

**Respect the Connect:  
A Comprehensive Conservation and Management Plan**

**Implementation Status Report  
October 1, 2013 – September 30, 2018**



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## ***Preface***

In the aftermath of one of the worst offshore oil spills in U.S. history, all sectors of Alabama's coastal community were unified in this simple truth: Our economic sustainability hinges on our environmental health. From this common ground, Respect the Connect: A Comprehensive Conservation and Management Plan for Alabama's Estuaries and Coast was created setting forth strategies to better measure *environmental health*; improve *environmental management*; build *community capacity to achieve environmental resilience* and nurture our community's *wise stewardship of Alabama's estuaries and coast*.

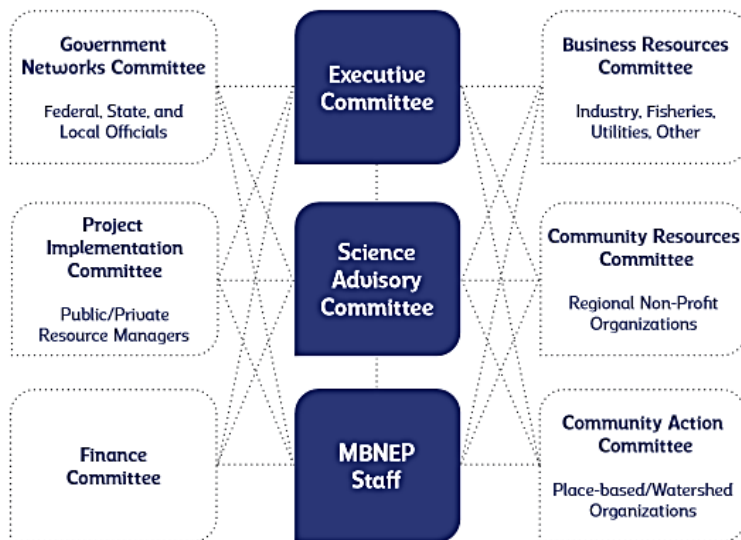
## Overview

In 1972, the Clean Water Act was created to restore and maintain the chemical and biological integrity of the nation's waters so they can support the protection and propagation of fish, shellfish, wildlife and recreation in and on the water. In 1987, the National Estuary Program (NEP) was created by the U.S. Congress via amendments to this Act to identify, restore, and protect nationally significant estuaries. Authorized under Title 3, Section 320, Public Law 94-117, 33 U.S.C 466, the goal of this program is to protect and restore the water quality and living resources of estuaries and associated watersheds designated by the EPA Administrator as estuaries of national significance.

The Mobile Bay National Estuary Program (MBNEP) was recognized by the EPA Administration in 1995 at the request of then-Governor Fob James. It is one of 28 federally authorized NEPs administered and funded by the EPA. A State-sponsored program through its Department of Conservation and Natural Resources, the purpose of the MBNEP is to bring together a diverse collection of stakeholders representing local, state and federal government agencies; environmental organizations; business and industry; landowners; academic experts; and the general public committed to developing consensus on what our ecosystem priorities are, how to achieve them, and how to facilitate and promote their implementation. This is accomplished through the support of a Management Conference who develop and implement the strategies contained within a CCMP.

*NEPs work to implement estuarine ecosystem-based management by prioritizing problems in their estuaries and surrounding watersheds, developing CCMPs to address those problems, and identifying partners, including lead entities, to implement the actions.*

## The Mobile Bay National Estuary Program Management Conference



The MBNEP Management Conference structure of eight working committees provides a mix of policy makers (both public and private), implementers (both public and private), and grassroots (community groups and citizens) to ensure support for CCMP implementation and identification and engagement of emerging issues of concern. The goal is an increased ability for the MBNEP to function as a capacity builder and backbone organization necessary for achieving collective environmental impact across our coastal communities.

Management Conference committees meet quarterly to

work on specific goals, objectives, and activities of the four strategic Action Plans with dedicated MBNEP staff serving as committee facilitators. Diverse representation of stakeholders on committees ensures direct, community-wide involvement in CCMP implementation by participating partner organizations, including science, technical, and policy support, as well as public education and engagement on important watershed planning and stewardship issues.



## The Many Iterations of the CCMP

The first CCMP was approved in 2002. Produced by several technical committees made up by members of the Management Conference, this plan identified five major issue areas to be addressed: Water Quality, Living Resources, Habitat Management, Human Uses, and Education and Public Involvement. It consisted of primary objectives which were, in turn, broken into sub-objectives with specific steps or Action Plans suggested for accomplishing each sub-objective. In total, the 2002 CCMP contained 29 specific objectives with 101 implementable steps on the “Path to Success.” As of September 30, 2011, of the 101 actions identified in the plan, 11 had been completed, 88 had been implemented on some level, and three were under reconsideration.

In 2011, the MBNEP initiated a process for updating the first CCMP. Citizen input was crucial for creating “ownership” of the new plan. Through a concerted effort to gather community input using surveys and community meetings to assess environmental attitudes, a set of six values important to living in coastal Alabama were identified. These assessments provided guidance on which environmental issues need to be addressed in the next iteration. Concurrently, the first CCMP was evaluated to analyze the extent to which that plan was successfully implemented based on an inventory of ongoing or completed activities, what gaps in implementation exist, and what areas required further study and action. Third, an analysis of the historic balance of habitats in the area was conducted to assess which habitat types have been most severely impacted by community growth. These three information sets form the foundation of the second CCMP to ensure the actions outlined in the plan resonate with the community, are achievable and realistic, and are based in science.

In 2013, *Respect the Connect: A Comprehensive Conservation and Management Plan for Alabama’s Estuaries and Coast (Respect the Connect)* was published. Since its publication, many of the strategies for measuring ecosystem health, restoring watersheds, building community capacity, and expanding citizen education and involvement have been implemented, resulting in some noteworthy successes.

These CCMPs are truly community-driven and developed documents. Scientific assessments are conducted to identify where and what stressors are impacting the health of our estuarine ecosystems. Input is captured from citizens throughout Mobile and Baldwin counties and beyond, and actions are identified by community leaders, resource managers, and scientists to conserve, restore, and protect those things valued most by those living in coastal Alabama.



## The CCMP Implementation Review

To ensure proper management of National Estuary Programs and progress toward achieving the locally defined environmental goals of a CCMP, EPA is required to periodically conduct an evaluation, or review of implementation progress. These program reviews provide an opportunity for an NEP to highlight successes and strengths, identify and address areas for program improvement, and demonstrate how stakeholder commitments and community support are being maintained and increased. In addition, these reviews provide EPA with mechanism for assessing the extent to which the agency has provided the support-financial, technical, and programmatic- in furtherance of the program’s success, locally and as a whole.

Since 1995, the MBNEP has passed four of these program reviews. The first review covered seven years of the program (October 1, 1996 - September 30, 2003), the second covered the period (October 1, 2003-September 30, 2006), the third report covered (October 1, 2006 – September 30, 2009), and the fourth covered the period (October 1, 2009-September 30, 2014).

To improve alignment of reporting progress of the implementation of the CCMP for 2013-2018, MBNEP received approval to alter the time period of coverage for its Implementation reviews going forward beginning with the current reporting period. By adjusting our Implementation Review period to line up with our CCMP and five-year grant cycle, we can now sync our grant reporting, CCMP reporting and Implementation Review Status Report providing greater efficiency and clarity in measuring investments and results.

Therefore, ***Respect the Connect: A Comprehensive Conservation and Management Plan Implementation Status Report*** provides documentation of the activities taken by the Mobile Bay National Estuary Program Management Conference to implement the CCMP strategies and workplans covering the period October 1, 2013 to September 30, 2018. This status report conforms to the requirements of the *USEPA National Estuary Program, Program Evaluation Guidance (August 3, 2016)*.

### **Response to the Challenges Identified in the last Program Review**

In the 2015 Program Evaluation letter dated May 5, 2016 the EPA team identified two challenges limiting the MBNEP's ability to fully implement the CCMP. A summary of these challenges and EPA's recommended remedies as well as how the MBNEP has addressed these challenges is provided.

#### ***Ecosystem Status and Trends -Assessment and Monitoring***

*Assessment and monitoring of ecosystem status and trends is a challenge for every organization involved in environmental protection. It is costly to do properly, and it competes with the resources required to protect and restore the resources requiring monitoring. However, it is essential for understanding and documenting overall results of restoration efforts and to better understand trends in water quality. The MBNEP has an opportunity to continue to provide leadership for a coordinated approach to monitor water quality, ecosystem statuses, and trends which reflect cumulative effects of stakeholder efforts within the MBNEP study area.*

*The EPA recommends continuing the work currently underway to develop and implement a strategic monitoring and reporting plan which provides:*

- status and trends for estuarine water quality and habitats in the study area;*
- pre- and post-monitoring of implementation projects for adaptive management and to document results;*
- key indicators and contributing variables for significant bay and tributary events such as fish kills, invasive species events, SAV loss/gain and algal blooms, oyster bed loss and closures, etc.; and*
- continuous and periodic status, trend and event reporting through collaboration with program partners through traditional and social media.*

#### **MBNEP Response:**

As you will see in the following pages, MBNEP's Science Advisory Committee tackled the issue of Assessment and Monitoring through the development and piloting of a comprehensive Monitoring Framework throughout the implementation review period of performance. This effort included a commitment to the development of baseline data including analyses of discharge and sediment loading rates for all tidally influenced watersheds in Alabama. In addition, during the reporting period, MBNEP updated its mapping of coastal habitats for use in measuring changes in acreage of land-based habitats between 2001 and 2015 and it mapped submerged aquatic vegetation to continue to document changes in distribution and coverage of sea grasses across the Alabama coast.

A key component of all restoration activities undertaken between 2013-2018 included collection of baseline and post-construction monitoring data for each stream segment or reach of shoreline. Through effective project design and funding, MBNEP was able to secure the resources necessary to support this monitoring effort for a post- construction period of up to five years.

In addition to the above, in support of comprehensive watershed management planning, MBNEP secured funding and facilitated other environmental assessments including pathogen source tracking in the West Fowl River watershed to provide decision support and policy development related to oyster harvest closures. Implementing a recommendation of the Fowl River watershed plan, a comprehensive marsh health study was undertaken in the Fowl River watershed to guide future restoration planning.

Although MBNEP did not publish an official “State of the Bay” report for this reporting period, status and trends information was communicated through the many community meetings held as part of watershed planning, our annual report video, and through articles in our semi-annual newsletter, *Alabama Current Connections*. Most notably, a significant portion of the accomplishments section of our CCMP update for 2018-2023 is dedicated to what we learned over the past five years through our monitoring efforts.

### ***Climate Change***

*Many of the goals in the MBNEP's 2013-2018 CCMP are threatened by sea level rise, warmer temperatures, intensification of the hydrologic cycle, and ocean acidification. The EPA commends the MBNEP for addressing climate change in every watershed management plan.*

*We acknowledge the work of the US Army Corps of Engineers and FEMA in conducting vulnerability assessments for the Alabama Gulf Coast that may provide insights on possible adaptation responses for the MBNEP. However, the EPA recommends that the MBNEP take advantage of Climate Ready Estuaries funding to create a risk-based climate change vulnerability assessment as described in the NEP Funding Guidance. Findings from the MBNEP assessment should inform the goals of the Program's CCMP to ensure goal achievement even as the climate changes.*

### **MBNEP Response:**

Impacts from sea level rise and changing climatic conditions are have always been at the forefront of any planning and project implementation undertaken by the program or its partners. As noted in the EPA’s letter, the State of Alabama’s recognition of this priority is evidenced by its significant investment in the U.S. Army Corps of Engineers development of the Alabama Coastal Comprehensive Plan and interactive map. <https://www.sam.usace.army.mil/Missions/Program-and-Project-Management/Alabama-Coastal-Comprehensive-Plan/> . Although MBNEP did not take advantage of Climate Ready Estuaries funding to create a risk-based climate change vulnerability assessment, the program did, in fact conduct this assessment as part of the process of updating the CCMP for 2018-2023. This assessment will be used to shape how the strategies of the CCMP are implemented over the next five-year period and will prompt consideration of project return periods related to any restoration activities undertaken.

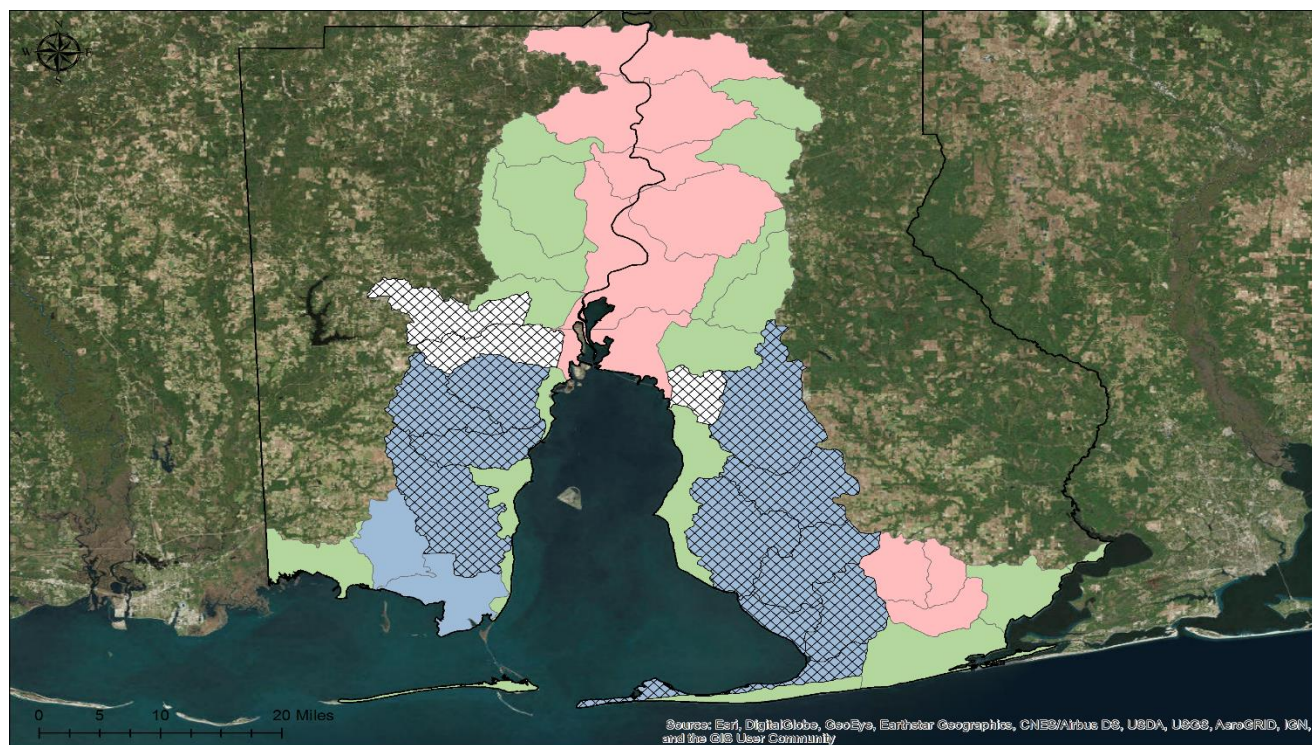


## Looking Back: CCMP Implementation for the Review Period

Over the past five years, the MBNEP and its Management Conference have focused their efforts on building a comprehensive program for improving environmental management through measuring status and trends, employing a watershed approach to guide restoration, building the capacity of local governments to more effectively manage coastal lands and waters, and expanding citizen stewardship through support for volunteer monitoring.

To ensure the CCMP was based on sound science, the MBNEP **Science Advisory Committee** determined what areas of our coastal environment were most stressed and from what cause(s). Over thirty scientists and resource managers from various disciplines evaluated ecosystem services provided by a set of coastal habitats to determine levels of impact from a suite of stressors. Results of this work indicated freshwater wetlands; streams, rivers, and riparian buffers; and intertidal marshes and flats were most vulnerable to activities including conversion of natural landscapes, sedimentation, and sea level rise.

While the SAC was conducting its stressor evaluation, the **Project Implementation Committee** built consensus around how to best plan for and undertake ecosystem restoration. Based on the successful methodology used in developing the D'Olive Watershed plan and its subsequent implementation, the PIC agreed to pursue a process of establishing watershed baseline data, undertaking comprehensive watershed planning, and implementation of these plans for all tidally influenced watersheds at the USGS hydrologic unit code of twelve (HUC12) scale. Through a process of prioritizing over 40 watersheds and agreeing to watershed plan scopes which would include addressing the three stressed habitats identified by the SAC, the PIC applied the D'Olive Watershed methodology across the Alabama coast. Over the five-year period, comprehensive watershed management plans were either planned, in progress or completed for all tidally influenced watersheds with funding made available as a result of the Deepwater Horizon incident.

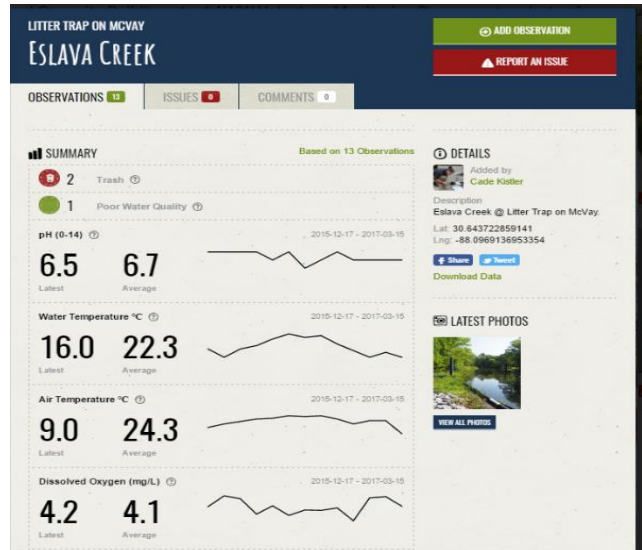


- NFWF Funded
- Federal Restore Funded
- NFWF & Federal Restore Funded
- Completed Watershed Plans
- Mobile and Baldwin County



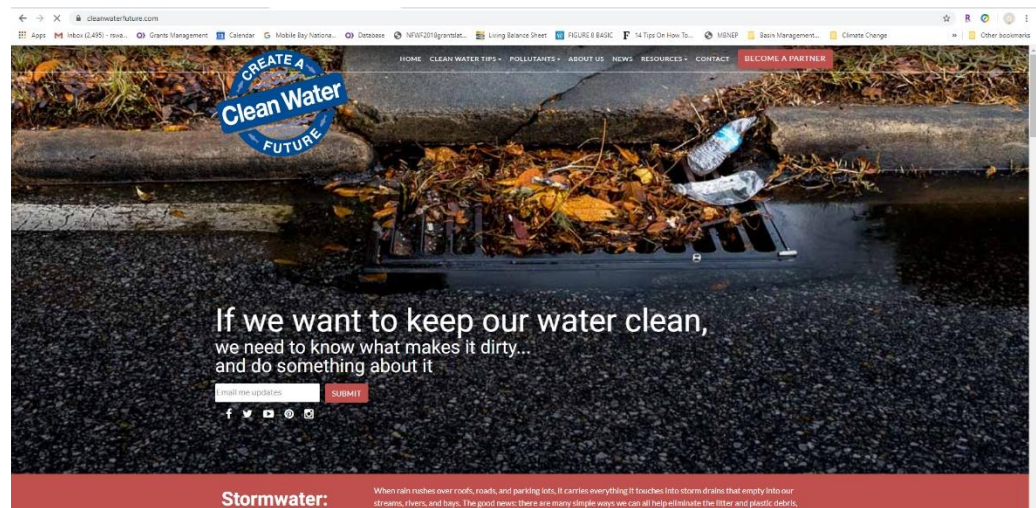
Mobile Bay National Estuary Program

The **Community Action Committee** had a history of focusing their work on the development of a network of volunteer water quality monitors across the two counties but had become frustrated that their data was not being used to effect environmental management changes at the local or state level. As a component of watershed planning, the PIC required all contractors to use volunteer monitoring data in their assessments and to produce a map indicating where volunteer monitoring would be most beneficial in informing watershed plan implementation activities. As a result, the CAC focused its efforts on recruiting volunteer water quality monitors, training them, facilitating uploads of data through the development of the Water Rangers App, and assigning them to specific sites with assurance of future data usage.



Recognizing a need to improve the regulatory framework associated with the millions of dollars of restoration on the horizon (due to the establishment of the RESTORE Act and its many funding mechanisms), the **Government Networks Committee** focused its efforts on learning about the ongoing watershed planning taking place, how geopolitical boundaries posed challenges for effectively managing watersheds, and which municipalities and counties could provide best management practices in terms of updated subdivision and other coastal protection regulations. Over the five-year period, this committee built a strong network among local government and State legislators and agency representatives, culminating in passage of a Litter Control bill at the State level (litter being a high priority issue in all watershed planning conducted).

The **Business Resources Committee** committed its efforts to building the Clean Water Future campaign, to raise awareness about stormwater runoff and how citizens, government, and business could do their part to improve water quality. Over the five-year period, the campaign was created, website built, and forty-nine partners joined the campaign, promoting its messages, and branding activities related to reducing pollution in our waters with the Clean Water Future logo.



The **Community Resources Committee** was created during the last five-year period to provide a space for larger capacity and regional non-profits to advocate for and educate about priority issues of and activities undertaken to implement the CCMP.



The **Executive Committee**, which includes the co-chairs of each of the other committees plus several at-large agency representatives, met quarterly to keep abreast of program implementation progress and to vet any issues arising as a result of program activities. The **Finance Committee** ensured funding available on an annual basis to support implementation of individual workplans.

