

# Carpenter Creek Bacteria Pollution Control Plan (BPCP)

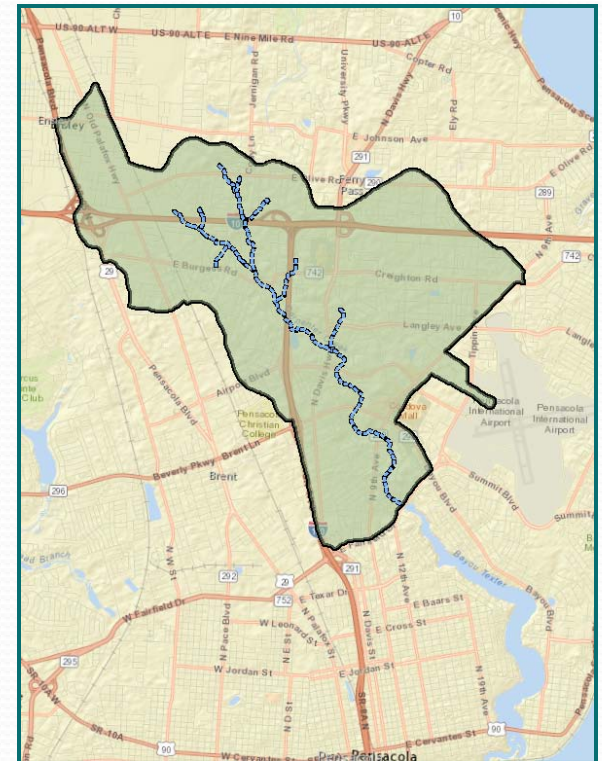
## Stakeholder Kickoff Meeting

Wednesday, March 29, 2017

1:00 – 3:00pm

Escambia County Central Office Complex – Room 104

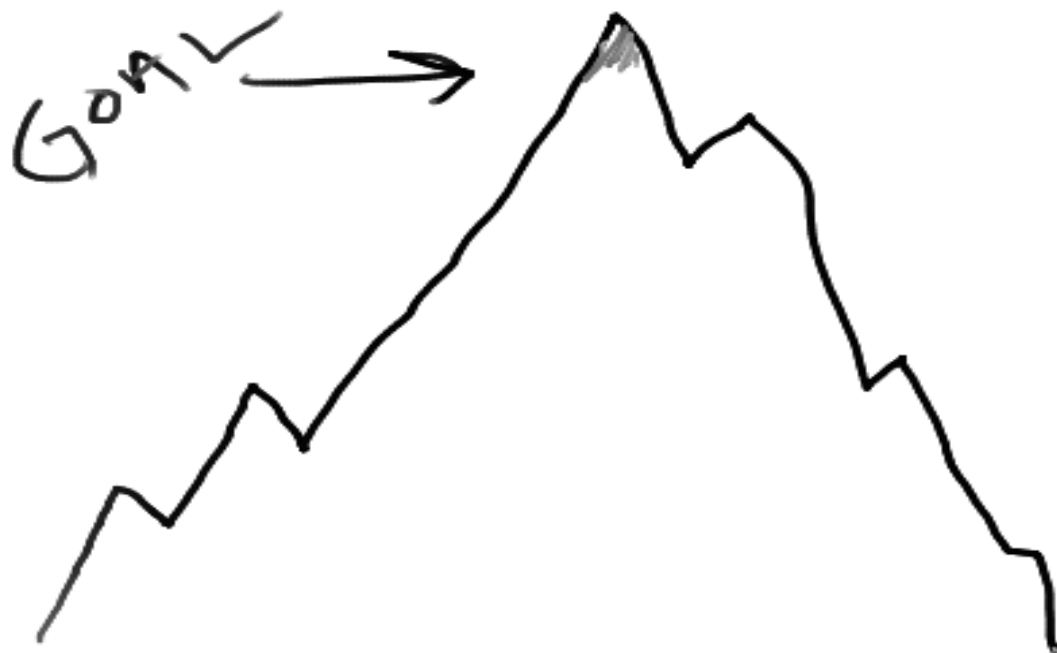
3363 West Park Place, Pensacola, FL 32505



# Stakeholder Meeting Agenda

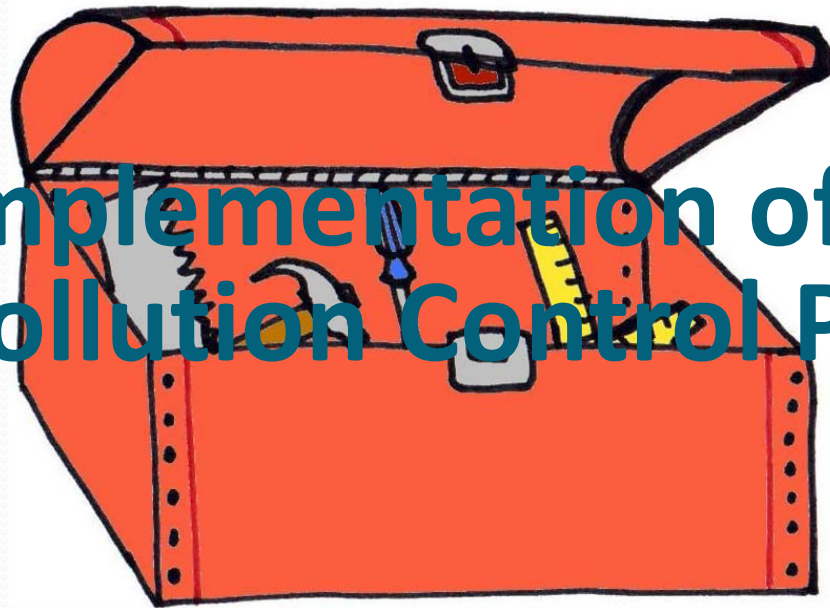
- Welcome & Introductions
- NPDES Permit and TMDL Program Overview
  - Brent Wipf, Manager, Escambia County Water Quality & Land Management (WQLM)
- TMDL Prioritization Report & Carpenter Creek BPCP
  - Dana Morton, Environmental Programs Manager, WQLM
- Overview of Available Carpenter Creek Data
  - Mollie Taylor, Environmental Analyst, WQLM
- Stakeholder Discussion
  - Matt Kelly, Environmental Analyst, WQLM
- Next Steps
  - Dana Morton, Environmental Programs Manager, WQLM

**Our goal is for Carpenter Creek to meet surface water quality standards for fecal coliform bacteria.**



**What are we trying to accomplish?**

# Implementation of a Bacteria Pollution Control Plan (BPCP)



**How do we intend  
to reach our goal?**

# What IS the Carpenter Creek Bacteria Pollution Control Plan?

It IS an action plan designed to achieve fecal coliform bacteria reduction goals for Carpenter Creek as established by the adopted Total Maximum Daily Load (TMDL).

It IS a joint effort by Escambia County, the Florida Department of Transportation, City of Pensacola, and Town of Century.

It IS an opportunity to work with other local stakeholders to achieve joint water quality goals and improve quality of life for everyone.

It IS a process for identifying problems, finding solutions, and monitoring progress.

It IS required.

# What the Carpenter Creek Bacteria Pollution Control Plan is NOT.

It is NOT the Carpenter Creek Master Plan Project submitted for consideration for funding through the RESTORE Direct Component.

It is NOT just a County, FDOT, or City project.

It is NOT intended to directly address other environmental concerns such as excess nutrients, sedimentation, loss of wildlife habitat, riparian buffer encroachments, evasive species, trash, etc.

It is NOT intended to directly address stormwater drainage issues such as flooding.

It is NOT currently focused on water quality issues in Bayou Texar.

It is NOT likely a quick fix.

# How did we get here?



# Florida's TMDL Program Overview

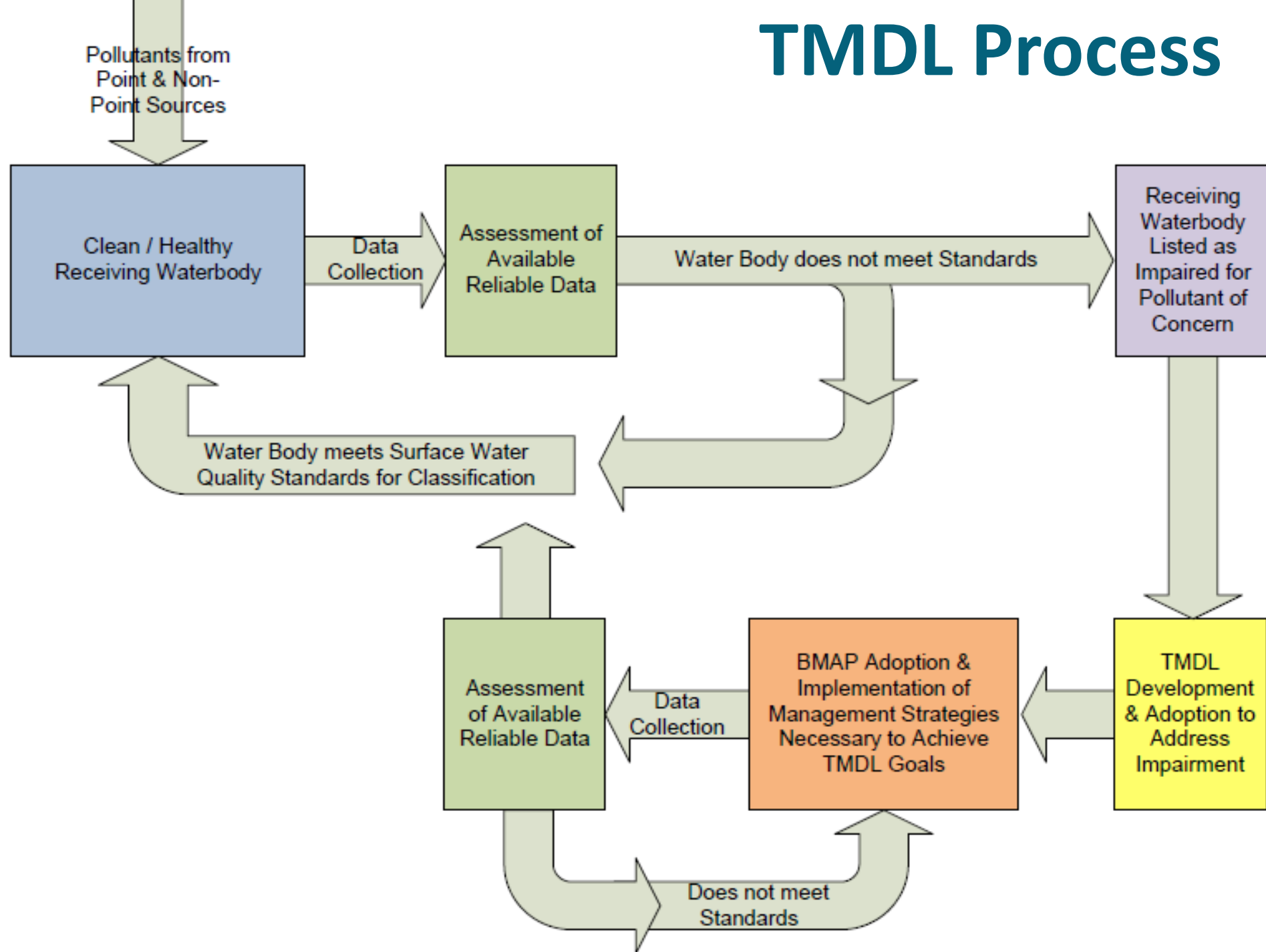
- Section 303(d) of the **Clean Water Act** requires states to submit list of surface waters that do not meet applicable water quality standards and establish TMDLs.
- The **Florida Watershed Restoration Act** (1999) defines the process the State of Florida uses to determine which water bodies are impaired, and the process for adopting TMDLs.
- Waterbodies are listed as impaired based on an evaluation of available reliable data.
- Surface water quality standards in Florida are based on classifications and designated uses (i.e. Class I – Potable Water Supplies, Class II – Shellfish Propagation, Class III – Fish Consumption and Recreation, etc.).
- **TMDLs** are established for waters that fail to meet water quality standards for their designated use. TMDLs characterize how much of a given pollutant that water body can assimilate without violating the corresponding classification based standards.
- **BMAPs** are adopted by the State to achieve TMDL goals by the implementation of necessary management strategies and effectiveness monitoring.



