Albemarle-Pamlico
National Estuary Partnership

Program Evaluation Package
For
July 1, 2012 – June 30, 2017

North Carolina Department of Environment Quality

US Environmental Protection Agency

Revised Document
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Key Accomplishments Statement

Since the revision of its Comprehensive Conservation and Management Plan (CCMP) in 2012, APNEP has collaborated with its network of partners to implement the CCMP's fifty-two actions. Over the five-year PE review period, APNEP participated in nearly a hundred projects aligning with one or more of its CCMP actions. While for much of that time, APNEP faced barriers to hiring staff that prohibited it from effectively pursuing its goals, APNEP has hired five staff members since 2016 and is looking to accelerate the pace of CCMP implementation through 2018 and beyond.

To execute the CCMP's actions, APNEP has convened stakeholders in Action Teams focused on specific aspects of the CCMP, such as ecological flows, invasive species, or oyster habitat. These Action Teams help APNEP maintain connections with partner organizations, solicit diverse, expert feedback, and leverage partnerships to accomplish regional goals. As of the end of the PE review period, nine of the thirteen planned Action Teams were active, with the remaining four teams scheduled to begin in 2018.

During the PE review period, APNEP assisted its partners in developing natural resource management strategies by commissioning two studies quantifying those resources. In 2016, APNEP contracted to produce an economic valuation report that was the first of its kind for the Albemarle-Pamlico watershed, *Economic Valuation of the Albemarle-Pamlico Watershed's Natural Resources*. The same year, APNEP contracted to produce an *Economic Analysis of the Costs and Benefits of Restoration and Enhancement of Shellfish Habitat and Oyster Propagation in North Carolina* report. These studies have led to recognition from the NC General Assembly and local governments of the potential economic value of investing in the region's natural resources and incorporating sound environmental practices into local ordinances.

Outreach initiatives such as APNEP's annual Summer Teacher Institute, a professional development institute for educators, are core to APNEP's mission. The institute, which continued annually from 2012 to 2017, has helped educators to incorporate outdoor education and place-based learning into their classrooms. Overall, the institute reached at least seventy-five K-12 teachers during the review period and through them, thousands of students. In another of APNEP's annual initiatives, the Shad in the Classroom program, APNEP works with partners to reach classrooms throughout the region, combining hands-on outdoor education with restoration of native fish species to North Carolina's rivers.

Even as APNEP has worked to implement its CCMP through regional projects, the organization has also sought to fill gaps in knowledge with coordinated monitoring. In 2013, APNEP took advantage of the National Coastal Condition Assessment and conducted an intensification of the NCCA within the Albemarle-Pamlico region in order to obtain data at a scale fine enough for use in APNEP's ecosystem assessments.

APNEP continues to grow from a regional ecosystem study into a productive partnership, bringing together diverse stakeholders to protect and restore the Albemarle-Pamlico region. As CCMP implementation accelerates, APNEP will continue to implement collaborative solutions that address the needs of the entire region.

Introduction

Purpose

This Five-Year Program Evaluation (PE) Report for the Albemarle-Pamlico National Estuary Partnership (APNEP) conforms to *National Estuary Program: Program Evaluation Guidance* (August 3, 2016). The document has been structured to provide a succinct accounting of program performance and easy access to support documents through hyperlinks and citations within the narrative and required worksheets. In addition, we have provided a separate support document with hyperlinks for ease of access. The entire package is available on the APNEP website at apnep.org

This report is structured to:

1. Provide a general overview of APNEP;
2. Provide a progress update in response to the 2013 Program Evaluation;
2. Provide evidence of alignment between annual work plans and the APNEP CCMP priorities;
3. Incorporate detailed responses to EPA standardized performance measures and other program evaluation requirements; and
4. Provide challenges and issues identified by the Partnership.

This Program Evaluation report covers APNEP progress and activities associated with the following APNEP annual workplans and fiscal years:

1. FY 2012-2013
2. FY 2013-2014
3. FY 2014-2015
4. FY 2015-2016
5. FY 2016-2017

Overview

The watershed and sounds of the Albemarle and Pamlico estuaries represent the nation's largest semi-lagoonal estuarine system (Figure 1). The system is composed of eight major sounds and six major river basins draining over 28,000 square miles of watershed in North Carolina and Virginia. The sounds, rivers, creeks, wetlands and terrestrial areas provide habitat for an abundance of animal and plant species. People depend on the system for residential and commercial development, food, recreation, ecotourism, mining, forestry, agriculture, education, business and industry.

The mission of the Albemarle-Pamlico National Estuary Partnership (APNEP) is to identify, protect and restore the significant resources of the Albemarle-Pamlico estuarine system. APNEP pursues this mission with guidance and support from its overarching Comprehensive Conservation and Management Plan (CCMP), advisory bodies, and regional partners. The Partnership is a formal cooperative effort between the State of North Carolina Department of Environmental Quality (NC DEQ) and the United States Environmental Protection Agency (US EPA), in partnership with the Commonwealth of Virginia (VA). In recognition of the numerous benefits provided by the Albemarle and Pamlico Sounds, the United States Congress designated (*33 USC § 1330*) the Albemarle-Pamlico Estuarine System an "estuary of national significance" in 1987.

