

BASIN MANAGEMENT ACTION PLAN

PHASE 2

**for the Implementation of Total Maximum Daily Loads
for Fecal Coliforms
developed by the
Florida Department of Environmental Protection
in the Hillsborough River Basin**

developed by the
Division of Environmental Assessment and Restoration
Water Quality Restoration Program
Florida Department of Environmental Protection
Tallahassee, FL 32399

in cooperation with the
Hillsborough River Basin Stakeholders

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ACKNOWLEDGMENTS

The Florida Department of Environmental Protection's *Hillsborough River Basin Management Action Plan –Phase 2* was developed in cooperation with the Hillsborough River stakeholders identified below.

HILLSBOROUGH RIVER BASIN PARTICIPANTS

TYPE OF ENTITY	NAME
Responsible Stakeholders	Agricultural Producers City of Plant City City of Tampa City of Temple Terrace City of Lakeland Hillsborough County Pasco County Polk County
Responsible Agencies	Florida Department of Agriculture and Consumer Services Florida Department of Environmental Protection Florida Department of Health Florida Department of Transportation Southwest Florida Water Management District
Other Interested Stakeholders	Citizens Tampa Bay Estuary Program

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LIST OF ACRONYMS AND ABBREVIATIONS

BMAP	Basin Management Action Plan
BMP	Best Management Practice
BWG	Basin Working Group
CCS	Contaminant Source Survey
CFU	Colony-Forming Unit
CIP	Cured in Place
C&M	Construction and Maintenance (Lakeland)
CMOM	Capacity, Management, Operation, and Maintenance
COL	City of Lakeland
COPC	City of Plant City
COT	City of Tampa
CSS	Contaminant Source Survey
department	Florida Department of Environmental Protection
<i>E. coli</i>	<i>Escherichia Coli</i>
EPA	United States Environmental Protection Agency
EPCHC	Environmental Protection Commission of Hillsborough County
F.A.C.	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDCA	Florida Department of Community Affairs (now part of the Florida Department of Economic Opportunity)
FDOH	Florida Department of Health
FDOT	Florida Department of Transportation
F.S.	Florida Statutes
FWRA	Florida Watershed Restoration Act
FTE	Full-Time Equivalent
GIS	Geographic Information System
HCPWD	Hillsborough County Public Works Department
HRWA	Hillsborough River Watershed Alliance
HTBMT	Hillsborough Tributaries BMAP Monitoring Team
IA	Implementation Assurance
ID	Identification
IDDE	Illicit Discharge Detection and Elimination
I&I	Inflow and Infiltration
IWR	Impaired Surface Waters Rule
L&S	Lakes and Stormwater Division (Lakeland)
mL	Milliliter
MOSI	Museum of Science and Industry
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OAWP	Office of Agricultural Water Policy
OHWL	Ordinary High Water Line
OSTDS	Onsite Sewage Treatment and Disposal System
PIC	Potential Illicit Connection
PSA	Public Service Announcements

qPCR	Quantitative Polymerase Chain Reaction
SCADA	Supervisory Control and Data Acquisition
SSO	Sanitary Sewer Overflow
SWFWMD	Southwest Florida Water Management District
TAT	Tributaries Assessment Team
TBEP	Tampa Bay Estuary Program
TMDL	Total Maximum Daily Load
TV	Television
USF	University of South Florida
WBID	Waterbody Identification
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

PHASED IMPLEMENTATION OF TOTAL MAXIMUM DAILY LOADS

The phased implementation of Basin Management Action Plans is provided for under Subparagraph 403.067(7)(a)1, Florida Statutes (F.S.), and this adaptive management process will continue until the TMDLs are met. The phased BMAP approach allows for incrementally reducing loadings through the implementation of projects, while simultaneously monitoring and conducting studies to understand water quality dynamics (*e.g.*, sources and response variables) in each impaired waterbody. Progress will continue to be evaluated and adjustments will be made or new projects added, as needed, to meet the TMDLs.

The Hillsborough River BMAP was adopted by Secretarial Order of the Florida Department of Environmental Protection in October 2009. This new document describes the management strategies for Phase 2 of the 2009 Hillsborough River BMAP. For this second five-year period, additional strategies for continuing water quality improvements and new monitoring to identify additional sources are proposed to help achieve the adopted fecal coliform TMDLs. The 2009 BMAP and its associated Secretarial Order remain in effect, and so the projects and activities contained in the BMAP are still ongoing unless otherwise stated. Through the original 2009 BMAP and this Phase 2 plan, the department will track ongoing efforts as well as the additional efforts identified in this document.

TMDLS, WATER QUALITY MONITORING, AND TRENDS

TMDLs are water quality targets for specific pollutants (such as fecal coliforms) that are established for impaired waterbodies that do not meet designated uses based on Florida water quality standards. The department verified six waterbodies in the Hillsborough River Basin as impaired for fecal coliform and adopted TMDLs for them in 2004: Blackwater Creek, New River, Spartman Branch, Baker Creek, Flint Creek, and Lower Hillsborough River.

During Phase 1 of the BMAP, consisting of the first five years after BMAP adoption (October 2009–October 2014), stakeholders developed strong proactive and reactive programs to identify and eliminate sources of fecal coliforms. Examples include the following:

- Hillsborough County has a very active public works department that initiates studies on pollutants in waterbodies to determine hot spots and potential sources. It then identifies projects to address the sources. In this process, the county's active field staff identified issues that could be easily resolved, such as illicit sewage discharges from homes to watersheds, areas where a small change in practice on the part of both public works and an agricultural producer resulted in reducing agricultural runoff due to roadway stormwater, and discussions with homeowners to reduce pet waste releases to the tributaries.
- The Tampa Bay Estuary Program (TBEP) runs a comprehensive public education campaign to educate citizens in the Tampa Bay Estuary watershed, including the Hillsborough Tributaries BMAP area, about how their actions affect stormwater, which is capable of transporting pollutants to Tampa Bay.
- Polk County has an extensive countywide tributaries monitoring program that includes the upstream reaches of Blackwater Creek. It collaborates with other stakeholders on potential issues and solutions based on the lessons learned in other waterbodies.
- The city of Lakeland (COL) also has an extensive monitoring program of lakes and tributaries that has helped educate stakeholders on what to expect during dry seasons.
- The city of Plant City (COPC) inspects all its industrial complexes annually and more often where there is higher activity with potential for stormwater impacts. The city has also upgraded all of its sanitary sewer lift stations to include a monitoring system that warns staff immediately of any conditions that may cause a sanitary sewer overflow (SSO). This improvement will help to reduce potential releases of pathogens to the environment.
- The city of Tampa (COT) also has a comprehensive lift station monitoring and notification program to reduce SSOs.

While fecal coliform reductions have occurred in the waterbodies due to the strategies implemented in the first BMAP iteration, these tributaries continue to require improvements to meet state water quality

standards. **Table ES-1** lists the median of exceedances for the TMDL and BMAP data periods for each impaired segment with a waterbody identification (WBID) number. The department compared the TMDL data period monitoring results with the BMAP data period monitoring results to determine if the magnitude of fecal coliform exceedances had improved in each waterbody. The data show that since the adoption of the BMAP in 2009, the magnitude of exceedances improved/decreased in Spartman Branch and increased in New River, Lower Hillsborough River, Blackwater Creek, Flint Creek, and Baker Creek (see **Table ES-1**).

TABLE ES-1: EXCEEDANCE MEDIANS FOR TMDL PERIOD OF DATA AND BMAP PERIOD OF DATA

WBID	WATERBODY NAME	TMDL DATA (1996–2003) EXCEEDANCES MEDIAN (EXCEEDANCES/ # SAMPLES)	BMAP DATA (2010–14) EXCEEDANCES MEDIAN (EXCEEDANCES/ # SAMPLES)
1443E	Lower Hillsborough River	820	880
1482	Blackwater Creek	700	1,000
1522C	Baker Creek	760	780
1561	Spartman Branch	785	480
1442	New River	545	960
1522A	Flint Creek	770	772

Although the magnitude of exceedances for five of the six tributaries increased during the BMAP period, it is important to note that one of the main goals of the BMAP is to meet the fecal coliform water quality criterion. This will be determined by comparing the number of exceedances found during an Impaired Surface Waters Rule (IWR) verified period with the number of allowable exceedances, which is based on the number of samples.

Table ES-2 compares the percent exceedance from the IWR data period analyzed at the time of BMAP adoption and the IWR data period currently being analyzed. The last column, which is the difference between the two data assessment periods, shows the Phase 1 progress toward the state criterion. The criterion is set so that no more than 10% of the data, with a minimum of a 90% confidence level using a binomial distribution, exceed the water quality criterion of 400 colony-forming units per 100 milliliters (cfu/100mL) during each verified period. When comparing progress using this matrix, five waterbodies improved in the percent exceedance frequency during the 2007–14 verified period.

TABLE ES-2: EXCEEDANCE FREQUENCY PROGRESS TOWARD STATE CRITERION BASED ON IWR DATA PERIODS

WBID	WATERBODY NAME	% EXCEEDANCE JANUARY 1, 2001– JUNE 30, 2008	% EXCEEDANCE JANUARY 1, 2007– JUNE 30, 2014	PHASE 1 EXCEEDANCE FREQUENCY PROGRESS TOWARD STATE CRITERION
1443E	Lower Hillsborough River	22%	16%	6%
1482	Blackwater Creek	25%	16%	9%
1522C	Baker Creek	33%	18%	15%
1561	Sparkman Branch	27%	23%	4%
1442	New River	30%	26%	4%
1522A	Flint Creek	25%	38%	-13%

BMAP IMPLEMENTATION AND TRACKING

For this second BMAP iteration, the department and stakeholders will continue to track implementation efforts, as well as monitor water quality in the TMDL waterbodies, to ensure that BMAP implementation continues and to measure its effectiveness. The stakeholders will meet annually to discuss implementation issues, consider new information, and determine other management strategies needed for waterbodies that are not projected to meet their TMDLs.

MANAGEMENT STRATEGIES

Each entity responsible for implementing management strategies as part of the BMAP will complete an annual report for submittal to the department. The annual report will track the implementation status of the management strategies listed in the BMAP and document additional management strategies undertaken to further water quality improvements in the basin. Water quality data will also be included in the BMAP annual reports to help assess strategies and identify any needs for new actions.

SECTION 2: CONTEXT, PURPOSE, AND SCOPE OF THE PLAN

For Phase 2 of the Hillsborough River Basin Management Action Plan, new strategies are proposed for continuing water quality improvements in the impaired waters to help achieve the fecal coliform Total Maximum Daily Loads. The [2009 Hillsborough River BMAP](#) remains in effect, and strategies adopted through it are still under Secretarial Order of the Florida Department of Environmental Protection.

This second iteration of the BMAP document identifies additional management strategies to continue fecal coliform reductions in the six waterbodies impaired for fecal coliform in the Hillsborough River Basin. It also identifies additional monitoring to determine sources that could be addressed to further reduce fecal coliforms. Paragraph 403.067(7)(a)1, Florida Statutes (F.S.), allows for the phased implementation of management strategies designed to achieve incremental reductions, while simultaneously monitoring and conducting studies to better understand water quality dynamics in each impaired waterbody. The management strategies described in this document add to the 2009 activities and continue the phased implementation to achieve the fecal coliform TMDLs in these waterbodies.

2.1 TMDLS IN THE HILLSBOROUGH RIVER BASIN

In portions of the Hillsborough River Basin, fecal coliform bacteria were identified as the primary pollutant causing impairment (see **Figure 1**). In 2003, the department adopted TMDLs for six of the verified impaired waterbodies in the basin. **Table 1** lists the adopted TMDLs and the wastewater and stormwater reductions required for the segments with waterbody identification (WBID) numbers that are impaired for fecal coliforms. The department is planning to update the current water quality standard for Class III (recreational use) waters from fecal coliform to *Escherichia coli* (*E. coli*). The BMAP efforts will continue to implement the fecal coliform TMDLs while integrating sampling for *E. coli* so that the waterbodies can be assessed using the new water quality standard. The *E. coli* data will be used to guide restoration efforts in Phase 2.

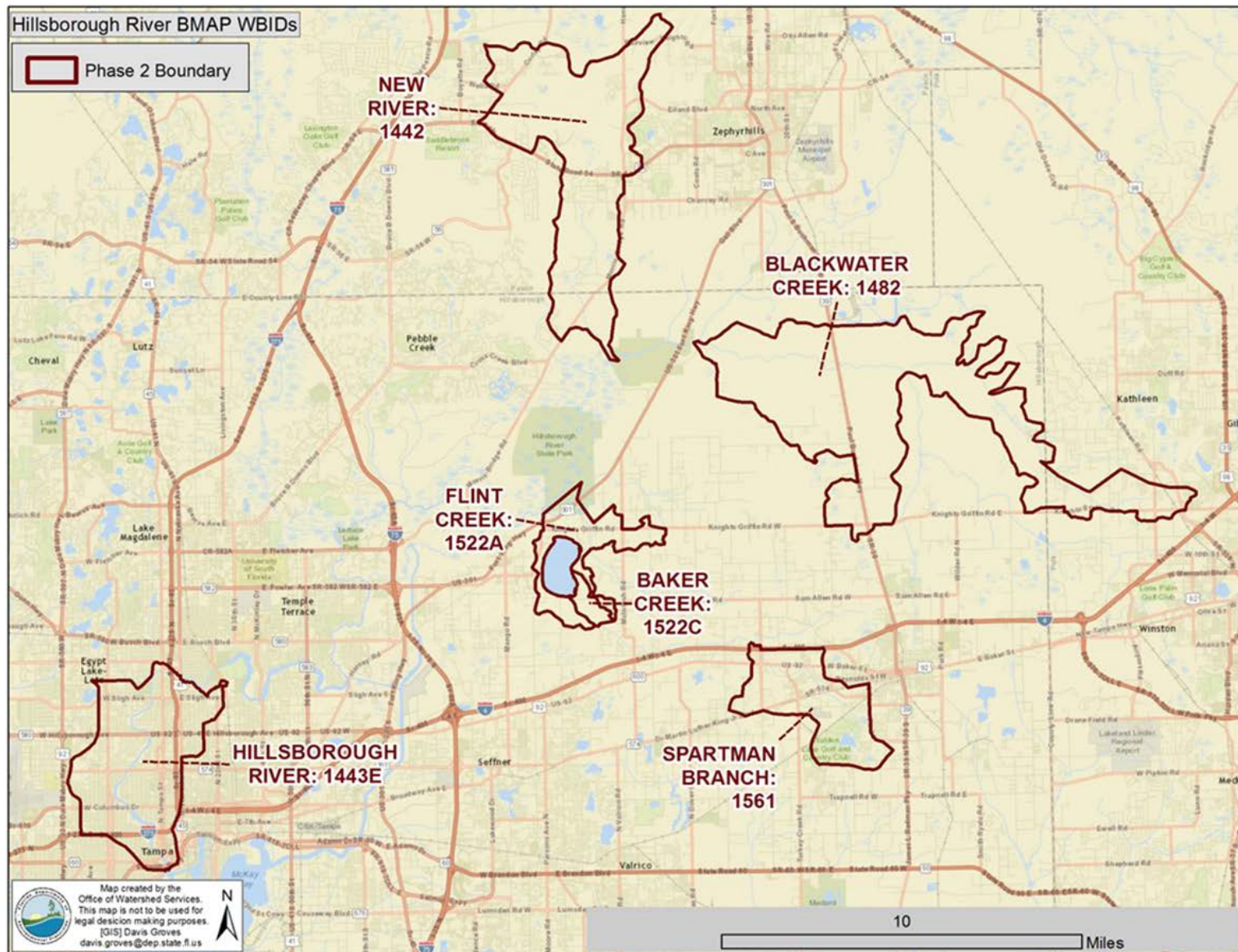


FIGURE 1: HILLSBOROUGH RIVER BMAP WATERBODIES

TABLE 1: TMDLS FOR THE HILLSBOROUGH RIVER BMAP

N/A = Not applicable

WBID	TMDL (COLONY-FORMING UNITS [CFU]/DAY)	WASTELOAD ALLOCATION WASTEWATER (CFU/DAY)	WASTELOAD ALLOCATION STORMWATER (%)	LOAD ALLOCATION (%)
Blackwater Creek (WBID 1482)	2.07E+12 cfu/day	8.72E+09	71.6%	71.6%
New River (WBID 1442)	6.48E+10 cfu/day	N/A	35.3%	35.3%
Spartman Branch (WBID 1561)	6.52E+08 cfu/day	N/A	59.3%	59.3%
Baker Creek (WBID1522C)	1.35E+11 cfu/day	N/A	42.9%	42.9%
Flint Creek (WBID 1522A)	400/100 milliliters (mL)	N/A	51.2%	51.2%
Lower Hillsborough River (WBID 1443E)	Not measured	2.00E+10	51.2%	51.2%

2.2 RESPONSIBLE PARTIES AND KEY STAKEHOLDERS

Sources of fecal coliform loading in the impaired waterbodies include wastewater, onsite sewage treatment and disposal systems (OSTDS), and urban and agricultural stormwater. The entities responsible for addressing these sources in the BMAP include agricultural producers, the city of Plant City (COPC), city of Tampa (COT), city of Temple Terrace, city of Lakeland (COL), Hillsborough County, Pasco County, Polk County, Florida Department of Health (FDOH), Florida Department of Transportation (FDOT), and Florida Department of Agriculture and Consumer Services (FDACS). The department, Southwest Florida Water Management District (SWFWMD), and Tampa Bay Estuary Program (TBEP) are also essential to the implementation of BMAP activities.

2.3 POLLUTANT REDUCTION ALLOCATIONS

Under the Florida Watershed Restoration Act (FWRA) (Subsection 403.067[7], F.S.), the TMDL allocation may be an “initial” pollutant allocation among point and nonpoint sources. In such cases, the further allocation to specific point sources and specific categories of nonpoint sources is established in a BMAP. The FWRA further states that the BMAP may make detailed allocations to individual “basins” (*i.e.*, sub-basins) or to all basins as a whole, as appropriate. Both initial and detailed allocations must be determined based on a number of factors listed in the FWRA—including, for example, cost-benefit, technical and environmental feasibility, implementation time frames, and feasible funding strategies.

The Hillsborough River stakeholders 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.

2.4 FECAL COLIFORM REDUCTIONS SINCE BMAP ADOPTION

The department compared the TMDL data period monitoring results with the BMAP data period monitoring results listed in **Table 2** to determine if the magnitude of exceedances improved in each waterbody. The data show that since BMAP adoption, the magnitude of exceedances improved/decreased in Spartman Branch and increased in the New River, Lower Hillsborough River, Blackwater Creek, Flint Creek, and Baker Creek (see **Table 2**).

TABLE 2: EXCEEDANCE MEDIANS FOR THE TMDL DATA PERIOD AND THE BMAP DATA PERIOD

WBID	WATERBODY NAME	TMDL DATA (1996–2003) EXCEEDANCES MEDIAN	BMAP DATA (2010–14) EXCEEDANCES MEDIAN
1443E	Lower Hillsborough River	820	880
1482	Blackwater Creek	700	1,000
1522C	Baker Creek	760	780
1561	Spartman Branch	785	480
1442	New River	545	960
1522A	Flint Creek	770	772

However, the table does not reflect the frequency of exceedances, which is a key component in meeting the water quality criterion for fecal coliform. For this second BMAP iteration (and subsequent annual reports), the department will focus on an approach that mirrors the Impaired Surface Waters Rule (IWR) (Chapter 62-303, Florida Administrative Code [F.A.C.]) methodology for assessing the impairment status of a waterbody. The IWR criterion is set so that no more than 10% of the data exceed 400

cfu/100mL during each verified period. **Table 3**, Column 5, lists the minimum number of exceedances needed to place a waterbody on the Verified List with at least a 90% confidence level for the applicable verified period (January 1, 2007–June 30, 2014). The minimum number of exceedances is compared with the number of exceedances to determine if the IWR criterion is being met. The far right column in **Table 3** lists the percent exceedance, which is calculated by dividing the number of exceedances by the total number of samples.

