

Florida Department of Environmental Protection



Bureau of Watershed Management

Wekiva BMAP Public Meeting Final Draft BMAP Review

April 30, 2013





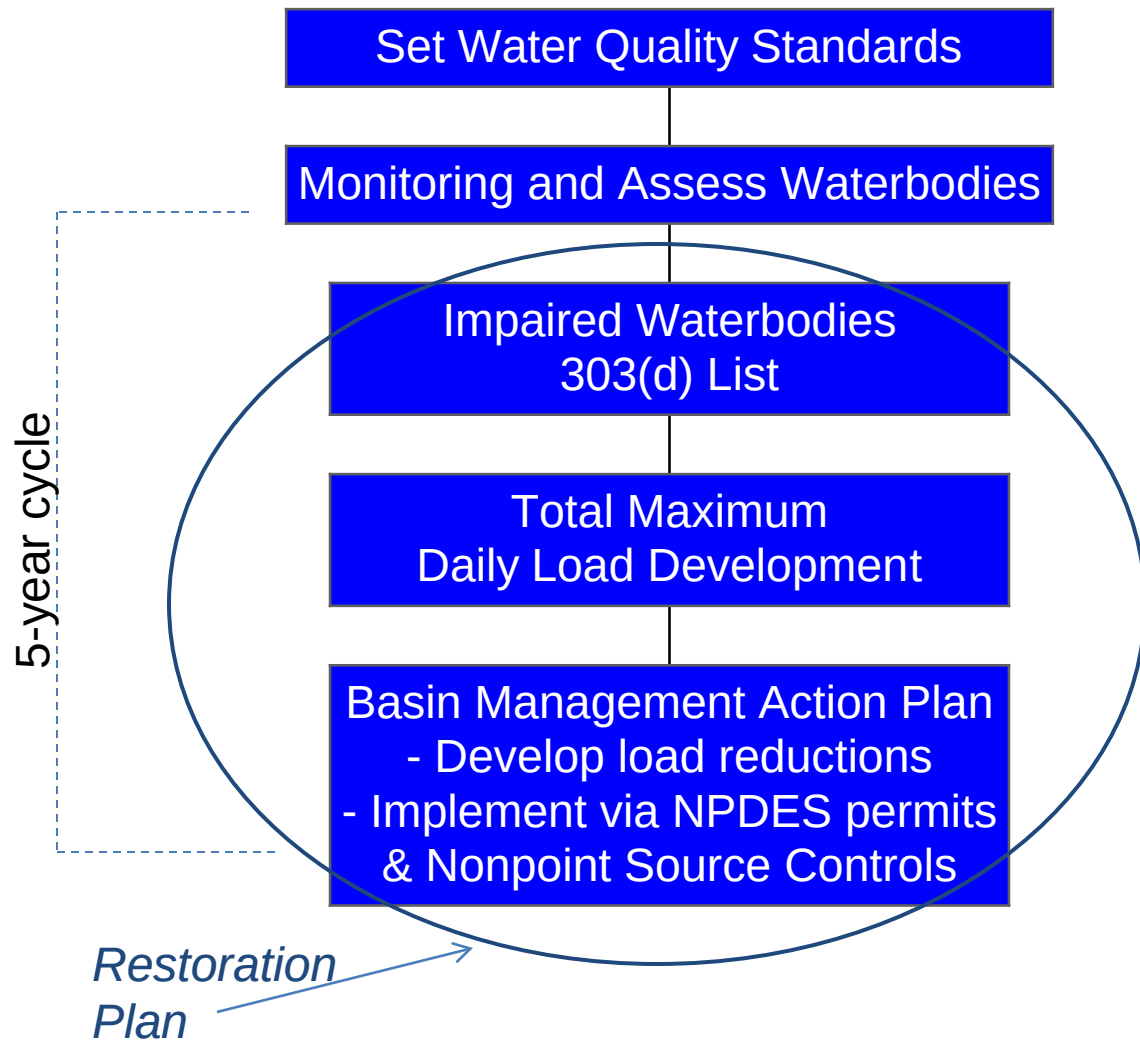
Major BMAP Components

- Chapter 1 – Context, Scope & Purpose of Plan
- Chapter 2 – Wekiva River, Rock Springs Run and Little Wekiva Canal Basin Setting
- Chapter 3 – Pollutant Sources
- Chapter 4 – Management Actions
- Chapter 5 – Assessing Progress and Making Changes
- Chapter 6 – Management Actions, Sufficiency of Effort, and Enforcement



