



Florida Department of Environmental Protection

Division of Environmental Assessment and Restoration

Manatee River Basin Management Action Plan (BMAP) Annual Meeting

April 6, 2018

Meeting materials will be posted here:

http://publicfiles.dep.state.fl.us/DEAR/BMAP/Tampa_Bay_Tributaries/manatee%20BMAP/



Meeting Agenda

- Welcome and Introductions
- BMAP Background
- Project Updates
- Water Quality
- What's New
- Public Comments and Wrap Up





Manatee River BMAP Background

- Adopted April 2014
- The fourth year of the BMAP ended March 2018
- The waterbodies addressed by the BMAP are Class I waters and are:
 - Rattlesnake Slough
 - Cedar Creek
 - Nonsense Creek
 - Braden River above Evers Reservoir



Project Updates

- Florida Department of Agriculture and Consumer Services (FDACS)
- Manatee County
- Other Local Governments/Agencies



Water Quality

- Rattlesnake Slough
- Cedar Creek
- Nonsense Creek
- Braden River above Evers Reservoir





Fecal Indicator Bacteria Restoration Tools



**2017 Intensive
Source
Identification (ID)
Pilot Study**





Parameters



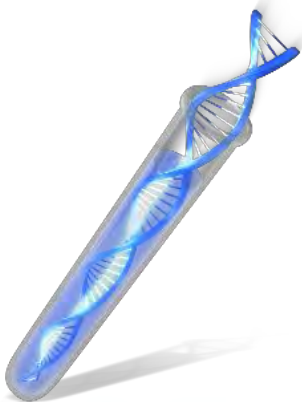
Escherichia coli (*E. coli*) - class I (fresh water) standard

The image shows several rod-shaped bacteria with long, thin, hair-like flagella extending from one end, representing Escherichia coli.

Acetaminophen - (pain reliever that indicates raw sewage)



Sucralose - (artificial sweetener that indicates raw sewage only where records do not show reuse water or onsite sewage treatment and disposal system [OSTDS] in the contributing area)



MST human marker HF-183 - (a segment of deoxyribonucleic acid [DNA] from bacteria most commonly found in human enteric systems)

Propidium Monoazide (PMA) - (indicates recent discharge because it differentiates the live fraction of the Bacteroides out of the total Bacteroides detected in the sample)



Symbology

- The symbols represent our level of confidence that a sample contained raw sewage, it does not represent the volume of sewage
- Each station dot, in the following maps, represents a single site, during a single sampling event, and considers results from the full suite of parameters



Confidence of presence of raw sewage:



Very High



High



Medium



Low



Very Low



No indication



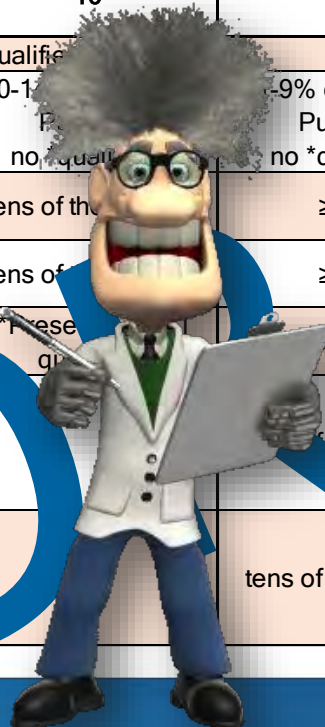


Confidence of Presence of Raw Sewage in a Sample

(per analyte)
Version 2017

As detected in raw
sewage

Confidence level	Very High	High	Medium	Low	Very Low	No Indication of Raw Sewage
Scores	45	40	20	5		0
Acetaminophen	unqualified presence	I qualified				U qualified
HF-183 PMA Treated	greater than 15% of HF-183 Purified, no *qualifiers	10-14% of HF-183 Purified, no *qualifiers	5-9% of HF-183 Purified, no *qualifiers	I qualified	T qualified	U qualified
HF-183 Purified	hundreds of thousands or more	tens of thousands	≥750	I qualified	T qualified	U qualified
HF-183 Crude	hundreds of thousands or more	tens of thousands	≥750	I qualified	T qualified	U qualified
Sucralose		** presence	I qualified			U qualified
E.coli	hundreds of thousands	hundreds of thousands	hundreds of thousands	thousands	above 410	detect and below threshold, U qualified & non-detect
Enterococci	hundreds of thousands	hundreds of thousands	tens of thousands	thousands	above 130	detect and below threshold, U qualified & non-detect



DRAFT



Scoring the Suite of Results

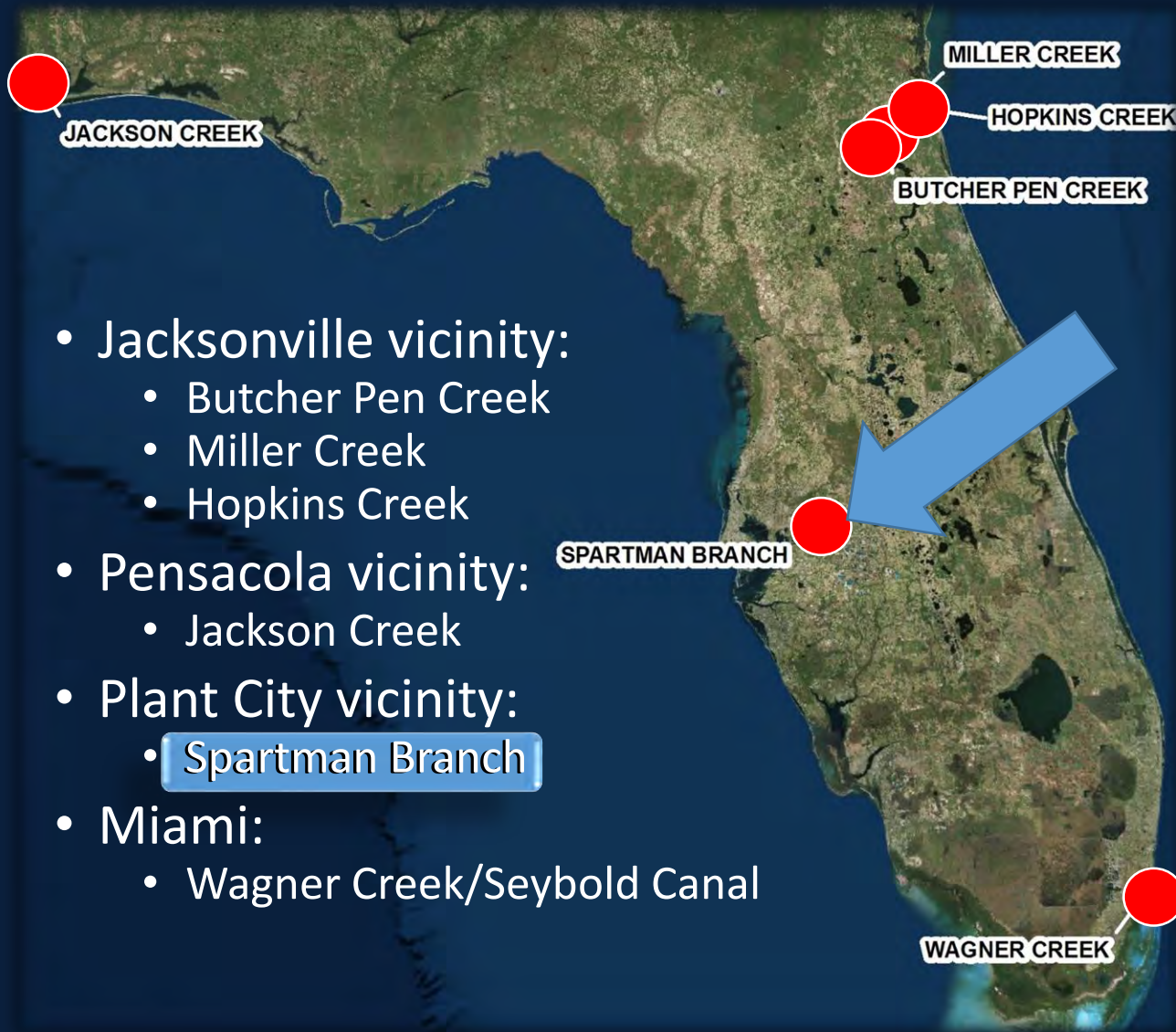
Confidence of presence of Raw Sewage Full Suite, 1 Sample, Site Score	
≥ 80	Very High
40 to 79	High
20 to 39	Medium
1 to 19	Low



