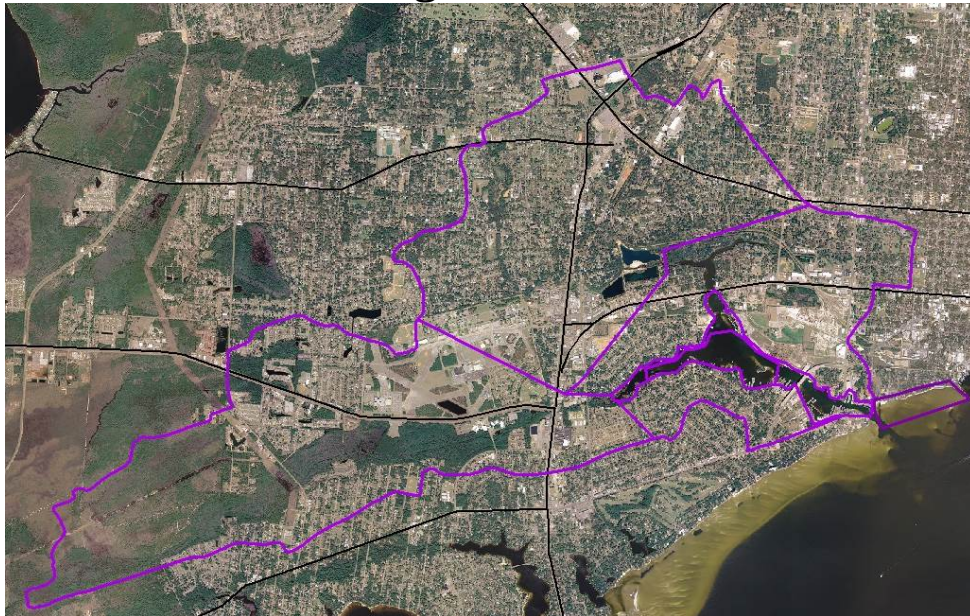


2015 PROGRESS REPORT
for the Bayou Chico
Basin Management Action Plan



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

in cooperation with the
Bayou Chico Stakeholders

January 2016

ACKNOWLEDGMENTS

This *2015 Progress Report for the Bayou Chico Basin Management Action Plan* was prepared as part of a statewide watershed management approach to restore and protect Florida's water quality. It was prepared by the Florida Department of Environmental Protection in cooperation with the Bayou Chico stakeholders.



Bayou Chico Association



For additional information on the watershed management approach in the Bayou Chico Basin, contact:

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LIST OF ACRONYMS AND ABBREVIATIONS

BARC	Bay Area Resource Council
BCA	Bayou Chico Association
BMAP	Basin Management Action Plan
BMP	Best Management Practice
CFU	Colony-Forming Unit
COP	City of Pensacola
DBPR	Department of Business and Professional Regulation
DCF	Florida Department of Children and Families
Department	Florida Department of Environmental Protection
ECUA	Emerald Coast Utilities Authority
F.A.C.	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDOT	Florida Department of Transportation
FDOH	Florida Department of Health
FIB	Fecal Indicator Bacteria
FOG	Fats, Oils, and Grease
FWC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic Information System
IDDE	Illicit Discharge Detection and Elimination
I/I	Inflow and Infiltration
IWR	Impaired Surface Waters Rule
mL	Milliliter
MS4	Municipal Separate Storm Sewer System
NAS	Naval Air Station
NFWF	National Fish and Wildlife Foundation
NPDES	National Pollutant Discharge Elimination System
NFWWMD	Northwest Florida Water Management District
OSTDS	Onsite Sewage Treatment and Disposal Systems
PVC	Polyvinyl Chloride
RESTORE	Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States (Act)
SSO	Sanitary Sewer Overflow
STORET	Storage and Retrieval (Database)
SWEEP	Stormwater Estuary Education Program
TMDL	Total Maximum Daily Load
UWF	University of West Florida
WBID	Waterbody Identification

SUMMARY

TOTAL MAXIMUM DAILY LOADS

The Bayou Chico watershed is located in the southern end of Escambia County. The waterbodies addressed by the Bayou Chico Basin Management Action Plan are Jones Creek and Jackson Creek, which are fresh waterbodies, and Bayou Chico, Bayou Chico Drain, Bayou Chico Beach, and Sanders Beach, which are marine waterbodies.

The Florida Department of Environmental Protection identified these waterbodies as impaired by fecal coliform bacteria and adopted a TMDL in 2009. The department adopted the Bayou Chico BMAP in October 2011 to address the TMDL. This document is the fourth annual Progress Report for the Bayou Chico BMAP, and describes the activities implemented by stakeholders during the reporting period from November 1, 2014, to October 31, 2015.

ACTIVITIES DURING THE REPORTING PERIOD

The stakeholders continued their public education and outreach efforts, maintenance programs, and permitting programs during the reporting period. In addition, the Bayou Chico Association (BCA) removed several hundred pounds of trash from Bayou Chico during its annual Bayou Cleanup Day. Staff from the Bay Area Resource Council (BARC) conducted Stormwater Estuary Education Program (SWEEP) presentations at four local schools, providing approximately 200 students with information on how to prevent stormwater pollution at the local level. The city of Pensacola (COP) received funding for the “R” and Wright Street Baffle Box Project, and finalized the design of the COP’s “L” and Zarragossa Street Project. Escambia County completed the Lexington Terrace Stormwater Retrofit Project, the Southwest Greenway 3rd Extension Project, and the Southwest Greenway 4th Extension Project, and started the construction of the Beach Haven Stormwater Improvement and the Corrydale Floodplain Restoration/ Expansion Projects. The county also initiated surface water quality monitoring in three former borrow pits along Jackson Creek. The Florida Department of Health (FDOH) in Escambia County continued its Onsite Sewage Treatment and Disposal System (OSTDS) Permitting Program, as well as its Healthy Beaches Program, and participated in several outreach events. The Emerald Coast Utilities Authority (ECUA) continued its efforts to complete Sewer Expansion Program projects in the Bayou Chico watershed, as well as throughout the entire ECUA service area.

The stakeholders also participated in a collaborative source identification effort that began in 2015. The effort started with a “Maps on the Table” workshop that identified potential bacteria sources in the BMAP watershed. The results of the Maps on the Table exercise were used to map out field investigations and evaluations (termed “Walk the Watershed” or “Walk the WBID”).¹ The department and stakeholders collected samples before, during, and after the Walk the WBID and used fecal coliform results to determine source locations.

Additional investigative monitoring by Escambia County field staff resulted in the identification and repair of a privately owned sanitary sewer lift station conveyance that was broken and leaking into Jackson Creek, and confirmed an illicit connection from a home to a Jones Creek watershed stormwater ditch. Another ditch in the Jones Creek watershed was investigated due to discolored water, sewage odor, and high bacteria results. ECUA pressurized the nearby sanitary sewer conveyance that crosses the ditch, but no leak was found. The source of this contamination is still under investigation.

The field investigations resulted in a list of observations that will be used to further source identification work and inform policy decisions as needed. **Appendix C** of this report contains a list of action items based on field observations from the Walk the WBID.

Escambia County also performed a study on the stormwater pond that ties Maggie’s Ditch to Bayou Chico at the Wildlife Sanctuary of Northwest Florida. The study was performed in response to expressed concerns about potential loading from hundreds of birds that are fed and take shelter there during the winter months. No exceedances of the fecal coliform standard were measured during the study; instead, these results provided investigators with guidance to continue monitoring farther up in the watershed for the purpose of locating sources.

FECAL COLIFORM REDUCTIONS SINCE BMAP ADOPTION

A new approach, one that mirrors the Impaired Surface Waters Rule (IWR) methodology in Chapter 62-303, Florida Administrative Code (F.A.C.), will be used to determine progress towards meeting the TMDL for Jones Creek (WBID 846A), Jackson Creek (WBID 846B), Bayou Chico (WBID 846), and Bayou Chico Drain (WBID 846C). Based on the IWR, no more than 10% of the data can exceed 400 colony-forming units per 100 milliliters (cfu/100mL) during each verified period.

¹ A WBID is a segment with a waterbody identification number.

To assess and determine progress for the two beach segments, Sanders Beach (WBID 848DA) and Bayou Chico Beach (846CB), the number of advisories or warnings issued during a calendar year will be used. The criterion states that a Class I, II, or III waterbody shall be placed on the Planning List if the water segment includes a bathing area for which a local health department or county government has issued closures, advisories, or warnings totaling 21 days or more during a calendar year based on bacteriological data.

When comparing progress, Bayou Chico (WBID 846), Jones Creek (WBID 846A), Jackson Creek (WBID 846B), and Bayou Chico Drain (846C) showed an increase in percent exceedance frequency during the 2009–15 period, and the two beach segments remain impaired based on the number of beach advisories issued.