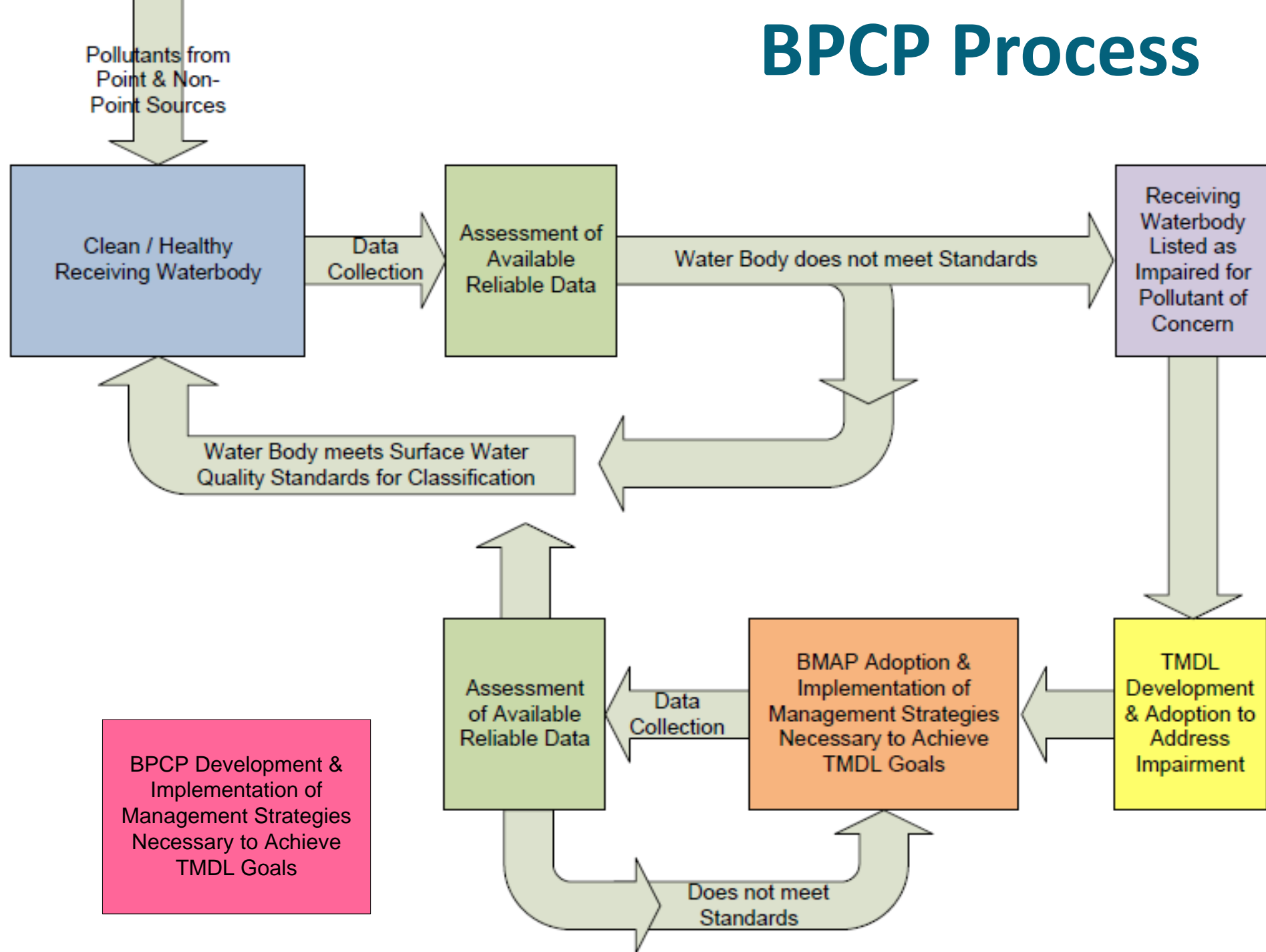
# NPDES Program & TMDLs

- “Medium” and “large” **municipal separate storm sewer systems (MS4s)** with populations > 100,000 are required to obtain a phase I NPDES permit to **discharge stormwater to waters of the state**.
- Phase I NPDES permits are based on the ultimate goal of reducing the discharge of pollutants from the MS4 to the **Maximum Extent Practicable (MEP)**.
- This requirements of MEP is extended through NPDES permit requirements to impaired water bodies with TMDLs.
- Part VIII requires permittees to submit a **TMDL Prioritization Plan**. The purpose of the plan is to prioritize water bodies with a TMDL that do not have a Basin Management Action Plan (BMAP).
- Part VIII also requires permittees to develop a plan to address the top priority. In the case of bacteria impairments, this plan is call a **BPCP**.

# TMDL Process



# BPCP Process



# Carpenter Creek BPCP ≈ BMAP



# TMDL Prioritization Report & Bacteria Pollution Control Plan

Dana Morton

Water Quality Land Management Division



# TMDL Prioritization Report

1. Develop a list of water bodies that operator discharges to with a TMDL.
2. Develop a list of factors that will be used to prioritize the water bodies with adopted TMDLs.
3. Using the factors developed prioritize the water bodies.
4. Develop a schedule for implementing the tasks that follow.
5. Prepare a final report that includes the above information for DEP review and approval.



# TMDL Prioritization Report

## Escambia County Prioritization Factors:

1. Number and percent area of co-permittees discharging to the water body.
2. Probability to improve water quality as a result of co-permittees actions.
3. If a USEPA TMDL, has it been verified by FDEP?
4. Human and ecological health concerns for the water body.
5. Public stakeholder heightened awareness, concerns, and involvement with the waterbody.
6. Economic concerns (industry, tourism) for the water body.



# TMDL Prioritization Report

Waterbody	FDEP/EPA TMDL	Rank	BPC Plan
Carpenter Creek	FDEP, Fecal Coliform	1	1/1/2016
Bayou Texar	FDEP, Fecal Coliform	2	Proposed for cycle 4 in 2017
Elevenmile Creek	FDEP, Fecal Coliform	3	Approved 9/19/2014
Tenmile Creek	FDEP, Fecal Coliform	4	Approved 9/19/2014
Elevenmile Creek	EPA, TN, TP, BOD	5	
Escambia Bay North	EPA, Fecal Coliform	6	Not later than cycle 6 in 2027
Escambia Bay South	EPA, Fecal Coliform	7	Not later than cycle 6 in 2027
Pensacola Bay	EPA, Fecal Coliform	8	Not later than cycle 6 in 2027



# Bacteria Pollution Control Plan



## Fecal Coliform TMDL Implementation Plan



**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

Division of Environmental Assessment and Restoration, Bureau of Watershed Restoration

NORTHWEST DISTRICT • PENSACOLA BAY BASIN

### FINAL TMDL Report

Fecal Coliform TMDL for  
Escambia River (WBID 10F),  
Texar Bayou (WBID 738),  
and Carpenter Creek (WBID 676)

Kyeongsik Rhew, Ph.D.



September 2012

# Bacteria Pollution Control Plan



## Fecal Coliform TMDL Implementation Plan

Waste Load Allocation for  
NPDES Stormwater 28%  
reduction

FINAL TMDL Report: Pensacola Bay Basin; Escambia River (WBID 10F), Texar Bayou (WBID 738), and Carpenter Creek (WBID 676); Fecal Coliform; September 2012

**Table 6.1. TMDL Components for Fecal Coliform in the Escambia River, Texar Bayou, and Carpenter Creek**

This is an eight-column table. Column 1 lists the WBID number, Column 2 lists the waterbody name, Column 3 lists the parameter, Column 4 lists the TMDL (counts/100mL), Column 5 lists the WLA for wastewater (counts/100mL), Column 6 lists the WLA for NPDES stormwater (percent reduction), Column 7 lists the LA (percent reduction), and Column 8 lists the MOS.

N/A – Not applicable

WBID	Waterbody Name	Parameter	TMDL (counts/100mL)	WLA for Wastewater (counts/100mL)	WLA for NPDES Stormwater (% reduction)	LA (% reduction)	MOS
10F	Escambia River	Fecal coliform	400	N/A	5%	5%	Implicit
738	Texar Bayou	Fecal coliform	400	N/A	49%	49%	Implicit
676	Carpenter Creek	Fecal coliform	400	N/A	28%	28%	Implicit

### 6.2 Load Allocation

A fecal coliform reduction of 5, 49, and 28% is needed from nonpoint sources in the Escambia River, Texar Bayou, and Carpenter Creek watersheds, respectively. It should be noted that the LA includes loading from stormwater discharges regulated by the Department and the water management districts that are not part of the NPDES Stormwater Program (see Appendix A).

### 6.2 Wasteload Allocation

#### 6.3.1 NPDES Wastewater Discharges

There is one NPDES-permitted facility (the Gulf Power Company-Crist Power Plant, FL0002275) located within the Escambia River WBID boundary. One NPDES-permitted wastewater facility (Cemex-Pensacola Plant, FLG110354) was identified within the Carpenter Creek WBID boundary. These facilities do not contribute fecal coliform bacteria to surface water. There are no NPDES-permitted facilities in the Texar Bayou watershed.

The state already requires all NPDES point source dischargers to meet bacteria criteria at the end of the pipe. It is the Department's current practice not to allow mixing zones for bacteria. Any point sources that may discharge in the WBID in the future will also be required to meet end-of-pipe standards for coliform bacteria.

#### 6.3.2 NPDES Stormwater Discharges

The WLA for stormwater discharges with an MS4 permit is a 5, 49, and 28% reduction in current fecal coliform loadings for the Escambia River, Texar Bayou, and Carpenter Creek, respectively. It should be noted that any MS4 permittee is only responsible for reducing the anthropogenic loads associated with stormwater outfalls that it owns or otherwise has responsible control over, and it is not responsible for reducing other nonpoint source loads in its jurisdiction.

# Carpenter Creek BPCP

- The Permittee shall use the Departments TMDL On-line Tool Kit



Implementation Guidance  
for the **Fecal Coliform Total Daily  
Maximum Loads Adopted by the  
Florida Department of  
Environmental Protection**



*developed by the*  
**Florida Department of Environmental Protection**  
*Division of Environmental Assessment and Restoration*  
*Bureau of Watershed Restoration*  
*Tallahassee, FL 32399*

March 2011

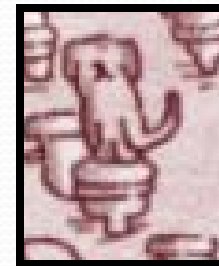
# Carpenter Creek BPCP

*FDEP recommends the following outline for TMDL implementation plans:*

- **Chapter 1:** Purpose and Scope of the Plan
  - Plan Purpose and Approach
  - Plan Scope
  - Stakeholder Involvement
  - TMDL(s) Being Implemented
  - Assumptions and Considerations for TMDL Implementation
  - Addressing Future Growth in the Watershed

# Carpenter Creek BPCP

- **Chapter 2:** Water Quality Trends and Anticipated Outcomes
  - Summary of Water Quality Trends in the Watershed
  - Anticipated Outcomes of Plan Implementation
  
- **Chapter 3:** Assessing Progress and Making Changes
  - Water Quality Monitoring Plan ( **Began 2016**)
  - Additional Assessments
  - Milestones for Implementation
  - Tracking Plan Implementation



# Carpenter Creek BPCP

- **Chapter 4:** Stakeholder Commitment to Plan Implementation
  - NPDES/MS4 permit requires the TMDL be implemented.
  - Stakeholders are requested to make every effort to implement bacteria reducing projects.
- **Chapter 5:** TMDL Implementation Plan
- Potential Sources
  - Sanitary Sewer Systems
  - OSTDS
  - Stormwater
  - Agriculture
  - Wildlife
- Projects to Reduce Fecal Coliform Loading
  - Management Actions for Each Stakeholder



# Carpenter Creek BPCP

## Executive Summary (excerpt)

With the cooperation of FDEP and area stakeholders the BPCP will:

- Establish a water quality monitoring program for Carpenter Creek. ✓
- Employ microbial source tracking (MST) tools.
  - *FDEP assistance this summer*
- Assess the watershed using a “Walk the WBID” field assessment approach.

# Carpenter Creek BPCP

## Executive Summary (excerpt)

With the cooperation of FDEP and area stakeholders the BPCP will:

- Identify and track existing projects with potential to reduce fecal coliform loading.
- Identify new projects to reduce fecal coliform loading.
- Track water quality and project implementation.
- Meet as needed and make regular reports.



# Carpenter Creek BPCP

## *NEXT STEPS.....*

1. Identification of existing & planned projects since 2006.
  - a) Stakeholders submit project list to County.
  - b) County will prepare a summary table of activities to reduce bacterial loading.
  - c) Stakeholder commitment to projects and activities.

