Florida Department of Environmental Protection

Division of Environmental Assessment and Restoration

Upper Wakulla River and Wakulla Springs Basin Management Action Plan (BMAP)

Moira R. Homann

March 6, 2018





Agendas

Onsite Sewage Treatment and Disposal System (OSTDS) Advisory Committee

- Welcome and Opening Remarks – *Tiffany Busby*
- Recap Items
- New Items/Discussion – *Moira Homann*
  - Revised OSTDS Policies
- Public Comments – *All*
- Adjourn OSTDS Committee – *Moira Homann*

Wakulla BMAP General Discussion

- New Items/Discussion – *Moira Homann*
  - Reduction Estimates from Projects
    - Calculation approaches
    - Starting year for project credits
    - Review of reductions necessary
  - Gap Analysis
    - Remaining load to be addressed
  - Additional Reduction Options
  - Timeline for BMAP Development
- Public Comments/Action Items – *All/Tiffany Busby*
- Adjourn – *Moira Homann*

OSTDS Restoration Approaches

- OSTDS Remediation
- New OSTDS
- Education
- Rulemaking and Implementation
- Funding

OSTDS Remediation

Nitrogen Enhancement/"On-Site AWT"

- Features achieving at least 65 % nitrogen reduction
- Florida Department of Health (FDOH) approved options:
  - Aerobic treatment units
  - Performance-based treatment systems
  - In-ground biofilters (media layer systems)
  - In-tank biofilters
  - National Sanitary Foundation (NSF) 245 compliant systems with 24-inch separation

OSTDS Remediation

Connection to Sewer

- OSTDS is properly abandoned and property is connected to sewer service
- Note that the BMAP has more stringent nitrogen discharge limits for wastewater treatment facilities in Priority Focus Area (PFA) 1

New OSTDS

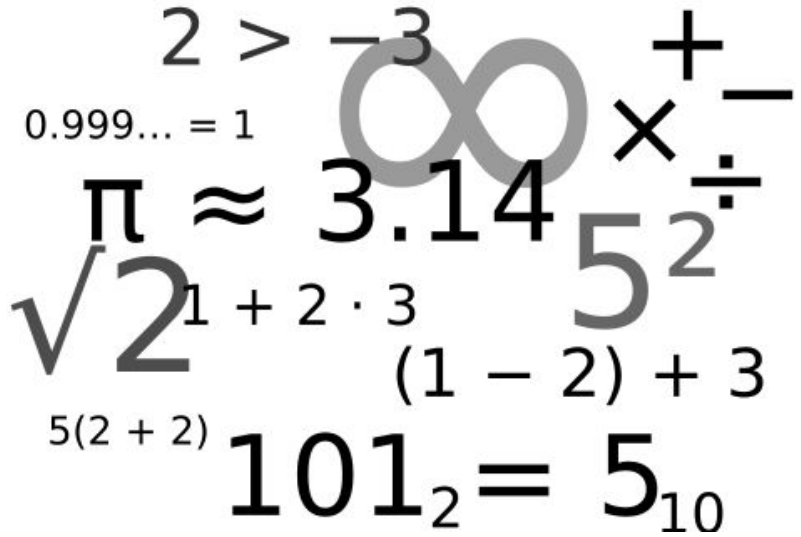
- As required by statute:
  - New OSTDS within the PFAs on lots less than 1 acre are prohibited (by statute) unless there are exceptions described by the BMAP
  - Exceptions –
    - OSTDS with nitrogen enhancement
    - Conventional OSTDS allowed if property is scheduled for a sewer project listed in BMAP
- Begins upon BMAP adoption (~July 2018)
- Important to abate future growth of OSTDS loads

Existing OSTDS

- Extent (“envelope”) of the remediation area for nitrogen enhancement policy under discussion
- Function of:
  - Potential for reducing load through enhancement
  - Total amount of load to be reduced
  - Relative contribution of nitrogen load from OSTDS
- Reduction credit per system:
  - Recharge and attenuation applied, based on location