Spartman Branch 1561	Site Score: Indication of raw human sewage	Station	Collection date / time	E.Coli			HF-183 Crude qPCR			HF-183 Purified qPCR			HF-183 PMA treated qPCR			Sucralose			Acetaminophen		
Round				Result	Qualif ier	Score	Result	Qualif ier	Score	Result	Qualif ier	Score	Result	Qualif ier	Score	Result	Qualif ier	Score	Result	Qualif ier	Score
Round 1	low	C	3/21/2017 9:50	504	Q	very low	10	T	very low	NS		-	NS		-	0.18		-	0.01	U	-
	very low	A	3/21/2017 10:15	279	Q	-	13	T	very low	NS		-	NS		-	0.18		-	0.01	U	-
	very low	A_DUP	3/21/2017 10:20	132	Q	-	61	T	very low	Spartman Branch Pilot 2017 Lab Results						0.2		-	0.01	U	-
	non-detect	Field Blank	3/21/2017 10:30	1	UQ	-	71	U	-							0.01	U	-	0.01	U	-
	low	B	3/21/2017 11:25	1609	AQ	low	24	UJ	-							0.22		-	0.01	U	-
Round 2-C	very low	A2	4/10/2017 9:15	987	Q	very low	140	UJ	-							0.22		-	0.01	U	-
	low	C4	4/10/2017 9:55	1106	Q	low	580	IJ	low							0.09		-	0.01	U	-
	very low	C	4/10/2017 10:25	10	UQ	-	8.5	TJ	very low	0.22		-	0.01	U	-						
	very low	C3	4/10/2017 10:50	327	Q	-	27	T	very low	NS		-	NS		-	0.21		-	0.01	U	-
	low	C2	4/10/2017 11:20	426	Q	very low	2.6	T	very low	NS		-	NS		-	0.44		-	0.01	U	-
July Wet Season Sampling Event	high	D	7/18/2017 8:55	359	Q	very low	120	T	very low	1.1	TJ	very low	5.5	TJ	very low	0.13		-	0.05		very high
	non-detect	Field Blank	7/18/2017 10:15	1	UQ	-	71	U	-	12	UJ	-	12	UJ	-	0.01	U	-	0.01	U	-
	high	B	7/18/2017 10:40	573	Q	very low	140	T	very low	45	IJ	low	13	TJ	very low	0.25		-	0.02	I	high
	high	B1	7/18/2017 11:05	439	Q	very low	24*	UJ	-	24	UJ	-	24	UJ	-	0.22		-	0.08		very high
	very high	C4	7/18/2017 11:30	1017	Q	low	30*	IJ	low	71	IJ	low	205	J	very high	0.05		-	0.01	I	high
	low	C	7/18/2017 11:50	148	Q	-	69	T	very low	68	IJ	low	21	TJ	very low	0.12		-	0.01	U	-
	low	C2	7/18/2017 12:30	439	Q	very low	130	TJ	very low	24	TJ	very low	32	IJ	low	0.11		-	0.01	U	-
low	C2a	7/18/2017 13:00	246	Q	-	30	TJ	very low	8.2	TJ	very low	12	TJ	very low	0.19		-	0.01	U	-	
August Persistence Check Sampling Event	low	D	8/16/2017 10:00	228		very low	58*	IJ	low	58	IJ	low	6.9	TJ	very low	0.1		-	0.01	U	-
	very high	C4	8/16/2017 10:20	1081		low	178*	J	medium	182	J	medium	34	IJ	low	0.04	I	-	0.01	I	high
	low	B	8/16/2017 10:40	20		-	120	T	very low	47	IJ	low	11	TJ	very low	0.15		-	0.01	U	-
	high	B1	8/16/2017 11:00	556		very low	14*	TJ	very low	15	TJ	very low	8.2	TJ	very low	0.36		-	0.01	I	high
	low	C	8/16/2017 11:20	233		-	76*	IJ	low	76	IJ	low	31	IJ	low	0.14		-	0.01	U	-
	low	C_DUP	8/16/2017 11:25	228		-	53	T	very low	28	IJ	low	9.3	TJ	very low	0.14		-	0.01	U	-
	low	C2	8/16/2017 11:50	399		-	24	T	very low	13	TJ	very low	3.1	TJ	very low	0.09		-	0.01	U	-
	low	C2a	8/16/2017 12:10	144		-	28	T	very low	19	IJ	low	15	TJ	very low	0.13		-	0.01	U	-
non-detect	WALDENLAKE	8/16/2017 13:00	52		-	140	U	-	24	UJ	-	24	UJ	-	0.49		-	0.01	U	-	



Pilot 2017 Waterbodies



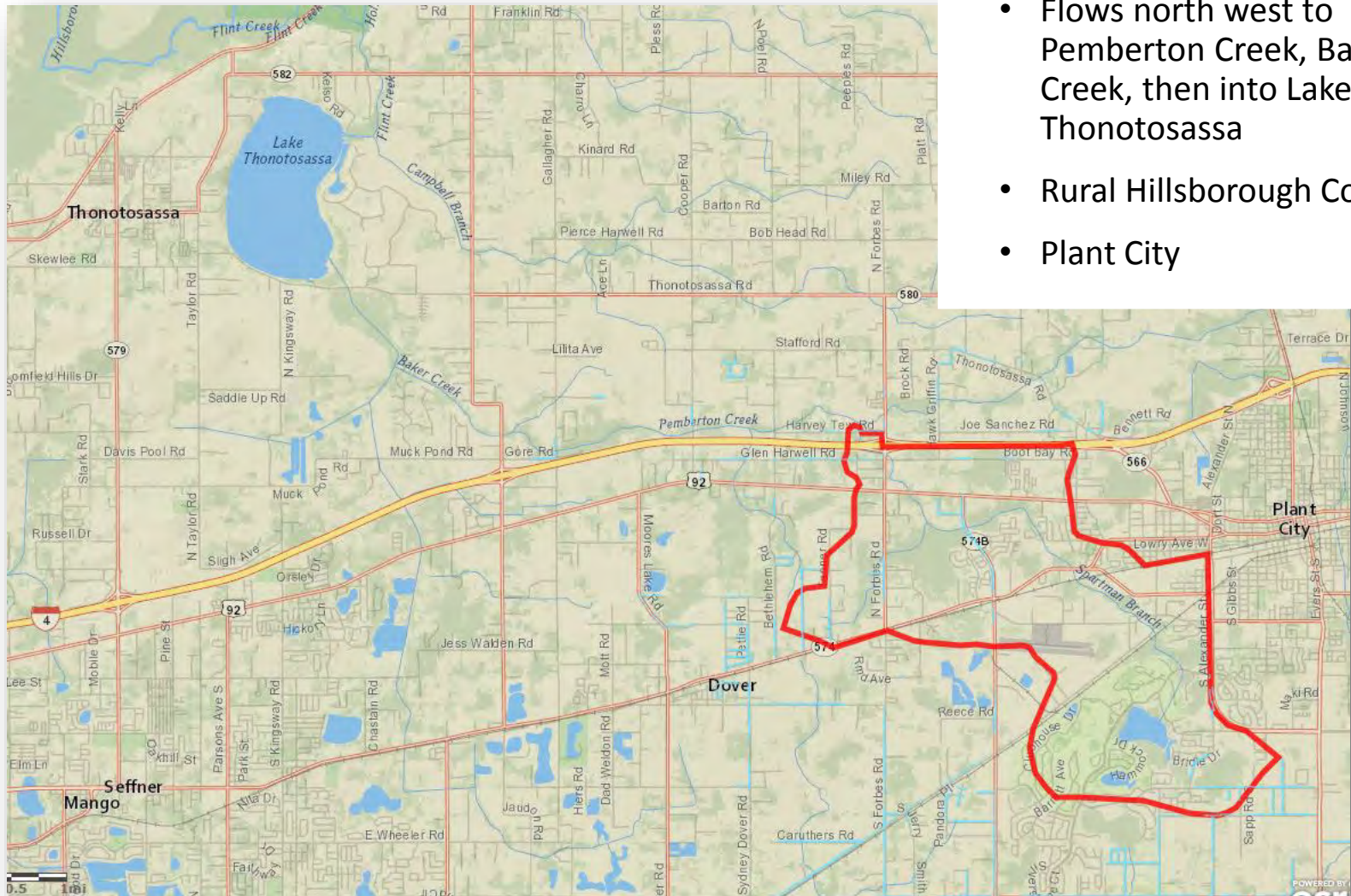
- Jacksonville vicinity:
 - Butcher Pen Creek
 - Miller Creek
 - Hopkins Creek
- Pensacola vicinity:
 - Jackson Creek
- Plant City vicinity:
 - Spartman Branch
- Miami:
 - Wagner Creek/Seybold Canal





