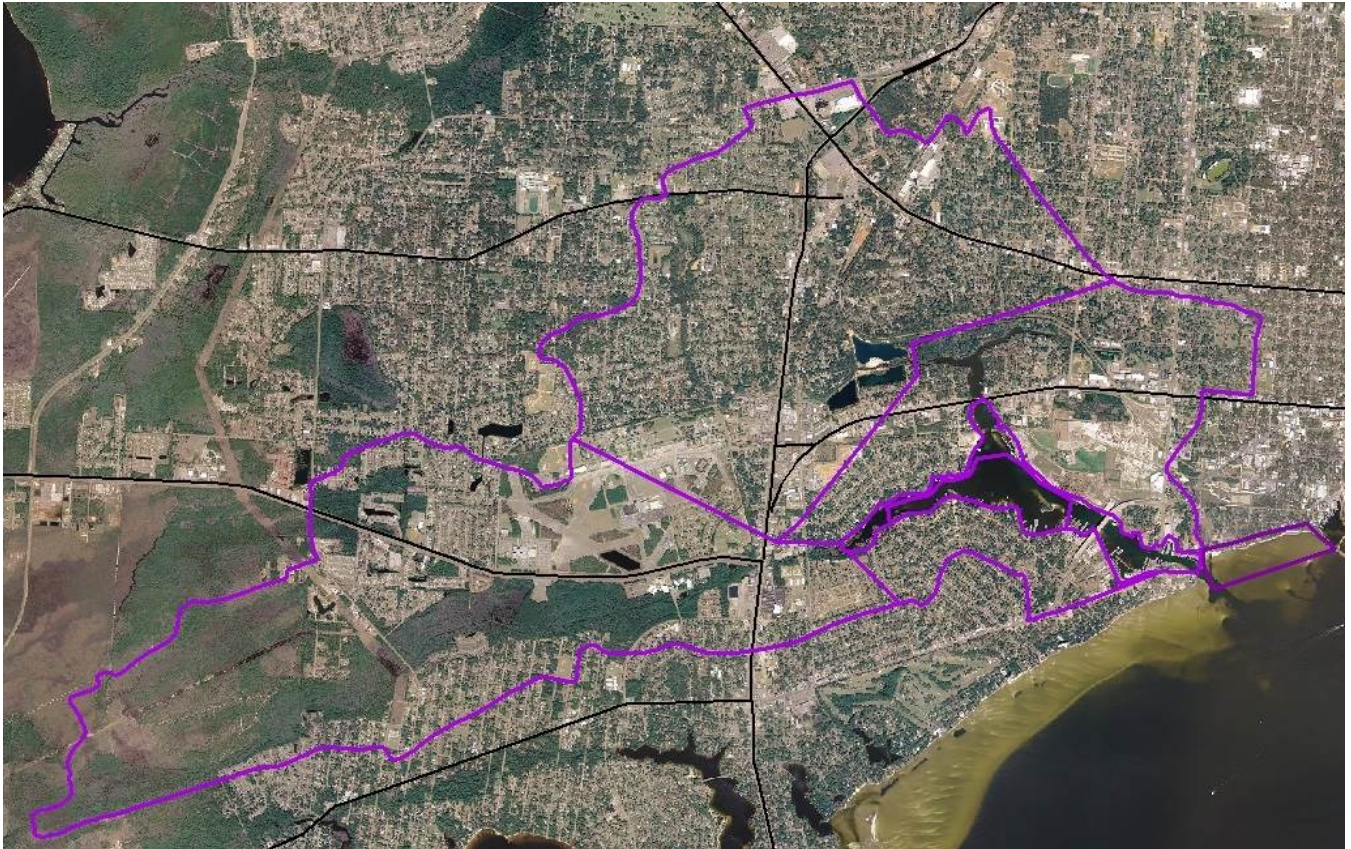


2013 PROGRESS REPORT

for the Bayou Chico Basin Management Action Plan



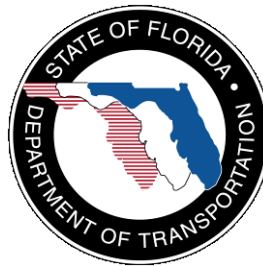
prepared by the
Division of Environmental Assessment and Restoration
Watershed Restoration Program
Florida Department of Environmental Protection
Tallahassee, Florida 32399

in cooperation with the
Bayou Chico Stakeholders

January 2014

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This 2013 Bayou Chico Basin Management Action Plan progress report 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
Department	Florida Department of Environmental Protection
ECUA	Emerald Coast Utilities Authority
F.A.C.	Florida Administrative Code
FDOT	Florida Department of Transportation
FDOH	Florida Department of Health
FOG	Fats, Oils, and Grease
FWC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic Information Systems
I/I	Inflow and Infiltration
mL	Milliliter
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NWFWMD	Northwest Florida Water Management District
OSTDS	Onsite Sewage Treatment and Disposal Systems
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)
TMDL	Total Maximum Daily Load
USCOE	U.S. Army Corps of Engineers
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 include 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 to be impaired by fecal coliform bacteria, and adopted a Total Maximum Daily Load in 2009. The Bayou Chico BMAP was adopted by the Department in October 2011 to address the TMDL. This 2013 Progress Report is the second annual progress report for the Bayou Chico BMAP, and it describes the activities implemented by the stakeholders during the reporting period of January 1, 2013, through October 31, 2013.

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 city of Pensacola completed the Pace and Gregory Street baffle boxes, and Escambia County completed construction of Avery Street Drainage Improvements Phase I (Kupfiran Park Area Improvements), Jones Creek East Stream Restoration, Lexington Terrace Stormwater Retrofit, Maggie's Ditch Wetland Enhancement Phase I, Maggie's Ditch Wetland Enhancement Phase II, "W" Street Sedimentation Basin Improvements, and Southwest Greenway at Pensacola State College Warrington Campus. As of October 2013, the Emerald Coast Utility Authority (ECUA) has connected 1,005 onsite sewage treatment and disposal systems (OSTDS) to their central sewer system. In addition, ECUA has a project planned, which when completed is projected to connect 860 OSTDS in the Beach Haven area.

WATER QUALITY MONITORING AND TRENDS

During the reporting period, Escambia County continued the monthly monitoring at the six stations in the basin. The county and the Department are evaluating the relocation of the station on Jackson Creek at Old Corry Road to North New Warrington Road, where there are better conditions for monitoring. The Florida Department of Health (FDOH) also sampled bi-weekly at Bayou Chico at Lakewood Park

during the months of March – October, and sampled weekly at Sander's Beach year round for determination of swimming area closures.