Watershed Management Approach

- Management framework that coordinates and integrates programs and activities
- Resource- or place-oriented along hydrologic lines rather than program centered





Basin Working Group

Type of Entity	Member
Cities and Towns	Altamonte Springs, Apopka, Astatula, Eustis, Maitland, Mt. Dora, Oakland, Ocoee, Orlando, Tavares, Winter Garden
Counties	Lake, Orange, Seminole (including the Health Departments from each county)
State Agencies	Department of Environmental Protection Florida Department of Agricultural and Consumer Services (FDACS) Wekiwa State Park and Wekiva Aquatic Preserve Florida Department of Transportation (FDOT) District 5 Florida Expressway Florida Turnpike St. Johns River Water Management District (SJRWMD)
Environmental Organizations	Friends of the Wekiva
Private Utilities	Sanlando Utilities Corporation



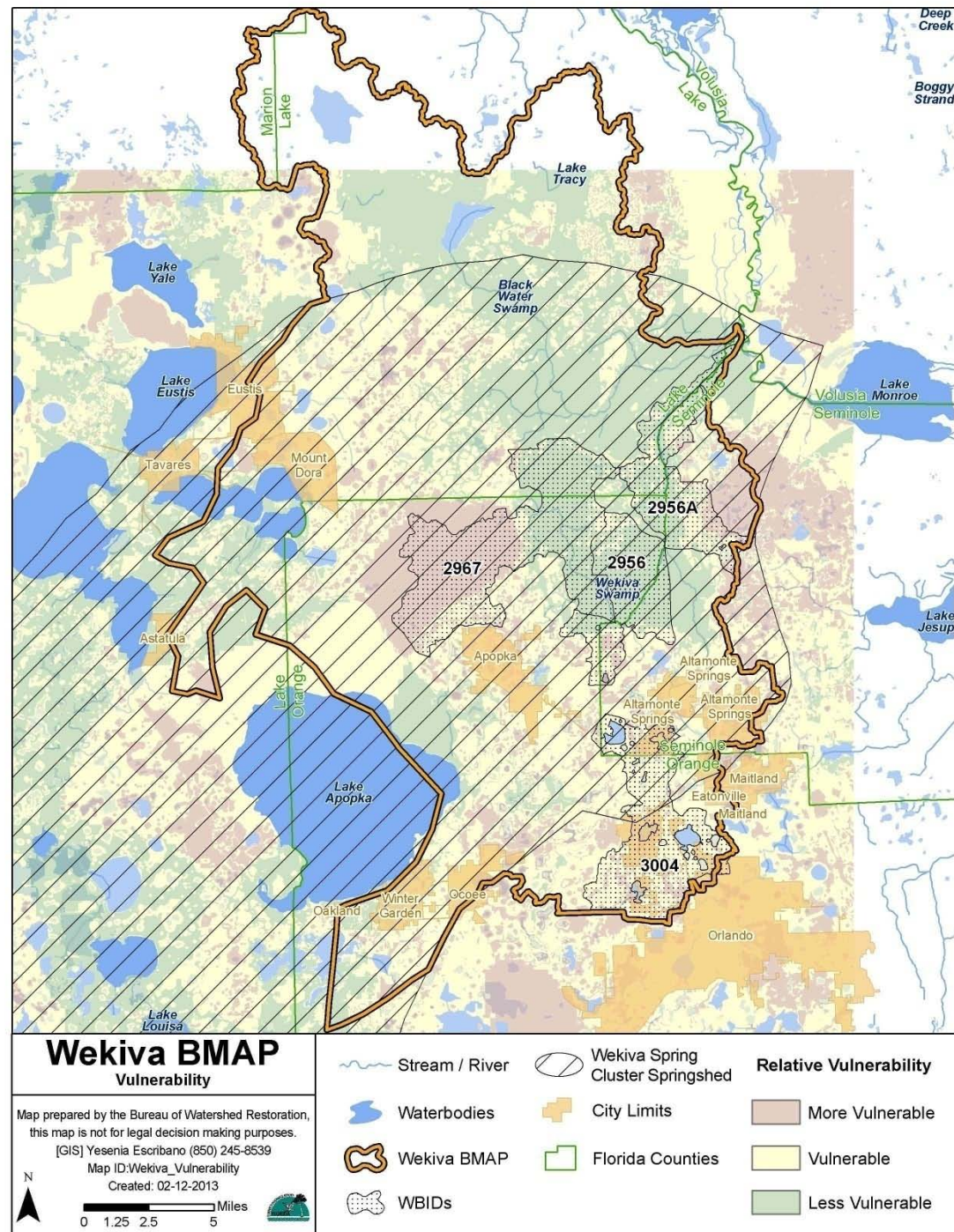
Aquifer Vulnerability

Wekiva BMAP Planning Area

Surface Water WBIDs of concern

and

Wekiva Aquifer Vulnerability Assessment model created by Florida Geological Survey





Nutrient Sources

- Domestic Wastewater (point and nonpoint)
- Stormwater (point and nonpoint)
- Fertilizer (current and legacy, urban and agriculture)
- Septic Systems (OSTDS)
- Animal Waste
- Atmospheric Deposition
- Natural Sources (of phosphorus)



Loadings from Landuse Runoff

- Loading occurs as:
 - Direct runoff to surface waters
 - Runoff to closed depression, which then percolates to ground water
- Runoff-based loading numbers calculated using land use and EMCs
- Runoff and spring loadings overlap
- Runoff loads help direct attention to specific regions



Loading from Spring Discharges

- Ground water discharge accounts for approximately 80% of the flow in the Wekiva River system, mainly via springs
- Pollutants from nonpoint sources reach springs via seepage to ground water
- Wekiwa and Rock springs account for 70% of nitrate load and 60% of TP load to Wekiva River
- Spring-based loadings calculated using flow and nutrient concentrations at the vent



Estimated Nitrate and TP Loads

SOURCE CATEGORY	NITRATE LOAD (LBS/YR)	TP LOAD (LBS/YR)