Spartman Branch WBID

- Flows north west to Pemberton Creek, Baker Creek, then into Lake Thonotosassa
- Rural Hillsborough County
- Plant City

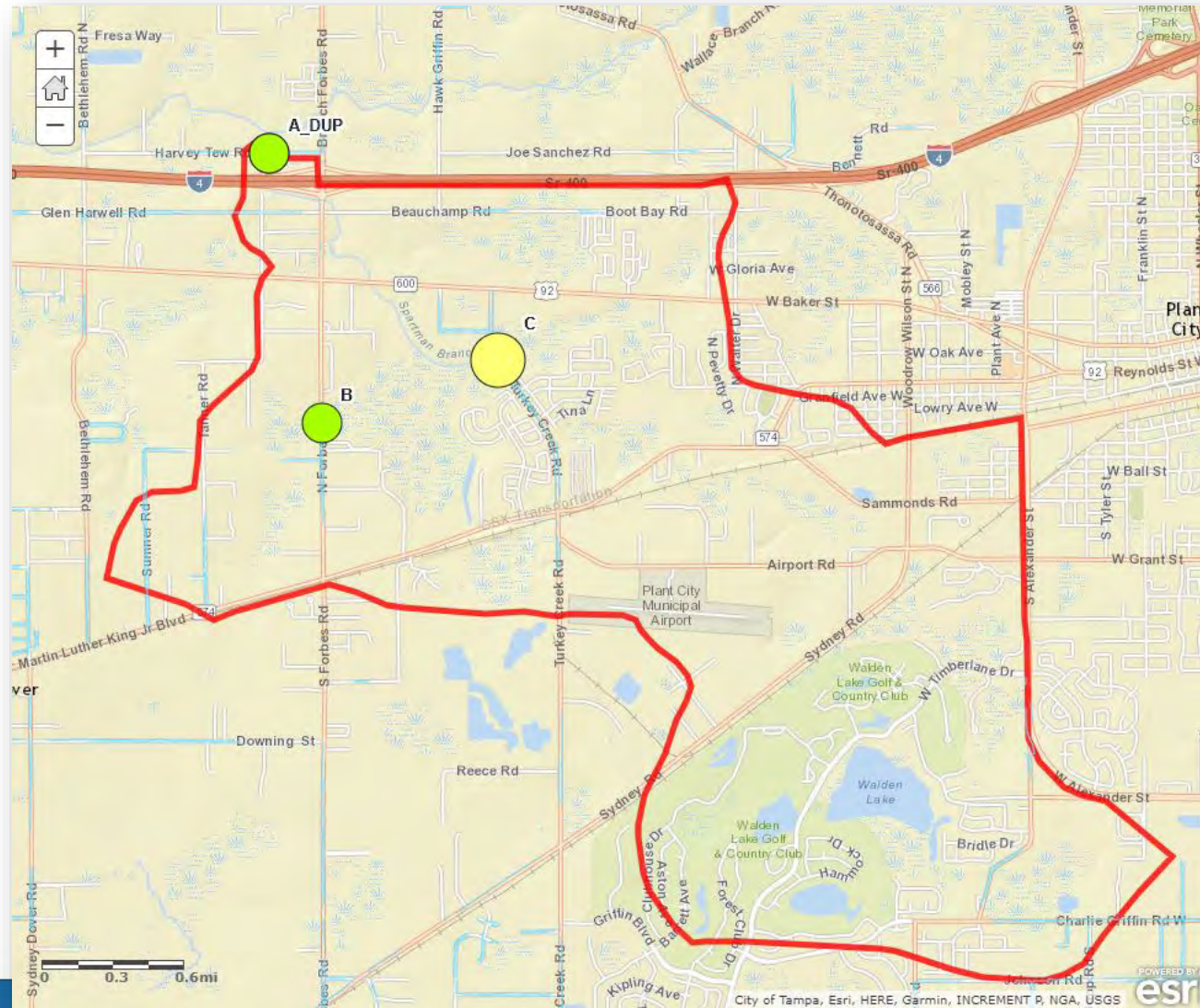




Spartman Branch

- Sampling Event 1
March 21

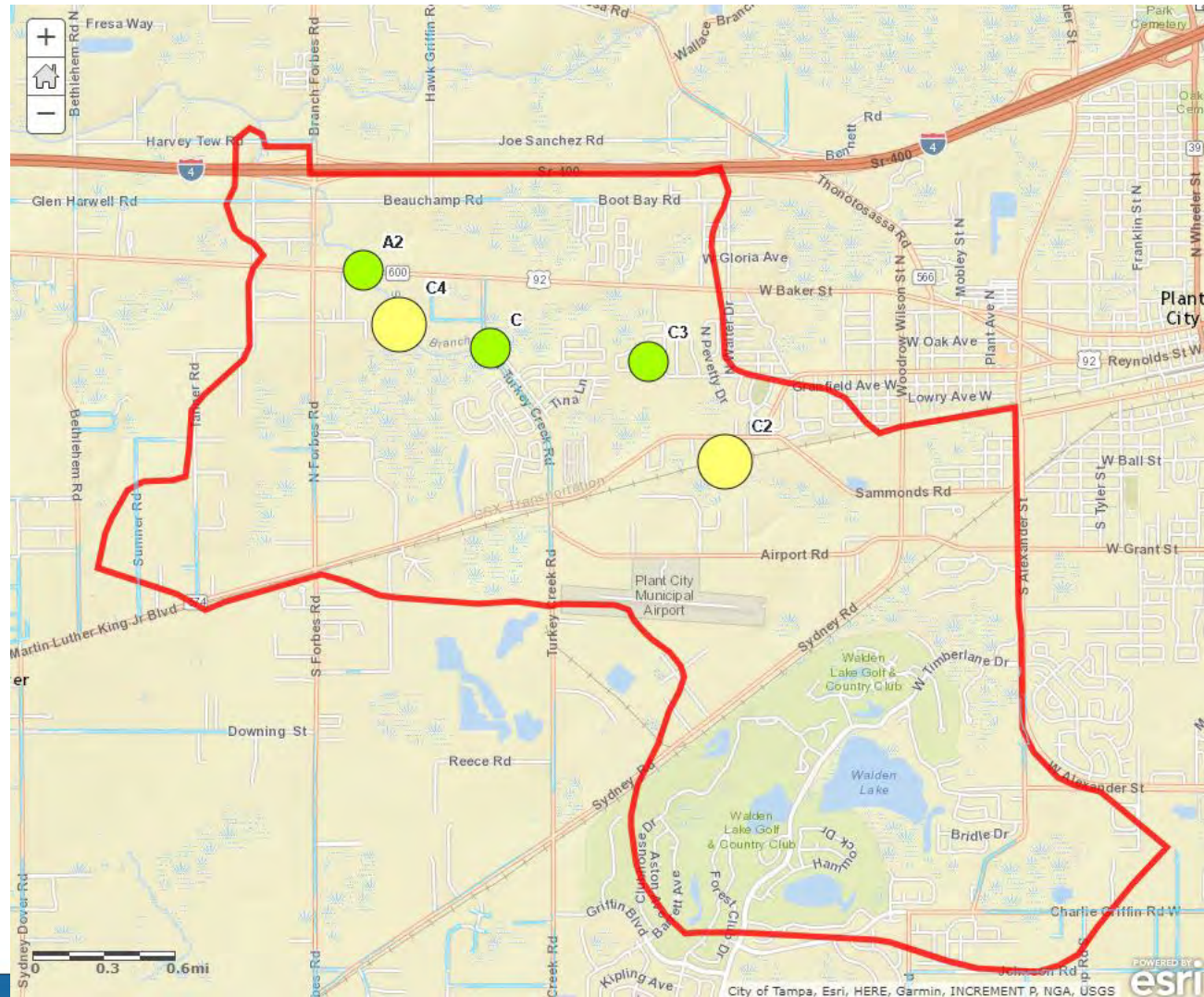
Confidence of presence
of raw sewage:





Spartman Branch

- Sampling Event 2 April 10
- The south west tributary was dry
- Shortly after, the creek went dry

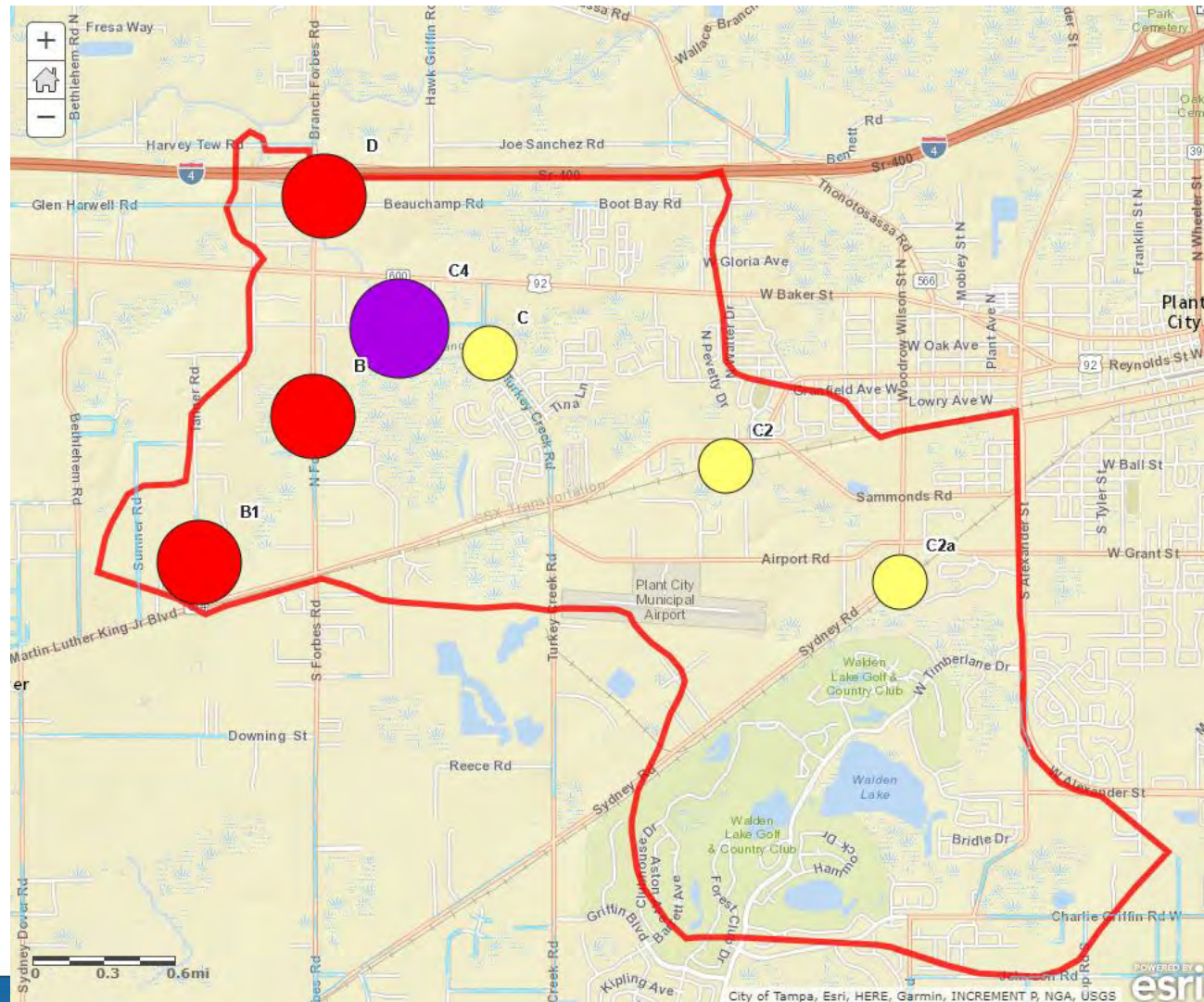




Spartman Branch

- Sampling Event 3 July 18
- This event was after the creek began flowing again

Confidence of presence of raw sewage:





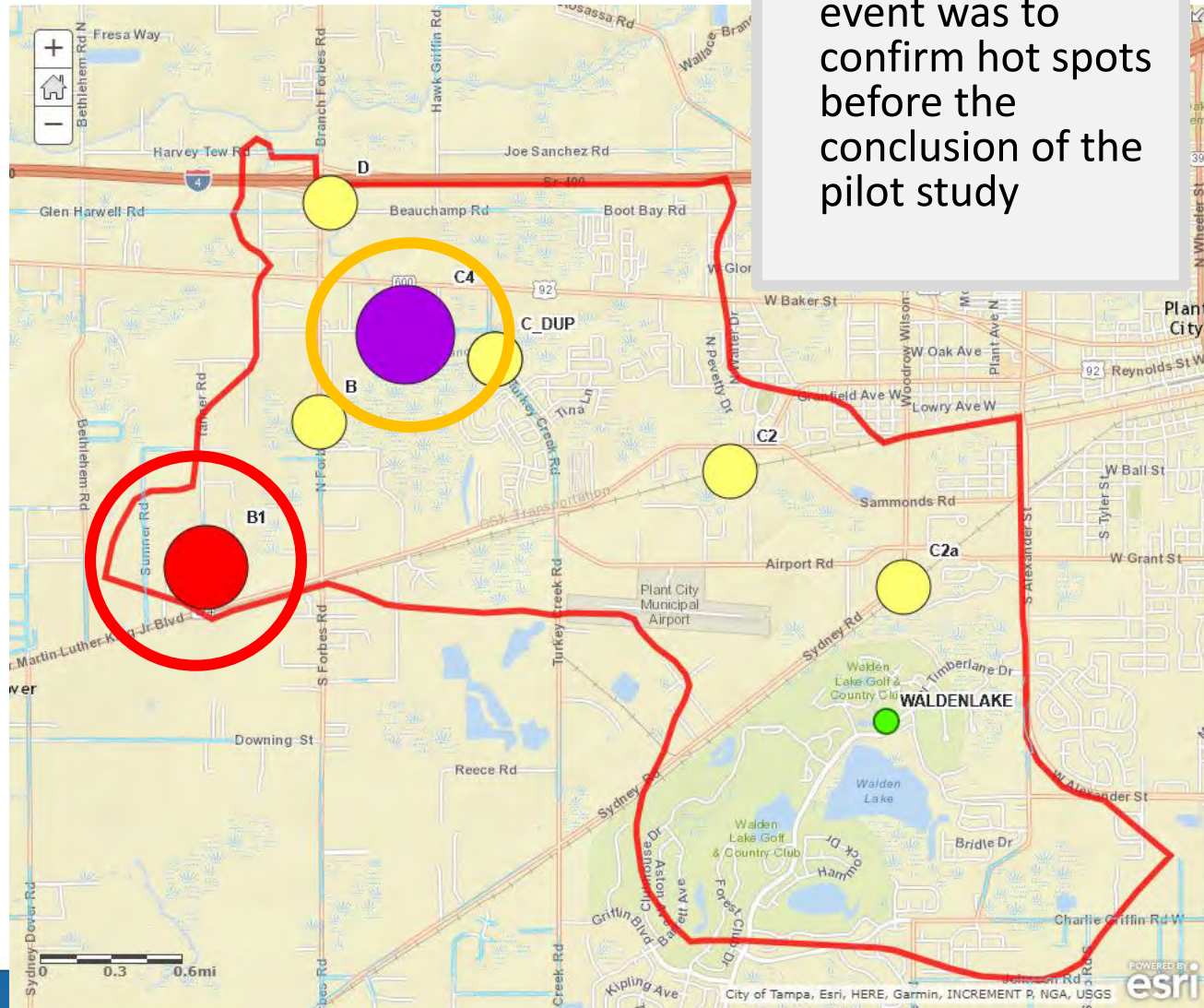
Spartman Branch

The symbols represent our level of confidence that a sample contained raw sewage. It does not represent the volume of sewage.