Although each committee worked independently, all of their work was focused on the goals and objectives of the CCMP strategies, which they helped to create. The overarching work accomplished by the conference over the five-year period was centered on expanding the successful methodology used to prepare and implement the D'Olive watershed plan. Because a baseline study and plan were complete; millions of dollars were being invested in implementing the recommendations; Daphne and Spanish Fort had coordinated updates to their local regulations for consistency; and because MBNEP, and the Cities of Daphne and Spanish Fort were assertively educating businesses and residents about stormwater; this watershed became not only a model, but a testing ground for how to measure ecosystem response.

In the pages to follow you will read about how the SAC developed a Subwatershed Monitoring Framework and tested it in the D'Olive watershed to determine what parameters were most effective at indicating change. You will learn about over \$20 million worth of investment in green infrastructure throughout the D'Olive watershed to manage vast volumes of stormwater runoff while creating conditions to re-establish biodiversity and ecosystem function. You will see how the methodology used in the D'Olive watershed was implemented in the Fowl River watershed, where shoreline protection and intertidal marsh creation emerged as a priority. You will be exposed to partners who stepped up to reconnect residents and visitors to our natural resources in an effort to elevate environmental protection as a priority. And you will see a community committed to collective impact in action to create a clean water future for coastal Alabama. Through it all you will learn how the MBNEP stepped into the role of backbone organization for this effort, by supporting committee work, bringing communities to the table, promoting the great work being done by our partners, and most notably, using the tools available through the EPA to restore and maintain the chemical, physical, and biological integrity of the Alabama's waters so that they can support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water.

### Funding Summary for the Reporting Period

The activities reported in this evaluation have been accomplished with a combination of U.S. EPA funding, state, local and private contributions, and competitively awarded grants. During the program period, a total of \$23,975,853. was expended on projects of which \$4,360,798 was received through EPA Section 320 funds and its associated non-federal share.

Program Year	EPA Funds	Non Federal Share	Total Available	% of Total
Year 1- 2014	512,000.00	\$ 293,559.74	\$ 805,559.74	3%
Year 2- 2015	558,000.00	\$ 217,176.00	\$ 775,176.00	3%
Year 3- 2016	600,000.00	\$ 277,239.98	\$ 877,239.98	4%
Year 4- 2017	700,000.00	\$ 263,476.00	\$ 963,476.00	4%
Year 5-2018	625,000.00	\$ 314,346.28	\$ 939,346.28	4%
Other External Awards			\$ 19,615,055.03	82%
<b>TOTALS</b>	<b>2,995,000.00</b>	<b>1,365,798.00</b>	<b>23,975,853.03</b>	

## Organization of this Report

This publication has been organized for ease of program evaluators. Following the organization of *Respect the Connect: A Comprehensive Conservation and Management Plan for Alabama's Estuaries and Coast 2013-2018*, this document is organized by the following “core elements”: **Ecosystem Status and Trends (EST)**, **Ecosystem Restoration and Protection (ERP)**, **Technical Assistance and Capacity Building (TAC)**, **Education and Public Involvement (EPI)**, and **Management and Program Administration (MPA)**. Within each core element, each section is further divided by sub-elements, under which we provide a *Spotlights*, or brief narratives of significant accomplishments during the reporting period for the sub-element. Finally, where applicable, we provide completed *Performance Measure forms* as required by the Program Evaluation Guidance.

The second section, MBNEP's Workplan Narrative Summary, provides a review of “how” the MBNEP's annual work plans have been implemented to achieve the goals of the CCMP including core elements of **Ecosystem Restoration and Protection Projects** and **Technical Assistance and Capacity Building**. The sub-elements addressed in the section include: Habitat, water quality, living resource and healthy community activities; tools and training developed and made available; and direct assistance provided. Within each sub-element of this section, MBNEP addresses key actions accomplished, partnerships developed, outputs created, outcomes achieved, activity support for the goals of the Clean Water Act, and any external factors affecting success. Finally, MBNEP provides an update on how MBNEP has addressed challenges identified in previous program evaluations.

The third section of the Program Evaluation package includes detailed information on the financial management of the program. This information includes EPA dollars, match dollars, and competitively received external grants received and spent.

The Program Evaluation Team has scheduled an on-site visit for **June 2-3, 2015**. During this time, program evaluators will have an opportunity to visit with program staff, project recipients, management conference members, and community stakeholders. An itinerary for this visit is currently being developed and when complete will be incorporated into this package.

## Core Element: Ecosystem Status and Trends

For the past five years, the Science Advisory Committee has pursued the development of data sets and research to better understand our estuarine ecosystem (EST-1); worked to establish a process for measuring change in condition (EST-2), tried to understand the ecosystem responses to restoration (EST-3) This has involved determining baseline conditions through sediment analyses, hydrologic modeling, and mapping; developing a restoration monitoring framework; developing and calibrating a watershed condition index framework for measuring for measuring watershed health; and conducted extensive monitoring in the D'Olive Creek, Tiawasee Creek, and Joe's Branch Watershed (the D'Olive Watershed) to "test" the framework.

### Sub-element: Assessment and Monitoring (EST-1)

#### Spotlight: Sediment Studies

The major challenges confronting the **measure of status and trends** in coastal conditions is a lack of consistent funding for monitoring at the watershed scale for a long-enough period to ascertain change. Fortunately, for the short term, the MBNEP has secured funding to build baseline datasets for sediment studies and comprehensive restoration project monitoring. These data sets provide a solid foundation for refinement of the watershed monitoring framework to streamline monitoring parameters without losing key information related to ecosystem function.

As a precursor to watershed planning, **watershed sediment studies (EST-1)** are conducted to provide a baseline of sediment data prior to restoration actions to evaluate restoration success. Sedimentation rating curves are developed to measure bed and sediment loads and identify historic sources of sediment in coastal streams. Figure X shows normalized load data (tons mile<sup>-2</sup> year<sup>-1</sup>) derived from sediment analyses.

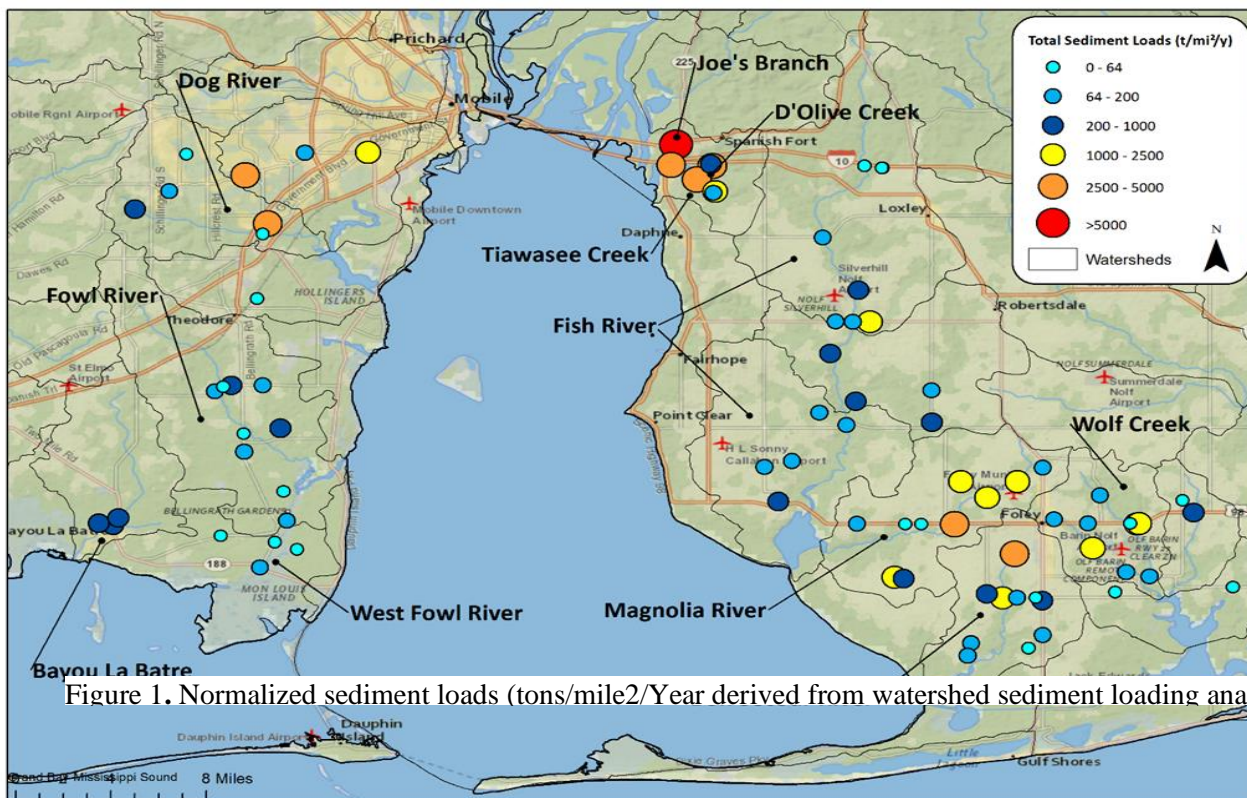


Figure 1. Normalized sediment loads (tons/mile<sup>2</sup>/Year derived from watershed sediment loading analyses.



**Spotlight: Hydrologic Modeling**

**Ecosystem Research and Modeling (EST-1)** - One of the initial implementation activities following publication of a watershed management plan is the development of hydrologic models for drainage areas to aid in understanding, predicting, and managing water resources. Hydrologic models are important to inform stream restoration design, and as development and land conversion continue in coastal Alabama, they inform decision-makers about their potential impacts related to managing stormwater runoff. Figure 4 provides a watershed-specific map showing the progress of hydrologic modeling across coastal Alabama.

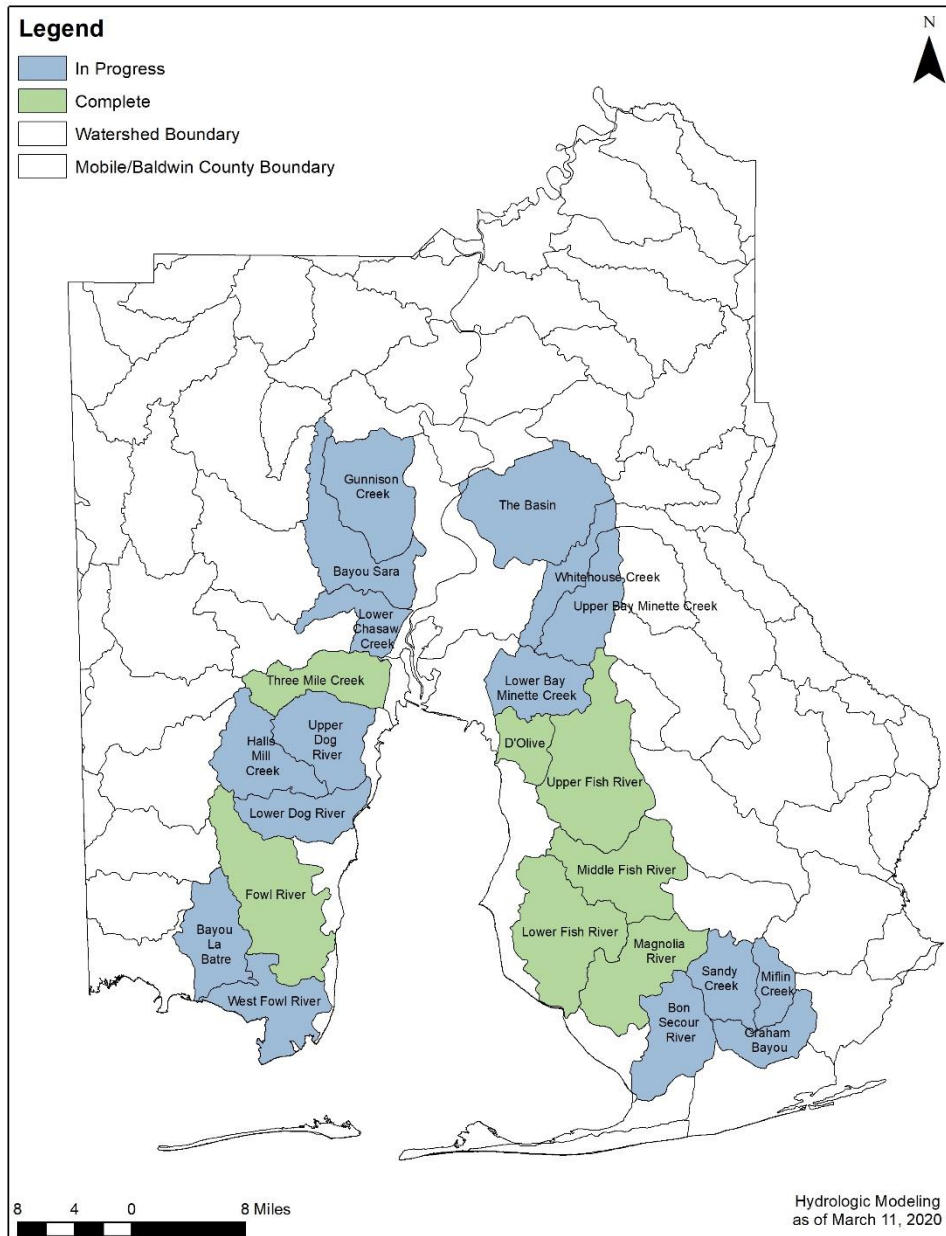


Figure 4. Progress in hydrologic modeling across coastal AL watersheds.

***Spotlight: SAV and Habitat Mapping***

**Trends Data Development (EST-1)** To assess trends in estuarine ecosystem condition and increase data related to how it responds to anthropogenic stressors, the MBNEP has built baseline datasets for submerged aquatic vegetation distribution and extent, high-resolution habitat mapping, and an updated Mobile County soil survey. MBNEP has coordinated SAV mapping of Alabama's estuarine waters in 2002, 2008/2009, and most recently in 2015, with acreages reflected in Table 1.

Table 1. Total SAV acreage (continuous + patch) by U.S.G.S. 7.5-Minute Quadrangle for summer 2015, 2009, and 2002 surveys.

USGS QUADRANGLE	2015 ACREAGE	2009 ACREAGE	2002 ACREAGE
Bellefontaine	1.7	0	0
Bridgehead	5,905.30	3,450.30	3,641.00
Chickasaw	107.9	21.2	26.9
Coden	5.1	0	0
Daphne	209.3	35.1	9.5
Fort Morgan	1.7	0	0
Fort Morgan NW	28.6	25.2	0
Grand Bay	414.6	364.2	296.4
Grand Bay SW	93.6	61.8	79.9
Gulf Shores	164.6	1.5	1.2
Heron Bay	10.2	0	0
Hollinger's Island	61.3	0	126.7
Hurricane	125.7	1.9	517.3
Isle aux Herbes	163.7	129.2	87.6
Kreole	162.1	218.8	295.9
Little Dauphin Island	0.4	0	0
Magnolia Springs	2.3	0	0
Mobile	1,021.30	509.8	1,007.00
Orange Beach	179.7	150.8	60
Perdido Bay	164.2	135.4	114.6
Petit Bois Pass	203.8	142.3	59.6
Pine Beach	3.8	1.2	0.1
Spring Hill	37.4	0	0
Theodore	55.7	0	0
The Basin	0	0	265.2
<b>TOTAL</b>	<b>9,123.50</b>	<b>5,248.70</b>	<b>6,588.90</b>

In 2015, MBNEP commissioned high-resolution (one meter) mapping of wetlands and upland coastal habitats across Mobile and Baldwin counties to help assess water quality trends, identify degraded habitats, and recommend corrective actions. The goal was to generate an updated habitat classification map to establish a baseline of acreages of habitat for coastal habitats. Maps were delivered in 2016 and are currently being refined for trends analyses.

With the most recent Soil Survey of Mobile County published in 1980, the MBNEP contracted with U.S. Department of Agriculture-Natural Resource Conservation Service to update the soil maps for Mobile County. Updated maps provide more comprehensive soil and site data for managing crop and forest lands, conserving water and protecting water quality, restoring wildlife habitat, determining soil potential ratings, and preparing plans for watersheds and recreational and urban areas. This survey, completed in 2017, will be useful in validating habitat types characterized through habitat mapping of Mobile County.

Core Element: Assessment and Monitoring Performance Measures

Core Element: Ecosystem Status and Trends Performance Measures		Sub-element: Assessment and Monitoring
Level	Performance Measure	Evidence
<b>Excellent</b>	The Program demonstrates <i>Excellent</i> performance because: <ul style="list-style-type: none"> <li>o The monitoring plan produces sufficient data to support a comprehensive and integrated analysis of environmental conditions.</li> <li>o The Program or its partners seeks more efficient and cost-effective technologies for monitoring as appropriate.</li> <li>o The Program trains volunteer groups to improve the quality of data collection.</li> </ul>	See Year 5 Workplan pages 14-15
		<a href="#">Calibrating a Biological Conditions Gradient for Mobile Bay</a>
		<a href="#">D'Olive Watershed Monitoring Study/Development of a Watershed Condition Index</a>
		<a href="#">Mobile Bay Subwatershed Restoration Monitoring Framework.pdf</a>
		<a href="#">Volunteer WQM Guide 2017</a>
		<a href="#">Volunteer Monitoring Locations</a>
		<a href="#">Water Rangers Webtool</a>
		<a href="#">Volunteer Water Quality Monitoring Manual</a>
<b>Good</b>	The Program demonstrates <i>Good</i> performance because: <ul style="list-style-type: none"> <li>o The Program uses monitoring data to assess and re-direct management actions and programs implemented under the CCMP as necessary.</li> <li>o The monitoring plan has a schedule for review/updates that is approved by the Management Conference.</li> <li>o The Program uses monitoring</li> </ul>	See Year 5 Workplan, pages 40-41. The program financially supports Alabama Water Watch to provide citizen water quality training quarterly on the coast

Core Element: Ecosystem Status and Trends Performance Measures		Sub-element: Assessment and Monitoring
Level	Performance Measure	Evidence
	<p>data to identify gaps in knowledge.</p> <ul style="list-style-type: none"> <li>o Available data is analyzed for ecosystem status and trends.</li> <li>o The Program promotes the establishment of volunteer monitoring groups to supplement NEP monitoring efforts.</li> </ul>	
		<p><a href="#">D'Olive Watershed Wetlands Rapid Assessment Procedure and Floristic Quality Index Assessment;</a></p> <p><a href="#">Riparian Habitat Health Evaluation Following Stream Restoration;</a></p> <p><a href="#">EVALUATION OF PRE- AND POST-RESTORATION SEDIMENT LOADS IN JOES BRANCH, SPANISH FORT, BALDWIN COUNTY, ALABAMA;</a></p> <p><a href="#">Mon Louis Island Restoration 2018 Marsh Monitoring; 1st-Annual Post-Construction Monitoring Report</a></p> <p><a href="#">D'Olive Economic Valuation</a></p> <p><a href="#">Continued Monitoring for D'Olive Bay Final Report;</a>  <a href="https://waterdata.usgs.gov/nwis/uv?site_no=02378780">https://waterdata.usgs.gov/nwis/uv?site_no=02378780;</a>  <a href="https://waterdata.usgs.gov/nwis/uv?site_no=02378790">https://waterdata.usgs.gov/nwis/uv?site_no=02378790</a></p> <p><a href="#">2016 SAV Final Report</a></p> <p><a href="#">2016 HABITAT MAP FINAL REPORT</a></p>
<b>Fully Performing</b>	<p><b>Baseline expectations:</b></p> <ul style="list-style-type: none"> <li>o The Program has a Scientific and Technical Advisory Committee (STAC) or analogous structure to ensure that Program decision-making is tied to good science.</li> <li>o The Program has indicators in use that are recognized by the Management Conference.</li> <li>o The Program has a monitoring plan in use that is recognized and/or approved by the Management Conference and:</li> </ul>	<p><a href="#">Science Advisory Committee Webpage</a></p>



Core Element: Ecosystem Status and Trends Performance Measures		Sub-element: Assessment and Monitoring
Level	Performance Measure	Evidence
	<p>§ meets QA/QC requirements;  § identifies various parties' roles and responsibilities for monitoring;  § has a timetable for collecting and reporting on data; and  § identifies funding needs and/or commitments for the monitoring program.</p> <p>o The monitoring plan produces data to support an analysis of specific environmental conditions.</p>	
<b>Minimally Performing</b>	The Program does not meet <u>all</u> of the performance measures in the <i>Fully Performing</i> level.	-

## Sub-element: Reporting (EST-2)

### Spotlight: Mobile Bay Subwatershed Restoration Monitoring Framework

**Mobile Bay Subwatershed Restoration Monitoring Framework (EST-2)** - Improving environmental conditions by managing anthropogenic stressors requires knowledge of what is being contributed to these receiving waters by upstream sources, and this necessitates the establishment of a more robust monitoring program. The MBNEP Science Advisory Committee created a working group to develop a basic framework for monitoring the condition of watersheds at the 12-digit HUC scale adjacent to Mobile Bay to standardize data collection and synthesis with a vision of establishing comprehensive quantitative assessments of restoration success and synthesis of this data to provide a better picture of overall ecosystem function across the coast.

Implementation of the monitoring framework as it applies to each watershed aims to answer these questions:

1. What, if any, changes are there in the water quality and flow, sedimentation, biology, and habitat quantity and quality because of restoration efforts and management plan implementation?
2. How are potential ecosystem health indicators related to stressors and ecosystem functions/services?
3. What is the long-term status of the biological condition in the Mobile Bay Watershed?

