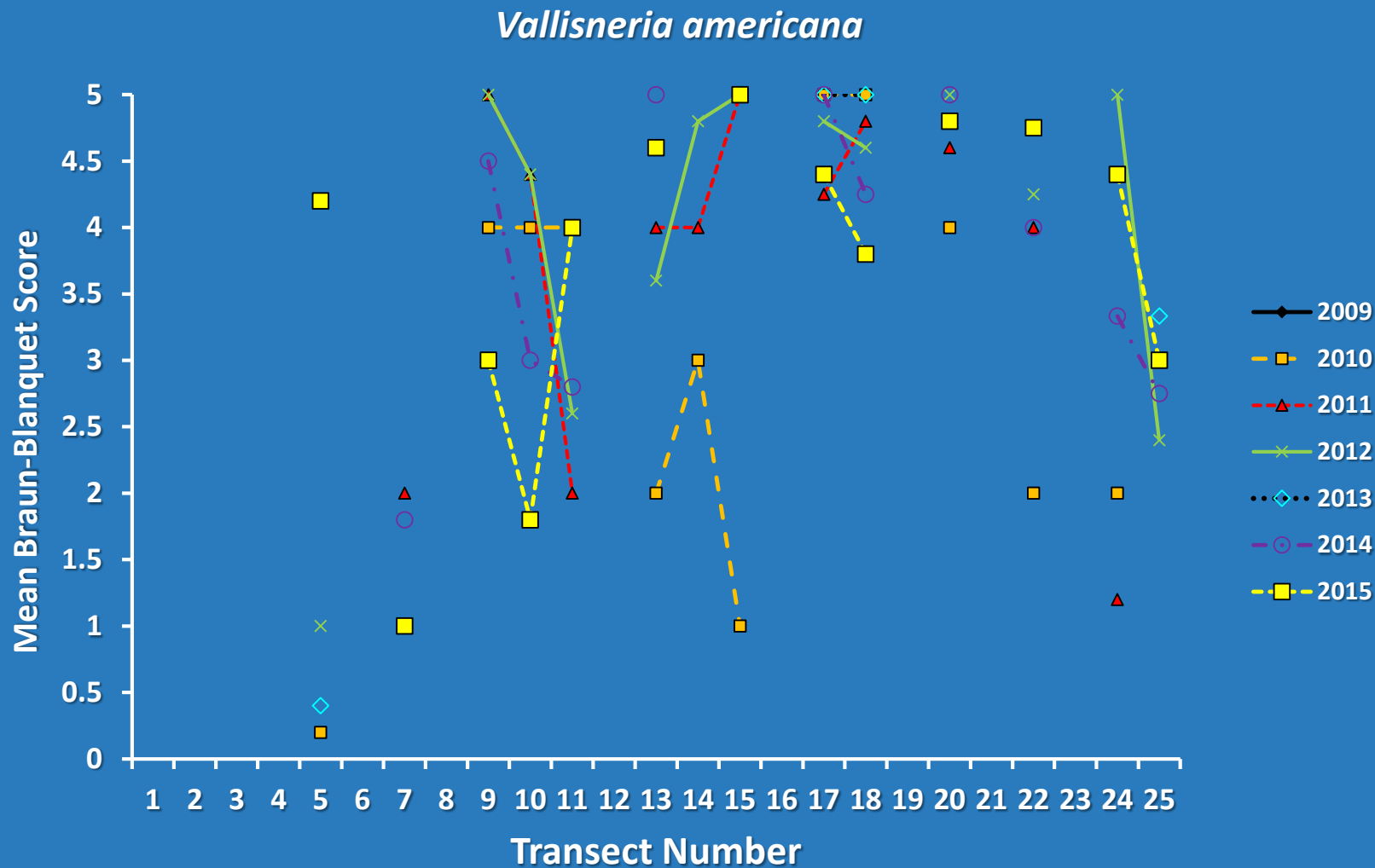


Wekiiva River SAV Transects

Monitored annually between
April - June

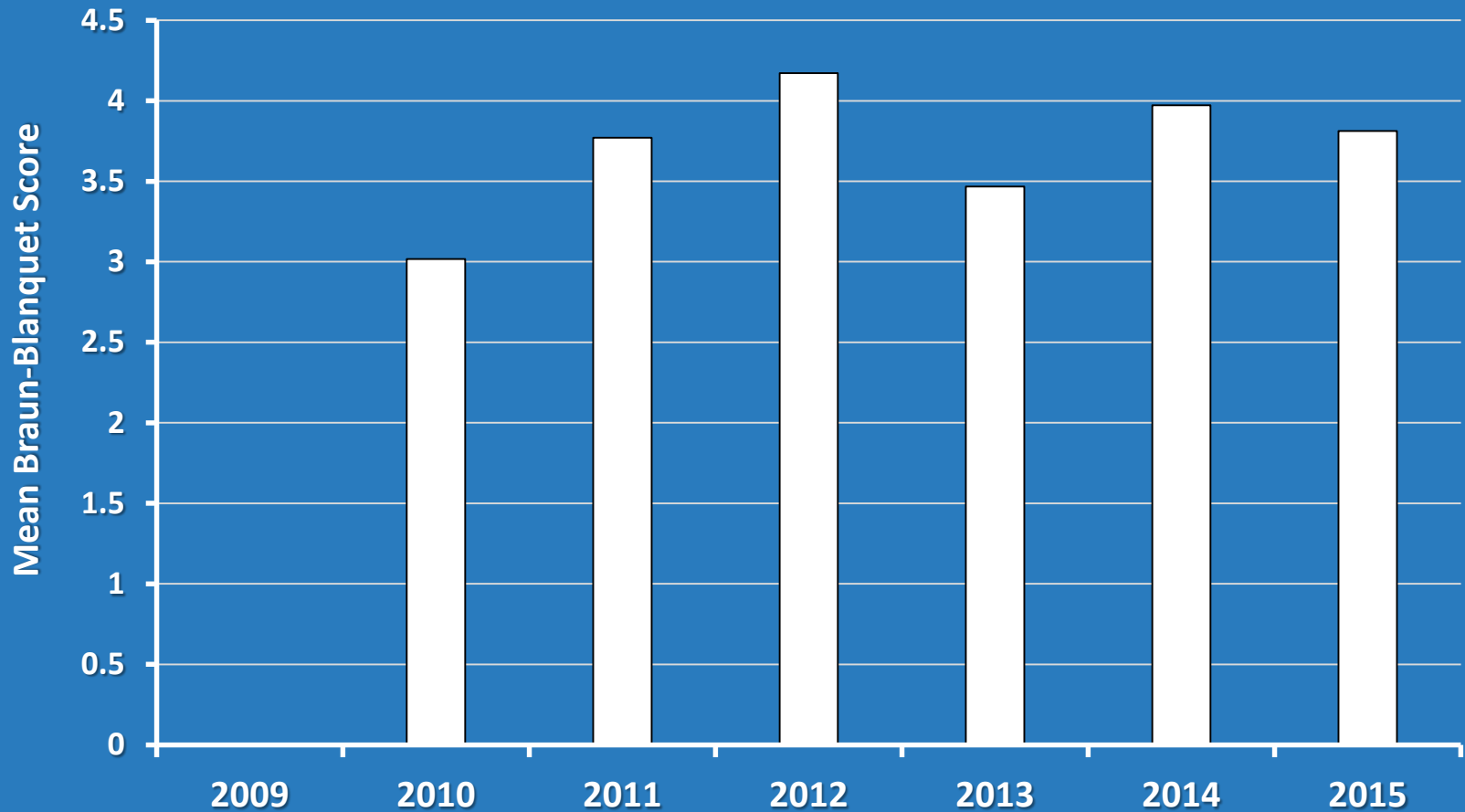


Wekiva River *Vallisneria* Cover

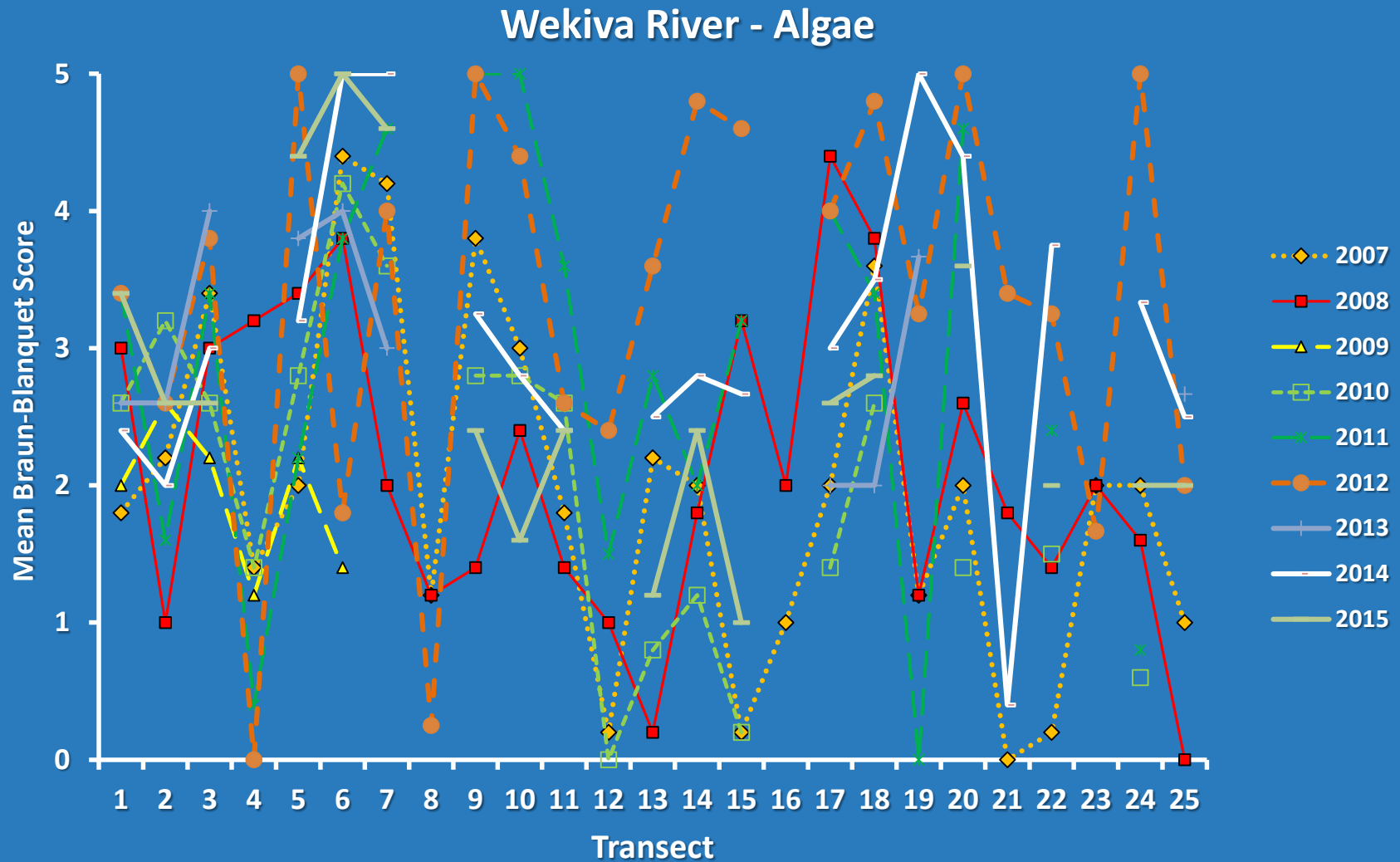


Annual Mean Cover

Wekiva River Vallisneria

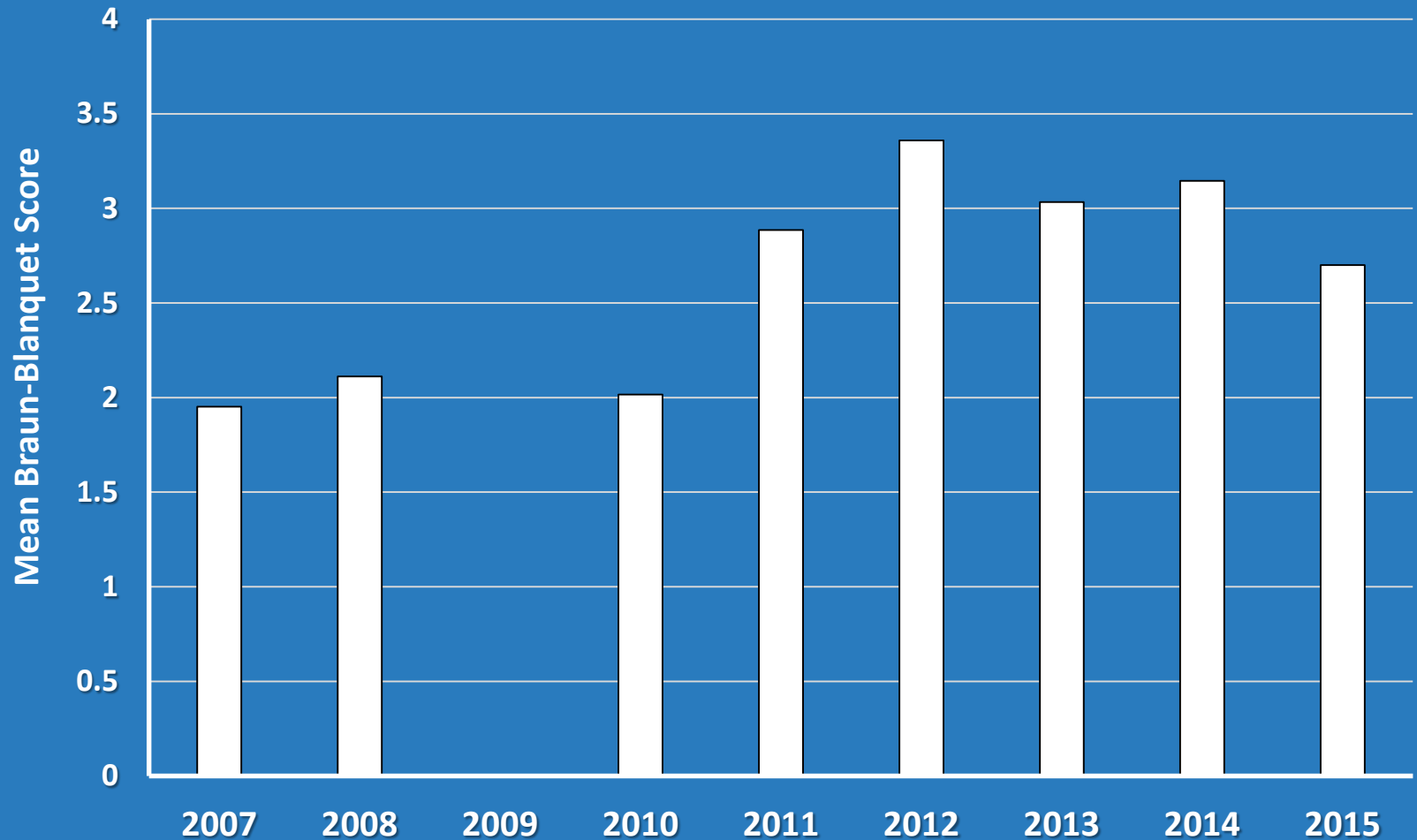


Wekiva River Algae Cover

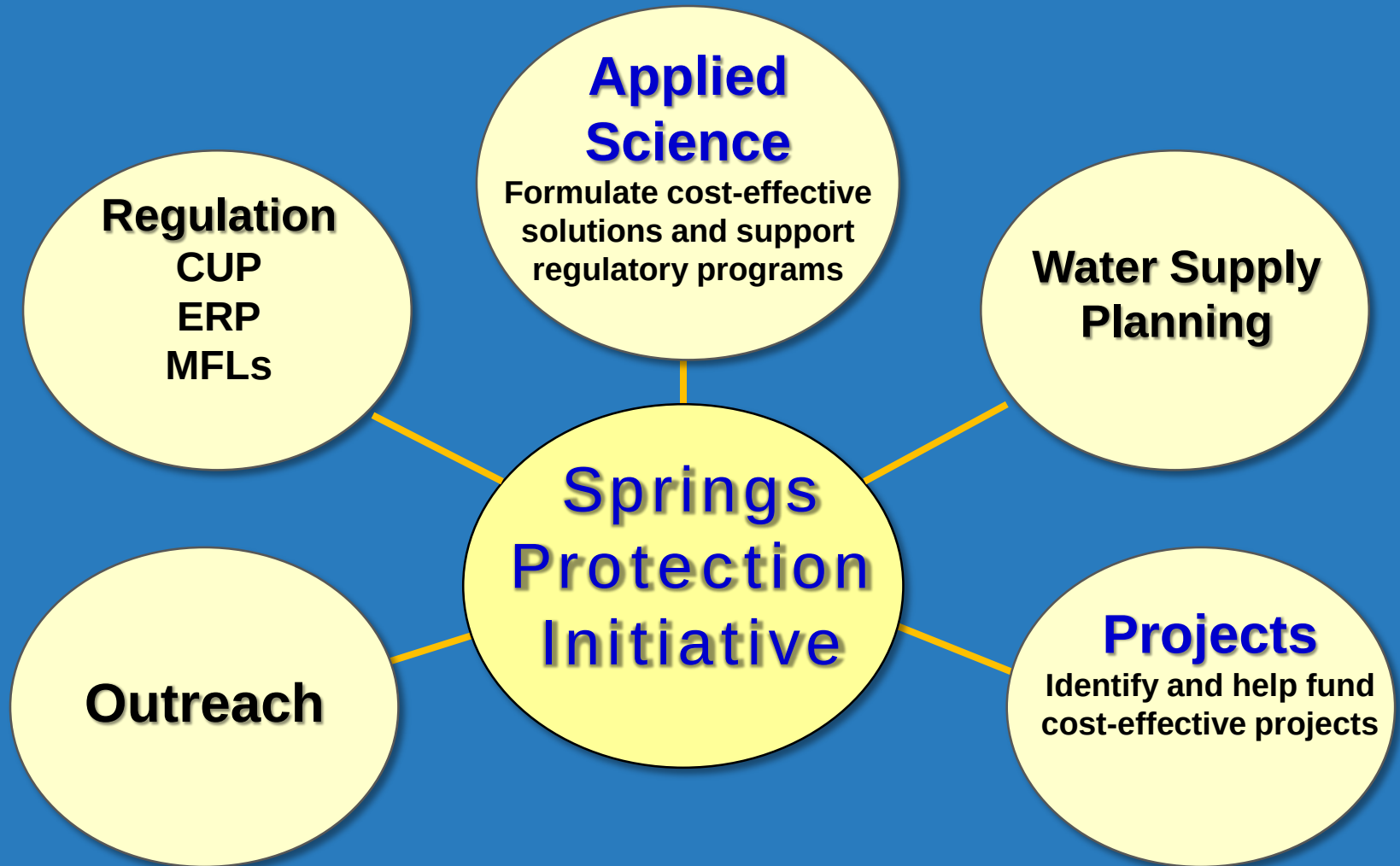


Annual Mean Cover

Wekiva River Algae



Springs Protection Initiative



Springs Protection Initiative Science

“CRISPS”

Collaborative **R**esearch
Initiative on **S**ustainability
and **P**rotection of **S**prings

Year 2 Reports: www.sjrwmd.com/springs/workplans.html