Water quality data from the last five years were assessed to determine trends in fecal coliform counts in the basin. In both 2012 and 2013, there were high spikes in fecal coliforms. The stakeholders were unable to determine the sources of these high counts; however, these spikes in fecal coliforms may be related to rain events. Most of the samples from the last five years are below 1,000 colony forming units per 100 milliliters (CFU/100mL). Since the period used in the TMDL (January 1, 1998, through June 30, 2005), there has been a slight declining trend in fecal coliform counts.

Section 1: INTRODUCTION

1.1 PURPOSE OF THE REPORT

This is the second annual progress report for the Bayou Chico Basin Management Action Plan. **Section 2** describes the activities that occurred during the period from January 1, 2013, through October 31, 2013. **Section 3** describes the water quality monitoring that occurred during the reporting period, and the trends in fecal coliform concentrations.

1.2 TOTAL MAXIMUM DAILY LOADS FOR THE BAYOU CHICO BASIN

The Bayou Chico watershed, 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 consist of 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 the 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 to be 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 Beach (WBID 846CB), and Sanders Beach (WBID 848DA). In addition, Bayou Chico Drain (WBID 846C) was verified impaired for fecal coliforms in Cycle 2 of the Department's listing process (see **Figure 1**). The Bayou Chico BMAP was adopted by the Department in October 2011 to address these impairments.

Table 1 lists the TMDL and pollutant load allocations adopted by rule for the watershed.

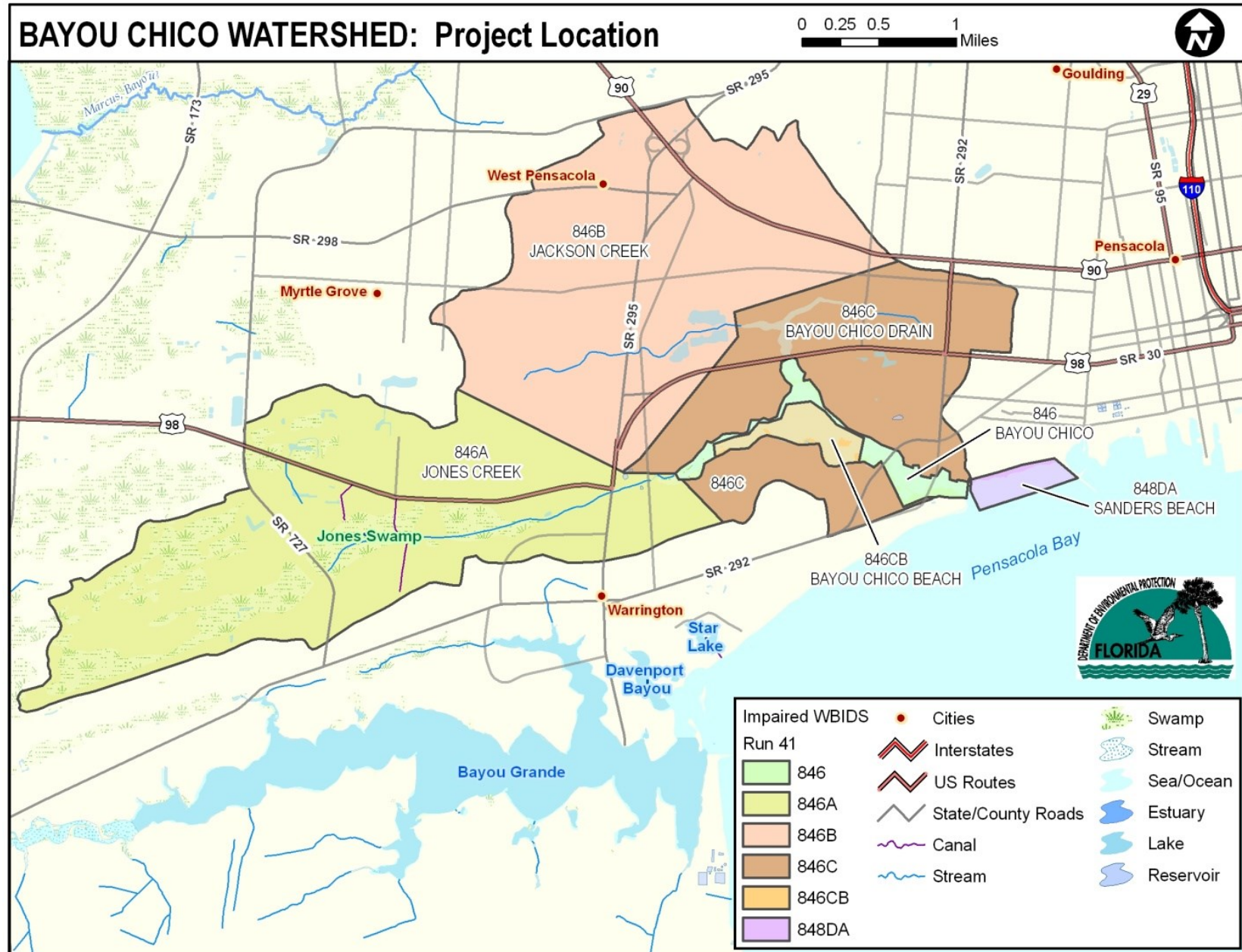


FIGURE 1: BAYOU CHICO WATERSHED

TABLE 1: BAYOU CHICO FECAL COLIFORM TMDL

WBID	TMDL (% REDUCTION)	WASTELOAD ALLOCATION FOR WASTEWATER (COLONY FORMING UNITS [CFU]/100 ML)	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%

1.3 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 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.

1.4 SUFFICIENCY OF EFFORT APPROACH

Fecal coliforms can be highly variable and easily transported, making it difficult, in many cases, to identify the source of the bacteria. Based on the potential sources in each WBID, the stakeholders were asked to identify completed activities carried out to reduce or remove bacteria sources since 1998 (the start of the TMDL verified period), as well as additional efforts that were under way or planned within five years of BMAP adoption. Escambia County, ECUA, city of Pensacola, FDOH in Escambia

County, FDOT District 3, West Florida Regional Planning Council (in association with BARC), Naval Air Station, and BCA all submitted project sheets and program descriptions for the prevention, reduction, and source removal activities they conduct in the BMAP planning area and/or on a countywide or citywide basis. The Department then used a “sufficiency of effort” approach to conduct a basinwide assessment of the potential sources and cumulative projects and activities that address or eliminate fecal coliform loading.

This sufficiency of effort evaluation was not an assessment of each agency’s individual activities; rather, it focused on whether the activities submitted by all the entities corresponded to potential sources or hot spots previously identified, and whether the total efforts were adequate to eliminate the known sources, assess unknown sources, and/or prevent the development of new sources.