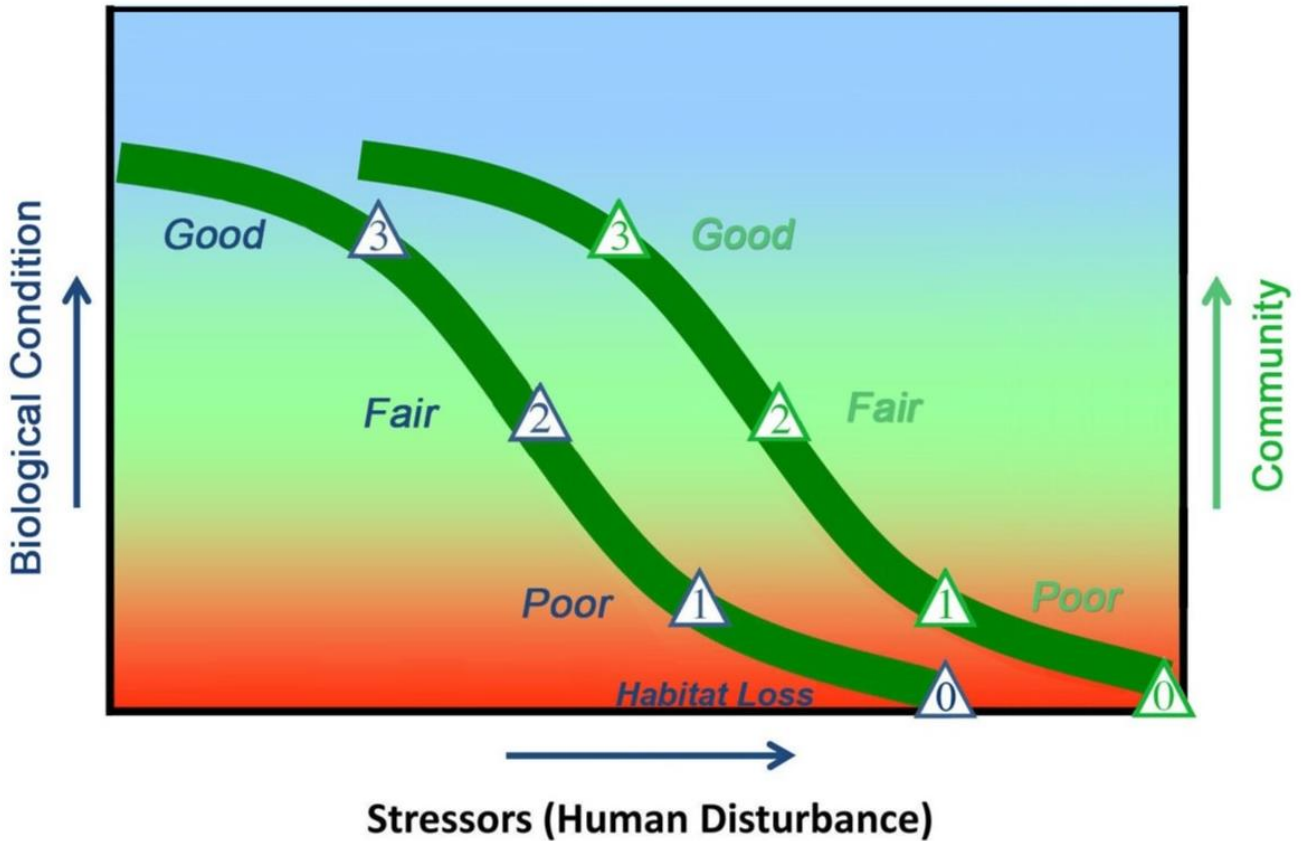
The Mobile Bay Subwatershed Restoration Monitoring Framework ensures standardized data collection for restoration efforts throughout Mobile and Baldwin counties, allowing temporal and spatial comparisons, improved decision making, and data archival. Through the framework, MBNEP coordinates data synthesis to develop tools and products for baseline establishment, assessment of restoration success, and adaptive resource management. MBNEP also coordinates periodic reporting of monitoring data in outreach products. The monitoring framework is required to be incorporated into all watershed management plans and restoration work. On a regional scale, the framework can serve as a model to develop larger networks across the Gulf Coast, including those envisioned by the Gulf of Mexico Alliance, NOAA, and the Gulf of Mexico Coastal Ocean Observing System.



### Spotlight: Watershed Condition Index Framework Development

**Watershed Condition Index Framework Development (EST-2)** - An ultimate goal is to use monitoring data in the development of a watershed condition index. Similar to a Biological Condition Gradient, a Watershed Condition Index will not only consider biological trends but will incorporate the human ecosystem in evaluating watershed condition, where levels of regulatory prevention, best practice incentives, and other anthropogenic factors are considered.

During the reporting period, the development of this index was ongoing, using activities in and monitoring data from the D'Olive Watershed as a test. A first run of the index has revealed a need for more time for the ecosystem to respond to restoration efforts and for market forces and methodologies for measuring anthropogenic change to take place.



The Watershed Condition Index Framework – Unlike the Biological Condition Gradient (represented by the curve on the left), the Watershed Condition Index Framework (right) also evaluates the potential positive effects of regulatory prevention, best practice incentives, and other positive factors introduced by the human ecosystem, which could improve condition at any given level of stress.

Core Element: Reporting of Ecosystem Trends Performance Measures

Core Element: Ecosystem Status and Trends Performance Measures		Sub-element: Reporting of Ecosystem Status and Trends
Level	Performance Measure	Evidence
<b>Excellent</b>	The Program demonstrates <i>Excellent</i> performance because: <ul style="list-style-type: none"> <li>o Reports discuss adaptive management strategies.</li> <li>o Reports recognize new and emerging issues to be considered in updates or revisions to the CCMP.</li> </ul>	<a href="#">2002 CCMP Evaluation</a>
<b>Good</b>	The Program demonstrates <i>Good</i> performance because: <ul style="list-style-type: none"> <li>o The Program has an environmental progress report that communicates ecosystem status and trends to the public every three to five years (e.g., “State of the Bay” report, Environmental Report Card, significant newspaper insert, newsletters, websites, etc.).</li> <li>o Major reports: <ul style="list-style-type: none"> <li>§ discuss the Program’s goals and priorities, indicators in use, ecosystem status and trends, and maps of study area;</li> <li>§ discuss the health of the estuary (i.e., habitat, water quality, and living resources); and</li> <li>§ include conceptual models that represent the best understanding of current ecosystem processes.</li> </ul> </li> </ul>	<a href="#">CCMP 2019-2023</a> See page 42-105  <a href="#">Calibrating a Biological Conditional Gradient Model to the Mobile Bay Estuary</a>
<b>Fully Performing</b>	<i>Baseline expectations:</i> <ul style="list-style-type: none"> <li>o The Program has an environmental progress report that communicates ecosystem status and trends to the public on a periodic basis (e.g., “State of the Bay” report, Environmental Report Card, significant newspaper insert, newsletters, websites, etc.).</li> <li>o Major reports: <ul style="list-style-type: none"> <li>§ are linked to CCMP actions, goals, priorities, indicators, and monitoring systems;</li> </ul> </li> </ul>	<a href="#">CCMP 2019-2023</a>

Core Element: Ecosystem Status and Trends Performance Measures		Sub-element: Reporting of Ecosystem Status and Trends
Level	Performance Measure	Evidence
	§ feature a narrative description of the Program's study area in plain English explaining the relationship between human activities and impacts on resources; and § are approved by the Management Conference.	
		<a href="#">MBNEP Newsletter Articles</a>
<b>Minimally Performing</b>	The Program does not meet <b><u>all</u></b> of the performance measures in the <i>Fully Performing</i> level.	

*\*Refers to Reporting of Ecosystem Status and Trends in the Program study area.*



### Sub-element: Research (EST-3)

#### Spotlight: D'Olive Restoration Monitoring and Synthesis

**Ecosystem Restoration Monitoring (EST-3)** - Ecosystem restoration requires landscape disturbance and takes time. While downstream monitoring has been aggressively pursued in the D'Olive Watershed (the designated pilot area for measuring ecosystem restoration effects), concurrent active restoration efforts within this drainage area created intermittent pulses of sedimentation and “noise” which complicated evaluating the effects of completed restoration projects.

Figure 2 shows data related to the restoration of Joe's Branch, the initial restoration project undertaken after publication of the D'Olive Watershed Management Plan, with its estimated total pre restoration load compared to other coastal Alabama streams and estimated post-restoration total loads. Figure 3 shows measured total suspended solids discharge during the pre- and post-restoration monitoring periods downstream at Joe's Branch. While not occurring during the time period of this Program Evaluation, Joe's Branch, which was added to the State's 303(d) list due to excessive sedimentation and habitat alteration in 2008 following pre-watershed planning sediment analyses, was de-listed in March 2020.

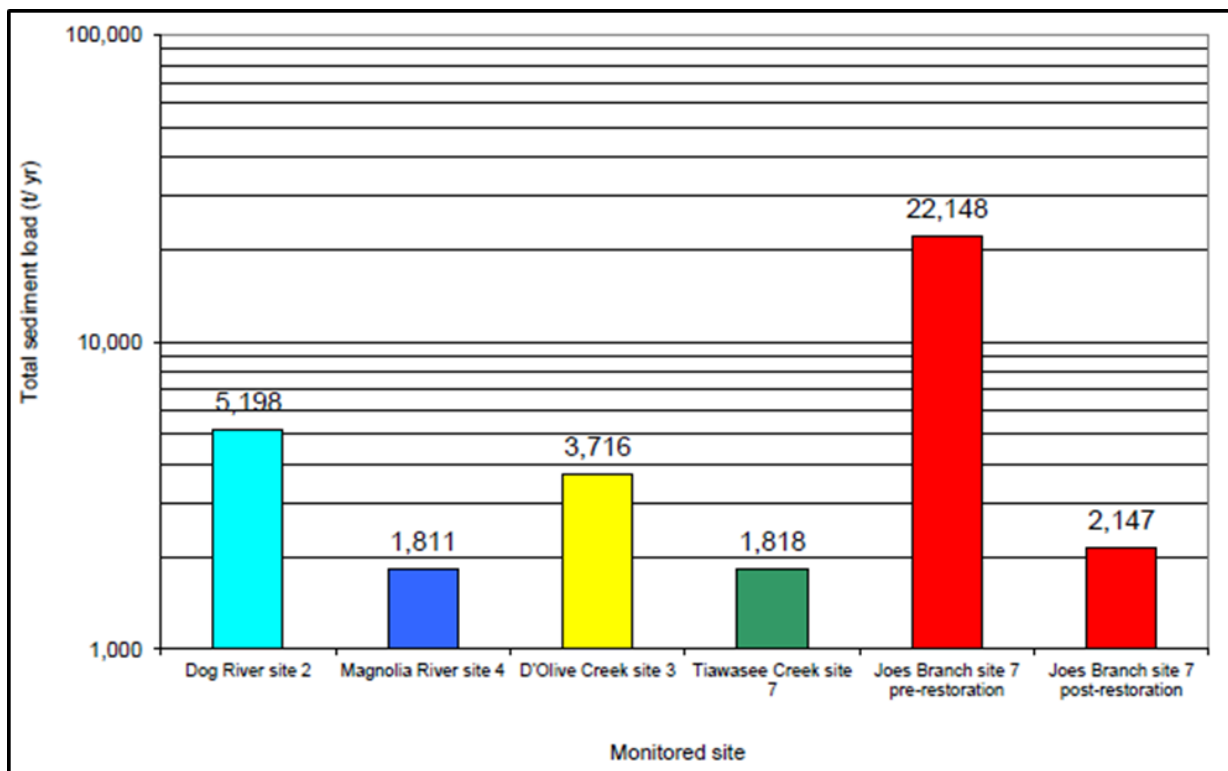


Figure 2. Comparison of estimated total sediment loads from selected coastal Alabama streams.

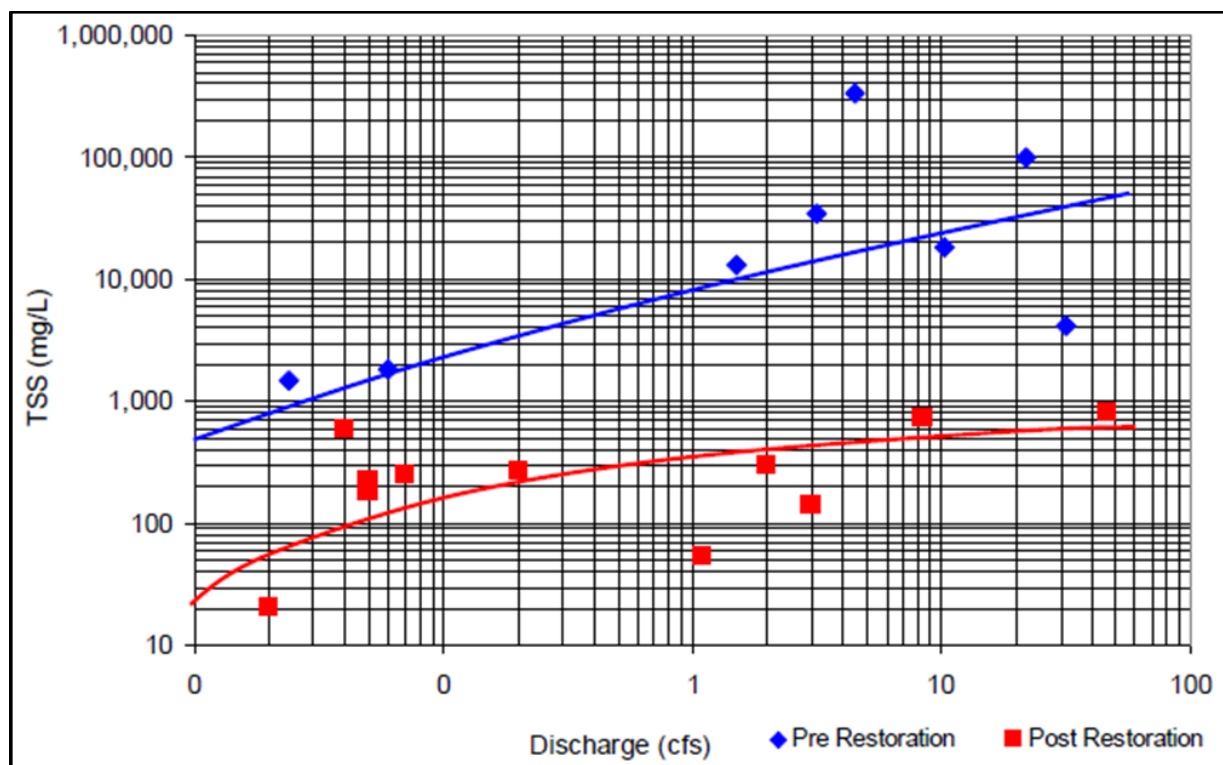


Figure 3. Measured total suspended solids and stream discharge during the pre- and post-restoration monitoring periods downstream at Joe's Branch.

#### *Spotlight: Evaluation of Economic Benefits of D'Olive Watershed Restoration Projects*

Progressive and sustainable growth and development is the lead initiative of almost every community in our country. Over time, however, the natural and manmade infrastructure and systems that support our communities demonstrate they have finite capacities with which to absorb the cumulative impacts following rapid growth. As communities' natural systems are converted to impervious surfaces in the form of buildings, streets, and parking lots, their capacity to assimilate, safely displace, and effectively convey increases in stormwater runoff is reduced. These systems no longer are capable of absorbing increased volumes and velocities of runoff associated with growth without risk to surrounding manmade infrastructure. As a result, effective management and adaptation of the natural and built systems needed to carry this increased demand will be essential to every Gulf Coast community's success.

For Coastal Alabama, given over five feet of hard rain this area experiences on a yearly basis, many communities grapple with the impacts of increased stormwater runoff including drainage ditch degradation, stream and creek degradation, sanitary sewer overflows, and neighborhood flooding. Not only do these impacts reduce the quality of life for residents, but water quality downstream and in receiving waters is also degraded due to excessive sediment transport and loading.

Nowhere is this more acute than in the D'Olive Bay Watershed, a drainage area of approximately 7,700 acres encompassing parts of the cities of Daphne and Spanish Fort as well as unincorporated Baldwin County, Alabama (see Figure 1). Due to a combination of steep slopes and highly erodible soils coupled with intensive residential and commercial development, the natural systems of creeks and streams used to convey stormwater runoff have become severely degraded. As a result, this watershed is currently on the State of Alabama's list of impaired streams, indicating it is not meeting its designated use for propagation of fish and wildlife.

To improve local municipalities' and counties' abilities to manage natural resources and the associated infrastructure supporting a healthy estuary AND community growth, the MBNEP identified a need to determine the economic impact, both direct and indirect, of the restoration and stormwater management investments being executed in the D'Olive Watershed. MBNEP commissioned the D'Olive Watershed Restoration Valuation Study for this purpose. The specific goals of the D'Olive Watershed Restoration Valuation Study are as follows: (1) To determine the economic benefits, both direct and indirect, of the environmental restoration and stormwater management investments that have been and are currently in progress in the D'Olive Watershed; (2) To determine how improved environmental management and protection efforts affect property values, infrastructure costs, and revenue generating activities for the public and private sectors; and (3) To identify the value added by the MBNEP in terms of project identification, management, and funding.

The D'Olive Watershed restoration projects represent infrastructure improvements to drainage and stormwater management systems within the cities of Daphne and Spanish Fort. Besides environmental benefits (e.g., water quality and habitat enhancement), the projects provide for safe conveyance of stormwater and erosion protection of adjacent properties. Effective drainage systems and stormwater management are typical objectives of urbanized communities and usually fall within the realm of public responsibility. However, budget limitations and the fact that drainage conveyances in many locations are on private property constrain Daphne and Spanish Fort from the implementation of stormwater improvements. These constraints have been overcome by the work of MBNEP to plan and implement the restoration program. MBNEP with its collaborative partnerships competed for and secured funding from outside sources, thus saving local resources for other priorities of the communities.

Costs of the D'Olive Watershed Restoration Program to date are approximately \$12.2 million. It cannot be said for certain whether or not infrastructure improvements to drainage and stormwater management systems in the D'Olive Watershed would have been implemented anyway had the MBNEP restoration program not been undertaken except for in emergency situations.

Nevertheless, both Daphne and Spanish Fort are subject to Municipal Separate Storm Sewer System (MS4) permits regulated by ADEM. Given that D'Olive Watershed streams in both municipalities are on ADEM's list of impaired waters for "siltation (habitat alteration)" from "land development," it is indeed possible that ADEM could have required regulatory actions necessitating stream stabilization improvements. Instead, ADEM has acted as a proactive partner with MBNEP and the regulated municipalities to advance solutions to the underlying problems on a voluntary basis. A goal of the D'Olive Watershed Restoration Program is the eventual removal of the streams from the impaired waters list. Such delisting will provide benefits of reduced MS4 permit compliance costs for the regulated municipalities.

Although this assessment was completed in November of 2018, MBNEP and its partners recognize it is only a first iteration and the economic benefits of the restoration work need to be expanded. To this end, this assessment is continuing and not anticipated to demonstrate major results until more time has elapsed since completion of the restoration program. We continue to work with EPA's Gulf Breeze Gulf Ecology Division and the U.S. Army Corps of Engineers to investigate how to communicate ecosystem service values to local officials in a way that matters to them.

Core Element: Research Performance Measures

Core Element: Ecosystem Status and Trends		Sub-element: Research*
Level	Performance Measure	Evidence
<b>Excellent</b>	<p>The Program demonstrates <i>Excellent</i> performance because:</p> <ul style="list-style-type: none"> <li>o Research is used to change policy.</li> <li>o The Program shares its science and technology research and findings at regional and national meetings (e.g., Estuarine Research Federation (ERF) biennial meeting, The Coastal Society (TCS) biennial meeting, Coastal Zone (CZ) biennial meeting, NEP national meeting, etc.).</li> <li>o Scientific and technical reports produced by the NEP are peer reviewed.</li> <li>o Program staff sits on state and national science boards and committees.</li> </ul>	<p>NEP Staff share research and restoration findings at RAE, CERF, NCER, and NEP national meetings. The work ongoing in the D'Olive watershed sited in other sections of this report will be used to change policy and local regulations but demonstration of ecosystem response has been slow.</p> <p>MBNEP in partnership with the MASGC host a bi-annual research symposium, alternately held in Alabama and Mississippi where scientists from several states share lessons learned, state of current research and participate in sessions designed to gather input on emerging issues and trends.</p>
		<a href="#">Bays and Bayous 2014</a>
		<a href="#">Bays and Bayous 2016</a>
		<a href="#">Bays and Bayous 2018</a>
<b>Good</b>	<p>The Program demonstrates <i>Good</i> performance because:</p> <ul style="list-style-type: none"> <li>o Research is conducted by appropriate partners.</li> <li>o Research identifies significant, missing data that warrant additional monitoring or sampling.</li> <li>o The Program uses research results to develop management options and implement solutions.</li> <li>o Results from research are combined and translated into plain English for reporting to the public.</li> <li>o The Program or its partners have established a process to regularly reevaluate its research needs.</li> </ul>	

Core Element: Ecosystem Status and Trends		Sub-element: Research*
Level	Performance Measure	Evidence
		<a href="#">Fecal Coliform Bacteria Loading Model for Fowl River Bay 4-23-2018 (XLSX, 41KB)</a>
		<a href="#">Sources of water quality indicators to shellfish growing areas/Gulf of Mexico, 2017-2018</a>
		<a href="#">Characterization of Impacts of Waves and Boat Wakes</a>
		<a href="#">Fowl River Hydrology and Hydrography</a>
		<a href="#">Fowl River Sediment Core Analysis</a>
		<a href="#">High Frequency Salinity Intrusion in Fowl River</a>
		<a href="#">Pre-Restoration Analysis of Discharge, Sediment Transport Rates, Land-Use Impacts</a>
		<a href="#">Fowl River Vegetation Characterization-Spits</a>
		<a href="#">Evaluation of Economic Benefits of D'Olive Watershed Restoration Projects</a>
<b>Fully Performing</b>	<b>Baseline expectations:</b> <ul style="list-style-type: none"> <li>o The Program or its partners has a process to identify research needs.</li> <li>o The research needs are consistent with CCMP goals and actions.</li> <li>o The Program's research needs are approved by the Management Conference.</li> </ul>	The Gulf of Mexico Alliance/Gulf of Mexico Regional Research Plan/MASGC Omnibus funding, every two years are all consistent with the CCMP; program research needs are developed and recommended by the SAC and incorporated into Workplans
<b>Minimally Performing</b>	The Program does not meet <b>all</b> of the performance measures in the <i>Fully Performing</i> level.	



