

# **2013 PROGRESS REPORT**

## **for the Hillsborough River Basin Basin Management Action Plan**

prepared by the  
**Division of Environmental Assessment and Restoration**  
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Tallahassee, FL 32399

in cooperation with the  
**Tampa Bay Estuary Program**

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## TABLE OF CONTENTS

<b>LIST OF ACRONYMS AND ABBREVIATIONS .....</b>	<b>III</b>
<b>SUMMARY .....</b>	<b>IV</b>
<b>SECTION 1 : INTRODUCTION .....</b>	<b>1</b>
<b>1.1 Purpose of the Report .....</b>	<b>1</b>
<b>1.2 Total Maximum Daily Loads for the Hillsborough River Basin .....</b>	<b>1</b>
<b>1.3 Responsible Parties and Key Stakeholders .....</b>	<b>4</b>
<b>1.4 BMAP Allocations .....</b>	<b>5</b>
<b>SECTION 2 : FECAL COLIFORM ASSESSMENT RESULTS.....</b>	<b>6</b>
<b>2.1 Decision Matrix Approach .....</b>	<b>6</b>
<b>2.2 Water Quality Assessment Results .....</b>	<b>7</b>
<b>SECTION 3 : UPCOMING ACTIVITIES .....</b>	<b>11</b>

## LIST OF FIGURES

<i>Figure 1: Hillsborough River BMAP Area.....</i>	<i>3</i>
<i>Figure 2: Fecal Coliform Trends in Flint Creek, 1980-2012.....</i>	<i>8</i>
<i>Figure 3: Fecal Coliform Trends in Baker Creek, 1980-2012.....</i>	<i>8</i>
<i>Figure 4: Fecal Coliform Trends in Lower Hillsborough River, 1980-2012.....</i>	<i>9</i>
<i>Figure 5: Fecal Coliform Trends in Blackwater Creek, 1980-2012.....</i>	<i>9</i>

## LIST OF TABLES

<i>Table 1: TMDLs in the Hillsborough River BMAP.....</i>	<i>4</i>
<i>Table 2: Summary of CSS Assessment Categories .....</i>	<i>7</i>
<i>Table 3: Results of the Fecal Coliform Evaluation, 2009-2012.....</i>	<i>10</i>

## **LIST OF ACRONYMS AND ABBREVIATIONS**

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BMAP	Basin Management Action Plan
CSS	Contaminant Source Survey
Department	Florida Department of Environmental Protection
SSO	Sanitary Sewer Overflow
TMDL	Total Maximum Daily Load
WBID	Waterbody Identification

## **SUMMARY**

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### **TOTAL MAXIMUM DAILY LOADS**

The Hillsborough River Basin is located in Hillsborough County, including a significant part of the City of Tampa and portions of central and eastern Pasco County and western Polk County. The Hillsborough River Basin Management Action Plan (BMAP) addresses six waterbodies in the basin that have been verified as impaired for fecal coliforms. These waterbodies are Blackwater Creek, New River, Spartman Branch, Baker Creek, Flint Creek, and Lower Hillsborough River.

In 2003, the Florida Department of Environmental Protection adopted the Hillsborough River Total Maximum Daily Load (TMDL) for fecal coliform bacteria. The Hillsborough River BMAP was adopted in October 2009 to implement the fecal coliform TMDL within the watershed. This Progress Report describes the activities and fecal coliform assessment results from BMAP adoption through December 1, 2012.

### **FECAL COLIFORM ASSESSMENT RESULTS**

Data collected from the Hillsborough County Environmental Protection Commission stations have been used to assess fecal coliform improvements over time. Since BMAP implementation in 2009, fecal coliform levels have generally improved in all the waterbodies. The stations in Blackwater Creek, Lake Thonotosassa, and Lower Hillsborough River have results that fall into Category A (less than or equal to 10% fecal coliform contamination). River Station 152 in the Lower Hillsborough River fell into Category B (greater than 10% to 30% contamination) in 2012. The stations in Baker Creek and Flint Creek had results in Category B. Based on these results, the actions implemented by the Hillsborough River BMAP stakeholders over time have contributed to positive improvements in fecal coliform loads to the impaired watersheds within the Hillsborough River Basin.