The Ecosystem

Efforts to restore and protect the Albemarle-Pamlico estuary have been ongoing for decades. However, effective management of the sounds requires the study and management of the broader ecosystem that impacts them. The Albemarle-Pamlico ecosystem includes the sounds, the streams and the rivers that flow into them, and the land that catches the rainfall and drains into these rivers (collectively known as the watershed). The Albemarle-Pamlico ecosystem spans a land area of more than 28,000 square miles. It also includes 2 million acres of estuarine waters and 10,000 miles of streams and rivers (Figure 1). The headwaters of this ecosystem are found as far away as the mountains of Virginia and the North Carolina Piedmont. The ecosystem includes wetlands, forests, farms, and cities, all of which affect the downstream estuary in complex ways. Some areas are particularly susceptible to environmental degradation, including urban waterways and areas of low elevation. To effectively safeguard the sounds for future generations, it is necessary to protect and restore the entire ecosystem - its water, air, and land.

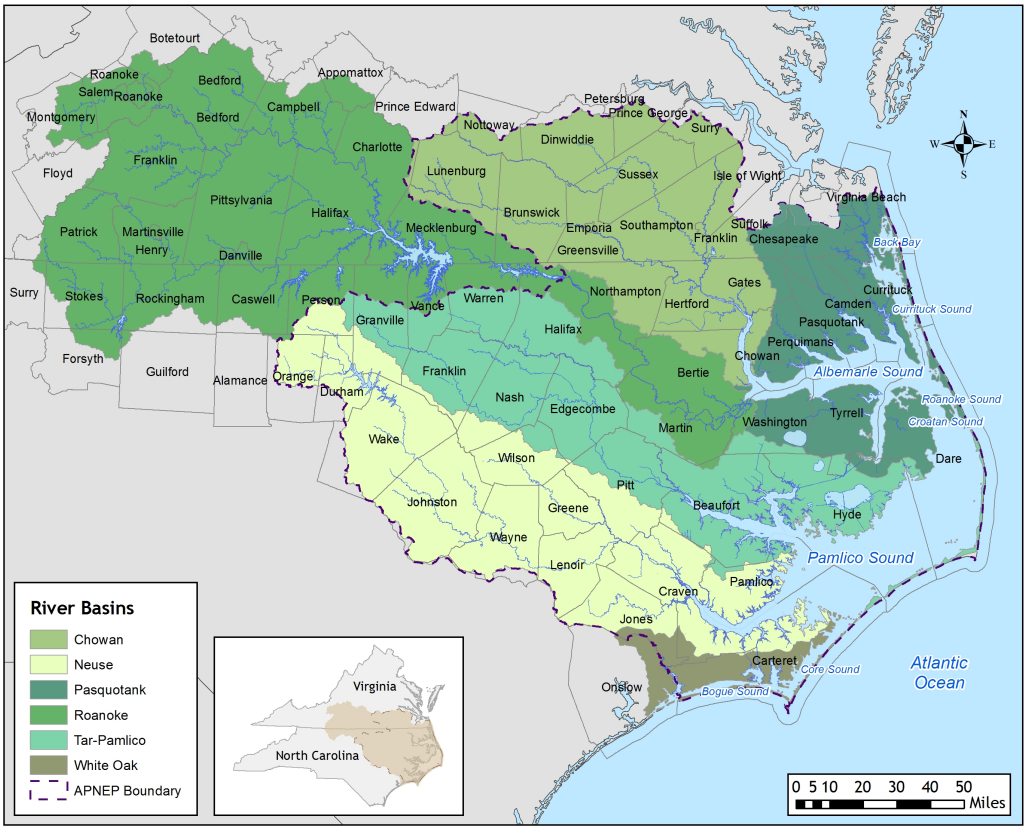

Figure 1. Watersheds & APNEP area of the Albemarle-Pamlico Region

Program History

The Albemarle-Pamlico Estuarine Study (APES) was among the first of 28 National Estuary Programs established by the EPA through amendments to the Clean Water Act. From 1987 to 1994, APES sponsored nearly 100 research projects in the Albemarle-Pamlico region, each designed to give scientists and managers a better understanding of how this ecosystem functions and to evaluate its health. During this ecosystem characterization stage, findings from these research activities were combined to develop the Albemarle-Pamlico Estuary Study Status and Trends Report (1991). This effort, in conjunction with an exceptional level of citizen involvement, culminated in the development of the first CCMP (1994).

This plan was ratified by the Governor of North Carolina and approved by the Administrator of the US EPA in November 1994. Upon adoption of the CCMP, the APES became known as the Albemarle-Pamlico National Estuary Program (APNEP) as it broadened its mission to include applied conservation, management, and engagement initiatives associated with the implementation of the CCMP.

The 1994 CCMP contained five management plans (Water Quality, Vital Habitats, Fisheries, Stewardship, and Implementation) that addressed regional concerns. Each plan began with a goal statement that outlined the plan's purpose. Each goal contained one or more objectives that listed the purpose of the actions needed to reach the stated goal. Each objective contained strategies describing how each objective was to be addressed. Strategies described existing programs, illustrated how they could be integrated with the CCMP recommendations, and detailed management actions that described how state agencies would achieve the broader objectives of the plan. The implementation of each management action was explained through critical steps, which specifically stated measures needed to be taken to implement a management action. The potential economic costs and considerations of management actions were also described.

From 1994 to 2003, the program worked to implement the CCMP with support of its River Basin Advisory Committees. In 2002, the program was moved to the Office of the Secretary in the NC Department of Environment and Natural Resources (NCDENR) and a full-time director was hired. In 2003, APNEP engaged in a program assessment and strategic planning exercise through a contract with North Carolina State University (NCSU). This process enabled APNEP to be more effective by identifying the strengths and weaknesses of the current program and developing program goals and priorities for the future.