## Core Element: Ecosystem Restoration and Protection

Restoring and protecting ecosystem function and services is fundamental to safeguarding the things people value most about living in coastal Alabama. Over the past five years, MBNEP's Project Implementation Committee and Management Conference have used a watershed planning approach to improve trends in watersheds (ERP-1); improve ecosystem function and resilience through protection, restoration, and acquisition of environmentally sensitive habitats and lands (ERP-2); and provision of improved access to resources (ERP-3). These have been accomplished at record pace due to historical funding opportunities resulting from fines and criminal penalties awarded due to damages resulting from the 2010 *Deepwater Horizon* oil spill in the Gulf of Mexico.

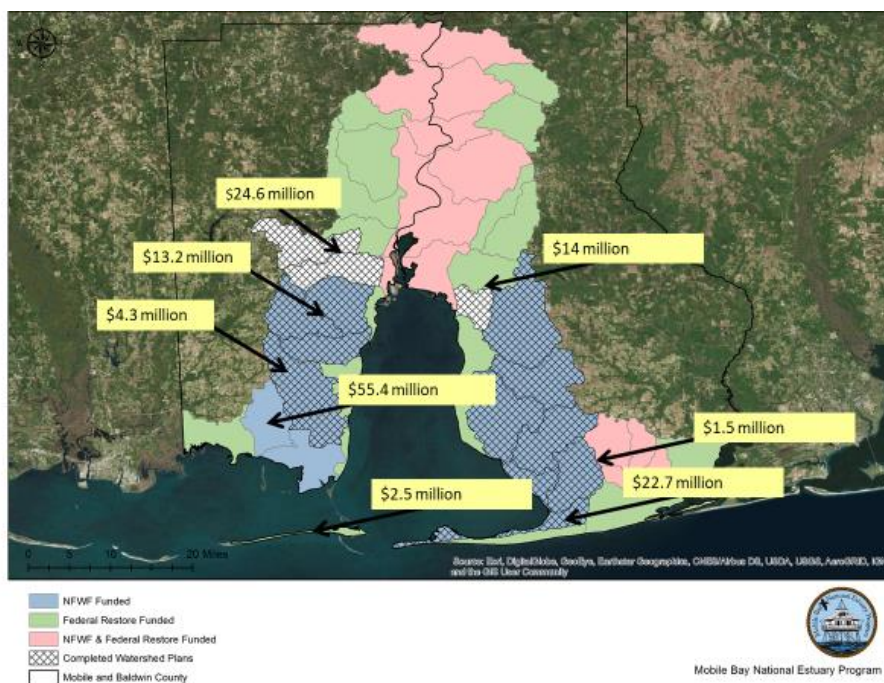
### Sub-element: Water Quality

#### Spotlight: Watershed Management Planning (ERP-1)

MBNEP's Project Implementation Committee has embarked on a holistic, watershed-based approach to ecosystem restoration and protection that prescribes development and implementation of comprehensive watershed management plans (WMPs) for all 12-digit HUC watersheds in coastal Alabama. With a primary focus on tidally influenced watersheds, nine WMPs have been completed over the past five years including: Eight Mile Creek, Fowl River, Bayou la Batre River, Bon Secour River Complex, Dog River Complex, D'Olive, Three Mile Creek, the Weeks Bay Complex, and West Fowl River. Most WMPs completed during this reporting period were funded through the National Fish and Wildlife Foundation Gulf Environmental Benefits Fund. Funding for ten WMPs for remaining intertidal watersheds or complexes has been secured through the RESTORE Act.

All WMPs are expected to address the six things people value most about living in coastal Alabama, conform to the EPA's nine key elements; incorporate the Mobile Bay Restoration Monitoring Framework; and include a vulnerability assessment related to changing climatic conditions on critical habitats. These watershed plans inform coastal resource management by providing:

- Intensive community education and engagement related to the local environment,
- Identification of restoration and protection opportunities,
- Recommendations prioritized based upon "biggest bang for the buck,"
- Tools for local governments to assist in securing resources,
- Justification of projects for funders, and
- National Flood Insurance Program Discounts through the Community Rating System.



To date, plans have been completed for seven watershed complexes and over \$100 million dollars have been invested through RESTORE Act funding to implement projects identified in these plans. This planning process is intensive, representing

eighteen months of assessment, local community engagement, and identification and prioritization of management measures.

**Spotlight: D'Olive Watershed Restoration (ERP-1)**

With Geological Survey of Alabama sediment loading analysis and a Comprehensive Watershed Management Plan for the D'Olive Creek, Tiawasee Creek, and Joe's Branch Watersheds completed, the primary problems on a watershed scale were eroded stream segments delivering silt into D'Olive Creek, Lake Forest Lake, and D'Olive and Mobile bays and depositing massive accumulations of coarse sediment in downstream wetland areas. In fact, five stream reaches, including the three major watershed streams and two unnamed tributaries, are listed on the State 303(d) List of Impaired Water Bodies for habitat alteration/siltation from development. In 2013, the MBNEP received a grant from the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund for \$6.781 M to restore degraded streams and install management measures to reduce the downstream impacts in the D'Olive Watershed through a combination of stormwater retrofits, stream restorations, and detailed monitoring. After a highly successful implementation of a step pool stormwater conveyance in Tributary JB at Westminster Village in 2012-13, the region experienced a significant rain event in April 2014 dropping 17.75 inches over a twenty-four-hour period and exacerbating conditions in restoration targets. In response to these increases in the project scope, the grant was amended in August 2015 and \$6M were added to the award.

Engineering and design contractors for all tasks included in the proposal were procured through submission of Requests for Qualifications and interviews. Construction contractors were required to demonstrate competence through an application for pre-qualification for construction services that included submission of a single PDF document which comprised a single-page cover letter, a pre-qualification questionnaire with all questions answered completely and accurately, and information on all subcontractors, if applicable, before selection using Requests for Bids.

The Joe's Branch step pool restoration in 2013 included restoration of the impacted and excavated downstream wetland area with removal of invasive species and re-planting with native wetland species and live stakes. However, the April 2014 rain event badly compromised the downstream wetlands, creating large, advancing head cuts which exposed sanitary sewer infrastructure. The JB2 restoration, begun in April 2015, focused on restoration of the wetlands and 1,400 linear feet of incised stream. The project, designed by Thompson Engineering and constructed by North State Environmental, addressed the exposed sewer infrastructure, 150 acres of impacted floodplain and wetlands, and the incised stream reach. It was substantially completed in August 2015. The stream bed was elevated to connect with the floodplain, rock was used to reinforce stream banks, and log rollers and rock vanes were used to direct flow and reduce energy. Post-restoration monitoring revealed over 90 percent sediment load reductions in these tributaries, which previously delivered the highest normalized sediment loads of any watercourse ever monitored by GSA.



Three projects were implemented and completed in 2016. Restoration strategies for tributary reaches TC1 and TC2 at Tiawasee Creek in Daphne were designed by Goodwyn Mills Cawood and constructed by North State Environmental, beginning in November 2015 and completed in April 2016. A comprehensive Joe's Branch Restoration, including restoration of three stream reaches and construction and restoration of two stormwater management retention ponds, was designed by Thompson Engineering and constructed by Southern Excavating/Streamline, beginning in February 2016 and completed in November 2016. With TC1 and TC2 completed in April, the MBNEP opted to move directly into restoration of D'Olive Creek Tributary D4-D6, the largest coastal stream restoration yet undertaken, designed by GMC and constructed by North State. This strategy resulted in significant savings, since North State could avoid costs of demobilization and re-mobilization.

The incised stream reaches of TC1 and 2, running over 1,300 linear feet through wooded landscape parallel and adjacent to Pollard Avenue and before flowing under the Greenwood Drive bridge in Daphne, required the clearing of 14 acres of wooded flood plains. The streambed of the incised channel was elevated to connect the stream to its floodplain, and harvested trees were adapted into log rollers which, along with rock vanes, were used to dissipate energy. Native plants added to the project quickly reached near 100% coverage.

As restoration of Tiawasee Creek tributaries was underway, Southern Excavating/Streamline contractors implemented restoration design on Joe's Branch tributaries around Westminster Village in Spanish Fort. Rock step pool technology was used to restore the 400-linear-foot steep upper reach (J4-2) of an incised tributary, with softer measures employed on the flatter, 700-linear-foot lower reach (J4-1). Only three acres were disturbed in restoring this tributary, reflecting only a small floodplain, and a substantial seep flowing into the north side of the tributary required significant rock reinforcement. A degraded Westminster Gates community retention pond (J Stormwater Management Facility [SWMF]) at the head of this tributary was excavated to restore volume and storage capacity. A new stormwater retention pond (JB SWF) was constructed on Westminster Village property at the head of the restored JB step pool conveyance. Finally, the steep and incised 700-linear-foot JA tributary, directly behind the Piggly Wiggly Supermarket, was



addressed by piping the stormwater to a dissipation pool at the bottom of the hill and upstream of its confluence with Joe's Branch. Sediment bags were used to slow rill formation adjacent to the tributary.

With restoration of Tiawasee Creek tributaries complete, North State Environmental mobilized to D'Olive Creek tributary D4-D6 to undertake a massive restoration of the most degraded tributary in the D'Olive Watershed. Stretching 2,714 linear feet from Interstate 10 at Mile Marker 37 south and under Highway 90 on property owned by Malbis Plantation, the tributary was deeply incised and filled with downed trees, boulders, and rubble. The GMC design involved clearing 15 acres, abandoning and filling the incised channel, and constructing a shallow, new, sinuous channel, well connected to the its flat flood plain. With construction occurring during the hurricane season, speed was a priority, and seven excavators were onsite and operating during early summer months. Streambanks were reinforced with rock, energy was dissipated using rock vanes and log rollers, and native vegetation and trees were planted throughout the cleared floodplain. Two water retention features were added within the floodplain to manage stormwater and provide ecological complexity. A sand pit directly east of D4-D6 was identified as a sediment source delivered by a small tributary. Junction boxes were installed at the pit, followed by hydro-seeding, mulching, and tree planting. Plantings were challenged by a severe drought between August and November, but subsequent planting in the winter were more successful. The project was substantially completed in September 2016.



Also, on Malbis Plantation property, a braided and incised tributary to D'Olive Creek, DAE, running 1,100 linear feet through thick woods then down slope and under County Road 13, was restored between

November 2016 and February 2017. Designed by Volkert, North State Environmental was contracted to perform this restoration. Care was taken to reduce disturbance in woody uphill portions, where the stream bed was elevated, and banks were stabilized with rock. With a steep slope and limited flood plain, rock step pool technology was used to reduce energy in downstream portions. At both D4-D6 and DAE, problems were encountered with four-wheel recreational vehicles trespassing and compromising project. Gates and warning signage were installed to reduce these incidences.

D'Olive Creek tributary DAE, directly south of Highway 90 in Daphne and between residential Oakstone Drive East and Oakstone Drive West, was deeply incised and rapidly degrading. Rather than performing a stream restoration, Integrated Science and Engineering provided a design to pipe stormwater runoff from the highway 420 linear feet down the original channel, stabilized by rocks, to a downstream rock splash pool. Southern Excavating/Streamline began construction in April 2017. Only four acres of the wooded landscape were disturbed implementing this project, which was planted with native vegetation and completed in September 2017.

As designs were being developed by Mott MacDonald to restore D'Olive Creek tributaries DAF and DAF-1, the Golf Course Tributary, North State Environmental began restoration of the incised 490-linear-foot DAF-1A (Melanie Loop) tributary in April 2018. With little flood plain available, rocks were used to stabilize the stream banks, the stream bed was elevated, and log rollers and rock vanes were used to reduce energy during high flow events. The project was substantially completed in May 2018.

With these projects completed, only four remain: D'Olive tributaries DAF (292 lf) and DAF-1 (243 lf) and two Tiawasee Creek tributaries, Tiawasee Montclair (750 lf) and a small tributary associated with TC1 and TC2 (578 lf).

Together, implementation of these projects recommended in the D'Olive Creek Watershed Management Plan resulted in estimated erosion reductions of 4,143 tons/year, nitrogen reductions of 48.7 tons/year, and phosphorus reductions of 9.1 tons/year.

**Summary of Key Activities:** MBNEP used NFWF GEBF funding to implement stream restoration and stormwater management measures recommended in the D'Olive Creek WMP to stem erosion impacting Lake Forest Lake, D'Olive Bay, and Mobile Bay and enhance ecological service provision by stormwater conveyances.

**Partnerships:** Cities of Daphne and Spanish Fort, Baldwin County, ADEM, ALDOT, ADCNR-SLD, GSA, and the Westminster Village Retirement Community, Malbis Plantation,

**Outputs:** Restoration of close to 71 acres of wetlands and flood plain and over 11,000 linear feet of degraded streams which delivered historically large sediment loads into Lake Forest Lake, D'Olive Bay, and Mobile Bay. Annually, the combined projects have reduced the sedimentation by 280 dump truck loads of eroded material. While not natural stream restorations, restored streams were stabilized to sustain the increased volumes and velocities of stormwater runoff from the developed environment and to enhance delivery of ecosystem services delivered by the waters and riparian buffers.

**Outcomes:** Improved management of stormwater runoff, enhanced ecosystem function and protection; coordinated intergovernmental management of ecosystem restoration and protection activities.

**Additional Information:** [D'Olive Watershed Restoration Video](#)

### **Sub-element: Living Resources**

#### **Spotlight: Pathogen Source Tracking in the West Fowl River Watershed (ERP-1)**

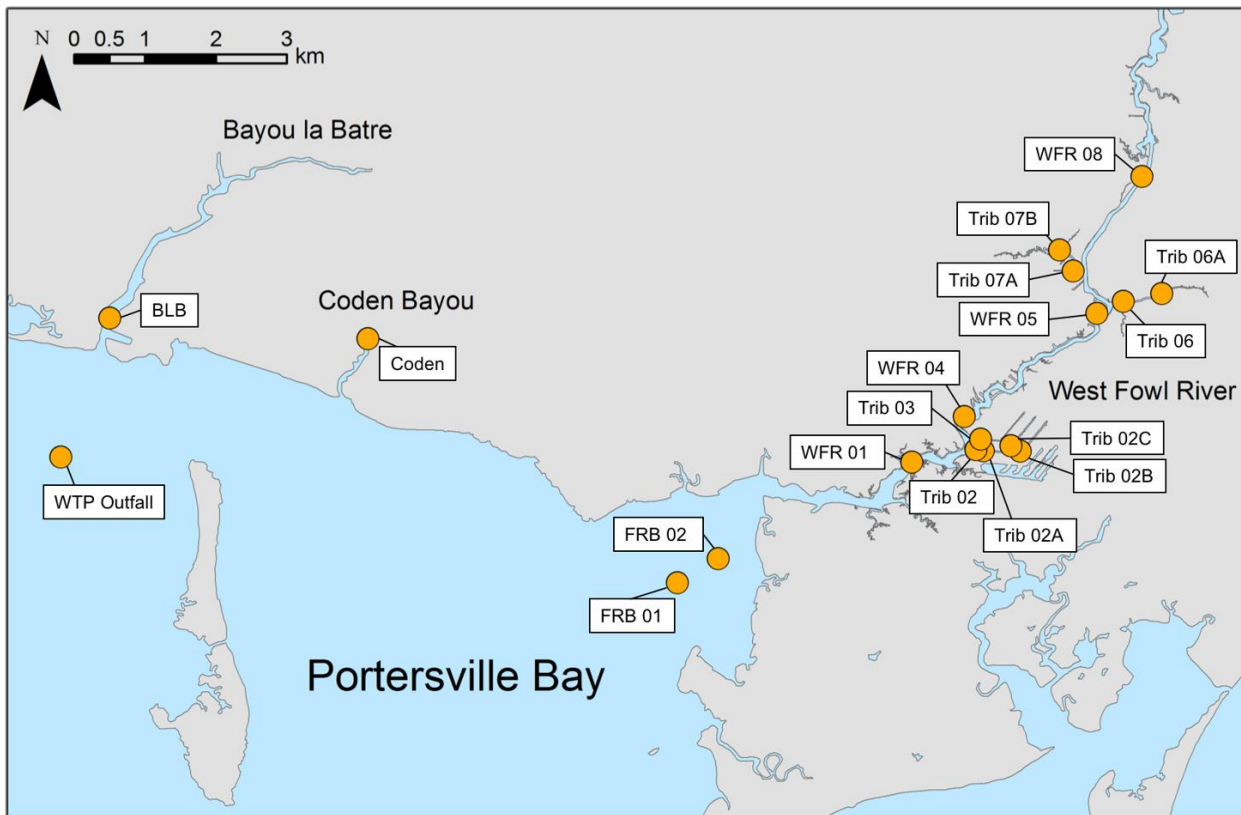
In West Fowl River Bay, fecal coliform bacteria exceed the shellfish harvesting criteria of 14 most probable number (mpn)/100 ml often enough that the Bay is classified as Conditionally Restricted for Shellfish Harvesting. Determining the sources of bacterial pathogens became a target of investigators. The Mobile County Sheriff's Office accompanied MBNEP personnel throughout the Watershed using drones with infrared sensors to detect pathogen sources, but none were identified.

During July 2017 and May 2018, Dauphin Island Sea Lab researchers and staff from the Food and Drug Administration sampled throughout the West Fowl River watershed and Fowl River Bay, looking to link bacteria sources with potential land use types. Sampled parameters included fecal coliform bacteria, as well as isotopes of carbon and nitrogen. Carbon and nitrogen isotopes were used as an indicator of potential bacterial sources, such as sewage.

Highlights of their findings include the following:

- Highest abundances of fecal coliform bacteria were from the West Fowl River, indicating that activities on the watershed were likely the most important (not only) source of bacteria to the Bay.
- The lowest levels of fecal coliform bacteria were found at the outfall of the City of Bayou La Batre's wastewater treatment plant (WWTP), indicating that the City's plant is not a significant source of bacteria to the Bay.
- Carbon and nitrogen isotope values suggested that human activities likely increased fecal coliform loads from the watershed, in particular "unprocessed" sewage that could be coming from failing septic tank systems.
- Fecal coliform bacteria were elevated in areas in close proximity to both cattle grazing sites and bird roosting sites, but concentrations rapidly diminished with distance from these sources, which suggests some combination of die-off and mixing might moderate their potential influence.
- Samples taken close to cattle grazing sites had higher levels of fecal coliform bacteria than samples close to bird roosting sites, but the significance of this result is severely limited by the fact that samples were collected on one day only for both potential sources





Taken as a whole, the results of the DISL/FDA efforts support the contention that the watershed is the dominant source of fecal coliform bacteria in Fowl River Bay, as opposed to in-water sources such as bird roosting sites. However, the interpretation of results focused on cattle grazing and bird roosting is compromised by only a single day's worth of data. The overall results suggest that human activities on the watershed are likely increasing the load of bacteria into Fowl River Bay, and that increased rainfall on the watershed would likely cause increased bacteria levels in the Bay. The finding that rainfall appears to be trending towards higher levels over the past few years suggests that the issue of fecal coliform bacteria in Fowl River Bay may not improve over time.

Environmental Science Associates developed a loading model for West Fowl River Bay, and when run under the assumptions that industrial WWTP discharge is eliminated and all septic tanks are removed as a source of bacterial, the model suggests that the system is poised on the edge of impairment, due to the combination of background loads at highway 188 (55%), cattle (21%), and birds (24%). The model agreed with DISL conclusions that except for periodic closures in response to episodic events, the waters should experience bacteria loads within the assimilative capacity of the system to meet fecal coliform bacterial levels for harvest. It also agreed that years with above average rainfall (ca. 66") would likely experience fecal coliform bacterial loads high enough to cause extended closure of the waters of Fowl River Bay for oyster harvesting.

**Summary of Key Activities:** Local experts from the DISL and FDA sampled locations throughout the West Fowl River Watershed and Fowl River Bay to link potential bacterial sources to land use types and a model was developed to predict pathogen



loads in the Bay. A loading model was developed to predictive loading model for pathogens in the Bay.

**Partnerships:** DISL, FDA, Mobile County Sheriff's Office, ESA's David Tomasko

**Outputs:** Determination that watershed sources and not the City of Bayou La Batre's wastewater treatment plant were likely the most important source of bacteria to West Fowl River Bay and that increased precipitation will underlie higher pathogen concentrations and closures of the Bay to oyster harvesting.

**Outcomes:** A coastal community more educated on problems affecting the harvest of oysters in an area where oysters provide food, jobs, and an important place in heritage and culture.