### **UPCOMING ACTIVITIES**

The Hillsborough River BMAP will complete its first five-year iteration in October 2014. Section 403.067(7)(a)5, Florida Statutes, requires an assessment of the BMAP every five years. The Department will work with the Hillsborough River stakeholders and Tampa Bay Estuary Program to assess the fecal coliform concentrations in each of the impaired waterbodies, and to determine if revisions to the BMAP are necessary.

## **Section 1: INTRODUCTION**

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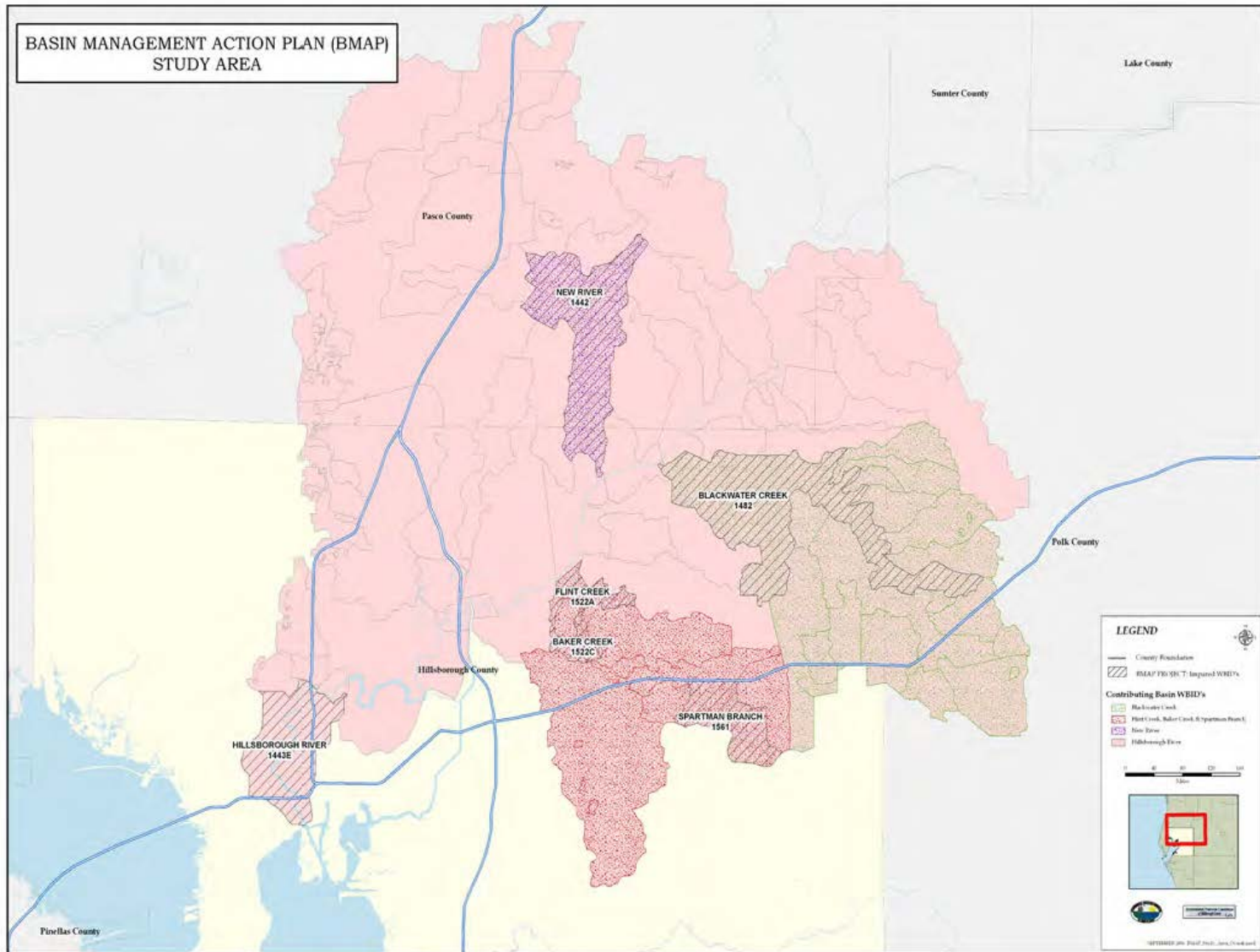
### **1.1 PURPOSE OF THE REPORT**

This Progress Report for the Hillsborough River Basin Management Action Plan (BMAP) describes the fecal coliform assessment results from BMAP adoption (October 2009) through December 31, 2012 (**Section 2**). A summary of upcoming efforts is included in **Section 3**.