Baseline landuse runoff estimate ¹	291,243	154,087
Spring Discharge ²	511,433	78,952
Combined Baseline and Spring Discharge	802,676	233,039

1 – Calculated by Gao (2008) using SWMM and R. Hicks (2013) using 2009 SJRWMD land uses and excluding high recharge areas

2 – Calculated by Gao (2008) using spring discharges and concentration



Criteria for Management Actions

- Address nutrient loads (TN, TP, or both)
- Be located in the BMAP planning area.
- Completed since January 1, 2000
- Load reductions were only noted for management actions where the load reduction was over and above the ERP permit requirements (and only the “extra” reduction was noted in the BMAP).



Point Source Management Actions

- Wastewater facilities discharging to impaired surface waters:
 - Treatment plant upgrades
 - Elimination/reduction of surface water discharge
- Stormwater
 - BMP installation
 - Stormwater system rehabilitation
 - Street sweeping



Nonpoint Source Management Actions

- Agricultural BMPs
- Wastewater facilities discharging to ground water
 - Treatment plant upgrades
 - Collection system rehabilitation
 - Water reuse projects
 - Septic tanks (connection to central sewer)
- Other
 - Road paving with added treatment
 - Streambank protection and restoration
 - Land conservation and preservation
 - Local ordinances for landscaping, fertilizer, etc.
 - Public education



WWTFs & WRFs

- New Permit Limits and Estimated Load Reductions
- Potential difference assumes Nitrate and TN concentration limits are equivalent

FACILITY NAME	FLOW 2012 (MGD)	2006 NITRATE LIMIT (MG/L)	WEKIVA TN LIMIT (MG/L)	POTENTIAL DIFFERENCE (LBS/DAY)
Altamonte Springs WRF	5.6	No limit	10	N/A
Orange Co. NW WRF	5.269	12	3	-396
Apopka WRF	4.5	No limit	10	N/A
Ocoee WRF	1.594	12	10	-27
Sanlando Utilities Corp (Hunt Club)	1.74	12	10	-29
Seminole County NW WRF	1.993	12	3	-150
Winter Garden WRF	2.38	12	6	-119
Mt. Dora WRF	0.734	12	10	-12
Mt. Dora Snell WRF	0.425	No limit	10	N/A
Sanlando Utilities Corp (Des Pinar)	0.242	12	6	-12
Estimated Load Reduction (lbs/year)				275,007
Estimate Load Reduction to Ground Water				173,254