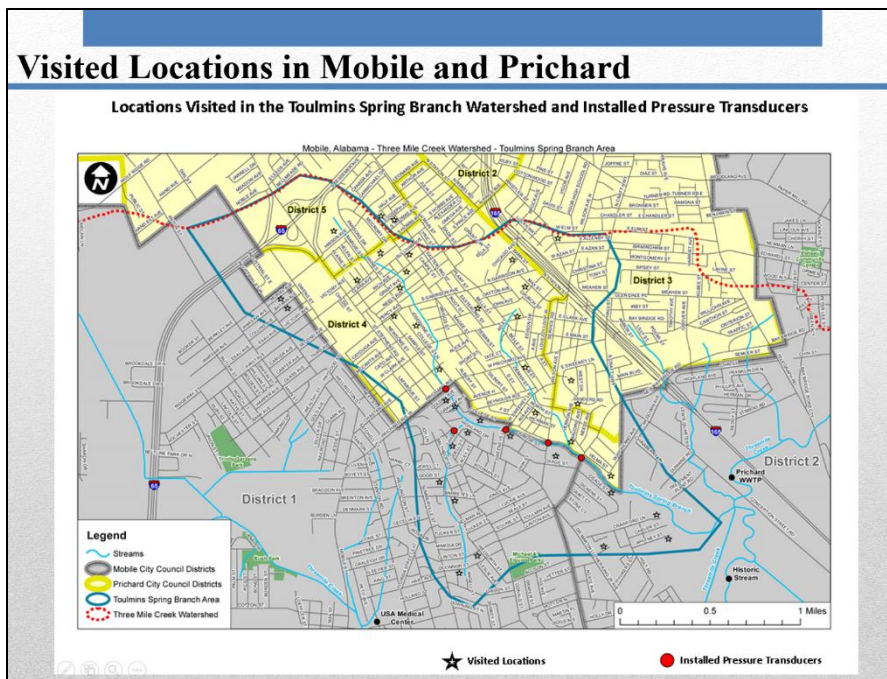
**Additional Information:** [Sources of water quality indicators to shellfish growing areas in the northcentral Gulf of Mexico 2017-2018](#); [Memorandum – Fecal Coliform Bacteria Loading Model – Summary Report 9/11/2018](#); [Fecal Coliform Bacteria Loading Model for Fowl River Bay 4/23/2018](#)

## Sub-element: Healthy Communities

### Spotlight: Toulmins Spring Branch Flooding, Drainage, and Stormwater Study (ERP-1)

The MBNEP published the [Three Mile Creek Watershed Management Plan](#) (WMP) in 2014. Public input and engagement were critical to its development. We hosted close to 20 public meetings and ensured traditionally underserved, minority communities were well represented. The highly urbanized Three Mile Creek Watershed drains 30 square miles with land use that is 42% residential, 26% commercial, 17% transportation, and 6% industrial. The remaining undeveloped 9% includes habitat rich wetlands in the backyards of historically minority environmental justice communities. From west to east, the Creek courses 14 miles across northern Mobile and southern Prichard, through diverse communities that include West Mobile, the University of South Alabama, affluent Spring Hill, low-to-moderate-income Crichton, middle-class midtown, past economically-challenged Toulminville, then further through those undeveloped wooded wetlands behind the minority, traditionally-underserved, and historic MLK Avenue communities, the Campground and the Bottom, before its confluence with Toulmins Spring Branch. It continues through Alabama State Port Authority property before flowing into the Mobile River.

To develop the Plan, the Watershed was organized into “Areas of Concern:” The Upper Watershed, which includes the Creek’s headwaters, the University, and Spring Hill; the Middle Watershed, including Crichton, midtown, and the hospitals; and the Lower Watershed and Toulmins Spring Branch Subwatershed, where the community engagement and adaptation planning were focused. From west to east, there’s a dramatic trend of decreasing economic well-being. As is often the case, the people downstream in the Creek’s lower reaches bear the disproportionate brunt of the environmental impacts, including non-point source pollution, sanitary sewer overflows, and flooding. The proportion of African Americans increases downstream, from 39% in the Upper Watershed to 66% in the Middle Watershed, to 72% in the Lower Watershed, and 98% in Toulmins Spring Branch. Poverty increases correspondingly, with only 15% of Upper Watershed households living below the poverty line, 26% of Middle Watershed households, and 32% of Lower Watershed households. Almost half of the households in Toulmins Spring Branch live below the poverty line.



The WMP includes SLOSH (Sea, Lake, and Overland Surges from Hurricanes) models showing expected surge from a Category 3 storm in 2013 - not even considering future SLR - and illustrates the vulnerability of underserved communities living in the Lower Watershed and Toulmins Spring Branch. Climate change will affect everyone, but the economically challenged communities in the low-lying areas closest to Mobile Bay are most vulnerable.

In addition to hosting highly successful and well-attended cleanup events to build community pride and encourage positive behavior changes

related to littering, the MBNEP undertook several initiatives to reduce flooding and build community resilience in Three Mile Creek’s EJ neighborhoods in the face of climate change, including:

- Investigations by Auburn University and our Community Solutions Fellow, culminating in the Prichard Drainage Study.
- The Martin Luther King Avenue Leadership Academy
- Coastal Alabama Conservation Corps Drainage Improvements
- The Prichard Rain Barrel Program

In 2014, Auburn Professor Dr. Latif Kalin and graduate students assessed hydrology in the Toulmins Spring Branch Subwatershed falling largely within the City of Prichard. They ensured subwatershed boundaries were accurate, located and characterized stormwater outfalls and their drainage areas, installed pressure gauges in the stream channel to record flow and depth and establish a curve, installed a rain gauge at the Prichard City Hall, calibrated a stormwater management model, and conducted water quality sampling. Maharam Dakua, a Community Solutions Fellow from Bangladesh assisted the Auburn team in their assessment. He also determined areas of lowest elevation in the subwatershed, interviewed residents about problems and experiences related to stormwater and flooding, identified vulnerable areas of flooding or neglect, and identified problems, including poor maintenance, narrow channels, infrastructure clogged by vegetation and litter, and increase stormwater volumes caused by upstream imperviousness.

To address problems identified by Auburn and Mr. Dakua, MBNEP funded the [\*Prichard Drainage Study – Toulmins Spring Branch and Gum Tree Branch\*](#) for the Mobile County Commission in 2016. The report made recommendations, including increased use of low impact development (LID) measures and increased maintenance by the County, municipalities, and others.

In 2015, the Hudson River Foundation, through a New York Community Trust grant, funded the MLK Avenue Leadership Academy. It was conducted through a partnership between the MLK Avenue Redevelopment Corporation and the MBNEP to train “emerging and reluctant leaders” living along MLK Jr. Avenue or in Toulmins Spring Branch neighborhoods to seek positive community change. MLKARC Director Michael Pierce developed the curriculum and facilitated Leadership Academy sessions. Fourteen participants attended 10 two-hour sessions to learn communication, leadership, and conflict-resolution skills and become familiar with the incredible environmental assets located in their backyards. Academy members successfully encouraged the Mobile City Council to formally adopt the Three Mile Creek Watershed Management Plan. They also recognized a need for area young adults to become more connected with environmental assets and suggested seeking opportunities to combine environmental education with employment opportunities, from which the Coastal Alabama Conservation Corps was conceived.

In response to suggestions made by the Leadership Academy participants, the MBNEP again partnered with the MLK Avenue Redevelopment Corporation and The Student Conservation Association in 2017 to secure a grant from a NFWF Creating a New Generation of Conservationists funding opportunity to establish the Coastal Alabama Conservation Corps. Our goal was to connect young adults from highly urbanized areas of the City of Mobile to their surrounding environment through education, conservation training, and employment within the lower TMC Watershed. This initiative will be discussed in the sub-element Direct Assistance narrative. Corps members undertook drainage improvements in the Toulmins Spring Branch Subwatershed.

Through an initial partnership with Coca Cola Bottling, who provided 55-gallon barrels and the World Wildlife Fund, who provided funding for hardware, MBNEP established the Prichard Rain Barrel Program, an initiative recommended in the *Prichard Drainage Study*. Conservation Corps members installed two-barrel, 110-gallon rain collection system to 18 Toulmins Spring Branch households free of charge to educate community members about the impacts of stormwater runoff and provide a free source of non-potable water in a community where water is particularly expensive.

The efforts by Auburn University and the Community Solutions Fellow and development of the *Prichard Drainage Study* were leveraged by Mobile County to obtain funding through Deepwater Horizon related sources to plan and design improvements in the flood prone communities in Prichard and Mobile. The Natural Resource Damage Assessment (NRDA) will fund Toulmins Spring Branch Engineering and Design to complete planning of best management practices (BMPs) to reduce nutrients and pollutants underlying impairments there. The project includes a watershed assessment and a conceptual plan of Toulmins Spring Branch that details opportunities for erosion and sedimentation reduction, nutrient and pathogen reduction, and flooding and stormwater management. The plan will include installation of bioswales, and riparian buffers on vacant, abandoned urban parcels in the headwaters of Toulmins Spring Branch.

Mobile County has received funding from RESTORE Bucket 3 for Storm Water Management Improvements for Toulmins Spring Branch and Gum Tree Branch. This project will provide planning, engineering and design analyses, and documents required to identify specific projects/activities in these two subwatersheds. These projects will address stressors affecting water quality, localized flooding, and stream riparian habitat degradation in the watersheds to effect healthier and sustainable ecosystem service delivery.

**Summary of Key Activities:** Toulmins Spring Branch Subwatershed flooding, drainage, and stormwater studies and activities included hydrologic investigations by Auburn University and a Community Solutions Fellow, delivery of the Prichard Drainage Study, the Martin Luther King Jr. Avenue Leadership Academy, establishment of the Coastal Alabama Conservation Corps, and the Prichard Rain Barrel Program.

**Partnerships:** Auburn University, Community Solutions Program, Martin Luther King, Jr. Avenue Redevelopment Corporation, the City of Prichard, Mobile County, Coca Cola Bottling Company, World Wildlife Fund, New York Community Trust, Hudson River Foundation, Alabama NRDA Trustee Implementation Group, Alabama Gulf Coast Recovery Council

**Outputs:** A better understanding of the hydrology in the lower Three Mile Creek Watershed, where low-to-moderate income minority populations bear a disproportionate share of impacts from upstream; reduced incidence of flooding, reduced nonpoint source pollution; a more informed community of residents who understand the impacts of stormwater runoff and flooding.

**Outcomes:** A community more educated on the problems and challenges related to an important urban water body and more united in implementing prescribed strategies towards restoring and improving conditions and transforming this degraded urban water into a community amenity.

**Additional Information:** [Flood Control in Toulmins Spring Branch Watershed through LID Practices – Master’s Thesis by Enis Baltaci \(2016\)](#)  
[2016 Water Quality Report for the Mobile Bay National Estuary Program by Dr. Latif Kalin](#)



## Sub-element: Habitats

### Spotlight: Restoration/Stabilization of the Northern Tip of Mon Louis Island (ERP-2)

In 2009, with intentions of securing funding to implement a collaborative living shorelines project along several contiguous waterfront parcels, MBNEP began hosting a series of six community meetings over three years for Mon Louis Island waterfront residents to educate them about the latest shoreline science in order to slow erosion. The goal of that project was to test a natural stabilization technique crossing multiple property lines, and it was successfully implemented and completed in early 2013. Five headland breakwaters and 1,650 cubic yards of sand were placed seaward of the mean high water (MHW) line to pin four enhanced pocket beaches in place, driving favorable changes to State policy to allow placement of material on State water bottoms without altering the riparian rights of waterfront property owners to 1,800 feet from the pre-restoration MHW line.



In November 2013, the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund Board approved an award that included \$1.8M to protect existing wetlands and create additional wetlands on the northern tip of Mon Louis Island as part of the Fowl River Watershed Restoration Project. In 2005, the wetlands on the lee side of this peninsular land form covered with a monoculture of nuisance *Phragmites australis* were restored. They planted productive native vegetation, including *Spartina alterniflora* and *Juncus romereanus* to successfully restore species diversity there. On the Bayshore of the restoration area, contractors left a side cast berm, which quickly became reestablished with *Phragmites*. This turned out to be fortunate, as that berm represented the pre-restoration shoreline, where the *Phragmites* root mass stemmed further erosion there. An embayment encroaching from the peninsula's lee side created only a 65-foot upland separation from Bay to river, making this eight-acre wetland area particularly vulnerable to a storm-triggered breach. Such an event would have impacted existing wetlands resources along with negative impacts upstream in the relatively pristine waters of Fowl River.

The contractor's original restoration estimate assumed the use of material dredged from the shallow and neglected Fowl River navigation channel to create new marsh and complete the project. However, after conducting analyses, this source was deemed of insufficient quality for use in marsh creation as designed. Through the alternatives analysis process that considered three footprints of increasing area and dredge material requirements – from 2006, 1995, and 1979 – the contractor identified a sediment source, and the project was reconfigured accordingly. However, U.S. Army Corps of Engineers (USACE) Regulatory

personnel did not view this source favorably and indicate the permitting process to borrow from this unpermitted site would be prohibitively arduous.

In late 2014, further unsuccessful consideration of potential upland beneficial use dredge material sources forced reconsideration of strategy. Delivery of material by truck or barge with mechanical offloading (estimated at \$30 to \$45 per cubic yard) was deemed prohibitively expensive. Without a nearshore source of material, reducing the scope of wetlands creation from the aggressive 1979 footprint to simply protecting the existing shoreline became a realistic, if disappointing, alternative.

In early 2015, partners from USACE Operations staff located suitable, sandier material in the already-permitted, nearshore USACE Fowl River Open Water Disposal Site (FROWDA) in close proximity to the project. Contractor analysis confirmed the material was of sufficient quality and volume for use in the project. Further, MBNEP reached out to State Senator Bill Hightower, who identified a potential funding source, an Alabama *Deepwater Horizon* Incident Grant of \$800,000, which was subsequently secured, to finance needed maintenance dredging of the shallow Fowl River Navigation Channel, and a workable strategy was developed.

The strategy involved hydraulically dredging ~40K cubic yards of material from the nearshore FROWDA for placement behind a rock breakwater installed along the 1996 shoreline footprint to create four new acres of salt marsh fisheries habitat seaward of the existing *Phragmites* berm. When borrow and placement were completed, and without further expense of demobilization or mobilization, the dredge equipment was then used to undertake maintenance dredging of the Fowl River Navigation Channel to eight to 11-foot depth of using USACE protocols. This material was beneficially used to hydraulically replace material borrowed from the disposal area and avoid negative environmental impacts. This strategy offered several benefits:

- Only one dredge mobilization was necessary to accomplish hydraulic marsh creation and channel maintenance dredging, representing significant cost savings for accomplishing both tasks.
- Environmental regulatory clearances already existed for the FROWDA.
- Potential impacts related to an open water borrow area hole (water quality/hypoxia and wave climate) were avoided by replenishment with channel sediments.
- Much needed navigation channel maintenance was therefore coordinated with hazard mitigation and habitat creation efforts.

First a 50-foot-wide temporary channel was dug on the shoreward side of the breakwater footprint to provide access for excavators and rocks staged across the river mouth and carried on shallow draft barges. Beginning in July 2015, a 1,540-foot Class 4-riprap revetment was constructed at the 1995 shoreline footprint as material side cast to create the channel was replaced. Material was pumped from the FROWDA into the revetment to create an over four acres of additional marsh in September 2016, after which the Fowl River navigation channel was dredged. With adequate settlement by March 2017, a tidal creek was constructed, the marsh was graded, and native plants, including *Spartina alterniflora*, *S. patens*, and *Juncus roemerianus*, were planted. With some initial mortality, additional transplants were obtained and installed. The project was substantially completed in fall 2017.

Despite inundation during Tropical Storm Cindy (June 2017) and Hurricane Nate (April 2018), post project monitoring indicates increasing plant coverage and ecosystem function. Nekton community composition was similar to reference sites.



**Summary of Key Activities:** MBNEP secured funding to restore the storm-vulnerable northern tip of Mon Louis Island by installing a rubble mound revetment at the 1995 shoreline footprint to protect the existing eight acres of salt marsh and creating over four acres of new salt marsh to supplement the existing acreage. The Fowl River navigation channel was subsequently dredged to replace material borrowed for marsh creation and avoid negative water quality impacts.

**Partnerships:** National Fish and Wildlife Foundation Gulf Environmental Benefit Fund, State of Alabama Deepwater Horizon Incident Grant, State Senator Bill Hightower, Mon Louis Island community residents

**Outputs:** 1,540 linear feet of shoreline protection, over four acres of new salt marsh habitat, and maintenance dredging of the Fowl River navigation channel to 8 to 11-foot depth.

**Outcomes:** Hazard mitigation at the mouth of East Fowl River, protection of existing salt marsh habitat, and creation of additional salt marsh habitat benefiting numerous species of estuarine fish and shellfish, birds, and wildlife.

**Additional Information:** [Mon Louis Island Tip Restoration Video](#)



### Spotlight: Three Mile Creek Access (ERP-3)

Three Mile Creek became a major focus of the MBNEP and was targeted for watershed management planning after investigations into opening up the 1,800-foot, unnavigable “plug” in the Creek’s historic streamway in the lower watershed caused by 1980’s Corp of Engineers hydrologic modifications. Realizing that water quality improvements, litter abatement, and invasive species control, among other issues, needed attention before this access project could be implemented, management planning was undertaken for this watershed.

In public outreach meetings related to development of a Comprehensive Watershed Management Plan for Three Mile Creek, a desire expressed commonly across the watershed was to establish a Greenway/Bicycle Trail to and connect communities from west of the University of South Alabama east to downtown Mobile and offer recreational and transportation opportunities. In 2014, the City of Mobile approached the MBNEP for assistance in developing a National Park Service Outdoor Recreation Legacy Program proposal to establish the first mile leg of the Greenway from Pecan Street in The Bottom to Lakeside/Tricentennial Park. In 2015, the City secured \$386,000 from this funder along with Capital Improvement Plan and Community Development Block Grant funding to design and construct this section of the Greenway with an exercise circuit course and energy-efficient LED lighting and contracted Dorsey and Dorsey to design it. Design was completed and the construction of the first mile of trail, from Tricentennial Park to Fillingim Street. Additionally, the Mobile County Health Department secured funding through a Sybil Smith Trust Grant to construct a kayak launch at Tricentennial Park.

In 2014, the City of Mobile secured a Mobile Bay Shore Habitat Conservation and Acquisition Initiative-Phase 1 grant from the NFWF Gulf Environmental Benefits Fund to conserve and protect coastal habitat through land acquisition around Mobile Bay. Funds were utilized to perform the necessary due diligence activities to inform future acquisition and management of several key intact tidal marsh habitats within the jurisdiction of the City of Mobile, including up to 450 acres in the lower reaches of the Three Mile Creek Watershed (including the historic streamway) to advance recommendations of the Three Mile Creek WMP. This grant funded site specific assessments of the ecological value and net environmental benefit of protecting these habitats; real estate due diligence on key parcels, and preliminary restoration and long-term management planning for priority parcels. A final strategic acquisition and restoration plan for targeted parcels was completed to inform Phase 2 of the project.

In 2017, the City secured Mobile Bay Shore Habitat Conservation and Acquisition Initiative-Phase 2 funding from the same source to acquire, restore, and preserve intact high-priority parcels identified in Phase 1. Restoration of the historic streamway is included in the scope of work to be accomplished under this award.

Also in 2017, the Alabama Gulf Coast Recovery Council allocated over \$10M in RESTORE Bucket 3 funding to the City of Mobile for the Mobile Greenway Initiative to implement the three Mile Creek Greenway Trail and provide a continuous, 12-mile path for runners, walkers, and cyclists immediately adjacent to Three Mile Creek. The purpose is to re-connect the neighborhood through which it passes with designated access to the trail, signage that directs people to the trail, and artwork along the trail that interprets the history of different neighborhoods and the story of Three Mile Creek.



## ***Core Element: Technical Assistance and Capacity Building***

MBNEP provides technical assistance and supports efforts to increase the scientific knowledge, technical capacity, and skills of elected officials, businesses, and other groups to promote best practices and management of Alabama's estuaries and coast. A three-pronged approach of identifying environmental issues impacting business and government, educating and promoting the use of environmentally sound business practices, and recommending coastal management priorities and regulatory improvements provide the foundation for the work of the Business Resources, Community Resources and Government Networks committees, who lead these efforts. Municipal Staff

### **Sub-element: Direct Assistance**

#### **Spotlight: The Create A Clean Water Future Campaign (TAC-1)**

Create A Clean Water Future is a campaign to raise awareness about reducing stormwater runoff and the pollution that is carried by it. It was developed and designed to be adopted by organizations, government agencies, businesses & grassroots groups. It is a FREE tool that anyone can use. In its current form, Create A Clean Water Future is a package of public service announcements, pocket guides, and a website resource.

The purpose of the program is to raise awareness about storm water runoff and the pollution it carries. As a free online tool, the program will equip local government agencies, businesses and grassroots groups with easily implemented tips to help protect Alabama and its waters.



While there is no formal method of accountability or incentive to participate, companies are acknowledged on social media for signing up. Through CCWF campaign, businesses, schools, groups, and communities are building their capacity for improving their understanding and actions related to reducing polluted runoff and preserving our unique way of life, dependent on healthy waterways. The CCWF campaign explains what stormwater is and encourages actions resulting in the reduction of stormwater pollution at both individual and community levels. The campaign features a pledge for new members, an informative website with effective message delivery useable for diverse audiences, literature and videos, and signs and billboards. Local business are recruited to incorporate the CCWF branding broadly in local business practices to have those businesses become identifiable with that brand.



**Spotlight: Amphibious Assault on Maple Street Tributary, Mobile, AL (TAC-2)**

MBNEP's Business Resources Committee, together with Partners for Environmental Progress (PEP), the City of Mobile, and Thompson Engineering, organized a cleanup of the Maple Street Tributary, one of Mobile's and Three Mile Creek's most trash-impacted waterways. In November 2016, volunteers collected 200 bags of litter and 12 tires, transforming the street end water access area and quarter mile-long waterway into a showcase of how Three Mile Creek can be revitalized into a tremendous asset for the City of Mobile.