Applied Science Approach

- Pursuant to RFP solicitation, **SJRWMD/UF** entered into a **3-year, \$3 million contract** in March 2014.
- Assemble an integrated SJRWMD / **University of Florida** scientific team organized into work groups.
- Conduct an **interdisciplinary study** involving multiple spring systems.
- Identify key processes and data necessary to evaluate **strategic management options**.

UF: Water Institute, IFAS (S&W Science), School of Forest Resources and Conservation, Env. Engineering Sciences

SJR: Water Resources, Watershed Management and Modeling, Projects



Rob Mattson
Environmental Scientist V
(386) 329-4582
rmattson@sjrwmd.com

Thank you

www.sjrwmd.com/springs



SJRWMD Cost-Share Program

www.sjrwmd.com/funding

SJRWMD Springs Projects

- Springs projects funded primarily for **Wekiva** River / Spring System, **Volusia Blue** Spring, **Silver** Springs and **Lower Santa Fe** River Springs
- General project types
 - Water conservation
 - Reclaimed water system enhancements
 - Alternative water supply development
 - Water quality improvements
 - Wastewater treatment plant upgrades, package plant connection, septic tank conversions and stormwater treatment
 - Innovative technologies



SJRWMD Cost-Share Opportunities

Agricultural

- Annual or semi-annual