During the sufficiency of effort evaluation, the Department reviewed the information about each WBID including the documentation of the most likely sources, a Geographic Information Systems (GIS) database to determine the spatial and temporal distribution of the sources, permit and water quality information, relevant field information and published data, and the completed corrective actions. Based on source assessments and information gathered for the BMAP, a summary of restoration activities was produced to ensure that appropriate programs and activities were being implemented that would either decrease or eliminate the known sources, or that might be needed to further assess fecal coliform loadings. The full implementation of the management actions identified in the BMAP was deemed sufficient to address the fecal coliform reductions needed to achieve the TMDL.

Section 2: ACTIVITIES DURING THE REPORTING YEAR

The activities that occurred during the reporting period are described in **Section 2.1** through **Section 2.8**.

2.1 BARC ACTIVITIES

The annual BARC Symposium was held on October 2, 2013, at the UWF Conference Center. Agenda topics included TMDLs, numeric nutrient criteria, and water quality. BARC continued the Neighborhood Clean Sweep Program (project 60), although no cleanup events were held during the reporting period. **Table 2** summarizes BARC's projects in the Bayou Chico Basin.

TABLE 2: 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 - 2009 and hand on environmental education activities	Public Outreach and Education	Completed	\$0
BARC-60	All	Neighborhood Clean Sweep Program (debris and garbage clean-ups throughout the basin)	Public Outreach and Education	Funded	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

2.2 BCA ACTIVITIES

On October 12, BCA held its annual Bayou Chico Cleanup of the waterway, which removed about two dumpsters worth of debris from the shores of Bayou Chico. BCA is also an active member of the Restore Escambia Group, which consists of 22 environmental groups assisting with the evaluation process for the direction of future Resources and Ecosystems Sustainability, Tourist Opportunities and Revived Economies of the Gulf Coast States (RESTORE) Act funds within Escambia County. In addition, BCA has been working with Escambia County and the Department in resolving potential issues with obtaining a permit for the proposed Bayou Chico Restoration project. **Table 3** lists BCA's activities in the Bayou Chico Basin.

TABLE 3: BCA BAYOU CHICO BMAP PROJECTS

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	Unknown
BCA - 48	846 C-BC Drain	Clean Marina - Palm Harbor 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 - 49	846 C-BC Drain	Clean Marina - Island Cove 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 - 42	846 C-BC Drain	Oyster reef project - habitat restoration	Oyster Reef Restoration	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	On hold	Unknown
Not applicable	846 C-BC Drain	Barge clean-up at a residential location	Cleanup	Completed	Unknown
BCA - 43	846 C-BC Drain	Bayou Chico Channel Dredging - remove restrictive piling to open up channel and increase flushing in the tributaries of the 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 the use of BioHaven® to enhance wetland functions and improve water quality	Floating Islands	On hold	Unknown
BCA-56	846 C-BC Drain	Bayou Chico Dredging	Dredging	On hold	\$10,000,000
BCA-79	846 C-BC Drain	Annual Bayou Chico Cleanup	Public Education and Outreach	Ongoing	Unknown

2.3 CITY OF PENSACOLA ACTIVITIES

The city of Pensacola completed the Pace and Gregory Street baffle boxes (project 58). The city also has the L & Zarragossa Street Drainage Improvements under construction (project 57). In addition, the city continued its street sweeping program (project 59). The city of Pensacola's projects in the Bayou Chico Basin are summarized in **Table 4**.

TABLE 4: CITY OF PENSACOLA 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, or 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	Under construction - completion 09/2014	\$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 09/2014	\$350,000

2.4 ECUA ACTIVITIES

ECUA continued the Lakewood Phase IV sewer extensions, although the project completion has been delayed from August 2013 to December 2013 (project 4). As of October 2013, ECUA connected 1,005 onsite sewage treatment and disposal systems (OSTDS) to their central sewer system. In addition, ECUA has a project planned, which when completed is projected to connect approximately 860 OSTDS in the Beach Haven area (project 63). ECUA continued its fats, oils, and grease (FOG); inflow and infiltration (I/I); sanitary sewer overflow (SSO) response; and emergency power generator programs. ECUA's projects are summarized in **Table 5**.

TABLE 5: 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	Under Construction – completion 12/2013	\$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	FOG Program	Sewer Upgrades/ Repairs	Ongoing	Unknown
ECUA - 10	All	I/I Program	Sewer Upgrades/ Repairs	Ongoing	Unknown
ECUA - 11	All	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

2.5 ESCAMBIA COUNTY ACTIVITIES

During the reporting period, Escambia County completed construction of Avery Street Drainage Improvements Phase I (Kupfiran Park Area Improvements) (project 29), Jones Creek East Stream Restoration (project 70), Lexington Terrace Stormwater Retrofit (project 71), Maggie’s Ditch Wetland Enhancement Phase I (project 72), Maggie’s Ditch Wetland Enhancement Phase II (project 73), “W” Street Sedimentation Basin Improvements (project 74), and Southwest Greenway at Pensacola State College Warrington Campus (project 75).

Avery Street Drainage Improvements Phase I (**Figure 2**) provides treatment for approximately 10 acres of previously untreated stormwater runoff from the surrounding neighborhood. Jones Creek East Stream Restoration project (**Figure 3**) restored 1,200 linear feet of Jones Creek between Navy Boulevard and Old Corry Field Road. This project included stream enhancements, floodplain expansion, riparian wetland restoration, invasive exotic species eradication, and elevated educational boardwalk

construction. The Lexington Terrace Stormwater Retrofit project (**Figure 4**) provides treatment for approximately 60 acres of previously untreated stormwater runoff from the surrounding neighborhood. The county implemented monitoring to determine the effectiveness of this project.



FIGURE 2: ESCAMBIA COUNTY’S AVERY STREET DRAINAGE IMPROVEMENTS PROJECT



FIGURE 3: ESCAMBIA COUNTY’S JONES CREEK EAST STREAM RESTORATION PROJECT



FIGURE 4: ESCAMBIA COUNTY’S LEXINGTON TERRACE STORMWATER RETROFIT PROJECT

Maggie’s Ditch Wetland Enhancement Phase I (**Figure 5**) expanded the floodplain and riparian wetlands along a 250-foot section of the headwaters of the northeastern arm of Bayou Chico. Maggie’s Ditch Wetland Enhancement Phase II (**Figure 5**) expanded the floodplain and riparian wetlands along an additional 275-foot section of the headwaters of the northeastern arm of Bayou Chico. The “W” Street Sedimentation Basin (**Figure 6**) collects suspended sediments from the entire northeast arm of Bayou Chico prior to discharging into the bayou. The Southwest Greenway at Pensacola State College (**Figure 7**) provides environmental educational opportunities along a 3,000-foot elevated boardwalk located beside the north bank of Jones Creek.