Sanitary Collection System

(9 BWG members, 47 Projects)

Collection System Projects	Little Wekiva Canal and Little Wekiva River	Wekiva River	Springshed	Total
Improve Reuse System	Altamonte (1)		Apopka (2)	3
Expand Collection System	Altamonte (3) Orlando (5)	Wekiva S.P. (1) Altamonte (1)	Apopka (6) Mt. Dora (1)	17
Rehabilitate / Upgrade System	Altamonte (1) Orlando (8)	Seminole Co.(4)	Apopka (3) Mt. Dora (2) Ocoee (1) Orange Co. (3) Winter Garden (2)	24
Inspect System	Orlando (1)		Mt. Dora (1)	2
Studies	Altamonte (1)			1
TOTAL	20	6	21	47



Stormwater Projects

(14 BWG Members, 151 Projects)

Stormwater Projects	Blackwater Creek	Little W. Canal	Little Wekiva River	Rock Sp. Run	Wekiva River	Springshed	Total
Dirt Road Paving	Lake Co. (1)	Orange(10)	Orange (1)	Orange (5)	Seminole (2)		19
System Inspections			Orlando (2)				2
System Rehab.			Orlando (1)			Mt. Dora (12)	13
Stormwater Treatment Systems	FDOT (1) Seminole (1)	FDOT (2) Orlando (1) Orange (7) Seminole (2)	Altamonte (11) Apopka (1) FDOT (9) Orlando (9) Seminole (2)	Apopka (1) Orange (1)	Seminole (5)	Eustis (2) FDOT (16) Lake Co. (2) Mt. Dora (8) Oakland (1) Ocoee (19) Turnpike (2) W. Garden (4)	109
Street Sweeping		Orange (1)	Altamonte (1) Orlando (1) Maitland (1)	Apopka (1)	Seminole (1)	FDOT (1) Mt. Dora (1) Ocoee (1) W. Garden (1)	10
TOTAL	3	23	39	8	8	70	151

From Table 3.3 (modified)



Nonpoint Source Projects

(10 BWG, 49 Projects plus 239 (DACs) NOIs)

Nonpoint Source Proj.	Blackwater Creek	Little W. Canal	Little Wekiva River	Rock Sp. Run	Wekiva River	Springshed	Total
Education, & ordinances	Lake Co. (1)		Orange Co. (1)				2
Bank Stabilization			Altamonte (2) Orange Co. (8) Seminole (5)	Orange (1)	Seminole (2)		18
Exotic Veg. Removal			Seminole (4)				4
Land Pres. And Conservation	Lake Co. (1)			Orange (3)	Altamonte (1) FDEP (1) Seminole (2)	Lake (3) W. Garden (1) Combined effort (FDEP, SJRWMD, OCEA, Orange) (1)	13
Studies	Lake (1)	Orange (2)	Altamonte (2) Orlando (1)		Seminole (4)		10
Wetland Restoration					Altamonte (1)	Mt. Dora (1)	2
TOTAL	3	2	23	4	11	6	49



Public Education & Ordinances

BWG MEMBER	FYN PROGRAM	LANDSCAPE ORDINANCE	IRRIGATION ORDINANCE	PET WASTE MANAGEMENT	PSAs, WEBSITE, ETC.
Altamonte Springs	Yes	-	Yes	Yes	Yes
Apopka	-	Yes	Yes	-	Yes
Astatula	-	-	Yes	-	-
Eustis	-	Yes	Yes	Yes	Yes
Maitland	-	Yes	Yes	Yes	Yes
Mt. Dora	-	-	Yes	Yes	Yes
Oakland	-	Yes	Yes	-	Yes
Ocoee	-	Yes	Yes	-	Yes
Orlando	Yes	Yes	Yes	Yes	Yes
Tavares	-	Yes	Yes	-	Yes
Winter Garden	-	-	Yes	-	-
Lake County	Yes	Yes	Yes	-	Yes
Orange County	Yes	Yes	Yes	Yes	Yes
Seminole County	Yes	Yes	Yes	Yes	Yes

FDOT District 5 and FOWR – PSAs, Websites, etc.