### **1.2 TOTAL MAXIMUM DAILY LOADS FOR THE HILLSBOROUGH RIVER BASIN**

The Hillsborough River Basin is located in Hillsborough County, including a significant part of the City of Tampa and portions of central and eastern Pasco County and western Polk County. The BMAP includes six tributaries that are impaired for fecal coliform bacteria (**Figure 1**). Blackwater Creek, located in northern Hillsborough County, is 13.6 miles long and has a 113-square mile watershed. It drains to the Hillsborough River. New River is located in southeastern Pasco County and northern Hillsborough County. The New River is 11.1 miles long, has a 20.9-square-mile watershed, and drains to the Hillsborough River. Spartman Branch, which is 4.5 miles long, is located in north-central Hillsborough County and the City of Plant City. It has a 27.4-square mile watershed and drains to Pemberton Creek, which discharges to Baker Creek and Lake Thonotosassa. Baker Creek's 27.4-square mile watershed is located in north-central Hillsborough County. The creek is two miles long and drains to Lake Thonotosassa, which discharges to the Hillsborough River through Flint Creek. Flint Creek, which is 2.3 miles long, is located in north-central Hillsborough County and discharges from Lake Thonotosassa to the Hillsborough River. Its watershed encompasses more than 60 square miles and includes the Spartman Branch and Baker Creek watersheds as sub-basins. The Lower Hillsborough River is located in the City of Tampa, between Sulphur Springs and the river mouth at Hillsborough Bay. The distance from Sulphur Springs to the river mouth is 7.8 miles. This 675-square mile watershed includes all of the watersheds listed above.

The Florida Department of Environmental Protection identified the Hillsborough River Basin to be impaired by fecal coliforms. In 2003, the Department adopted the Hillsborough River Total Maximum Daily Load (TMDL) for fecal coliforms for the six waterbody identification (WBID) numbers that are impaired by fecal coliform bacteria. **Table 1** lists the TMDLs adopted by rule for the basin.



**FIGURE 1: HILLSBOROUGH RIVER BMAP AREA**



**TABLE 1: TMDLS IN THE HILLSBOROUGH RIVER BMAP**

<b>WATERBODY (WBID)</b>	<b>PARAMETER</b>	<b>TMDL (COUNTS/ DAY)</b>	<b>WASTELOAD ALLOCATION FOR WASTEWATER (COUNTS/DAY)</b>	<b>WASTELOAD ALLOCATION FOR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM STORMWATER (% REDUCTION)</b>	<b>LOAD ALLOCATION (% REDUCTION)</b>
Blackwater Creek (WBID 1482)	Fecal coliforms	2.07E+12	8.72E+09	71.6%	71.6%
New River (WBID 1442)	Fecal coliforms	6.48E+10	Not applicable	35.3%	35.3%
Spartman Branch (WBID 1561)	Fecal coliforms	6.52E+08	Not applicable	59.3%	59.3%
Baker Creek (WBID 1522C)	Fecal coliforms	1.35E+11	Not applicable	42.9%	42.9%
Flint Creek (WBID 1522A)	Fecal coliforms	400 counts /100mL	Not applicable	51.2%	51.2%
Lower Hillsborough River (WBID 1443E)	Fecal coliforms	Not measured	2.00E+10	51.2%	51.2%

### 1.3 RESPONSIBLE PARTIES AND KEY STAKEHOLDERS

The following organizations and entities are key stakeholders in the Hillsborough River BMAP:

- *Agriculture.*
- *City of Plant City.*
- *City of Tampa.*
- *City of Temple Terrace.*
- *Environmental Protection Commission of Hillsborough County.*
- *Florida Department of Health in Hillsborough County.*
- *Hillsborough County.*
- *Pasco County.*
- *Polk County.*
- *Florida Department of Agriculture and Consumer Services.*
- *Florida Department of Environmental Protection.*
- *Florida Department of Transportation.*
- *Southwest Florida Water Management District.*
- *Tampa Bay Estuary Program.*

- *University of Florida–Institute of Food and Agricultural Sciences.*
- *University of South Florida.*

#### **1.4 BMAP ALLOCATIONS**

The Hillsborough River Basin Working Group agreed that it would be appropriate to use the initial allocations adopted as part of each TMDL. The following factors were considered in making this decision:

- *Despite significant tracking efforts, uncertainty about the sources of fecal coliform bacteria remains. This requires further source investigation to determine whether it is necessary and feasible to allocate specific responsibility among nonpoint sources.*
- *Formulating allocations more detailed than those adopted in the TMDLs, particularly for bacteria, is speculative with the current data and information available.*
- *Bacterial monitoring data suggest that variability in loadings is high, and that multiple factors may be involved. Antecedent hydrologic conditions (surface and ground water), rainfall patterns, the “first flush” phenomenon, and ambient temperatures can all play roles in determining fecal coliform transport from sources and subsequent survival/persistence in a waterbody.*

Instead, the Hillsborough River BMAP contains a series of management actions, identified by the local entities, whose purpose is to manage anthropogenic fecal coliform inputs. The BMAP also includes a process to assess the gradient of potential human health risks associated with different water quality and fecal source survey outcomes.

## Section 2: FECAL COLIFORM ASSESSMENT RESULTS

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### 2.1 DECISION MATRIX APPROACH

As part of the Hillsborough River BMAP, a decision matrix was developed to assess the impacts of fecal coliforms in the impaired waterbodies in the basin. The “sanitary inspection” component of the matrix, which is used to rank sites based on the types and magnitudes of potential fecal contaminant sources observed in the waterbodies, has been revised since the BMAP was adopted to incorporate non-human fecal sources. This component of the matrix is now called the “contaminant source survey (CSS).” The CSS categories developed for the Hillsborough River WBIDs have been defined as follows to provide a qualitative assessment of the likelihood that fecal contamination posing human health risks would be encountered by recreational users at a given site:

1. *Very Low: No visual evidence of potential sources of human pathogens; natural environment; no or minimal anthropogenic land uses; wildlife present (any density).*
2. *Low: Low density agricultural and residential sources, including pets, livestock (without direct access to surface waters), or poultry operations; residences on septic systems.*
3. *Moderate: Urban stormwater sources (including pet waste) present; well-functioning wastewater infrastructure (both sewer and septic); episodic/low volume sanitary sewer overflows (SSOs) reaching surface waters; moderate-density livestock with little direct access to surface waters; Class A residual and/or septage spreading areas may be present.*
4. *High: Major stormwater outfalls present; history of failing wastewater infrastructure (central sewer or onsite systems); episodic or chronic/high volume SSOs reaching surface waters; concentrated livestock without direct access to surface waters; residual/septage spreading (Class B) may be present.*
5. *Very High: Current failing wastewater infrastructure; chronic/high volume SSOs reaching surface waters; concentrated livestock with direct access to surface waters; evidence of direct sewage inputs (e.g., confirmed illicit discharges).*

Each of these categories is summarized in **Table 2**.

**TABLE 2: SUMMARY OF CSS ASSESSMENT CATEGORIES**

a) These outcomes imply that the CSS may be providing an overly optimistic rating of water quality, or the fecal coliform sources in the area may be relatively low-risk or primarily environmental (e.g., wildlife, sediments, soils, vegetation), and the cause(s) of the discrepancy should be verified.

b) These outcomes imply that the fecal coliform indicator may be providing an overly optimistic rating, or the CSS may be providing an overly negative assessment, and the cause(s) of the discrepancy should be verified.

CSS ASSESSMENT CATEGORY (LIKELIHOOD OF FECAL CONTAMINATION POSING HUMAN HEALTH RISKS)	A (≤ 10%)	B (>10- 30%)	C (>30- 50%)	D (>50- 75%)	E (>75%)
1. Very Low	A1	B1	C1 <sup>a</sup>	D1 <sup>a</sup>	E1 <sup>a</sup>
2. Low	A2 <sup>b</sup>	B2	C2	D2 <sup>a</sup>	E2 <sup>a</sup>
3. Moderate	A3 <sup>b</sup>	B3	C3	D3	E3
4. High	A4 <sup>b</sup>	B4 <sup>b</sup>	C4	D4	E4
5. Very High	A5 <sup>b</sup>	B5 <sup>b</sup>	C5 <sup>b</sup>	D5	E5

## 2.2 WATER QUALITY ASSESSMENT RESULTS

The Hillsborough County Environmental Protection Commission has maintained ambient water quality stations within the Hillsborough River BMAP watersheds for over ten years. Data collected from these stations have been used to assess fecal coliform improvements over time. Since BMAP implementation in 2009, fecal coliform levels have generally improved in all the watersheds (see **Table 3**). The stations in Blackwater Creek, Lake Thonotosassa, and Lower Hillsborough River have results that fall into Category A (less than or equal to 10% fecal coliform contamination). River Station 152 in the Lower Hillsborough River fell into Category B (greater than 10% to 30% contamination) in 2012. The stations in Baker Creek and Flint Creek had results in Category B.