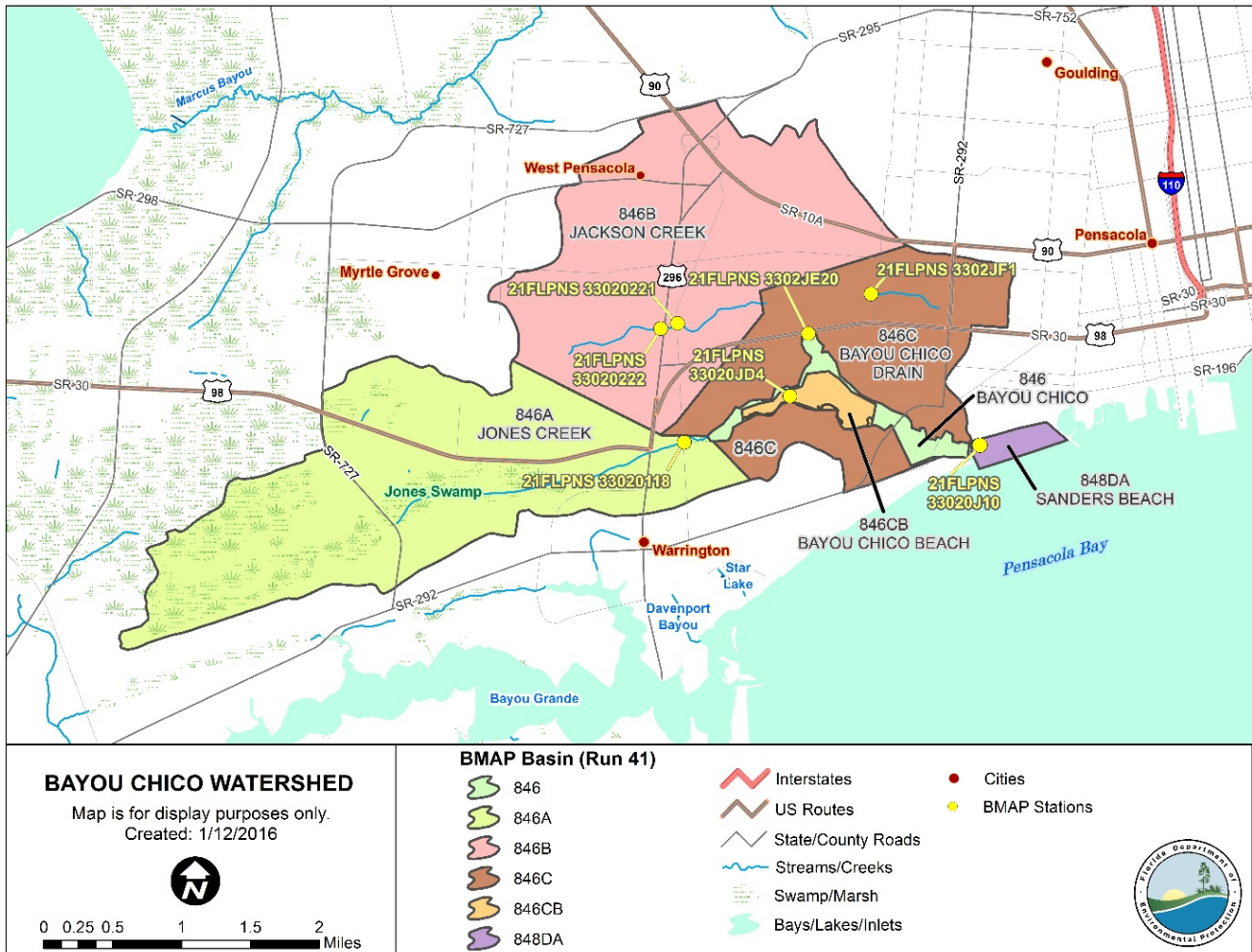
WATER QUALITY MONITORING AND PATTERNS

During the reporting period, Escambia County continued monthly monitoring at the seven stations in the basin (see **Figure ES-1**). FDOH in Escambia County also sampled biweekly at Bayou Chico at Lakewood Park (Station 33020JD4) and weekly at Sanders Beach (Station 33020J10) for determining swimming area closures. The water quality data from 2013 through 2015 were assessed to determine bacterial counts in the basin. Spikes in both fecal coliform and *Enterococci* appear to be associated with a rain event in August 2015. *Enterococci* levels did not increase significantly in response to a rain event in April 2015, although fecal coliform levels spiked significantly. Therefore, the levels of *Enterococci* appear to be related to rainfall some of the time, while fecal coliform increased due to rain events more consistently. *Enterococci* is a fecal indicator bacteria (FIB) that is a more specific indicator of waste than fecal coliform. In addition, Escambia County used its monitoring program to detect and correct water quality impairments and to show that its water quality improvement projects were successful.

UPCOMING YEAR ACTIVITIES

ECUA sanitary sewer retrofit projects, inspections, and hookups will continue as planned during 2016. Continuation of the extensive collaborative 2015 source identification effort is also planned.

In addition, source identification monitoring will continue in an attempt to locate sources, and the results will be used to inform decision makers on next steps. The department intends to allocate monitoring laboratory resources to the Bayou Chico BMAP to analyze samples for indicators of anthropogenic and natural sources of waste. To date, the department's laboratory in Tallahassee is able to analyze water for



Section 1: PURPOSE OF THE REPORT

This is the fourth annual Progress Report for the Bayou Chico Basin Management Action Plan. **Section 2** describes the activities that occurred during the period from November 1, 2014, through October 31, 2015. **Section 3** describes the water quality monitoring that occurred during the reporting period and the patterns in fecal coliform and *Enterococci* concentrations. **Section 4** discusses the efforts in the upcoming reporting period (November 1, 2015–October 31, 2016).

1.1 TOTAL MAXIMUM DAILY LOADS FOR THE BAYOU CHICO BASIN

The Bayou Chico watershed (see **Figure 1**), located in the southern end of Escambia County, just east of Blue Angel Parkway and north of Bayou Grande, has a 10.36-square-mile drainage area and a water surface area of approximately 0.39 square miles. The waterbodies addressed by the Bayou Chico BMAP are two Class III fresh waterbodies (Jones Creek and Jackson Creek) and four Class III marine waterbodies (Bayou Chico, Bayou Chico Drain, Bayou Chico Beach, and Sanders Beach). Class III waterbodies have a designated use of recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife.

The Florida Department of Environmental Protection identified these waterbodies in the Bayou Chico Basin as impaired by fecal coliform bacteria. In 2009, the department adopted a TMDL for Bayou Chico (waterbody identification [WBID] number 846), Jones Creek (WBID 846A), Jackson Creek (WBID 846B), Bayou Chico Drain (WBID 846C), Bayou Chico Beach (WBID 846CB), and Sanders Beach (WBID 848DA) (see **Figure 1**). The department adopted the Bayou Chico BMAP in October 2011 to address these impairments. **Table 1** lists the TMDL and pollutant load allocations adopted by rule for the watershed.

TABLE 1: BAYOU CHICO FECAL COLIFORM TMDL

WBID	TMDL (% REDUCTION)	WASTELoad ALLOCATION FOR WASTEWATER (COLONY-FORMING UNITS PER 100 MILLILITERS [CFU/100ML])	WASTELoad ALLOCATION FOR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER (% REDUCTION)	LOAD ALLOCATION (% REDUCTION)
Bayou Chico watershed (WBIDs 846, 846A, 846B, 846C, 846CB, and 848DA)	61%	Point source must meet permit limits	61%	61%

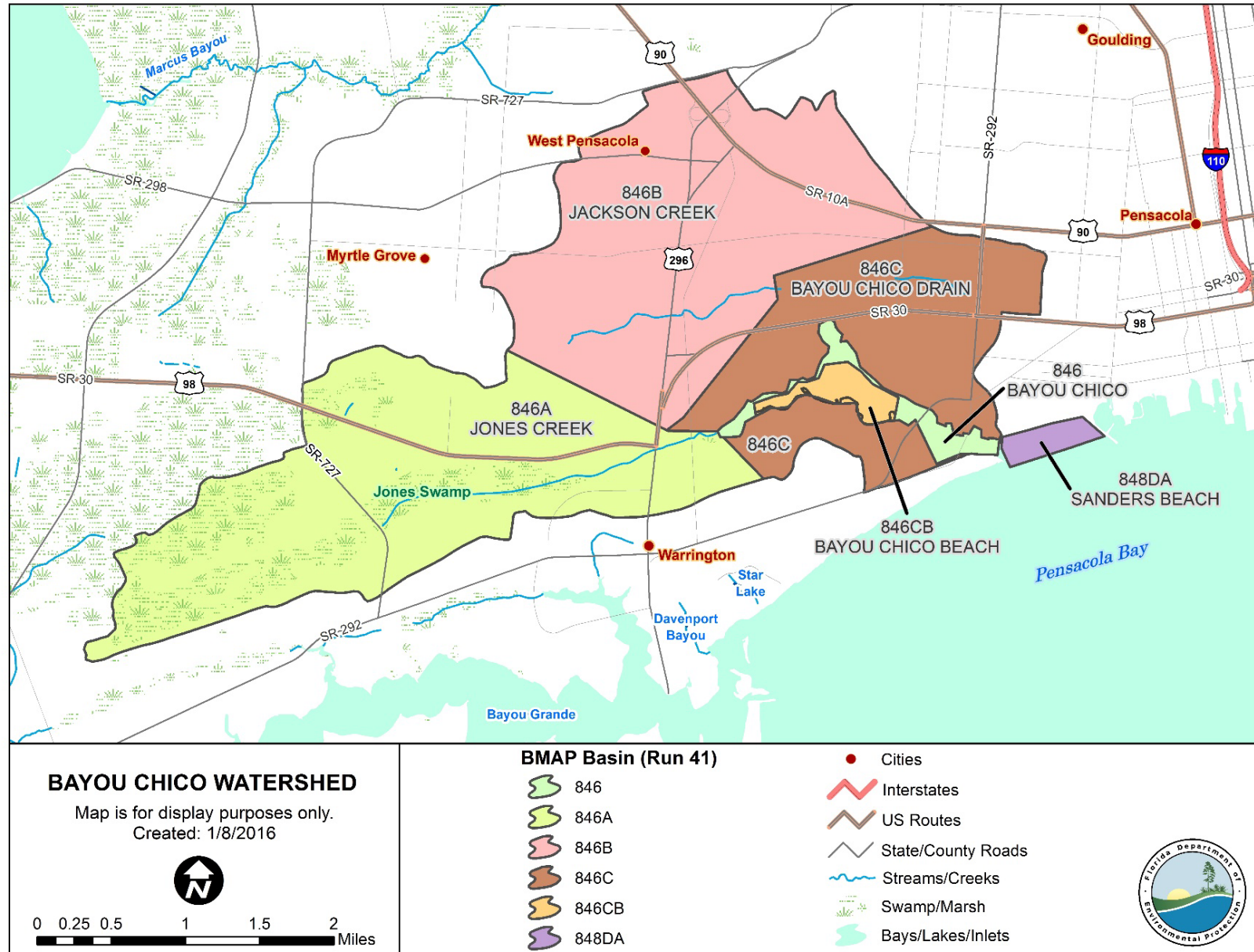


FIGURE 1: BAYOU CHICO WATERSHED

1.2 RESPONSIBLE PARTIES AND KEY STAKEHOLDERS

The following organizations and entities are key stakeholders in the Bayou Chico BMAP:

- Bay Area Resource Council (BARC).
- Bayou Chico Association (BCA).
- City of Pensacola (COP).
- Emerald Coast Utilities Authority (ECUA).
- Escambia County.
- Florida Department of Health (FDOH) in Escambia County.
- Florida Department of Transportation (FDOT).
- Florida Fish and Wildlife Conservation Commission (FWC).
- Naval Air Station (NAS) Pensacola.
- University of West Florida (UWF).

In addition to these entities, the department and Northwest Florida Water Management District (NFWFMD) are essential to the implementation of the BMAP activities.

1.3 FECAL COLIFORM REDUCTIONS SINCE BMAP ADOPTION

A new approach, one that mirrors the Impaired Surface Waters Rule (IWR) methodology in Chapter 62-303, Florida Administrative Code (F.A.C.), will be used to determine progress towards meeting the TMDL for Jones Creek (WBID 846A), Jackson Creek (WBID 846B), Bayou Chico (WBID 846), and Bayou Chico Drain (WBID 846C). The IWR criterion is set so that no more than 10% of the data exceed 400 cfu/100mL during each verified period.

The Cycle 1 verified period is January 1, 1998, to June 30, 2005; the Cycle 2 verified period is January 1, 2003, to June 30, 2010; and the Cycle 3 verified period is January 1, 2009, to June 30, 2016. Column 5 in **Table 2** shows the minimum number of exceedances needed to place a waterbody on the Verified List with at least a 90% confidence level for the partial Cycle 3 verified period (January 1, 2009, to October 31, 2015).