All six waterbodies remain impaired for fecal coliform based on the most recent IWR assessment. Based on **Table 3**, the waterbodies with the lowest exceedance percentages are the Lower Hillsborough River, Blackwater Creek, and Baker Creek, while the waterbody with the highest exceedance percentage is Flint Creek.

TABLE 3: SUMMARY OF RESULTS FOR PERCENT FREQUENCY EXCEEDANCES IN FECAL COLIFORM FOR THE RECENT VERIFIED PERIOD (JANUARY 1, 2007–JUNE 30, 2014)

WBID	WATERBODY NAME	TOTAL NUMBER OF FECAL COLIFORM DATA POINTS FROM JANUARY 1, 2007–JUNE 30, 2014	NUMBER OF EXCEEDANCES	MINIMUM NUMBER OF EXCEEDANCES TO BE CONSIDERED IMPAIRED (SUBSECTION 62-303.420[2], F.A.C., TABLE 3)	% EXCEEDANCE
1443E	Lower Hillsborough River	325	52	41	16%
1482	Blackwater Creek	87	14	13	16%
1522C	Baker Creek	85	15	13	18%
1561	Spartman Branch	22	5	5	23%
1442	New River	31	8	6	26%
1522A	Flint Creek	92	35	14	38%

Table 4 compares the percent exceedance from the IWR data period analyzed at the time of BMAP adoption and the IWR data period currently being analyzed. The last column, which is the difference between the two data periods, shows the Phase 1 progress toward the state criterion. When comparing progress, five waterbodies made improvements in the percent exceedance frequency during the 2007–14 verified period.

TABLE 4: EXCEEDANCE FREQUENCY PROGRESS TOWARD THE STATE CRITERION BASED ON IWR DATA PERIODS

WBID	WATERBODY NAME	% EXCEEDANCE JANUARY 1, 2001– JUNE 30, 2008	% EXCEEDANCE JANUARY 1, 2007– JUNE 30, 2014	PHASE 1 EXCEEDANCE FREQUENCY PROGRESS TOWARD STATE CRITERION
1443E	Lower Hillsborough River	22%	16%	6%
1482	Blackwater Creek	25%	16%	9%
1522C	Baker Creek	33%	18%	15%
1561	Sparkman Branch	27%	23%	4%
1442	New River	30%	26%	4%
1522A	Flint Creek	25%	38%	-13%

2.5 WATER QUALITY TRENDS

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 nonhuman fecal sources. This component of the matrix is now called the contaminant source survey (CSS). The CSS categories developed for the Hillsborough River WBIDs are defined as follows to provide a qualitative assessment of the likelihood that recreational users at a given site would encounter fecal contamination posing human health risks:

- **Very Low:** No visual evidence of potential sources of human pathogens; natural environment; no or minimal anthropogenic land uses; wildlife present (any density).
- **Low:** Low-density agricultural and residential sources, including pets, livestock (without direct access to surface waters), or poultry operations; residences on septic systems.
- **Moderate:** Urban stormwater sources (including pet waste); 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.

- **High:** Major stormwater outfalls; history of failing wastewater infrastructure (central sewer or onsite systems); episodic or chronic/high-volume SSOs reaching surface waters; concentrated livestock with direct access to surface waters; residual/Class B residual and/or septage spreading areas.
- **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).

Table 5 summarizes each of these categories.

TABLE 5: 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 ($\leq 10\%$)	B ($>10-30\%$)	C ($>30-50\%$)	D ($>50-75\%$)	E ($>75\%$)
1. Very Low	A1	B1	C1 ^a	D1 ^a	E1 ^a
2. Low	A2 ^b	B2	C2	D2 ^a	E2 ^a
3. Moderate	A3 ^b	B3	C3	D3	E3
4. High	A4 ^b	B4 ^b	C4	D4	E4
5. Very High	A5 ^b	B5 ^b	C5 ^b	D5	E5

Table 6 shows the results of the evaluation. The stations in Blackwater Creek, Lake Thonotosassa, and Lower Hillsborough River were in 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 also had results in Category B.

TABLE 6: RESULTS OF THE FECAL COLIFORM EVALUATION, 2009–12

YEAR	BLACKWATER CREEK STATION 143	BLACKWATER CREEK STATION 108
2009	A	A
2010	A	A
2011	A	A
2012	A	A

YEAR	BAKER CREEK STATION 107
2009	B
2010	B
2011	B
2012	B

YEAR	LAKE THONOTOSASSA STATION 135	LAKE THONOTOSASSA STATION 118
2009	A	A
2010	A	A
2011	A	A
2012	A	A

YEAR	FLINT CREEK STATION 148
2009	B
2010	B
2011	B
2012	B

YEAR	LOWER HILLSBOROUGH RIVER STATION 105	LOWER HILLSBOROUGH RIVER STATION 152	LOWER HILLSBOROUGH RIVER STATION 137
2009	A	A	A
2010	A	A	A
2011	A	A	A
2012	A	B	A

The sections below summarize information on the water quality trends in each impaired waterbody. The charts showing trends over time help in seeing how coliform levels are changing; however, from a compliance standpoint, the number/percentage of exceedances is the primary consideration. This is because the waterbodies are assessed based on the IWR. The criterion is set so that no more than 10% of the data, with a minimum of a 90% confidence level using a binomial distribution, exceed the water

quality criterion of 400 cfu/100mL during each verified period. The frequency charts show the cumulative percentage of the fecal coliform results and how they compare with the criterion of 400 cfu/100mL. When the water quality criterion is being met, all or most of the results are to the left of the 400 count line, meaning that most of the samples are at or below the water quality criterion.

2.5.1 BLACKWATER CREEK

In the early part of the period from 2002 to 2014, there were frequent exceedances of the 400 cfu/100mL fecal coliform criterion in Blackwater Creek; however, these exceedances have decreased over time (see **Figure 2**). The annual exceedances have been 30% or less during this time, except in 2012 when there was only one sample result and in 2014 (see **Table 7**). **Figure 3** shows the cumulative percentage of the fecal coliform results in Blackwater Creek and how they compare with the criterion of 400 cfu/100mL.

TABLE 7: SUMMARY OF FECAL COLIFORM DATA FOR BLACKWATER CREEK, 2002–14

YEAR	NUMBER OF SAMPLES	MINIMUM VALUE (CFU/100ML)	MEDIAN VALUE (CFU/100ML)	MAXIMUM VALUE (CFU/100ML)	% EXCEEDANCES OVER 400 CFU/100ML
2002	21	10	80	2,000	28.6%
2003	13	20	260	4,000	30.8%
2004	13	20	120	5,300	23.1%
2005	15	40	180	13,100	20.0%
2006	13	20	140	2,100	30.8%
2007	11	20	100	940	18.2%
2008	13	20	140	1,060	15.4%
2009	11	20	160	3,400	18.2%
2010	13	40	100	580	7.7%
2011	13	20	120	4,000	23.1%
2012	1	1,700	1,700	1,700	100.0%
2013	4	120	180	580	25.0%
2014	4	80	530	1,900	50.0%

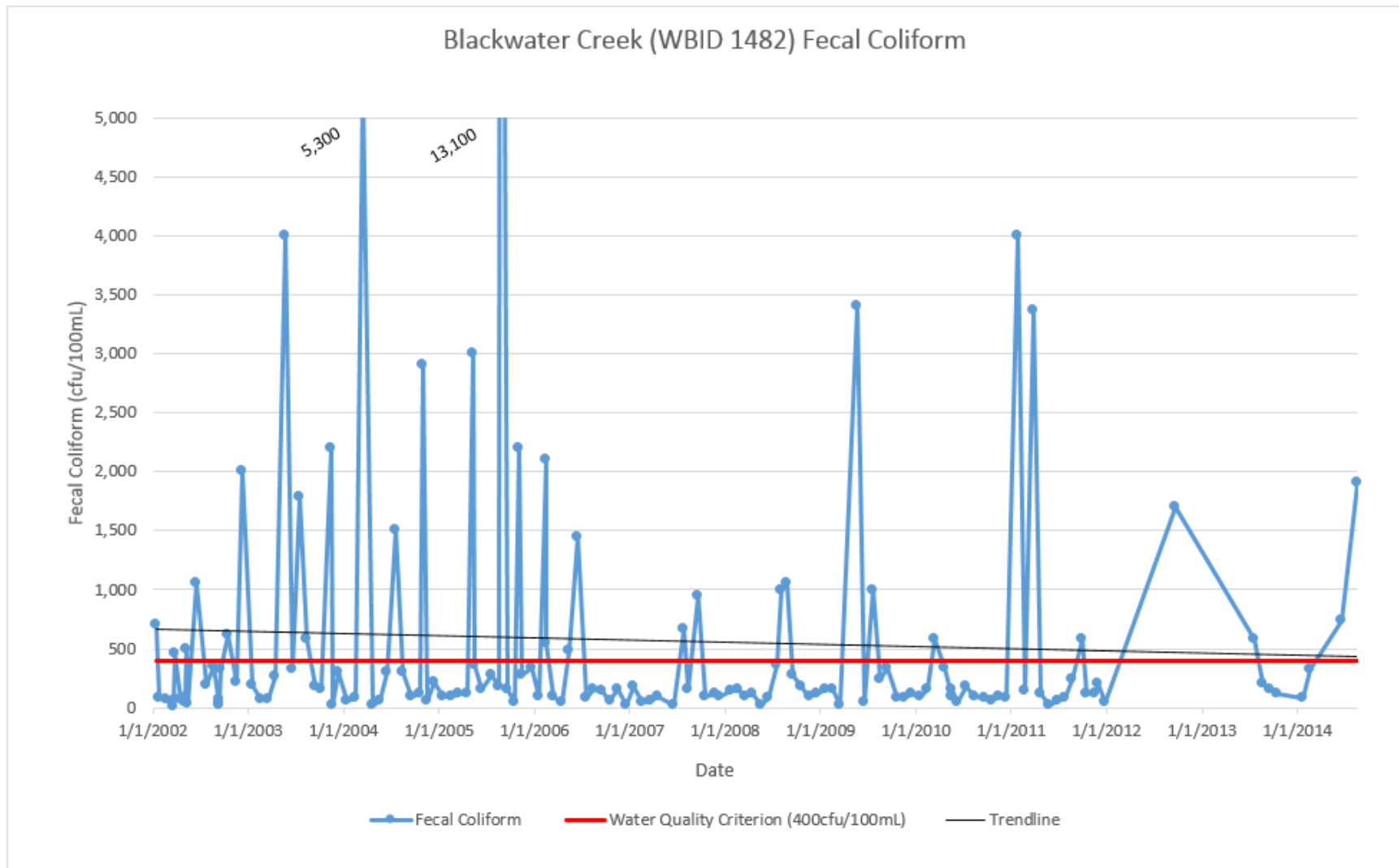


FIGURE 2: FECAL COLIFORM COUNTS IN BLACKWATER CREEK, 2002–14, COMPARED WITH THE CLASS III WATER QUALITY CRITERION

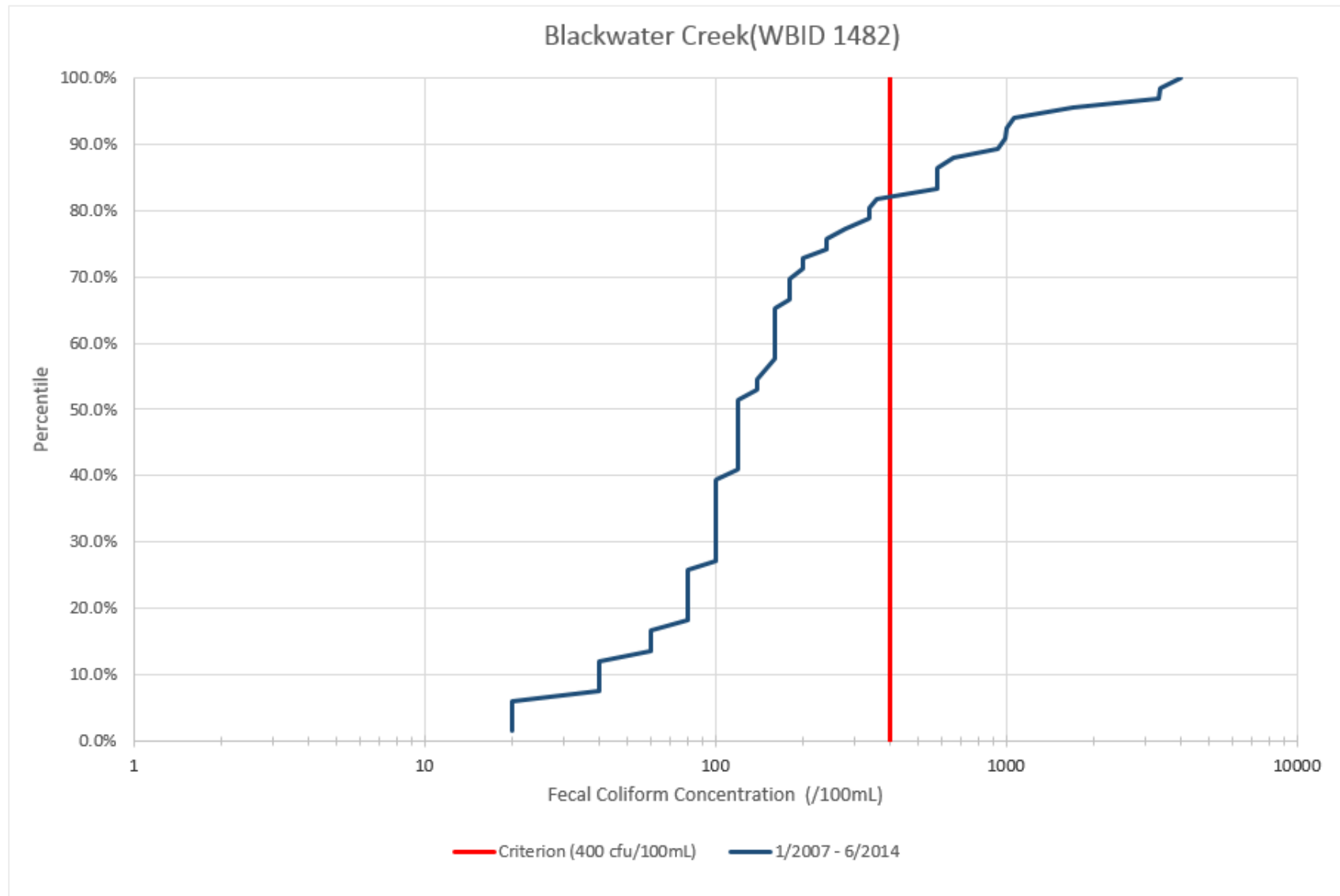


FIGURE 3: CUMULATIVE FREQUENCY OF FECAL COLIFORM RESULTS IN BLACKWATER CREEK COMPARED WITH THE WATER QUALITY CRITERION

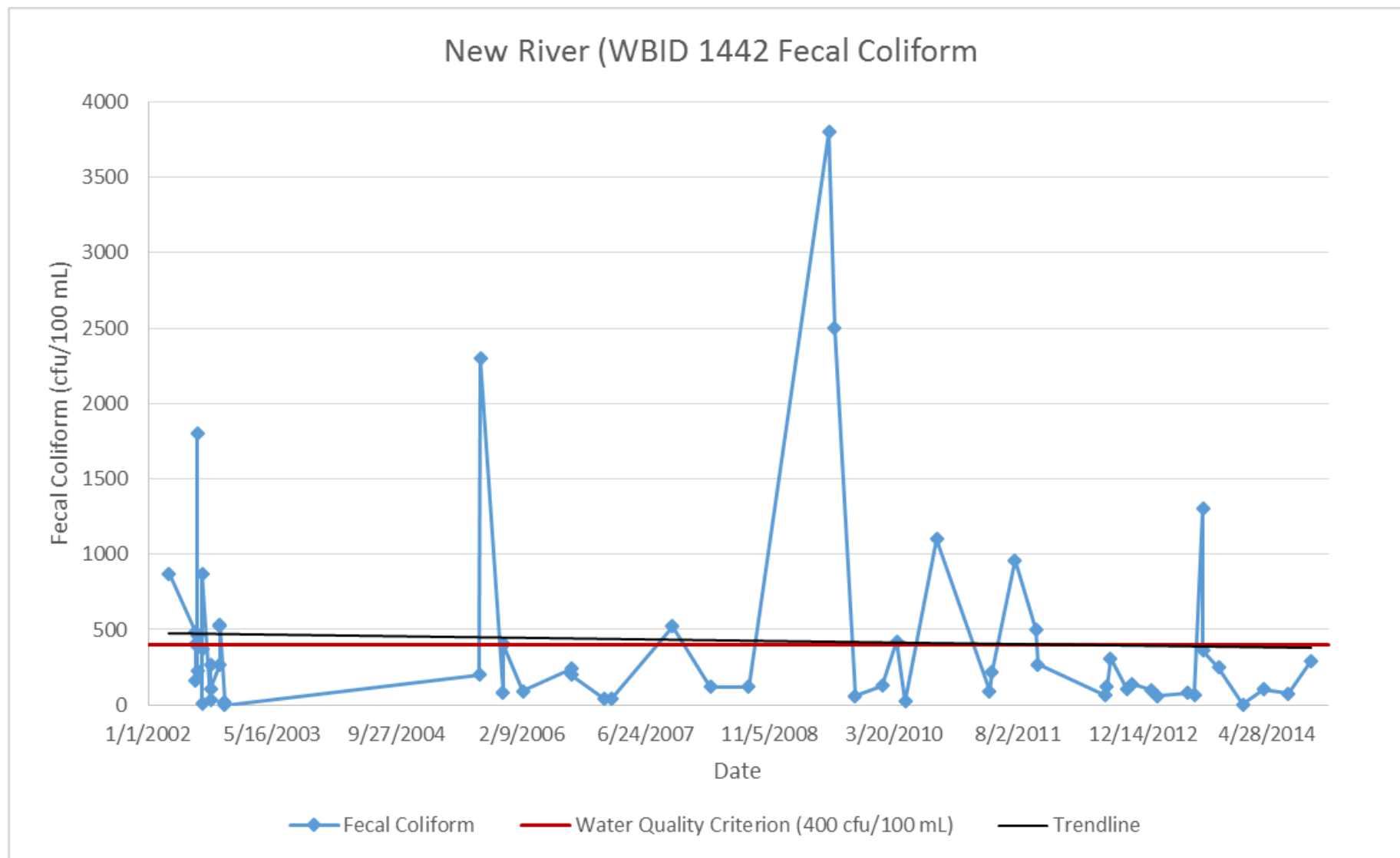
2.5.2 NEW RIVER

As shown in **Figure 4**, there are periodic spikes over the state criterion of 400 cfu/100mL in New River. However, the highest count was 3,800 cfu/100mL in 2009, and the median values were low in the other years (see **Table 8**). **Figure 5** shows the cumulative percentage of the fecal coliform results in New River and how they compare with the criterion of 400 cfu/100mL.

