



Florida Department of Environmental Protection
Division of Environmental Assessment and Restoration

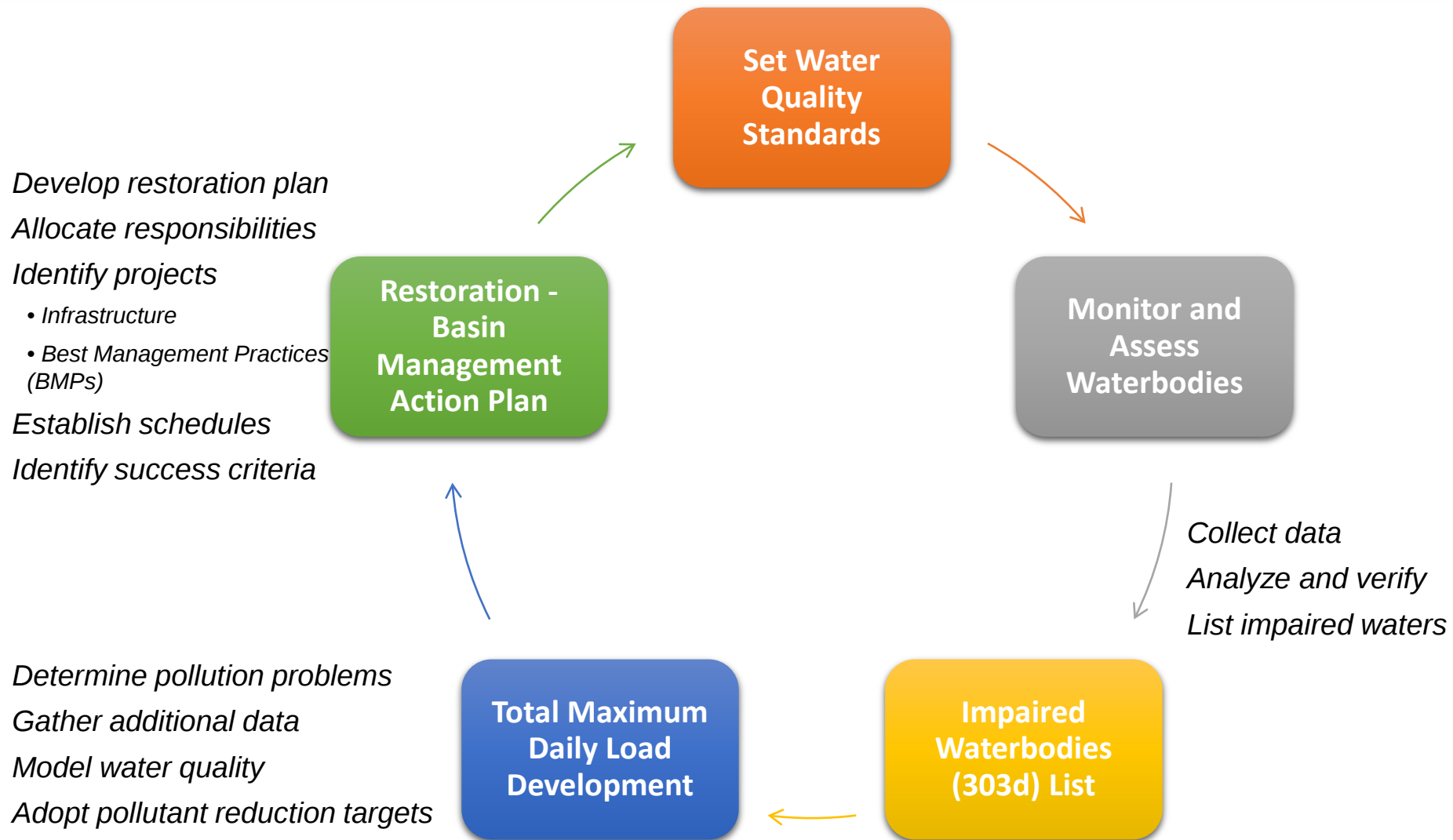
***Upper Wakulla River and
Wakulla Spring
Basin Management Action Plan
(BMAP)***

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Water Quality Framework





Upper Wakulla River Total Maximum Daily Load (TMDL)

Name/Waterbody Identification (WBID)	Parameter	TMDL Target (mg/L)
Upper Wakulla River (WBID 1006)	Nitrate, as monthly average	0.35

- TMDL adopted in 2012.
- Nitrate concentrations in the springshed are elevated as a result of anthropogenic sources.
 - Impaired for nitrates.
- Stream Condition Index (SCI) scores indicated poor biological conditions.
 - Biological community is affected by excessive algal mats linked to elevated nitrate concentrations.