SJRWMD – District watering restrictions



Est. Load Reductions (BMAP and WSA Projects)

PROJECT	TN LOAD REDUCTION (LBS/YR)	TP LOAD REDUCTION (LBS/YR)
WSA Domestic WWTP Upgrades	171,929	-
Wastewater Facility Collection System Projects (Table 4.3)	99,450	32,200
Wastewater Reuse (Table 4.4)	33,779	25,460
Stormwater Projects (Table 4.6)	32,793	10,946
Road Paving Project (Table 4.7)	2,212	1,580
Shoreline Stabilization /Erosion Control (Table 4.8)	3,947	265
Land Preservation (Table 4.9)	2,092	20
Agricultural BMPs (Table 4. 15)	9,015	5,285
TOTALS	355,217	75,756



BMAP Monitoring Partners

ENTITY	SURFACE WATER CORE	SURFACE WATER SUPPLEMENTAL	SPRINGS	AMBIENT GROUND WATER	BIOLOGICAL	FLOW
Altamonte Springs	X	X				
Apopka	X	X		X		
Maitland	X					
Mount Dora				X		
City of Orlando	X	X				
Winter Garden				X		
Lake County	X	X		X		
Orange County	X	X	X	X	X	X
Seminole County	X	X			X	
SJRWMD	X		X	X	X	X



Monitoring Plan Objectives

- **Primary Objective—Long-Term Trend Analysis:**
 - *Track inputs and concentration trends in nutrients (e.g., nitrate, TN, and TP) through ground water, surface water, and spring sampling, as well as biological assessments and flow measurements.*
- **Secondary Objective—Source Assessment:**
 - *Identify areas in the springshed and surface water basin with high loadings of nutrients to surface water and ground water to better focus management efforts.*



Nutrient Concentrations

WBID NAME (NUMBER) NO ₂ NO ₃ – NITRATE + NITRITE 1 – 1995 – 2012 2 – 2011 – 2012	NO ₂ NO ₃ (MG/L) MEDIAN ¹	NO ₂ NO ₃ (MG/L) RECENT MEDIAN ²	TP (MG/L) MEDIAN ¹	TP (MG/L) RECENT MEDIAN ²
Wekiva Spring (2956C)	0.97	0.917	0.12	0.113
Wekiva River (upstream) (2956)	0.67	0.55	0.109	0.105
Wekiva River (downstream) (2956A)	0.3	0.178	0.111	0.11
Rock Springs Run (2967)	0.96	0.98	0.087	0.083
Blackwater Creek (2929A)	0.20	0.28	0.05	0.052
Little Wekiva River (2987)	0.31	0.38	0.139	0.142
Little Wekiva Canal (3004)	1.14	0.85	2.1	2.0



Additional Research Planned (identification of potential projects)

- SJRWMD Springs Research
- Florida Onsite Sewage Nitrogen Reduction Study
- Altamonte Springs studies (2)
- Orange County (1)
- Seminole County (3)



Additional Research Planned (identification of potential projects)

- Agricultural Land Uses and Acreage Available for Enrollment in Ag BMPs
- Updated Land Uses and Load Reduction Estimates
- Nitrate and TP Loadings
- Septic Tank Loadings



Tracking Implementation - Annual Meetings

- Information Exchange
 - Project and monitoring plan implementation
 - Sharing new information (e.g., monitoring trends, pollutant reductions strategies)
 - Coordinating TMDL-Related Issues
- Adaptive Management
 - Identify implementation issues and consider new information, and,
 - Determine additional corrective actions are needed (if the Wekiva River, Rock Springs Run, and Little Wekiva Canal are not projected to meet the TMDLs)



Proposed Schedule

- **Public Comment Period Ends**
 - May 7
 - Comments due to:
Kenneth Kuhl (kenneth.kuhl@dep.state.fl.us)
Or
Kathleen Harrigan (harrigank@saic.com)
- **Bring to the Secretary for Adoption**
 - June



Comments and Questions