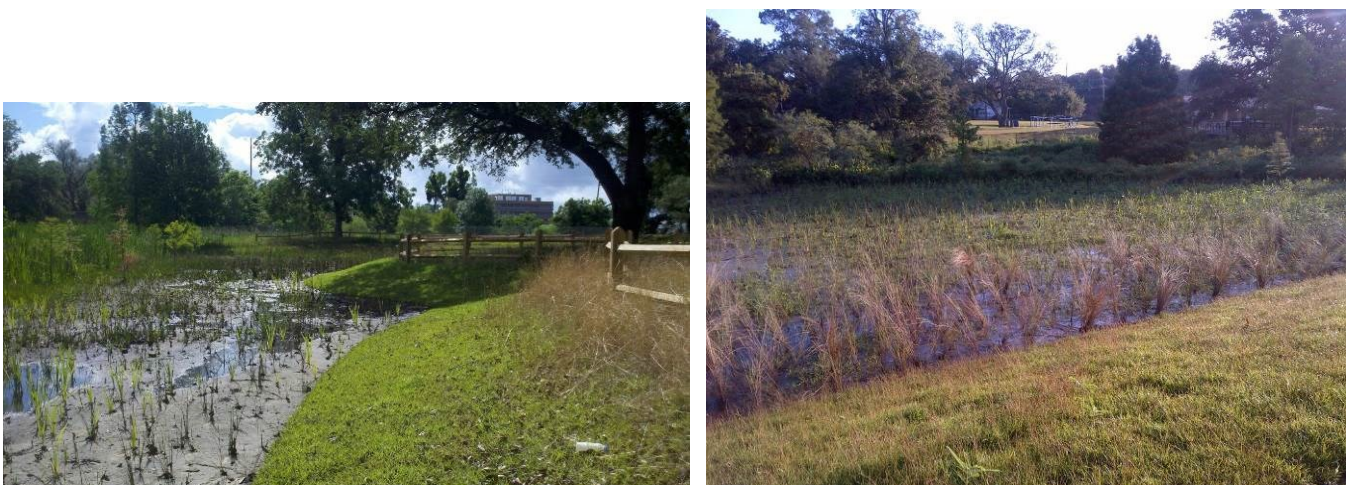


FIGURE 5: ESCAMBIA COUNTY’S MAGGIE’S DITCH WETLAND ENHANCEMENT PHASE I (LEFT) AND PHASE II (RIGHT) PROJECTS



FIGURE 6: ESCAMBIA COUNTY’S “W” STREET SEDIMENTATION BASIN

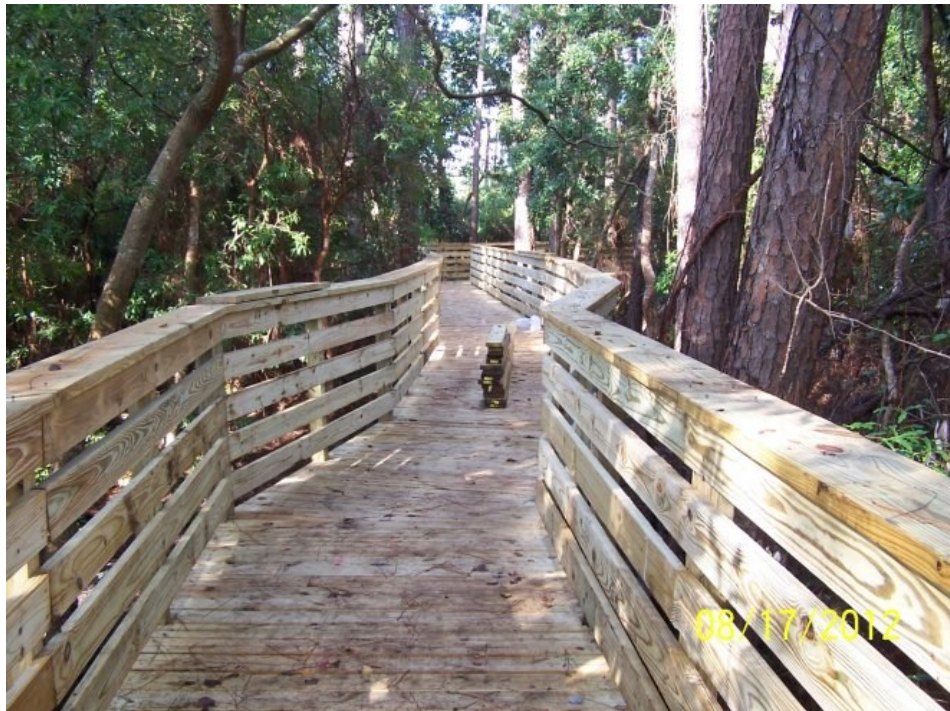


FIGURE 7: ESCAMBIA COUNTY’S SOUTHWEST GREENWAY AT PENSACOLA STATE COLLEGE

The county also has stormwater ponds in new developments under construction (project 26). In addition, the county has Lakeview Street Drainage Improvements Phase II (Kupfiran Park Area Improvements) (project 69), Southwest Greenway 3rd Extension (project 76), Jackson Lakes Stormwater Improvements (project 77), and Beach Haven Stormwater Improvement and Sewer Expansion Project Phases I and II (project 78) in design. The county continued its public education and outreach efforts (project 31), stormwater ponds inspection and maintenance (project 28), and neighborhood clean sweeps/cleanups.

Escambia County received a Section 319 grant from the Department for \$755,563. This funding will be used for the construction of Phase I of the Beach Haven Stormwater Improvements (project 78). The grant funds will not be available until October 2014. The county was also awarded a Defense Infrastructure Grant for \$200,000 from Enterprise Florida for acquisition of property around Pensacola Naval Air Station. These funds were awarded to protect the mission at Pensacola Naval Air Station from encroachment. A portion of the area of interest is located within the Bayou Chico watershed. As a secondary benefit, the property purchased with the funds can be used by Escambia County, if appropriate, for preservation or water quality improvements.

The funds for Corry Station Runway Surface Restoration (project 36) will be redirected to other projects so this project will no longer occur. Escambia County has found that there is a lack of adequate funding to construct all the identified county projects from the BMAP.

Escambia County's projects for the Bayou Chico Basin are summarized in **Table 6**.