A partial Cycle 3 verified period is used because the BMAP reporting period ends before the full Cycle 3 verified period is completed. The minimum number of exceedances is compared with the number of exceedances to determine if the IWR criterion is being met. Based on this comparison, all four waterbodies do not meet the criterion and remain impaired for fecal coliform.

TABLE 2: FECAL COLIFORM EXCEEDANCES BY TRIBUTARY

WBID NUMBER	WATERBODY NAME	TOTAL NUMBER OF FECAL COLIFORM DATA POINTS FOR JAN. 1, 2009– OCT. 31, 2015	NUMBER OF EXCEEDANCES	MINIMUM NUMBER OF EXCEEDANCES TO BE CONSIDERED IMPAIRED (SUBSECTION 62- 303.420[2], F.A.C., TABLE 3)	% EXCEEDANCE JAN. 1, 2009– OCT. 31, 2015 (PARTIAL CYCLE 3)
846	Bayou Chico	43	10	8	23.3%
846A	Jones Creek	43	13	8	30.2%
846B	Jackson Creek	67	28	11	41.8%
846C	Bayou Chico Drain	44	14	8	31.8%

Table 3 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 if progress has been made to meet the state criterion. When comparing progress, all four waterbodies showed an increase in percent exceedance frequency during the 2009–2015 period.

TABLE 3: EXCEEDANCE FREQUENCY PROGRESS TOWARD STATE CRITERION BASED ON IWR DATA PERIODS

WBID	WATERBODY NAME	% EXCEEDANCE JAN. 1, 2003– JUNE 30, 2010 (CYCLE 2)	% EXCEEDANCE JAN. 1, 2009– OCT. 31, 2015 (PARTIAL CYCLE 3)	PHASE I % EXCEEDANCE FREQUENCY PROGRESS TOWARD STATE CRITERION
846	Bayou Chico	19.0%	23.3%	-4.2%
846A	Jones Creek	23.3%	30.2%	-7.0%
846B	Jackson Creek	32.4%	41.8%	-9.4%
846C	Bayou Chico Drain	19.4%	31.8%	-12.5%

To assess and determine progress for the two beach WBIDs, Sanders Beach (WBID 848DA) and Bayou Chico Beach (846CB), the number of advisories or warnings issued during a calendar year was used. In Cycle 1, Bayou Chico Beach and Sanders Beach were assessed as waterbody type “coastal.” In Cycle 2, these WBIDs were changed to waterbody type “beach.” In Cycle 1, the coastal WBIDs were assessed

using fecal coliform data based on the criterion that no more than 10% of the data could exceed 400 cfu/100mL in the 7.5-year dataset.

The department does not assess WBIDs listed as waterbody type “beach” using fecal coliform data. Thus these two WBIDs were not assessed using the IWR fecal coliform methodology in Cycle 2; nor will they be in Cycle 3. The two beach segments will be assessed using the impairment criterion in Subsection 62-303.360(c), F.A.C., which refers to beach advisories. The criterion states that a Class I, II, or III waterbody shall be placed on the Planning List if the water segment includes a bathing area for which a local health department or county government has issued closures, advisories, or warnings totaling 21 days or more during a calendar year based on bacteriological data. Both beach WBIDs were impaired in Cycle 2 for bacteria based on the number of advisories issued (see **Figure 2**). The purple horizontal line in **Figure 2** denotes the 21-day threshold.

FDOH tests for bacteria biweekly at Bayou Chico Beach at Lakewood Park (near Station 33020JD4 in WBID 846CB) from March to October and year-round on a weekly basis at Sanders Beach (near Station 33020J10 in WBID 848DA). From 2000 through 2011, FDOH tested Bayou Chico Beach and Sanders Beach for fecal coliform and *Enterococci*. A beach advisory was issued if either the fecal coliform or *Enterococci* criteria were exceeded (400 and 104 cfu/100mL, respectively). FDOH discontinued sampling for fecal coliform in 2011 but continued sampling and issuing beach advisories for *Enterococci*. The [beaches water quality data and notice of advisories](#) are posted online. FDOH is able to remove the beach advisory once the sampling results fall below the *Enterococci* criterion of 104 cfu/100mL.

Figure 2 shows the number of days that Sanders Beach and Bayou Chico Beach were placed under advisories during each calendar year from 2009 to 2014. In the years preceding BMAP adoption (2001–11), advisories for Sanders Beach averaged 49 days per year, with the maximum number of 183 days occurring in 2003 and the minimum number of zero days in 2011. In the years during BMAP implementation (2012–14), the maximum occurred in 2012, with 21 days of advisories. During 2013 there were zero days of advisories, and in 2014 there were five days of advisories.

Bayou Chico Beach advisory days during the pre-BMAP adoption years (2001–11) averaged 190 days of advisories, with a maximum of 292 days in 2007. There were greater than 174 days of advisories in eight of the 11 pre-BMAP years, and the minimum number of advisory days occurred in 2001, at 70

days. The number of days decreased greatly during the BMAP implementation years, with 63 advisory days in 2012, 71 days in 2013, and 81 days in 2014.

Table 4 includes the number of beach advisories during Cycle 3 assessment period, which runs from January 1, 2009, to June 30, 2016. Sanders Beach exceeded the number of advisory days allowed in three of the five years of available data, maintaining its impaired status during Cycle 3. However, **Figure 2** shows that a reduction in the magnitude of advisory days occurred during the implementation of the BMAP (2012–present) in both basins. The reduction could be in part to the increased number of projects in the basin but may also result from using *Enterococci* as a more specific fecal indicator bacteria. Bayou Chico Beach exceeded the 21-day criterion every year from 2009 through 2014 and will therefore be designated as impaired during the Cycle 3 assessments.

While significant reductions have been achieved, additional source identification and elimination projects are needed in both beach WBIDs and contributing watersheds. The BMAP goal for these beach WBIDs is to have fewer than 21 beach advisories each year.

TABLE 4: NUMBER OF BEACH ADVISORIES PER YEAR, 2009–15

* Data were not available when this report was written.

WBID	WATERBODY NAME	2009	2010	2011	2012	2013	2014	2015
848DA	Sanders Beach	29	38	0	21	0	5	*
846CB	Bayou Chico Beach	205	234	105	63	71	81	*

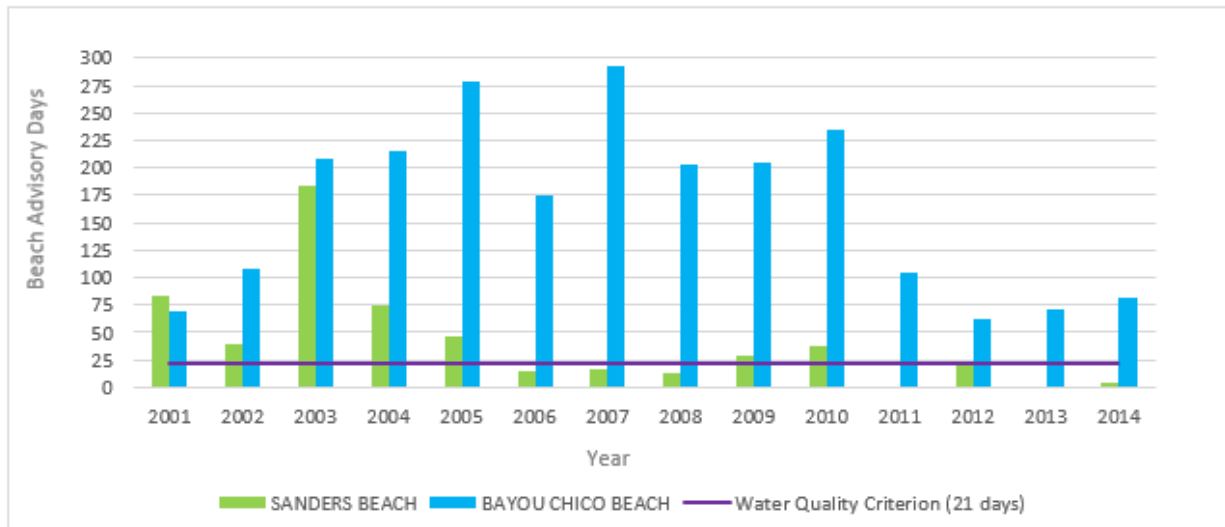


FIGURE 2: BEACH ADVISORY DAYS PER YEAR, 2001–14

|: ACTIVITIES DURING THE REPORTING YEAR

The activities that occurred during the reporting period (November 1, 2014–October 31, 2015) are described in **Section 2.1** through **Section 2.8**. The stakeholders’ complete BMAP project tables are included in **Appendix A**.

2.1 BARC ACTIVITIES

Neighborhood Clean Sweeps (Project BARC-60) were performed in fall 2014 and spring 2015 in conjunction with the Stormwater Estuary Education Program (SWEEP). BARC staff also conducted SWEEP presentations at four local schools, providing approximately 200 students with information on how to prevent stormwater pollution at the local level. BARC-60 is funded through an interlocal agreement between Escambia and Santa Rosa Counties and the municipalities of Pensacola, Gulf Breeze, and Milton. The project receives \$5,000 annually in funding from Escambia County.

2.2 BCA ACTIVITIES

BCA removed several hundred pounds of trash from Bayou Chico during its annual Bayou Chico Clean Up Day (Project BCA-79). Individual waterfront debris cleanup continues on an ongoing basis.

Bahia Mar Marina, a former Clean Marina, is being purchased by Marine MAX and is expected to be certified as a Clean Marina once again in 2016.

BCA turned over the \$10 million Bayou Chico dredging restoration project (Project BCA-56) to Escambia County (Project Escambia County-91) to implement, should funding become available through the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States (RESTORE) Act. It has been proposed that the project be divided into three phases to secure the funding needed from the RESTORE Committee. The NFWFMD may also be adding a funding request for this project in its 2015–16 Water Projects Funding Request.

2.3 COP ACTIVITIES

The design for COP’s “L” and Zarragossa Street project (Project COP-57) was finalized and permitted. The project is expected to be advertised for bid on December 15, 2015, with construction estimated to commence in February 2016.

The city's street sweeping program (Project COP-59) is ongoing, and funding for the program has been secured for at least the next four years.

The "R" and Wright Street baffle box project (Project COP-80) was awarded grant funding through National Fish and Wildlife Foundation (NFWF) Easygrants. The project is being redesigned to incorporate landscape, hardscape, lighting, and educational kiosks. It is expected to be advertised for bid in April 2016, with construction estimated to commence in June 2016.