Confidence of presence of raw sewage:



Remaining trails to follow.

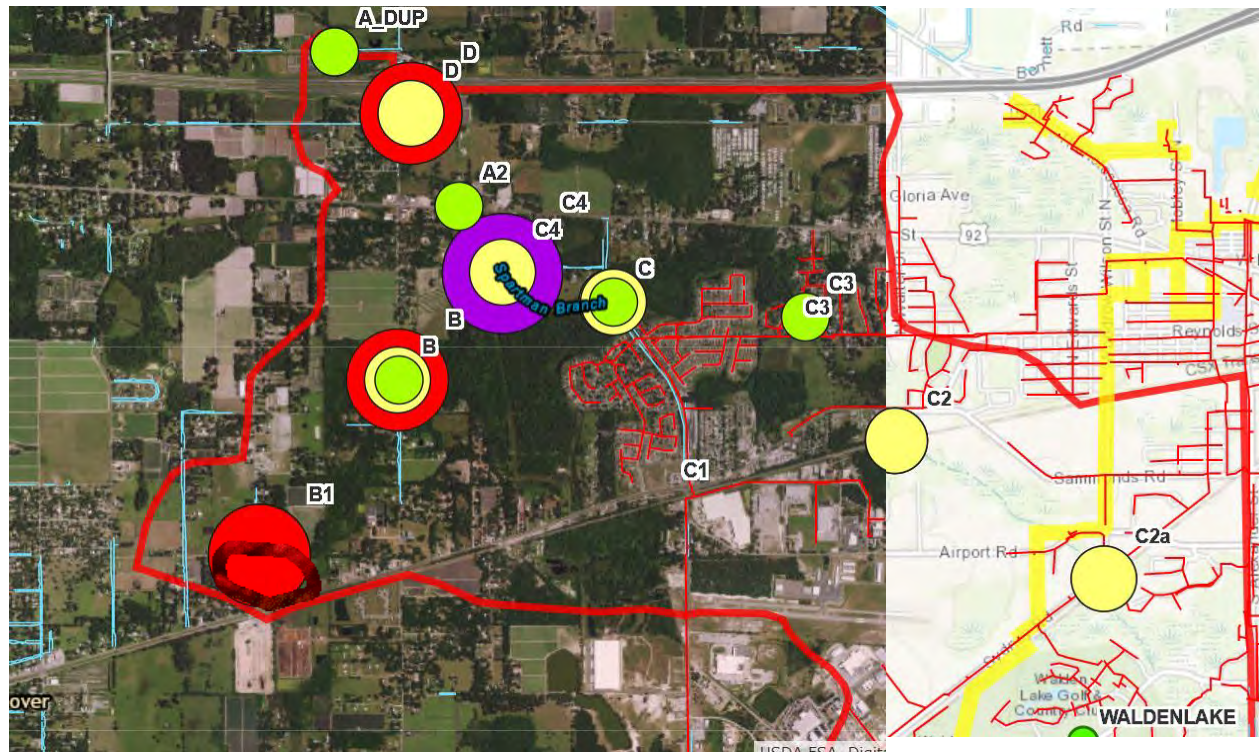


- Sampling Event 4
August 16
- The last sampling event was to confirm hot spots before the conclusion of the pilot study