Reductions Gap

- Reductions Needed: 139,564 lb-N/yr
- Current Project List: 50,424 lb-N/yr
- **Gap/Additional Reductions Needed: 89,140 lb-N/yr**



Options to Address Gap

- Additional OSTDS Remediation in PFAs = +26,000 to 37,000 lb-N/yr
- Additional OSTDS Remediation BMAP-wide = +101,000 to 148,000 lb-N/yr
- Additional Urban Turfgrass Fertilizer (UTF) = ?
- Additional Sports Turfgrass Fertilizer (STF) = ?
- Advanced Agricultural Practices = +3,000 to 27,000 lb-N/yr
- Additional Wastewater Treatment = ~3,500 lb-N/yr

Policy "Envelope"

Recharge	All PFAs lots less than 1 acre			All PFAs lots greater than 1 acre			All Lot Sizes		
	Number of OSTDS	Load Reductions Through AWT	Load Reduction Through Sewering	Number of OSTDS	Load Reductions Through AWT	Load Reduction Through Sewering	Total OSTDS in PFA	Total Reductions Through AWT	Total Reductions Through Sewering
High	5,982	38,791	56,694	5,935	38,486	56,249	**11,917**	**77,277**	**112,943**
Medium	0	0	0	0	0	0	**0**	**0**	**0**
Low	0	0	0	0	0	0	**0**	**0**	**0**
Total	**5,982**	**38,791**	**56,694**	**5,935**	**38,486**	**56,249**	11,917	77,277	112,943

Implementation

- Milestones for DEP and FDOH include:
  - Develop funding programs for homeowners and individuals to remediate subject OSTDS
  - Update FDOH rules for OSTDS permitting and additional remediation options
  - Develop and disseminate education materials to identify the need, options, and funding for enhancement

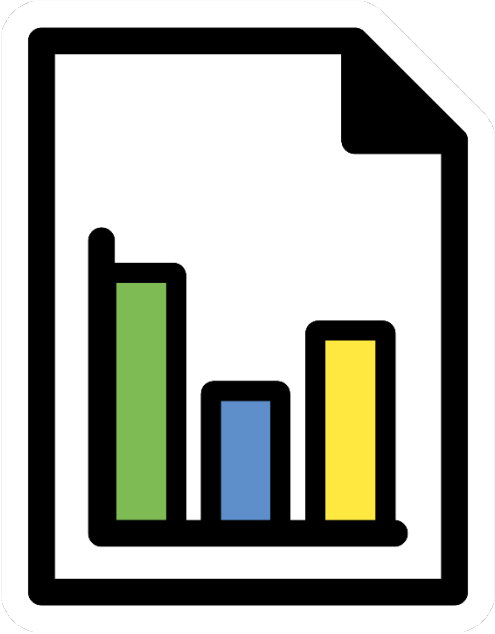
Wakulla BMAP

General Discussion

--All Nitrogen Sources--

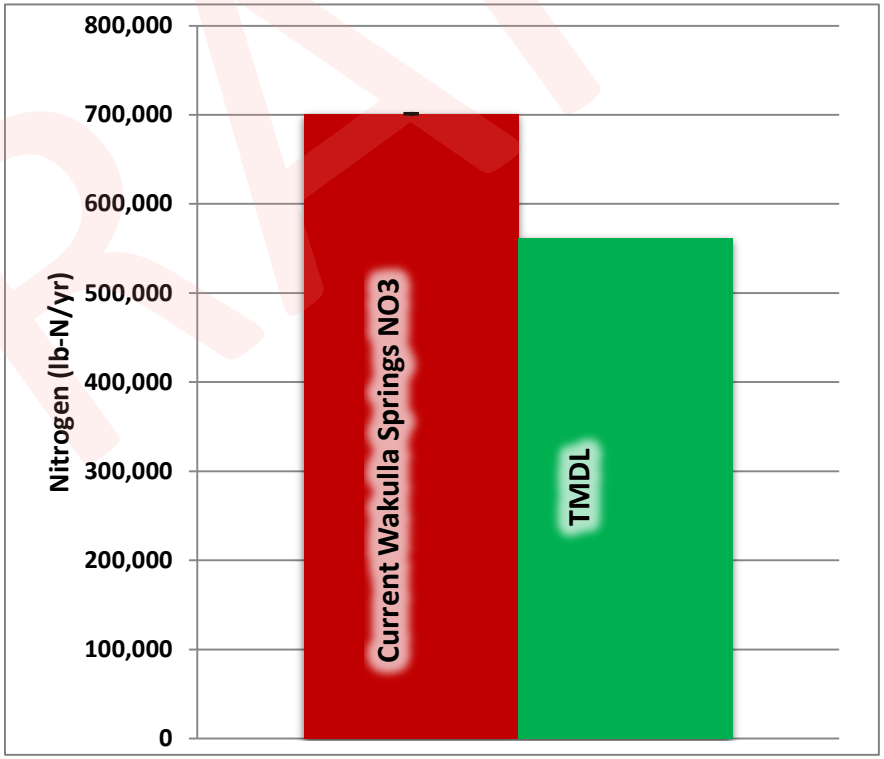
Draft Approaches to Achieve Reductions and Restoration