2.4 ECUA ACTIVITIES

ECUA continued its efforts to complete Sewer Expansion Program projects in the Bayou Chico watershed, as well as throughout the entire ECUA service area. ECUA continued to connect properties in the Sewer Expansion Program project areas that have not yet connected to the new sewer lines and phased out their septic tanks.

The Gulf Coast Ecosystem Restoration Council awarded a grant to ECUA and Escambia County for approximately \$5.96 million (RESTORE Act funds). The grant will be used for stormwater management improvements and sewer expansion (phasing out septic tanks) in the Beach Haven community, part of which is included in the Bayou Chico watershed. Planning and design are under way for the project.

ECUA also continued its ongoing sanitary sewer programs (Projects ECUA-9 through ECUA-12) during the last year.

2.5 ESCAMBIA COUNTY ACTIVITIES

The Lexington Terrace Stormwater Retrofit (Project Escambia County-71), the Southwest Greenway 3rd Extension (Project Escambia County-76), and the Southwest Greenway 4th Extension (Project Escambia County-91) have been completed. The 3rd Extension was modified from a 3,000-foot to an 1,800-foot elevated educational boardwalk. The 4th Extension involved the construction of an 1,800-foot elevated educational boardwalk west across Fairfield Drive at a cost of \$250,000.

Due to the April 2014 flood, repairs to the existing Jackson Lakes Stormwater System (Project Escambia County-77) became necessary and are ongoing. The stormwater improvements for the system are in the design phase, and estimated project costs were increased from \$250,000 to \$1 million.

Construction commenced for the Beach Haven Stormwater Improvement Project Phase I (Project Escambia County-78) and the Corrydale Floodplain Restoration/ Expansion Project (Project Escambia County-92). The Beach Haven Stormwater Improvement Project includes the construction of new stormwater infrastructure to treat stormwater runoff from an existing 250-acre residential development along Jones Creek. The Corrydale Floodplain Restoration Project includes the restoration of three quarters of an acre of wetlands in the Jones Swamp Wetland Preserve. The project is associated with the ECUA lift station relocation project.

The Jones Creek Floodplain Restoration/Expansion Project (Project Escambia County-88) and the Jackson Creek Floodplain Restoration/Expansion Project (Project Escambia County-89) progressed from the planned phase to the design phase. The projects will reestablish the connections to historical floodplains along the creeks.

The Beach Haven Stormwater Improvement Project Phase II (Project Escambia County-86) and the Bayou Chico Dredging Phase I remediation (Project Escambia County-93) have been planned with funding from the RESTORE Act pending. Phase I of the Bayou Chico Dredging project includes the planning, design, and permitting for the remediation of contaminated Bayou Chico sediments. The project cost for Phase I is \$356,850.

Surface water quality monitoring of Jackson Lakes (Project Escambia County-94) is under way. The \$27,000 project includes monitoring three former borrow pits associated with Jackson Creek.

Additional BMAP-related efforts included holding a “Maps on the Table” meeting and a “Walk the WBID” field event. Escambia County obtained \$755,563 through Section 319 grants for the Beach Haven NE Phase I and Southwest Greenway 4th Extension projects. The NFWF granted \$11 million for the Beach Haven NE Phase I, Jackson Creek Floodplain Restoration, and Jones Creek Floodplain Restoration, as well as two city projects (“R” Street at Maggie’s Ditch and Bill Gregory Park Stormwater Project). In addition, a 1,000-gallon-per-day raw sewage discharge into Jackson Creek from a broken private lift station lateral pipe was found and repaired by the owner.

2.6 FDOH IN ESCAMBIA COUNTY ACTIVITIES

FDOH in Escambia County continued its Onsite Sewage Treatment and Disposal System (OSTDS) Permitting Program, as well as its Healthy Beaches Program (Project FDOH-16). FDOH continues to receive funding from ECUA to aid with indigent sewer connections.

FDOH participated in Escambia County's Bay Day on May 15, 2015. An interactive septic tank model showed local fifth-grade students the impacts that a septic tank has on water quality if not maintained properly. Color sheets with information on what not to flush down the drain were handed out. FDOH also participated in the Florida Health Cleans Up! Campaign. Employees collected trash and debris from Sanders Beach on October 20, 2015, to contribute to a healthier, litter-free environment.

FDOH assisted with the Walk the Waterbody Event on April 1 and 2, 2015. During this event, an unapproved blackwater discharge was discovered. FDOH was able to assist the resident in properly connecting the wastewater line to the septic tank.

2.7 FDOT ACTIVITIES

FDOT continued with its municipal separate storm sewer system (MS4) permit implementation and its Drainage Connection Program (Project FDOT-67). In addition, FDOT continued the statewide implementation of mandatory Illicit Discharge Detection and Elimination (IDDE) training for all staff and contractors working in FDOT's rights-of-way (Project FDOT-87).

2.8 FWC ACTIVITIES

During the reporting period, two FWC officers conducted the compliance and inspection sweeps for moored and live-aboard vessels in the area (Project FWC-54). The officers documented one violation with a citation and issued several other boating safety-type warnings. FWC is currently investigating a company for dumping over 11,000 pounds of debris from a vessel into Bayou Chico. The debris was cleaned up by the county, but the investigation is ongoing.

2.9 COLLABORATIVE SOURCE IDENTIFICATION EFFORTS

The stakeholders also participated in a collaborative source identification effort that began in 2015. The effort started with a "Maps on the Table" workshop that identified potential bacteria sources in the BMAP watershed. The results of the Maps on the Table exercise were used to map out field investigations and evaluations (termed "Walk the Watershed" or "Walk the WBID"). The department

and stakeholders collected samples before, during, and after the Walk the WBID, and used fecal coliform results to determine source locations.

Additional investigative monitoring by Escambia County field staff led to the identification and elimination of a leaking privately owned sanitary sewer lift station conveyance that was broken in Jackson Creek and confirmed an illicit connection from a home to a Jones Creek watershed stormwater ditch. Another ditch in the Jones Creek watershed was investigated due to discolored water, sewage odor, and high bacteria results. ECUA pressurized the nearby sanitary sewer conveyance that crosses the ditch, but no leak was found. The source of this site is still under investigation.

The field investigations resulted in a list of observations that will be used to further source identification work and inform policy decisions as needed. **Appendix C** of this report contains a list of action items based on field observations from the Walk the WBID evaluation.

|: WATER QUALITY MONITORING AND PATTERNS

3.1 WATER QUALITY MONITORING

The Bayou Chico BMAP monitoring plan was designed to track implementation efforts and monitor water quality in order to determine additional sources and water quality patterns using existing monitoring stations in the watershed, and to conduct more extensive monthly sampling at specific locations where fecal coliform counts are historically high.

The BMAP monitoring plan consists of monthly ambient water quality sampling at six stations in the watershed. These stations are monitored by Escambia County, and the fecal coliform samples are analyzed by the UWF Wetlands Research Laboratory. The department's Northwest District works with Escambia County, as needed, to follow up on high fecal coliform counts. The Northwest District also conducts quarterly monitoring in the Bayou Chico Basin and uploads data collected by Escambia County to the state's Storage and Retrieval (STORET) database.

Table 5 lists the six stations in the BMAP monitoring plan and the new monitoring station in Jackson Creek (added in October 2013); **Figure 3** shows the locations of these stations. Escambia County sampled the seven stations monthly for fecal coliform, *Enterococci*, nutrients, and field parameters. In addition, FDOH in Escambia County sampled biweekly at Bayou Chico at Lakewood Park (near Station 33020JD4 in WBID 846CB), and sampled weekly at Sanders Beach (near Station 33020J10 in WBID 848DA) year-round for determining swimming area closures. All data are uploaded into STORET.

TABLE 5: STATIONS IN THE BAYOU CHICO BMAP MONITORING PLAN

STATION LOCATION	STATION NUMBER	RESPONSIBLE STAKEHOLDER
Bayou Chico at Navy Boulevard Bridge	3302JE20	Escambia County
Bayou Chico at "W" Street	33020JF1	Escambia County
Jackson Creek at Old Corry Road	33020221	Escambia County
Jackson Creek at North New Warrington Road	33020222	Escambia County
Jones Creek at Old Corry Road	33020118	Escambia County
Sanders Beach	33020J10	Escambia County; FDOH in Escambia County
Southwest Arm of Bayou Chico – North of Mandalay Drive (Lakewood)	33020JD4	Escambia County; FDOH in Escambia County