# Carpenter Creek BPCP

## *NEXT STEPS.....*

### Stakeholder Projects and Activities to Reduce Fecal Coliform Loadings from Stormwater Sources.

Project Number	Project Name	Project Description	Level of Effort	Estimated Cost	Funding Source	Project Status
Escambia County-2	Stormwater Pond Inspection and Maintenance Program	County maintains and inspects > 300 ponds countywide	Stormwater inspections and maintenance continually ongoing	\$300,000	Escambia County	Ongoing
Escambia County-4	Pet Waste Ordinance, Part 1, Article 1, Section 10-11(f)	Pass ordinance to define the handling and removal of domestic pet waste countywide	Countywide, ongoing	Unknown	Escambia County	Adopted April 8, 2010



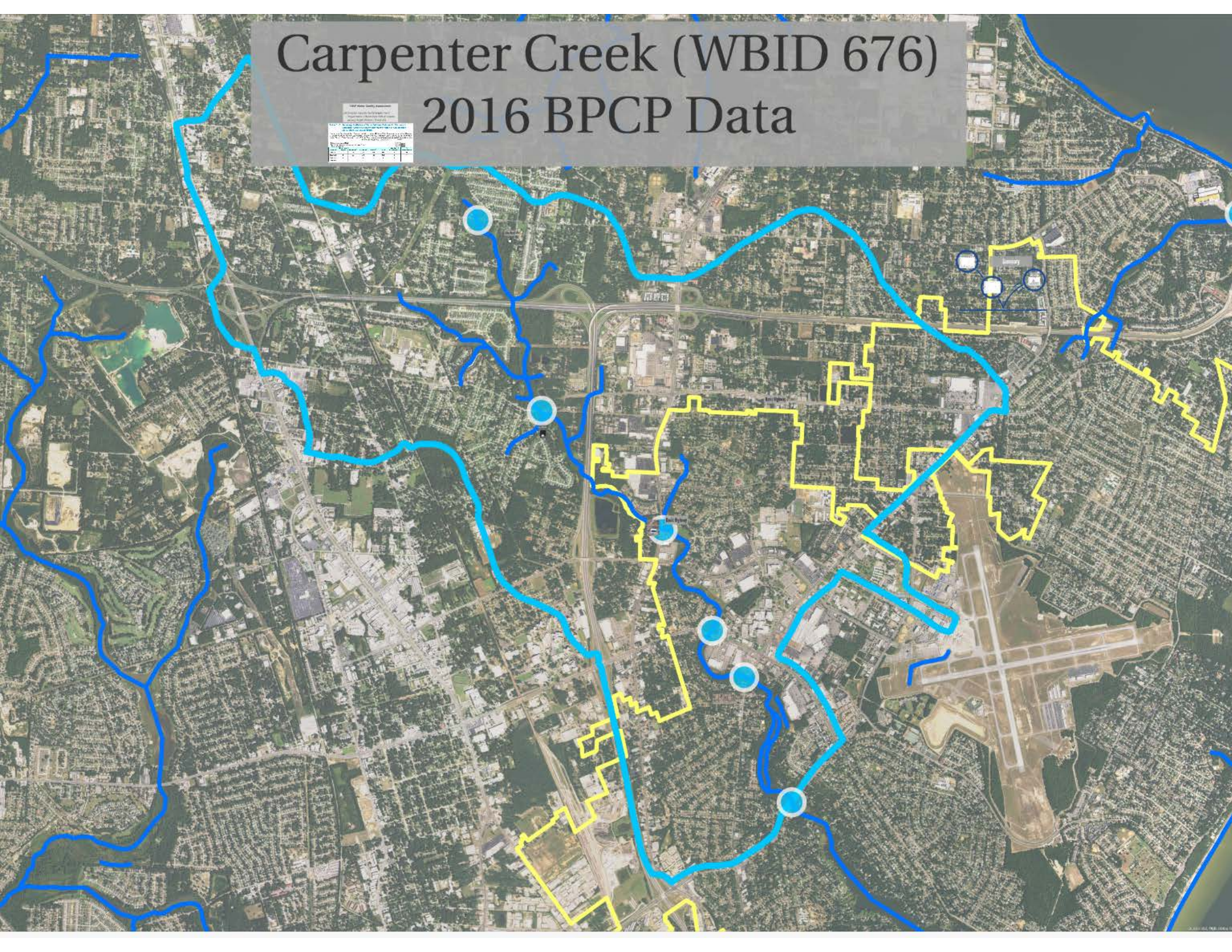
ter  
**STEP**  
ilities.



# Carpenter Creek (WBID 676) 2016 BPCP Data

USF Water Quality Assessment

Station	Assessment Date	Assessment Type	Assessment Status
1	10/15/16	100%	100%
2	10/15/16	100%	100%
3	10/15/16	100%	100%
4	10/15/16	100%	100%
5	10/15/16	100%	100%
6	10/15/16	100%	100%
7	10/15/16	100%	100%
8	10/15/16	100%	100%
9	10/15/16	100%	100%
10	10/15/16	100%	100%
11	10/15/16	100%	100%
12	10/15/16	100%	100%
13	10/15/16	100%	100%
14	10/15/16	100%	100%
15	10/15/16	100%	100%
16	10/15/16	100%	100%
17	10/15/16	100%	100%
18	10/15/16	100%	100%
19	10/15/16	100%	100%
20	10/15/16	100%	100%
21	10/15/16	100%	100%
22	10/15/16	100%	100%
23	10/15/16	100%	100%
24	10/15/16	100%	100%
25	10/15/16	100%	100%
26	10/15/16	100%	100%
27	10/15/16	100%	100%
28	10/15/16	100%	100%
29	10/15/16	100%	100%
30	10/15/16	100%	100%
31	10/15/16	100%	100%
32	10/15/16	100%	100%
33	10/15/16	100%	100%
34	10/15/16	100%	100%
35	10/15/16	100%	100%
36	10/15/16	100%	100%
37	10/15/16	100%	100%
38	10/15/16	100%	100%
39	10/15/16	100%	100%
40	10/15/16	100%	100%
41	10/15/16	100%	100%
42	10/15/16	100%	100%
43	10/15/16	100%	100%
44	10/15/16	100%	100%
45	10/15/16	100%	100%
46	10/15/16	100%	100%
47	10/15/16	100%	100%
48	10/15/16	100%	100%
49	10/15/16	100%	100%
50	10/15/16	100%	100%
51	10/15/16	100%	100%
52	10/15/16	100%	100%
53	10/15/16	100%	100%
54	10/15/16	100%	100%
55	10/15/16	100%	100%
56	10/15/16	100%	100%
57	10/15/16	100%	100%
58	10/15/16	100%	100%
59	10/15/16	100%	100%
60	10/15/16	100%	100%
61	10/15/16	100%	100%
62	10/15/16	100%	100%
63	10/15/16	100%	100%
64	10/15/16	100%	100%
65	10/15/16	100%	100%
66	10/15/16	100%	100%
67	10/15/16	100%	100%
68	10/15/16	100%	100%
69	10/15/16	100%	100%
70	10/15/16	100%	100%
71	10/15/16	100%	100%
72	10/15/16	100%	100%
73	10/15/16	100%	100%
74	10/15/16	100%	100%
75	10/15/16	100%	100%
76	10/15/16	100%	100%
77	10/15/16	100%	100%
78	10/15/16	100%	100%
79	10/15/16	100%	100%
80	10/15/16	100%	100%
81	10/15/16	100%	100%
82	10/15/16	100%	100%
83	10/15/16	100%	100%
84	10/15/16	100%	100%
85	10/15/16	100%	100%
86	10/15/16	100%	100%
87	10/15/16	100%	100%
88	10/15/16	100%	100%
89	10/15/16	100%	100%
90	10/15/16	100%	100%
91	10/15/16	100%	100%
92	10/15/16	100%	100%
93	10/15/16	100%	100%
94	10/15/16	100%	100%
95	10/15/16	100%	100%
96	10/15/16	100%	100%
97	10/15/16	100%	100%
98	10/15/16	100%	100%
99	10/15/16	100%	100%
100	10/15/16	100%	100%



# FDEP Water Quality Assessment

28 samples used to Verify Impairment

- Impairment = More than 10% of values exceed 400cfu/100mL threshold

**Table 5.1f. Summary Statistics of Fecal Coliform Data for All Stations in Carpenter Creek by Season During the Period of Observation (June 2006 and March 2012)**

This is an eight-column table. Column 1 lists the season, Column 2 lists the number of samples, Column 3 lists the minimum coliform count/100mL, Column 4 lists the maximum count, Column 5 lists the median count, Column 6 lists the mean count, Column 7 lists the number of exceedances, and Column 8 lists the percent exceedances.

<sup>1</sup> Coliform counts are #/100mL.

<sup>2</sup> Exceedances represent values above 400 counts/100mL.

- = Empty cell/no data

Fecal coliform TMDL calls for a 28% reduction for stormwater discharges to reach compliance.