In addition, using data from 1980 through 2012, there have been significant reductions in the geometric mean fecal coliform counts in the waterbodies in the basin. Examples of the improving trends in fecal coliforms are shown in **Figure 2** through **Figure 5** for Flint Creek, Baker Creek, Lower Hillsborough River, and Blackwater Creek.

Based on these results, the actions implemented by the Hillsborough River BMAP stakeholders over time have contributed to positive improvements in fecal coliform loads to the impaired watersheds within the Hillsborough River Basin.

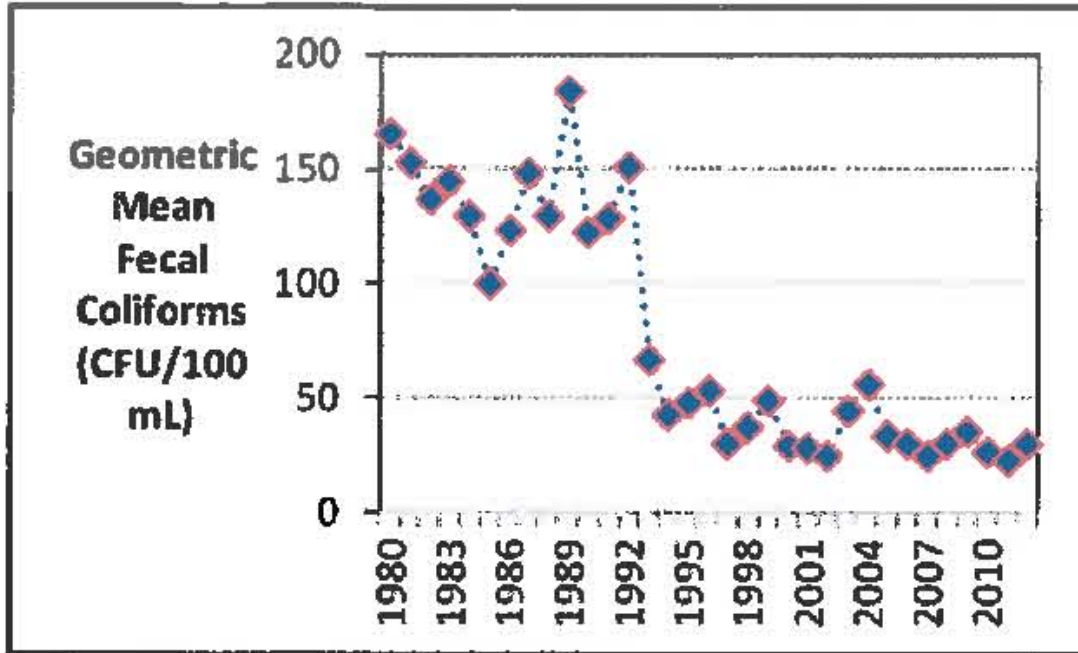


FIGURE 2: FECAL COLIFORM TRENDS IN FLINT CREEK, 1980-2012

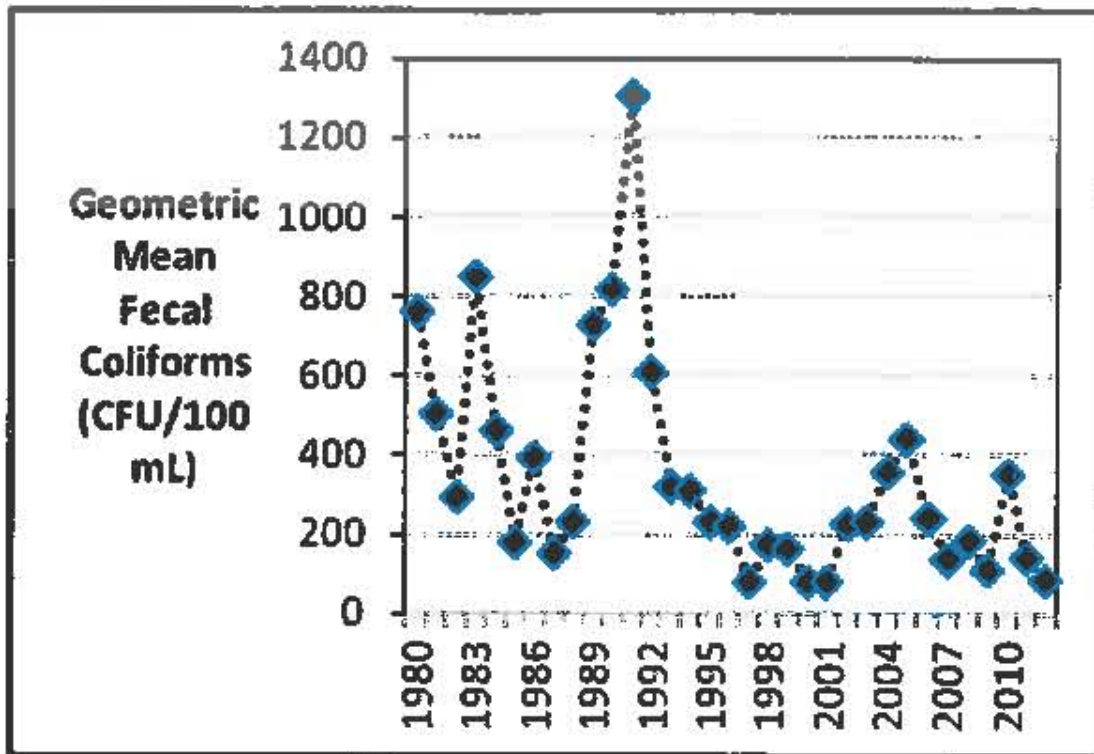