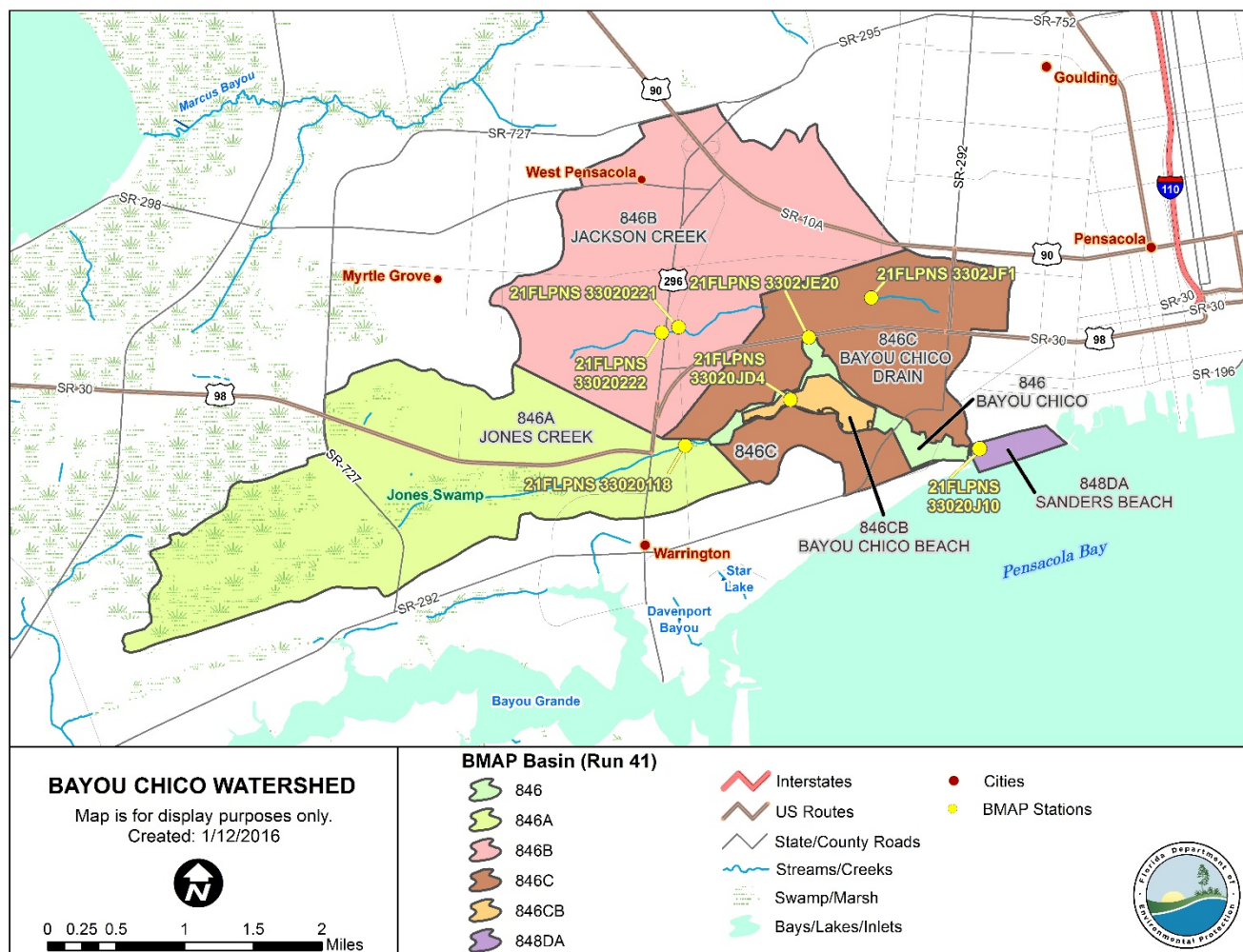


FIGURE 3: MONITORING STATIONS FOR FECAL COLIFORMS AND NUTRIENTS IN THE BAYOU CHICO BASIN

3.2 WATER QUALITY PATTERNS

Water quality data from 2013 through 2015 were assessed to determine bacterial counts in the basin. Spikes in both fecal coliform (**Figure 4**) and *Enterococci* (**Figure 5**) appear to be associated with a rain event in August 2015. *Enterococci* levels did not increase noticeably in response to a rain event in April 2015, while fecal coliform levels spiked significantly. Therefore, levels of *Enterococci* appear to be related to rainfall some of the time, although fecal coliform increased due to rain events more consistently.

The stakeholders will continue the current sampling plan in the upcoming year, and will follow up on counts over 5,000 cfu/100mL to try and identify a source. Towards the end of Year 5 of BMAP

implementation, more detailed assessments may be implemented in areas of the basin that continue to have high fecal coliform counts.

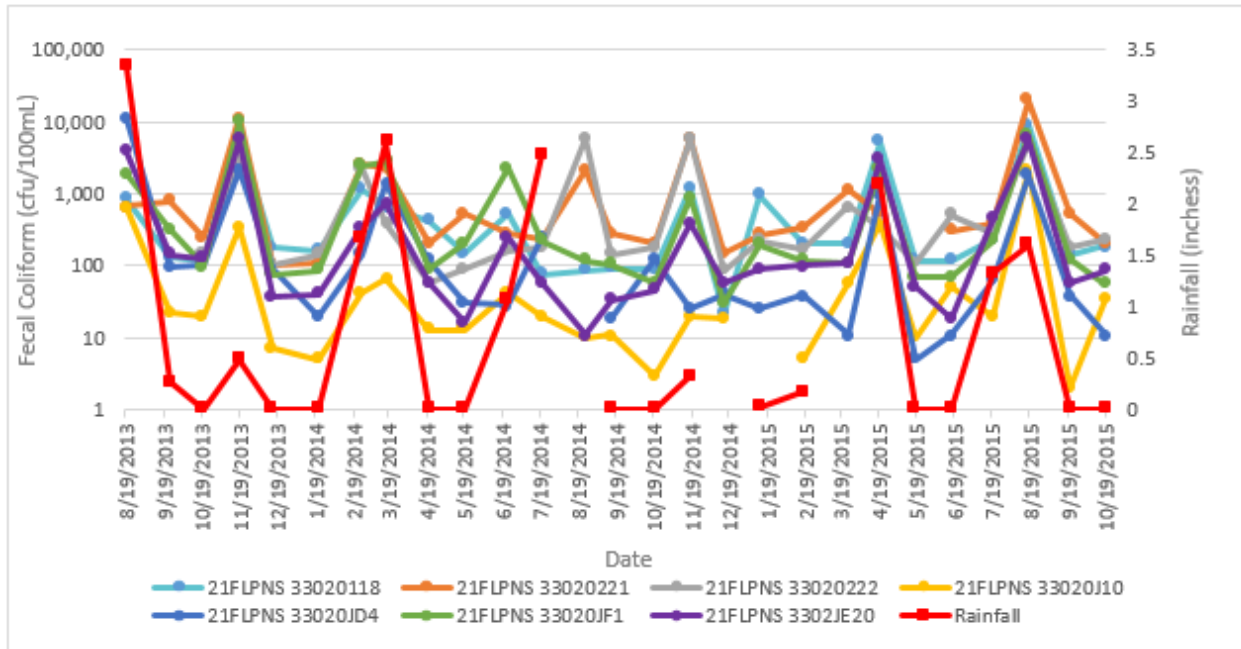


FIGURE 4: FECAL COLIFORM COUNTS AT EACH MONITORING STATION COMPARED WITH RAINFALL, 2013-15

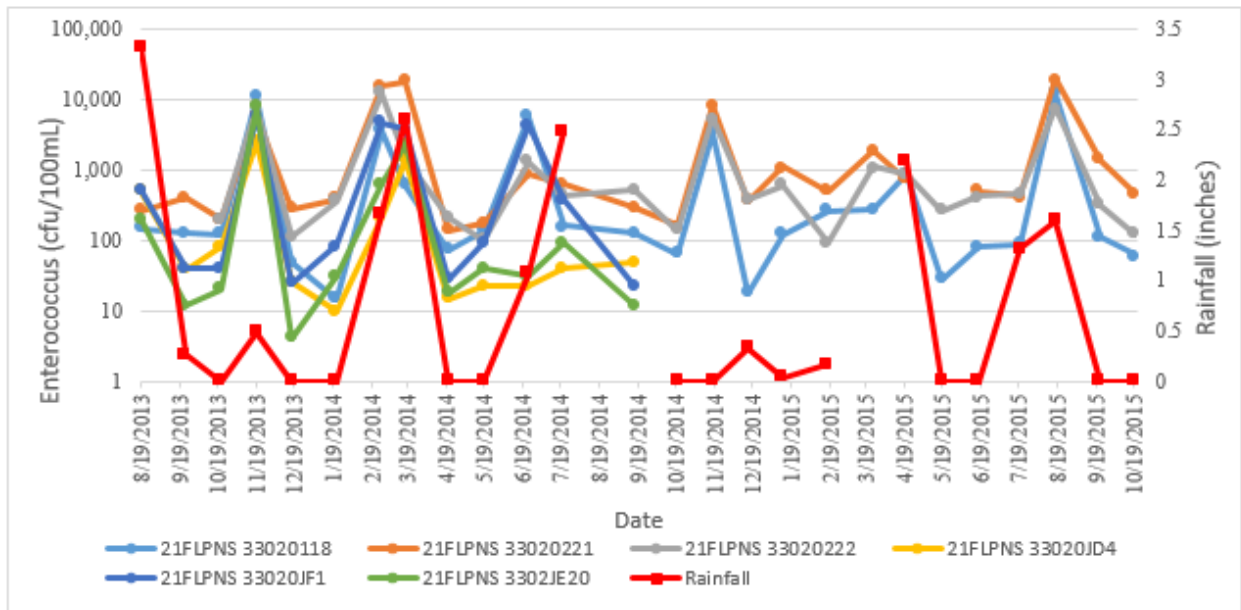


FIGURE 5: ENTEROCOCCI COUNTS AT EACH MONITORING STATION COMPARED WITH RAINFALL, 2013-15

3.3 WATER QUALITY SUCCESS STORIES

3.3.1 LEXINGTON TERRACE STORMWATER RETROFIT PROJECT

The Lexington Terrace Stormwater Retrofit Project (Project Escambia County-71), located just downstream of the Jones Creek and Old Corry Rd. crossing, was completed in 2014. The project employs a “treatment train” method of treating the 53-acre basin. Stormwater flows through hydrodynamic separators, then to a dry pond, and ultimately to a wet pond. The stormwater treatment system did not discharge water to Jones Creek during the study, thus reducing bacteria loading to Bayou Chico. Ten qualifying storms (0.2 to 1.5 inches) were evaluated between February and June 2015; **Table 6** lists the TN and TP load reductions achieved by the project.

TABLE 6: ANNUAL TN AND TP LOAD REDUCTIONS FROM THE LEXINGTON TERRACE STORMWATER RETROFIT PROJECT

TOTAL PROJECT COSTS	AREA TREATED (ACRES)	TN REDUCTION (LBS/YR)	TN COST (\$/YR)	TN COST (\$/YR/ACRE)	TP REDUCTION (LBS/YR)	TP COST (\$/YR)	TP COST (\$/YR/ACRE)
\$1,080,000	52.73	274.76	\$3,930.70	\$74.54	39.88	\$27,081.24	\$513.58

3.3.2 STORAGE INN OF PENSACOLA PRIVATE LIFT STATION

Results from the monthly November 2014 sampling event (collected on the 17th) at both Jackson Creek stations exceeded 6,000 cfu/100mL. The prescribed follow-up sampling was conducted on November 19, and fecal coliform levels decreased to less than 800 cfu/100mL. During the scheduled December sampling, a closer inspection of the creek along the Storage Inn property revealed a cloudy subsurface discharge that was determined to originate from a private lift station on the property. The lift station pipe crosses under Jackson Creek before connecting to an ECUA sanitary manhole. The four-inch polyvinyl chloride (PVC) pipe had been broken, likely during drainage maintenance. The PVC pipe was replaced with new ductile steel pipe installed 24 inches below the creek bottom, eliminating the discharge.

3.3.3 ESCAMBIA COUNTY WILDLIFE SANCTUARY WATER QUALITY EVALUATION

The Wildlife Sanctuary of Northwest Florida, located at 105 North “S” Street in Pensacola, lies just upstream of the Bayou Chico BMAP station at the “W” Street weir (33020JF1). During the winter months, the facility feeds hundreds of waterfowl. Concern was expressed that the wildlife could be contributing to fecal coliform violations. Samples were collected during the routine monthly sampling

events for January through March 2015. Four stations total were sampled upstream and immediately downstream of the wildlife sanctuary facility. No fecal coliform violations were documented either upstream or downstream of the facility during the evaluation period.

|: UPCOMING YEAR ACTIVITIES

ECUA sanitary sewer retrofit projects, inspections, and hookups will continue as planned during 2016. Continuation of the extensive collaborative 2015 source identification effort is planned. Source identification monitoring will also continue, and the results will be used to inform decision makers on next steps. The department intends to allocate laboratory resources to the Bayou Chico BMAP to analyze samples for indicators of anthropogenic and natural sources of waste. To date, the department's laboratory in Tallahassee is able to analyze water for indicators of human waste and seagull waste. County monitoring staff will continue to respond to ambient creek samples with field investigations and additional monitoring. These combined investigative efforts are designed to identify locations or activities in the BMAP watershed where reduction efforts will be effective in reducing human health risk and bacteria sources, and will contribute to the reductions required by the TMDL.