The study resulted in several recommendations based on information gained through communications with APNEP stakeholders and from feedback on the strategic assessment from participants in a planning retreat. Following the assessment, the APNEP director and Policy Board worked with the Office of the Secretary of NCDENR and the NC Governor's office to develop a new citizen involvement structure. This effort resulted in Governor's Executive Order #74 in 2005 and was replaced with minor changes in 2007, leading to Executive Order #122. APNEP then proceeded to evaluate program priorities, leading to the program's investigation of ecosystem-based management (EBM) as a collaborative adaptive management approach.

In 2008, given substantial organizational and policy changes of NCDENR and scientific advances since the initial CCMP was adopted in 1994, APNEP staff and the Policy Board began a major

evaluation and revision of the document with assistance from its advisory committees and the EPA. APNEP began the process by seeking initial counsel from a broad array of stakeholders.

Following a directive from the APNEP Policy Board in December 2009 and support from the Board and advisory committees, the new CCMP approach was developed on the foundation of ecosystem-based management (EBM) principles. EBM includes consideration of human and natural systems, an adaptive management framework, and meaningful engagement with the region's citizens to find environmental management and policy solutions.

To support this effort, APNEP began working on a new ecosystem assessment. The 2012 Ecosystem Assessment was approved and released with the 2012-2022 CCMP. This assessment offers an examination of 24 important ecosystem indicators. Some indicators are presented in both the 1991 and 2012 assessments, and where possible the status and trends of these indicators are discussed as they relate to the estuarine ecosystem. These 24 indicators are presented as candidates for inclusion in APNEP's integrated monitoring strategy, and a subset will also be incorporated into future versions of this management plan.

Currently in development, APNEP's integrated monitoring strategy aims to provide a coordinated framework for monitoring in the Albemarle-Pamlico region. Substantial monitoring efforts are underway in the region, but they are often limited in scope, geography or interagency coordination. APNEP's strategy will detail the monitoring efforts necessary to sustain adaptive practices and ecosystem-based management in the region, particularly as they relate to APNEP's mission. In addition to informing planning and management actions, the monitoring strategy will help identify gaps or redundancies in the current monitoring structure to help ensure regional monitoring efforts are conducted as efficiently as possible.

High-quality data from an integrated monitoring network will be essential for rigorous evaluation of ecosystem status and trends. As APNEP implements the CCMP actions supporting the "Identify" and "Monitoring" components, it will produce regular status and trends assessments of ecosystem indicators and management actions.

Following nearly four years of activities to assess and address new and emerging issues that may affect the significant natural resources of the Albemarle-Pamlico estuarine system, the *2012-2022 Comprehensive Conservation and Management Plan* (CCMP) was adopted by the Policy Board in March 2012. A new Executive Order (# 133) was issued in November 2012. As part of that executive order, the program was formally renamed as a *partnership*, reflecting the importance of coordinated and integrated efforts for protecting and restoring the estuarine ecosystem.

> *Note: A new Executive Order was developed in November 2017. This document is not included in this evaluation package as it was signed outside the performance evaluation period. However, the new Executive Order, which includes minor structural changes, can be viewed online.*

The 2012-2022 Comprehensive Conservation and Management Plan (CCMP) is a significant step forward for the Albemarle-Pamlico National Estuary Partnership. The document is organized by asking and then answering four basic questions:

- What is a healthy Albemarle-Pamlico system?
- What is the current condition of the system?
- What are the most significant challenges facing the system over the next 10 years?
- What actions should be implemented to best achieve a healthy system?

Goals, outcomes, objectives, and actions were carefully crafted through a systems-based analysis of the regional ecosystem. To achieve APNEP's mission, three overarching goals have been established:

Goal 1: A region where human communities are sustained by a functioning ecosystem

Goal 2: A region where aquatic, wetland, and upland habitats support viable populations of native species

Goal 3**:** A region where water quantity and quality maintain ecological integrity

New CCMP initiatives include protection and restoration efforts to improve water quality and habitats, identification of the system's knowledge gaps, and public engagement to encourage connections between the natural environment and services provided by the system. APNEP has placed an emphasis on assessment and monitoring to gain further knowledge of the system and facilitate adaptive management.

Finally, as a National Estuary Program (NEP), much of APNEP's work is achieved through collaborative partnerships and leveraged resources with other groups interested in environmental and natural resource management in the region. Many of the objectives and actions in the CCMP rely on involvement from key governmental, academia, non-profit, and other partners.

Ecosystem-Based Management Approach

Since the release of its 1994 CCMP, APNEP has consistently implemented a management approach anchored by two key tenets. With the 2012-2022 CCMP, APNEP reaffirms its fidelity to these principles while further pursuing its newly adopted ecosystem-based management approach.

First, APNEP implements a watershed approach to protecting and restoring the estuarine system. Consistent with this practice, management efforts have been directed from river headwaters to the sounds throughout the region. This ecological approach helps APNEP ensure that issues are addressed in a holistic way and that APNEP has standing to address issues throughout the watershed.

Second, APNEP takes a partnership approach to achieve its mission. Protection of the Albemarle-Pamlico estuarine system is an enormous undertaking and the resources directly allocated to APNEP are limited. APNEP seeks to overcome this hurdle by leveraging partnerships among governments, non-governmental organizations (NGOs), academia, and the public to make significant improvements for the sounds. Most notably, North Carolina and Virginia are parties to

a Memorandum of Understanding to manage the Albemarle-Pamlico estuarine system, and APNEP staff members are hosted by both states. Because of its broad reach, APNEP is well positioned to fill gaps and identify synergies among its partners.