**BPCP Monitoring Plan**

STATION	DATE	PARAMETER	RESULT	STATUS
1	6/15/06	Fecal Coliform	23	Compliant
1	6/22/06	Fecal Coliform	1,470	Exceedance
1	6/29/06	Fecal Coliform	340	Compliant
1	7/6/06	Fecal Coliform	169	Compliant
1	7/13/06	Fecal Coliform	-	No Data
1	7/20/06	Fecal Coliform	-	No Data
1	7/27/06	Fecal Coliform	-	No Data
1	8/3/06	Fecal Coliform	-	No Data
1	8/10/06	Fecal Coliform	-	No Data
1	8/17/06	Fecal Coliform	-	No Data
1	8/24/06	Fecal Coliform	-	No Data
1	8/31/06	Fecal Coliform	-	No Data
1	9/7/06	Fecal Coliform	-	No Data
1	9/14/06	Fecal Coliform	-	No Data
1	9/21/06	Fecal Coliform	-	No Data
1	9/28/06	Fecal Coliform	-	No Data
1	10/5/06	Fecal Coliform	-	No Data
1	10/12/06	Fecal Coliform	-	No Data
1	10/19/06	Fecal Coliform	-	No Data
1	10/26/06	Fecal Coliform	-	No Data
1	11/2/06	Fecal Coliform	-	No Data
1	11/9/06	Fecal Coliform	-	No Data
1	11/16/06	Fecal Coliform	-	No Data
1	11/23/06	Fecal Coliform	-	No Data
1	11/30/06	Fecal Coliform	-	No Data
1	12/7/06	Fecal Coliform	-	No Data
1	12/14/06	Fecal Coliform	-	No Data
1	12/21/06	Fecal Coliform	-	No Data
1	12/28/06	Fecal Coliform	-	No Data
1	1/4/07	Fecal Coliform	-	No Data
1	1/11/07	Fecal Coliform	-	No Data
1	1/18/07	Fecal Coliform	-	No Data
1	1/25/07	Fecal Coliform	-	No Data
1	2/1/07	Fecal Coliform	-	No Data
1	2/8/07	Fecal Coliform	-	No Data
1	2/15/07	Fecal Coliform	-	No Data
1	2/22/07	Fecal Coliform	-	No Data
1	2/29/07	Fecal Coliform	-	No Data
1	3/6/07	Fecal Coliform	-	No Data
1	3/13/07	Fecal Coliform	-	No Data
1	3/20/07	Fecal Coliform	-	No Data
1	3/27/07	Fecal Coliform	-	No Data
1	4/3/07	Fecal Coliform	-	No Data
1	4/10/07	Fecal Coliform	-	No Data
1	4/17/07	Fecal Coliform	-	No Data
1	4/24/07	Fecal Coliform	-	No Data
1	5/1/07	Fecal Coliform	-	No Data
1	5/8/07	Fecal Coliform	-	No Data
1	5/15/07	Fecal Coliform	-	No Data
1	5/22/07	Fecal Coliform	-	No Data
1	5/29/07	Fecal Coliform	-	No Data
1	6/5/07	Fecal Coliform	-	No Data
1	6/12/07	Fecal Coliform	-	No Data
1	6/19/07	Fecal Coliform	-	No Data
1	6/26/07	Fecal Coliform	-	No Data
1	7/3/07	Fecal Coliform	-	No Data
1	7/10/07	Fecal Coliform	-	No Data
1	7/17/07	Fecal Coliform	-	No Data
1	7/24/07	Fecal Coliform	-	No Data
1	7/31/07	Fecal Coliform	-	No Data
1	8/7/07	Fecal Coliform	-	No Data
1	8/14/07	Fecal Coliform	-	No Data
1	8/21/07	Fecal Coliform	-	No Data
1	8/28/07	Fecal Coliform	-	No Data
1	9/4/07	Fecal Coliform	-	No Data
1	9/11/07	Fecal Coliform	-	No Data
1	9/18/07	Fecal Coliform	-	No Data
1	9/25/07	Fecal Coliform	-	No Data
1	10/2/07	Fecal Coliform	-	No Data
1	10/9/07	Fecal Coliform	-	No Data
1	10/16/07	Fecal Coliform	-	No Data
1	10/23/07	Fecal Coliform	-	No Data
1	10/30/07	Fecal Coliform	-	No Data
1	11/6/07	Fecal Coliform	-	No Data
1	11/13/07	Fecal Coliform	-	No Data
1	11/20/07	Fecal Coliform	-	No Data
1	11/27/07	Fecal Coliform	-	No Data
1	12/4/07	Fecal Coliform	-	No Data
1	12/11/07	Fecal Coliform	-	No Data
1	12/18/07	Fecal Coliform	-	No Data
1	12/25/07	Fecal Coliform	-	No Data
1	1/1/08	Fecal Coliform	-	No Data
1	1/8/08	Fecal Coliform	-	No Data
1	1/15/08	Fecal Coliform	-	No Data
1	1/22/08	Fecal Coliform	-	No Data
1	1/29/08	Fecal Coliform	-	No Data
1	2/5/08	Fecal Coliform	-	No Data
1	2/12/08	Fecal Coliform	-	No Data
1	2/19/08	Fecal Coliform	-	No Data
1	2/26/08	Fecal Coliform	-	No Data
1	3/5/08	Fecal Coliform	-	No Data
1	3/12/08	Fecal Coliform	-	No Data
1	3/19/08	Fecal Coliform	-	No Data
1	3/26/08	Fecal Coliform	-	No Data
1	4/2/08	Fecal Coliform	-	No Data
1	4/9/08	Fecal Coliform	-	No Data
1	4/16/08	Fecal Coliform	-	No Data
1	4/23/08	Fecal Coliform	-	No Data
1	4/30/08	Fecal Coliform	-	No Data
1	5/7/08	Fecal Coliform	-	No Data
1	5/14/08	Fecal Coliform	-	No Data
1	5/21/08	Fecal Coliform	-	No Data
1	5/28/08	Fecal Coliform	-	No Data
1	6/4/08	Fecal Coliform	-	No Data
1	6/11/08	Fecal Coliform	-	No Data
1	6/18/08	Fecal Coliform	-	No Data
1	6/25/08	Fecal Coliform	-	No Data
1	7/2/08	Fecal Coliform	-	No Data
1	7/9/08	Fecal Coliform	-	No Data
1	7/16/08	Fecal Coliform	-	No Data
1	7/23/08	Fecal Coliform	-	No Data
1	7/30/08	Fecal Coliform	-	No Data
1	8/6/08	Fecal Coliform	-	No Data
1	8/13/08	Fecal Coliform	-	No Data
1	8/20/08	Fecal Coliform	-	No Data
1	8/27/08	Fecal Coliform	-	No Data
1	9/3/08	Fecal Coliform	-	No Data
1	9/10/08	Fecal Coliform	-	No Data
1	9/17/08	Fecal Coliform	-	No Data
1	9/24/08	Fecal Coliform	-	No Data
1	10/1/08	Fecal Coliform	-	No Data
1	10/8/08	Fecal Coliform	-	No Data
1	10/15/08	Fecal Coliform	-	No Data
1	10/22/08	Fecal Coliform	-	No Data
1	10/29/08	Fecal Coliform	-	No Data
1	11/5/08	Fecal Coliform	-	No Data
1	11/12/08	Fecal Coliform	-	No Data
1	11/19/08	Fecal Coliform	-	No Data
1	11/26/08	Fecal Coliform	-	No Data
1	12/3/08	Fecal Coliform	-	No Data
1	12/10/08	Fecal Coliform	-	No Data
1	12/17/08	Fecal Coliform	-	No Data
1	12/24/08	Fecal Coliform	-	No Data
1	1/7/09	Fecal Coliform	-	No Data
1	1/14/09	Fecal Coliform	-	No Data
1	1/21/09	Fecal Coliform	-	No Data
1	1/28/09	Fecal Coliform	-	No Data
1	2/4/09	Fecal Coliform	-	No Data
1	2/11/09	Fecal Coliform	-	No Data
1	2/18/09	Fecal Coliform	-	No Data
1	2/25/09	Fecal Coliform	-	No Data
1	3/4/09	Fecal Coliform	-	No Data
1	3/11/09	Fecal Coliform	-	No Data
1	3/18/09	Fecal Coliform	-	No Data
1	3/25/09	Fecal Coliform	-	No Data
1	4/1/09	Fecal Coliform	-	No Data
1	4/8/09	Fecal Coliform	-	No Data
1	4/15/09	Fecal Coliform	-	No Data
1	4/22/09	Fecal Coliform	-	No Data
1	4/29/09	Fecal Coliform	-	No Data
1	5/6/09	Fecal Coliform	-	No Data
1	5/13/09	Fecal Coliform	-	No Data
1	5/20/09	Fecal Coliform	-	No Data
1	5/27/09	Fecal Coliform	-	No Data
1	6/3/09	Fecal Coliform	-	No Data
1	6/10/09	Fecal Coliform	-	No Data
1	6/17/09	Fecal Coliform	-	No Data
1	6/24/09	Fecal Coliform	-	No Data
1	7/1/09	Fecal Coliform	-	No Data
1	7/8/09	Fecal Coliform	-	No Data
1	7/15/09	Fecal Coliform	-	No Data
1	7/22/09	Fecal Coliform	-	No Data
1	7/29/09	Fecal Coliform	-	No Data
1	8/5/09	Fecal Coliform	-	No Data
1	8/12/09	Fecal Coliform	-	No Data
1	8/19/09	Fecal Coliform	-	No Data
1	8/26/09	Fecal Coliform	-	No Data
1	9/2/09	Fecal Coliform	-	No Data
1	9/9/09	Fecal Coliform	-	No Data
1	9/16/09	Fecal Coliform	-	No Data
1	9/23/09	Fecal Coliform	-	No Data
1	9/30/09	Fecal Coliform	-	No Data
1	10/7/09	Fecal Coliform	-	No Data
1	10/14/09	Fecal Coliform	-	No Data
1	10/21/09	Fecal Coliform	-	No Data
1	10/28/09	Fecal Coliform	-	No Data
1	11/4/09	Fecal Coliform	-	No Data
1	11/11/09	Fecal Coliform	-	No Data
1	11/18/09	Fecal Coliform	-	No Data
1	11/25/09	Fecal Coliform	-	No Data
1	12/2/09	Fecal Coliform	-	No Data
1	12/9/09	Fecal Coliform	-	No Data
1	12/16/09	Fecal Coliform	-	No Data
1	12/23/09	Fecal Coliform	-	No Data
1	12/30/09	Fecal Coliform	-	No Data
1	1/6/10	Fecal Coliform	-	No Data
1	1/13/10	Fecal Coliform	-	No Data
1	1/20/10	Fecal Coliform	-	No Data
1	1/27/10	Fecal Coliform	-	No Data
1	2/3/10	Fecal Coliform	-	No Data
1	2/10/10	Fecal Coliform	-	No Data
1	2/17/10	Fecal Coliform	-	No Data
1	2/24/10	Fecal Coliform	-	No Data
1	3/2/10	Fecal Coliform	-	No Data
1	3/9/10	Fecal Coliform	-	No Data
1	3/16/10	Fecal Coliform	-	No Data
1	3/23/10	Fecal Coliform	-	No Data
1	3/30/10	Fecal Coliform	-	No Data
1	4/6/10	Fecal Coliform	-	No Data
1	4/13/10	Fecal Coliform	-	No Data
1	4/20/10	Fecal Coliform	-	No Data
1	4/27/10	Fecal Coliform	-	No Data
1	5/4/10	Fecal Coliform	-	No Data
1	5/11/10	Fecal Coliform	-	No Data
1	5/18/10	Fecal Coliform	-	No Data
1	5/25/10	Fecal Coliform	-	No Data
1	6/1/10	Fecal Coliform	-	No Data
1	6/8/10	Fecal Coliform	-	No Data
1	6/15/10	Fecal Coliform	-	No Data
1	6/22/10	Fecal Coliform	-	No Data
1	6/29/10	Fecal Coliform	-	No Data
1	7/6/10	Fecal Coliform	-	No Data
1	7/13/10	Fecal Coliform	-	No Data
1	7/20/10	Fecal Coliform	-	No Data
1	7/27/10	Fecal Coliform	-	No Data
1	8/3/10	Fecal Coliform	-	No Data
1	8/10/10	Fecal Coliform	-	No Data
1	8/17/10	Fecal Coliform	-	No Data
1	8/24/10	Fecal Coliform	-	No Data
1	8/31/10	Fecal Coliform	-	No Data
1	9/7/10	Fecal Coliform	-	No Data
1	9/14/10	Fecal Coliform	-	No Data
1	9/21/10	Fecal Coliform	-	No Data
1	9/28/10	Fecal Coliform	-	No Data
1	10/5/10	Fecal Coliform	-	No Data
1	10/12/10	Fecal Coliform	-	No Data
1	10/19/10	Fecal Coliform	-	No Data
1	10/26/10	Fecal Coliform	-	No Data
1	11/2/10	Fecal Coliform	-	No Data
1	11/9/10	Fecal Coliform	-	No Data
1	11/16/10	Fecal Coliform	-	No Data
1	11/23/10	Fecal Coliform	-	No Data
1	11/30/10	Fecal Coliform	-	No Data
1	12/7/10	Fecal Coliform	-	No Data
1	12/14/10	Fecal Coliform	-	No Data
1	12/21/10	Fecal Coliform	-	No Data
1	12/28/10	Fecal Coliform	-	No Data
1	1/4/11	Fecal		

# Fecal coliform TMDL calls for a 28% reduction for stormwater discharges to reach compliance.

looks like you've got elevated levels of fecal coliform bacteria in your well

is that bad?

well, depends how much you like feces



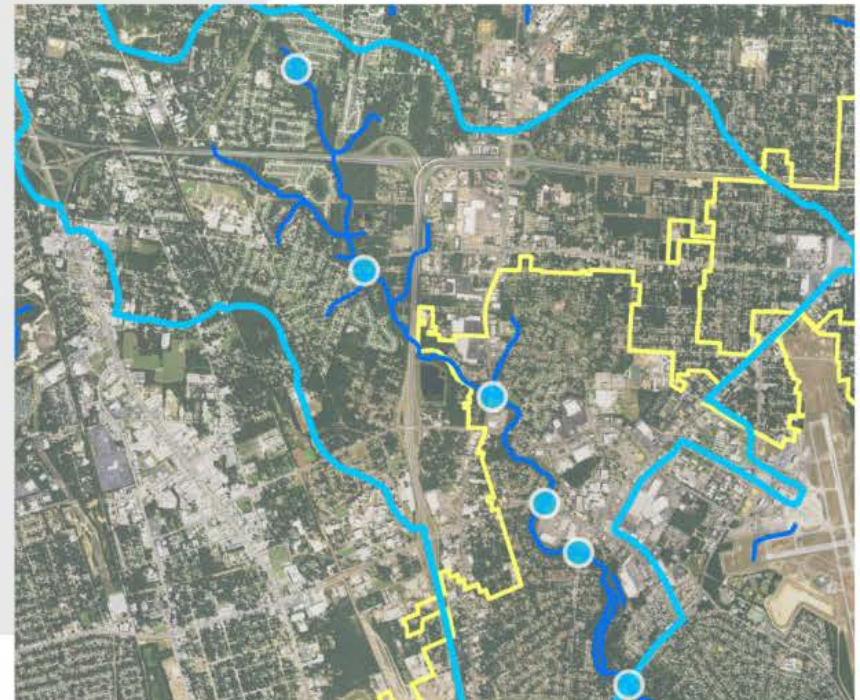
# BPCP Monitoring Plan

NAME/WBID	STATION	DESCRIPTION	LATITUDE	LONGITUDE
Carpenter Creek (676)	33020057	@ Olive Rd.	30° 30' 39.5"	87° 14' 31.5"
Carpenter Creek (676)	33020053	@ Burgess Rd.	30° 29' 38.61"	87° 14' 6.32"
Carpenter Creek (676)	33020050	@ Davis Hwy.	30° 29' 2.9248"	87° 13' 21.2649"
Carpenter Creek (676)	33020058	@ Brent Lane	30° 28' 31.01"	87° 13' 2.8"
Carpenter Creek (676)	33020048	@ 9 <sup>th</sup> Ave.	30° 28' 16.3228"	87° 12' 48.02"