Innovative/REDI

- ~ Mid-September to ~ November 1

General

- Annually ~ Mid-March to May
- Next Solicitation March 2017: Applications Due mid-April 2017 for FY18 funding
- Springs projects provided to DEP from this solicitation process for springs funds

Website: www.sjrwmd.com/funding

Cost-Share Totals: Wekiva

- **2016**
 - SJRWMD: \$4.8M
 - FDEP: \$2.9 million
 - Total including partners: \$17M
 - TN reduction of 60,700 lbs/yr
 - GW Offset of 22.8 MGD
- **Total: FY14-17 in the Wekiva**
 - More than \$37.8 million in project implemented
 - 157,600 lbs/TN/year reduction
 - 44 MGD GW offset

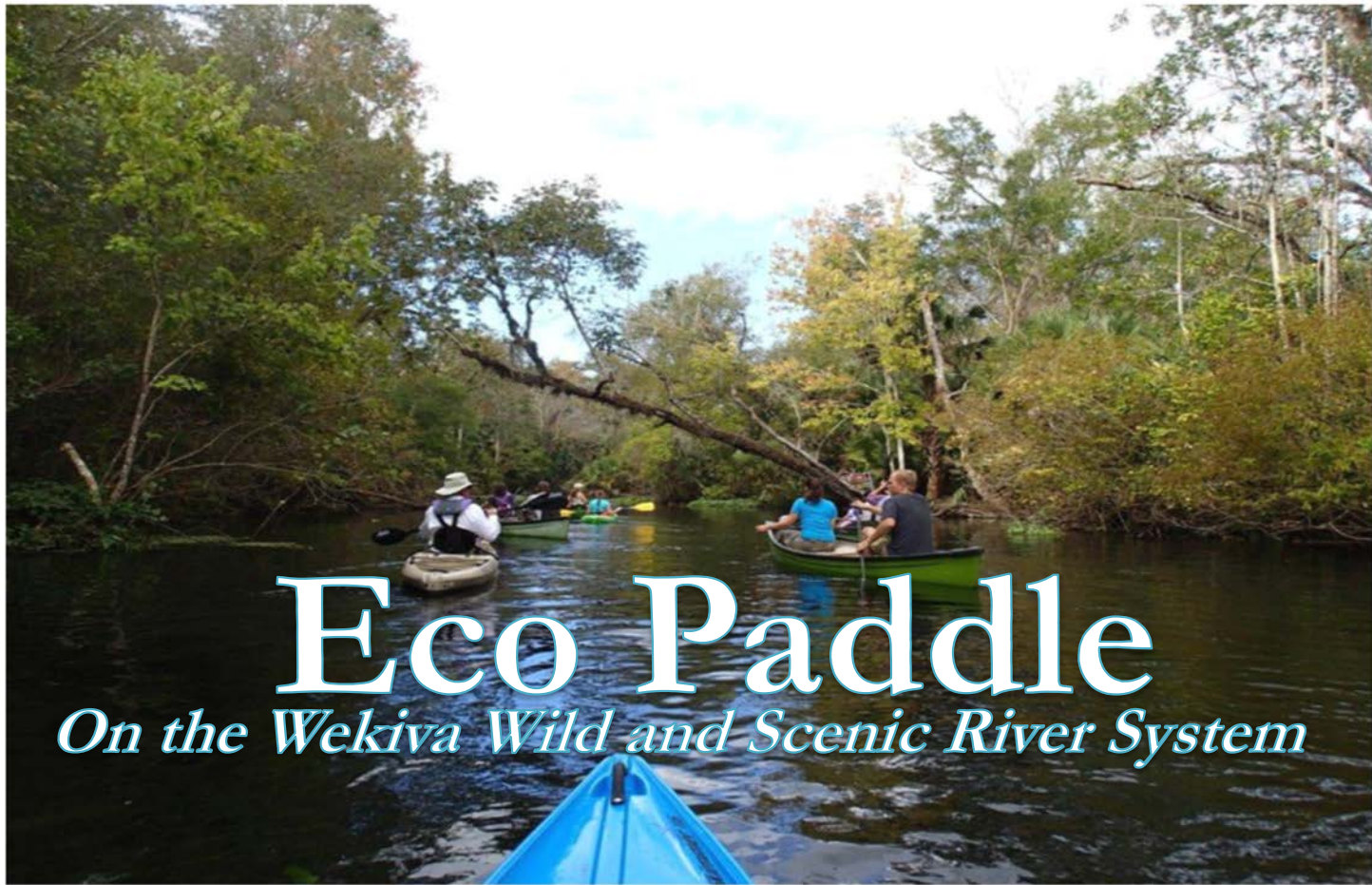
Questions?