TABLE 6: ESCAMBIA COUNTY BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
COP and ECUA - 29	846C-BC Drain	Avery Street Drainage Improvements Phase I (Kupfiran Park Area Improvements) - construction of new stormwater infrastructure within Kupfiran Park area	Stormwater Upgrades/ Repairs	Completed	\$1,000,000
COP and ECUA - 69	846C-BC Drain	Lakeview Street Drainage Improvements Phase II (Kupfiran Park Area Improvements) – construction of new stormwater infrastructure within Kupfiran Park area	Stormwater Upgrades/ Repairs	In design	\$400,000
ECUA - 64	846C-BC Drain	West Avery Street Sewer Upgrades	Sewer Upgrades/Repairs	Completed	Unknown

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
Not applicable	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
NWFWMD and USCOE - 33	Multiple	Bayou Chico Dredging - entrance channel to Bayou	Dredging	Completed	\$4,690,595
Escambia County - 22	846 A-Jones Creek	Glynn Key - new stormwater best management practice (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 - 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 - 26	Multiple	Derelict Vessel Removal	Derelict Vessel Removal	Completed	\$50,000
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 post construction	Stormwater Treatment Installation/Maintenance	Completed/ Monitoring Ongoing	\$650,000
Escambia County - 72	846C-BC Drain	Maggie’s Ditch Wetland Enhancement Phase I – expansion of riparian wetlands along a 250-foot section of the headwaters of the northeast arm of Bayou Chico within 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 a 275-foot section of the headwater of the northeast arm of Bayou Chico within 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

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
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, BARC, and BCA - 31	All	Public Education and Outreach	Public Education and Outreach	Ongoing	\$10,000
Escambia County - 30	846 A-Jones Creek	Wetland Preservation - purchase of 4 parcels at Fairfield Drive and Albany Ave	Wetland Preservation	Completed	\$300,000
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	In design	\$300,000
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 - 65	All	Neighborhood Clean Sweeps/Cleanups	Public Education and Outreach	Ongoing	\$50,000
Escambia County - 23	846 C-BC Drain	W-Street Weir Replacement	Stormwater Upgrades/Repairs	Completed	Unknown
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 Naval Air Station 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 5 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 non-viable - Funds to be redirected into other projects	\$80,000

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
Escambia County and USN - 37	846B-Jackson Creek	Corry Station Retrofit Projects (Jackson Creek) - construction of new stormwater infrastructure on Naval Air Station 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 - USN - 38	846 A-Jones Creek	Corry Station Retrofit Projects (Jones Creek West) - construction of new stormwater infrastructure on Naval Air Station 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 - 66	All	Monitoring Plan Implementation - monitor water quality to identify additional sources and assess water quality trends	Monitoring	Ongoing	Unknown
Escambia County - 77	846B – Jackson Creek	Jackson Lakes Stormwater Improvements – construction of improvements to the existing Jackson Lakes Offline Retention System; includes installation of one-way valve system at stormwater inlet and further expansion of littoral area	Stormwater Treatment Installation/Maintenance	In design	\$250,000
Escambia County - 78	846 A-Jones Creek	Beach Haven Stormwater Improvement Project Phases I and II – construction of new stormwater infrastructure for 250 acres of existing residential development along Jones Creek	Stormwater Treatment Installation/Maintenance	In design	\$10,000,000

2.6 FDOH IN ESCAMBIA COUNTY ACTIVITIES

FDOH in Escambia County continued its ongoing countywide OSTDS permitting program through Rule 64E-6, Florida Administrative Code (F.A.C.). This program is fee based and includes new, repair, and abandonment permits (project ECHD-16). There are six industrial/business annual operating systems currently permitted and inspected annually within the Bayou Chico area (project 17). As of January 2013, FDOH sent 1,643 notices as part of the Septic to Sewer Enforcement Program. Of these, 218 are still within the connection time frame, and 413 are in noncompliance (project 14). FDOH also continued the OSTDS program, which is a countywide sanitary nuisance program to address sewage complaints. In addition, FDOH obtained funding from ECUA to aid with indigent sewer connections.

FDOH in Escambia County's projects in the Bayou Chico watershed are summarized in **Table 7**.

TABLE 7: FDOH IN ESCAMBIA COUNTY BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT NAME AND DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
ECHD - 16	All	OSTDS Permitting Program as per Rule 64E-6, F.A.C.	Permitting Program	Ongoing	Not applicable
ECHD - 17	All	Industrial/Business Annual Operating Permits and Compliance Inspections per Rule 64E-6, F.A.C.	Permitting Program	Completed	\$900
ECHD - 21	846CB (Lakewood) and 848DA (Sanders Beach)	Healthy Beaches Program - weekly sampling of specific sites for Enterococcus	Sampling	Ongoing	\$5,676
ECHD - 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
ECHD - 19	All	ECHD Research Program with UWF to develop method to distinguish human from nonhuman sources of pollution	Research	Completed	Unknown
Not applicable	All	Environmental Analysis Program – inspect improperly installed and poorly maintained septic tanks systems	Evaluation Program	Completed	Unknown
ECHD	All	OSTDS Program as per Rule 64E-6, F.A.C., and Section 386.041, Florida Statutes	Permitting Program	Ongoing	Not applicable

2.7 FDOT ACTIVITIES

FDOT continued its municipal separate storm sewer system (MS4) implementation (project FDOT-67) and Drainage Connection Program (project FDOT -68) in the basin (**Table 8**).

TABLE 8: FDOT BAYOU CHICO BMAP PROJECTS

PROJECT NUMBER	AFFECTED AREA (WBID)	PROJECT DESCRIPTION	PROJECT TYPE	STATUS	PROJECT COST
FDOT-41	846 C-BC Drain	Bayou Chico US 98 (Navy Blvd) Bridge replacement and stormwater treatment for 4-lane bridge where no treatment existed previously.	Roadway Projects with Structural BMPs	Completed	Unknown
FDOT-40	846 C-BC Drain	(SR 292) Barrancas Bridge Replacement and stormwater treatment for bridge and roadway	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 the transfer of stormwater to FDOT's right of way	Drainage Connection Program	Ongoing	Unknown

2.8 FWC ACTIVITIES

FWC continued its compliance and inspection sweeps to identify any noncompliance issues for moored and live-aboard vessels. **Table 9** summarizes this FWC project.

TABLE 9: 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

Section 3: WATER QUALITY MONITORING AND TRENDS

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 trends using existing monitoring stations in the watershed, and to conduct more extensive monthly sampling at specific locations where fecal coliform counts are historically high and where additional sampling has been proposed.

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 University of West Florida (UWF) Wetland 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.