- Monitored monthly: January 2016 start
- Follow up within 24hr for exceedingly high results for micro

- Field parameters

- pH
- Turbidity
- Temperature
- Conductivity
- DO (mg/L and %)
- Microbiology

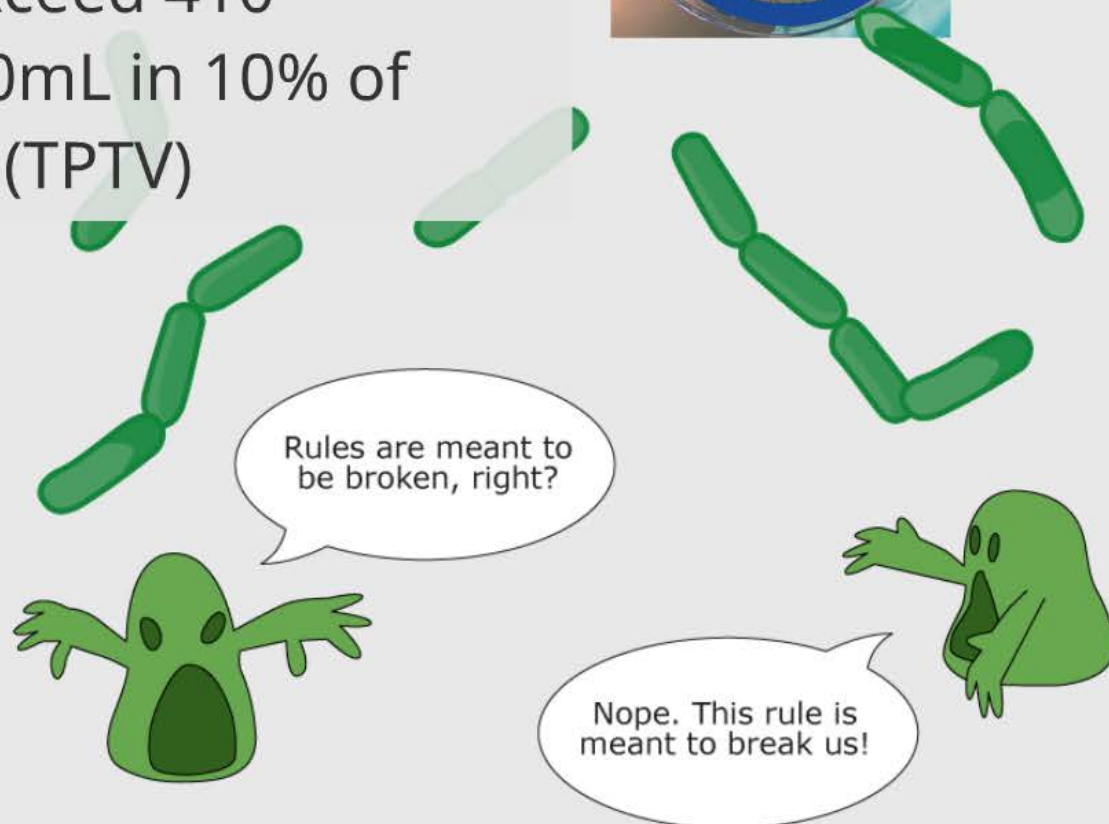


# Fecal coliform vs. *Escherichia coli*

## 2012 FDEP Fecal coliform TMDL

November 2016 Rule Change  
Class III Fresh

- *E.coli*
- not to exceed 410 MPN/100mL in 10% of samples (TPTV)





# Fecal Coliform

## E. coli

EPA 2012 RWQC indicated a link between human illness and fecal contamination in recreational waters, based on two bacterial indicator organisms...

*E. coli* for Freshwater  
*Enterococci* for Marine

### 2012 Recreational Water Quality Criteria

#### Summary

EPA has released its 2012 recreational water quality criteria (RWQC) recommendations for protecting human health in all coastal and non-coastal waters designed for primary contact recreation use. EPA provides two sets of recommended criteria. Primary contact recreation is governed by either set of criteria; recommendations are adopted into state water quality standards.

These recommendations are intended to continue to reduce, minimize and ultimately eliminate water quality standards to protect swimmers from exposure to water that contains organisms that indicate the presence of fecal contamination.

#### Background

EPA has issued ambient water quality criteria recommendations for recreational waters in 1976. EPA issued such recommendations under the authority of the Clean Water Act (CWA) Amendments to the CWA by the Surface Environmental Assessment and Coastal Health (SEACH) Act of 2009. Since EPA conducted studies associated with pediatric and human health, and to establish new or revised criteria recommendations for pathogens and pathogen indicators based on these studies. These 2012 RWQC meet these requirements.

The 2012 RWQC rely on the latest research and science, including studies that show a link between illness and fecal contamination in recreational waters. They are based on the use of two bacterial indicators of fecal contamination, *E. coli* and *enterococci*. The new criteria are designed to protect primary contact recreation, including swimming, boating, surfing, water skiing, tubing, canoe play by children, and similar water contact activities where a high degree of body contact with the water, immersion and ingestion are likely.

#### What are the recommendations?

The 2012 RWQC offer two sets of numeric concentration thresholds, values of which would protect the designated use of primary contact recreation and, therefore, would protect the public from exposure to harmful levels of pathogens. These values specify which three recommendations are based on the National Epidemiological and Environmental Assessment of Recreational Water (NEEAR) definition of gastrointestinal illness, which is not limited to illnesses that inhibit a fever.

The RWQC consist of three components: magnitude, duration and frequency. The magnitude of the bacterial indicators are described by both a geometric mean (GM) and a statistical threshold value (STV) for the bacteria samples. The STV approximates the 90th percentile of the water quality distribution and is intended to be a value that should not be exceeded by more than 10 percent of the samples taken. The table summarizes the magnitude component of the recommendations. All three components are explained in more detail in the sections below.

Indicator	Recreational Waters		Non-Recreational Waters	
	GM	STV	GM	STV
<i>E. coli</i>	100	400	100	400
<i>Enterococci</i>	100	400	100	400

Water quality criteria recommendations are intended as guidance in establishing new or revised water quality standards. They are not regulatory themselves. States and authorized tribes have the discretion to adopt, where appropriate, more conservative (stricter) water quality criteria that differ from EPA's recommended criteria.

RECOMMENDATION 1. ABBREVIATED ENFORCEMENT: Criteria-based enforcement of a

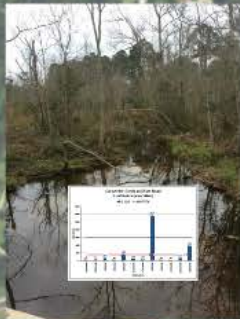
The background of the slide features a microscopic view of cells, likely bacteria, with a grid-like pattern. A large, thick blue circle is superimposed on the left side, partially overlapping the grid. A cyan arrow points from the right edge towards the top right corner of the slide.

# *E. coli*

EPA 2012 RWQC indicated a link between human illness and fecal contamination in recreational waters, based on two bacterial indicator organisms...

*E. coli* for Freshwater  
*Enterococci* for Marine

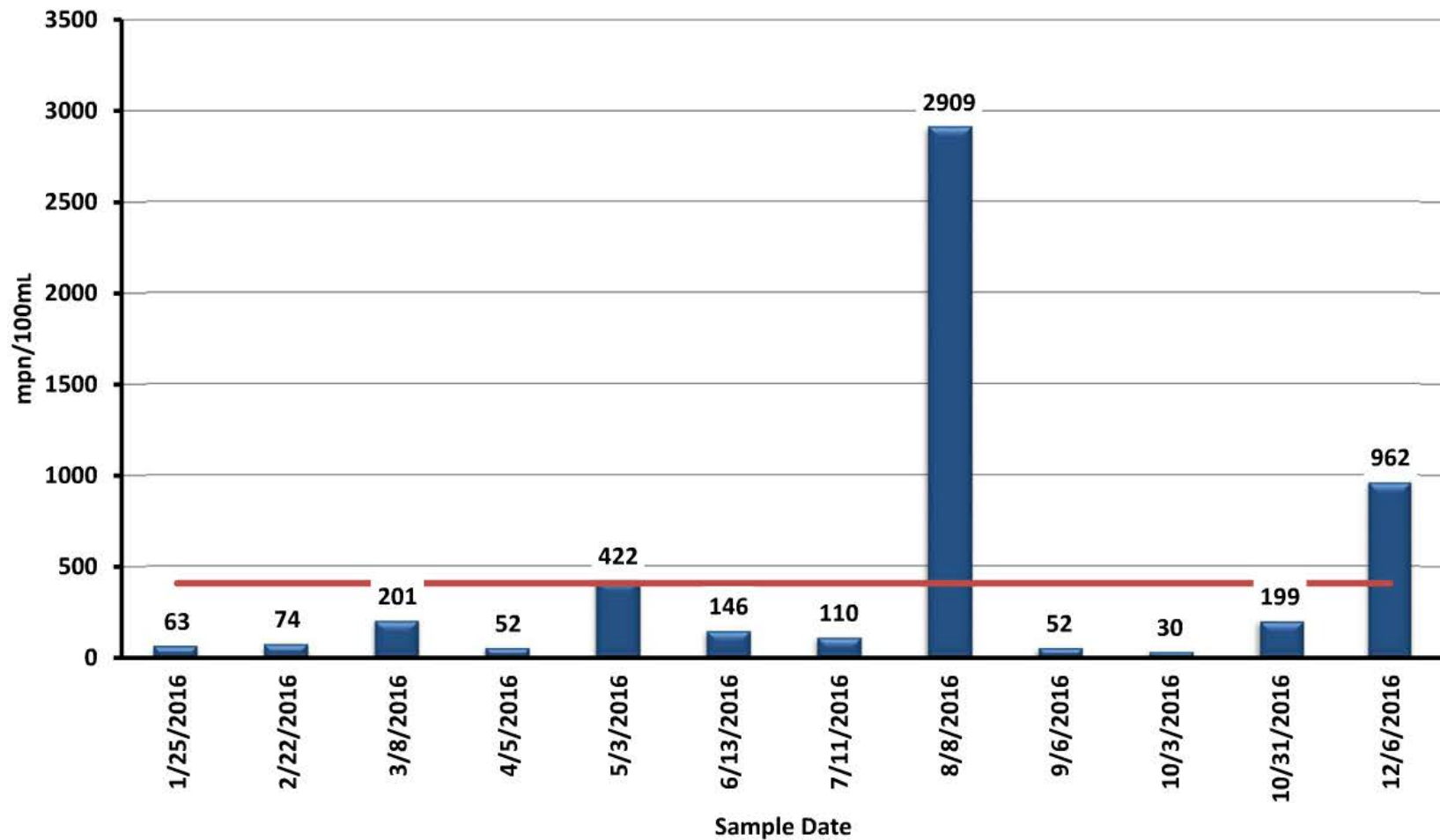
# Olive Road



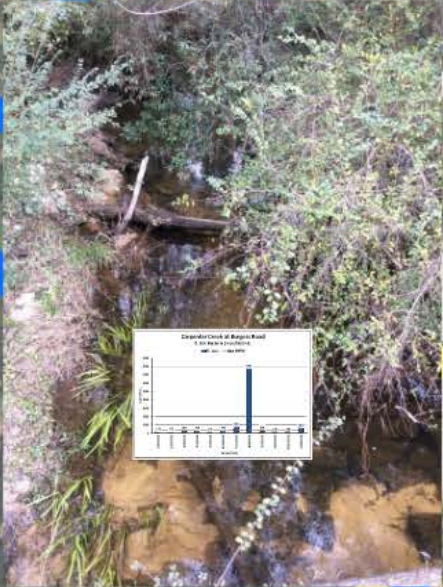
# Carpenter Creek at Olive Road

*E. coli* Bacteria (mpn/100mL)