TABLE 8: SUMMARY OF FECAL COLIFORM DATA FOR NEW RIVER, 2002–14

N/D = No data

YEAR	NUMBER OF SAMPLES	MINIMUM VALUE (CFU/100ML)	MEDIAN VALUE (CFU/100ML)	MAXIMUM VALUE (CFU/100ML)	% EXCEEDANCES OVER 400 CFU/100ML
2002	19	1	270	1,800	36.8%
2003	N/D	N/D	N/D	N/D	N/D
2004	N/D	N/D	N/D	N/D	N/D
2005	4	80	300	2,300	25.0%
2006	3	90	200	240	0.0%
2007	3	40	40	520	33.3%
2008	2	120	120	120	0.0%
2009	3	60	2,500	3,800	66.7%
2010	4	25	275	1,100	50.0%
2011	5	90	270	960	40.0%
2012	5	64	120	310	0.0%
2013	7	60	100	1,300	14.3%
2014	4	24	91	290	0.0%



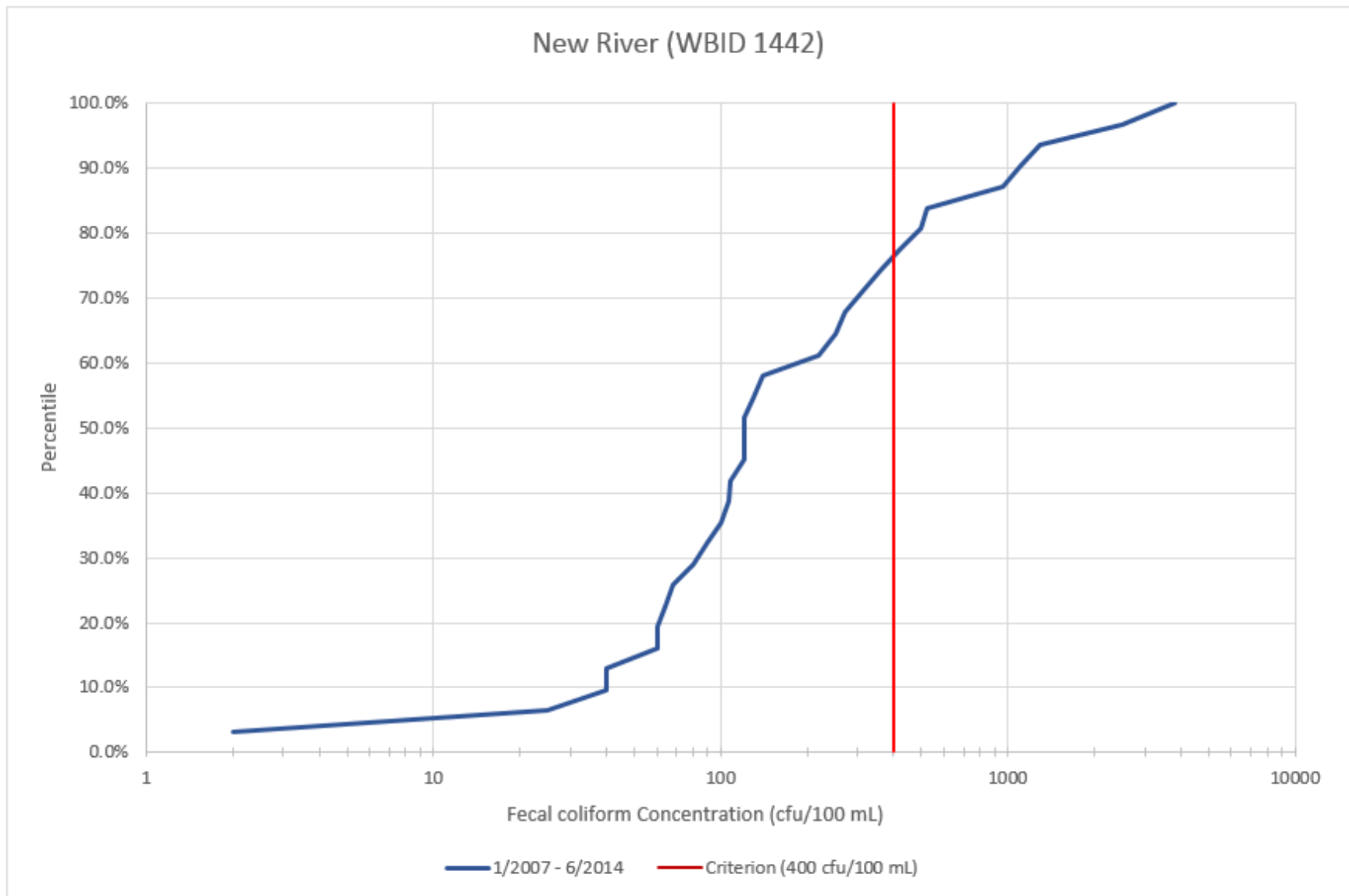


FIGURE 5: CUMULATIVE FREQUENCY OF FECAL COLIFORM RESULTS IN NEW RIVER COMPARED WITH THE WATER QUALITY CRITERION

2.5.3 SPARTMAN BRANCH

In 2002, there were several high fecal coliform spikes; however, more recently, the results in Spartman Branch were much closer to the state criterion (**Figure 6**). The median fecal coliform value was fairly low in most years, with a spike in 2009 (see **Table 9**). **Figure 7** shows the cumulative percentage of the fecal coliform results in Spartman Branch and how they compare with the criterion of 400 cfu/100mL.

TABLE 9: SUMMARY OF FECAL COLIFORM DATA FOR SPARTMAN BRANCH, 2002–14

N/D = No data

YEAR	NUMBER OF SAMPLES	MINIMUM VALUE (CFU/100ML)	MEDIAN VALUE (CFU/100ML)	MAXIMUM VALUE (CFU/100ML)	% EXCEEDANCES OVER 400 CFU/100ML
2002	21	1	115	4,300	19.0%
2003	N/D	N/D	N/D	N/D	N/D
2004	N/D	N/D	N/D	N/D	N/D
2005	3	400	500	800	66.7%
2006	1	400	400	400	0.0%
2007	3	20	300	480	33.3%
2008	3	100	180	180	0.0%
2009	2	120	970	1,820	50.0%
2010	3	140	280	440	33.3%
2011	3	100	180	260	0.0%
2012	N/D	N/D	N/D	N/D	N/D
2013	2	140	330	520	50.0%
2014	1	120	120	120	0.0%

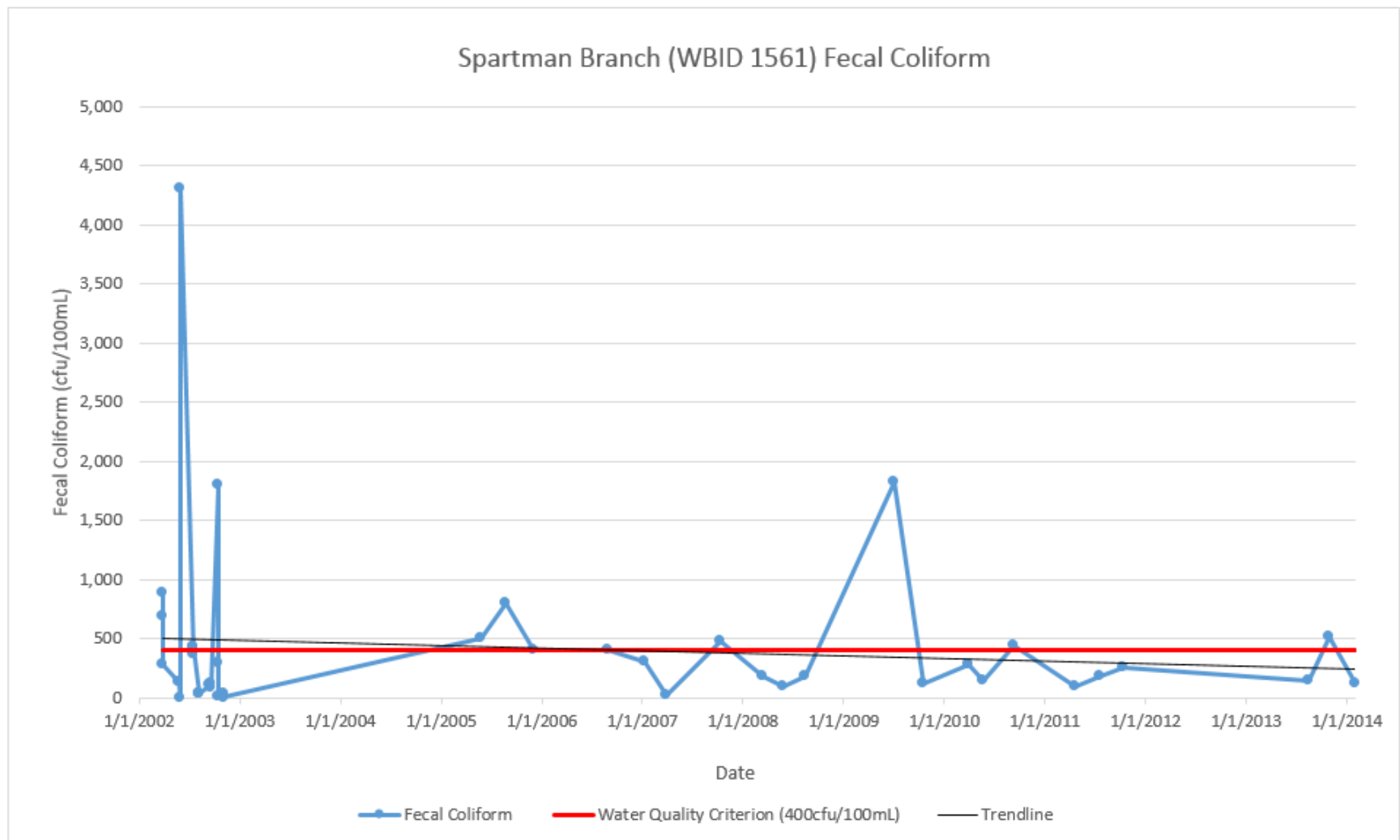


FIGURE 6: FECAL COLIFORM COUNTS IN SPARTMAN BRANCH, 2002–14, COMPARED WITH THE STATE WATER QUALITY CRITERION

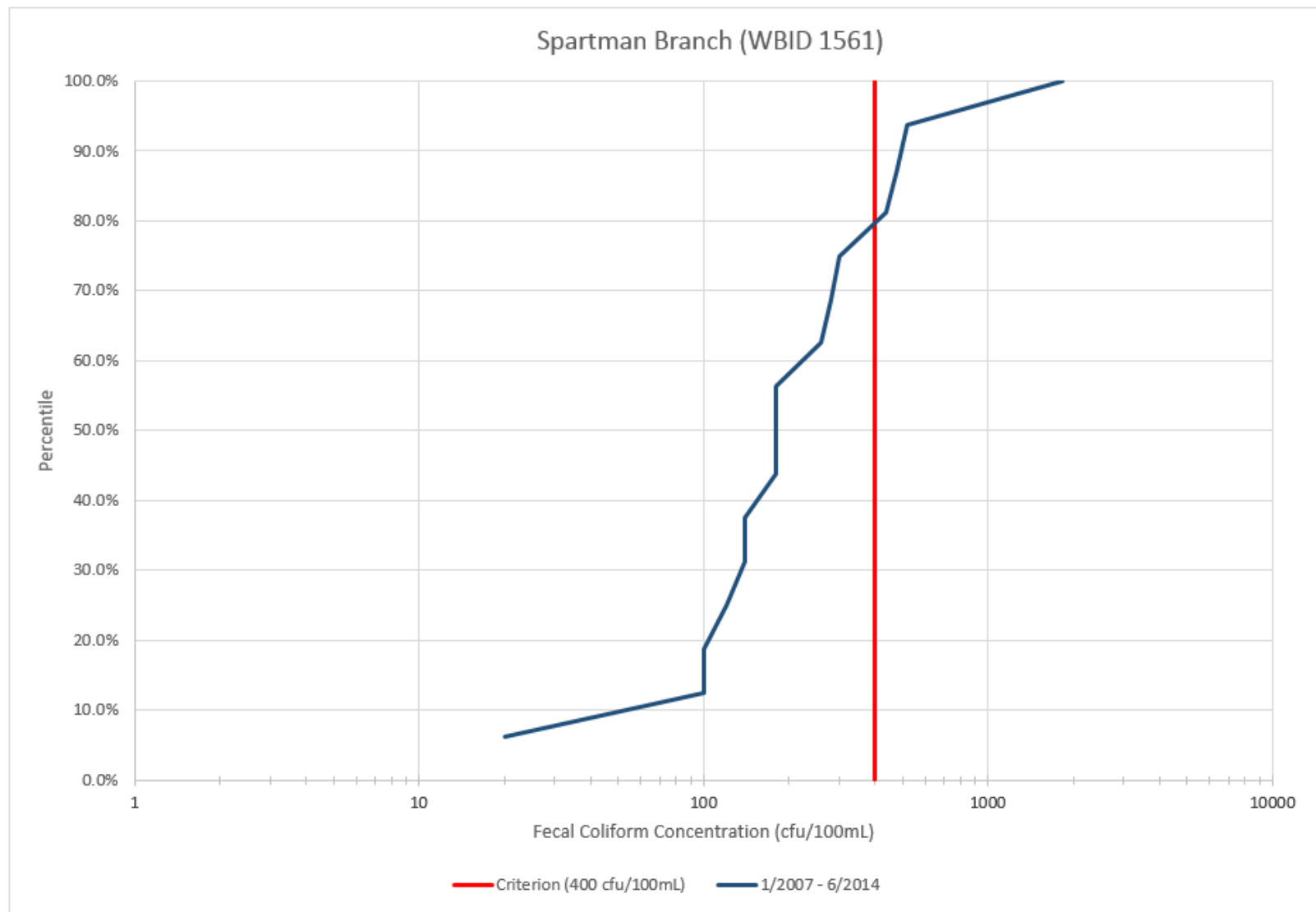


FIGURE 7: CUMULATIVE FREQUENCY OF FECAL COLIFORM RESULTS IN SPARTMAN BRANCH COMPARED WITH THE WATER QUALITY CRITERION

2.5.4 BAKER CREEK

As seen in **Table 10**, there were frequent exceedances of the 400 cfu/100mL state criterion in Baker Creek. However, the percentage of exceedances and the median fecal coliform count decreased over the period from 2002 to 2014 (see **Table 10**). **Figure 9** shows the cumulative percentage of the fecal coliform results in Baker Creek and how they compare with the criterion of 400 cfu/100mL.

TABLE 10: SUMMARY OF FECAL COLIFORM DATA FOR BAKER CREEK, 2002–14

YEAR	NUMBER OF SAMPLES	MINIMUM VALUE (CFU/100ML)	MEDIAN VALUE (CFU/100ML)	MAXIMUM VALUE (CFU/100ML)	% EXCEEDANCES OVER 400 CFU/100ML
2002	12	20	285	960	41.7%
2003	12	100	220	680	25.0%
2004	12	20	620	1,900	58.3%
2005	12	100	430	2,000	50.0%
2006	11	40	340	20,000	36.4%
2007	12	20	150	640	25.0%
2008	12	20	160	4,000	25.0%
2009	12	20	140	1,260	16.7%
2010	12	60	310	4,000	41.7%
2011	11	40	80	360	0.0%
2012	1	55	55	55	0.0%
2013	4	120	290	4,000	25.0%
2014	1	180	180	180	0.0%