Table 10 lists the stations in the monitoring plan, and **Figure 8** shows the locations of the stations. Escambia County sampled six stations monthly for fecal coliforms, Enterococcus, nutrients, and field parameters. Weekly samples collected by the FDOH in Escambia County for Enterococcus are collected from two locations in the basin: Bayou Chico (Lakewood Park – near Station 33020JD4 in WBID 846CB) and Sanders Beach (near Station 33020J10 in WBID 848DA). All data are uploaded into STORET.

TABLE 10: STATIONS IN THE BAYOU CHICO BMAP MONITORING PLAN

STATION LOCATION	STATION NUMBER	RESPONSIBLE STAKEHOLDER	LATITUDE	LONGITUDE
Bayou Chico at Navy Boulevard Bridge	3302JE20	Escambia County	30° 24' 39.32" (or 30.41092)	87° 15' 31.74" (or -87.25822)
Bayou Chico at "W" Street	33020JF1	Escambia County	30° 24' 54.98" (or 30.41163)	87° 15' 4.72" (or -87.25147)
Jackson Creek at Old Corry Road	33020221	Escambia County	30° 24' 42.8" (or 30.41163)	87° 16' 29.85" (or -87.27479)
Jones Creek at Old Corry Road	33020118	Escambia County	30° 23' 56.84" (or 30.39912)	87° 16' 24.94" (or -87.27359)
Sanders Beach	33020J10	Escambia County; FDOH in Escambia County	30° 23' 58.04" (or 30.39946)	87° 14' 15.77" (or -87.23771)
Southwest Arm of Bayou Chico – North of Mandalay Drive (Lakewood)	33020JD4	Escambia County; FDOH in Escambia County	30° 24' 15.4" (or 30.4043)	87° 15' 31.9" (or -87.2609)

During the reporting period, Escambia County continued the monthly monitoring at their stations in the basin. The data collected by the county are uploaded to STORET by the Department. Escambia County and the Department are evaluating the benefits of the long-term addition of an additional station on Jackson Creek at North New Warrington Road (Station Number 33020222), where there are better conditions for monitoring. There is concern regarding the contribution from stormwater at this site since recent information indicates that approximately one-third of the watershed area for Jackson Creek enters between the two sampling locations at Old Corry Road (33020221) and North New Warrington Road (33020222) (see **Figure 9**). Therefore, starting in October 2013 and continuing as necessary, Escambia County will sample both locations to determine whether both or only one of these stations are needed in the BMAP monitoring plan. In addition, FDOH in Escambia County sampled bi-weekly at Bayou Chico at Lakewood Park during the months of March – October, and sampled weekly at Sander’s Beach year round for determination of swimming area closures.