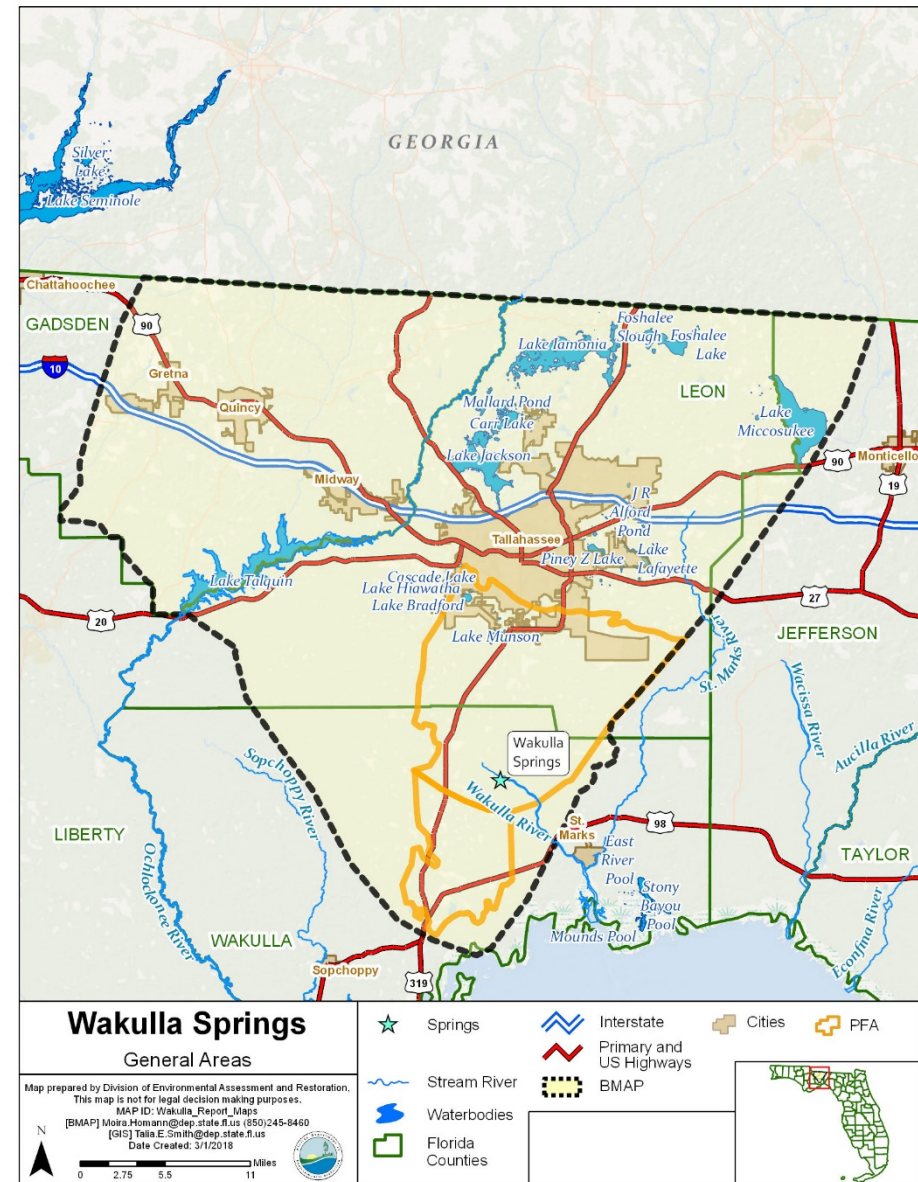
Regulatory Framework

- Section 403.067, Florida Statutes (F.S.), known as the *Florida Watershed Restoration Act*.
- The 2016 Florida Springs and Aquifer Protection Act (2016-1), Sub-Sections 373.801– 373.813, F.S.
 - Lists requirements for BMAPs for Outstanding Florida Springs (OFS) including:
 - Priority Focus Area (PFA).
 - Identification and estimated pollutant load of each point source or category of non-point sources.
 - Onsite Sewage Treatment and Disposal Systems (OSTDS) Remediation Plan (if OSTDS >20% as a source or if the Florida Department of Environmental Protection [DEP] deems necessary).



Upper Wakulla River and Wakulla Spring BMAP

- Approximately 848,445 acres/1,325 square miles
- Two PFAs
 - PFA 1
 - PFA 2





BMAP Goals

- Implement nitrate reductions to achieve the TMDL (0.35 mg/L).
- Recovery of the biological impairment to restore a sustainable biological community.