mbrabham@sjrwmd



Update on BMAP Activities over the Past Year:

- *DEP*
 - *Wekiva - Middle St. Johns - Tomoka Marsh Aquatic Preserves.*
 - *Wekiva River Basin State Parks.*
- *FDACS.*
- *Local Entities.*



UF | IFAS
UNIVERSITY of FLORIDA

**FLORIDA
YARDS &
NEIGHBORHOODS**



SEMINOLE COUNTY
FLORIDA'S NATURAL CHOICE





Pollutants From Your Yard



Lawn clippings



Fertilizers



Herbicides



Pesticides



Fertilize appropriately

- Never fertilize within 24 hours of a rain event
- Use slow-release nitrogen and no phosphorus products
- Calculate amount of fertilizer based on % nitrogen and size of yard
- Do not fertilize within 15 ft of a waterbody





Plant Benefits

- Absorb nutrients
- Stabilize shoreline
- Provide shade
- Provide habitat





Desirable Aquatic Plants



Thalia



Canna



Pickerelweed



Duck Potato



Crinum



Bulrush



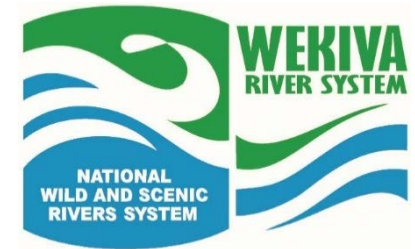
National Wild and Scenic River Designation

U.S. Congress - 1968:

Outstandingly Remarkable Values (ORV's)

- Scenic
- Recreational
- Wildlife and Habitat
- Historic and Cultural
- Water Quality and Quantity

“...shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.”





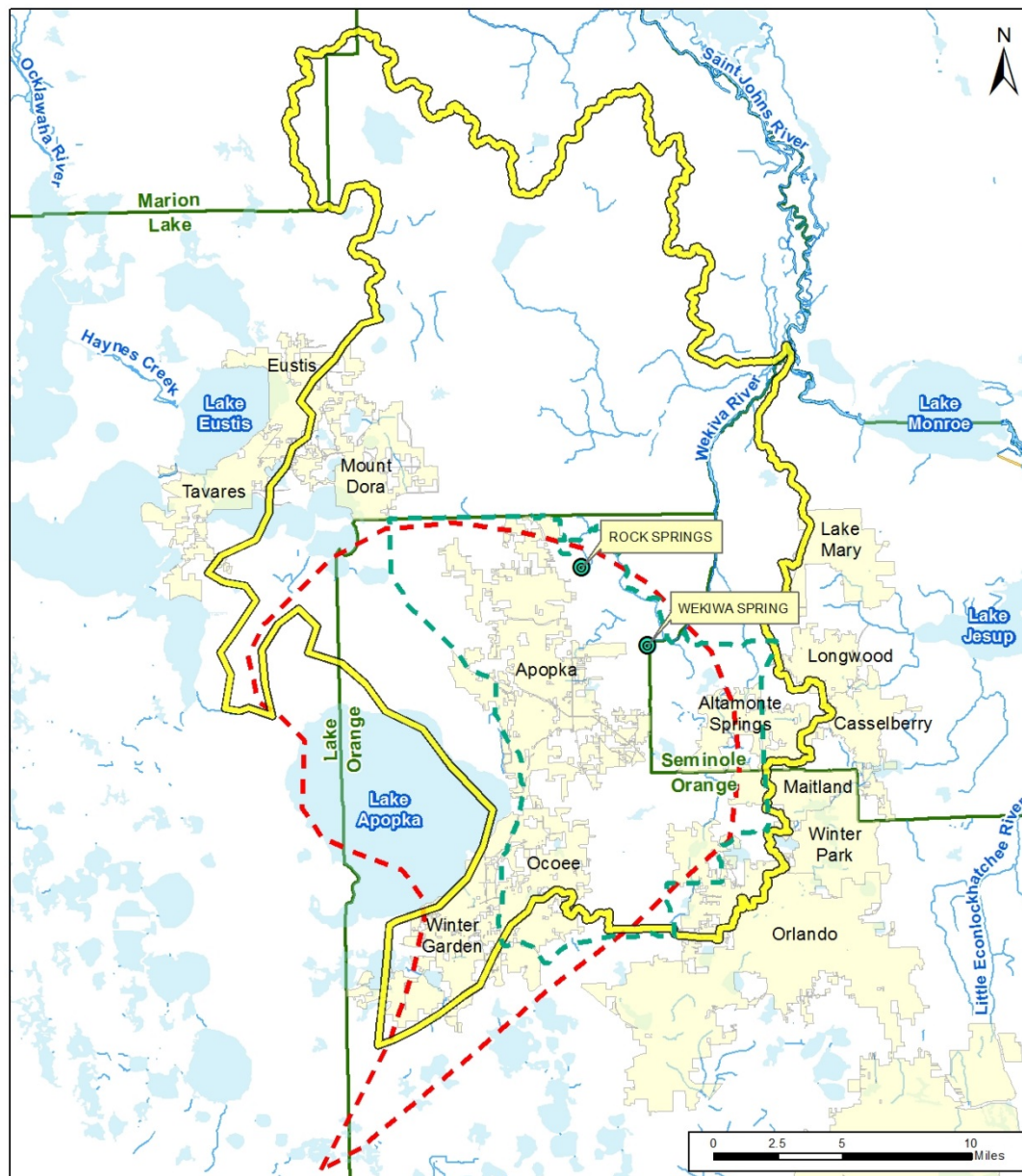
If you would like additional information on our National Wekiva Wild and Scenic River System, please visit our website:

www.wekivawildandscenicriversystem.com

You may contact me via email: Virginia.oros@dep.state.fl.us

Office 407-330-6727





Wekiva BMAP Springshed

Map prepared by the Division of Environmental Assessment and Restoration. This map is not for legal decision making purposes.
Map ID: Wekiwa_Springshed_100716
[GIS] Benjamin M. Miller@dep.state.fl.us
[BMAP] M. Oira Homann@dep.state.fl.us
Created: 10-07-16