- Reductions
- Gap Analysis



Current Load Compared to the TMDL

Load	Nitrogen Loads (lbs-N/yr)	Data Source
Total Load at Spring Vent	701,411	Upper 95 % confidence interval - Nitrate data from 2014-2017 and flow data from 2014-2017
TMDL	561,847	Upper 95 % confidence interval - flow data from 2014-2017 and 0.35 mg/L
Total Required Reduction	**139,564**	



Reduction Milestones

- To achieve TMDL, BMAP implementation will be a 20-year process
- Wakulla Springs BMAP will define nitrogen reduction milestones:
  - 30 % reduction within 5 years – 41,869 lb-N/yr
  - 50 % reduction within 10 years – 69,782 lb-N/yr
  - 20 % reduction within 15 years – 27,913 lb-N/yr
  - Total reduction – 139,564 lb-N/yr

BMAP Gap Analysis

Gap Analysis		
Nitrogen Source	**Credits Based on Projects Submitted (lb-N/yr)**	**Description**
OSTDS	7,787	Credits identified for stakeholder OSTDS projects (enhancement or sewer)
UTF (Urban Turfgrass)	6,357	DEP approved credits (up to 6%) for public education activities as well as credits identified for stakeholder stormwater projects
AD (Atmospheric Deposition)	0	No projects/reductions
FF (Farm Fertilizer)	25,158	15% BMP credit on FF load to groundwater, assuming 100% owner-implemented BMPs on all fertilized lands
STF (Sports Turfgrass)	4,149	6% BMP credit for sports fields and 10% BMP credit for golf courses on STF load to groundwater, assuming 100% BMP implementation on golf courses and sports fields
Livestock	2,384	10% BMP credit on load to groundwater, assuming 100% owner-implemented BMPs at all livestock facilities
WWTF (Wastewater Treatment Facility)	4,589	Achieved by BMAP WWTF policy (achieving 3, 6, or 10 mg/L in PFA 1)+Projects (Policy = 2,097 reduction)
Total Credits	50,424	
Required Reduction	139,564	
Load Remaining	**89,140** ←	**GAP**

How to address the remaining 89,140 lbs/yr?

How do we address the Gap?

Possible Approaches for Achieve Remaining Reduction

- OSTDS
- Wastewater Treatment Effluent Standards
- Urban and Sports Turfgrass
- Agriculture

OSTDS

Estimated Reduction Credits for Additional OSTDS Enhancement OR Sewering

Recharge	All OSTDS outside PFAs on lots less than 1 acre			All OSTDS outside PFAs on lots greater than or equal to 1 acre			All Lot Sizes		
	Number of OSTDS	Load Reductions Through AWT	Load Reduction Through Sewering	Number of OSTDS	Load Reductions Through AWT	Load Reduction Through Sewering	Total OSTDS outside PFAs in BMAP	Total Reductions Through AWT	Total Reductions Through Sewering
High	2,576	16,704	24,414	2,337	15,154	22,149	**4,913**	**31,859**	**46,563**
Medium	12,114	34,913	51,027	9,035	26,039	38,057	**21,149**	**60,952**	**89,084**
Low	5,046	3,636	5,314	6,982	5,031	7,352	**12,028**	**8,666**	**12,666**
Total	**19,736**	**55,253**	**80,754**	**18,354**	**46,224**	**67,559**	**38,090**	**101,477**	**148,313**