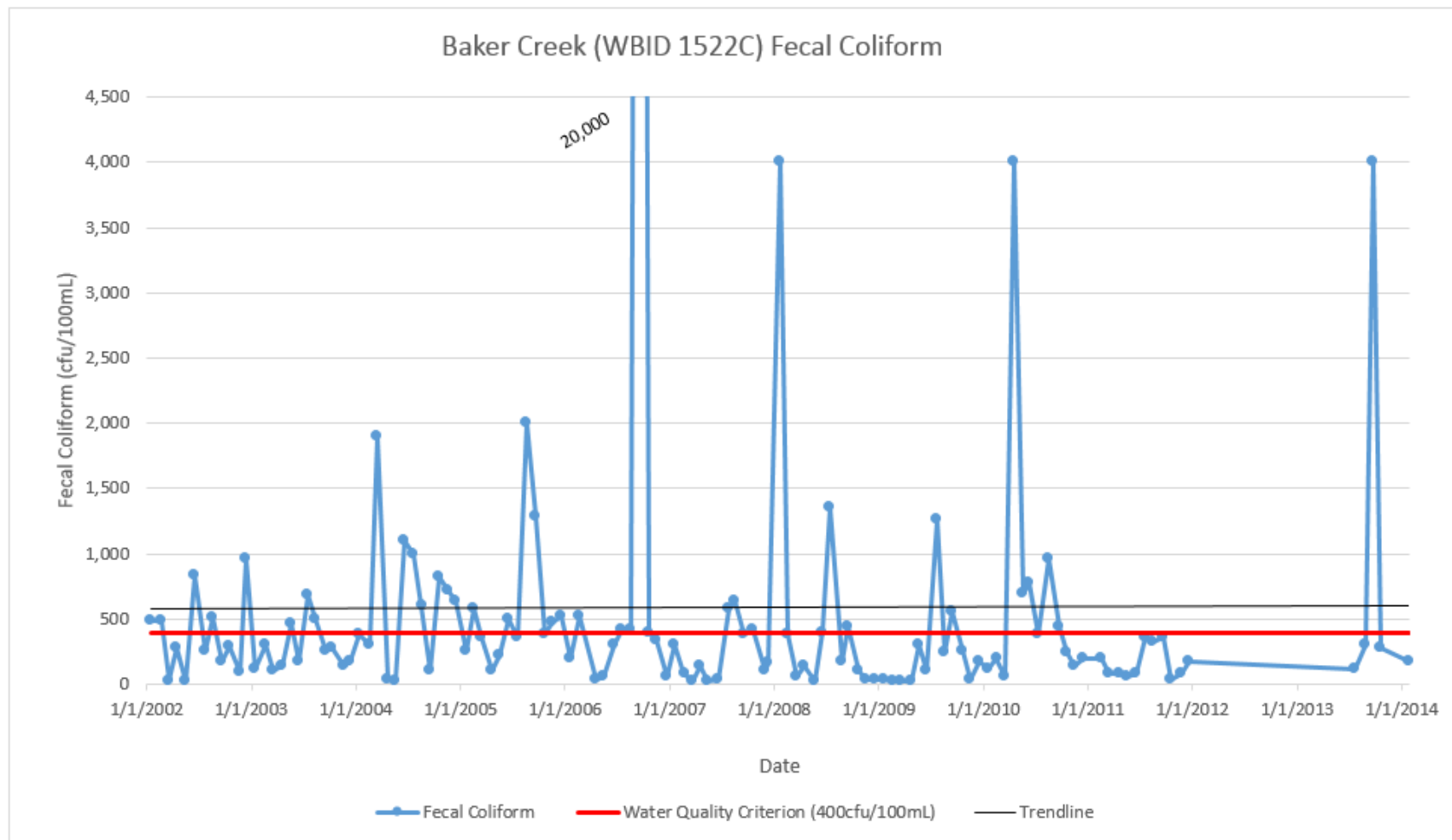


FIGURE 8: FECAL COLIFORM COUNTS IN BAKER CREEK, 2002-14, COMPARED WITH THE STATE WATER QUALITY CRITERION

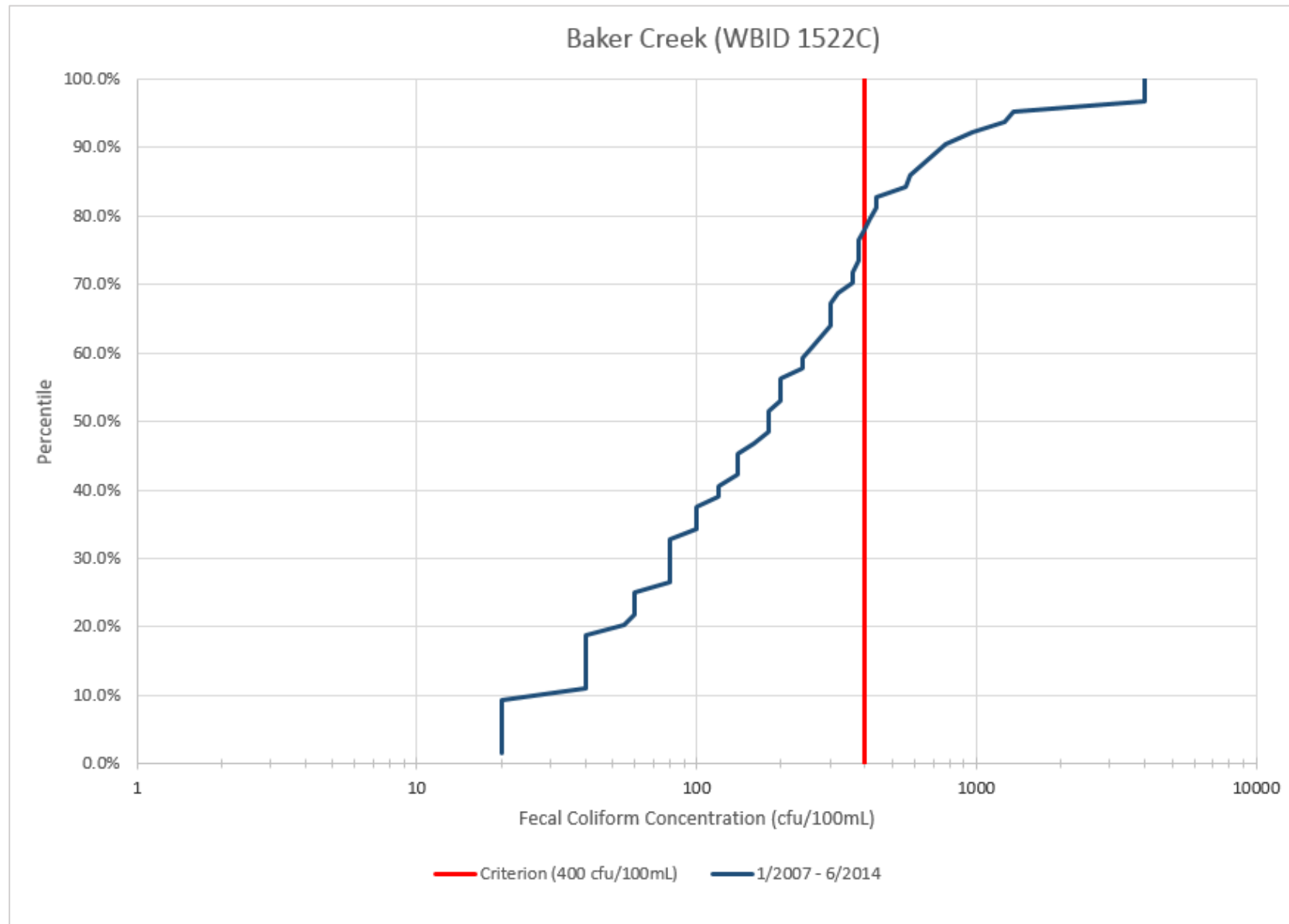


FIGURE 9: CUMULATIVE FREQUENCY OF FECAL COLIFORM RESULTS IN BAKER CREEK COMPARED WITH THE WATER QUALITY CRITERION

2.5.5 FLINT CREEK

In more recent years, a few high fecal coliform counts were detected in Flint Creek (see **Figure 10**). The percent exceedances and the median fecal coliform value also increased over the period from 2002 to 2013, with a decrease in 2014 (based on available data) (see **Table 11**). **Figure 11** shows the cumulative percentage of the fecal coliform results in Flint Creek and how they compare with the criterion of 400 cfu/100mL.

TABLE 11: SUMMARY OF FECAL COLIFORM DATA FOR FLINT CREEK, 2002–14

YEAR	NUMBER OF SAMPLES	MINIMUM VALUE (CFU/100ML)	MEDIAN VALUE (CFU/100ML)	MAXIMUM VALUE (CFU/100ML)	% EXCEEDANCES OVER 400 CFU/100ML
2002	12	60	275	1,920	25.0%
2003	12	60	170	1,120	16.7%
2004	12	80	150	5,200	33.3%
2005	13	60	160	3,500	23.1%
2006	12	40	140	640	16.7%
2007	12	20	230	4,000	41.7%
2008	12	60	210	880	33.3%
2009	11	20	180	16,000	36.4%
2010	12	20	240	1,840	16.7%
2011	11	60	260	4,000	45.5%
2012	10	153	400	27,600	50.0%
2013	4	120	640	1,700	50.0%
2014	2	40	140	240	0.0%

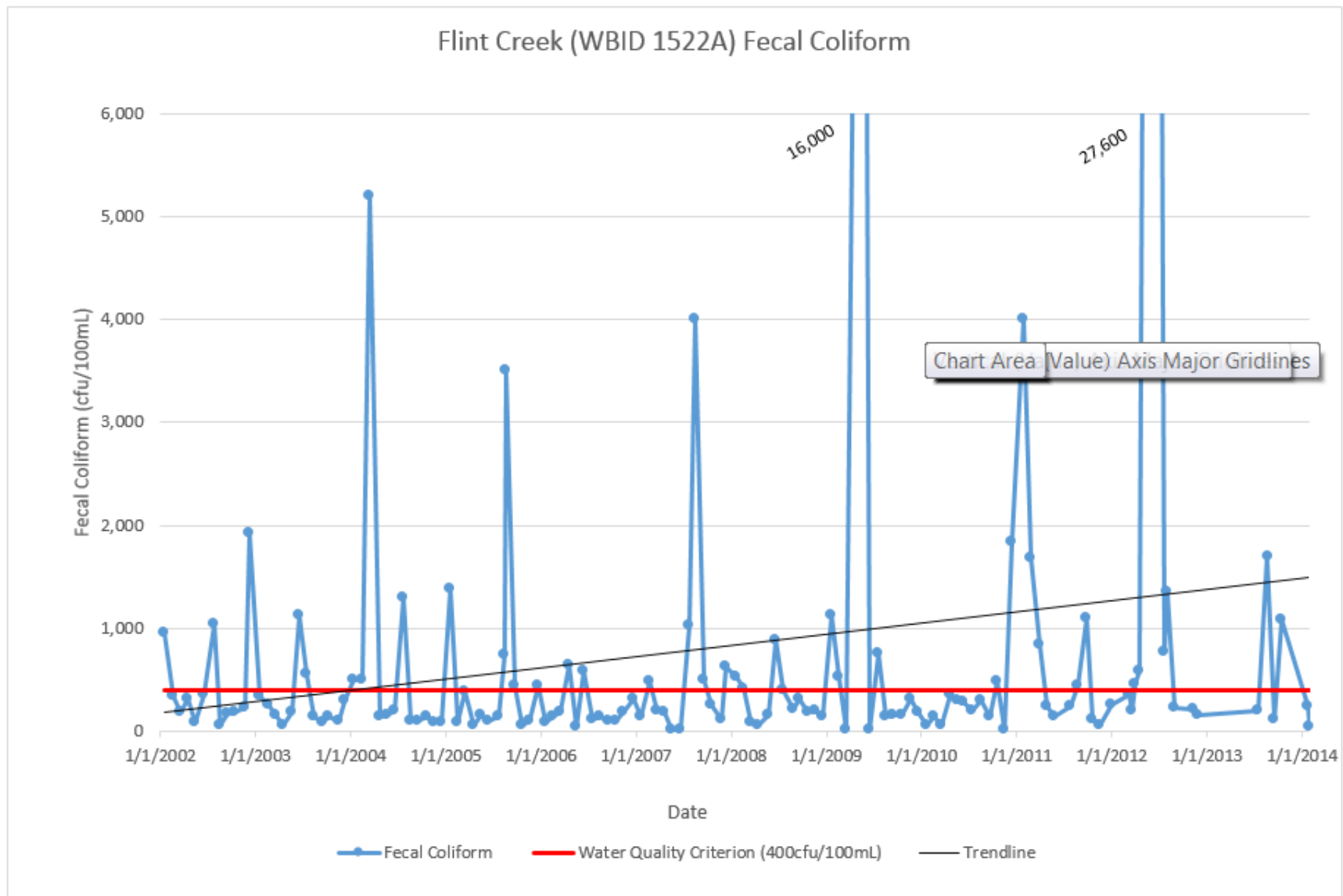


FIGURE 10: FECAL COLIFORM COUNTS IN FLINT CREEK, 2002–14, COMPARED WITH THE STATE WATER QUALITY CRITERION

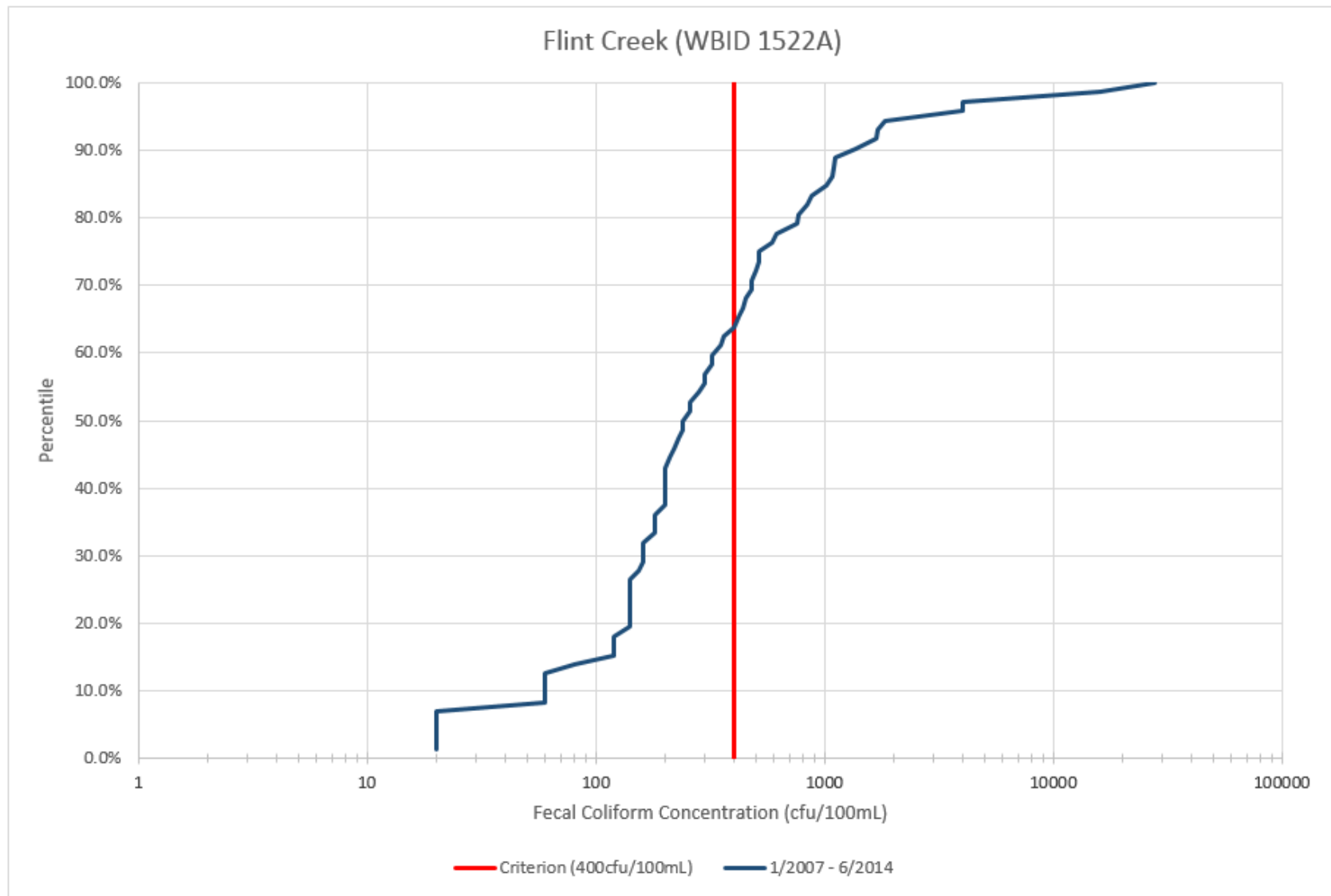


FIGURE 11: CUMULATIVE FREQUENCY OF FECAL COLIFORM RESULTS IN FLINT CREEK COMPARED WITH THE WATER QUALITY CRITERION

2.5.6 LOWER HILLSBOROUGH RIVER

In the Lower Hillsborough River, fecal coliform counts periodically spiked over the period from 2002 to 2014 (see **Figure 12**). The median fecal coliform value was relatively low, although the median value in 2013 was higher than in the past (see **Table 12**). **Figure 13** shows the cumulative percentage of the fecal coliform results in Lower Hillsborough River and how they compare with the criterion of 400 cfu/100mL.

TABLE 12: SUMMARY OF FECAL COLIFORM DATA FOR THE LOWER HILLSBOROUGH RIVER, 2002–14

N/D = No data

YEAR	NUMBER OF SAMPLES	MINIMUM JVALUE (CFU/100ML)	MEDIAN JVALUE (CFU/100ML)	MAXIMUM JVALUE (CFU/100ML)	% EXCEEDANCES OVER 400 CFU/100ML
2002	36	2	100	4,000	16.7%
2003	36	10	100	2,000	13.9%
2004	36	10	10	760	2.8%
2005	36	10	200	3,040	30.6%
2006	35	20	120	16,700	22.9%
2007	47	20	60	4,000	14.9%
2008	36	20	185	4,000	19.4%
2009	48	20	180	12,000	29.2%
2010	46	20	100	4,000	10.9%
2011	48	20	60	4,060	16.7%
2012	N/D	N/D	N/D	N/D	N/D
2013	16	40	829	18,900	68.8%
2014	37	0	100	1,060	16.2%

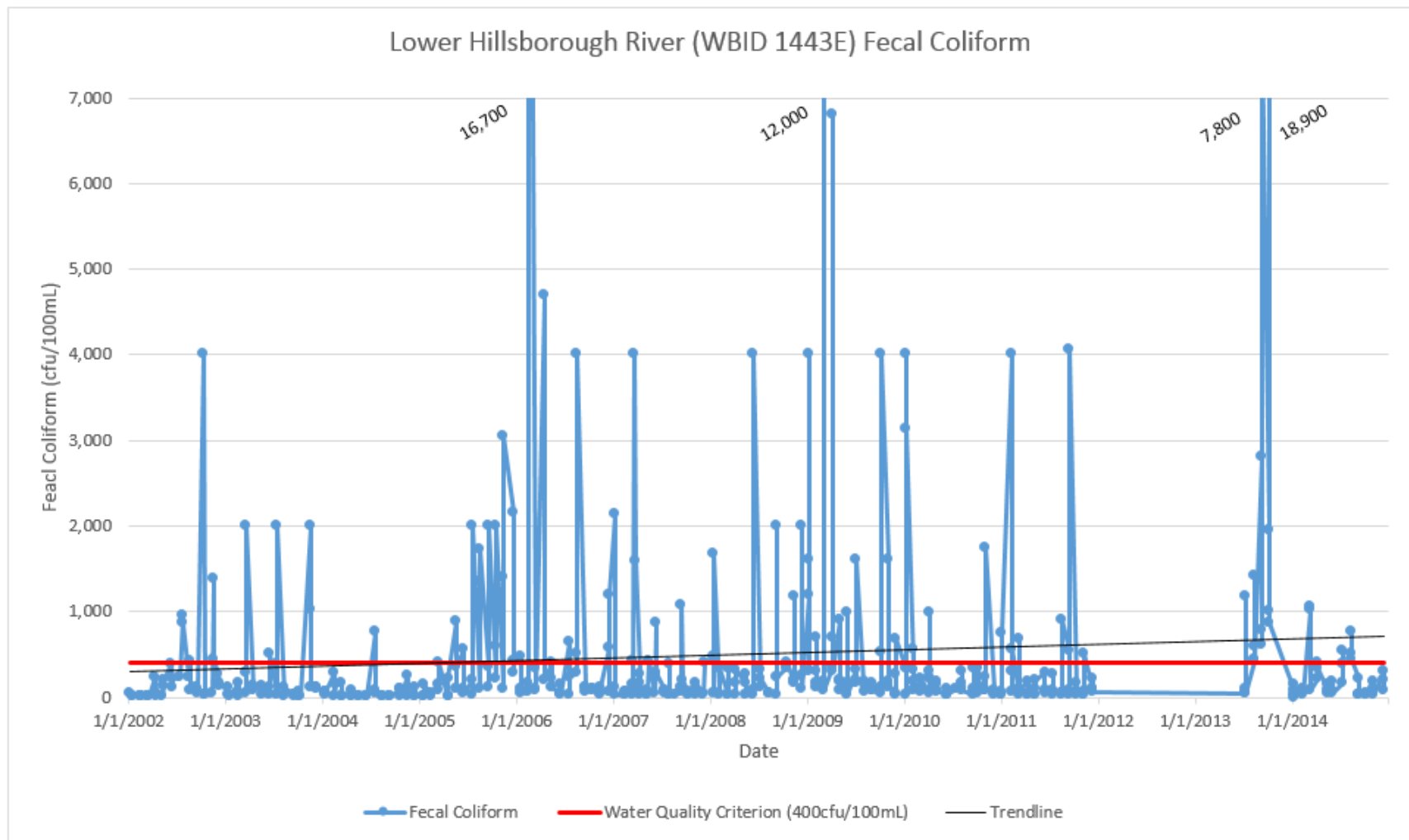


FIGURE 12: FECAL COLIFORM COUNTS IN THE LOWER HILLSBOROUGH RIVER, 2002–14, COMPARED WITH THE STATE WATER QUALITY CRITERION

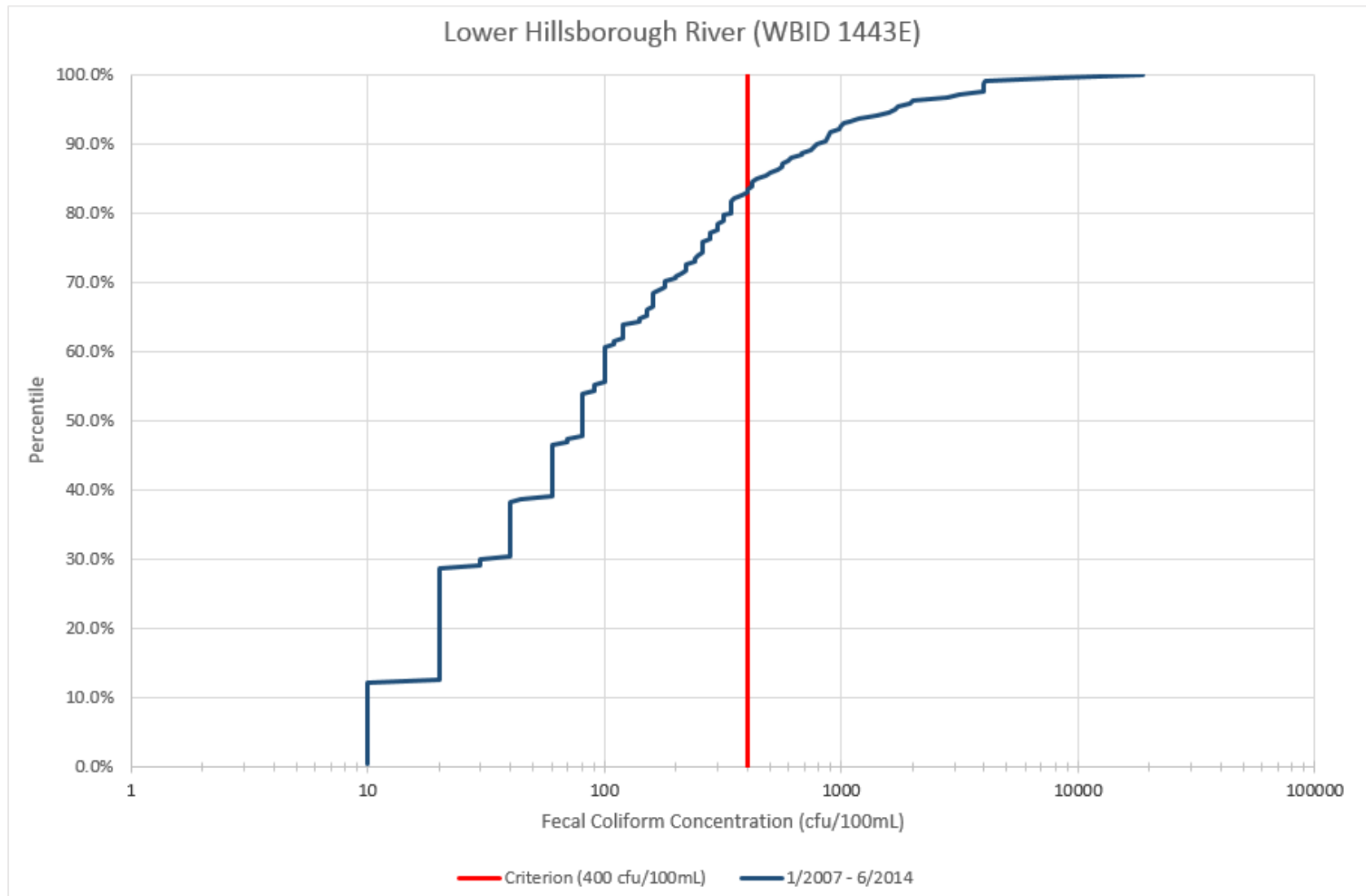


FIGURE 13: CUMULATIVE FREQUENCY OF FECAL COLIFORM RESULTS IN THE LOWER HILLSBOROUGH RIVER COMPARED WITH THE WATER QUALITY CRITERION

SECTION 3: WATER QUALITY MONITORING AND SOURCE ASSESSMENT

3.1 WATER QUALITY MONITORING PLAN

For this second phase of the BMAP, stakeholders will continue monitoring efforts per the monitoring plan utilized during the first phase of BMAP implementation. Monitoring stations are listed by tributary and **Table 13** lists the responsible stakeholders.