Cities

Wekiva BMAP Area

Draft PFA

Wekiva/Rock Combined Springshed

Springs

Stream/River

Lake/Pond

Counties



Wekiva Basin Management Action Plan (BMAP) Annual Update

Cori Hermle

FDACS

Office of Agricultural Water Policy (OAWP)

February 2017



Presentation Overview

- ✓ Agricultural Best Management Practice (BMP) Program Overview and Enrollment Update
- ✓ Implementation Verification Program Update



Agricultural BMP Program Overview and Enrollment Update



Agricultural BMP Overview

- ✓ Practical measures that reduce amount of fertilizers, pesticides, and animal waste that enter water resources.
- ✓ BMP manuals developed in collaboration with agricultural industry, agencies, and others.
- ✓ Must be **economically and technically feasible** for producer to implement.



BMP Types

✓ Management BMPs

- ✓ Examples: Nutrient and irrigation management.
- ✓ Comprise majority of practices and often are not readily observable.
- ✓ Generally affordable.

✓ Structural BMPs

- ✓ Examples: Water control structures, fencing, and tailwater recovery systems.
- ✓ May require cost share to be economically feasible.

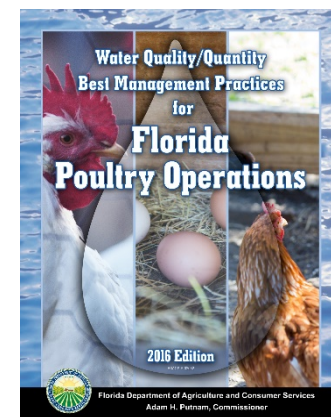
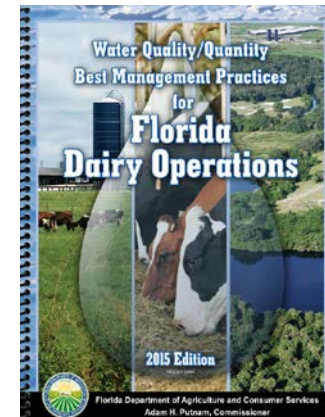
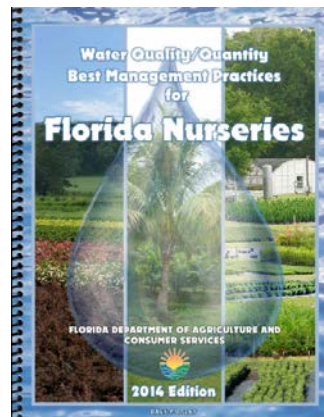
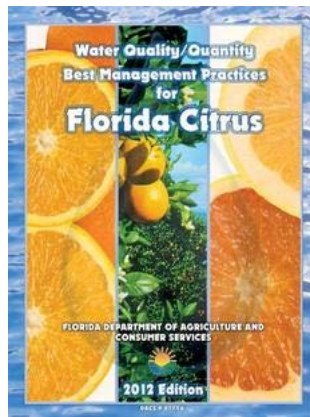
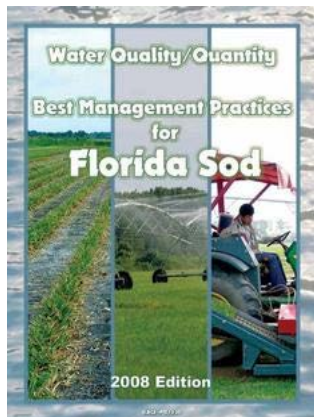
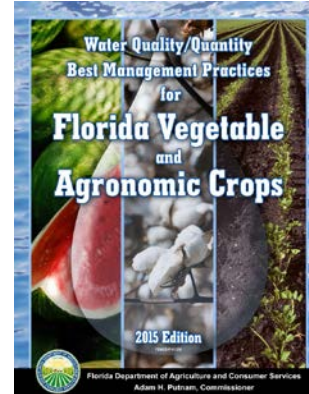
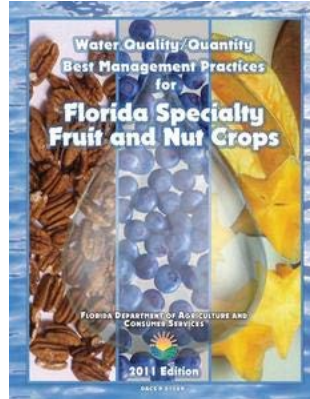
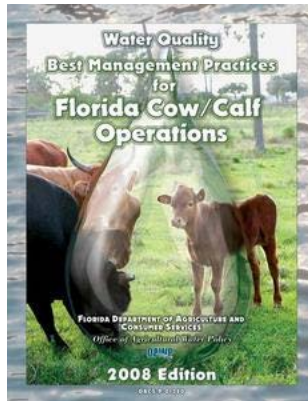


OAWP BMP Programs

Manual	Adoption	Rule Reference	Next Review
Cow/Calf	2009	5M-11	2016
Sod	2008	5M-9	2016
Specialty Fruit & Nut	2011	5M-13	2017
Equine	2012	5M-14	2017
Citrus	2013	5M-16	2018
Nursery	2014	5M-6	2018
Vegetable and Agronomic Crops	2015	5M-8	2020
Dairy	2016	5M-17	2021
Poultry	2016	5M-19	2021