Summary of Potential Credits to Meet the TMDL

Nitrogen Source	Credits to Load to Groundwater (lb-N/yr)	Description
OSTDS (Onsite Sewage Treatment and Disposal Systems)	77,277 – 112,943	Credits are based on lots of all sizes inside the PFAs being remediated by either enhancing onsite system or connecting to sewer. An estimated 7,787 lb-N/yr have been provided as OSTDS remediation projects which may be on these lots or in the larger BMAP area. Any projects outside the PFAs would add additional reductions to the estimates listed.
UTF (Urban Turfgrass Fertilizer)	7,883	DEP approved credits (6 %) for public education activities as well as credits identified for stakeholder stormwater projects.
STF (Sports Turfgrass Fertilizer)	1,449	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.
FF (Farm Fertilizer)	24,298	15 % BMP credit on FF load to groundwater, assuming 100 % owner-implemented BMPs on all fertilized lands
LW (Livestock Waste)	2,384	10 % BMP credit on load to groundwater, assuming 100 % owner-implemented BMPs at all livestock facilities.
WWTF (Wastewater Treatment Facility)	4,618	Achieved by BMAP WWTF policy for PFA1 and PFA2 and projects in metrics workbooks.
Total Credits from BMAP Policies and Submitted Projects	117,908 – 153,574	
Advanced Agricultural Practices and Procedures	3,511 – 14,045	Pursue additional practices over the next 20 years, contingent on funding.
Total Credits	121,419 – 167,619	Estimated load reduction to meet the TMDL is 139,564 lb-N/yr.



Potential Credits by Source: OSTDS

Recharge	PFAs lots less than 1 acre			PFAs lots greater than 1 acre			PFAs All Lot Sizes		
	Number of OSTDS	Load Reduction Through AWT	Load Reduction Through Sewering	Number of OSTDS	Load Reduction Through AWT	Load Reduction Through Sewering	Total OSTDS in PFA	Total Reduction Through AWT	Total Reduction Through Sewering
Unconfined	5,982	38,791	56,694	5,935	38,486	56,249	11,917	77,277	112,943
Semi-confined	0	0	0	0	0	0	0	0	0
Confined	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

Total Estimated Credits So Far:

77,277 - 112,943 lb-N/yr

**Load reduction
to meet TMDL
139,564 lb-N/yr.**



Loading to Groundwater (lbs N per year per OSTDS)

Recharge Category	Conventional OSTDS Load To Groundwater (A)	Remediated OSTDS Load to Groundwater		Nitrogen Reduced (i.e. credit per system)	
		Enhanced (B)	Replaced (C)	Enhanced (D)	Replaced (E)
Nitrogen Input	22	–	–	–	–
Attenuation (0.5)	11	–	–	–	–
Confined (0.1)	1.1	0.38	0.05	0.72	1.05
Semi-Confined (0.5)	4.4	1.5	0.2	2.9	4.2
Unconfined (0.9)	10	3.5	0.5	6.5	9.5



Potential Credits by Source: UTF



Project Category	Project Credits (lb-N/yr) Based on Management Actions Listed in Appendix B
Fertilizer Ordinances and Public Education Activities	3,111
Stormwater Improvements	3,246
Total Project Credits	6,357
Total Possible Credits	7,883*

*Additional 1,526 lb-N/yr reduction could be achieved through public education and source control efforts.

Total Estimated Credits So Far:

$$77,277 + 7,883 = 85,160 \text{ lb-N/yr}$$

$$112,943 + 7,883 = 120,826 \text{ lb-N/yr}$$

**Load reduction
to meet TMDL
139,564 lb-N/yr**



Potential Credits by Source: STF

STF Source Control Measures	Credit Based on Estimated Load to Groundwater (%)	Possible Nitrogen Credits (lb-N/yr)
Golf Course BMP Implementation	10	1,313
Sports Fields BMPs	6	136
Total Possible Credits		1,449

Total Estimated Credits So Far:

$$77,277 + 7,883 + 1,449 = 86,609 \text{ (lb-N/yr)}$$

$$112,943 + 7,883 + 1,449 = 122,275 \text{ (lb-N/yr)}$$



**Load reduction
to meet TMDL
139,564 lb-N/yr.**



Potential Credits by Source: FF and LW

Owner Implemented BMPs	Credit Based on Estimated Load to Groundwater (%)	Possible Nitrogen Credits (lb-N/yr)
Farm Fertilizer	15	24,298
Livestock Waste	10	2,384
Total Possible Credits		26,682

Total Estimated Credits So Far:

$$77,277 + 7,883 + 1,449 + 26,682 = 113,291 \text{ (lb-N/yr)}$$

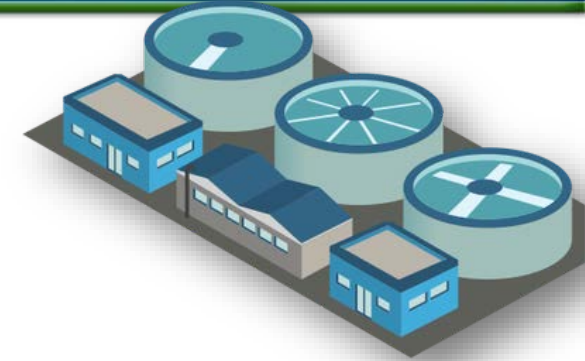
$$112,943 + 7,883 + 1,449 + 26,682 = 148,957 \text{ (lb-N/yr)}$$