The monitoring plan, at a minimum, should establish one station to be sampled in each WBID at least once quarterly for fecal coliform. Adding stations and increasing the sampling frequency to monthly will improve the understanding of the watershed and provide a larger dataset for future assessments. Some tributaries stop flowing when rainfall volumes are low.

As previously mentioned in **Section 2.1**, the department is planning to update the current water quality standard for recreational use from fecal coliform to *E. coli*. Samples will be collected for fecal coliform and/or *E. coli* depending on when the update to the standard occurs. In anticipation of the standard changing from fecal coliform to *E. coli*, discussions among stakeholders are ongoing pertaining to the addition of *E. coli* analysis to existing fecal coliform monitoring in these WBIDs as resources allow. This monitoring plan will be revised when the standards changes have been finalized and adopted. The Environmental Protection Commission of Hillsborough County (EPCHC) may convert monitoring efforts from fecal coliform to *E. coli* in anticipation of this change. Discussions are ongoing to arrange monitoring among entities to collect both fecal coliform and *E. coli* data.

TABLE 13: BMAP MONITORING PLAN

TBD = To be determined based on staff and financial availability

CREEK	SITE	FECAL COLIFORM QUARTERLY IN SAMPLE MONTHS JANUARY, APRIL, JULY, OCTOBER	<i>E. COLI</i> QUARTERLY IN SAMPLE MONTHS JANUARY, APRIL, JULY, OCTOBER	FECAL COLIFORM AND <i>E. COLI</i> IN SAMPLE MONTHS FEBRUARY, MARCH, MAY, JUNE, AUGUST, SEPTEMBER, NOVEMBER, DECEMBER
Blackwater Creek	21FLHILL 143- Blackwater Creek at SR 39	EPCHC	TBD (possibly collected by EPCHC, analyzed by TBD)	TBD (possibly the department)
Blackwater Creek	TBD - 1	City of Lakeland	City of Lakeland	City of Lakeland
Blackwater Creek	TBD - 2	City of Lakeland	City of Lakeland	City of Lakeland
Blackwater Creek	Blackwater Creek (2) at Shady Oak Dr. West.	Polk County	Polk County	
Spartman Branch	21FLHILL 533 – Spartman Branch at Beauchamp Rd.	EPCHC	TBD (possibly collected by EPCHC, analyzed by TBD)	TBD (possibly the department)
Baker Creek	21FLHILL 107 - Baker Creek at Thonotosassa/ Plant City Rd.	EPCHC	TBD (possibly collected by EPCHC, analyzed by TBD)	TBD (possibly the department)
Flint Creek	148 - Flint Creek at U.S. Highway 301	EPCHC	TBD (possibly collected by EPCHC, analyzed by TBD)	TBD (possibly the department)
New River	Site 15 - At Creek Rd.	Pasco County (currently contracted by county)		
New River	523 - New River at Morris Bridge Rd.	EPCHC	TBD (possibly collected by EPCHC, analyzed by TBD)	TBD (possibly the department)
Lower Hillsborough River	152 - Sligh Avenue	EPCHC	TBD (possibly collected by EPCHC, analyzed by TBD)	TBD (possibly the department)
Lower Hillsborough River	137 - Columbus Dr.	EPCHC	TBD (possibly collected by EPCHC, analyzed by TBD)	TBD (possibly the department)
Lower Hillsborough River	2 - Platt St.	EPCHC	TBD (possibly collected by EPCHC, analyzed by TBD)	TBD (possibly the department)

3.2 WALK THE WBID AND SOURCE IDENTIFICATION SAMPLING

During 2014, the department and Hillsborough River BMAP stakeholders conducted an intensive effort to evaluate the impaired tributaries. Representatives of the stakeholders in these tributaries participated in the two main components of this effort: (1) Maps on the Table and (2) Walk the WBID.

For the Maps on the Table exercise, representatives from each entity with local knowledge of the watersheds gathered to review the maps of each watershed to identify the locations of potential sources and areas that needed further investigation. A meeting was held on August 5, 2014, to discuss the watershed maps.

The information from the Maps on the Table exercise was used to assist entity representatives in the field effort, Walk the WBID. The department led a walk with entity representatives in each of the watersheds to investigate areas of concern and to identify potential fecal coliform sources, including areas with conditions conducive to bacteria growth. While in the field, the stakeholders looked for the following potential sources:

- Sanitary sewer lift stations and locations of repeat SSOs.
- Neighborhoods with older sanitary sewer lines.
- Failing septic system areas; soggy drainfields.
- Tail pipes into ditches (wastewater from campers).
- Homeless areas and homeless camps.
- Dog walk areas or dog parks.
- Animal kennels and dumped cat litter.
- Bird rookeries.
- Concentrations of geese and Muscovy ducks, and areas where ducks are fed.
- Farm animals, hobby farms, and horses.

- Wild hogs, raccoons, and other wild animals.
- Rotting biological material around dumpsters; open or rusty dumpsters.
- Trash, garbage dumping, food waste, and used diapers.
- Grease behind restaurants.
- Stormwater blockages such as trash and debris.
- Stormwater conveyances in need of maintenance.
- Overgrown stormwater treatment ponds.
- Areas prone to flooding.
- Ideal breeding conditions created by low flows, sediment, and shady conditions.

A Walk the WBID was held on September 4, 2014, for Blackwater Creek and Flint Creek. A second walk was held on September 10, 2014, for the Lower Hillsborough River and Spartman Branch. The final walk was held on September 24, 2014, for the New River. Detailed notes and photographs of potential sources and issues needing corrective action were taken for each watershed. The department prepared separate reports with the detailed findings from each walk. Baker Creek was not walked because it is a short canal, and the department and stakeholders agreed that it did not need to be investigated by the team. Instead, the Hillsborough County Public Works Department (HCPWD) collected source identification samples for the department.

The county used these sampling and reconnaissance trips to identify potential sources of fecal coliform. This work resulted in the identification of failing OSTDS in the contributing watershed. Additional source identification monitoring will be conducted to further identify potential sources during the second phase.

In addition, the department and Hillsborough County collected samples to identify locations with potential human waste contributions to the impairments. Samples were evaluated using quantitative polymerase chain reaction (qPCR) and a human marker to determine whether the bacteria in an area

were from a human source. Untreated human waste is the main source that needs to be addressed from a human health perspective.

The qPCR evaluation was coupled with a sucralose analysis and an acetaminophen analysis. Sucralose is an artificial sweetener not found in nature, and so its presence indicates a human waste source. However, sucralose passes through the wastewater treatment process; thus it is found in reuse water and treated effluent, as well as untreated sewage and effluent from OSTDS. Acetaminophen is a pain reliever; like sucralose, it is not found in nature. Its presence indicates an untreated human wastewater source because acetaminophen is typically removed from waste streams during the treatment process. Sampling stations where acetaminophen is present are targeted for source elimination because the presence of acetaminophen results in the highest confidence level that a raw wastewater source is located within a three-day travel time from the station location.

Acetaminophen and sucralose are commonly found at similar levels in raw human wastewater entering wastewater treatment facilities. When both products are found in waterbody samples at similar levels, they indicate at least one raw wastewater source, such as a leak in a sewage collection system that services multiple households, is contributing to the impairment. If a household serviced by an OSTDS does not use one or both products and has a raw sewage leak to the waterbody, the qPCR alone may be enough indication of the presence of human waste to assist field staff in locating the source. Many confounding factors—such as intermittent discharges compared with time of sampling, tidally influenced flow direction, dilution, and others—can make source identification very difficult and time consuming.

The source identification sampling that occurred during 2014 is only the first step in a larger assessment project for these tributaries. The department will collect additional data to represent different hydrologic conditions and will follow up on the initial findings. As resources are available, the department intends to pursue the scientific tools and laboratory capacity for additional source identification tools—such as additional genetic markers—to further assist in identifying different kinds of sources in the field. Based on the results of the source identification sampling, as well as the routine BMAP monitoring, the stakeholders will take actions to address the sources identified (see **Section 2.3**).

3.3 COUNTYWIDE AND CITYWIDE PROGRAMS IN THE HILLSBOROUGH RIVER BASIN

Several programs and projects are conducted on a countywide level. These activities are summarized below, and the original BMAP describes waterbody-specific efforts associated with these programs. The new management strategies that are being added to this BMAP are described below.

3.3.1 HILLSBOROUGH COUNTY

3.3.1.1 Countywide Programs

The description of the HCPWD management actions in this section is pending board approval. The HCPWD is responsible for managing the county-operated municipal separate storm sewer system (MS4) in unincorporated Hillsborough County and conducts routine maintenance of that system in the BMAP areas. In addition, the HCPWD operates countywide programs in compliance with the National Pollutant Discharge Elimination System (NPDES) permit. It has established a monitoring plan to identify areas of potential fecal coliform contamination. The HCPWD operates several public education programs that distribute educational materials, assist in storm drain marking, and conduct public outreach. The HCPWD also promotes multiple avenues for public reporting of illicit discharges and connections. HCPWD staff conduct site investigations of illicit discharge complaints and direct the resolution of discharges to appropriate agencies (EPCHC, Code Enforcement, FDOH, FDACS, or the department). HCPWD also conducts other pollutant source tracking activities where necessary and in conjunction with MS4 pollutant load reduction activities.

Hillsborough County has several ongoing programs. The county's LakeWatch Program, which began in 2001, is a public education program that emphasizes pollution prevention and best management practices (BMPs) through volunteer monitoring networks on lakes. The program includes data collection and sample analysis at 73 active sites. The county also has the Lake Management Program, which includes water quality and habitat assessments, public education, and ecologically appropriate lake management. The county conducts 24 assessments per year with management as necessary. In addition, the county's Stormwater Ecologist Education Program engages students in critical thinking activities, demonstrations, and volunteer projects that highlight stormwater pollution and address pet waste, agricultural waste, septic systems, and water treatment overflow as they relate to stormwater pollution.

Hillsborough County has an interactive watershed atlas that provides comprehensive data resources and helps citizens and scientists make informed decisions on water resources. Educational elements are built into the atlas, such as informing the public of stormwater systems, pollution, and TMDL activities. In 2006, the Hillsborough Land Development Code was amended, and Section 4.01.16, River Protection, was added. This section requires 200-foot setbacks to the Hillsborough, Alafia, and Little Manatee Rivers and their primary tributaries.

In addition, in 2009, the county conducted a social marketing study on the effectiveness of pet waste public education versus ordinance enforcement. The research resulted in a number of recommendations, including the following:

- Create a pet waste education campaign for the county.
- Engage certain organizations such as homeowner associations and professions such as dog trainers to promote the educational message.
- Provide biodegradable bags to the public.
- Provide dog waste disposal containers in high-traffic areas.
- Enforce the pet waste ordinance with fines.

Hillsborough County also has delegated permitting authority for non-NPDES wastewater treatment facilities, including private lift stations, in the county.

Many of the ongoing projects from Phase 1 will continue during Phase 2 and are listed in **Table 14**. Project names that begin with “BWC” are in Blackwater Creek, “LHR” designates projects in the Lower Hillsborough River, and projects labeled “SBF” are in Spartman Branch. Projects that were not listed in the Phase 1 adopted BMAP document are labeled “PH2” and pertain to all of the BMAP WBIDs, excluding the New River.

TABLE 14: HCPWD ONGOING PROJECTS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
PH2-06	Lake and Stream Management Program	All watersheds	HCPWD	Ongoing			
BWC-26	Septic System Complaint Response	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	HCHD/EPCHC Water Management Division	Ongoing	\$500/-		
PH2-09	Tools for Public Reporting of Illicit Discharges		HCPWD	Ongoing			
BWC-30, LHR-30, NR-16	SSO Database	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	EPCHC Water Management Division / -	Ongoing			
BWC-48, SBF-37	Evaluation of Progress Towards Water Quality Improvements	Restoration and Water Quality Improvement	EPCHC	Ongoing			Results of monitoring programs are used to assess progress toward water quality improvements. Monitoring results will be reviewed annually to determine water quality trends over time. Results will be used to guide further actions as necessary to reach restoration.
LHR-13	Stormwater Research Facility at 132 nd and Taliaferro	Basic Stormwater Management Program Implementation	Hillsborough County	Ongoing	\$1.4 million		Stormwater Department constructed retention pond along Sligh Ave. in Lowry Park Zoo. Retention pond accepts drainage from ditch via west, provides treatment to this drainage, and then discharges via ditch to Lower Hillsborough River.

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
LHR-27, BWC-28, NR-13, SF-20	Private Pump Station Identification and Compliance Program	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	EPCHC Water Management Division	Ongoing (since 2005)	Ongoing: \$22,200 total costs annually since 2005; no additional funding; project absorbed in annual personnel and operating costs. Possible: One full-time equivalent (FTE) funded at Environmental Scientist II level/-		Identify private pump stations in cities of Tampa, Plant City, and Temple Terrace. Establish compliance inspection program to reduce number of SSOs from private pump stations.
LHR-33, SBF-24, BWC-32	Bacterial Contamination Complaint Response to Hillsborough County Health Department	Basic Stormwater Management Program Implementation	EPCHC	Ongoing			Bacterial contamination complaints received by EPCHC possibly caused by septic system failure; complaints forwarded to HCHD for follow-up. All watersheds.
BWC-11, LHR-8, SBF-10	LakeWatch and Hillsborough County Stream Water Watch	Special Studies, Planning, Monitoring, and Assessment	HCPWD	Ongoing (since 2001)	\$116,000 (covers about 125 active sites throughout county)	Stormwater operating budget and SWFWMD cooperative funding	Public education on pollution prevention and BMPs through volunteer monitoring networks on lakes and streams in Hillsborough County. Includes data analysis of samples collected for nutrients.
BWC-9, LHR-6, NR-9, SBF-8	Stormwater Ecologist Education Program	Education and Outreach Efforts	HCPWD/ SWFWMD	Ongoing	\$9,000 annual countywide educational program/ stormwater fee plus cooperative funding	Stormwater fee plus cooperative funding	Program targets 3 rd through 12 th grades. Students participate in critical thinking activities, demonstrations, and volunteer projects that highlight stormwater pollution and address pet waste, agricultural waste, septic systems, and water treatment plant overflow as they relate to stormwater pollution.

3.3.1.2 Walk the WBID Follow-Up

The HCPWD will participate in the Hillsborough Tributaries BMAP Monitoring Team (HTBMT) monthly coordination calls. HCPWD will assist the department in following up on source identification results that indicate a human source in areas with HCPWD MS4 infrastructure or otherwise under HCPWD's jurisdiction. The HCPWD will continue to operate countywide public education programs (Adopt a Pond, Lake Management Program, Stream Management Program, Stormwater Ecologist) and support existing regional programs (Keep Tampa Bay Beautiful, University of Florida LakeWatch). These programs promote community awareness of waterbody health and may include school presentations, educational materials, quarterly newsletter, trash cleanups, and other activities, as appropriate. In addition, the HCPWD will address any action items identified as a result of the 2014 Walk the WBID that relate to its jurisdiction, authority, and responsibility. **Table 15** summarizes the HCPWD's Walk the WBID follow-up activities.

TABLE 15: HCPWD WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE
HCPWD-284	Participate in HTBMT Calls and Efforts	Participate in monthly HTBMT coordination calls and other HTBMT efforts.	Ongoing	Unknown	HCPWD
HCPWD-285	Source Identification Follow-Up	Assist department in following up on source identification results that indicate human source.	Ongoing	Unknown	HCPWD
HCPWD-290	Walk the WBID Follow-Up	Address any action items identified as result of 2014 Walk the WBID that are in its jurisdiction and subject to its authority and responsibility.	Ongoing	Unknown	HCPWD
HCPWD-291	Public Education	Operate countywide public education programs and support existing regional programs.	Ongoing	Unknown	HCPWD

3.3.2 PASCO COUNTY

3.3.2.1 Countywide Programs

Programs implemented countywide by Pasco County to achieve compliance with its Phase I MS4 permit include the following:

- Quarterly trend monitoring.
- Sediment sampling.

- Biological monitoring.
- Proactive and reactive illicit discharge detection and elimination (IDDE) inspections.
- IDDE training for county personnel and contractors.
- Stormwater facilities inspection program.
- Litter control program, including an Adopt-A-Road Program.
- Street sweeping.
- Adoption of a Florida-friendly landscaping ordinance.
- High risk facility inspections.
- Public education and outreach.

Pasco County's IDDE inspection and training program is particularly robust. The county established 3,700 locations that it inspects proactively at least once during each five-year permit cycle. County staff and contractors who work in the field are required to view an IDDE training video to learn how to identify and report suspected illicit discharges. The video is available online on the [Pasco County website](#).

Public education and outreach is a critical component of the IDDE Program. In addition to the online video, the public education and outreach efforts include public displays and public service announcements (PSAs), brochures, flyers, and fact sheets; neighborhood and school presentations; seminars and workshops; special events; and newspaper articles and newsletters. Public education includes school presentations that have been given to thousands of students. The county also investigates citizen complaints, some of which result in fines where violations are found. The Pasco County projects listed in **Table 16** are ongoing from Phase 1.

TABLE 16: PASCO COUNTY ONGOING PROJECTS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING
NR-10	New River and Hillsborough River Watershed Management Plans in Pasco County	Basic Stormwater Management Program Implementation	Pasco County/ SWFWMD	Ongoing	\$1,600,000 (four-year program funding)	Pasco County, SWFWMD
NR-15	Fecal Coliform Quarterly Monitoring—Pasco County	Special Studies, Planning, Monitoring, and Assessment	Pasco County	Ongoing	\$6,000 annually for three years	

3.3.2.2 Walk the WBID Follow-Up

Pasco County will participate in the HTBMT monthly coordination calls. It will assist the department in following up on source identification results that indicate a human source in areas with Pasco County MS4 infrastructure or otherwise under Pasco County's jurisdiction. Pasco County will continue quarterly sampling at Site 15, New River at Creek Road, unless the river is not flowing at the monitoring station, in which case no sample will be taken.