With the implementation of the 2012-2022 CCMP, APNEP adopts the principles of ecosystem-based management (EBM) to better support its mission. The ecosystem-based management approach includes a systems-based consideration of both human and natural systems, an adaptive management framework, and meaningful engagement with the public to find environmental management and policy solutions.

Summary

Since its inception, APNEP has led or contributed to scores of conservation efforts throughout the region. APNEP's first CCMP in 1994 called for the creation of several important environmental management initiatives that came to fruition in the form of Partnership for the Sounds' Estuarium, the Center for Geographic Analysis, and the N.C. Clean Water Management Trust Fund. APNEP restoration and demonstration projects improve habitats and water quality throughout the estuarine system while matching funds from the host entity. This process provided improvements to water quality through wastewater treatment plant upgrades and stormwater improvement projects.

APNEP continues its proud tradition of facilitating applied scientific research that began during the APES period, which recently led to the completion of a coast-wide map of submerged aquatic vegetation (SAV) for the estuary. APNEP has supported citizens monitoring for more than two decades. Outdoor classrooms across the region were funded by APNEP to improve water quality while giving students a place to learn about the natural world. These are just a few of the many ways APNEP continues to benefit the sounds and the ecosystems that support them.

2013 Performance Evaluation Challenges and Responses

In a letter dated September 30, 2013 (Attachment 1) the EPA PE Team concluded that APNEP continued to make significant progress implementing the original 1994 CCMP and demonstrated significant progress of implementing its newly developed 2012-2022 CCMP. They also stated that APNEP passed the 2013 PE and was eligible for continued funding authorized by CWA §320.

The letter also presented five challenges and recommended efforts to further strengthen the program. Specific PE Team recommendations and APENP response actions are detailed below.

1. **Program Implementation & Reporting - *Maintaining Visibility & Independence***

   The PE letter noted a concern regarding APNEP's visibility and independence. Following the program evaluation site visit in 2013, APNEP remained in the NC Department of Environment and Natural Resources (NC DENR) in a reorganized Office of Land and Water Stewardship. In January 2014, the APNEP director position was reduced to half-time to additionally support the role of Deputy Director of the NC Clean Water Management Trust Fund. This move was supported by Mr. Jim Giattina, Director the EPA Region IV Water Protection Division (Attachment 2). Although the NC Clean Water Management Trust Fund and APNEP work closely, the change greatly impacted the program's ability to implement the CCMP. APNEP was further impacted by a similar split in responsibilities of the only state-funded member of the staff. Additionally, vacancies and unfilled positions were not occupied in a timely manner. For several months there was only one full-time APNEP staff member.

   These issues led APNEP's Policy Board to request the NCDENR leadership to fully support APNEP. With no response, the APNEP Program Director and APNEP's Policy Board took action in March 2015 to reduce program activities to reflect the capacity of staff. This limited the number of Implementation Action Teams and new projects until the number of staff increased. In April 2015 APNEP was subject to an organizational move that was dictated by the 2015 Appropriations Act in the NC General Assembly, as NC DENR was reorganized into the Department of Environmental Quality (NC DEQ) and the Department of Natural and Cultural Resources (NC DNCR). This change resulted in NC DEQ moving APNEP to the Planning Section of the Division of Water Resources (DWR), APNEP's current location. Additionally, the NC DEQ administration would not support the renewal of the Governor's Executive Order #133 that was set to expire on November 5, 2016.

   Since moving to the DWR, APNEP has been able to fill all its unfilled positions and vacancies in a timely manner, resulting in the full staff as approved by the Policy Board in April 2017. Additionally, the new NC DEQ administration (January 2017) has supported the establishment of a new executive order and is currently planning to move APNEP back to the Offices of the Secretary.

   Given all the challenges presented under the past NC DENR/ DEQ administration, APNEP has maintained its own management conference structure. The active engagement of the Policy Board and the Science Technology and Advisory Committee (STAC) was the key factor in APNEP being able to maintain its albeit limited autonomy and its reputation of providing positive impacts consistent with its mission and the CCMP. However, autonomy and independence remain a challenge for the program in the implementation of the CCMP.

2. Ecosystem Status and Trends - *Need for Assessment and Monitoring*

In accordance with EBM principles, long-term monitoring plans, as well as indicators of ecosystem health and socio-economic conditions, have long been planned as outputs for the Partnership. APNEP supported an extensive effort to develop indicators during 2004-2008 by first working in 2004-2006 with APNEP's new STAC to ensure the metrics were grounded in science. This was followed in 2006-2007 by indicator refinement through an Indicator Steering Committee whose members had broader stakeholder representation, including not only technical (STAC) representatives but also the Partnership's advisory bodies: The Policy Board, Management Advisory Committee, and Citizen Advisory Committee. With a list of APNEP-approved candidate indicators in early 2008, APNEP created Monitoring and Assessment Teams with the charge of developing monitoring strategies for the indicators aligned each team.