Shortly after the successful Maple Street Cleanup, a prototype "Litter Gitter" portable waterborne trash collection device, constructed from cable, hardware cloth, and pool noodles, was deployed there. The Litter Gitter was routinely monitored and estimated to collect 80–90% of floating litter entering the tributary at stormwater outfalls. Based on the success of the prototype, in 2017, the MBNEP secured funding from the EPA Gulf of Mexico Program for installation and maintenance of more than 15 additional Litter Gitters in the Three Mile Creek Watershed (Mobile and Prichard), one in the Bon Secour River Watershed (Foley), and several in the Dog River Watershed (Mobile). The inventor of the Litter Gitter was a Thompson Engineering executive who resigned to form and manage Osprey Initiative, a private company established in concert with robust Three Mile Creek WMP implementation efforts targeting litter reduction in our waterways.



Osprey Initiative is the owner of the Litter Gitter (patent pending), a small-stream collection device used to intercept floating litter delivered by stormwater runoff. Initial tests indicate a 95+% success rate in preventing the loss of floating litter downstream. Osprey handles all aspects of installing and maintaining Litter Gitters, including separating litter from vegetative debris and recyclables from regular trash. Quantities are recorded, assessed using the EPA's Escaped Trash Assessment Protocol, and results are reported on a quarterly basis for inclusion in Municipal Separate Storm Sewer System (MS4) reporting, if needed. ETAP deliverables will be used to encourage supply stream policy modifications to discourage and reduce single use-waste.

Osprey Initiative has been hired by the City of Mobile to recover trash from City waterways, including Three Mile Creek and Dog River to advance recommendations of both WMPs. They have expanded their service area for Litter Gitter installation and maintenance nationally, including the cities of Atlanta and Cincinnati.

**Spotlight: Green Port Status for the Alabama State Port Authority (TAC-3)**

In 2016, the Alabama State Port Authority (ASPA) elected to participate in the Green Marine Program, an environmental certification program for the North American marine industry. This voluntary, transparent, and inclusive initiative addresses key environmental issues through performance indicators. To qualify for certification, participants must benchmark annual environmental performance through the Program's rigorous self-evaluation guidelines, have results verified by an accredited external verifier every other year, and agree to publication of individual results. The ASPA has already undertaken an emissions inventory of

land-based vehicles, implemented Policy ENV-002 to limit idling vehicles on ASPA premises, and applied for EPA Clean Diesel funding to retrofit, replace, or repower marine diesel engines.

### **Sub-element: Tools**

#### **Spotlight: South Alabama Stormwater Regulatory Review (TAC-4)**

Development of the South Alabama Stormwater Regulatory review addresses Technical Assistance and Capacity Building Goals and Objectives of the CCMP, including Goal TAC-4, “Establish long-term capability of local governments to manage and maintain coastal environmental resources,” and Objective TAC-4.2, “develop platform of necessary regulatory changes needed to manage and maintain coastal environmental resources.” Goal TAC 5 is “minimize impacts and amount of contaminated stormwater runoff entering coastal waterways,” and Objective TAC-5.3 is “educate elected officials about existing ordinances and effectiveness thereof for reducing non-point source pollution.”

Across Mobile and Baldwin counties, local governments have recognized the need to proactively manage stormwater and conserve natural habitats by updating regulations and ordinances related to low impact development and riparian and wetland buffers. All watershed management plans developed by MBNEP contractors include a review of the regulatory drivers within the watershed, including those related to construction best management practice (BMP) requirements, coastal area resource protection, low impact design requirements, and shoreline structures and stabilization. Management planning for the Weeks Bay Watershed Complex, which includes all or portions of nine municipalities and associated unincorporated areas of Baldwin County, stimulated a distribution of a survey to local entities of environmental regulatory requirements and ordinances.

The [South Alabama Stormwater Regulatory Review](#), authored by regulatory expert John Carlton in 2018, provides a review of existing laws, regulations, permits and ordinances at federal, state, and local levels for the geopolitical entities within the two-count MBNEP study area. The 27 jurisdictions reviewed include Mobile County and its 11 incorporated towns and cities and Baldwin County and its 14 incorporated municipalities, and all lands under state and federal jurisdiction. Approximately 50 county and municipal government regulations were reviewed related to several factors influencing stormwater runoff, water quality, wetland protection, and stream and shoreline protection. The codified regulations of each local entity were reviewed and a chart listing regulatory requirements was prepared. Responses were compiled into a Regulatory Matrix for ease of comparison.

Key findings include:

- The overlapping maze of federal and state permitting requirements is not sufficient to protect the natural function of Alabama’s coastal ecosystems.
- The State of Alabama currently has no codified buffer or setback requirements (other than the setback requirements in the construction general permit).
- There are no federal or State requirements for postconstruction stormwater management.
- Federal and State permits allowing wetlands to be impacted either directly or indirectly are routinely issued. Although mitigation for stream and wetland impacts may be required by the permit, mitigation often takes place outside of the watershed in which impacts occur.

**Summary of Key Activities:** To establish long-term capability of coastal Alabama’s local governments to manage coastal environmental resources and to minimize impacts of stormwater runoff entering coastal waters, a South Alabama Stormwater Regulatory Review was produced in 2018 to review regulations related to stormwater runoff; water quality; and wetland, stream, and shoreline protection. To facilitate comparisons, regulations and ordinances from

Alabama's two coastal counties and their 25 incorporated municipalities were reviewed and compiled into a Regulatory Matrix.

**Partnerships:** John Carlton; Mississippi-Alabama Sea Grant Consortium Legal

**Outputs:** Inventory, review, and comparison of coastal county and municipal environmental regulations

**Outcomes:** Improved ecosystem function and protection; improved community management of ecosystem restoration and protection activities.

**Additional Information:** [South Alabama Stormwater Regulatory Review with appendices](#)

### **Sub-element: Training**

#### **Spotlight: D'Olive Watershed Restoration Technology Workshops (TAC-5)**

With over \$12M from the NFWF Gulf Environmental Benefit Fund to comprehensively implement stream restoration measures recommended in the D'Olive Watershed Management Plan, on February 16-17, 2016, MBNEP hosted the first D'Olive Watershed Restoration Technology Workshop. All five engineering firms and both construction contracting firms involved in D'Olive Watershed restorations, potential contractors, nationally-recognized stream restoration specialists Greg Jennings, Dave Bidelsbach, and Mike Geenan; hydrologist John Curry; sediment-loading expert Marlon Cook; Auburn University scientists and extension specialists; and municipal and MBNEP staffs shared strategies, techniques, lessons learned, and other trade secrets to facilitate the best project implementation possible in this challenging environment. The first day's schedule included project implementation schedules, D'Olive Watershed hydrology, sediment loading analyses, and updates and lessons by all contractors, followed by field tours of project sites. The second day's schedule included a case study of the restoration of D'Olive Tributary D4-D6, with presentations on hydrology, geomorphology, 3-D design surface, hydraulic modeling, and vegetation, followed by a monitoring and research discussion.



A second Workshop was hosted March 6-7, 2017 with an optional field workshop on drone technology at D'Olive Tributary D4-D6 on the first afternoon. Project implementation schedules, D'Olive Watershed hydrology update, vegetation lessons learned, engineering and construction contractor updates by Thompson Engineering, Goodwyn Mills Cawood, Mott MacDonald, Integrated Science and Engineering, Streamline Environmental, and North State Environmental were presented on the morning of the second day. Tours of projects D'Olive Tributary DA3, Tiawasee Creek Tributaries TC1 and TC2, D'Olive Tributary D4-D6, and various Joe's Branch Projects were held the second afternoon of the workshop.



Participating contractors expressed great enthusiasm for the outcomes of these workshops, including lessons learned, problems avoided, and technical capacity increased. A third such workshop was scheduled for late 2019.

**Summary of Key Activities:** MBNEP hosted D'Olive Watershed Restoration Technology Workshops to increase the capacity of restoration engineering and construction firms involved in D'Olive Watershed recommended stream restorations funded by the NFWF GEBF.

**Partnerships:** National Fish and Wildlife Foundation Gulf Environmental Benefit Fund, Alabama Department of Conservation and Natural Resources, State Lands Division, Auburn University, Jennings Environmental, City of Daphne, City of Spanish Fort, City of Mobile, USACE, USF&WS

**Outputs:** Increased technical capacity of twenty one restoration engineering, design, and construction firms; three municipalities; and five agencies related to the challenging stream restoration environment of the D'Olive Watershed as implementation is ongoing.

**Outcomes:** A more educated, informed, and competent work force undertaking the restoration of 11,000 linear feet of impaired streams.

**Additional Information:** [2016 D'Olive Watershed Restoration Technology Workshop Sign In Sheet](#)  
[2018 D'Olive Watershed Restoration Technology Workshop Sign In Sheet](#)

***Spotlight: Intergovernmental and Community Cooperation (TAC-5)***

A key component of watershed management planning is ensuring an adequate organizational structure is in place to champion implementation efforts. Since most watersheds fall across geopolitical boundaries (e.g., the Weeks Bay Watershed, which includes nine municipalities and unincorporated Baldwin County), intergovernmental cooperation is vital to watershed management success.

Each watershed is unique, and, as a result, the level of cooperation recommended in plans is tailored to the resources available. In the D'Olive Watershed, an Intergovernmental Task

Force meets quarterly to review implementation status and coordinate uses of resources focused on ongoing stormwater management. Both municipalities (cities of Daphne and Spanish Fort) have updated their subdivision regulations to ensure consistency across political boundaries.



In the Three Mile Creek Watershed, the 3MC Partnership was established to support the City of Mobile in implementing the WMP with a vision of creating a transformational corridor of renewal along the Creek. The 3MC Partnership works with the City of Mobile and private sector stakeholders to support the development of the Mobile Greenway Trail and amenities, neighborhood renewal and development in the Three Mile

Creek corridor, and the creation of a more usable waterway through the environmental restoration of the Creek.

Due to the sheer size and complexity of the Weeks Bay Watershed, which stretches as far north as Loxley, AL, Baldwin County and several watershed municipalities agreed to support the creation of a centralized Watershed Management Coordinator position, housed with the Baldwin County Soil and Water Conservation District to champion WMP-recommended implementation efforts in the Weeks Bay Watershed Complex and across Baldwin County. This position is supported, in part, by the Baldwin County Commission; Gulf Coast Resource Conservation and Development Council; the Alabama Soil and Water Conservation Committee; and the towns of Magnolia Springs, Robertsedale, and Loxley. A group of resource managers on the Weeks Bay Watershed Implementation Team formed Plan Lower Alabama Now (PLAN), overseen by the City of Foley, to share and coordinate use of geospatial datasets across school districts, municipalities, and the County to better inform watershed community growth and development and promote consistency in subdivision regulations.

***Spotlight: Flight of the Frigate Bird and The Dunes of Dauphin Island (TAC-6)***

In 2018, MBNEP produced two videos to educate local decision-makers about issues related to rising sea levels. The first is the Dauphin Island documentary film ***The Flight of the Frigate Bird*** ([http://www.mobilebaynep.com/videos/the\\_flight\\_of\\_the\\_frigate\\_bird1](http://www.mobilebaynep.com/videos/the_flight_of_the_frigate_bird1)). Narrated by Grammy Award-winning, Mobile singer/songwriter Shelby Lynne, the film features interviews with area residents, public



officials, and scientists about the history of the Island and its challenges relating to sea level rise and a changing environment. For example, the film details how past generations of Islanders recognized the importance of preserving dunes, forests, and marshes to reduce damage from hurricanes and storm surge and avoided building directly on vulnerable beach habitat. The film also explains how booming post-50s development largely ignored historical knowledge, leaving

difficult decisions today about how to best adapt to an eroding shoreline, rising seas, and more intense storms, while protecting tourism and the tax-base it provides.

***Another video, The Dunes of Dauphin Island***

([http://www.mobilebaynep.com/videos/the\\_dunes\\_of\\_dauphin\\_island](http://www.mobilebaynep.com/videos/the_dunes_of_dauphin_island)), was produced to educate island property owners and residents on municipal efforts to protect existing dunes by establishing a Dune Overlay Protection System.

## Core Element: Program Implementation (Education and Involvement)

Public education and engagement are paramount to building support for environmental conservation and restoration. MBNEP provides education and engagement opportunities by developing and conducting outreach and awareness campaigns, field trips, lectures, videos, and hands-on learning and stewardship experiences. These activities build stewardship and enhance quality of life by experientially connecting people to estuarine and coastal habitats and the living things that depend upon them. The Business Resources Committee, Community Resources Committee, and the Community Action Committee have made significant progress in advancing the goals of the CCMP.

### Sub-element: Outreach

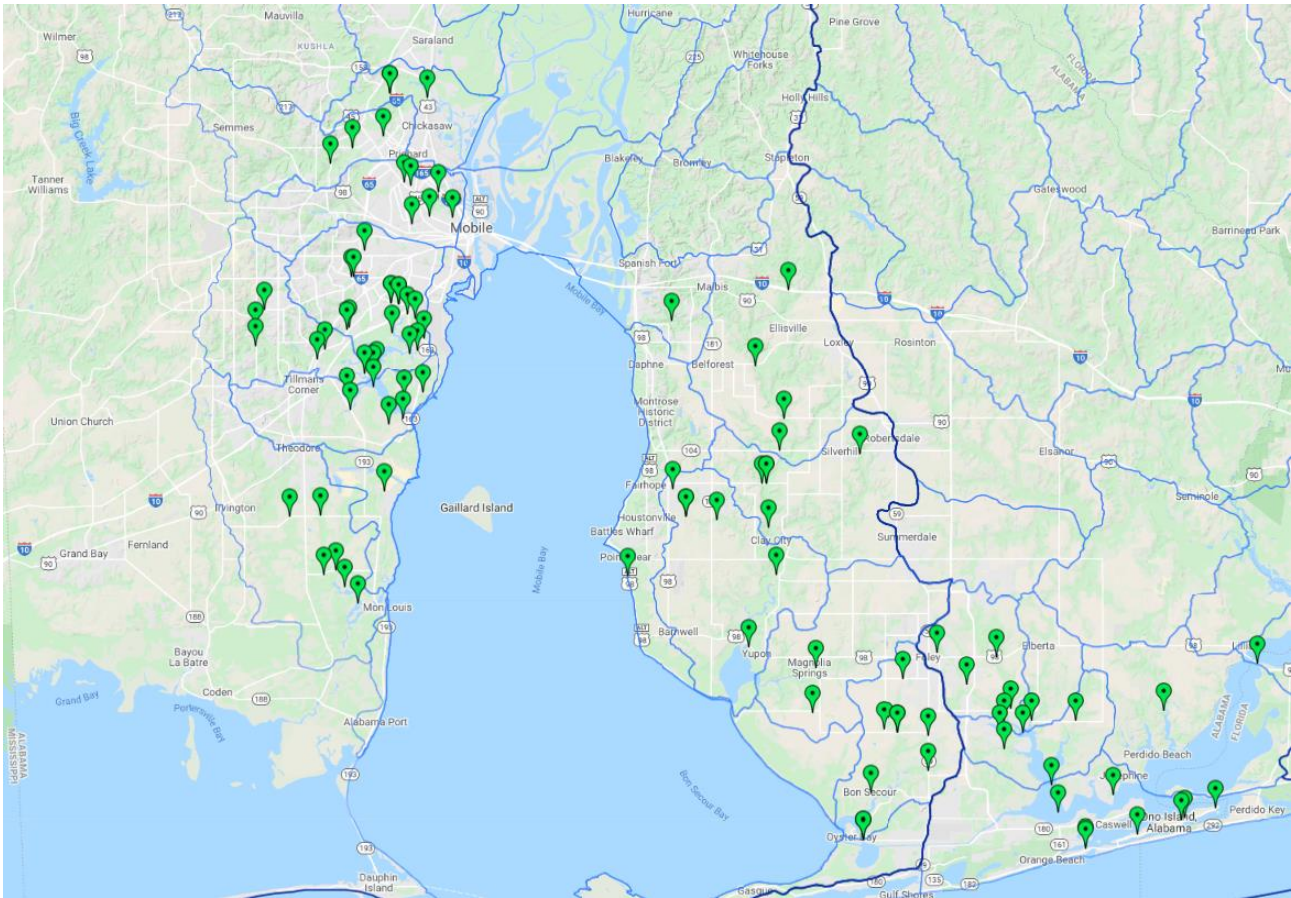
#### Spotlight: Community Presentations (EPI-1)

To improve understanding in the community about how Alabama's estuaries and coast contribute to economic, cultural, and community well-being, MBNEP provides tours and presentations to private-sector stakeholders. Over the past five years, MBNEP has hosted over 25 tours of conservation and restoration projects. Tours focused on the Three Mile Creek and D'Olive watersheds, engaging over 200 individuals on the issues, challenges, and solutions being employed. MBNEP delivered 26 presentations on watershed dynamics, estuary value, impacts of stormwater runoff, and the Create a Clean Water Future (CCWF) campaign to audiences (see Appendix) including more than 500 local business and community leaders.





### Spotlight: Volunteer Water Quality Monitoring (EPI-2)



Alabama is fortunate to have AWW. Since 1992, AWW has worked to educate, train, and empower people statewide to monitor water quality. To date, they have more than 82,000 data records from 2,300 sites throughout Alabama. Their protocols are approved by the Environmental Protection Agency and include a robust Quality Assurance Plan. Trained AWW water quality monitors are able to test for basic water chemistry and/or for bacteria depending on their certification. Alabama Water Watch training is always free! Water chemistry training takes about six hours and bacteria training about two hours.

Two longstanding watershed groups, Dog River Clearwater Revival in Mobile County and Wolf Bay Watershed Watch in Baldwin County, are a wonderful example of how volunteer water quality monitors can make a difference in their communities. Collectively, these two groups have monitored more than 100 different sites over the past twenty years. Both groups not only monitor, but they use their data to advocate for their respective watersheds. Wolf Bay's volunteer monitoring data was instrumental in having the watershed declared an Outstanding Alabama Water in 2007 (Alabama's highest designation). Dog River uses volunteer data to document water quality impacts from urban runoff and sewage overflows. Other watersheds with active citizen monitoring efforts include Weeks Bay, D'Olive, Little Lagoon, and recently established Fowl River. MBNEP supports these efforts by providing certified trainers and workshops and restocking chemicals for all grassroots groups.

**Spotlight: Coastal Alabama Conservation Corps (EPI-3)**



Establishment and operation of the Coastal Alabama Conservation Corps addresses several Goals and Objectives of the CCMP and the Three Mile Creek Watershed Management Plan (WMP). CCMP Goal ERP-1 is “improve trends in water quality in priority watersheds with impairments discharging into priority fishery nursery areas,” and Objective ERP-1.1 is “restore conditions, including hydrology, from headwaters to

intertidal zone in at least five watersheds.” ERP-Goal ERP-2 is “improve ecosystem function and resilience through protection, restoration, and conservation of habitats, including beaches, bays, backwaters, and rivers.” CCMP Goal EPI-1 is “increase awareness of coastal resources supporting what people value about living in coastal Alabama,” and Objective EPI-1.4 is “Create and support programs that expose more people to local waterways, targeting low income communities/children.” It also addressed Goals of the Three Mile Creek WMP include “improve water quality,” protect and improve the health of residents, fish, and wildlife,” “restore the heritage and cultural connection between the watershed and the community,” and “plan and prepare for climate resilience.”

Responding to recommendations by Martin Luther King Jr. Avenue Leadership Academy participants, MBNEP partnered with the MLK Avenue Redevelopment Corporation and the Student Conservation Association (SCA), secured a \$250K National Fish and Wildlife Foundation Finding a New Generation of Conservationists grant, and established the Coastal Alabama Conservation Corps. Matching funding was secured from SCA, Alabama Power, the Crampton Trust and local elected officials. The goal of this initiative was to connect young adults from a highly urbanized area of the Three Mile Creek Watershed to their surrounding environment through education, training, and employment in the lower Watershed.

This area is home to a population that’s 85% African American with 40% of households living in poverty. It contains large tracts of wooded wetlands, an abandoned landfill and a tributary that carries runoff from the urban center of the city. It’s a low-lying area subjected to frequent flooding that bears the disproportionate brunt of impacts of upstream nonpoint source pollution and is extremely vulnerable to the impact of climate change. Our goals including:

- Providing on the job environmental management training to 10 at-risk, 18-to-25-year-olds with preference to residents of the lower Watershed in preparation or jobs or careers in the Gulf restoration economy.
- Providing environmental management employment to 10 Corps members for a six-month period.
- Implementing at least two restoration activities recommended in the Three Mile Creek Watershed Management Plan (WMP), including invasive plant control and effecting drainage improvements in the lower watershed.



- Conducting at least five community education events coordinated and delivered by Corps members.

Two trained SCA Team Leaders reported in mid-January 2017, and 10 Corps members recruited by MLKARC and screened by the SCA reported on February 3 for an extensive nine-day training session in north Florida where members were trained in Wilderness First Aid and CPR, Chainsaw certification, wildland firefighting and prescribed fire, Canoe safety training and herbicide safety training. Corps graduates each gained proficiency in swimming, after instruction by an MBNEP staffer with aquatic background.

Corps members got underway on Monday, February 13, 2017 at a Broad Street office provided by MLKARC. Corps members arrived at work at 8 am and travelled to work areas in rented trucks or canoes. Members were paid \$10/hour for a forty-hour work week that included four days of Three Mile Creek WMP implementation and one day of professional and technical training, community outreach preparation, and soft skill development. They received health benefits and, as AmeriCorps members, were assured a \$2,000 educational allowance at the conclusion of the term.