In addition, Pasco County will establish a monitoring station in the Trout Creek (WBID 1455) watershed. Although Trout Creek is not included in this BMAP, it is a tributary to the Hillsborough River and has an adopted department fecal coliform TMDL. Pasco County will be required to address this TMDL during its next MS4 permit cycle. The Trout Creek TMDL was established using data from just one sampling location in Hillsborough County. The establishment of an upstream station in Pasco County will provide a better understanding of Pasco County's contribution to the impairment and provide guidance on appropriate management actions. Data from both sites will be uploaded to STORET at least once per year.

In addition, Pasco County will explore options to add *E. coli* analysis to its contract for the BMAP monitoring station. The addition of *E. coli* sampling is contingent on the Pasco County Environmental Laboratory obtaining certification to conduct these analyses. Once the laboratory is certified, additional analyses will be phased in as funding allows.

Table 17 summarizes Pasco County’s Walk the WBID follow-up activities.

TABLE 17: PASCO COUNTY WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE
PC-284	Participate in HTBMT Calls	Participate in monthly HTBMT coordination calls.	Ongoing	Unknown	PC
PC-285	Source Identification Follow-Up	Assist department in following up on source identification results that indicate human source.	Ongoing	Unknown	PC
PC-286	Assistance with Sample Analysis	Carry out BMAP monitoring for fecal coliform, with adjustments made as needed, and follow up on high counts per HTBMT protocol.	Ongoing	Unknown	PC
PC-288	MS4 Permit Implementation	Continue proactive illicit discharge detection and elimination program and respond to citizen complaints regarding potential illicit connections. Continue ongoing public education efforts.	Ongoing	Unknown	PC
PC-290	Walk the WBID Follow-Up	Address mutually agreed-on action items identified as result of 2014 Walk the WBID.	Ongoing	Unknown	PC

3.3.3 POLK COUNTY

3.3.3.1 Countywide Programs

Polk County has established a monitoring plan to evaluate the effectiveness of the Stormwater Management Program and the associated pollutant reduction from MS4 systems to waters of the state in Blackwater Creek. The monitoring plan is a requirement of Part V.B. of the county’s NPDES MS4 permit and supported by Title 40 of the Code of Federal Regulations, Part 122.26(d)(2)(iii). In addition to routine monitoring, county water resources staff will conduct supplemental sampling to help identify potential sources of fecal coliform and *E. coli* contamination, as described below.

The county’s Parks and Natural Resources Division Drainage Group (soon to be included in the Transportation and Drainage Division) is responsible for maintaining the county’s stormwater conveyance systems. County water resources staff implement the MS4 Illicit Discharge Program. Records of reported illicit discharges are maintained in a database, and a determination is made to identify whether site visits are necessary. Water resources inspectors conduct the site visits and talk both to the people who live on the site, and their neighbors, to verify the nature of the issue. If there is a known or suspected discharge, the inspector will investigate in order to direct the resolution of the discharge to the appropriate entity (Code Enforcement, FDOH, or the department). If necessary, a sample of the discharge may be collected to determine its nature. County staff may provide advice to

the involved individual(s) in remedying the situation and will return to ensure that the connection has been removed.

Educational outreach is another vital part of the county's MS4 Program. Water resources staff provide this service by distributing materials to the public such as educational pamphlets and informational door hangers, appearing at public education functions, and implementing a storm drain-stenciling program. The county and co-permittees also have several continuing PSAs to address pet waste and other topics. The county hosts erosion and sediment control certification classes annually.

Ongoing programs listed in the Phase 1 document will continue through Phase 2, as shown in **Table 18**. Polk County projects are in Blackwater Creek, and many extend throughout Polk County. Projects BWC-49 through BWC-58 in the table were not listed in the Phase 1 BMAP document.

TABLE 18: POLK COUNTY ONGOING PROGRAMS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
BWC-13	Polk County Land Development Regulations	Regulation, Ordinances, and Guidelines	Polk County	Completed (2000); LID updates ongoing			Adopted in 2000, contains many ordinances, including Surface Water Protection Ordinance. Development within 200 feet ordinary high water line (OHWL) of lakes and streams, enhanced septic tank drainfield location requirements. Requires undisturbed vegetative buffer averaging 25 feet wide (15-foot minimum) to all jurisdictional wetland lines or surface waters. Requires revegetation of surface water protection zone following construction. Additional limitations specific to mining activities in this zone are also included.
BWC-39	Drainage Maintenance on Blackwater Creek	Structural BMPs	Polk County/ -	Ongoing	\$9,000		Annual removal of debris and snags from Blackwater Creek for past five years.
BWC-34	Drainage Maintenance on Blackwater Creek	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	Polk County	Ongoing	\$500		Ongoing annual countywide public health education program distributed via permit issuance.
BWC-40	Water Quality Ambient Monitoring for Blackwater Creek	Special Studies, Planning, Monitoring, and Assessment	Polk County	Ongoing	\$5,200		Yearly monitoring of water quality in Blackwater Creek.
BWC-41	Illicit Discharge Complaint Investigations	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	Polk County	Ongoing			Complaint investigations of NPDES illicit discharges annually on Blackwater Creek and Itchepackesassa Creek.
BWC-43	Routine Maintenance Erosion Control	Structural BMPs	Polk County/-	Ongoing	\$25,000/ General Fund-		Routine erosion control maintenance countywide.

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
BWC-44	Municipal Service Taxing Unit	Regulation, Ordinances, and Guidelines	Polk County	2013	~ \$1 million/yr		
BWC-46	Pet Waste Pickup Campaign	Education and Outreach Efforts	Polk County/ Lake Education Action Drive	Ongoing	\$2,000		Provide educational materials and portable pet waste bag containers at public functions.
BWC-47	Monitoring for <i>E. coli</i>	Special Studies, Planning, Monitoring, and Assessment	Polk County	2015			Expand ambient monitoring program to include <i>E. coli</i> .
BWC-48	Stormwater Inlet Labeling	Basic Stormwater Management	Polk County	Ongoing	\$1,000		Affix “Do Not Dump” decals on stormwater inlets.
BWC-49	Sanitary Sewer Overflow Database	Wastewater Infrastructure Management	Polk County	Ongoing			
BWC-50	Environmental Public Education Programs at Circle B Preserve	Education and Outreach Efforts	Polk County Natural Resources	Ongoing	\$60,000/yr		Student ecology programs given at Circle Bar Preserve Education Center.
BWC-51	Sanitary Sewer Line Maintenance Program	Wastewater Infrastructure Management	Polk County	Ongoing			Inspect and repair sanitary sewer lines (1.5 miles in Blackwater Creek).
BWC-58	Inspection of Stormwater Facilities at Industrial Facilities	Special Studies, Planning, Monitoring, and Assessment	Polk County	Ongoing	\$1,200/ General Fund		
BWC-59	Sanitary Sewer Line Inflow & Infiltration (I&I) Program	Wastewater Infrastructure Management	Polk County				Conduct I&I testing on sewer lines (1.5 miles in Blackwater Creek).
BWC-60	Septic Tank Complaint Response	Regulation, Ordinances, and Guidelines	Polk County	Ongoing			Respond to complaints; coordinate with FDOH and Code Enforcement.

3.3.3.2 Walk the WBID Follow-Up

Polk County will participate in the HTBMT coordination calls and efforts. The county will assist the department in following up on source identification results that indicate a human source in areas with Polk County MS4 infrastructure or otherwise under Polk County's jurisdiction. Polk County will monitor one BMAP monitoring station (Site BLACKWATER Crk2) quarterly, as conditions allow, with adjustments made as needed, and will follow up on high (over 5,000 cfu/100mL) counts per the HTBMT protocol. Polk County will analyze samples for both fecal coliform and *E. coli*. These new *E. coli* analyses will be initiated as soon as feasible, while the county water quality laboratory works towards its certification for that parameter.

Polk County will conduct a one-time inspection of segments of Blackwater Creek in Polk County to look for and eliminate illicit connections. The county will prioritize segments to walk annually, as deemed necessary, based on initial observations and/or high observed bacteria counts, focusing on areas known to historically have need for assistance with stream stewardship. The county will also identify areas where horses and livestock have access to the creek and/or tributaries and provide these locations to FDACS. Trash encountered during walking inspections will be removed from the creeks as feasible.

Stormwater hydrology is an important component of the ecological health of surface waters.

Maintaining adequate flow is important to the biology of the creek beds because poor flushing allows bacteria to regrow and accumulate in-stream sediments. The Polk County Comprehensive Plan Conservation Element (revised August 2013) includes the following:

“POLICY 2.305-A9: Polk County shall continue to protect the natural flow of streams within the County by enforcing the floodway protection provisions of the Land Development Code.”

In addition, Polk County will address any action items identified as a result of the 2014 Walk the WBID exercise relevant to its jurisdiction. **Table 19** summarizes Polk County's Walk the WBID follow-up activities.

TABLE 19: POLK COUNTY WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE	PROJECT STATUS
POLK COUNTY-284	Participate in HTBMT Calls and Efforts	Continue participation in HTBMT coordination calls and other HTBMT efforts.	Ongoing	Unknown	Polk County	Initiated
POLK COUNTY-285	Source Identification Follow-Up	Assist department in following up on source identification results that indicate human source.	Ongoing	Unknown	Polk County	Initiated
POLK COUNTY-286	Water Quality Sample Analysis	Quarterly monitoring of Station BLACKWATER Crk2, with adjustments made as needed, and follow up on high counts per HTBMT protocol. Samples will be analyzed for both fecal coliform and <i>E. coli</i> .	Ongoing	Unknown	Polk County	Initiated
POLK COUNTY-288	Tributary Clean Up and Search for Illicit Connections	Promote community awareness of waterbodies' health, and inspect for illicit connections. Provide FDACS with locations of horse and livestock access to creeks.	Ongoing	Unknown	Polk County	Initiated
POLK COUNTY-290	Walk the WBID Follow-Up	Address any action items identified during 2014 Walk the WBID.	Ongoing	Unknown	Polk County	Ongoing

3.3.4 COPC

3.3.4.1 Citywide Programs

COPC has several proactive and reactive programs in place to eliminate and/or limit pollutant loadings to the MS4. These include a Stormwater Inspection and Maintenance Program to ensure that all components of the MS4 are inspected and maintained monthly. Staff members are provided with relevant training and are able to recognize any potential or existing illicit discharges and improper disposals. These are immediately reported internally and resolved in a timely fashion by city officials. Other programs include a comprehensive Sanitary Sewer System Operation and Maintenance Program, which incorporates extensive inspection and maintenance practices that have reduced SSOs to a minimum.

Other initiatives include a comprehensive Grease Management Program, a Nonresidential Establishment Survey Program, a High-Risk Facility Inspection Program, and an Erosion and Sedimentation Control Program. The city inspects all its industrial complexes annually and more often where there is higher activity with potential for stormwater impacts. The city has also upgraded all of its sanitary sewer lift stations to include a monitoring system that warns staff immediately of any conditions that may cause a SSO. Educational initiatives address municipal employees and the public and include the distribution of

educational materials, classroom activities, presentations, and one-on-one interactions. Partnerships between the COPC and its various residents have led to a high level of awareness of stormwater quality concerns and as a result a low level of related concerns.

The projects listed in **Table 20** are from the Phase 1 BMAP and will continue throughout Phase 2.

Projects labeled “SBF” are in Spartman Branch, and projects coded “BWC” are in Blackwater Creek.

TABLE 20: COPC ONGOING PROJECTS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
SBF-12	Lake Thonotosassa Diagnostic Assessment and Water Quality Treatment Project	Special Studies, Planning, Monitoring, and Assessment	City of Plant City Resource Management Division/ SWFWMD (SWIM Section, Resource Management Dept.)	Ongoing	\$100,000	\$50,000 from COPC FY2006–07; \$50,000 from Utilities revenues grant (SWFWMD Cooperative Funding)	Objective of project is to evaluate feasibility of implementing stormwater treatment system to treat mixture of stormwater and highly treated reclaimed water before discharging into Westside Canal. If determined feasible, project has potential to improve water quality in Westside Canal and ultimately Lake Thonotosassa. Westside Canal discharges into Pemberton/Baker Creek, tributary to Lake Thonotosassa, which is SWIM priority waterbody.
BWC-20	Plant City Sewer Line Maintenance Program	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	City of Plant City Utilities Maintenance Division	Ongoing/ annual	FY2006–07 \$10,000 for citywide program	Utilities revenues	Ongoing program to maintain and repair over 120 miles of sanitary sewer lines, including repair of all associated manholes and connection of new service laterals to main collection lines. Program helps to prevent both infiltration/inflow of ground water to collection system, and exfiltration of wastewater to ground and surface water.

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
BWC-23	Plant City Lift Station Maintenance	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	City of Plant City Utilities Maintenance Division	Ongoing/ annual	\$14,000 for annual maintenance program/ Utilities revenues; Florida Department of Community Affairs (FDCA) grant	Utilities revenues; FDCA grant	Conduct I&I testing on sewer lines (1.5 miles in Blackwater Creek).
BWC-24, SBF-28	Plant City Inflow and Infiltration (I&I) Program	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	City of Plant City Utilities Maintenance Division	Ongoing/ annual	FY2006–07 \$1,484,000/ Utilities revenues	Utilities Revenues	Ongoing program to clean, carry out video inspection of, and grout sanitary sewer lines and manholes. Program helps to prevent I & I of ground water.
SBF-27, BWC-25	City of Plant City; Grease Management Program	Regulations, Ordinances, and Guidelines	City of Plant City Water Resource Management Division/ Utilities Maintenance Division; Building Dept.	Ongoing	\$50,000	Utilities revenues	Respond to bacterial contamination complaints received by EPCHC, possibly caused by septic system failure; complaints forwarded to HCHD for follow-up.
SBF-29	Plant City WWTP/Lift Station Maintenance	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	City of Plant City	Ongoing	\$15 million	Utilities revenues	Annual inspections of industrial discharges for MS4 permit.

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
SBF-30, BWC-14	Plant City Stormwater Inlet Marking Program	Basic Stormwater Management Program Implementation	City of Plant City	Ongoing	\$1,000	Utilities revenues	Ongoing program to apply plaques to stormwater inlets. Plaques state in English and Spanish, “DO NOT POLLUTE THE WATER. DUMP NO WASTE. IT’S THE LAW.” Printed environmental education pamphlets are distributed to residents in areas where plaques are applied. These materials stress importance of pollution prevention and indicate BMPs that can be used to prevent pollution.
SBF-31, BWC-19	Plant City Spill Prevention/Response Program	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	City of Plant City	Ongoing	\$50,000	Utilities revenues	Ongoing program to properly address spill incidents to prevent introduction of pollutants to environment. Detailed standard operating procedures have been established to specifically address SSOs and proper remediation of these incidents. SSO Overflow Response Plan was included in CMOM Self Audit Report that was completed by city and submitted to EPA Region 4 and department in 2006.
BWC-21	Plant City Lift Station Security Program	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	City of Plant City	Ongoing	FY2006–07 \$10,000 for citywide program	Utilities revenues	Ongoing program that provides basic security (fences, gates, locks) for sanitary sewer lift stations. Currently 25 of 38 stations are secured in this fashion.

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
BWC-22, SBF-34	Plant City Lift Station Auxiliary Power Program	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	City of Plant City	Ongoing	\$80,000 for FY2006–07; \$94,000 grant for six units/	Utilities revenues; FDCA grant	Ongoing program to provide auxiliary power generators at sanitary sewer lift stations. Currently 15 of 38 stations have permanent on-site generators. Eight portable generators are also available for use as needed
SBF-35, BWC-46	Plant City WWTP Fecal Coliform Bacteria Reduction Program	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	City of Plant City	Ongoing	\$125,200		Ongoing program that involves development and implementation of operational protocol at city's WWTP to reduce bacteriological contamination in effluent. Program has provided city with consistently successful means to meet established state fecal coliform bacteria discharge limits.

3.3.4.2 Walk the WBID Follow-Up

COPC will participate in the HTBMT monthly coordination calls. It will assist the department in following up on source identification results that indicate a human source in areas with COPC MS4 infrastructure or otherwise under COPC’s jurisdiction. COPC will also contribute to the BMAP monitoring needs, with adjustments made as needed. In addition, COPC will explore options with EPCHC to enable the analysis of both fecal coliform and *E. coli* for the BMAP monitoring sites. These additional analyses will be phased in as funding allows.

COPC will prioritize segments of natural tributaries that are not part of the MS4 for inspection for illicit connections. Prioritization will be given to segments of these tributaries based on land use, and communities known to need additional support concerning environmental stewardship. The goal is to complete annual inspections of priority segments. Adjustments in the list of priority segments will be made as new information is evaluated during the second five-year BMAP iteration. COPC will look for opportunities to prioritize sewer line expansion plans to support the phase out of septic systems close to the impaired waterbodies.

Stormwater flushing is important to the biology of the creek beds because poor flushing allows bacteria to regrow in the stream sediments at higher rates. COPC will continue to implement procedures that ensure flood control, water quality treatment projects, and related stormwater conveyance designs do not direct stormwater away from tributaries, except to prevent flooding.

In addition, COPC will address any action items identified as a result of the 2014 Walk the WBID that relate to its jurisdiction.

Table 21 summarizes COPC’s Walk the WBID follow-up activities.

TABLE 21: COPC WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE	PROJECT STATUS
COPC-284	Participate in HTBMT Calls and Efforts	Participation in monthly HTBMT coordination calls and other HTBMT efforts.	Ongoing	Unknown	COPC	Initiated
COPC-285	Source Identification Follow-Up	Assist department in following up on source identification results that indicate human source.	Ongoing	Unknown	COPC	Initiated
COPC-286	Assistance with Sample Analysis	Assistance with BMAP monitoring for fecal coliform, with adjustments made as needed, and follow up on high counts per HTBMT protocol.	Ongoing	Unknown	COPC	Initiated
COPC-288	Non-MS4 Tributary Search for Illicit Connections	Prioritize segments of creeks based on land use and historical problems. Inspect priority segments annually or more often as needed to look for illicit connections on banks of tributary.	Ongoing	Unknown	COPC	Initiated
COPC-289	Implement procedures to Maintain Stormwater Flow to Tributaries	Procedures to ensure stormwater projects return water to streams when designing stormwater treatment and flood prevention and relief projects. Flow of water to creeks will continue as impervious surfaces increase.	Ongoing	Unknown	COPC	Ongoing
COPC-290	Walk the WBID Follow-Up	Address any action items identified as result of 2014 Walk the WBID.	Ongoing	Unknown	COPC	Ongoing

3.3.5 COT

3.3.5.1 Citywide Programs

COT's sanitary sewer system is inspected and maintained on a regular basis. The city has a comprehensive lift station monitoring and notification program to reduce SSOs. **Table 22** includes activities that were reported to the department in the last NPDES MS4 annual report.

TABLE 22: ACTIVITIES REPORTED UNDER PART III.A.7.G—COT ILLICIT DISCHARGES AND IMPROPER DISPOSAL—LIMITATION OF SANITARY SEWER SEEPAGE

PERMIT ACTIVITY	NUMBER OF ACTIVITIES	DOCUMENTATION	ENTITY PERFORMING ACTIVITY	COMMENTS
Activity to reduce/eliminate SSOs and I&I: Repair/lining of sanitary sewer system (linear feet)	25,000	Wastewater Overflow Report	Wastewater Department	Pipe lining.
Activity to reduce/eliminate SSOs and I&I: Sanitary sewer system gravity pipeline inspections (linear feet)	1,864,601	Wastewater Overflow Report	Wastewater Department	Gravity sewer television (TV) inspections.
Activity to reduce/eliminate SSOs and I&I: Sanitary sewer system # of pipeline replacement (linear feet)	6,760	Wastewater Overflow Report	Wastewater Department	None
Activity to reduce/eliminate SSOs and I&I: Sanitary sewer system # of pipeline repairs	610	Wastewater Overflow report	Wastewater Department	None
Activity to reduce/eliminate SSOs and I&I: Sanitary sewer system # of manhole repairs	457	Wastewater Overflow report	Wastewater Department	368 complete rehabilitation and 89 minor repairs.
Activity to reduce/eliminate SSOs and I&I: Sanitary sewer system force main thickness tests	70	Wastewater Overflow report	Wastewater Department	None
Activity to reduce/eliminate SSOs and I&I: Sanitary sewer system prevention inspections (linear feet)	6,246	Wastewater Overflow report	Wastewater Department	Manhole inspections.
SSO incidents discovered	57	Wastewater Overflow report	Wastewater Department	None
SSO incidents resolved	57	Wastewater Overflow report	Wastewater Department	None
I&I incidents discovered	9	Wastewater Overflow report	Wastewater Department	Not tracked; however, incidents are recorded during TV inspections and taken into account when determining which line segments are rehabilitated.
I&I incidents resolved	9	Wastewater Overflow report	Wastewater department	Not tracked; leaking joints are sealed when deemed necessary. COT has completed numerous pipe linings, repairs, and replacements. These projects have reduced inflow/infiltration.