It was also in early 2008 that staff decided to create a new Comprehensive Conservation and Management Plan (CCMP). The original strategy by staff was to create the CCMP in parallel with the monitoring plan to maximize science-policy integration but concerns over staff capacity coupled with the science (monitoring) getting too far ahead of policy (CCMP) saw the focus shift to solely CCMP development. With the completion of the 2012 CCMP, staff focus began to shift toward CCMP implementation, including a return to indicator and monitoring planning. Like other facets of CCMP implementation, however, the pace of finalizing indicators and producing a monitoring plan will depend on DEQ and partner support. As noted above, reductions in staff capacity limited further development of the APNEP indicators and monitoring strategy. In March 2017, APNEP was able hire an Ecosystem Analyst that was approved by the Policy Board in 2015 and all Monitoring and Assessment Teams are on track to provide indicators to the Management Conference for review in 2018.

3. Ecosystem Restoration and Protection - *Need to Measure and Report on Short-term Project Outcomes*

APNEP staff is developing an outcome tracking protocol as part of guidance to CCMP Action Teams. As each Action Team develops implementation strategies for a particular CCMP action, they will be expected to work with STAC members and other scientists whose expertise aligns with a particular restoration or protection activity. The product of their collaboration will be a description (model) of how the project outcome (ecological endpoint) is expected to change over time in response to the proposed APNEP action. This model will be the basis of developing "triggers" which mean that if an ecological endpoint is responding outside the uncertainty bounds of model forecasts, the onus will be on the implementation team to alter their strategy through such activities as changing the magnitude and/or frequency of the action or conducting research to improve the model. This adaptive approach is consistent with APNEP's ecosystem-based management paradigm.

Given the need to leverage Partnership staff capacity and resources to fill gaps APNEP seeks efficiency in cooperation, coordination, and integration through the inclusion of other organizations with complimentary missions. Again, this challenge was delayed as staff was at limited capacity from 2014 to March 2017.

4. Ecosystem Restoration and Protection - *Need to Address Nutrient Criteria*

In 2014, North Carolina and the U.S. Environmental Protection Agency mutually agreed upon a plan to revisit and reevaluate North Carolina's nutrient-related water quality criteria. North Carolina's Nutrient Criteria Development Plan (NCDP) described an approach to evaluate nutrient-related criteria in three pilot waterbodies: Albemarle Sound, High Rock Lake, and the Central Cape Fear River System. Lessons learned are intended to inform updated criteria for North Carolina's estuaries, lakes, and rivers, respectively.

Soon after the implementation of the NCDP, Albemarle-Pamlico National Estuary Partnership (APNEP) convened an open group of scientists, interested stakeholders and agency staff to evaluate nutrient-related criteria in Albemarle Sound. The group met nine times between August 2014 and September 2016. In addition to considering all available information at its disposal, the group successfully secured resources for several targeted initiatives during its tenure.

At its final two meetings, workgroup members were invited to develop criteria proposals for parameters including pH, DO, chlorophyll-a, nitrogen, and phosphorus. Members were also invited to identify additional research or tasks if they determined that critical information needs remained unmet. Efforts to generate consensus regarding appropriate nutrient criteria parameters were both rigorous and collegial, but ultimately no criteria recommendations emerged from the group. After its final meeting, workgroup members coordinated with DWR staff to prioritize additional research recommendations to further criteria development for Albemarle Sound.

In the NCDP, the pilot Albemarle Sound criteria evaluation effort was designed as a two-phase process with an intervening period for research support. Phase I has been completed since September 2016, and the NC Division of Water Resources and workgroup members have been pursuing the research initiatives prioritized by the workgroup. Phase II criteria deliberations will be undertaken by the Scientific Advisory Council and the Criteria Implementation Committee. The Proceedings of the Albemarle Sound Nutrient Criteria Development Workgroup is available online and on the associated Nutrients Workgroup webpage.

5. Program Implementation and Reporting - Financial Strategy (*for Communications*)

APNEP has worked to focus our communications and engagement approach with the development of a new communications strategy. The Partnership intends to leverage communication and engagement activities where possible. Restrictions associated with the regulatory role of our host entity, NC DEQ, limit APNEP's ability to raise or use in-kind funds to support communication and programmatic actions. However, APNEP does work with its partners to distribute and extend communications throughout the region. Additionally, APNEP fully utilizes the NC Environmental Education and Public Affairs Office where possible to extend its efforts. APNEP has a robust social media presence and has developed several videos to promote the partnership and its activities. Some of these videos may be accessed via the APNEP YouTube Channel.

Standardized Performance Measures

Core Element: Program Implementation and Reporting
Sub-element: **Financial Management**

NOTE: *The EPA expects that, in order to be a Fully Performing Program, all baseline expectations are met. Performance measures in the Good and Excellent levels are not required. They are benchmarks for what the Program can do to improve performance given the Program's priorities and organizational capacity.*