■ E. Coli — 410 TPTV



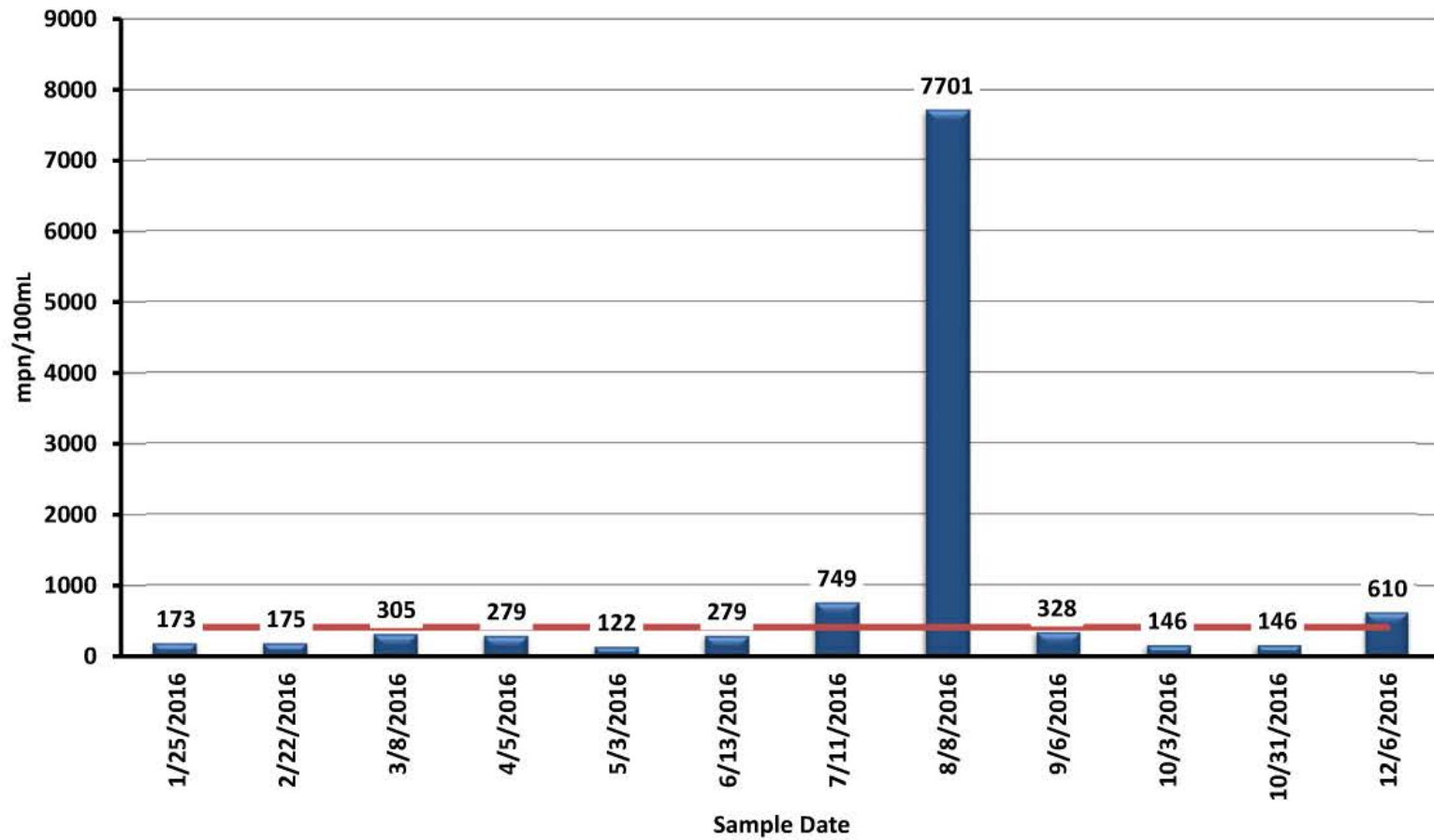
# Burgess Road

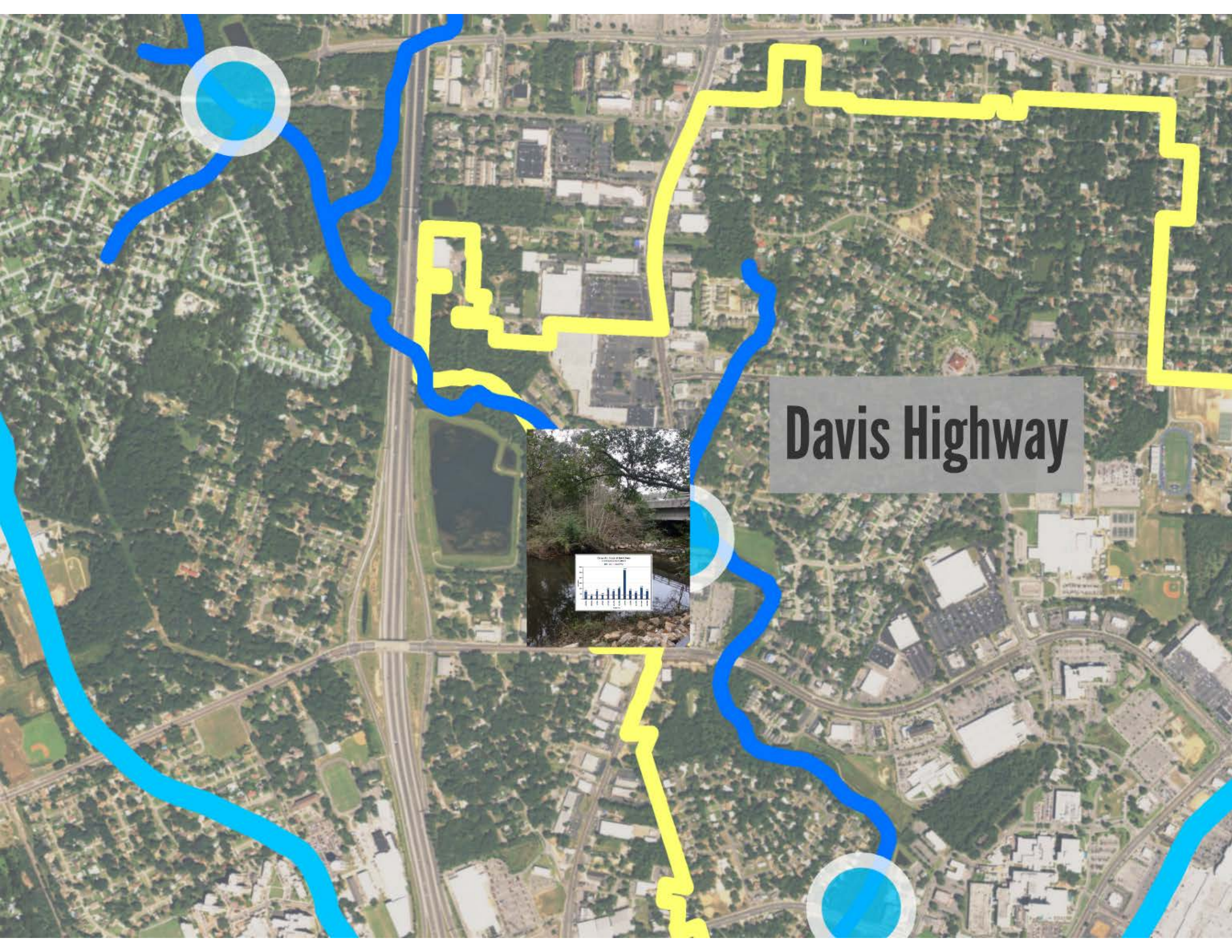


# Carpenter Creek at Burgess Road

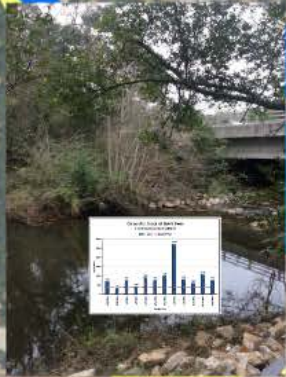
## E. Coli Bacteria (mpn/100mL)