During COT's FY2014–15, COT, FDOT, Zephyrhills Water Company (Nestlé Corporation), Keep Tampa Bay Beautiful, Hillsborough County, city of Temple Terrace, and Tampa Bay Watch collaborated on a watershed stewardship project to reduce nonpoint source pollution and improve the water quality of the Hillsborough River. A series of scheduled land and water based cleanups, inlet storm drain markings and watershed education activities were organized to raise environmental awareness, stewardship, and a respect for natural resources. Several volunteers also assisted in the project by picking up trash along the river, placing door hanger educational materials in residential neighborhoods, and installing the inlet storm drain markers (1,220 inlets marked in total) on the east side of the Hillsborough River.

COT is launching a city employee training program in 2015 that includes BMPs and stormwater pollution prevention educational components. The goal is to train the primary field staff during each permit cycle on daily stormwater pollution prevention and reporting procedures.

The city has several dog waste disposal bag stations placed throughout public spaces and parks. These serve the public with free bags for pet waste pickup and as an educational vehicle for pedestrians on how fecal coliform pollution impacts the river. The city holds pet-related giveaways at public events and encourages proper cleanup by pet owners.

The city has established a monitoring plan to evaluate the effectiveness of the Stormwater Management Program and the associated pollutant reduction from MS4 systems to waters of the state. Routine monitoring is part of a contractual agreement with the EPCHC and includes sampling to help identify potential sources of fecal coliform contamination.

Table 23 lists projects from Phase 1 that will continue through Phase 2. Additional projects that were not listed in the Phase 1 BMAP document are shown in the table and are designated by project numbers LHR-56 through LHR-71. Projects labeled "LHR" are occurring in the Lower Hillsborough River watershed.

TABLE 23: COT PROJECTS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
LHR-52	Lake Edna	Education and Outreach Efforts	COT/ SWFWMD	Ongoing since 2005	\$2,000	COT/ SWFWMD	Educational project by distribution of stormwater education brochures for residents in watershed.
LHR-19	12 th Street Force Main Replacement	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	COT Wastewater Dept.	Ongoing (December 2007)	\$17 million	COT	Force main replacement along 12 th St. in area where there was 22-million-gallon release in past. Force main will be replaced to minimize future overflows.
LHR-40	Manhole Rehabilitation Project	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	COT Wastewater Dept.	Ongoing (December 2007)	Approximately \$750,000 annually		Manhole rehabilitation project is intended to stop I&I and increase structural integrity/life of manholes. City has two contracts for manhole rehabilitation: (1) insertion of fiberglass liner into existing manhole; and (2) application of calcium aluminate cementitious structural coating system sprayed onto existing walls of manhole. Project locations are identified routinely.
LHR-45, LHR 36	COT Street Sweeping Maintenance	Basic Stormwater Management Program Implementation	COT/FDOT (for FDOT road segments within COT limits)	Routine and ongoing	Funding amount varies annually	COT Stormwater Utility, FDOT	Street sweeping services are delivered by COT Stormwater Dept. on regularly scheduled basis for residential and business areas. Dept. also sweeps before and after special events, including parades and marathons. Only streets with curbs and gutters are scheduled for sweeping services. Residential sweeping program covers about 1,860 curbed miles. Commercial sweeping program covers major streets in urban area, including Channelside District, Ybor City, Kennedy Blvd., Bayshore Blvd., and Downtown. Commercial streets are swept every week as they are major transportation routes. Total of 140 curbed miles of commercial streets are swept weekly.

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
LHR-72	Watrous Canal Rehabilitation	Stormwater	COT		\$2.25 million		Improvement of ditch system will extend useful life of ditch and improve conveyance of storm flows from drainage basin.
LHR-56	Cypress St. Outfall	Stormwater	COT		\$10 million		Project consists of construction of box culvert at Cypress Street outfall to North Blvd., large junction box at North Blvd. and Cypress, and dual box culvert from North Blvd. to Cass St. with stub-out at Cass St. to serve future stormwater upgrades. This project is one of three projects that will be designed and built in coordination with CH2MHill, CAD, Stormwater, Transportation and Water.
LHR-57	30 th Street Outfall	Stormwater	COT		\$500,000		COT is evaluating purchase of property on east side of outfall. Intent is to enlarge discharge channel and, if necessary, construct larger outfall structure to accommodate future pipes.
LHR-58	New Orleans/11 th Street Pond	Stormwater	COT		\$150,000		Three residential parcels were purchased to construct proposed stormwater pond.
LHR-59	Box Culvert Misc Rehabilitation	Stormwater	COT	Ongoing since 2014	\$750,000		Repair major culverts within roadways prior to resurfacing or rebuilding the roads.
LHR-60	Idell Street Roadway Improvements	Stormwater	COT		\$100,000		Construction of roadway features, stormwater laterals, new inlets, and pond to convey runoff to Hillsborough River.
LHR-61	Box Culvert Misc Rehabilitation	Stormwater	COT	Ongoing since 2014	\$750,000		Repair major culverts within roadways prior to resurfacing or rebuilding roads.

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
LHR-62	Collection System Repair Contact	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	COT Wastewater Dept.	Ongoing since 2008	\$1 million/yr	COT	Throughout city.
LHR-63	Cured in Place Pipe Rehabilitation	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	COT Wastewater Dept.	Ongoing since 2006	\$1 million/yr	COT	Throughout city.
LHR-67	Mulberry Pump Station Rehabilitation	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	COT Wastewater Dept.	2015/2016	\$600,000	COT	Located on Mulberry Dr. next to river.
LHR-68	Pump Station Supervisory Control and Data Acquisition (SCADA) Improvements	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	COT Wastewater Dept.	Ongoing since 2014	\$100,000/	COT	Throughout city.
LHR-69	Louisiana Pump Station Rehabilitation	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	COT Wastewater Dept.	Ongoing since 2013	\$6 million	COT	Located on Louisiana Ave. next to river.
LHR-71	Oak Pump Station Replacement	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	COT Wastewater Dept./ Developer	2015/2016	\$200,000	COT Wastewater Dept./ Developer	Located on Oak Ave. next to river.

3.3.5.2 Walk the WBID Follow-Up

COT will participate in the HTBMT monthly coordination calls. It will assist the department in following up on source identification results that indicate a human source in areas with COT MS4 infrastructure or otherwise under COT's jurisdiction. COT will also contribute to BMAP monitoring needs, with adjustments made as needed. In addition, it will explore options with the EPCHC to enable the analysis of both fecal coliform and *E. coli* for the BMAP monitoring sites. These additional analyses will be phased in as funding allows.

COT Sanitary Sewer Utility currently inspects manholes and cross-connections, where the inspection focuses on manholes where sewer pipes run through stormwater conveyances and infrastructure. Follow-up inspection occurs for locations of known past overflows. COT will review geographic information system (GIS) records and ensure that they document all locations of SSO pop-off pipes that are open to the Lower Hillsborough River. Field visits will be conducted to ensure the GIS records are accurate and the pop-off pipes labeled "plugged" are in good condition. The updated GIS inventory will be provided to EPCHC to utilize during source identification activities. This will prevent the future loss of time for water quality monitoring staff who will be following up on high data results.

In addition, COT will address any action items identified as a result of the 2014 Walk the WBID that relate to its jurisdiction. **Table 24** summarizes COT's Walk the WBID follow-up activities.

TABLE 24: COT WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE	PROJECT STATUS
COT-284	Participate in HTBMT Calls and Efforts	Participation in monthly HTBMT coordination calls and other HTBMT efforts.	Ongoing	Unknown	COT	Initiated
COT-285	Source Identification Follow-Up	Assist department in following up on source identification results that indicate human source.	Ongoing	Unknown	COT	Initiated
COT-286	Assistance with Sample Analysis	Provide funding to analyze 12 samples per year for fecal coliform.	Ongoing	Unknown	COT	Initiated
COT-288	Inspect and Inventory Sanitary Sewer Pop-Off Sites	Update GIS layer to reflect location of all pop-offs to Lower Hillsborough River, notate which ones have been plugged, inspect plugs.			COT	
COT-290	Walk the WBID Follow-Up	Address any action items identified as result of the 2014 Walk the WBID.	Ongoing	Unknown	COT	Ongoing

3.3.6 COL

3.3.6.1 Citywide Programs

COL evaluates the effectiveness of its Stormwater Management Program and the associated pollutant reduction from MS4 systems to waters of the state. The monitoring plan is a requirement of Part V.B. of the COL/FDOT NPDES MS4 permit and supported by Title 40 of the Code of Federal Regulations, Part 122.26(d)(2)(iii). In addition to routine monitoring, COL Lakes and Stormwater (L&S) Division is part of the Tributaries Assessment Team (TAT) and conducts sampling to help identify potential sources of fecal coliform contamination as required.

The COL Public Works Department's Construction and Maintenance (C&M) Division is responsible for maintaining its stormwater conveyance systems in Lakeland. The L&S Division keeps a record of reported potential illicit connections (PICs) in a database, and a determination is made to identify where site visits are necessary. COL L&S Division staff conduct the site visits and talk to both the people who live on the site, as well as their neighbors, to verify the nature of the issue. If there is a known discharge, the inspector investigates in order to direct the resolution of the discharge to the appropriate entity (COL public works department, FDOH in Polk County, or the department). If necessary, a sample is collected to determine the nature of the discharge. COL may direct the individual in remedying the situation and return to ensure that the connection has been removed.

Educational outreach is a vital part of the PIC Program. COL L&S staff primarily provides this outreach by distributing materials to the public such as educational pamphlets, informational door hangers, and public outreach events. A storm drain plaque program is also in effect. COL also has several continuing PSAs to address pet waste management.

3.3.6.2 Walk the WBID Follow-Up

COL will participate in the HTBMT coordination calls and efforts. COL will assist the department in following up on source identification results that indicate a human source in areas with COL MS4 infrastructure or otherwise under COL's jurisdiction. COL will utilize TV technology to identify sources when necessary. COL will monitor up to two BMAP monitoring stations monthly with adjustments made as needed, and will follow up on high counts per the HTBMT protocol. COL will analyze samples for both fecal coliform and *E. coli*. In addition, COL will investigate adding *E. coli* to its sample analyses. These new analyses will be phased in as funding allows.

COL staff will walk segments of Blackwater Creek and tributaries of Blackwater Creek within city boundaries to look for and eliminate illicit connections, and will prioritize segments to walk annually based on initial observations and areas known to historically need for assistance with stream stewardship. Trash encountered during walking inspections will be removed from the creeks.

In addition, COL will address any action items identified as a result of the 2014 Walk the WBID that relate to its jurisdiction. **Table 25** summarizes the Walk the WBID follow-up activities.

TABLE 25: COL WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE	PROJECT STATUS
COL-284	Participate in HTBMT Calls and Efforts	Continue participation in the HTBMT coordination calls and other HTBMT efforts.	Ongoing	Unknown	COL	Initiated
COL-285	Source Identification Follow-Up	Assist department in following up on source identification results that indicate human source.	Ongoing	Unknown	COL	Initiated
COL-286	Sample Analysis	Monthly BMAP monitoring of up to two stations, with adjustments made as needed, and follow up on high counts per HTBMT protocol. Samples will be analyzed for both fecal coliform and <i>E. coli</i> .	Ongoing	Unknown	COL	Initiated
COL-288	Tributary Clean Up and Search for Illicit Connections	Promote community awareness of waterbodies' health, organize annual community cleanups, and inspect for illicit connections. Provide FDACS with locations of bovine access to creeks.	Ongoing	Unknown	COL	Initiated
COL-290	Walk the WBID Follow-Up	Address any action items identified as result of 2014 Walk the WBID.	Ongoing	Unknown	COL	Ongoing

3.3.7 FDOH IN HILLSBOROUGH, PASCO, AND POLK COUNTIES

3.3.7.1 Countywide Projects

The FDOH projects listed in **Table 26** from Phase 1 will continue in Phase 2 of the BMAP.

TABLE 26: FDOH ONGOING PROJECTS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
BWC-49	Public Education Septic System Program	Education and Outreach Efforts	Polk County FDOH	Ongoing		Flyers sent out with septic tank permits.
NR-6	Septic System 200-foot Setback for Hillsborough River—Potable Supply Protection	Regulations, Ordinances, and Guidelines	Hillsborough County FDOH	Ongoing (since 1980s)	\$50,000 (annual countywide program)/-	Funding by FDOT supplied annually since 1996 to Tampa Bay Regional Planning Council to coordinate selection and distribution of public education programs such as MOSI's Marine Gang, Keep Hillsborough Beautiful, Bay Soundings environmental journal, storm drain markers, "All the Way to the Ocean" books, <i>etc.</i>
SBF-26, BWC-34, LHR-38, NR-19	Public Health Education Program	Education and Outreach Efforts	Hillsborough County FDOH	Ongoing	\$500	Ongoing annual countywide public health education program distributed via permit issuance.

3.3.7.2 Walk the WBID Follow-Up

FDOH will participate in the HTBMT coordination calls and efforts. FDOH will assist the department in following up on source identification results that indicate a human source in areas with OSTDS.

Table 27 summarizes the Walk the WBID follow-up activities.

TABLE 27: FDOH WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE	PROJECT STATUS
DOH-100	Source Identification Follow-Up	Assist department in following up on source identification results that indicate human source.	Ongoing	Unknown	FDOH	Ongoing
DOH-101	Participate in HTBMT Calls and Efforts	Continue participation in HTBMT coordination calls and other HTBMT efforts.	Ongoing	Unknown	FDOH	Initiated

3.3.8 FDOT

3.3.8.1 Countywide Projects

The FDOT Phase 1 projects will continue during Phase 2 of the BMAP. FDOT will continue to support bacteria source identification and elimination as the need arises in response to complaints to illicit activities on its properties. FDOT requires IDDE training for all staff and contractors working within its rights-of-way. The [training video](#) is available online. The FDOT projects listed in **Table 28** from Phase 1 will continue in Phase 2 of the BMAP.

TABLE 28: FDOT ONGOING PROJECTS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST
LHR-36	Street Sweeping Curb and Bridge Roadway Sections	Basic Stormwater Management Program Implementation	FDOT/COT, City of St. Petersburg	Ongoing	
LHR-37, BWC-33, NR-18	Public Education Program for Tampa Bay Regional Planning Council Distribution	Education and Outreach Efforts	FDOT	Ongoing (since 1996)	\$50,000 annually for countywide program
FDOT-01	Mandatory IDDE Training for Staff and Contractors	Education and Outreach Efforts	FDOT	Ongoing (since June 2014)	

3.3.9 TBEP

3.3.9.1 Basinwide Projects

TBEP continues to coordinate education and outreach efforts for the Tampa Bay area, including the Hillsborough River Basin. TBEP educational outreach geared towards citizens addresses many subjects, including reducing runoff rich in nutrient and fecal coliform pollutants such as pet waste. **Table 29** summarizes the Walk the WBID follow-up activities.

3.3.9.2 Walk the WBID Follow-Up

TBEP recognizes the value of coordination calls to each of the entities working to eliminate sources. It will participate in the HTBMT coordination calls and efforts.

TABLE 29: TBEP WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE	PROJECT STATUS
TBEP-101	Participate in HTBMT Calls and Efforts	Continue participation in HTBMT coordination calls and other HTBMT efforts.	Ongoing	Unknown	FDOH	Initiated

3.3.10 DEPARTMENT

3.3.10.1 Walk the WBID Follow-Up

The department will inspect wastewater treatment facilities located in the Blackwater Creek and New River watersheds, which are located outside Hillsborough County, with a focus on the fecal coliform impairment during Phase 2. The department will perform source identification analysis for human waste indicators. The project began in 2014 and will continue as needed to identify whether human waste is a contributor of the fecal coliform impairments.

Additionally, the department will hold collaborative teleconferences for entities to join in and discuss recent monitoring results and plan source identification follow-up activities. The calls will be held monthly, and participants will be referred to as the HTBMT. Following a similar model implemented in Duval County, the HTBMT calls will be a forum for sharing knowledge, collaborative problem solving, and increased communication across jurisdictional lines.

Table 30 summarizes the Walk the WBID follow-up activities.

TABLE 30: DEPARTMENT WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE	PROJECT STATUS
DEP-1	Wastewater Treatment Facilities Follow-Up	Inspect wastewater treatment facilities in Blackwater Creek and New River watersheds, outside Hillsborough County.	Phase 2	Unknown	Department	Ongoing
DEP-2	Source identification monitoring for human waste indicators	Actively monitor BMAP WBIDs for human waste sources. Follow up on human waste sources identified with cooperation of local entities to eliminate identified sources.	Phase 2	Unknown	Department	Ongoing
DEP-3	Facilitate HTBMT Calls and Efforts	Facilitate participation in HTBMT coordination calls and other HTBMT efforts.	Ongoing	Unknown	FDOH	Initiated

3.3.11 FDACS

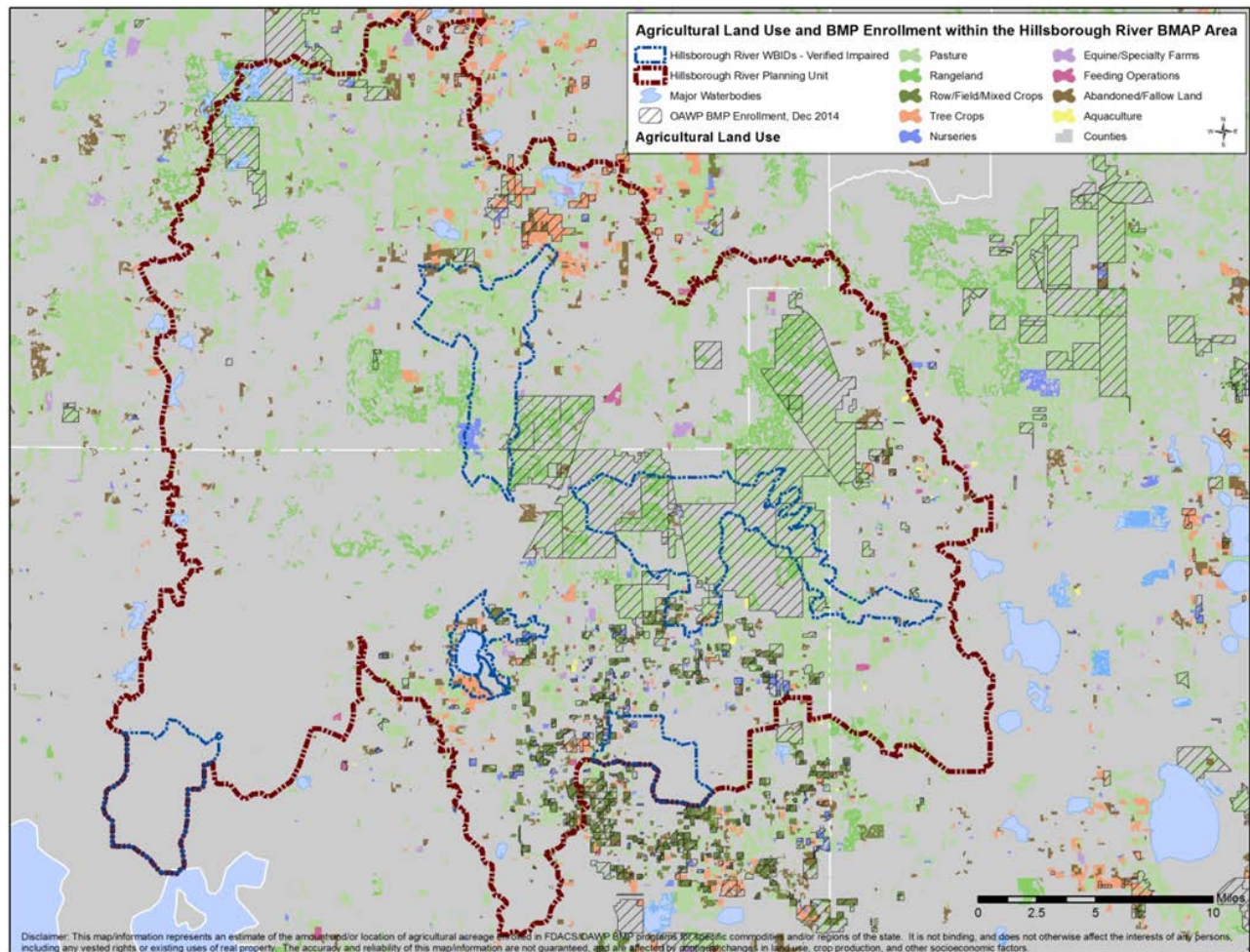
3.3.11.1 Agricultural BMP Implementation

All agricultural nonpoint sources in the Hillsborough River BMAP area are statutorily required either to implement FDACS-adopted BMPs or to conduct water quality monitoring prescribed by the department or SWFWMD that demonstrates compliance with water quality standards (Paragraph 403.067[7][b], F.S.). If these pollutant sources do not either implement BMPs or conduct monitoring that demonstrates compliance with water quality standards, they may be subject to enforcement by the department or SWFWMD. Under Paragraph 403.067(7)(c), F.S., the implementation of FDACS-adopted, department-verified BMPs in accordance with FDACS rule provides a presumption of compliance with state water quality standards.