Their primary Corps responsibility was control of invasive species in the wooded wetlands surrounding the lower Creek and its historic streambed using glyphosate with three principal targets: Chinese tallow or popcorn trees (*Triadica sebifera*). Chinese privet (*Ligustrum sinense*), and wild taro (*Colocasia esculenta*). Corps members wore snake boots, safety glasses, and personal protective equipment and used hack and squirt and cut stump treatment, respectively, with 50% glyphosate to eradicate 8,000 popcorn trees and 14,000 privet plants from 39 acres of wetlands and riparian uplands. Injections with 50% glyphosate were used to control wild taro, with much less favorable results.





To clear over 1,000 feet of blocked stormwater conveyances in the lower Watershed, Corps members used chainsaws, hand saws, loppers, shovels, and herbicide. The Corps also maintained and planted stream restoration sites, removed invasive species from areas and planted with native vegetation, removed aquatic debris from watershed waterways, assisted the cities of Mobile and Prichard with drain clearing and post-tropical weather debris removal, and installing rain barrels in low-income flood-prone neighborhoods (an effort that gave rise to the Prichard Rain Barrel Program).

Corps members provided credible outreach to youth audiences. The Corps team visited Mobile County Public School System (MCPSS) sixth graders to deliver a “Watersheds 101” PowerPoint presentation to increase awareness about impervious cover, stormwater runoff, and nonpoint source pollution and discourage littering. They produced a televised video quiz program based upon for MCPSS middle school science classes, and they realized the MBNEP Director’s vision of creating a “Trash Mob,” a play on the concept of “flash mobs” with a catchy hip-hop song and dance that will be staged at public events.

While achieving some of our goals, attrition was a problem. Six Corps members were dismissed for various reasons, while one was replaced. At the conclusion of the six-month period, and with more to do and some funding remaining to support it, we extend the program until December to ensure our five (and then four) successful Corps members find gainful employment.

All four Corps “graduates” are currently gainfully employed. Shaila Fletcher works for the Alabama Department of Natural Resources, State Lands Division, as an administrative assistant, Eric Lucas is currently employed by TNC’s NOAA Gulf Corps, and both Jamarcus Talib and Kevin Kidd are employed at Mobile’s Amazon facility.

**Summary of Key Activities:** The Coastal Alabama Conservation Corps was formed to provide underemployed, at-risk, minority young adults on the job training, employment and benefits, and soft skills training in preparation for employment opportunities in an expanding restoration economy. This trained workforce implemented small scale restoration measures recommended in the Three Mile Creek WMP related to invasive species eradication, aquatic debris removal, restoration planting, drainage maintenance and improvement, and installation of rain collection devices. They effectively provided credible public outreach to school-aged children in the MCPSS.

**Partnerships:** MLKARC, SCA, City of Prichard, City of Mobile, Mobile County, the Mobile County Public Health Department, Sunshine Canoes

**Outputs:** Eleven under-employed, at risk, urban minority young adults received intensive job and leadership training and employment and benefits in preparation for job opportunities in an emerging restoration economy. This reliable work force implemented smaller-scaled restoration projects, including invasive species control, drainage improvements, restoration planting, and providing credible and directed community outreach to encourage wise stewardship of environmental resources.

**Outcomes:** Improved ecosystem function and protection; Improved management of ecosystem restoration and protection activities; expanded community engagement and ownership among school-aged audiences; improved chances for employment among a previously under-employed cadre of high-school educated, urban, at-risk young adults.

**Additional Information:**     [Conservation Corps Newsletter Article](#)

***Core Element: Outreach and Public Involvement Performance Measures***

Core Element: Program Implementation and Reporting		Sub-element: Outreach and Public Involvement
Level	Performance Measure	Evidence
<b>Excellent</b>	<p>The Program demonstrates <i>Excellent</i> performance because:</p> <ul style="list-style-type: none"> <li>o The Program supports citizen recommendations by implementing/supporting priority projects via the annual workplan.</li> <li>o The Program has a media/marketing campaign underway, such as a social marketing campaign, with a specific behavior change message related to a CCMP priority issue(s).</li> <li>o The Program has a brand/image and related graphics, tag lines, etc. that effectively promote and create widespread recognition of the Program.</li> <li>o The Program has socio-economic indicators to monitor and report on the impact of outreach and public involvement activities.</li> <li>o Efforts exist to achieve and document behavior change.</li> </ul>	<p>The Program host's community input meetings for priority projects and involves the community throughout each watershed planning process.</p>
		<a href="#">Weeks Bay Watershed Plan</a>
		<p>The Program has developed and implemented the Create A Clean Water Future campaign that is designed to reduce stormwater runoff and the trash that it carries through multiple media messages.</p>
		<a href="#">Clean Water Future Website</a>
		<p>A "Trash Blows" Campaign was undertaken in conjunction with the 2018 Dauphin Island Deep Sea Fishing Rodeo and again during the July 2019 Rodeo, stimulating further efforts to develop pickup truck bed trash receptacles.</p>

Core Element: Program Implementation and Reporting		Sub-element: Outreach and Public Involvement
Level	Performance Measure	Evidence
		<a href="#">See MBNEP page link for MBNEP logo and mission statement. www.mobilebaynep.com</a>
		See Year 5 Workplan pages 49-59.
		See Year 5 Workplan pages 49-59
Good	<p>The Program demonstrates <i>Good</i> performance because:</p> <ul style="list-style-type: none"><li>o The Program has an active CAC or analogous structure that proposes workplan projects and is represented during Management Conference or executive committee meetings.</li><li>o The Program, through the communication plan, actively conducts outreach through such things as signage, radio/TV spots, special events, public presentations, topic-specific workshops, etc.</li><li>o The Program supports efforts to develop and implement such things as environmental education curricula, teacher training, ecotourism programs, small grant programs, estuary celebrations, and/or citizen recognition programs.</li><li>o The Program shares innovations and lessons learned at regional and national meetings (e.g., Estuarine Research Federation (ERF) biennial meeting, The Coastal Society (TCS) biennial meeting, Coastal Zone (CZ) biennial meeting, NEP national meeting, etc.).</li><li>o The Program reports annually programmatic results to the public and stakeholders (via the Program’s website, public database, hard copies, and/or other media) as specified in the NEP Funding Guidance and describes progress linked towards annual workplan goals and milestones.</li></ul>	See below links and narrative.
		<a href="#">Management Conference Meetings</a> See Year 5 Workplan, pages 49-59. <a href="#">The Absence of Doubt- Year 5 Transformations-Year 4</a> <a href="#">Dispatches from the Field- Year 3</a> <a href="#">The Path Toward Coastal Restoration- Year 2</a> <a href="#">MBNEP: The Year in Review- Year 1</a>
		<a href="#">MBNEP Videos Landing Page</a>

Core Element: Program Implementation and Reporting		Sub-element: Outreach and Public Involvement
Level	Performance Measure	Evidence
		Watershed signage has been installed in Dog River, Eight Mile Creek, Bon Secour River, Three Mile Creek, and D'Olive Creek watersheds. Road signage has been installed in Fowl River (You Are in the Fowl River Watershed) & Eight Mile Creek watersheds. Interpretive signage installed at Helen Wood Park (three), Alligator Alley (three), Dog River Park (three), Brooks Park (three), Steele Creek Lodge (three), Prichard's Jackson Reading Park (three), and McNally Park (one). Nineteen signs, three sets of three (Where you are in the watershed, The ecosystem, and Project Details) were installed, and a single sign was prepared for installation at McNally Park.
		Short educational videos including but not limited to:  <a href="#">Low Impact Development Video</a>  <a href="#">Preserving the Mobile Bay Estuary through Headwater Protection</a>  <a href="#">Why is there a pond in my backyard: Retention Pond Maintenance</a>  <a href="#">Understanding the MS4 Process</a>  <a href="#">The Problem of Trash</a>
		See Year 5 Workplan, pages 55-57
		Special Events supported: Alabama Coastal Cleanup, Bays & Bayous Symposium, DISLF Forks & Corks, Green Coast Council Sustainability Summit, Cocktails with the Critters, Coastal Kids Quiz, Alabama Coastal BirdFest, Stan Mahoney Junior Fishing Tournament, Creek Fest, DISL Graduate Student Symposium, MLK Day of Service. Management Conference partners are recognized

Core Element: Program Implementation and Reporting		Sub-element: Outreach and Public Involvement
Level	Performance Measure	Evidence
		annually at the Annual Breakfast for outstanding service.
		NEP has presented at NEP national meetings, Restore America's Estuaries and other regional conferences. See presentations (Appendix)
<b>Fully Performing</b>	<b>Baseline expectations:</b> <ul style="list-style-type: none"> <li>o Citizens are involved in Program decision-making and implementation (e.g., Citizens Advisory Committee (CAC) or analogous structure, system for public input, open meetings, public notice of meetings and events, and/or opportunities for reviewing and prioritizing outreach and public involvement projects, etc.).</li> <li>o The Program has a multi-year, strategic communication plan that includes needs, target audience(s), objectives, project descriptions, deliverables, and deadlines.</li> <li>o The Program has multi-media communication tools (e.g., newsletters, annual reports, fact sheets, website, listserves, and/or videos/CDs, etc.) that are updated as needed.</li> <li>o The Program reports programmatic results to the public and stakeholders (via the Program's website, public database, hard copies, and/or other media) as specified in the NEP Funding Guidance.</li> </ul>	
		In August 2018 MBNEP hosted a stakeholder workshop related to the six thing people value most to develop CCMP strategies
		<a href="#">CCMP Update Engagement Management Conference Meetings</a>
		<a href="#">CCMP Outreach Strategy</a>
		MBNEP maintains Facebook, YouTube, Twitter, and Pinterest accounts. Newsletters, Workplans, and



Core Element: Program Implementation and Reporting		Sub-element: Outreach and Public Involvement
Level	Performance Measure	Evidence
		publications are located in the publications library
		<a href="#">MBNEP Website Library</a>
		<a href="#">The video library can be found at http://www.mobilebaynep.com/videos</a>
<b>Minimally Performing</b>	The Program does not meet <b>all</b> of the performance measures in the <i>Fully Performing</i> level.	

## *Management and Program Administration*

The MBNEP Program Office works closely with all of the MBNEP Management Conference members on initiatives related to the CCMP. The Management Planning and Administration function of the program the program planning, development, implementation, evaluation, and reporting of all activities undertaken by the MBNEP and tracking of other program implementation activities of the CCMP.

### Sub-element: Planning and Administration



The staff provides organizational and logistical support for all of the Management Conference committee meetings and coordinate/communicate as necessary with appropriate user groups, State, local, and Federal agencies, and professional groups. Staff provide overall coordination of activities; prepare EPA-required documents; develop and

administer grants/contracts; monitor projects, write progress reports and draft/final reports with project leads; and coordinate project work plans and activities with other local, State and Federal agencies.

The Dauphin Island Sea Lab is the administrative sponsor of the MBNEP. The cost of this administrative support is captured in an indirect charge which is currently 15% of all expenditures related to the US EPA grant and any other external grants awarded to the MBNEP. On a case to case basis, DISL is willing to negotiate the indirect rate when necessary for grant application purposes. Otherwise, based on a 15% indirect charge, the MBNEP is able to capture the 28.2 % unrecovered costs as additional match for the program.

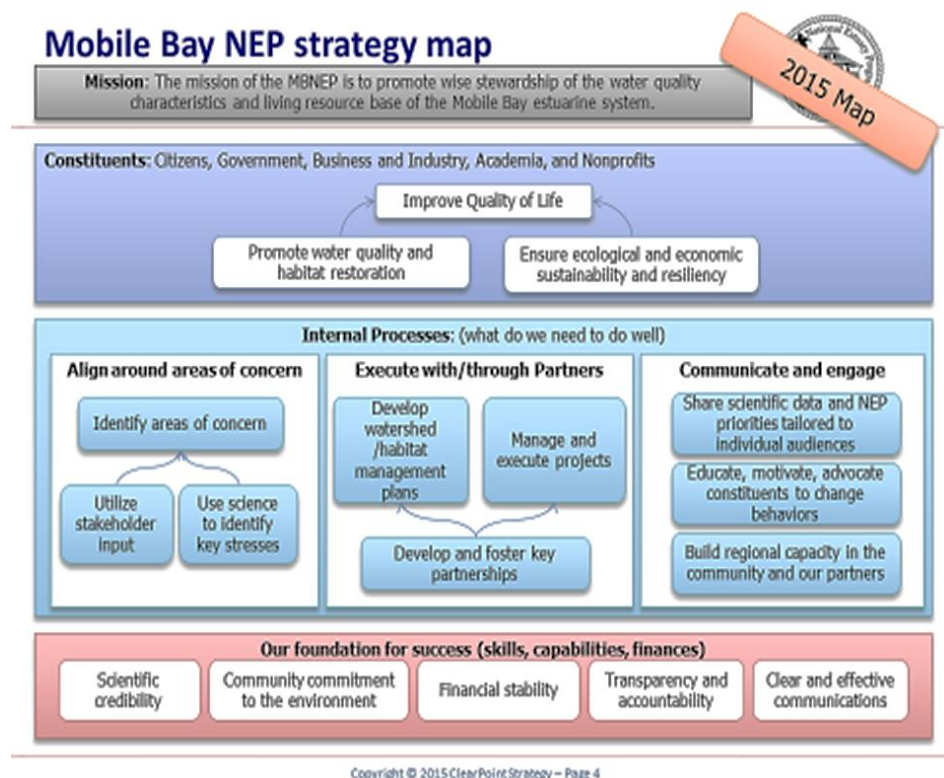
A hallmark of the National Estuary Program is the convening of the “Management Conference” to guide the assessment of trends in water quality, natural resources, and uses of estuary; identification of causes of environmental problems; development of relationships between pollutant loadings to the estuary and potential uses and quality of the estuary; development of the CCMP and other action plans for restoring and maintaining the chemical, physical, and biological integrity of the estuary; and coordination of the collective implementation of the CCMP. At its last two annual retreats, MBNEP’s Executive Committee (EC) has evaluated the functioning of the current Management Conference structure and assessed progress on implementation of the CCMP. Findings of these retreats indicate the program is effectively achieving its mission.

**Vision:** Alabama’s estuaries, where the rivers meet the sea, are healthy and support ecological function and human uses.

**Purpose:** The MBNEP brings together an engaged and diverse community committed to integrating environmental health with community and economy to develop consensus on what our ecosystem priorities are, how to achieve them, and how to facilitate/promote their implementation.

**Mission:** To provide necessary tools and to support community-based efforts to promote the wise stewardship of the water quality and living resources of the Mobile Bay estuary and the Mobile-Tensaw Delta.

During the 2012 Executive Committee Retreat, the purpose, goals and objectives were refined into a Balanced Scorecard, a strategic planning and management system that is used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals. This effort set the stage for how the Management Conference and its numerous committees functioned during the reporting period.



Core Element: Program Planning and Administration Performance Measures

Core Element: Program Implementation and Reporting		Sub-element: Program Planning/Administration
Level	Performance Measures	Evidence
Excellent	<p>The Program demonstrates <i>Excellent</i> performance because:</p> <ul style="list-style-type: none"> <li>o The Program encourages professional development opportunities for staff members.</li> <li>o The Program is a leader in the transfer of lessons learned in watershed management.</li> </ul>	<p>See Appendix D: Conference Attendance;</p> <p>See Appendix E: Workshops Attendance.</p> <p>MBNEP Director has presented at the Gulf Summit, National Association of Counties, USEPA Region 4 and other venues about the benefits and challenges of implementing the Watershed approach at a regional scale.</p> <p>See Appendix __: Presentations</p>

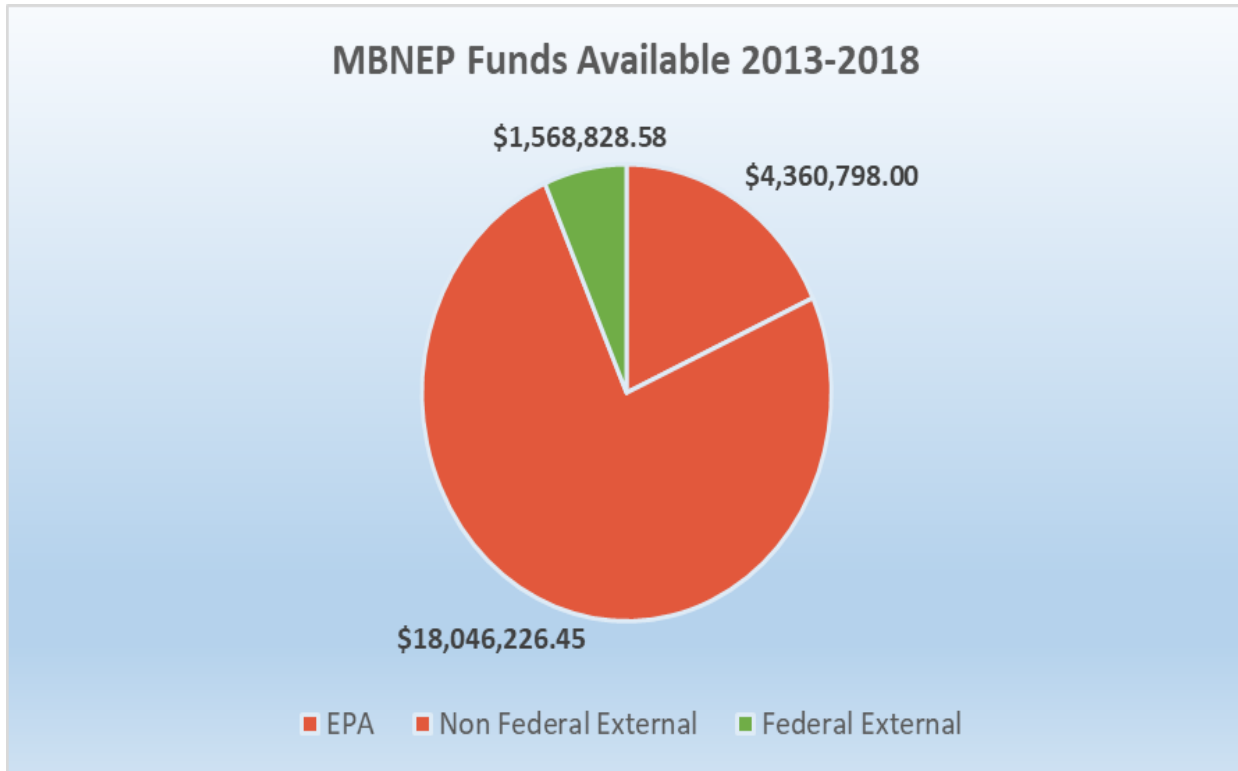
Core Element: Program Implementation and Reporting		Sub-element: Program Planning/Administration
Level	Performance Measures	Evidence
<b>Good</b>	<p>The Program demonstrates <i>Good</i> performance because:</p> <ul style="list-style-type: none"> <li>o The Program has a Management Conference that: <ul style="list-style-type: none"> <li>§ has a written vision statement and/or mission and goals;</li> <li>§ is fully engaged in developing and implementing the workplan;</li> <li>§ assists in building active partnerships;</li> <li>§ ensures broad stakeholder representation in priority setting and Program oversight;</li> <li>§ provides a clear and transparent decision-making process that includes the public (e.g., operating procedures, agreements and/or bylaws for committees, etc.); and</li> <li>§ has a mechanism for identifying existing and emerging issues.</li> </ul> </li> <li>o The Program is seen as a leader in watershed management.</li> </ul>	<p>The MBNEP Management Conference prides itself on the level of community involvement in program planning and implementation. Aside from the intensive engagement undertaken as part of the watershed management planning process, a key part of CCMP development and updating is citizen engagement. See the Annual meeting video, <b>The Absence of Doubt</b> at 11:34 for a bird's eye view of this participation.</p>
		<a href="#">CCMP Landing Webpage</a>
		<a href="#">The Absence of Doubt</a>
<b>Fully Performing</b>	<p><b>Baseline expectations:</b></p> <ul style="list-style-type: none"> <li>o The Program has a Management Conference that: <ul style="list-style-type: none"> <li>§ is fully staffed;</li> <li>§ provides Program direction;</li> <li>§ oversees development and approves annual budget and workplan;</li> <li>§ ensures sufficient Program resources;</li> <li>§ sets a framework for bringing together diverse interests in a collaborative fashion (e.g., develop synergy among various organizations);</li> <li>§ ensures communication between Program committees;</li> <li>§ ensures Program actions are based on both stakeholder priorities and good science;</li> <li>§ communicates about and supports the Program; and</li> <li>§ has a process for reevaluating its priorities.</li> </ul> </li> <li>o The Program staff coordinates and supports Management Conference responsibilities.</li> <li>o The Program has human resources principles in place (e.g., staff members have position descriptions and periodic performance reviews).</li> <li>o The Program office has autonomy with regard to the host entity (e.g., sets and follows</li> </ul>	



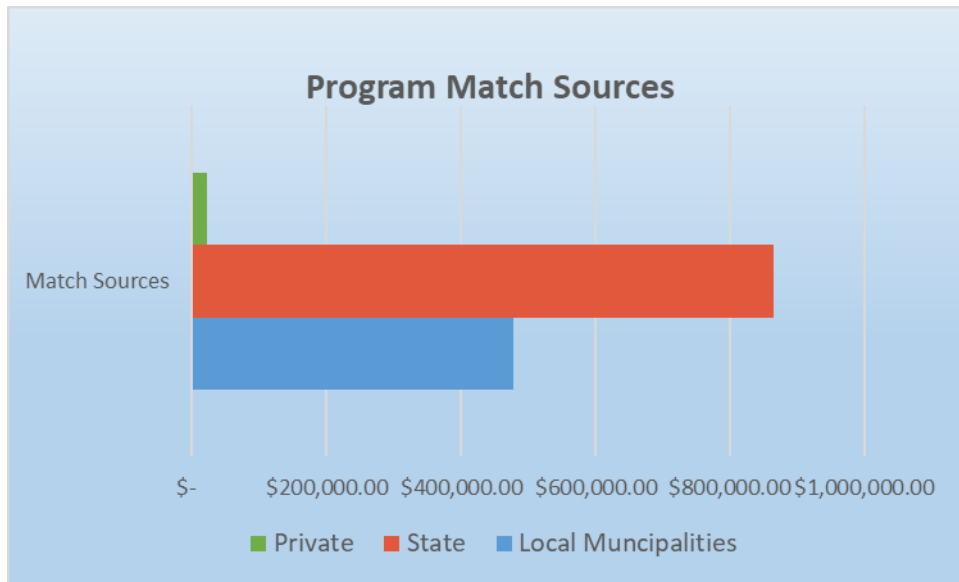
Core Element: Program Implementation and Reporting		Sub-element: Program Planning/Administration
Level	Performance Measures	Evidence
	its own priorities, exhibits visibility in the watershed, etc.).	
		MBNEP conducts quarterly meetings of all conference subcommittees and publishes agendas, presentations, and minutes/proceedings from each:
		<a href="#">Management Conference Landing Page on Website</a>
		See Year 5 Workplan page 65.
		MBNEP follows a template for selecting contractors that consists of Requests for Qualifications, a seven to 11 member broad-based stakeholder selection committee, proposal review, and on-site interviews.
		<a href="#">RFQ Process</a>
		MBNEP has taken lead role in bringing cross section of stakeholders together to develop solutions to issues/challenges. MBNEP is often asked to coordinate meetings for other groups due to our credibility and extensive network. MBNEP has received funding from NFWF and RESTORE Councils for watershed planning and management for all tidally influenced watersheds within the State.
		See Year 5 Workplan, pages 24-39.
<b>Minimally Performing</b>	The Program does not meet <b>all</b> of the performance measures in the <i>Fully Performing</i> level.	