EXCELLENT	PERFORMANCE MEASURES (FINANCIAL MANAGEMENT)	EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS
N/A	The Program researches, identifies, and tracks prospective donors and funding opportunities (applicable for non-profit organizations).	Not applicable. While hosted by a state government agency: APNEP staff, management conference members, and partners often investigate external funding and support opportunities for the implementation of the CCMP.
√	Program staff, Management Conference members, and volunteers have received finance/fundraising training if appropriate.	Where appropriate, staff, Management Conference members, and volunteers have received finance/fundraising training. Most fiscal management activities rely on the processes of the host entity as established by policy, rule, or state regulations. All are advised about restrictions on lobbying related activities.
√	The majority of the Program's outreach materials contain funding information (e.g., thanking donors, acknowledging project funding, including a membership form, etc.).	APNEP consistently credits EPA and other partners on final products and other materials where appropriate, using logos, materials, and publications.
GOOD	**PERFORMANCE MEASURES (FINANCIAL MANAGEMENT)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
√	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.	Each year, the program's Policy Board approved a budget with estimates of costs and leverage for the partnership's activities as part of the annual workplans. All contracts require a scope of work that includes estimated costs, funding sources, goals, responsibilities, outputs, and milestones.
√	The Program integrates finance planning into its annual workplan (i.e., an assessment of funding obtained in the previous year, current funding, and funding to be pursued in the coming year).	The Policy Board reviewed and discussed each annual budget prior to approval of the annual workplans and 302 grant applications. APNEP annual workplans included funding for projects (both 320 and others). Opportunities for additional funding sources are often discussed at Policy Board meetings. Currently, only governmental and foundation funds are used, as APNEP is restricted on the use of private funds due its location in a regulatory agency.
√	The Program has a monthly revenue and expenditure tracking system.	The program staff use the host agency (NC DEQ) revenue and expenditure tracking system relative to the various funding sources. Daily budget/expenditures are maintained by APNEP staff and the host Division. Daily and monthly reports are available to the Program Manager and the Director. An NC DEQ database (Xtnd) records budget, encumbrances, and expenditures.

√	The Program has a case statement (a brief statement outlining accomplishments and results that could occur with additional resources).	APNEP maintains case statements / fact sheets that highlight some recent accomplishments. In addition to a general case statement, several others have been developed for target audiences, as identified in APNEP's Communication Strategy. It does not require additional funds as APNEP is housed in a governmental agency (non-lobby). See examples of the various Case Statements.
FULLY PERFORMING	**PERFORMANCE MEASURES: Baseline Expectations (FINANCIAL MANAGEMENT)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
√	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).	APNEP 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). See annual workplans.
√	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.	NC DEQ and NC Clean Water Management Trust Fund (CWMTF) generally met match during the review period. APNEP currently augments funding sources by obtaining match from the NC Division of Water Infrastructure. Additionally, all annual workplans contain project descriptions that include an estimate of anticipated leverage/match funds. The annual workplan budget is approved by the Policy Board and includes estimated costs, goals, outputs and outcomes. In 2010 the Policy Board approved a matching funds requirement for projects via an RDF progress. See annual workplans for estimated leverage amounts.
√	The Program has the partnerships and strategic alliances to identify and secure resources to implement its CCMP.	APNEP has developed a strong network of partnerships over the past 30 years. Membership on the Policy Board and advisory committees is diverse and supportive. Furthermore, through working groups and other means, APNEP staff maintains strong working relationships with personnel in state and federal agencies in North Carolina and Virginia that are provide support for APNEP's mission. Additionally, APNEP has developed MOUs to work with Virginia on shared watershed issues.
MINIMALLY PERFORMING	**PERFORMANCE MEASURES (FINANCIAL MANAGEMENT)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
	The Program does not meet **all** of the performance measures in the Fully Performing level.	

Core Element: Program Implementation and Reporting
Sub-element: **Program Planning and Administration**

NOTE: *The EPA expects that, in order to be a Fully Performing Program, all baseline expectations are met. Performance measures in the Good and Excellent levels are not required. They are benchmarks for what the Program can do to improve performance given the Program's priorities and organizational capacity.*

EXCELLENT	PERFORMANCE MEASURES (PROGRAM PLANNING and ADMINISTRATION)	EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS
√	The Program encourages professional development opportunities for staff members.	APNEP encourages and supports professional development opportunities for staff members through enrollment or support courses and attendance at professional meetings. Staff members participate in various professional local and national organizations. Staff members also maintain professional credentials and licenses for which continuing education is a requirement.
√	The Program is a leader in the transfer of lessons learned in watershed management.	APNEP hosted a successful conference in November 2013 to discuss the status of the AP ecosystem and to highlight the 2012 CCMP and Ecosystem Assessment. The Partnership maintains a website and social media to distribute information gained from projects. APNEP has also produced several reports during the review period. Examples are available online.
GOOD	**PERFORMANCE MEASURES (PROGRAM PLANNING and ADMINISTRATION)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
√	The Program has a Management Conference that: ○ has a written vision statement and/or mission and goals; ○ is fully engaged in developing and implementing the workplan; ○ assists in building active partnerships; ○ ensures broad stakeholder representation in priority setting and Program oversight; ○ provides a clear and transparent decision-making process that includes the public (e.g., operating procedures, agreements and/or bylaws for committees, etc.); and ○ has a mechanism for identifying existing and emerging issues.	APNEP Management Conference has collectively performed all listed activities. The new Governor's Executive Order #133 established in November 2012 revised stakeholder structure and representation within APNEP. Note: Executive Order #26 was replaced #133 in November 2017.
√	The Program is seen as a leader in watershed management.	APNEP continues to be a science-based, unbiased program and a facilitator of citizen involvement in watershed management throughout the region. The 2012 CCMP, with its foundations in ecosystem-based management, was well-received by the public and APNEP's partners. The program is sought by partners as an independent, science-based partner to collaborate with on research in watershed management issues. An example is *Economic Analysis of the Costs and Benefits of Restoration and Enhancement of Shellfish Habitat and Oyster Propagation in North Carolina*