Table 31 summarizes agricultural land use categories in the Hillsborough River Basin, not including silviculture, according to 2009 SWFWMD land use data. Prominent agricultural land uses are pasture and rangeland. **Figure 14** shows the location of these agricultural lands in the basin.

TABLE 31: AGRICULTURAL LAND USES IN THE VERIFIED IMPAIRED WBIDS IN THE HILLSBOROUGH RIVER BMAP AREA

LAND USE CODE	CODE DESCRIPTION	TOTAL ACRES
2100	Cropland and Pastureland	10,935.1
2140	Row Crops	493.8
2200	Tree Crops	682.1
2300	Feeding Operations	59.6
2400	Nurseries and Vineyards	512.4
2500	Specialty Farms	9.8
2600	Other Open Lands (Rural)	818.6
3000	Rangeland	1701.5
	Total Acres	15,212.8

**FIGURE 14: FDACS' OFFICE OF AGRICULTURAL WATER POLICY (OAWP) 2009 AGRICULTURAL LANDS IN THE HILLSBOROUGH RIVER BASIN**

3.3.11.2 Agricultural BMPs

BMPs are individual or combined practices determined through research, field testing, and expert review to be the most effective and practicable means for improving water quality, taking into account economic and technological considerations. The primary regulatory authority for establishing agricultural BMPs is divided between FDACS' Florida Forest Service (silviculture BMP program), Division of Aquaculture (Aquaculture Certification Program), and OAWP (all other agricultural BMP programs).

FDACS' OAWP BMPs fall into two categories: structural and management. Structural BMPs involve the installation of structures or changes to the land, usually are more costly, and often require cost-share to be economically feasible. They include water control structures, fencing, and tailwater recovery systems, among other things. Management BMPs, such as nutrient and irrigation management, comprise the majority of the practices and often are not readily observable. Nutrient management addresses fertilizer type, amount, placement, and application timing, and includes practices such as soil and tissue testing to determine crop nutrient needs, application methods, and setbacks from water resources. Irrigation management is the maintenance, scheduling, and overall efficiency rating of irrigation systems.

[OAWP BMP materials and staff contact information](#) are available online. Printed BMP manuals can be obtained in the local extension office at county agricultural extension centers, or by contacting OAWP field staff.

3.3.11.3 BMP Enrollment

Table 32 summarizes the land use data figures for agriculture in the BMAP area, the acreage associated with commodity types addressed by OAWP BMP manuals, and the acres enrolled in OAWP BMP programs. All agricultural nonpoint sources in the BMAP area are statutorily required either to implement FDACS-adopted BMPs or to conduct water quality monitoring that demonstrates compliance with state water quality standards. Current enrollment in OAWP BMPs as of June 30, 2015, is about 13,830 acres (see **Figure 15**). Applicable agricultural operations for BMP enrollment include pasture, row/field/mixed crops, and equine operations, which together comprise about 15,213 acres, according to the 2009 land use data.

Not all of the acreage listed as agriculture in **Table 32** will be included in enrollment figures, because the notices of intent (NOIs) only document the estimated total number of acres on which applicable BMPs are implemented, not the entire land use acreage mapped as agriculture. Land use data can contain nonproduction acres (such as buildings, parking lots, and fallow acres) that will not be counted on the NOIs submitted to OAWP. There also may be acreage that is not appropriate for enrollment in OAWP BMPs, such as lands not in commercial production (defined as operations conducted as a business).

TABLE 32: AGRICULTURAL LAND USE AND BMP ENROLLMENT IN THE VERIFIED IMPAIRED HILLSBOROUGH RIVER WBIDS

¹ Enrollment numbers will depend on the ability of field staff to identify and locate producers, and whether producers choose to implement BMPs or monitor water quality. Also, specific agricultural land uses and number of agricultural operations may change from year to year.

2009 SWFWMD LAND USE	2009 ACRES	RELATED FDACS' BMP PROGRAMS	ACREAGE ENROLLED	RELATED NOIs	REMAINING ACREAGE ¹
Pasture and Rangeland	12,636.6	Cow/Calf, Future (hay)	12,800.0	9	
Row/Field/Mixed Crops	493.8	Vegetable/Agronomic Crops	914.9	22	
Tree Crops	682.1	Citrus; Specialty Fruit and Nut	18.5	2	663.6
Nurseries and Vineyards	512.4	Statewide Nurseries	96.1	6	416.3
Specialty Farms	9.8	Equine; Conservation Plan Rule	0	N/A	9.8
Feeding Operations	59.6	Conservation Plan Rule	0	N/A	59.6
Other Open Lands – Rural	818.6	No Enrollment Needed	N/A	N/A	0
Totals	15,212.9	Not Applicable	13,829.5	39	1,149.3

3.3.11.4 FDACS' OAWP Role in BMP Implementation and Follow-Up

OAWP works with producers to submit NOIs to implement the BMPs appropriate for their operations. OAWP staff and contractors will identify existing growers, to the greatest extent possible, through grower associations, information on county agricultural exemptions, field staff knowledge, and other means. OAWP will attempt to ensure that all producers are aware of their statutory obligation to implement BMPs, through letters, emails, workshops, brochures, and/or other means. Staff/contractors will assist producers in selecting the appropriate BMPs, with emphasis on nutrient management, irrigation management, sediment/erosion control, stormwater management, and record keeping.

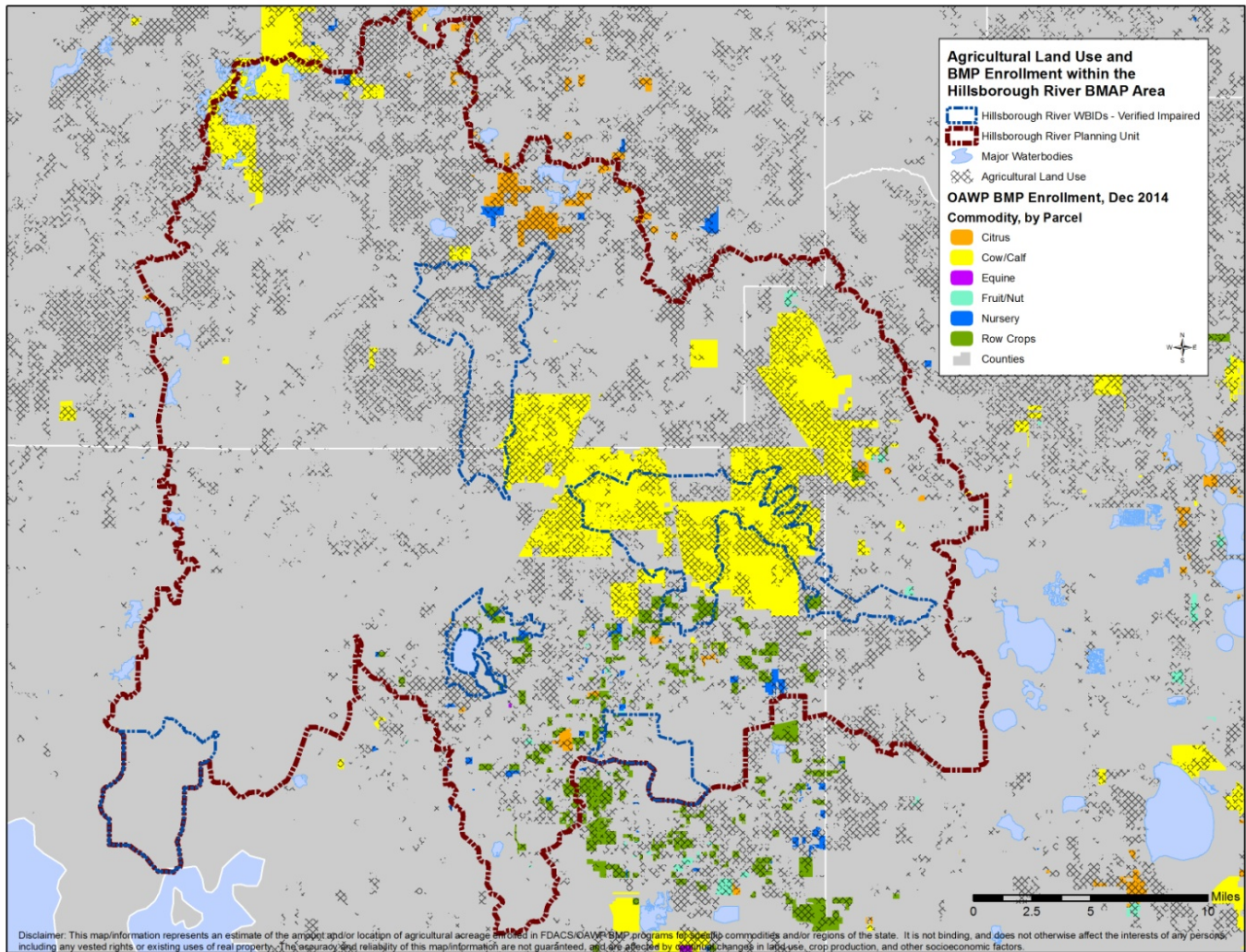


FIGURE 15: OAWP BMP ENROLLMENT IN THE HILLSBOROUGH RIVER BASIN AS OF JUNE 30, 2015

The FWRA requires that, where water quality problems are demonstrated despite the proper implementation of adopted agricultural BMPs, FDACS must re-evaluate the practices, in consultation with the department, and modify them if necessary. Continuing water quality problems will be detected through the BMAP monitoring component and other department and SWFWMD activities. If a re-evaluation of the BMPs is needed, FDACS will also include the SWFWMD and other partners in the process.

3.3.11.5 OAWP Implementation Assurance Program

The OAWP formally established its Implementation Assurance (IA) Program in 2005 in the Suwannee River Basin as part of the multiagency/local stakeholder Suwannee River Partnership. In 2007, the

OAWP initiated the IA Program in the Lake Okeechobee watershed and launched a standardized follow-up program for the rest of the state in 2013, beginning with the Ridge Citrus and Indian River Citrus BMPs. Because of program-specific needs, the follow-up process for each of these three components was different. In early 2014, the OAWP began to streamline the IA Program to ensure consistency statewide and across commodities and BMP manuals. This effort resulted in a single IA site-visit form, which is currently used by OAWP staff.

The current IA Program consists of two key components—mail-out surveys and site visits. Mail-out surveys are developed by OAWP staff, in conjunction with commodity experts. This component of the IA Program was borne out of the recognition that OAWP staff resources are limited; therefore, visits to each of the enrolled producers across the state were not possible in a short/contemporary time frame. All enrolled producers are mailed these surveys and are asked to fill out the surveys and return them to OAWP staff.

Site visits, the second component, are conducted by OAWP field staff and technicians as workload allows. For the visits, field staff and technicians use a standard form (noncommodity or BMP manual specific) developed in 2014. This site-visit form focuses on nutrient management, irrigation management, and water resource protection BMPs that are common to all of the adopted BMP manuals. The paper forms are submitted to OAWP staff and compiled into a spreadsheet, and the data are reported annually in reports such as this one. From 2007 to 2014, OAWP conducted over 1,200 site visits. However, it is difficult to compare data collected prior to the implementation of the single IA site-visit form developed in 2014 because of regional differences (*e.g.*, different forms and information requested) in the administration of the IA Program.

In late 2014, the OAWP commenced efforts to revise and restructure its current IA Program, and these efforts are ongoing. The OAWP expects to increase its site visits in the future.

Table 33 lists ongoing FDACS' activities in the basin.

TABLE 33: FDACS ACTIVITIES

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY / PROJECT PARTNER	COMPLETED OR ONGOING (DATE)
NR-11, SBF-14	Agricultural BMP Actions—FDACS Farm BMP Program	Agricultural BMP	FDACS and farmers participating in FDACS' Agricultural BMP Program.	Ongoing

3.3.11.6 Walk the WBID Follow-Up

Table 34 lists FDACS' Walk the WBID follow-up activities.

TABLE 34: FDACS' WALK THE WBID FOLLOW-UP ACTIVITIES

PROJECT NUMBER	PROJECT NAME	PROJECT DESCRIPTION	LEVEL OF EFFORT	ESTIMATED COST	FUNDING SOURCE	PROJECT STATUS
FDACS-1	Source Identification Follow-Up	Assist department in following up on source identification results that indicate human source.	Ongoing	Unknown	FDACS	Ongoing

3.3.11.7 Beyond BMPs

Under the FWRA, when the department adopts a BMAP that includes agriculture, it is the agricultural producers' responsibility to implement the FDACS-adopted BMPs applicable to them. Should the department develop allocations for the Hillsborough River Basin, if acreage adjustments and BMP implementation do not account fully for the agricultural load reduction allocations, it may be necessary to develop and implement cost-assisted field- and/or regional-level treatment options that remove nutrients from agricultural discharges. If additional measures, such as regional treatment projects, are needed, FDACS will work with the department, SWFWMD, and other appropriate entities to identify appropriate and feasible options.

3.3.12 SWFWMD

3.3.12.1 Countywide Projects

The SWFWMD continues to support watershed restoration. The Phase 1 project listed in **Table 35** will continue during Phase 2 in the Lower Hillsborough River.

TABLE 35: SWFWMD ONGOING PROJECTS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST
LHR-55	Stewart Middle School Shoreline Restoration	Restoration and Water Quality Improvement	SWFWMD/ Hillsborough County Public Schools	Ongoing since 2008	\$500

3.3.13 HILLSBOROUGH RIVER WATERSHED ALLIANCE (HRWA)

3.3.13.1 Countywide Projects

The Phase 1 HRWA project listed in **Table 36** will continue in Phase 2 in the Lower Hillsborough River.

TABLE 36: HILLSBOROUGH RIVER WATERSHED ALLIANCE ONGOING PROJECTS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST
LHR-48	HRWA	Education and Outreach Efforts	HRWA	Ongoing since 1994	

APPENDIX A: PROJECTS COMPLETED DURING PHASE 1 OR COMPLETED BEFORE PHASE 1 WHERE CLARIFICATION HAS BEEN ADDED

TABLE A-1: LIST OF COMPLETED PROJECTS

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
BWC-49	MS4 Outfall Inventory		Polk County	Completed			
BWC-50	Fertilizer Ordinance		Polk County	Completed (2013)			
BWC-42	Blackwater Creek Watershed Management Plan	Restoration and Water Quality Improvement	Polk County	Completed (2004)	\$1,521 for Blackwater Creek WBID	Annual countywide water quality monitoring program	EPCHC has maintained extensive, comprehensive water quality monitoring program with network of stations throughout Hillsborough County and Tampa Bay since 1974. All sample collection and analysis are conducted in accordance with department rules and guidance. EPCHC staff collect monthly water quality samples that are analyzed for bacterial contamination—i.e., fecal coliform and <i>Enterococcus</i> —at 38 locations in Hillsborough River Basin. EPCHC also collects bacteria samples from 30 locations representing major and minor tributaries of Hillsborough River; 11 of these are sampled monthly, and 19 locations represent minor tributaries and are sampled quarterly.
BWC-45	Mapping High Probability for Septic Tank Failures		Polk County	Completed (2014)			

PROJECT NUMBER	PROJECT NAME	MANAGEMENT CATEGORY	LEAD ENTITY/ PROJECT PARTNER	COMPLETED OR ONGOING (DATE)	ESTIMATED COST	SOURCE OF FUNDING	GENERAL LOCATION/ PROJECT DESCRIPTION AND BENEFITS
LHR-1	Microbial Source Tracking– Phase I	Special Studies, Planning, Monitoring, and Assessment	Department, PBS&J/ University of South Florida (USF), Hillsborough Stormwater, BMAP Steering Committee	Completed. Phase I (2008); Phases II and III completed	\$42,528 for Phase I for six WBIDs	Department	Under contract to department, PBS&J was providing services to help identify sources of fecal coliform contamination in six Hillsborough River tributaries. Phase I comprises initial screening; Phases II and III (implementation and evaluation of results, respectively) will be developed based on Phase I Work Plan.
LHR-29	Tracking of COT Consent Order	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	EPCHC Water Management Division/ department, COT	Consent Order completed 4/16/13	\$1,750 annually, absorbed in existing EPCHC budget/ EPCHC budget	Track progress of COT Consent Order addressing SSOs and other problems with sanitary sewer collection system; target completion date is 2012.	
LHR-39	North Boulevard Siphon Rehabilitation Project	Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade	COT	Completed 8/2009	Approximately \$350,000/ COT	Project includes rehabilitation of approximately 300 linear feet of 24-inch diameter cured-in-place (CIP) gravity sewer line and 770 linear feet of 20-inch diameter CIP siphon at North Blvd. Bridge River Crossing (North Blvd. and Ross Ave.). Work also includes rehabilitation of one inlet structure. Project should take four to six weeks to complete.	

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LHR-54	30 th and Hillsborough Water Quality Improvements	Restoration and Water Quality Improvement	COT/SWFWMD	Completed 2011	\$800,000 COT/SWFWMD	Located on 30 th and Hillsborough Ave. Stormwater detention pond.	
LHR-9	COT Interactive Watershed Atlas	Education and Outreach Efforts	COT/USF, Hillsborough County	Completed (2010)	\$35,000 design and initiation fees; \$25,000 follow-up support for two years of operation and maintenance/ COT	USF was contracted to develop interactive, web-based Watershed Atlas for COT. This comprehensive data resource helps citizens and scientists make informed decisions on water resources. Educational elements are built into atlas informing public of stormwater system, pollution, and TMDL activities.	
SBF-7	Officer Snook	Education and Outreach Efforts	Hillsborough County Public Works Dept./ SWFWMD	Discontinued during Phase 1 Replaced with new outreach projects			