APPENDICES

APPENDIX A: BMAP PROJECT TABLES

TABLE A-1: BARC BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
Not applicable	All	Environmental Symposium 2007 – Public outreach and education on water, air, and land use issues and concerns	Public Outreach and Education	Completed	\$2,400
Not applicable	All	BARC Watershed Tour 2007 – Public outreach and education on land use and water, point and nonpoint source pollution	Public Outreach and Education	Completed	\$1,200
Not applicable	All	Distribution of brochures on green building design, ecological research programs, low impact development, sustainability, etc., at various events	Public Outreach and Education	Completed	\$31,000
Not applicable	All	Distribution of brochures at Bay Day 2007–09 and hands-on environmental education activities	Public Outreach and Education	Completed	\$0
BARC-60	All	Neighborhood Clean Sweep Program (debris and garbage clean-ups throughout basin)	Public Outreach and Education	Funded Ongoing	Unknown
BARC-81	All	Environmental Symposium 2012 – Public outreach and education on TMDLs, numeric nutrient criteria, and water quality	Public Outreach and Education	Completed	Unknown
BARC-82	All	Environmental Symposium 2013 – Held in fall with UWF	Public Outreach and Education	Completed	Unknown
BARC-83	All	Stormwater Drain Markings – BARC staff and UWF student volunteers placed 149 Duracast polyurethane curb markers on concrete casing above curbside inlets in areas where stormwater runoff feeds directly to bayou, and distributed stormwater fact sheets to over 1,200 households in area	Public Outreach and Education	Completed	Unknown

TABLE A-2: BCA BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
BCA-42	846 C-BC Drain	Oyster reef project – Habitat restoration	Oyster Reef Restoration	Completed	Unknown
BCA-43	846 C-BC Drain	Bayou Chico Channel Dredging – Remove restrictive piling to open up channel and increase flushing in tributaries of bayou	Dredging	On hold	\$68,000
BCA-44	846 C-BC Drain	Install aeration systems to break down waste and allow aerobic activity and bacterial digestion	Aeration System	On hold	Unknown
BCA-45	846 C-BC Drain	Floating Islands – Promote use of BioHaven® to enhance wetland functions and improve water quality	Floating Islands	On hold	Unknown

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
BCA-46	846 C-BC Drain	Clean Marina Clean Boatyard – Pensacola Ship Yard	Marina Waste Handling Improvements/ Clean Marina Program	Completed	Unknown
BCA-47	846 C-BC Drain	Clean Marina – Bahia Mar Marina	Marina Waste Handling Improvements/ Clean Marina Program	Completed Pending	Unknown
BCA-48	846 C-BC Drain	Clean Marina – Palm Harbor Marina	Marina Waste Handling Improvements/ Clean Marina Program	Completed	Unknown
BCA-49	846 C-BC Drain	Clean Marina – Island Cove Marina	Marina Waste Handling Improvements/ Clean Marina Program	Completed	Unknown
BCA-50	846 C-BC Drain	Clean Marina – Harbor View Marina	Marina Waste Handling Improvements/ Clean Marina Program	Completed	Unknown
BCA-51	846 C-BC Drain	Clean Marina Program – Pensacola Yacht Club	Marina Waste Handling Improvements/ Clean Marina Program	Planned	Unknown
BCA-52	846-Bayou Chico (BC)	Pump-out facilities (three, including a mobile unit)	Marina Waste Handling Improvements/ Clean Marina Program	Completed	Unknown
BCA-53	846-Bayou Chico (BC)	Marine Industry Operations – Obtain NPDES stormwater permit	Marina Waste Handling Improvements/ Clean Marina Program	Completed	Unknown
BCA-55	846 C-BC Drain	Public awareness and outreach campaign (brochures/neighborhood outreach on pet waste, leaking oil, fertilizers, soaps and detergents)	Public Education and Outreach	Completed	Unknown
BCA-56	846 C-BC Drain	Bayou Chico dredging	Dredging	Pending funding – submitted for RESTORE	\$10,000,000
BCA-79	846 C-BC Drain	Annual Bayou Chico cleanup	Public Education and Outreach	Ongoing	Unknown
Not applicable	846 C-BC Drain	Barge cleanup at residential location	Cleanup	Completed	Unknown

TABLE A-3: COP BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
Not applicable	848DA	Sanders Beach Storm Sewer Reconstruction, also known as Pensacola Yacht Club Ditch Replacement – Reroute flow from contaminated (Superfund site) ditch	Storm Sewer Upgrades	Completed	\$1,250,000
COP-57	846C – BC Drain (N)	L & Zarragossa Street Drainage Improvements – New stormwater treatment	Stormwater Upgrades/ Repairs	Construction pending	\$1,000,000
COP-58	846C – BC Drain (N)	Pace and Gregory Street, Magnet School Baffle Boxes	Stormwater Treatment Installation/ Maintenance	Completed	\$230,000
COP-59	846C – BC Drain (N)	Street Sweeping Program	Reduction of Pet and Animal Waste	Ongoing	\$745,000
COP-80	846C – BC Drain (N)	R and Wright Street Baffle Box	Stormwater Treatment Installation/ Maintenance	Planned completion 08/2015 Construction pending	\$350,000
COP-84	846C – BC Drain (N)	Bayou Drive Outfalls into Bayou Chico	Stormwater Treatment Installation/ Maintenance	In design	\$325,000
COP-85	846C – BC Drain (N)	Bill Gregory Park Stormwater Treatment Enhancement	Stormwater Treatment Installation/ Maintenance	Construction pending	\$1,950,000

TABLE A-4: ECUA BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
ECUA-1	Multiple	Lakewood Phase I – 183 connections	Sewer Extensions	Completed	\$1,431,866
ECUA-2	846 C-BC Drain	Lakewood Phase II – 85 connections	Sewer Extensions	Completed	\$747,263
ECUA-3	846 C-BC Drain	Lakewood Phase III – 112 connections	Sewer Extensions	Completed	\$723,964
ECUA-4	846 C-BC Drain	Lakewood Phase IV	Sewer Extensions	Completed	\$128,845
ECUA-5	846 C-BC Drain	Lakewood Phase V – 256 connections	Sewer Extensions	Completed	\$3,390,897
ECUA-6	846 C-BC Drain	Lakewood Phase VI	Sewer Extensions	Completed	Unknown
ECUA-7	846 C-BC Drain	Edgewater Phase I – 74 connections	Sewer Extensions	Completed	\$1,467,661
ECUA-8	846 C-BC Drain	Edgewater Phase II – 295 connections	Sewer Extensions	Completed	Unknown
ECUA-9	All	Fats, Oil, and Grease (FOG) Program	Sewer Upgrades/ Repairs	Ongoing	Unknown

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
ECUA-10	All	Inflow and Infiltration (I/I) Program	Sewer Upgrades/Repairs	Ongoing	Unknown
ECUA-11	All	Sanitary Sewer Overflow (SSO) Response Program	Sewer Upgrades/Repairs	Ongoing	Unknown
ECUA-12	All	Emergency Power Generator	Sewer Upgrades/Repairs	Ongoing	Unknown
ECUA-13	All	Main Street Relocation to Cantonment	Sewer Upgrades/Repairs	Completed	Unknown
ECUA-63	Unknown	Beach Haven – 1,720 connections total (half in Bayou Chico)	Sewer Extensions	Planned	\$1,200,000
ECUA-64	846C-BC Drain	West Avery Street Sewer Upgrades	Sewer Upgrades/Repairs	Completed	Unknown

TABLE A-5: ESCAMBIA COUNTY BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
Escambia County-22	846 A-Jones Creek	Glynn Key – New stormwater best management practices (BMP)	Stormwater Treatment Installation/Maintenance	Completed	\$500,000
Escambia County-22	846 A-Jones Creek	Glynn Key – Educational amphitheater and signage	Public Education and Outreach	Completed	Unknown
Escambia County-23	846 C-BC Drain	W Street Weir Replacement	Stormwater Upgrades/Repairs	Completed	Unknown
Escambia County-24	846 C-BC Drain	Jackson Lakes Stormwater – New stormwater BMP	Stormwater Treatment Installation/Maintenance	Completed	\$500,000
Escambia County-24	846 C-BC Drain	Jackson Lakes – Educational amphitheater and signage	Public Education and Outreach	Completed	Unknown
Escambia County-25	Multiple	Derelict Vessel Removal	Derelict Vessel Removal	Completed	\$50,000
Escambia County-26	All	New stormwater ponds with new development – 11 new BMPs	Stormwater Treatment Installation/Maintenance	Under construction	\$1,100,000
Escambia County-27	All	Illicit Discharge Detection, High Risk Industries, Small Quantity Generators, Stormwater Outfall Monitoring	Sampling	Completed	\$50,000
Escambia County-28	All	Stormwater Pond – Inspection and maintenance of more than 300 ponds	Stormwater Treatment Installation/Maintenance	Ongoing	\$300,000
Escambia County and ECUA-29	846C-BC Drain	Avery Street Drainage Improvements Phase I (Kupfiran Park Area Improvements) – Construction of new stormwater infrastructure in Kupfiran Park area	Stormwater Upgrades/Repairs	Completed	\$1,000,000