FULLY PERFORMING	PERFORMANCE MEASURES: *Baseline Expectations* (PROGRAM PLANNING and ADMINISTRATION)	EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS
√	The Program has a Management Conference that: o is fully staffed; o provides Program direction; o oversees development and approves annual budget and workplan; o ensures sufficient Program resources; o sets a framework for bringing together diverse interests in a collaborative fashion (e.g., develop synergy among various organizations); o ensures communication between Program committees; o ensures Program actions are based on both stakeholder priorities and good science; o communicates about and supports the Program; and o has a process for reevaluating its priorities.	APNEP Management Conference (Policy Board & Advisory Committees) collectively performed all listed activities. The Governor's Executive Order #133 established the new stakeholder structure and representation within APNEP. During the review period, Executive Order #122 (2007 – 2012) established the stakeholder structure and representation of APNEP. The APNEP management conference was composed of a Policy Board and three Advisory Committees (Science & Technical, Management, Citizens'). Each group had its own operating procedures and policies. The Policy Board is primarily responsible for direction to the program and includes members from each of the advisory committees.
√	The Program staff coordinates and supports Management Conference responsibilities.	APNEP staff coordinates and supports all activities of the management conference. Each staff member is assigned to one or more committees or action teams. Staff assignments can be found on the website for each team.
√	The Program has human resources principles in place (e.g., staff members have position descriptions and periodic performance reviews).	North Carolina Department of Environmental Quality (NC DEQ) is the host for APNEP. All human resource polices, principles, and practices are consistent with the department. The Human Resources Division administrates these polices in accordance with Dept. policy and state laws. All APNEP staff members have position descriptions and participate in annual performance reviews and evaluations.
√	The Program office has autonomy with regard to the host entity (e.g., sets and follows its own priorities, exhibits visibility in the watershed, etc.).	As a State governmental program, APNEP has limited autonomy with regard to the host entity, NC DEQ. However, APNEP sets and follows its own priorities and budget as listed in the CCMP and the Management Conference guides annual workplans and actions.
MINIMALLY PERFORMING	**PERFORMANCE MEASURES (PROGRAM PLANNING and ADMINISTRATION)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
	The Program does not meet **all** of the performance measures in the *Fully Performing* level.	

Core Element: Program Implementation and Reporting
Sub-element: **Outreach and Public Involvement**

NOTE: *The EPA expects that, in order to be a Fully Performing Program, all baseline expectations are met. Performance measures in the Good and Excellent levels are not required. They are benchmarks for what the Program can do to improve performance given the Program's priorities and organizational capacity.*

EXCELLENT	PERFORMANCE MEASURES (OUTREACH and PUBLIC INVOLVEMENT)	EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS
√	The Program supports citizen recommendations by implementing/supporting priority projects via the annual workplan.	The Policy Board (PB) and the Executive Committee of the PB and Science and Technology Advisory Committee (STAC) were instrumental in determining budget allocations for specific project types during the annual workplan development process. Annual workplans are available online.
√	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).	APNEP led, funded, and participated in several marketing campaigns regarding estuarine issues. For example, APNEP recently supported a campaign designed to raise awareness about the presence and impacts of invasive aquatic plant species in the region.
√	The Program has a brand/image and related graphics, tag lines, etc. that effectively promote and create widespread recognition of the Program.	APNEP has a brand/image and related logo that effectively promotes and creates widespread recognition of the partnership. APNEP's logo has been adjusted slightly to reflect our new name, but it maintains its unique and identifiable characteristics. A separate cypress logo was developed for specific use in promoting APNEP conferences and symposiums. A media kit is available online.
√	The Program has socio-economic indicators to monitor and report on the impact of outreach and public involvement activities.	Annually funded contracts require instrument development and program participants are surveyed for program effectiveness. The result of program impacts are presented in a final report and presented to the management conference. Additionally, a suite of website and social media metrics track online engagement, with year over year results trending positively. APNEP also has initial ecosystem indicators within its 2012 ecosystem assessment. A partnership priority is to develop the indicators further, including socio-economic indicators, and ecosystem targets necessary to track implementation of the CCMP. The Policy Board has also supportive actions to account for impact of projects and activities.
√	Efforts exist to achieve and document behavior change.	The 2012 CCMP and the accompanying communication strategy focus APNEPs communication efforts. Annually funded contracts require participant surveys to document behavior change (see example). The result of program impacts is presented in a final report and presented to the management conference as appropriate.
GOOD	**PERFORMANCE MEASURES**	**EVIDENCE/WORKPLAN CITATION**

	(OUTREACH and PUBLIC INVOLVEMENT)	and, if necessary, CLARIFYING COMMENTS
√	The Program has an active CAC or analogous structure that proposes workplan projects and is represented during Management Conference or executive committee meetings.	APNEP Management Conference structure supports the development and improvement of workplan projects. The Partnership's Action Teams are the direct line for new CCMP implementation actions during the review period. The Management Conference Exec Committee makes funding decisions for larger projects (greater than $4K).
√	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.	Through CCMP implementation actions and APNEP's communication plan, APNEP actively conducts engagement and outreach activities. APNEP's website and social media channels provide significant reach in a large watershed, and the program conducts traditional press outreach as well. Signage is contractually required for APNEP projects. During the review period, APNEP hosted a speaker series at the NC Museum of National Sciences. Videos of these talks are available online.
√	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.	APNEP has long supported a summer teacher institute on watershed and water quality issues. It maintains a growing, standards-based estuarine and watershed lesson plan database. APNEP has provided multi-year funding for projects, including Shad in the Classroom and summer teacher workshops that provide opportunities to teach students about the estuarine system. APNEP staff developed lesson plans and educational materials for teachers.
√	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.).	APNEP staff made several presentations at local, state, regional and national meetings during the review period, as well as presentations at annual EPA/National Estuary Program meetings
√	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.	APNEP annually reports programmatic results to the public and stakeholders through posting of its annual workplan and report on its website. A program priority is continued development of a database to record and track progress on CCMP implementation with access open to the management conference and the public. Staff keep the APNEP website updated to reflect progress.
FULLY PERFORMING	**PERFORMANCE MEASURES: Baseline Expectations (OUTREACH and PUBLIC INVOLVEMENT)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
√	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.).	The APNEP management conference is composed of a Policy Board and two Advisory Committees (Implementation, Science & Technical). Each group has its own operating procedures and policies. The Policy Board is primarily responsible for direction to the program and has members from each of the advisory committee. Executive Order #133 established the stakeholder structure and representation within the APNEP region. However, Action Teams are the primary body the