Spartman Branch

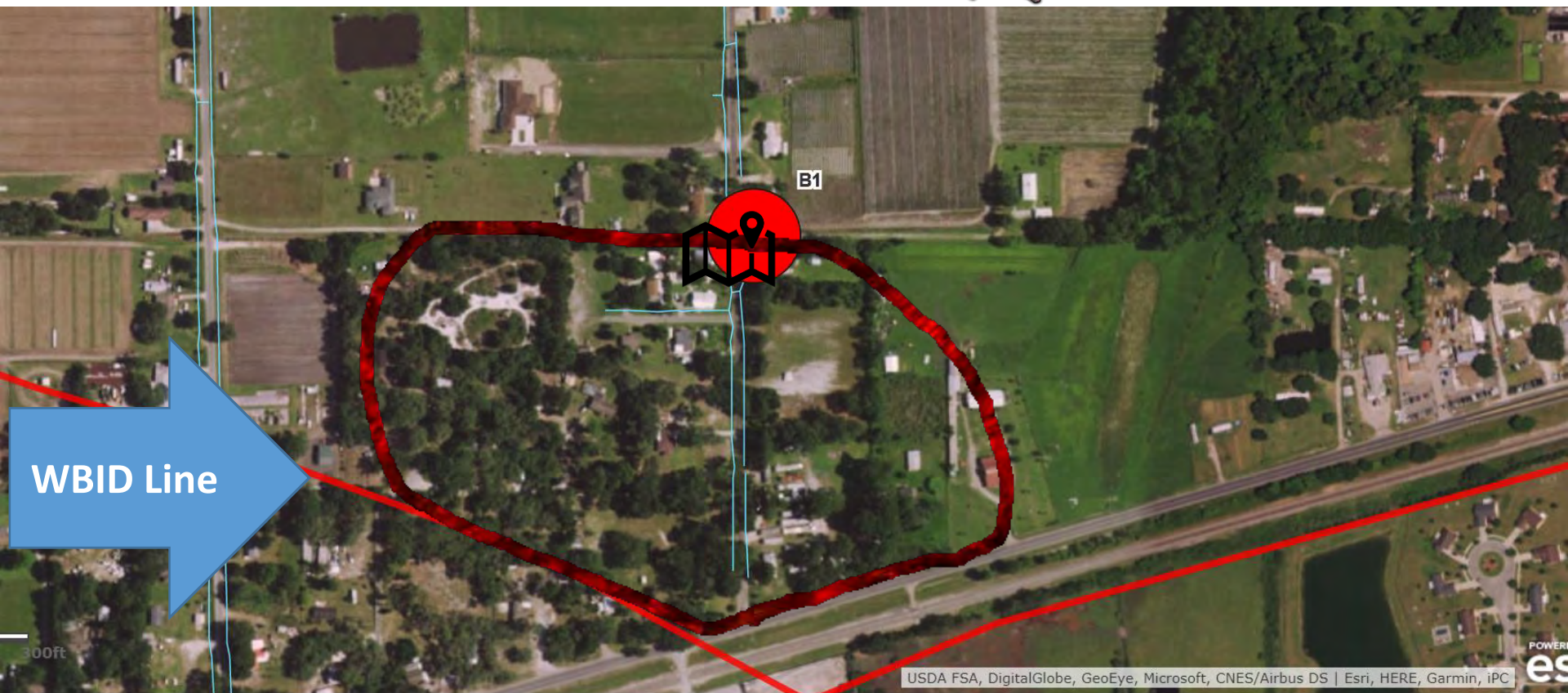
All 4 pilot study sampling events





Example of a hot spot in an area serviced by OSTDS

Questions



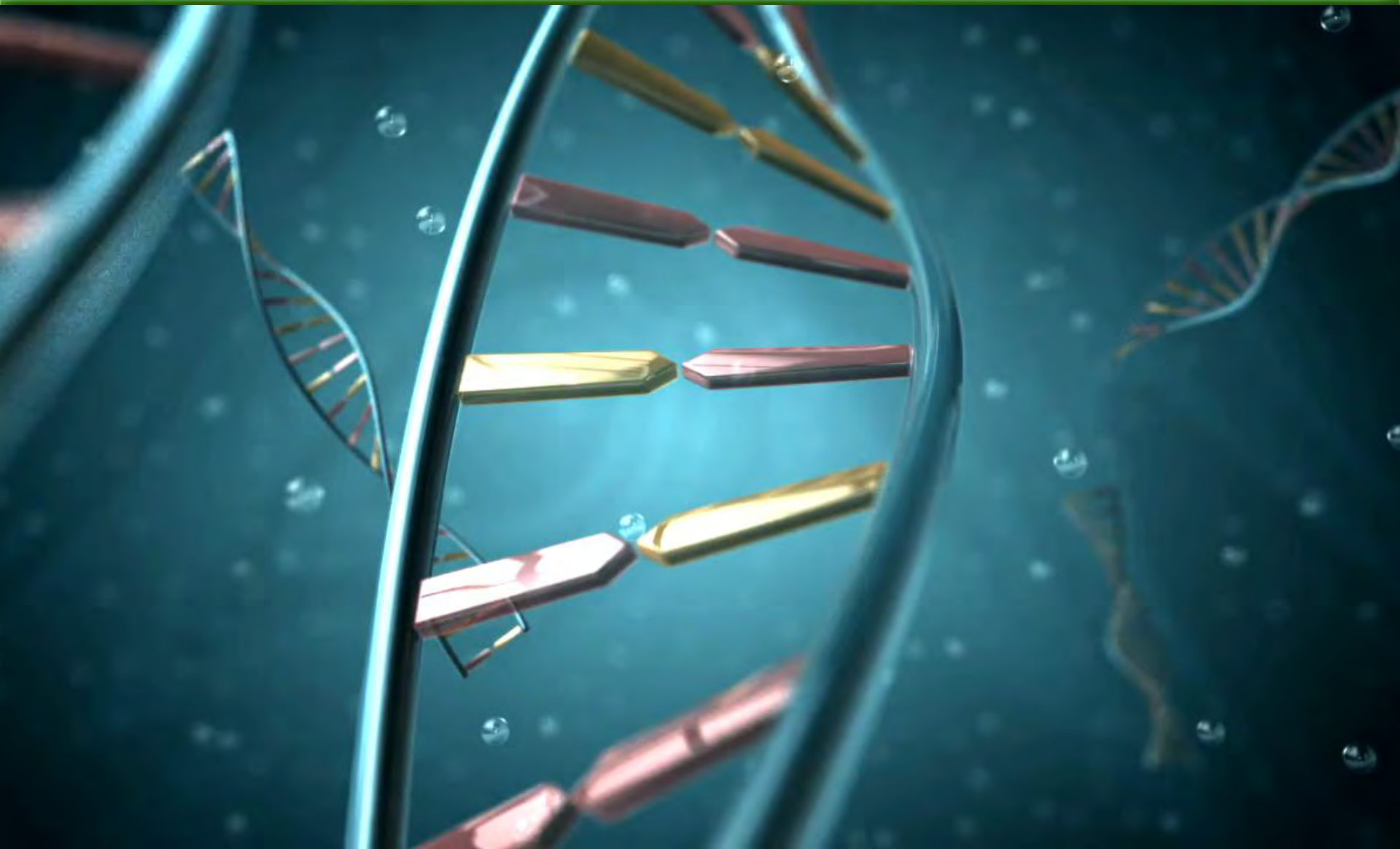


Building on the 2017 Source ID Pilot Study





Source Specific Data for Manatee Basin Waters





What's New?

Fecal Indicator Bacteria (FIB) Impaired WBID Prioritization Tool



Prioritization Categories & Statewide Data Sources

1

Water Quality Data

Frequency of Exceedance

Waters Not Attaining Standards

Magnitude of Exceedances (not yet included)

Source Specific Indicators (not yet included)

2

Risk Of Contact

WBID Class (3M – Type: Beach)

Florida State Park Points of Interest ex.

Swimming

Canoeing

Kayaking

Boat Ramps

Public Beach Access Points

Paddling Trails

Boat Ramps

Outstanding Florida Springs

3

DEP Designations

Outstanding Florida Waters

Outstanding Florida Springs

Florida Adopted TMDLs

WBID Class ex.

Drinking

Shell Fish

Recreation

4

Potential Contaminate Sources

Sanitary Sewer Overflows

OSTDS Repair Permits

Anchorage

Property Appraiser (Age of original infrastructure)

Land Use / Land Cover

Livestock

5

Stakeholder Commitment of Resources

Basin Management Action Plans

4e Plans (Stakeholder lead restoration plans pre-impairment)

6

Considerations External of Tool

Urgency Assessment (in development)

Intensity of Source Specific Hits & Waterbody Use

Stakeholder Commitment to Invest Resources (not a statewide layer)





New DEP Website

Florida Department of Environmental Protection

A-Z Index

Forms

News

Events

Contact Us



About DEP

How Do I ▾

Divisions ▾

Air

Lands

Parks & Rec

Waste

Water

SEARCH...



New DEP Website

We have redesigned our website to make sure it's functional, visually appealing and easy to use. We hope to better serve you by providing quick and easy access to the information and services you need.

[Learn More](#)

<https://floridadep.gov/>



Redesigned BMAP Webpage

Florida Department of Environmental Protection

A-Z Index Forms News Events Contact Us f t y my



About DEP

How Do I ▾

Divisions ▾

Air

Lands

Parks & Rec

Waste

Water

SEARCH...



Basin Management Action Plans (BMAPs)

[Home](#) » [Divisions](#) » [Division of Environmental Assessment and Restoration](#) » [Water Quality Restoration Program](#) » Basin Management Action Plans (BMAPs)

Water Quality Restoration Program Quick Links

[Basin Management Action Plans \(BMAPs\)](#)

[BMAP Meeting Calendar](#)

[Impaired Waters, TMDLs, and Basin Management Action Plans Interactive Map](#)

[Nitrogen Source Inventory and Loading Tool \(NSILT\)](#)

[All Water Quality Restoration Program Content](#)

What is a Basin Management Action Plan (BMAP)?

It is the "blueprint" for restoring impaired waters by reducing pollutant loadings to meet the allowable loadings established in a Total Maximum Daily Load (TMDL). It represents a comprehensive set of strategies - permit limits on wastewater facilities, urban and agricultural best management practices, conservation programs, financial assistance and revenue generating activities, etc. - designed to implement the pollutant reductions established by the TMDL. These broad-based plans are developed with local stakeholders - they rely on local input and local commitment - and they are adopted by Secretarial Order to be enforceable.

[View an online map including BMAPs adopted and in progress.](#)

[BMAP Meeting Calendar: Upcoming Meeting Information and Agendas](#)

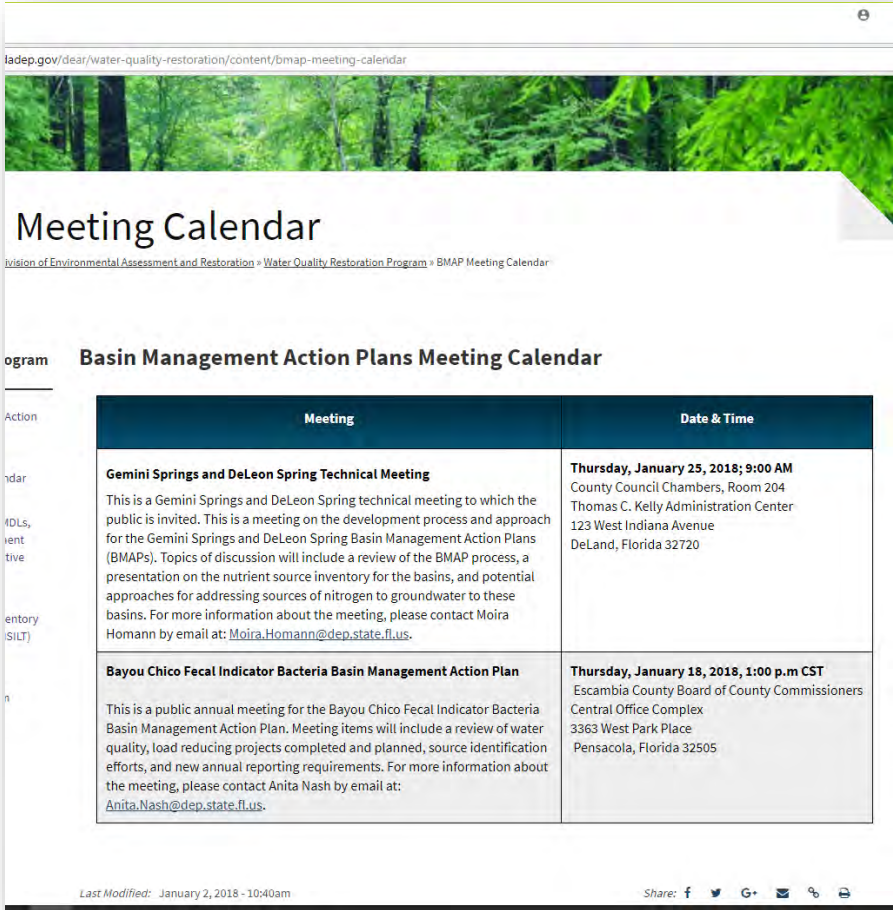
New Statewide Progress Reporting for Water Quality Restoration Projects