OAWP BMP Manuals



Agriculture's Role in Water Quality Protection

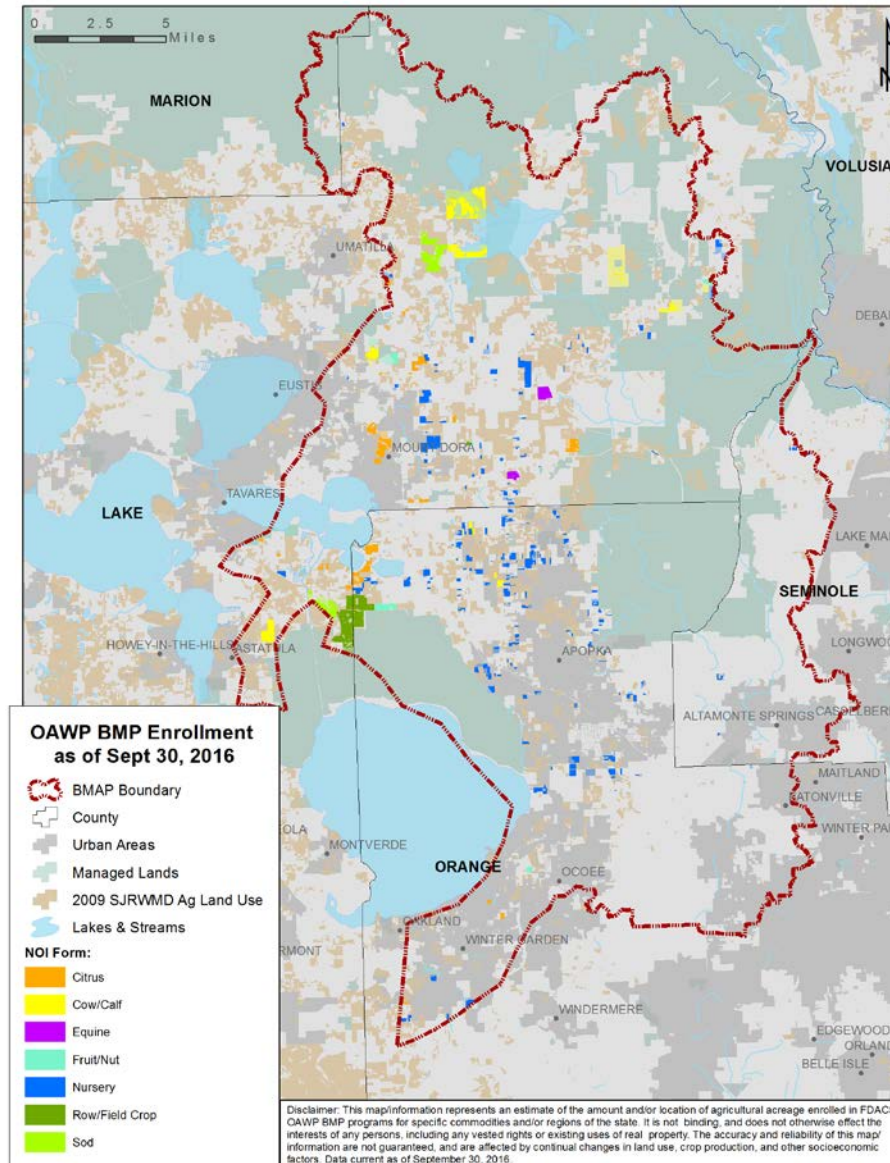
- ✓ Operations within adopted BMAP areas and/or Northern Everglades have two options:
 - ✓ Enroll in and implement FDACS BMPs.
 - ✓ Follow a Florida Department of Environmental Protection (FDEP)- or water management district approved water quality monitoring plan at operator's own expense.



Agricultural Land Use in Wekiva BMAP Area

2009 SJRWMD LAND USE	2009 ACRES	FDACS-ADJUSTED ACRES FOR ENROLLMENT
Pasture	28,201.6	28,201.6
Row/Field/Mixed Crops	5,181.4	5,181.4
Fallow Cropland	77.5	N/A
Horse Farm	3,437.1	3,437.1**
Citrus	4,191.4	3,457.7
Abandoned Citrus	129.9	N/A
Tree Crops	160.6	160.6
Tree Nurseries	156.8	156.8
Nurseries and Vineyards	97.9	-
Ornamentals	5,072.4	5,072.4
Floriculture	15.3	449.6
Shade Ferns	346.6	
Hammock Ferns	87.6	
Sod Farms	577.3	577.3
Specialty Farms	174.7	271.9
Dairies	7.2	
Poultry Feeding***	90.0	
Other Open Lands – Rural	109.6	N/A
Aquaculture	37.1	37.1
TOTAL	48,152.1	47,101.5

Wekiva BMAP Enrollment Update, September 2016



BMP Enrollment in Wekiva BMAP Area, September 2016

RELATED FDACS BMP PROGRAMS	ACREAGE ENROLLED	RELATED NOIS	2009 SJRWMD LAND USE ACRES WITHIN NOIS
Cow/Calf Operations	2,685.95	7	1,116.00
Vegetable and Agronomic Crops	1,681.95	5	1,422.96
Equine	238.90	2	225.97
Citrus	1,309.42	38	1,030.11
Specialty Fruit and Nut	868.60	12	321.12
Nurseries	3,685.30	223	2,849.84
Sod Operations	839.53	2	622.20
	11,309.66	289	7,588.21



Implementation Verification Program



Implementation Verification Program

- ✓ Primary purposes:
 - ✓ Document implementation of BMPs.
 - ✓ Report on implementation extent and progress, particularly in BMAP areas.
 - ✓ Provide basis for determination of implementation status.



Source: FDACS



Conclusion

- ✓ Agricultural BMP Program Overview and Enrollment Update
- ✓ Implementation Verification Program Update



Thank you!