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
Escambia County-30	846 A-Jones Creek	Wetland Preservation – Purchase of four parcels at Fairfield Drive and Albany Avenue	Wetland Preservation	Completed	\$300,000
Escambia County-31	846 A-Jones Creek	West Jones Creek Stream Restoration – Wetland restoration and maintenance carried out west of Navy Boulevard, east of Fairfield Drive; construct natural stream channel, restoration activities in floodplain	Wetland Restoration	Completed	\$250,000
Escambia County, BARC, and BCA-32	All	Public Education and Outreach	Public Education and Outreach	Ongoing	\$10,000
Escambia County-34	All	Stormwater Outfall Monitoring	Monitoring	Completed	Unknown
Escambia County and USN-35	846 A-Jones Creek	Corry Station Retrofit Projects (Jones Creek East) – Construction of new stormwater infrastructure on NAS property designed to provide treatment for more than 100 acres of previously developed areas, which include mixture of institutional, commercial, and residential land uses	Stormwater Treatment Installation/Maintenance	Planned	\$500,000
Escambia County and USN-36	846 A-Jones Creek	Corry Station Runway Surface Restoration - Logistics to remove five acres of impervious surface, provide new stormwater treatment for runoff; concrete material will be available as base substrate for offshore fishery habitat improvements, oyster reefs, and other shoreline stabilization and restoration projects	Stormwater Treatment Installation/Maintenance	Cancelled; project nonviable – Funds to be redirected into other projects	\$80,000
Escambia County and USN-37	846B-Jackson Creek	Corry Station Retrofit Projects (Jackson Creek) – Construction of new stormwater infrastructure on NAS property designed to provide treatment for more than 200 acres of previously developed areas, which include mixture of institutional, commercial, and residential land uses	Stormwater Treatment Installation/Maintenance	Planned	\$500,000
Escambia County and USN-38	846 A-Jones Creek	Corry Station Retrofit Projects (Jones Creek West) – Construction of new stormwater infrastructure on NAS property designed to provide treatment for more than 100 acres of previously developed areas, which include mixture of institutional, commercial, and residential land uses	Stormwater Treatment Installation/Maintenance	Planned	\$500,000
Escambia County-39	All	Pet Waste Ordinance, Part 1, Article 1, Section 10-11(f)	Reduction of Pet and Animal Waste	Adopted	Unknown
Escambia County-65	All	Neighborhood Clean Sweeps/Cleanups	Public Education and Outreach	Ongoing	\$50,000
Escambia County-66	All	Monitoring Plan Implementation – Monitor water quality to identify additional sources and assess water quality trends	Monitoring	Ongoing	Unknown
Escambia County and ECUA-69	846C-BC Drain	Lakeview Street Drainage Improvements Phase II (Kupfiran Park Area Improvements) – Construction of new stormwater infrastructure in Kupfiran Park area	Stormwater Upgrades/Repairs	In design	\$400,000

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
Escambia County and Area Housing Commission-70	846A-Jones Creek	Jones Creek East Stream Restoration – Restoration of 1,200 linear feet of East Jones Creek between Navy Blvd. and Old Corry Field Road; includes stream enhancement, floodplain expansion, riparian wetland restoration, invasive exotic species eradication, and elevated educational boardwalk	Stream Restoration/ Public Education and Outreach	Completed	\$400,000
Escambia County-71	846A-Jones Creek	Lexington Terrace Stormwater Retrofit – Construction of four-acre stormwater treatment train system to capture and treat approximately 60 acres of existing residential development; includes concrete vaults, dry retention, wet detention elements, and BMP effectiveness monitoring to be conducted postconstruction	Stormwater Treatment Installation/ Maintenance	Completed Monitoring Ongoing Completed	\$650,000
Escambia County-72	846C-BC Drain	Maggie’s Ditch Wetland Enhancement Phase I – Expansion of riparian wetlands along 250-foot section of headwaters of northeast arm of Bayou Chico in historical floodplain	Wetland Enhancement	Completed	\$75,000
Escambia County and COP-73	846C-BC Drain	Maggie’s Ditch Wetland Enhancement Phase II – Expansion of riparian wetlands along 275-foot section of headwater of northeast arm of Bayou Chico in historical floodplain; also includes excavation and disposal of contaminated soils	Wetland Enhancement	Completed	\$175,000
Escambia County-74	846C-BC Drain	“W” Street Sedimentation Basin Repairs – Rehabilitation of failed sediment basin; includes dredging basin and installation of new composite weir	Stormwater Upgrades/ Repairs	Completed	\$150,000
Escambia County and Pensacola State College-75	846A-Jones Creek	Southwest Greenway at Pensacola State College Warrington Campus – Construction of 3,000-foot elevated educational boardwalk	Public Education and Outreach	Completed	\$400,000
Escambia County-76	846 A-Jones Creek	Southwest Greenway 3 rd Extension – Construction of 3,000-foot elevated educational boardwalk from Decatur Street west crossing Fairfield Drive; also includes improvements to 0.5 miles of existing on-grade trail system	Public Education and Outreach	Under construction	\$300,000
Escambia County-77	846B – Jackson Creek	Jackson Lakes Stormwater Improvements – Construction of improvements to existing Jackson Lakes Offline Retention System; includes installation of one-way valve system at stormwater inlet and further expansion of littoral area. Repairs required to existing structure after April 2014 flood.	Stormwater Treatment Installation/ Maintenance	In design	\$250,000 \$1,000,000
Escambia County-78	846 A-Jones Creek	Beach Haven Stormwater Improvement Project Phase I – Construction of new stormwater infrastructure for 250 acres of existing residential development along Jones Creek	Stormwater Treatment Installation/ Maintenance	In design (Funding Received from NEWE Grant) Under construction	\$5,000,000

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
Escambia County-86	846 A-Jones Creek	Beach Haven Stormwater Improvement Project Phase II – Construction of new stormwater infrastructure for 250 acres of existing residential development along Jones Creek	Stormwater Treatment Installation/Maintenance	Planned (funding pending)	\$5,000,000
Escambia County-88	846 A-Jones Creek	Jones Creek Floodplain Restoration/Expansion Project – Reestablish connection to historical floodplain along Jones Creek	Floodplain Restoration/Expansion Project	Planned In design (funding received from NFWF grant)	\$1,500,00
Escambia County-89	846B-Jackson Creek	Jackson Creek Floodplain Restoration/Expansion Project – Reestablish connection to historical floodplain along Jackson Creek	Floodplain Restoration/Expansion Project	Planned In design (funding received from NFWF grant)	\$1,500,000
Escambia County-90	846A-Jones Creek	East Jones Creek Stream Restoration – Restore 1,200 linear feet of East Jones Creek; stream enhancement and natural stream channel restoration project; floodplain restoration; wetlands restoration; elevated educational boardwalk	Stormwater Treatment Installation/Maintenance	Completed	\$250,000
Escambia County-91	846 A-Jones Creek	Southwest Greenway 4 th Extension – Construction of 1,800-foot elevated educational boardwalk west across Fairfield Drive	Public Education and Outreach	Project complete	\$250,000
Escambia County-92	846 A-Jones Creek	Corrydale – Restoration of 0.75 acres of wetland in Jones Swamp Wetland Preserve; project is associated with ECUA lift station relocation project	Floodplain Restoration/Expansion Project	Under construction	\$100,000
Escambia County-93	All	Bayou Chico Dredging Phase I – Planning, design, and permitting of remediation of contaminated Bayou Chico sediments; future phases may include dredging, or other technology, to remove or otherwise mitigate impacts from contaminants in bayou sediments	Remediation	Planned (funding pending from Gulf Coast Restoration Council)	\$356,850
Escambia County-94	846B – Jackson Creek	Jackson Lakes Surface Water Quality Monitoring – Surface water quality monitoring in three former borrow pits along Jackson Creek	Monitoring	Under way	\$27,000

TABLE A-6: FDOH IN ESCAMBIA COUNTY BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
FDOH-14 EBCH-18	All	Septic to Sewer Enforcement Program – Enforcement by notification and tracking of conversion compliance in Lakewood and Edgewater	Sewer Extensions	Completed	Unknown
FDOH-16	All	OSTDS Permitting Program per Chapter 64E-6, F.A.C.	Permitting Program	Ongoing	Not applicable

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
FDOH-17	All	Industrial/Business Annual Operating Permits and Compliance Inspections per Chapter 64E-6, F.A.C.	Permitting Program	Completed	\$900
FDOH-19	All	FDOH Research Program with UWF to develop method to distinguish human from nonhuman sources of pollution	Research	Completed	Unknown
FDOH-21	846CB (Lakewood) and 848DA (Sanders Beach)	Healthy Beaches Program – Biweekly sampling of specific sites for <i>Enterococci</i>	Sampling	Ongoing	\$5,676
Not applicable	All	Environmental Analysis Program – Inspect improperly installed and poorly maintained septic tank systems	Evaluation Program	Completed	Unknown

TABLE A-7: FDOT BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
FDOT-40	846C-BC Drain	(State Road 292) Barrancas Bridge replacement and stormwater treatment for bridge and roadway	Roadway Projects with Structural BMPs	Completed	Unknown
FDOT-41	846C-BC Drain	Bayou Chico US 98 (Navy Boulevard) Bridge replacement and stormwater treatment for four-lane bridge where no treatment was provided previously	Roadway Projects with Structural BMPs	Completed	Unknown
FDOT-67	All	MS4 Implementation	MS4 Implementation	Ongoing	Unknown
FDOT-68	All	FDOT Drainage Connection Program to regulate and prescribe conditions for transfer of stormwater to FDOT's rights-of-way	Drainage Connection Program	Ongoing	Unknown
FDOT-87	All	IDDE Training	Training	Ongoing	Unknown

TABLE A-8: FWC BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
FWC-54	846-BC Drain	Compliance and Inspection Sweeps – For noncompliance on moored and live-aboard vessels	Inspection Program	Ongoing	Unknown

APPENDIX B: FREQUENCY OF EXCEEDANCES FOR IWR CYCLES

*Cycle 1 runs from January 1, 1998, to June 30, 2005; Cycle 2 from January 1, 2003, to June 30, 2010; and Cycle 3 from January 1, 2009, to June 30, 2016. This information for Cycle 3 is partial and only covers data through October 31, 2015, which is the end of the BMAP year for the reporting period.

**NA is reported in cells where values are not applicable because the waterbody type for Bayou Chico Beach and Sanders Beach was changed from coastal to beach, since FDOH measures water quality for the Healthy Beaches Program. Therefore, in Cycles 2 and 3, impairment determinations for these two WBIDs are made based on the number of days of beach advisories, not the frequency of exceedances of the fecal coliform criterion of 400 cfu/100mL.

WBID NUMBER	WATERBODY NAME	CYCLE*	TOTAL NUMBER OF FECAL COLIFORM DATA POINTS**	NUMBER OF EXCEEDANCES**	MINIMUM NUMBER OF EXCEEDANCES TO BE CONSIDERED IMPAIRED (SUBSECTION 62- 303.420[2], F.A.C., TABLE 3) **	% EXCEEDANCE**
846	Bayou Chico	1	62	15	10	24.2%
846	Bayou Chico	2	468	89	56	19.0%
846	Bayou Chico	3	43	10	8	23.3%
846A	Jones Creek	1	39	13	7	33.3%
846A	Jones Creek	2	43	10	8	23.3%
846A	Jones Creek	3	43	13	8	30.2%
846B	Jackson Creek	1	38	15	7	39.5%
846B	Jackson Creek	2	37	12	7	32.4%
846B	Jackson Creek	3	67	28	11	41.8%
846C	Bayou Chico Drain	1	4	1	Need at least 10 samples	25.0%
846C	Bayou Chico Drain	2	31	6	6	19.4%
846C	Bayou Chico Drain	3	44	14	8	31.8%
846CB	Bayou Chico Beach	1	576	123	69	21.4%
846CB	Bayou Chico Beach	2	NA	NA	NA	NA
846CB	Bayou Chico Beach	3	125	NA	NA	NA
848DA	Sanders Beach	1	201	30	27	14.9%
848DA	Sanders Beach	2	NA	NA	NA	NA
848DA	Sanders Beach	3	110	NA	NA	NA

APPENDIX C: BAYOU CHICO WALK THE WBID FIELD OBSERVATIONS LIST

The following list captures the observations made during the 2015 Walk the Waterbody field investigations from March 31 to April 2, 2015. No major sources of fecal coliform were identified. One very small source was identified and eliminated. Minor grease spills at restaurants and minor trash problems were identified; combined these may contribute to bacteria proliferation when in contact with stormwater. These minor issues are relatively inexpensive to remediate utilizing public education through existing programs.