By July 2018, DEP will have adopted more than a dozen new and revised BMAPs for areas including all Outstanding Florida Springs. When completed, the state's BMAPs will have placed almost 14 million watershed acres under active basin management—a total area including more than 6.5 million Floridians. Beginning July 1, 2018, a single statewide report will replace the annual progress reports for all BMAPs. An annual statewide report of progress towards implementing water quality projects will greatly assist policymakers and

<https://floridadep.gov/dear/water-quality-restoration/content/basin-management-action-plans-bmaps>

BMAP Webpage Components

- BMAP Meeting Calendar
- BMAP Documents
- BMAP Story Maps
- Water Quality Assessments, TMDLs, and BMAPs Interactive Map





The screenshot shows a webpage titled "Meeting Calendar" with a URL of fladep.gov/dear/water-quality-restoration/content/bmap-meeting-calendar. The page features a header image of a forest and a navigation breadcrumb: [Division of Environmental Assessment and Restoration](#) > [Water Quality Restoration Program](#) > [BMAP Meeting Calendar](#).

The main content area is titled "Basin Management Action Plans Meeting Calendar" and contains a table with two columns: "Meeting" and "Date & Time".

Meeting	Date & Time
Gemini Springs and DeLeon Spring Technical Meeting This is a Gemini Springs and DeLeon Spring technical meeting to which the public is invited. This is a meeting on the development process and approach for the Gemini Springs and DeLeon Spring Basin Management Action Plans (BMAPs). Topics of discussion will include a review of the BMAP process, a presentation on the nutrient source inventory for the basins, and potential approaches for addressing sources of nitrogen to groundwater to these basins. For more information about the meeting, please contact Moira Homann by email at: Moira.Homann@dep.state.fl.us .	Thursday, January 25, 2018; 9:00 AM County Council Chambers, Room 204 Thomas C. Kelly Administration Center 123 West Indiana Avenue DeLand, Florida 32720
Bayou Chico Fecal Indicator Bacteria Basin Management Action Plan This is a public annual meeting for the Bayou Chico Fecal Indicator Bacteria Basin Management Action Plan. Meeting items will include a review of water quality, load reducing projects completed and planned, source identification efforts, and new annual reporting requirements. For more information about the meeting, please contact Anita Nash by email at: Anita.Nash@dep.state.fl.us .	Thursday, January 18, 2018; 1:00 p.m CST Escambia County Board of County Commissioners Central Office Complex 3363 West Park Place Pensacola, Florida 32505

At the bottom of the page, it says "Last Modified: January 2, 2018 - 10:40am" and includes social media sharing icons for Facebook, Twitter, Google+, Email, Print, and a generic share icon.

<p>Indian River Lagoon (IRL) Basin: Banana River Lagoon (February 2013)</p>  <p>Banana River Lagoon BMAP Interactive Story Map</p>	<ul style="list-style-type: none"> • Banana River Lagoon BMAP • Banana River Lagoon BMAP Interactive Story Map • Banana River Lagoon BMAP 2017 Annual Progress Report • Banana River Lagoon BMAP 2016 Annual Progress Report • Banana River Lagoon BMAP 2015 Annual Progress Report • Banana River Lagoon BMAP 2014 Annual Progress Report 	<p>Kevin Williams</p>
<p>Indian River Lagoon (IRL) Basin: Central Indian River Lagoon (February 2013)</p>  <p>Central Indian River Lagoon BMAP Interactive Story Map</p>	<ul style="list-style-type: none"> • Central Indian River Lagoon BMAP • Central Indian River Lagoon BMAP Story Map • Central IRL BMAP 2017 Annual Progress Report • Central IRL BMAP 2016 Annual Progress Report • Central IRL BMAP 2015 Annual Progress Report • Central IRL BMAP 2014 Annual Progress Report 	<p>Breanna Crowell</p>

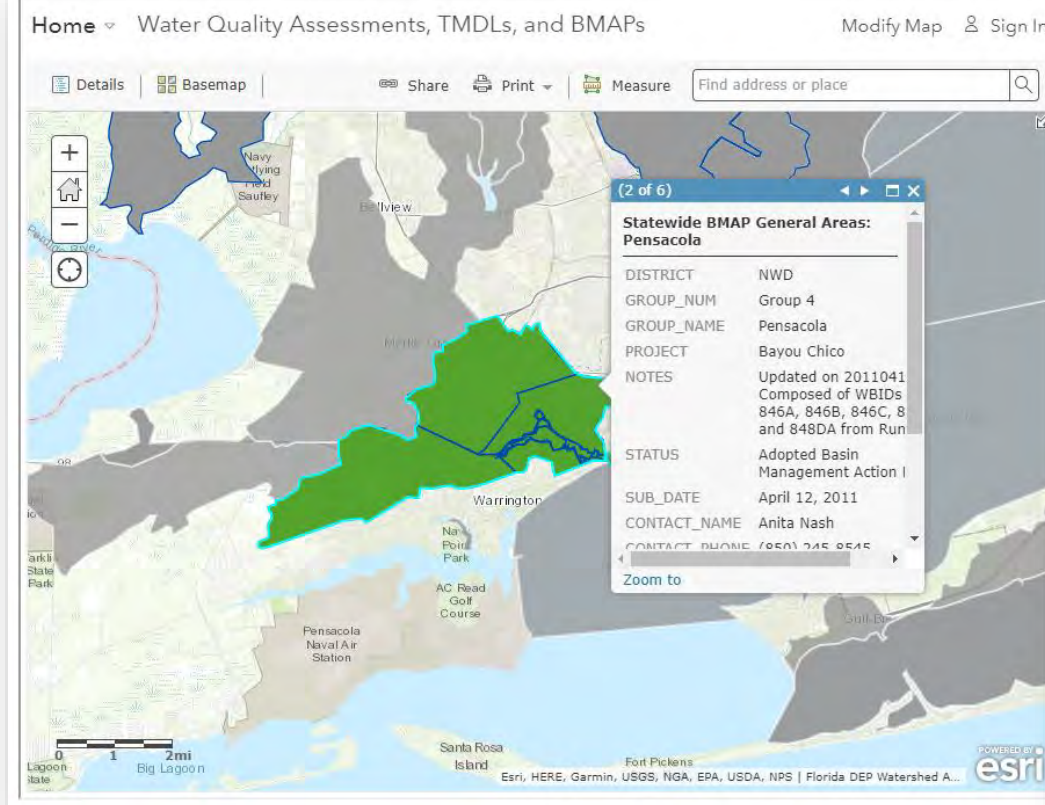
Waterbody	BMAP Documents	Contact
<p>Alafia River Basin (April 2014)</p>	<ul style="list-style-type: none"> • Alafia River Basin BMAP • Alafia River Basin BMAP 2016 Annual Progress Report • Alafia River Basin BMAP 2015 Annual Progress Report 	<p>Anita Nash</p>
<p>Bayou Chico (October 2011)</p>	<ul style="list-style-type: none"> • Bayou Chico BMAP • Bayou Chico BMAP 2016 Annual Progress Report • Bayou Chico BMAP 2015 Annual Progress Report • Bayou Chico BMAP 2014 Annual Progress Report • Bayou Chico BMAP 2013 Annual Progress Report • Bayou Chico BMAP 2012 Annual Progress Report 	<p>Anita Nash</p>
<p>Caloosahatchee Estuary Basin (November 2012)</p>	<ul style="list-style-type: none"> • Caloosahatchee Estuary Basin BMAP • Caloosahatchee Estuary BMAP 2016 Annual Progress Report • Caloosahatchee Estuary BMAP 2015 Annual Progress Report • Caloosahatchee Estuary BMAP 2014 Annual Progress Report • Caloosahatchee Estuary BMAP 2013 Annual Progress Report 	<p>Kevin Williams</p>
<p>Everglades West Coast Basin (November 2012)</p>	<ul style="list-style-type: none"> • Everglades West Coast Basin BMAP • Everglades West Coast BMAP 2016 Annual Progress Report • Everglades West Coast BMAP 2015 Annual Progress Report • Everglades West Coast BMAP 2014 Annual Progress Report • Everglades West Coast BMAP 2013 Annual Progress Report 	<p>Katie Britt</p>