■ E. coli — 410 TPTV





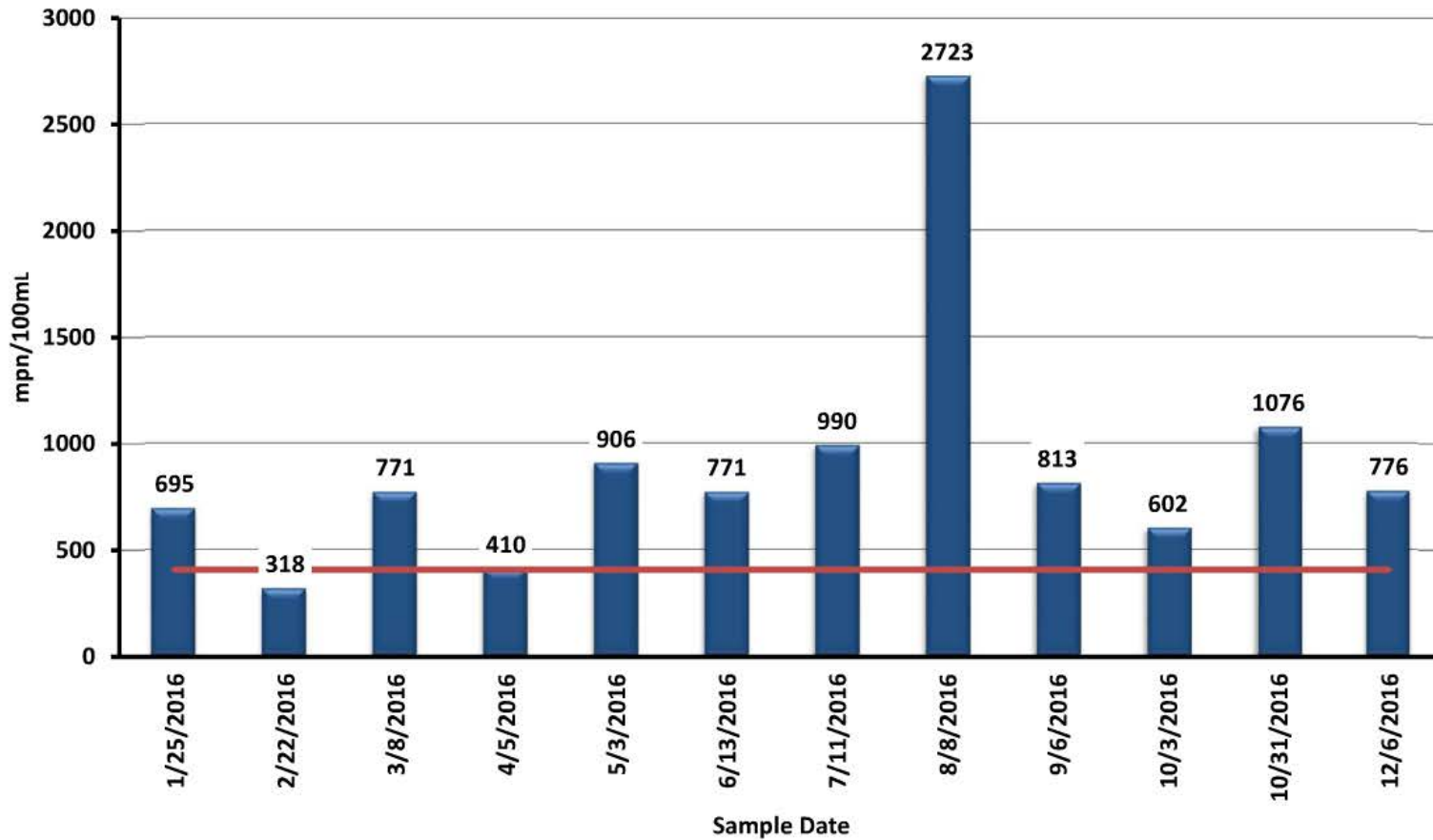
**Davis Highway**



# Carpenter Creek at Davis Hwy.

E. Coli Bacteria (mpn/100mL)

■ E. coli — 410 TPTV



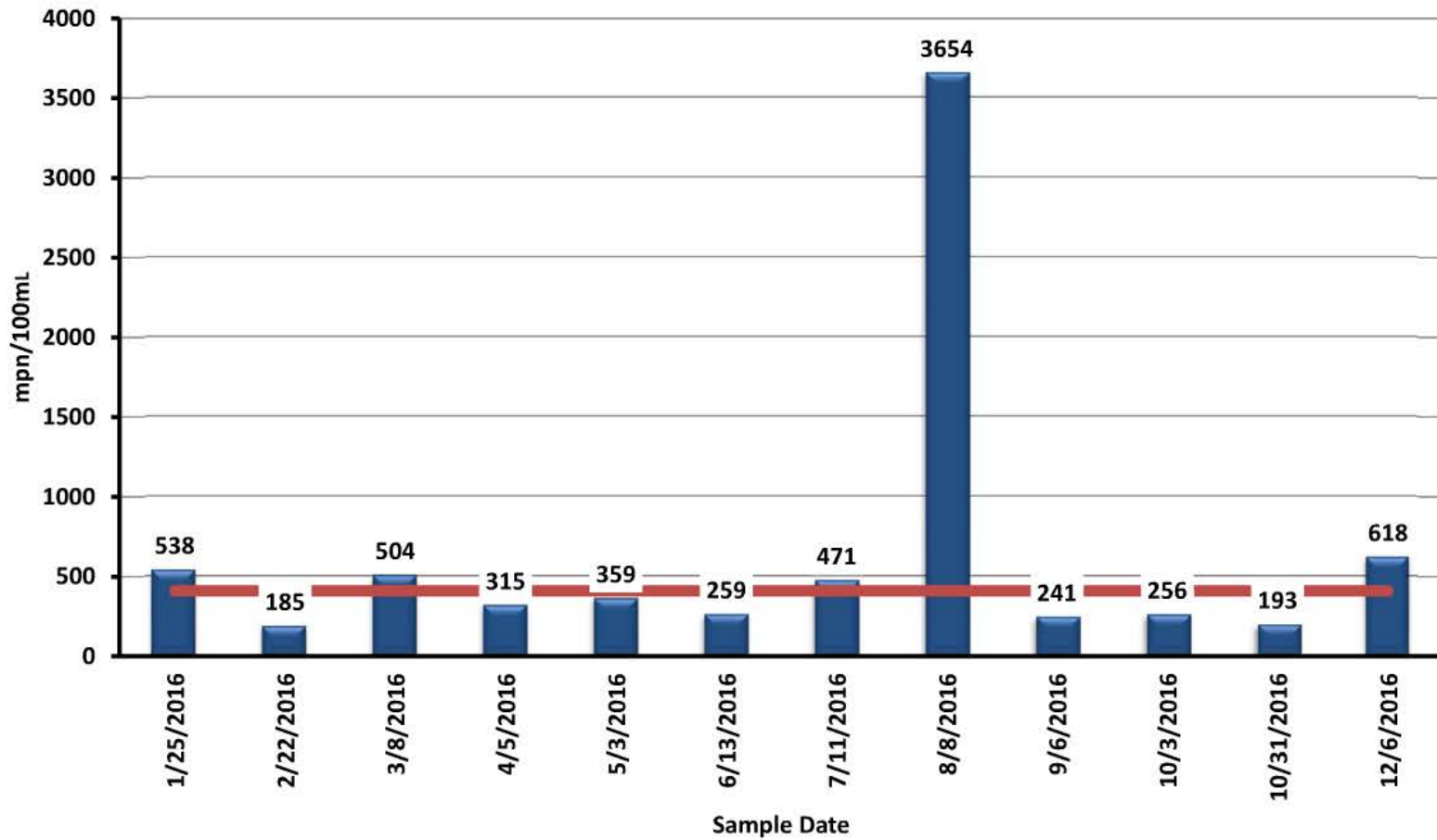




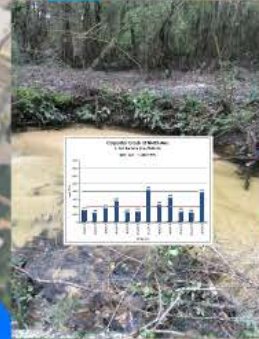
# Carpenter Creek at Brent Lane

## E. Coli Bacteria (mpn/100mL)

■ E. coli — 410 TPTV



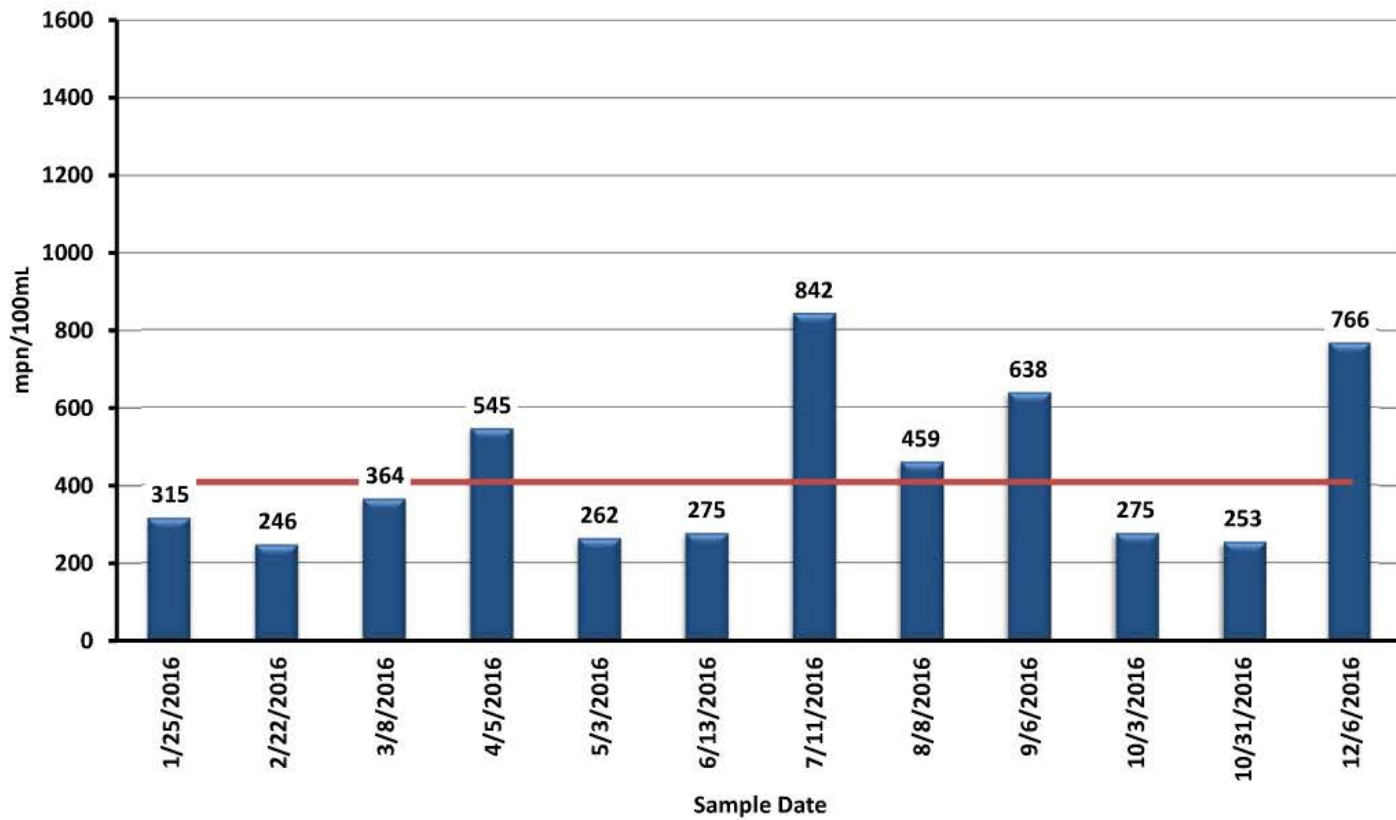
# Ninth Avenue



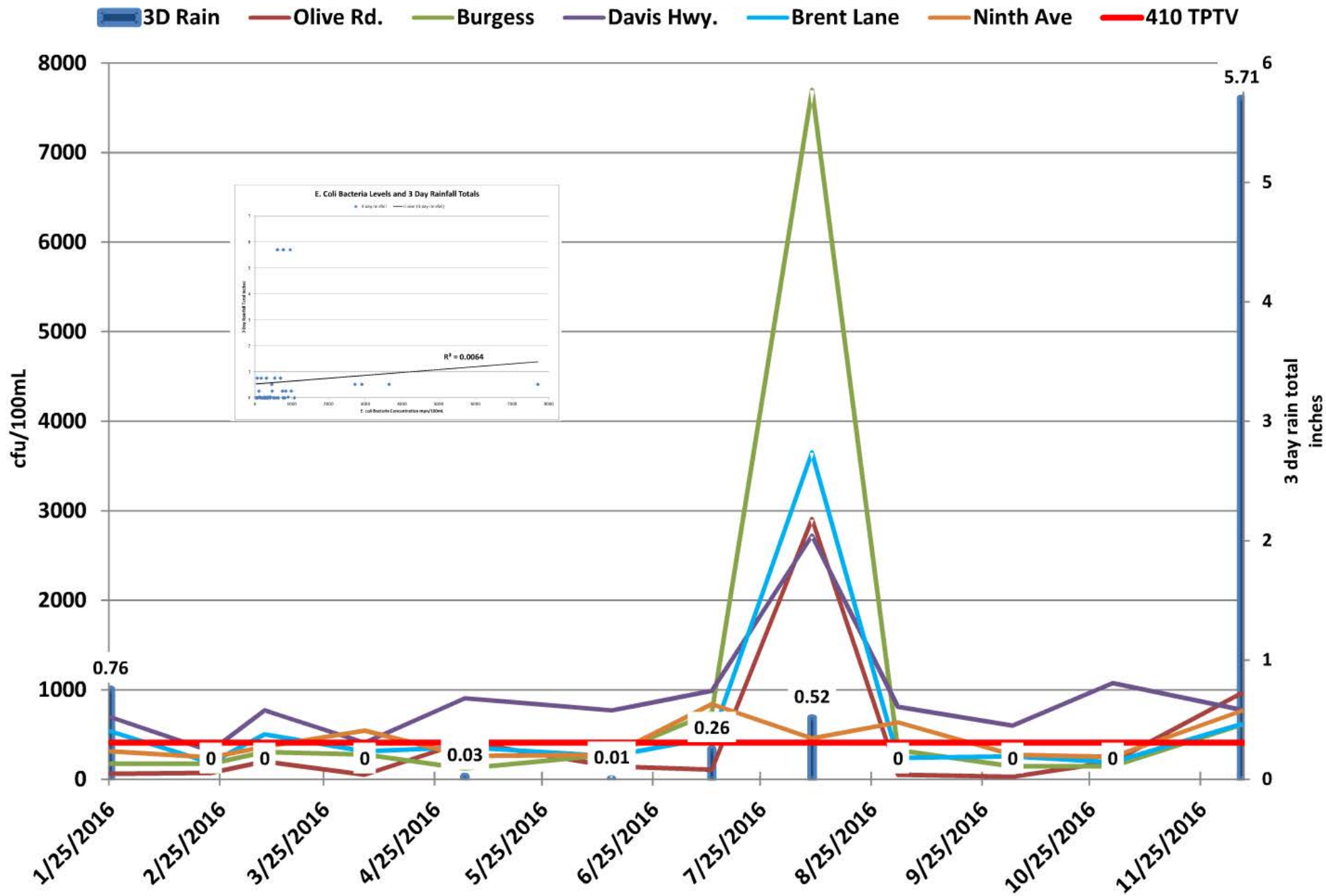
## Carpenter Creek at Ninth Ave.