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Local Updates

Wekiva Basin February 22, 2017 BMAP Meeting – Friends of the Wekiva River (FOWR) Outreach:

- Mike Cliburn, P.E., FOWR Representative to the BMAP Committee
- Jay Exum, Ph.D., FOWR Alternate



Wekiwa Basin BMAP Meeting - FOWR Outreach:

- Provided input to Orange County re: impact of septic tanks on Wekiwa Springs
- Published letter to Sentinel re: impact of septic tanks on Wekiwa Springs
- Provided input to Lake County re: central sewer system for Mt. Plymouth Greens development
- Provided input to Seminole County on Fertilizer Ordinance



Wekiva Basin BMAP Meeting - FOWR Outreach:

- Re-established Wekiva Coalition (collaboration with other environmental organizations about issues in Wekiva corridor/basin)
- Provided comments on Springs Institute's Wekiwa Springs Restoration Plan
- Sponsored essay contest for elementary students re: environmental concerns in Wekiva Basin
- Granted scholarships for summer camp at Wekiwa Springs State Park



Wekiwa Basin BMAP Meeting - FOWR Outreach:

- Provided partial funding and technical assistance on bear behavior and movement along the Wekiwa urban interface
- On the committee to review the Wekiwa Springs State Park 10 year Management Plan Update
- Provided input on Gemini Springs land swap
- Provided partial funding for 15 year demographic study of aquatic turtles in Wekiwa Springs Run



Wekiva Basin BMAP Meeting - FOWR Outreach:

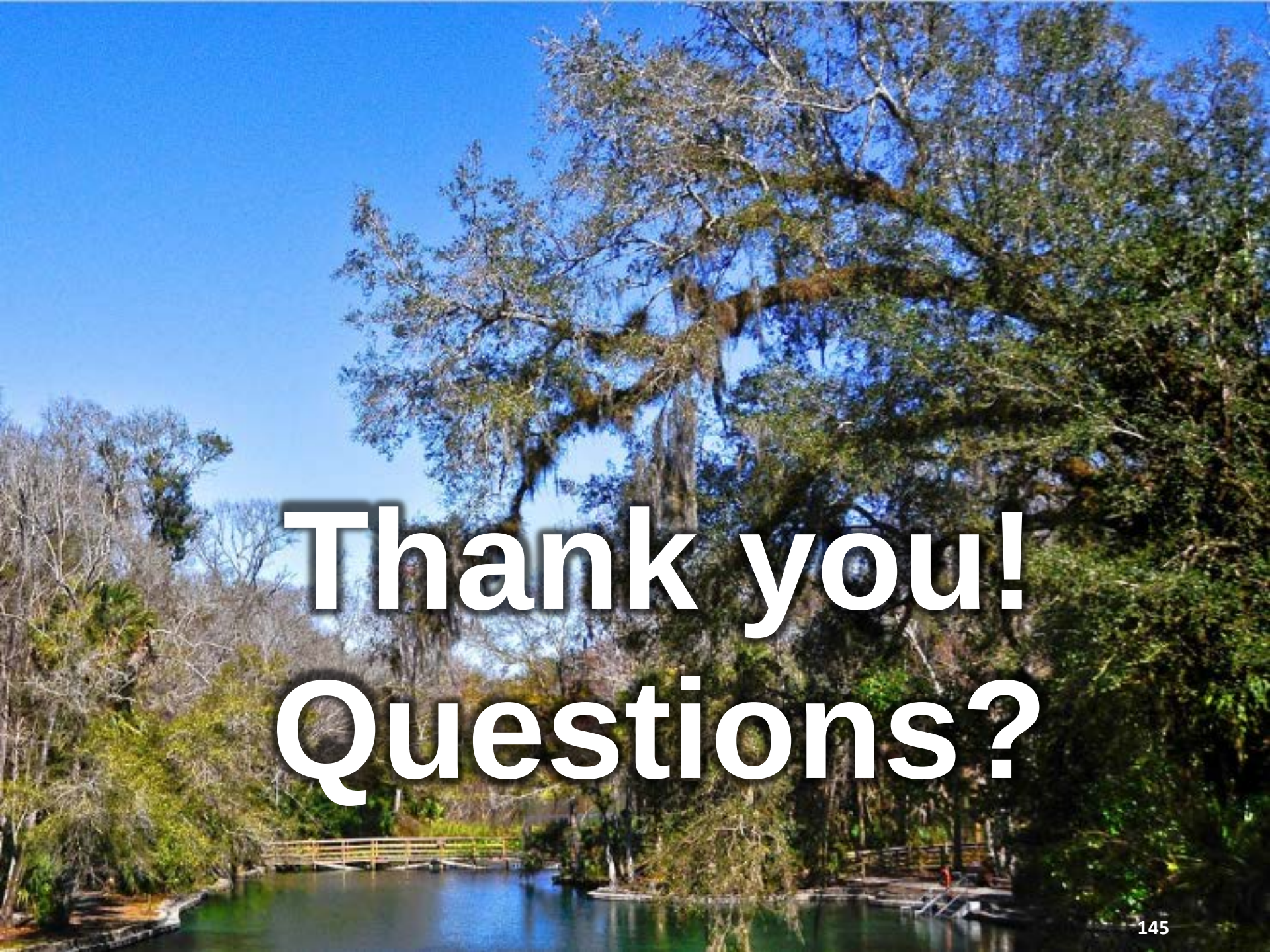
- Ongoing outreach projects for Wekiva protection:
 - Management Advisory Committee of the Wekiva Basin Wild & Scenic River,
 - Provide input to Governor-appointed Wekiva River Basin Commission
 - Lead field trips to various natural areas within the Wekiva Basin,
 - Compile and organize the annual Wekiva Basin Christmas bird count,
 - Participate in Florida Springs Restoration Summit,
 - Continuing oversight of the Wekiva Parkway
 - Planned the Wekiva Revealed campout, etc.





Wrap Up

- Summary.
 - TMDL needs to be achieved no more than 20 years after the adoption of the BMAP (Wekiva = 2015).
 - For all sources:
 - Need to update information (data, projects, studies, etc.) and start gathering necessary information.
 - Identify management strategies and projects to meet the 5-year, 10-year and 15-year targets.
 - Revise adopted BMAP by [July 1, 2018](#).
- Action Items.
 - Next meeting, April/May time frame.
 - Annual report, draft by early/mid-March.
- Other comments/announcements.

A scenic view of a pond surrounded by lush green trees and a wooden bridge in the background. The text "Thank you! Questions?" is overlaid in large white letters with a black outline.

Thank you!
Questions?



Contacts

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