BMAP Documents and Story Maps

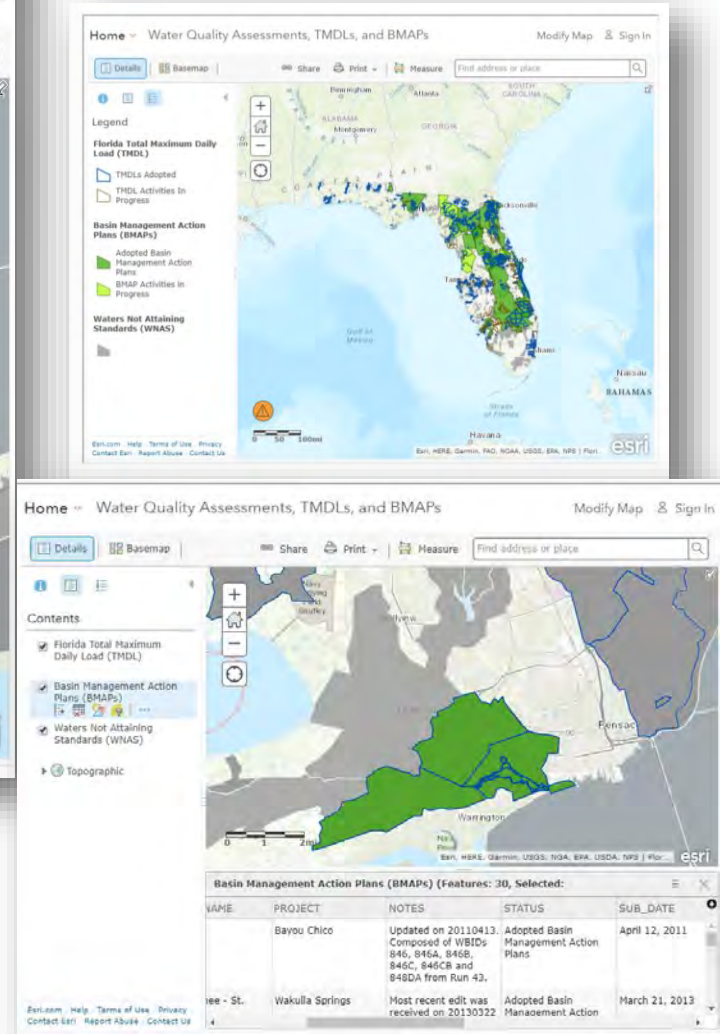


Water Quality Assessments, TMDLs, and BMAPs Interactive Map

<https://floridadep.gov/dear/water-quality-restoration/content/impaired-waters-tmdls-and-basin-management-action-plans>



- Displays the WBIDs that are not attaining standards, TMDLs, and BMAPs adopted and in progress





Watershed Information Network (WIN) and Florida Storage and Retrieval (STORET)



- **WIN is live!**

<http://prodenv.dep.state.fl.us/DearWin/public/welcomeGeneralPublic?calledBy=GENERALPUBLIC>

- **December 2017**, Florida STORET was closed to additions of new data and to corrections of existing data
- DEP will accept migrations of data from Florida STORET to WIN any time after WIN comes on-line
- Florida STORET will remain available for data extractions after December 2017 through STORET public access (SPA) site
 - SPA: <http://prodenv.dep.state.fl.us/DearSpa/public/welcome>





WIN Contacts

- Information on WIN (e.g., standards, frequently asked questions, example data templates) is provided at:
<https://floridadep.gov/dear/watershed-services/content/winstoret>
- Denise Miller, Environmental Administrator, 850-245-8516,
denise.miller@dep.state.fl.us
- Julie Zimmerman, Business Lead, 850-245-8508,
julie.m.zimmerman@dep.state.fl.us
- Lisa Schwenning, Regional STORET/WIN Coordinator, 850-245-8509,
lisa.schwenning@dep.state.fl.us





BMAP Annual Reporting

- New statewide progress report
- New requirement under Florida Statutes (F.S.) to provide an annual update to the Governor and Legislature (see Section 403.0675, F.S.)
- First report is due to the Governor and the Legislature by July 1, 2018
- DEP will submit subsequent reports by July 1st of each year





BMAP Annual Reporting

- **Annual BMAP meetings**

- Manatee River BMAP meetings may be held in late spring
- Review significant source identification accomplishments
- Highlight restoration projects and management strategies
- Water quality information

- **Reporting period**

- Project collection will be initiated November of each year
- Report will contain projects completed the previous year (January through December) for all BMAPs statewide



BMAP Annual Reporting



- DEP will request project updates from April 2016 to December 31, 2018 via email with instructions
- Will be included in the published 2019 statewide progress report
- Focus will be given to source identification and elimination efforts



Statewide Annual Report to the Governor and Legislature

- Content about projects pertinent to achieve BMAPs and Minimum Flows and Levels (MFLs)
 - Water quality projects
 - Water quantity projects
 - Proposed priority ranking for implementation
 - Load reductions (nutrient BMAPs)



DEP Contacts

- Tom Frick, Director, Division of Environmental Assessment and Restoration,
Thomas.Frick@dep.state.fl.us
- Kevin Coyne, Program Administrator, Water Quality Restoration Program
Kevin.Coyne@dep.state.fl.us
- Anita Nash, Basin Coordinator, Watershed Planning and Coordination Section,
Anita.Nash@dep.state.fl.us





Public Comments and Wrap Up

- Meeting materials are posted to:
 - http://publicfiles.dep.state.fl.us/DEAR/BMAP/Tampa_Bay_Tributaries/manatee%20BMAP/
- For questions contact Anita Nash:
 - Anita.Nash@dep.state.fl.us
 - 850-245-8545





The End

Source ID Pilot Study 2017

Progress Summary

7 sampling events.

All 4 sites hot on first sampling event. Site B was hottest.

Followed 1 source trail for 4 rounds of monitoring.

2 hot tributaries identified during first round of monitoring.

All low hits on rounds 1 and 2. Creek dried up; delayed progress.

No Hits during Round 1.

Followed 2 trails upstream to the farthest extent of city owned conveyances.

Signal traced into 6 potentially separate hot spots.

Flow stopped; hits in remaining pools at road crossings. 2 hot spots identified.

Delays related to retirement of city staff and incomplete GIS inventory of stormwater conveyances incomplete. 4 hot spots identified.

Sampled after rain returned, identified 2 hot spots serviced by OSTDS.

1 source eliminated after 2nd sampling event.

7 more hot spots identified.

1 source identified & eliminated

21 hot spots remain



Pilot 2017 Summary Stats

Source ID 2017 Pilot Study

WBIDs	6
Field events when sampling occurred	25

Environmental Successes

Source Trails Identified	21
Source identified and eliminated	1

Levels of likelihood of presence of raw sewage / # of kits

Very High	39
High	59
Medium	5
Low	22
Very Low	13
Non-detects, includes blanks.	21

WBID / Sewage trails per WBID (hot spots remaining)

Wagner	6
Spartman	2
Miller	4
Hopkins	7
Butcher Pen	0
Jackson Creek	2
Total	21

Engaged Diverse Groups (BMAP Staff)

County Governments	3
City Governments	7
DOT Districts	2
Sanitary Sewer utilities	3
DEP ROCs (Field offices)	4
DEP Tallahassee (Chem., Micro-Bio., GIS, BMAP, MS4)	5
Diverse Groups	24

Map needs (GIS Staff)

Proposed stations maps	>25
Actual Sample Stations maps	>25
Referenced Map Projections	>50

Summary of source ID lab results (Lab Staff)

<i>E.coli</i> results	76
Enterococci results	83
PMA	63
HF183 Crude	159
HF-183 purified	63
Acetaminophen	159
Sucralose	159
Total lab analyses used by pilot	762

Kits filled (ROC Staff)

Duplicates	12
Field Blanks	14
Samples	133
Total kits analyzed including field QA/QC	159