## Funding Summary

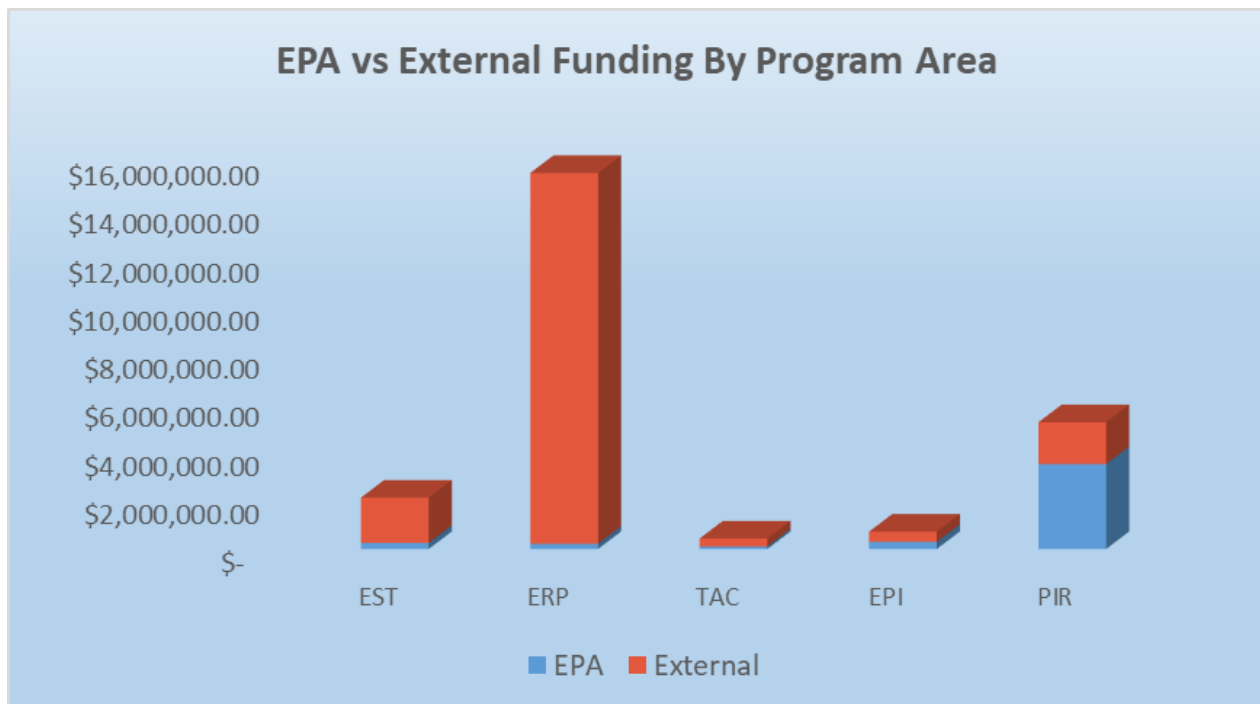
MBNEP had one open grant with the EPA during the program review time frame. Funding agreement CE-00D09513. This award represents work plans that encompass FY 2014-FY 2018, and the implementation years 2014-2018 of the “Respect the Connect” CCMP plan. These projects and this time period are identified in the Comprehensive Project Detail report found in the Appendix.



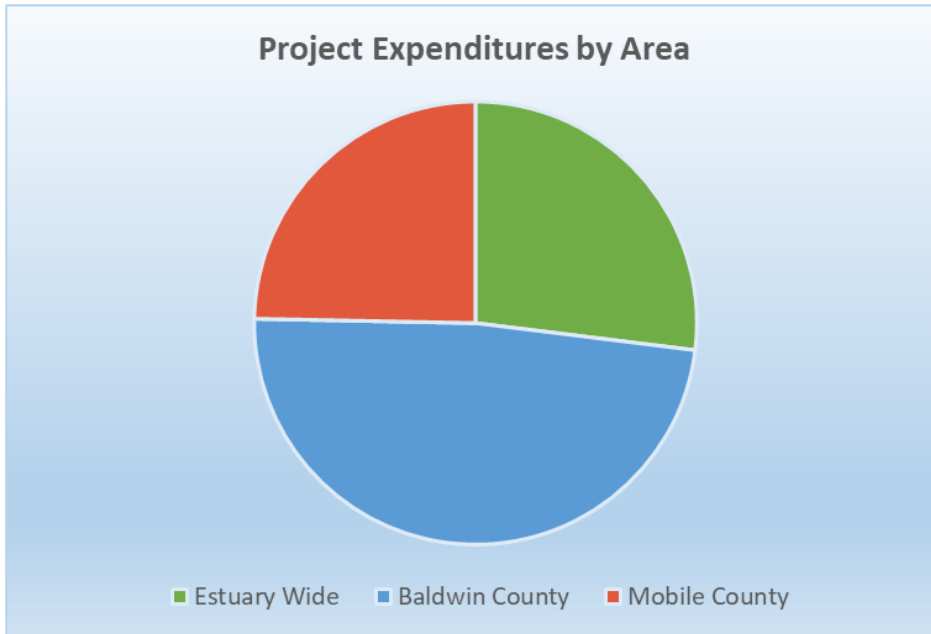
During the period from October 1, 2013 through September 30, 2018, EPA, match, and external funding available for program activities totaled \$23,975,853. Of this amount, EPA dollars (including match) totaled \$4,360,798. and external grants totaled \$19,615,055.



Of the non-federal sources of funding received, the largest amount, \$ 865,440, was received through the State of Alabama, with \$ 478,094 coming from local sources. Discretionary funding from private sources totaled \$ 22,264.

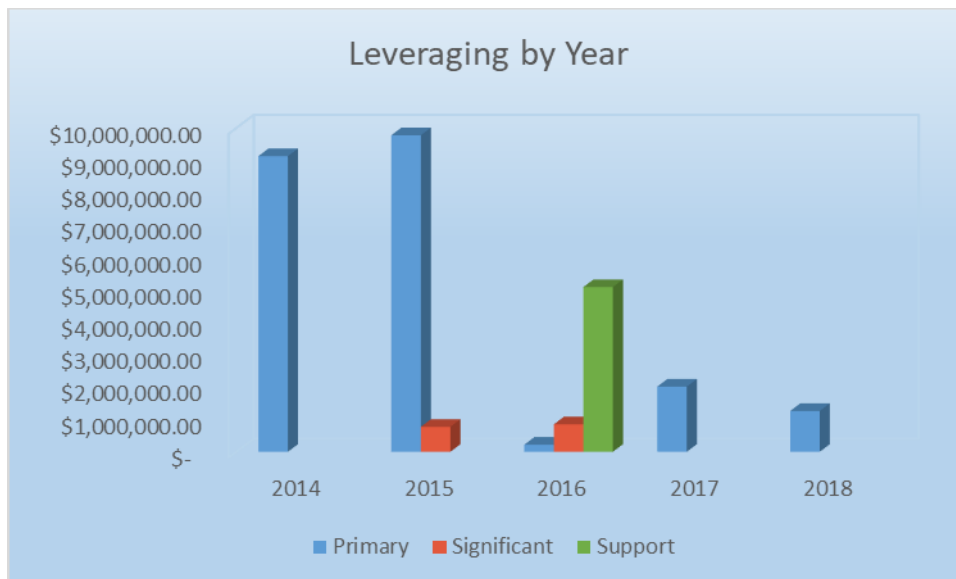


Of all funding received, a large part, \$ 15,278,107, was invested in the Ecosystem Restoration and Protection efforts including watershed planning and implementation. The influx of external funding stems from settlements related to the Deepwater Horizon incident. In fact, the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund grants totaled \$ 14,727,278 during the reporting period.



Although the MBNEP funding priorities are guided by science, opportunity, and levels of leverage and partnerships, the program does try to balance project funding across both coastal counties. The chart above illustrates the distribution of funds to activities that benefit the entire coastal area, or Baldwin or Mobile County specifically. The skew toward Baldwin County funding is related to the D'Olive watershed restoration initiative. As the first truly comprehensive watershed planning effort, the

D'Olive Watershed was well poised for implementation funding when Deepwater Horizon related dollars started flowing.



The influx of NFWF GEBF dollars is reflected in MBNEP leveraging reports. During the program years ending 2014 and 2015, the MBNEP directly received funding from the first two rounds of GEBF funding. For the subsequent three years, while MBNEP implemented the projects funded, it began to recruit other partners and support their efforts in obtaining GEBF dollars.



**Sub-element: Financial Management**

To ensure all milestones are met, invoices are paid for work accomplished, and reports are submitted in a timely manner, the MBNEP tracks all grant activity, revenues and expenditures down to the activity level. Our funding from EPA is in the form of a five-year grant which is amended each year and is managed alongside the five annual workplans produced to implement the five-year CCMP. As stated earlier, this year we were allowed to marry our CCMP time period with our five-year Section 320 grant and our five-year program evaluation package, greatly facilitating aggregation of performance measures, expenditures, leverage, and other financial reporting. To compliment this report, we have included our five-year closeout report in the appendix, providing the evaluator with one spreadsheet of CCMP objective, project, activity, expenditures, indicators, and products and outcomes. Within this spreadsheet you will easily be able to click on the links provided to glimpse the products related to each investment.

Normal management of our finances includes quarterly and annual reporting on all activities, receipting revenues and processing expenditures as needed and preparation of monthly financial reports including budget vs. actuals by CCMP area and project, match receipt status, and progress on external funding.

MBNEP does not engage in traditional fundraising. Any external funds are competitively awarded. From time to time, a partner may provide a charitable donation to the program but this is not the norm. MBNEP does not generate program income. Any revenue received related to hosting of conferences is used to offset the cost of the event. In the event funding received is in excess of cost, the net proceeds are used to support other activities to implement the CCMP.

**Core Element: Financial Management Performance Measures**

<b>Core Element: Program Implementation and Reporting</b>		<b>Sub-element: Financial Management</b>
<b>Level</b>	<b>Performance Measure</b>	<b>Evidence</b>
<b>Excellent</b>	<p>The Program demonstrates <i>Excellent</i> performance because:</p> <ul style="list-style-type: none"> <li>o The Program researches, identifies, and tracks prospective donors and funding opportunities (applicable for non-profit organizations).</li> <li>o Program staff, Management Conference members, and volunteers have received finance/fundraising training if appropriate.</li> <li>o The majority of the Program's outreach materials contain funding information (e.g., thanking donors, acknowledging project funding, including a membership form, etc.).</li> </ul>	<p>All documents produced by the MBNEP identify the appropriate funding sources.</p> <p>Staff have received finance training and work closely with the sponsor agency (DISL) to ensure compliance with federal rules including CFR 200.</p>
<b>Good</b>	<p>The Program demonstrates <i>Good</i> performance because:</p> <ul style="list-style-type: none"> <li>o The Program has a current finance plan (approved by the Management Conference within the past six years) that includes estimated costs, funding sources, goals, responsibilities, and milestones.</li> <li>o The Program integrates finance planning into its annual workplan (i.e., an assessment of funding obtained in the previous year, current</li> </ul>	<p>The MBNEP includes a financing plan in each workplan which is approved by the Executive Committee prior to submission to EPA.</p> <p>The DISL produces a variety of financial reports upon request of the MBNEP. In addition, the MBNEP tracks revenues and expenses as well as budget</p>

Core Element: Program Implementation and Reporting		Sub-element: Financial Management
Level	Performance Measure	Evidence
	<p>funding, and funding to be pursued in the coming year).</p> <ul style="list-style-type: none"> <li>o The Program has a monthly revenue and expenditure tracking system.</li> <li>o The Program has a case statement (a brief statement outlining accomplishments and results that could occur with additional resources).</li> </ul>	<p>versus actual reporting on a monthly basis.</p>
<b>Fully Performing</b>	<p><b>Baseline expectations:</b></p> <ul style="list-style-type: none"> <li>o The Program meets its non-federal match obligation and provides detail in the annual workplan submittal to the EPA about match funding sources and uses (e.g., workplan tasks).</li> <li>o The Program has a plan for diversifying and augmenting funding sources that is approved by the Management Conference and includes estimated costs, goals, responsibilities, and milestones.</li> <li>o The Program has the partnerships and strategic alliances to identify and secure resources to implement its CCMP.</li> </ul>	<p><a href="http://www.mobilebaynep.com/what_we_do/workplans/">http://www.mobilebaynep.com/what_we_do/workplans/</a></p>
<b>Minimally Performing</b>	<p>The Program does not meet <b>all</b> of the performance measures in the <i>Fully Performing</i> level.</p>	

## ***External Factors and Challenges to Implementation of the CCMP***

### **Climate Change and Impacts of Storm Events**

In a period of anticipated extreme weather events, and in the wake of irregular hurricane activity, continued protection of our coastal resources is challenged by an increasingly dynamic landscape. According to the U. S. EPA, along much of the Florida Panhandle and Alabama Gulf coast, sea level already is rising by approximately 9 inches per century and is likely to rise another 20 inches by 2100. At present, coastal Alabama continues to grapple with coastal erosion, degradation of marshes, de-forestation, marine debris, and saltwater intrusion.

Continued sea level rise will lead to flooding of low-lying property, continued loss of coastal wetlands, erosion of beaches, and decreased longevity of low-lying roads, causeways, bridges and other infrastructure. Coastal resource management alternatives include building walls to hold back the sea, allowing the sea to advance and adapting to it, raising land by re-nourishing beaches, and elevating houses and infrastructure. This last option is one that the Town of Dauphin Island continues to pursue, as documented in an educational video, [\*Flight of the Frigate Bird – An Omen of Rising Seas\*](#), produced by the MBNEP and narrated by country music artist Shelby Lynn, which premiered in May 2018. Video production was funded by the EPA's Climate Ready Estuaries Program and the Alabama Department of Conservation and Natural Resources, State Lands Division. While arguments for funding island replenishment have shifted from protection of the local tax revenue to the importance of an intact barrier island dunes as a protective buffer for mainland Mobile County during extreme storm and technological events, astronomical costs for necessarily repetitive remedy demand more serious consideration of adaptation. Another educational video – [\*The Dunes of Dauphin Island\*](#) - was produced by MBNEP with funding from ADCNR-SLD to assist the Town of Dauphin Island in promoting a dune protection ordinance. The challenges of coastal storms have also provided fresh opportunities for working with new partners to build community resilience, specifically in disadvantaged and environmental justice communities.

EPA can assist in addressing the challenge of climate change by continuing to develop outreach pieces for general public distribution, assisting MBNEP with technical assistance related to building community resilience capacity, vulnerability assessments at the watershed scale, adaptation planning, and providing regularly updated information on sea level rise statistics and other climate change impacts focused on the Alabama coast.

### **Continued Economic Limitations and Program Financing**

Funding from sources related to the *Deepwater Horizon (DWH)* oil spill, including the National Fish and Wildlife Service Gulf Environmental Benefit Fund, the RESTORE Act, and the Natural Resources Damage Assessment, has driven watershed planning, mapping, and restoration efforts. However, lack of financing and resources to accomplish the broad scope of our mandate has been challenging and continues to be elusive. We continue to lay the groundwork for improved relationships and outreach necessary to better attract local investment and community match to fulfill our federal grant requirements. One of the first steps in developing a finance strategy is in elevating the profile of MBNEP among stakeholders. To that extent, MBNEP has been more

assertive in seeking assistance in providing consistent coverage of environmental issues throughout the community. In addition, MBNEP has begun cultivating relationships with new industry moving to the area and is investigating ways that MBNEP can partner with the local area Chambers of Commerce to more effectively conduct outreach and education on key environmental issues. The MBNEP's Business Resources Committee is key to these efforts.

The BRC consists of representatives from various sectors of industry, business, and commerce appointed by invitation/recommendation of the MBNEP staff and with the commitment of active engagement. The purpose of the BRC is to bring together business leaders to improve the business community's understanding of how coastal natural resources and estuaries contribute to the economic, cultural, and community well-being and to increase business support for protecting the estuary/coast through advancing the objectives of the Comprehensive Conservation and Management Plan. The BRC makes recommendations for projects and activities to the Executive Committee based on consensus among the members of the BRC. The mission of the BRC is to advocate for streamlined regulations and balanced business practices that are in the best interest of the region's economic and environmental resources.

Ultimately, our challenge is to develop and communicate the MBNEP's value for a number of different target audiences.

Although the National Estuary program represents only one aspect of EPA, the activities related to the implementation of 28 different CCMPs cut across every aspect of the Agency. To this extent, EPA could communicate the value of MBNEP within its own agency as an effective mechanism for coordination of and communication of EPA activities and successes at local levels. By utilizing the MBNEPs as a clearing house for all EPA activities directed at the implementation of the CCMP, we can facilitate and coordinate activities, actions, and resources and identify leverage opportunities in ways that other regulatory entities could not.

In addition, EPA could better support the activities of the MBNEP by targeting more of the Agency's resources through MBNEP as opposed to applying them to projects in an isolated or piecemeal fashion. Where there are NEPs in place, funding should be passed through them. By elevating the NEPs within EPA as a point of pass through, EPA could better use NEPs to more effectively target resources to local priority problems.

### **The Alabama Constitution**

Coastal resource managers continue to work around laws that govern the State of Alabama, prescribed through a constitution that prohibits cooperative local efforts to protect watersheds by establishing control of local actions at the State level. Requiring state legislation as a condition of local action is a difficult challenge, due to the lack of connection between most state legislators and the unique environmental issues coastal Alabama faces. The Government Networks Committee of the MBNEP will focus their future efforts on trying to address this issue.

The best way for EPA to support MBNEP in Alabama is to provide continuing opportunities for MBNEP to forge stronger partnerships with local government entities to the extent EPA works at a local level.



## **Regionalization Post-Deepwater Horizon**

Restoration of the Gulf of Mexico is critical to the economic vitality and ecological sustainability of the Gulf region. Funding provided through the RESTORE Act and other *DWH*-related sources offers an unprecedented generational opportunity for Gulf Coast states and local governments to implement coastal zone projects that promote habitat restoration, water quality improvement, environmental sustainability, and economic resilience. There are seven NEPs around the Gulf of Mexico, and our efforts to better coordinate activities and build the NEP brand has resulted in the Program's profile being elevated at the local, state, and federal levels.

EPA has been a supporter of the NEP's at the Federal Council level, including additional CCMP funding as one of their five projects submitted. There is some concern about a potentially competing effort – the creation of new NEP's throughout the Gulf. In general, this is a good thing, as the NEP model, although requiring significant work and relationship building, when successfully implemented, provides an effective mechanism for communicating needs and taking action.

## **Making Data Accessible**

In order to effectively measure environmental progress, data has to be accessible and communicable to resource managers and the general public. MBNEP laid the foundation for an integrated system of viewing geospatially depicted data sets related to our local area to provide viewers with a more comprehensive system-wide view of the different factors impacting coastal Alabama ecosystem sustainability. The foundation is based on the habitats of the Mobile Bay Watershed and ecological attributes related to it. The MBNEP will continue to work with the Science Advisory Committee and the Dauphin Island Sea Lab to build a more elaborate data cataloging system on meteorological information, scientific studies, remote sensing, modeling, and other information valuable for developing adaptive management strategies to build a decision support tool for better marine planning.

GIS is a valuable tool that provides local decision makers with visual information to make more informed decisions. EPA could better support our Gulf regional data collecting efforts by providing datasets and data layers and shape files, as requested, to MBNEP.

## **Conclusion**

Over the course of the past five years, MBNEP has worked diligently to continue implementation of the CCMP. Although we have achieved many successes, we are acutely aware of the many areas where improvement is needed. We look forward to discussing both program successes and areas of need in the upcoming visit with the Program Evaluation Team. Our goal as a program is to continue to be a leader in promoting the wise stewardship of the water quality and natural resources of the Mobile Bay estuary. We welcome EPA assistance in helping us achieve that goal.

## *Appendices*

US EPA Section 320 Close Out Report- Grant # CE-00D09513

List of Presentations and Tours 2013-2018