FIGURE 3: FECAL COLIFORM TRENDS IN BAKER CREEK, 1980-2012

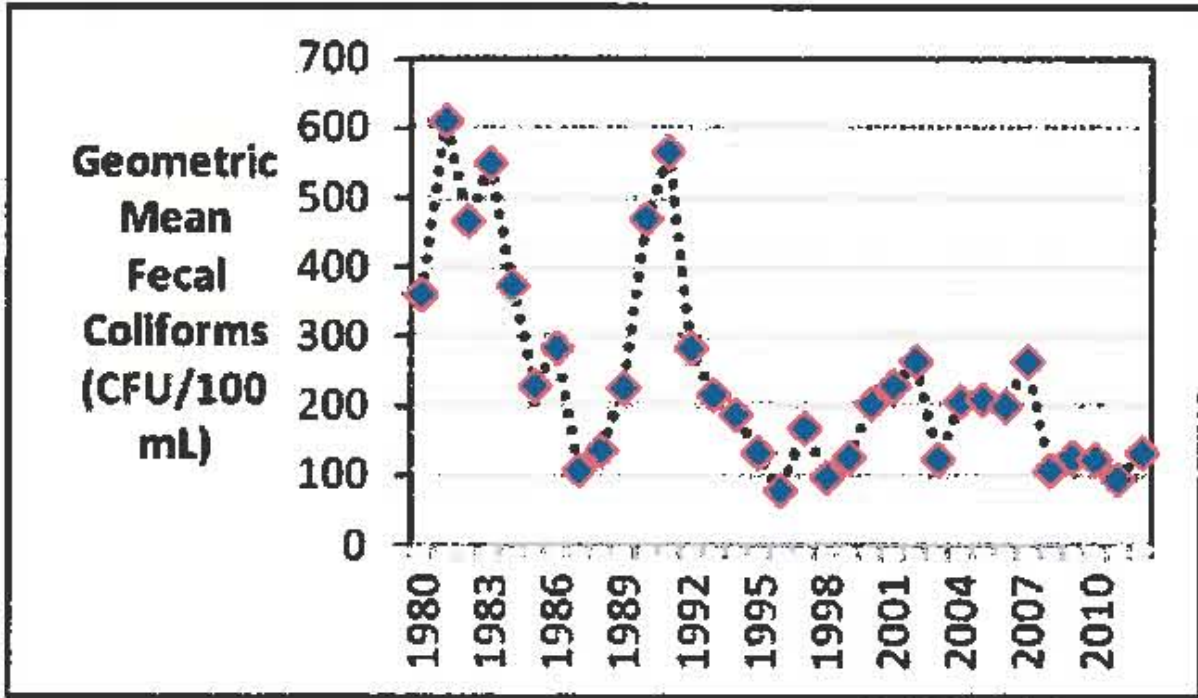


FIGURE 4: FECAL COLIFORM TRENDS IN LOWER HILLSBOROUGH RIVER, 1980-2012

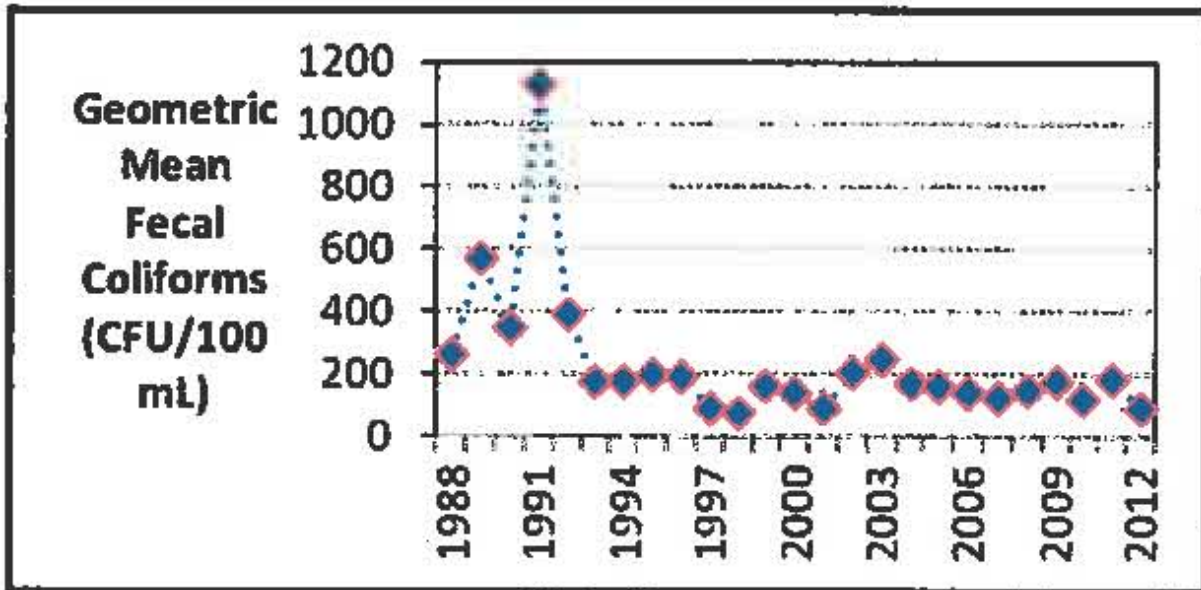


FIGURE 5: FECAL COLIFORM TRENDS IN BLACKWATER CREEK, 1980-2012

**TABLE 3: RESULTS OF THE FECAL COLIFORM EVALUATION, 2009-2012**

YEAR	BLACKWATER CREEK STATION 143	BLACKWATER CREEK STATION 108	BAKER CREEK STATION 107	LAKE THONOTOSASSA STATION 135	LAKE THONOTOSASSA STATION 118	FLINT CREEK STATION 148	LOWER HILLSBOROUGH RIVER STATION 105	LOWER HILLSBOROUGH RIVER STATION 152	LOWER HILLSBOROUGH RIVER STATION 137
2009	A	A	B	A	A	B	A	A	A
2010	A	A	B	A	A	B	A	A	A
2011	A	A	B	A	A	B	A	A	A
2012	A	A	B	A	A	B	A	B	A

### **Section 3: UPCOMING ACTIVITIES**

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The Hillsborough River BMAP will complete its first five-year iteration in October 2014. Section 403.067(7)(a)5, Florida Statutes, requires that, “An assessment of progress toward [the BMAP] milestones shall be conducted every 5 years, and revisions to the plan shall be made as appropriate.” Therefore, the Department will work with the Hillsborough River stakeholders and the Tampa Bay Estuary Program to assess the fecal coliform concentrations in each of the impaired waterbodies, and to determine if revisions to the BMAP are necessary. If needed, an updated BMAP will be prepared to modify the management strategies to further improve water quality in the basin.