* Recommendations by the team members about follow-up by responsible entities and actions are subject to change as information is gathered. Follow-up action recommended column is filled with "Entity name" if an action is recommended. "No" indicates no follow-up is recommended. "TBD" indicates more information is needed and follow-up actions are to be determined.

A [map of site locations](#) is posted online.

FIELD SITE ID	OBSERVATIONS	FOLLOW-UP ACTION RECOMMENDED?
300	Old Corry Station Navy Base is in good clean condition. Observed sanitary sewer system above and underground, dumpster outside mess hall, and stormwater conveyances. All looked clean. No dog waste found in yards in residential portion.	No
67	CJ's Restaurant – Observed grease trap; no staining, but bad odor. Clean-out cover has hole in top; manhole cover needed.	ECUA
201	Slips Restaurant. No staining; grease trap looked clean.	No
69	Humane Society – Open trash lid, some flies, small amounts of trash outside dumpster. Very little pet waste accumulation. Looked good.	No
202	Sanitary sewer is 6 to 8 feet and stormwater is 2 to 3 feet deep. Entities communicating about hydrology.	No
203	Tom Thumb/Citgo gas station – Staining and waste seepage toward storm drain; lid shut, but rusting bottom causing seepage and loss of waste and strong odor.	Florida Department of Agriculture and Consumer Services (FDACS), Division of Food Safety
57	Homeless camp at Bill Gregory Sports Complex – Pensacola volunteered to contact Florida Department of Children and Families (DCF) local lead agency to request assistance for homeless.	Pensacola
204	Viewed end of Maggie's Ditch before crossing "W" Street and after wildlife sanctuary.	No
63	Viewed Trundle Marine/Pensacola Shipyard, which is a clean marina. There is private lift station and grinder on site; not sure how it operates.	No
205	Observed manhole to force main outside marina, where private marina lift station connects old manhole; looked clean.	No
64	Oar house dumpsters look clean; lid needs to be closed; no follow-up.	No
206	Viewed sanitary sewer manhole at Sonia St. and I St.; has rain guard; system appears to be in good condition.	No
207	Stormwater manhole popped at intersection of Sonia St. and 1 st St. Grabbed water quality sample here because of appearance of biological growth on wall from intersection of sanitary sewer and stormwater pipes. * Result >400 cfu/100mL	No
208	Millwood Apartments – Popped manhole; looked good. Private lift station	No

FIELD SITE ID	OBSERVATIONS	FOLLOW-UP ACTION RECOMMENDED?
79	Pensacola Kayak and Sail – Private lift station; needs lock; needs emergency contact to be posted. Neil McMillan (850) 982–8982.	TBD
209	Viewed sanitary sewer manhole in front of 584 Wind Rose Circle. Map layer suggested no sewer bill but ECUA confirmed they are hooked up.	No
210	Camper in yard hooked up to septic tank per owner communication. 3141 Old Barrancas.	FDOH
66	House of Chong, 3820 Navy Blvd. – Grease on ground. Grease stains and strong odor. Unsealed; not watertight grease trap; septic tank lids ajar. Jessica (850) 455–0995.	FDOH/Department of Business and Professional Regulation (DBPR)/ Escambia County
70	Observed Navy Blvd. Animal Hospital. Very clean property.	No
211	Vallarta Mexican Grill – Unlocked private lift station; no emergency contact information posted. Grease containers look OK.	FDOH
212	At Edge Water Drive and Bill Place, popped manhole; it looked good.	No
213	Allison's Antiques, 3940 West Navy Blvd. – Pulled manhole between antiques store and strip mall. Full of sewage debris and stagnant (full of bugs).	TBD
214	Jackson Creek at Old Corry Rd. – Observed diaper in creek next to bridge. Team walked from Old Corry to New Warrington. Need to contact Peoples Water about boils to see if there is line break. Area has many campers and travel trailers being used as residence at residences or small mobile home parks. Team looked to see if any were losing sewage. Team observed many that were piped to home's septic system, or other collection system. Some were not visible but had no obvious signs of sewage leaks.	Escambia County
20	Parape Gas Station, Ray's BBQ – Observed chicken stand at corner of New Warrington and Jackson.	No
8	Grocery Advantage – Staining near dumpster. Observed homeless community nearby. Also observed stray cats and feeding station.	TBD
5	Checked Chilies' on Mobile Hwy.; grease trap needs to be pumped out. DBPR - Broken sewer cleanout access. * ECUA checking on it before team reaches out to DBPR.	ECUA
215	Burger King – Water pooled under dumpster and spilling toward storm drain. Shauna to follow up.	Escambia County
216	Sanitary sewer manhole at Fairfield and Matthew Ln. – Misaligned sewer manhole, top 1 foot broken, looks dry; likely terminal end of uphill start of sanitary sewer pipe.	ECUA
302	Add Yamatos private lift station to ECUA Geographic Information System (GIS) layer.	ECUA
301	Anita, send private lift station ordinance examples to Carl of Pensacola; reference Sarasota County, Manatee County, and Duval County if possible.	DEP
217	Private lift station at American Mini Storage – Panel and door need to be locked, new sticker for phone number (850) 457–001? mini storage contact.	TBD
218	Pensacola Motor Sports – Observed private lift station, looked good.	No
219	Circle K at Jackson and New Warrington – Observed private lift station. Lid not locked; panel door broken and unlocked. Sanitary waste near lid is evidence of overflow. Shauna to follow up (850) 937–2445.	Escambia County
220	Old car wash at 48 th and West Jackson – Out of commission, but there are components here that are a mystery. No evidence of bacterial waste.	

FIELD SITE ID	OBSERVATIONS	FOLLOW-UP ACTION RECOMMENDED?
221	Jackson St. Apartments, West Jackson and Blanton – Wet ditch with debris; need to inform community about keeping dumpster lid closed. Observed lift station 113 on site. Looked to be in good working condition. Four-inch PVC pipe pointing toward creek was confirmed to be French drain during visit using a probe. Truckloads of trash need to be removed from creek. Public education about trash recommended.	Escambia County
222	Observed upper arm of Jackson Creek where West Jackson St. crosses creek. Recommend trash removal; large debris here.	Escambia County
223	At 610 Edge Cliff and 615 Edge Cliff – Stormwater drains need to be cleaned out.	Escambia County
224	Observed sanitary sewer manhole at Shofield and 57 – Old construction, but functioning. Unlined. System is at depth of about 10 feet.	No
225	Near 5404 and 5502 Admiral Doyle Rd., team noticed faint sewer odor near stormwater drain and manhole. Sanitary sewer line is unlined. Escambia County stormwater structure has hole at 5407.	Escambia County
226	Jordan Valley Restaurant and Taco Bell at New Warrington and Commander St. – Looks good. Open dumpster lid.	
227	Woodshed Grill's grease container is covered in spilled grease, as is surrounding area. Open dumpster lid.	DBPR
227	Hardees on New Warrington looked clean!	DBPR
83	Shrimp Basket on New Warrington – Some staining on asphalt.	DBPR
228	Popeye's on new Warrington – Some staining near dumpster, but good otherwise.	DBPR
229	Mobile home park near Popeye's looked clean.	No
230	Ruby Tuesdays on New Warrington – Out of business; private lift station observed. Lid is needed for utilities.	TBD
86	Walmart private lift station – Note if lift station overflows, it will flow directly into Jones Creek. Historically this area has had homeless population behind Walmart near creek.	No
91	Grape Garden's grease container for spent oil – Staining.	DBPR
85	Sonny's BBQ – Staining on concrete; all leads to Glenn Key - picture of Jones Creek at New Warrington	DBPR
231	Arby's at New Warrington – Staining near grease container leading to broken storm grate.	DBPR and Escambia County
232	Waffle House on New Warrington – Open and leaking grease container; grease collection on side of building; lots of staining.	Escambia County
233	Firehouse Subs – Discolored water leaving building from pipe into retention area - determined on site it is air conditioning condensate.	No
234	McDonalds – Team could not locate grease recycling container.	No
104	Forest Creek Apartments – Area prone to flooding per team member communications. Note sanitary sewer pipe crossing over storm drain.	No
235	Observed Lift Station LS120 – Sewer lines cross creek. Receives waste from Forest Creek Apartments along Jones Creek. ECUA has planned project to move toward road and away from creek.	No
236	Mills Ave. – Observed that ditch along road is full of cattails and leading toward Jones Creek.	No
237	Tailpipe leaving home with food and soap debris; possible sewage leads directly to Jones Creek (illicit connection to stormwater ditch) FDOH call in 1400 Cairo. * FDOH educated homeowner; pipe was removed in a few days.	FDOH
238	1112 Wayne Ave. across from Dickson Park – Popped manhole; looked good.	No

FIELD SITE ID	OBSERVATIONS	FOLLOW-UP ACTION RECOMMENDED?
239	Manhole at end of Wayne Ave. opened; looked good.	No
240	Just north of 1118 Wayne Ave, ditch runs along east side of road. Team noticed slight sewer odor near sanitary sewer manhole where sanitary sewer pipe crosses ditch, and is submerged partially in ditch water. Team noticed that water in ditch downstream of pipe crossing was two colors. East side of ditch was milky/cloudy in color, and west side of ditch was slightly humic/tannic in color and very clear. Three samples were taken, one upstream of pipe crossing, one downstream in milky colored water, and one downstream in clear humic/tannic-colored water. *Results were high in milky colored water, but low in other two samples. Tests were done on sanitary sewer system here; no leaks identified. Sample was taken each month in following two months; results were low.	No
241	Barton Ave. running H ₂ O (ground water).	No
242	Perforated black pipe; not connected.	No
243	Decatur Ave. north of Cairo St. has new sewer lines. Lateral lines running toward houses are shallow. Escambia County maintenance should be careful.	ECUA – Stacy will contact homeowners to cover and protect laterals (18 inches deep)
244	Cluster of private lift stations at Eliasberg St. and Fairfield to observe after this field event as follow-up activities.	Escambia County
245	Dana and Mollie plan to follow up by visiting private lift stations here too.	Escambia County
304	Consider dumpster lid closure public education.	TBD
303	Precision Tune Auto Care (Jones Creek) Hwy. 98/Navy Blvd. – Wash water observed entering storm drains. Escambia County spoke with manager on site.	No