Wastewater Treatment Facilities (WWTFs)

Expand current policy to BMAP for additional reduction of 3,549 lbs/yr

Move to updated policy as follows for total reduction of 5,728 lbs/yr

Effluent Standards

Effluent Standards for PFA1 (2015 BMAP)	
Capacity (gallons per day [gpd])	Nitrogen Concentration Limits for Discharge/Reuse/Land Application (milligrams per litter [mg/L])
Greater than 100,000	3
20,000 to 100,000	6
Less than 20,000	10

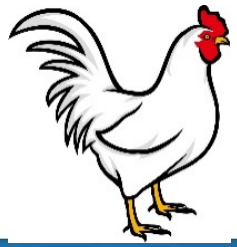
Proposed Effluent Standards in other springs BMAPs		
95 % of the Permitted Capacity (gallons per day [gpd])	Nitrogen Concentration Limits for RIBs and Absorption Fields (milligrams per litter [mg/L])	Nitrogen Concentration Limits for All Other Land Disposal Methods (mg/L)
Greater than 100,000	3	3
20,000 to 100,000	3	6
Less than 20,000	6	6

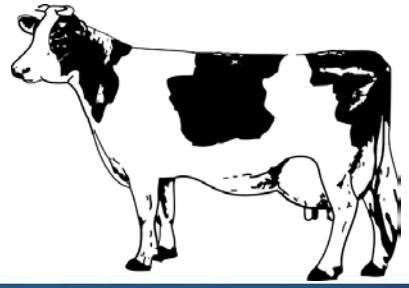
Urban Turfgrass

- *Urban/SportsTurfgrass Fertilizer (UTF) –*
  - Calculated the estimated reductions to groundwater for source control measures:
    - Florida Yards & Neighborhoods Program
    - Local ordinance (fertilizer, local pet waste ordinance, irrigation ordinance; local Florida-friendly (low irrigation and fertilizer) landscape ordinance
  - Entities have the option to collect and provide monitoring data to quantify reduction credits for additional measures
    - e.g., Seminole County
      - Fertilizer Educational Outreach
      - Interconnected Online Calculators
      - Quantifying Long Term Impact

Agriculture

- *Farm Fertilizer (FF) and Livestock Waste (LW)*
  - Calculated the reductions to groundwater from 100% owner-implemented best management practices (BMPs)
  - Calculated the reductions to groundwater from existing additional cost-share BMPs and special projects
  - Additional credits could be achieved through better documentation of reductions achieved through BMP implementation or implementation of advanced cost-share BMPs, such as precision irrigation, soil moisture probes, cover crops, and conservation easements





Ag Options to Reduce Remaining Load

Estimated Reduction Credits for Advanced Agricultural Practices			
Action	Estimated Reduction Credit (lb-N/yr) High Recharge	Estimated Reduction Credit (lb-N/yr) Medium Recharge	Estimated Reduction Credit (lb-N/yr) Low Recharge
Precision Irrigation	58	26	6
Soil Moisture Probes	2,377	1,056	264
Precision Fertilization	1,996	887	222
Controlled Release Fertilizer	519	231	58
Cover Crops	26,650	11,845	2,961
TOTAL	**31,600**	**14,045**	**3,511**

Water Quality Monitoring

- Water quality monitoring –
  - Surface water & groundwater monitoring network
- Update water quality stations in the BMAP monitoring network and biological monitoring information
  - Frequency
  - Parameters

Wrap Up

- Action Items
- Next steps
  - Draft revised BMAP document
  - Draft BMAP document out for public review
  - Public meeting on the draft BMAP document (**tentative** late April/early May)
- Other comments/announcements

Source: http://www.trailahassee.com