**Load reduction
to meet TMDL
139,564 lb-N/yr.**



Potential Credits by Source: WWTF

95% of the Permitted Capacity (gpd)	TN Concentration Limits for RIBs and Absorption Fields (mg/L)	TN 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



	Possible Nitrogen Credits (lb-N/yr)
Achieved by WWTF policy if implemented in PFA1 and PFA2 (achieving 3 or 6 mg/L)	2,125
Credits from submitted projects	2,493
Total Possible Credits	4,618

Total Estimated Credits So Far:

$$77,277 + 7,883 + 1,449 + 26,682 + 4,618 = 117,909 \text{ (lb-N/yr)}$$

$$112,943 + 7,883 + 1,449 + 26,682 + 4,618 = 153,575 \text{ (lb-N/yr)}$$

**Load reduction
to meet TMDL
139,564 lb-N/yr**



Potential Credits by Source: Advanced Agricultural Practices and Procedures

	Possible Nitrogen Credits (lb-N/yr)
Low Estimated Reduction Credit	3,511
High Estimated Reduction Credit	14,045

**Load reduction
to meet TMDL
139,564 lb-N/yr**

Total Estimated Credits So Far:

$$77,277 + 7,883 + 1,449 + 26,682 + 4,618 + 3,511 = 121,420 \text{ (lb-N/yr)}$$

$$112,943 + 7,883 + 1,449 + 26,682 + 4,618 + 14,045 = 167,670 \text{ (lb-N/yr)}$$



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	

Total Credits from BMAP Policies and Submitted Projects	117,908 – 153,574
Total Credits*	121,419 – 167,619

*Including Advanced Agricultural Practices and Procedures credits



Reduction Milestones

- To achieve TMDL, BMAP implementation will be a 20-year process.
- Wakulla Spring 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.





OSTDS Remediation Plan – Plan Elements

- DEP and Florida Department of Health (FDOH) will work together to implement the plan.
- Plan Elements.
 - Permits for installation of **NEW** OSTDS.
 - Applies to **lots < 1 acre in the PFAs:**
 - Per statute, new OSTDS on lots of less than one acre are prohibited within PFAs.
 - Conventional systems prohibited unless:
 - System includes enhanced treatment of nitrogen.
 - Sewer connection is available within 5 years (permit applicant must demonstrate).
 - FDOH:
 - Permits the installation of new OSTDS pursuant to Chapter 64E-6, Florida Administrative Code (F.A.C.).
 - Permitting requirements with respect to the definition of "new" or "less than one acre" will be followed for this remediation plan.



OSTDS Remediation Plan – Plan Elements (Con't)

- Plan Elements (continued).
 - Permits for Modification or Repair of **EXISTING** OSTDS.
 - Remediation policy applies to **all lot sizes in PFAs**.
 - Requirement for FDOH to issue permit.
 - System must include nitrogen reduction enhancements (specified in BMAP), unless sewer connection is available within 5 years (permit applicant must demonstrate)
 - Policy is effective following completion of the milestones listed:
 - Completion of master wastewater treatment feasibility plans
 - Rulemaking
 - Funding
 - ***But no later than 5 years after BMAP adoption***
 - All conventional OSTDS in areas subject to the remediation policy for existing systems are required to adopt enhanced treatment of nitrogen no later than 20 years after BMAP adoption



Remediation Policy Area and Credits

Recharge	PFAs lots less than 1 acre			PFAs lots greater than 1 acre			PFAs All Lot Sizes		
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Monitoring and Reporting – Next Steps

- Monitoring (surface and groundwater) to measure
 - Water quality and biological response in the impaired springs, river, and/or groundwater
- Annual review of project accomplishments and adherence to schedule
- Five-year revisions of BMAP and NSILT (if needed)





BMAP Review Process

Action	Involved Parties	Date
Draft BMAP out for stakeholder and public review	Department	May 4, 2018
Public workshop on the BMAP	Department and Public	May 17, 2018
Public comment period ends	Department	May 18, 2018

Action	Date
Brief Department management on BMAP	Early-June 2018
Brief Department Deputy Secretary on BMAP	Mid-June 2018
Brief Department Secretary on BMAP and obtain Secretarial approval/Notify interested parties	Mid-June 2018
BMAP becomes final and effective 21 days after Secretarial approval	Mid-July 2018

An aerial photograph of a winding river or lake, likely the Wakulla River, surrounded by a dense, lush green forest. The water is a deep blue color. On the right bank, there is a small dock with several boats moored. The text "Thank you!" is overlaid in large, white, bold letters across the center of the image.

Thank you!