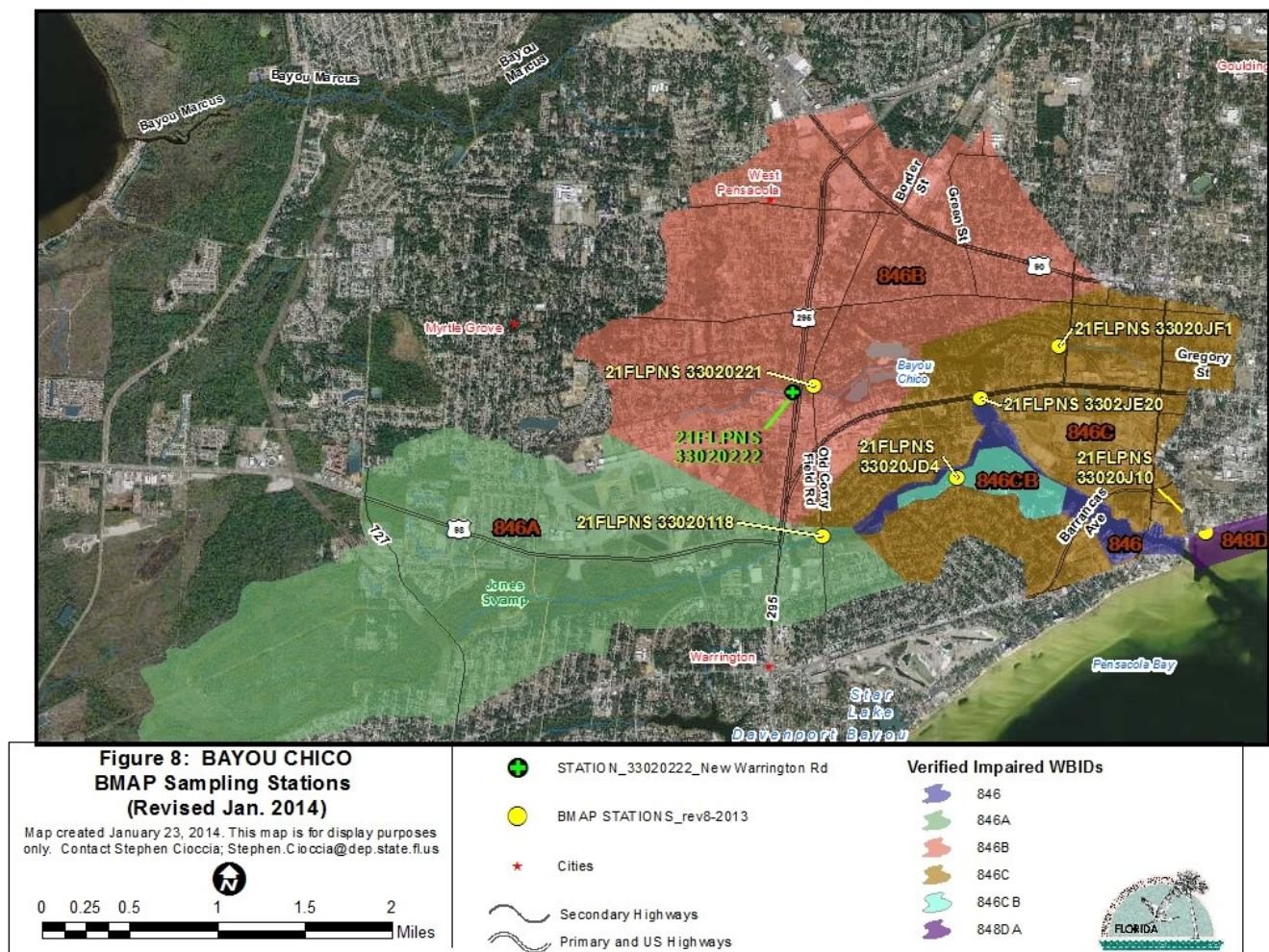


FIGURE 8: MONITORING STATIONS FOR FECAL COLIFORMS AND NUTRIENTS IN THE BAYOU CHICO BASIN

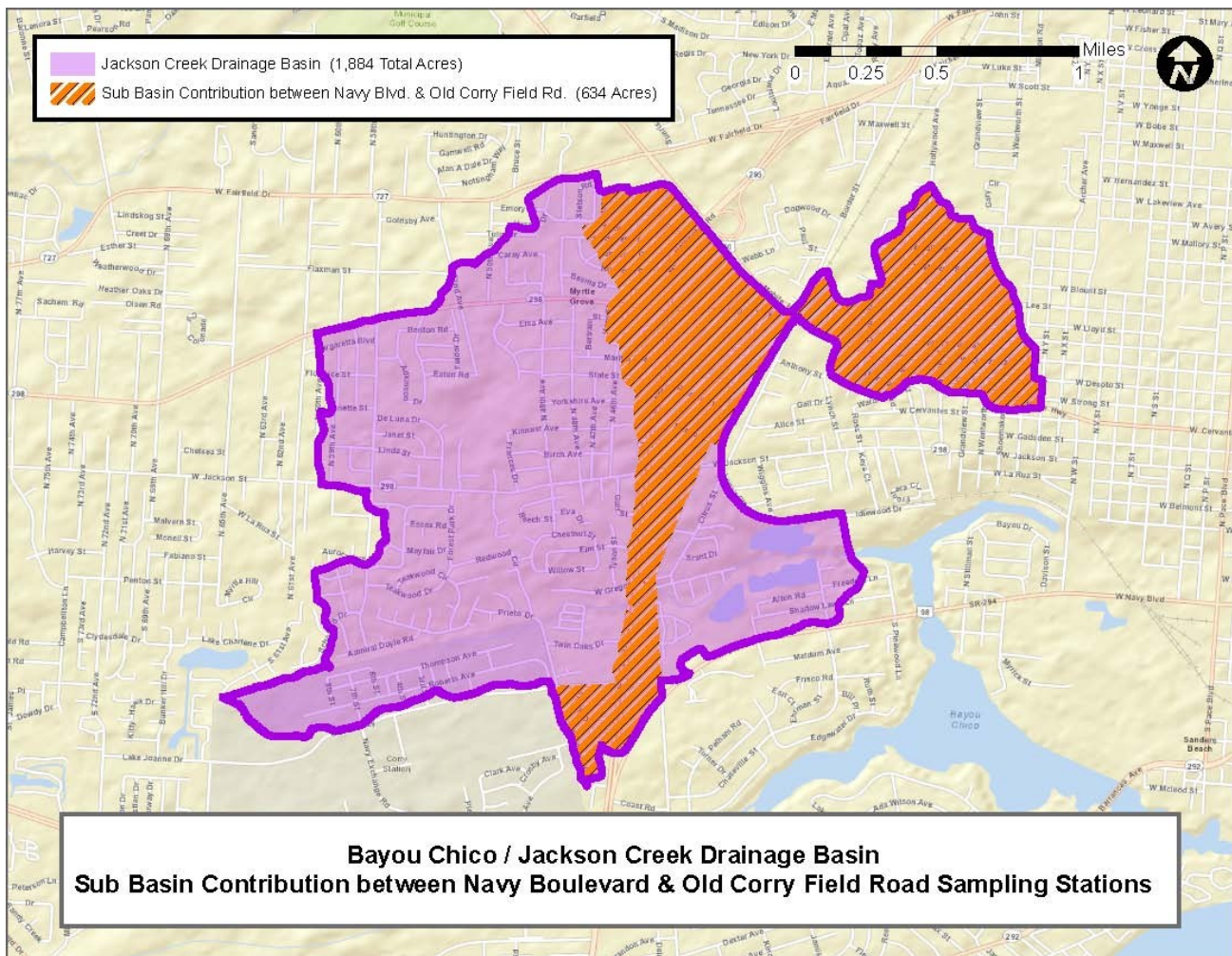


FIGURE 9: CONTRIBUTION AREA BETWEEN OLD CORRY FIELD ROAD AND NAVY BOULEVARD ON JACKSON CREEK

3.2 WATER QUALITY TRENDS

Water quality data from the last five years were assessed to determine trends in fecal coliform counts in the basin overall, and at each of the BMAP stations. It should be noted that data are not available for 2010 and 2011 for most of the stations; therefore, the information presented in this section focuses mainly on 2012 and 2013 data.

For the overall basin, fecal coliform counts exceeded the state standard of 400 CFU/100mL 40% of the time in 2012 and 26% of the time in 2013. In both 2012 and 2013, there were high spikes in fecal coliforms of 10,800 CFU/100mL on December 17, 2012; 10,900 CFU/100mL on July 22, 2013; and 11,300 CFU/100mL on August 19, 2013. The stakeholders were unable to determine the sources of these high counts; however, these spikes in fecal coliform counts may be related to rain events. Most of the samples from the last two years are below 1,000 CFU/100mL.

Two of the highest counts (10,800 CFU/100mL on December 17, 2012, and 10,900 CFU/100mL on July 22, 2013) occurred at Station 33020JF1, which is located on Bayou Chico at the “W” Street Bridge. Of the 22 samples at this station, 8 exceeded the state standard (42% exceedance rate). The other high count (11,300 CFU/100mL on August 19, 2013) occurred at Station 33020JD4, which is located on the southwest arm of Bayou Chico, north of Mandalay Drive. This sample is one of 12 exceedances at this station (13% exceedance rate). Station 33020221, Jackson Creek at Old Corry Road, had the highest percent exceedance rate (58%) out of all the BMAP stations. The highest count at this station was 6,000 CFU/100mL.

Since the period used in the TMDL (January 1, 1998, through June 30, 2005), there has been a slight declining trend in fecal coliform counts. The fecal coliform data and trend from 1999 through 2013 are shown in **Figure 10**.