E. Coli Bacteria (mpn/100mL)

■ E. Coli — 410 TPTV

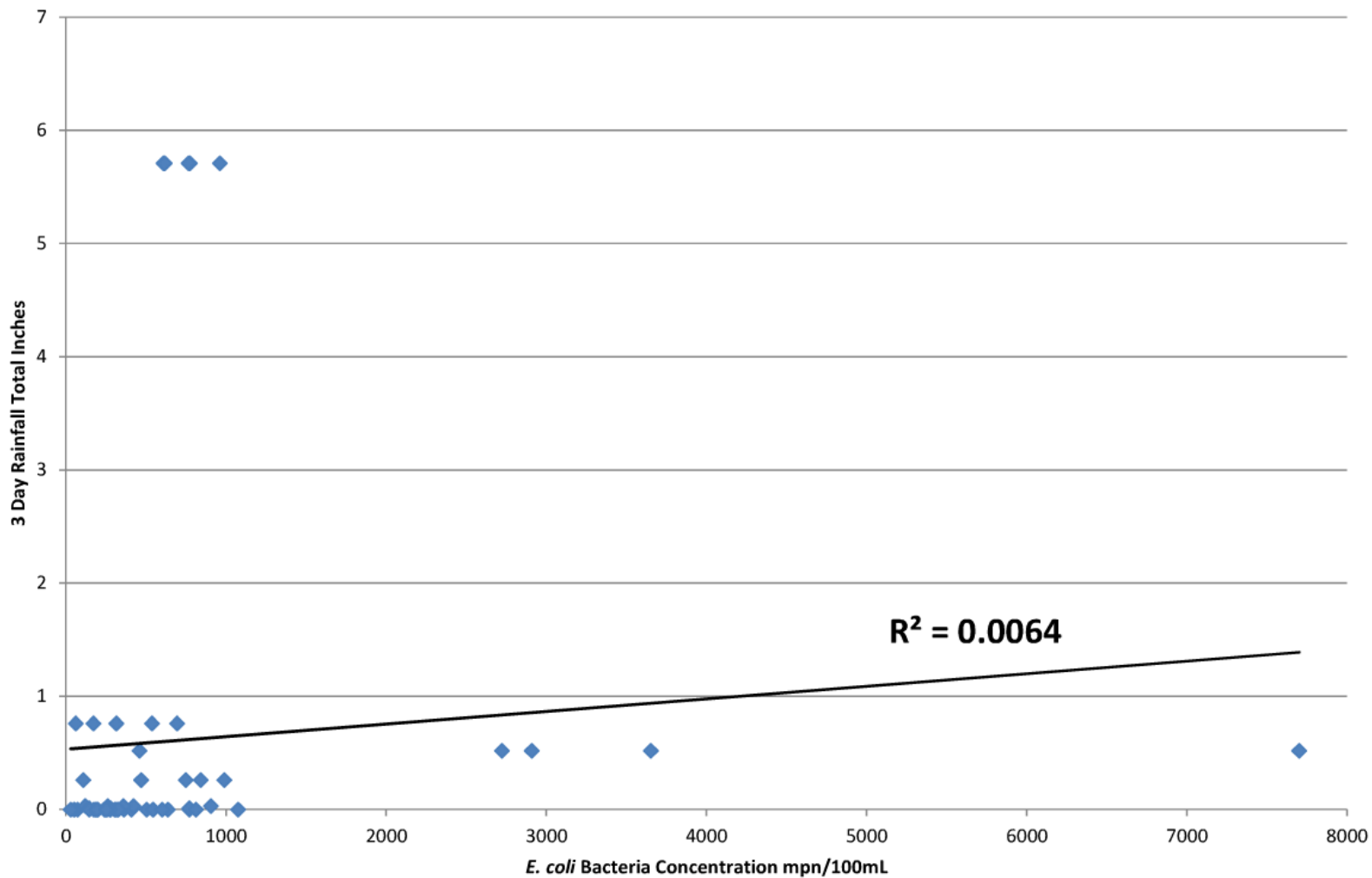


# E. coli Bacteria in Carpenter Creek

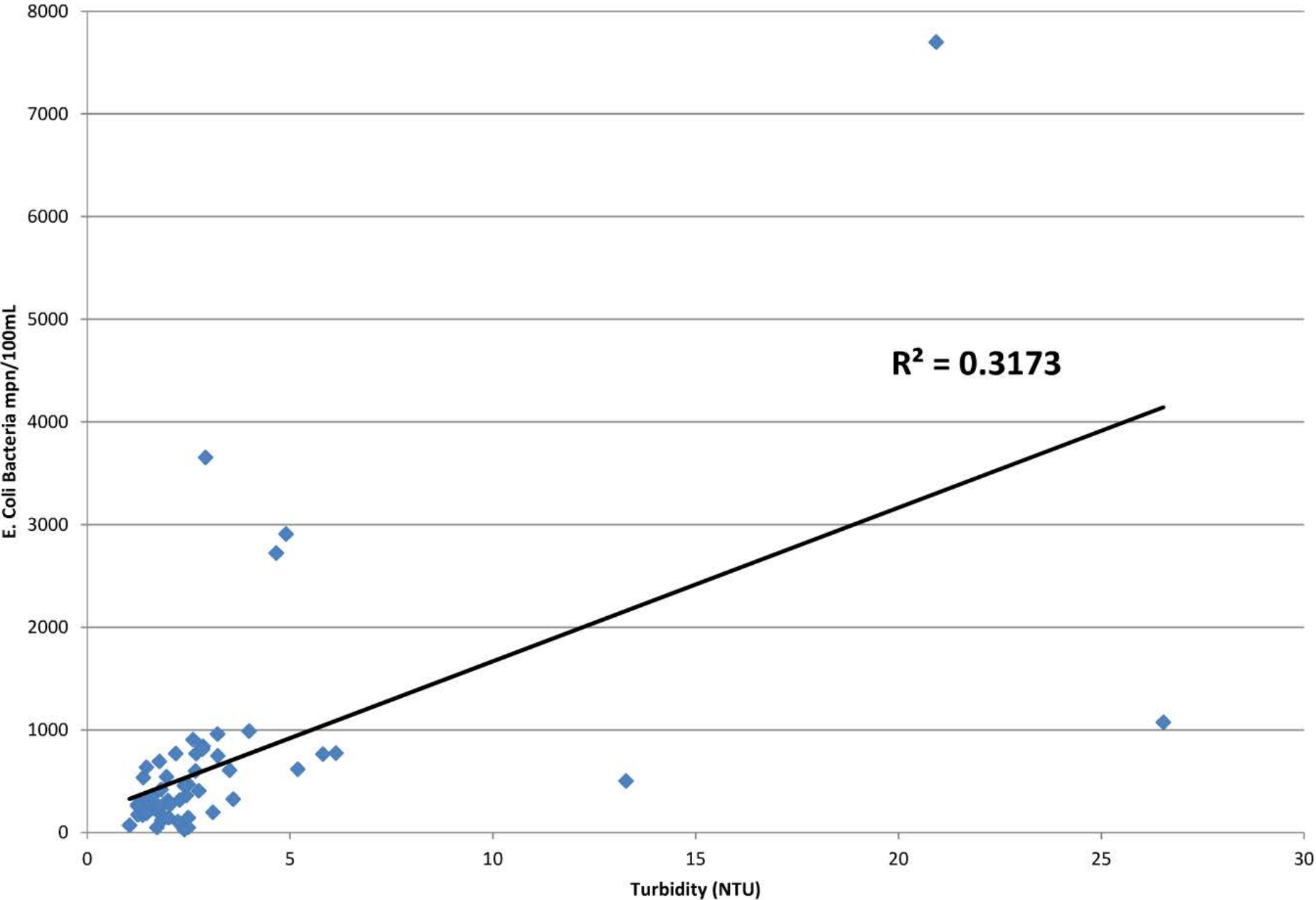


# E. Coli Bacteria Levels and 3 Day Rainfall Totals

◆ 3 day rainfall — Linear (3 day rainfall)

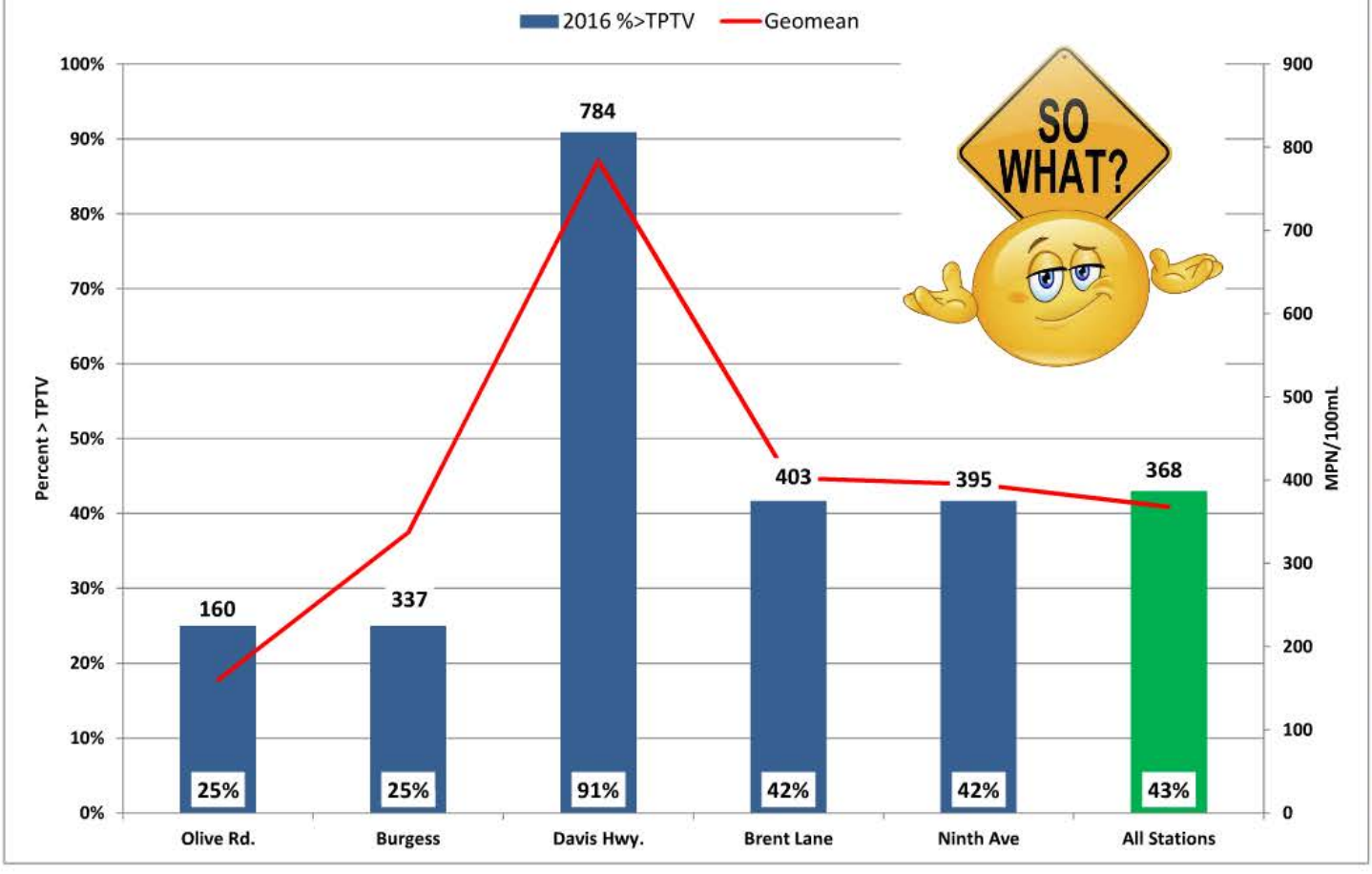


# E. coli Levels vs Turbidity



# OT IPTV

## Percent Exceedances of TPTV and Geometric Means 2016

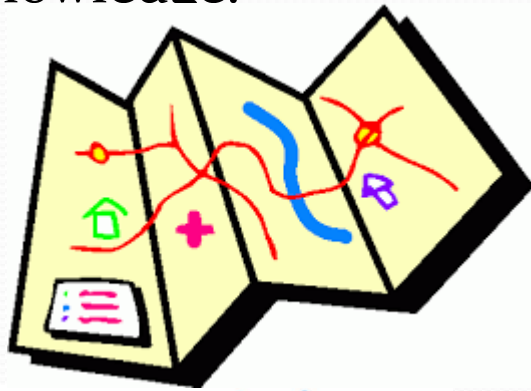




# Carpenter Creek BPCP

## *NEXT STEPS.....*

2. Maps on the Table Meeting...
  - a) Stakeholders that collect water quality data.
  - b) Entities with asset responsibilities (sanitary or storm sewer).
  - c) Regulatory agencies.
  - d) Environmental advocacy organizations.
  - e) Concerned property owners & citizens with first hand knowledge.



# Carpenter Creek BPCP

## *NEXT STEPS.....*

2. Maps on the Table Meeting.
  - a) Preparation for Walk the WBID.
  - b) Review all bacteria data.
  - c) Identify potential sources.
  - d) Mark up large scale maps.



Large Map

# Carpenter Creek BPCP

## *NEXT STEPS.....*

3. Walk the WBID.....
  - a) Field Reconnaissance to gain better understanding of the watershed.
    - a) Hydrology
    - b) Infrastructure
    - c) Potential problems
  - b) When problems identified assign action to appropriate agency.
  - c) Track problem resolution.
  - d) Collect samples as warranted

Private Sewage Lift-Station



# Carpenter Creek BPCP

## *NEXT STEPS.....*

3. Walk the WBID.....Who?
  - a) Asset managers with field personnel.



# Carpenter Creek BPCP

## *NEXT STEPS.....*

3. Walk the WBID.....
  - b) Sampling personnel.



# Carpenter Creek BPCP

## *NEXT STEPS.....*

3. Walk the WBID.....
  - c) Regulatory inspectors



# Carpenter Creek BPCP

## ***NEXT STEPS.....***

3. Walk the WBID.....

d) Citizens with specific knowledge.



# Carpenter Creek BPCP

## ***NEXT STEPS.....***

4. E-mail project list template.
5. County website for BPCP.
6. Plan for Maps On the Table this summer.
7. Continue monitoring.





# Carpenter Creek BPCP

***Thank You!!***

***We look forward to working with you.....***

***For more information or answers to questions***

***Please contact Dana Morton:***

***595-1865***

***dmorton@myescambia.com***