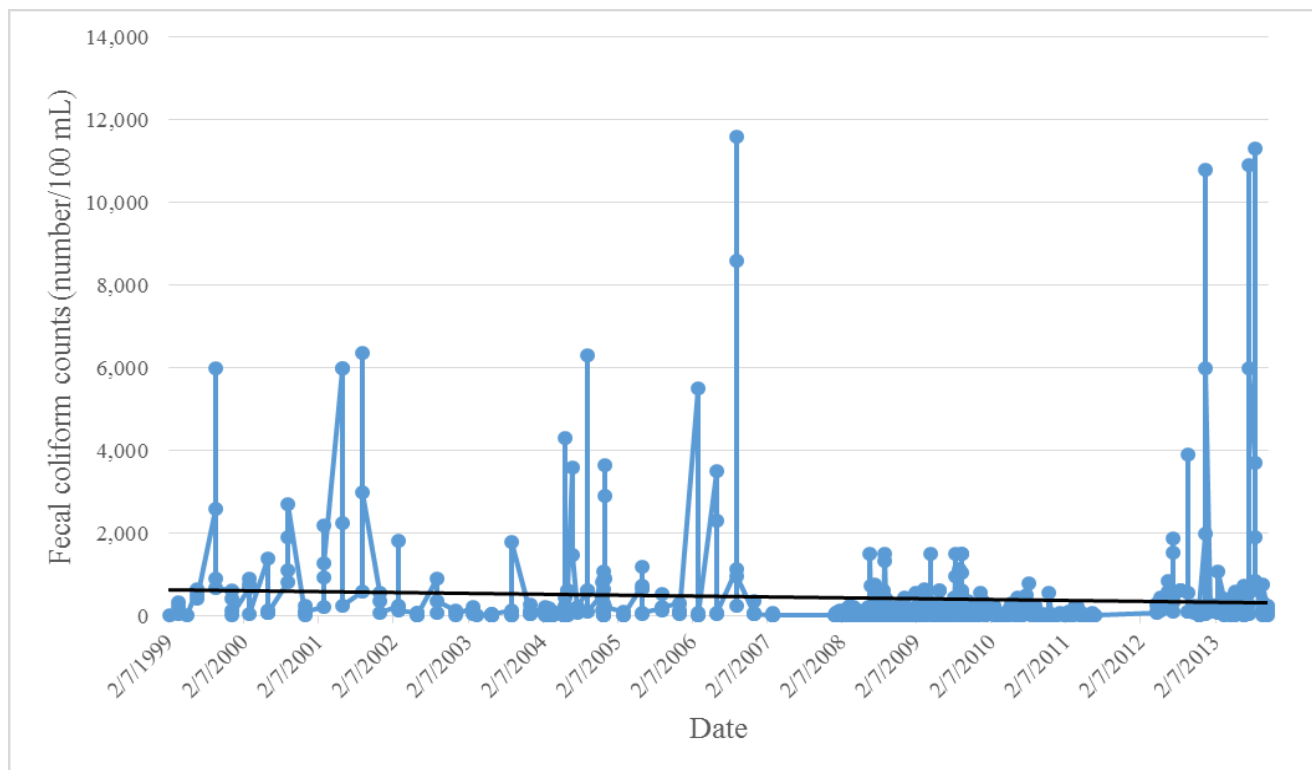


FIGURE 10: FECAL COLIFORM COUNTS AND TRENDS IN THE BAYOU CHICO BASIN, 1999–2013

The stakeholders will continue the current sampling plan in the upcoming year, and will follow up on high counts over 5,000 CFU/100mL to try and identify a source. Towards the end of Year 4 of BMAP implementation, more detailed assessments may be implemented in areas of the basin that continue to have high fecal coliform counts.

APPENDIX A: MONITORING DATA

The fecal coliform data collected by Escambia County in 2013 are shown in the table below.

TABLE A-1: 2013 FECAL COLIFORM DATA IN THE BAYOU CHICO BASIN

DATE	STATION	STATION NAME	FECAL COLIFORMS (CFU/100 mL)
1/14/2013	33020JF1	Bayou Chico "W" Street Bridge	270
1/14/2013	33020221	Jackson Creek at Old Corry Road	240
1/14/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	115
1/14/2013	33020118	Jones Creek at Old Corry Road	112
1/14/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	88
2/19/2013	33020221	Jackson Creek at Old Corry Road	1,073
2/19/2013	33020118	Jones Creek at Old Corry Road	260
2/19/2013	33020JF1	Bayou Chico "W" Street Bridge	230
2/19/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	125
2/19/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	58
3/18/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	400
3/18/2013	33020221	Jackson Creek at Old Corry Road	240
3/18/2013	33020118	Jones Creek at Old Corry Road	76
3/18/2013	33020JF1	Bayou Chico "W" Street Bridge	64
3/18/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	25
4/22/2013	33020221	Jackson Creek at Old Corry Road	400
4/22/2013	33020118	Jones Creek at Old Corry Road	62
4/22/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	46
4/22/2013	33020JF1	Bayou Chico "W" Street Bridge	44
4/22/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	42
4/22/2013	33020J10	Sanders Beach	3
5/13/2013	33020221	Jackson Creek at Old Corry Road	590
5/13/2013	33020JF1	Bayou Chico "W" Street Bridge	96
5/13/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	94
5/13/2013	33020118	Jones Creek at Old Corry Road	78
5/13/2013	33020J10	Sanders Beach	52
5/13/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	11
6/24/2013	33020JF1	Bayou Chico "W" Street Bridge	727
6/24/2013	33020221	Jackson Creek at Old Corry Road	490

DATE	STATION	STATION NAME	FECAL COLIFORMS (CFU/100 mL)
6/24/2013	33020118	Jones Creek at Old Corry Road	220
6/24/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	50
6/24/2013	33020J10	Sanders Beach	18
6/24/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	15
7/22/2013	33020JF1	Bayou Chico "W" Street Bridge	10,900
7/22/2013	33020221	Jackson Creek at Old Corry Road	6,000
7/22/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	682
7/22/2013	33020118	Jones Creek at Old Corry Road	570
7/22/2013	33020J10	Sanders Beach	280
7/22/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	33
8/19/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	11,300
8/19/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	3,700
8/19/2013	33020JF1	Bayou Chico "W" Street Bridge	1,900
8/19/2013	33020118	Jones Creek at Old Corry Road	836
8/19/2013	33020221	Jackson Creek at Old Corry Road	664
8/19/2013	33020J10	Sanders Beach	645
9/23/2013	33020221	Jackson Creek at Old Corry Road	764
9/23/2013	33020JF1	Bayou Chico "W" Street Bridge	320
9/23/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	141
9/23/2013	33020118	Jones Creek at Old Corry Road	133
9/23/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	96
9/23/2013	33020J10	Sanders Beach	23
10/21/2013	33020221	Jackson Creek at Old Corry Road	240
10/21/2013	3302JE20	Bayou Chico at Navy Boulevard Bridge	126
10/21/2013	33020118	Jones Creek at Old Corry Road	118
10/21/2013	33020JD4	Southwest Arm of Bayou Chico – North of Mandalay Drive	104
10/21/2013	33020JF1	Bayou Chico "W" Street Bridge	100
10/21/2013	33020J10	Sanders Beach	20