		allows for greater public direction in to CCMP implementation actions. All meetings are open to the public and posted on the website.
√	The Program has a multi-year, strategic communication plan that includes needs, target audience(s), objectives, project descriptions, deliverables, and deadlines.	APNEP has a multi-year, strategic communication plan aligned with the CCMP. A new strategy is currently being reviewed.
√	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.	APNEP utilizes several multi-media communication tools. The website is regularly updated and social media channels, including Facebook, Twitter, and LinkedIn, are also routinely updated. Substantive updates are provided through an open mailing list and through *APNEP's Soundings blog* (formerly its newsletter). A calendar of APNEP and high-profile partner events is also maintained.
√	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.	APNEP reports project and programmatic results to the public and stakeholders via the website (www.apnep.org), social media (Facebook, Twitter, LinkedIn), and hard copies provided to advisory committee members.
MINIMALLY PERFORMING	**PERFORMANCE MEASURES (OUTREACH and PUBLIC INVOLVEMENT)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
	The Program does not meet **all** of the performance measures in the Fully Performing level.	

Core Element: Ecosystem Status and Trends
Sub-element: **Research***

NOTE: *The EPA expects that, in order to be a Fully Performing Program, all baseline expectations are met. Performance measures in the Good and Excellent levels are not required. They are benchmarks for what the Program can do to improve performance given the Program's priorities and organizational capacity.*

The Program has the option to report a "not applicable" for the **Research sub-element. However, if not applicable, the Program must include justification that either (1) research is not a priority for the Management Conference, or (2) lack of resources does not allow the Program to conduct or support research efforts.*

EXCELLENT	PERFORMANCE MEASURES (RESEARCH)	EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS
√	Research is used to change policy.	APNEP's Oyster study was used to promote additional funds from NC General Assembly to promote oyster restoration work in state waters. APNEP's Ecosystem Services Assessment has also been used by local governments to support natural resource protection.
√	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.).	APNEP actively shares issues, projects, innovations, and lessons learned at local, regional and national meetings (e.g., Coastal Estuarine Research Federation (CERF), Coastal Society (TCS), AFS meetings - regional & national, NEP national meetings, etc. APNEP also hosts its own symposium in November 2013.
√	Scientific and technical reports produced by the NEP are peer reviewed.	The STAC Executive Board guided development of and reviewed the 2012 Ecosystem Assessment with individual indicator assessments reviewed by individuals (often non-STAC) with relevant expertise. All STAC Technical Issue Papers were authored by STAC members and were reviewed by the entire STAC membership. All Research and Policy Reports are available on the website
√	Program staff sits on state and national science boards and committees.	APNEP staff participate in various local, state and national science boards and committees.
GOOD	**PERFORMANCE MEASURES (RESEARCH)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
√	Research is conducted by appropriate partners.	APNEP continues to work with various partners on research needs for the region. Projects during the review period are highlighted on the website. APNEP has cosponsored a research fellow with NC Sea Grant since 2015. APNEP continues to investigate SAV mapping and monitoring techniques. Additionally, the STAC provides a forum for research discussions and project development in the support of CCMP implementation.

√	Research identifies significant, missing data that warrant additional monitoring or sampling.	APNEP's ecosystem assessment provides a discussion of significant, missing data that warrant additional monitoring or sampling. APNEP is currently investigating ecological flows assessment.
√	The Program uses research results to develop management options and implement solutions.	The results of projects developed during the review period were targeted to natural resource managers to guide decisions. Recent examples include Economic Valuation of APNEP Watershed and the Economic Analysis of the Costs and Benefits of Restoration and Enhancement of Shellfish Habitat and Oyster Propagation in North Carolina
√	Results from research are combined and translated into plain English for reporting to the public.	Projects conducted during the review period are written in a plain English style. Research project updates are also reported on APNEP's website and social media.
√	The Program or its partners have established a process to regularly reevaluate its research needs.	The CCMP directs the program to routinely reassess its research needs and topics. The STAC develops 2-year Action Plans.
FULLY PERFORMING	**PERFORMANCE MEASURES: Baseline Expectations (RESEARCH)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
√	The Program or its partners has a process to identify research needs.	The management conference and public provided input into development of the CCMP's priority research needs. APNEP is encouraging partners' near-term research focus to be on indicator monitoring and assessment. Research needs to improve monitoring will be identified by the partners' production of monitoring proposals for each indicator under consideration. Additionally, research needs to improve assessment were identified by the partners' contribution to the 2012 Ecosystem Assessment. The STAC and the Monitoring and Assessment Teams are also working to identify research needs relative to the CCMP.
√	The research needs are consistent with CCMP goals and actions.	The current CCMP highlights priority research needs as appropriate.
√	The Program's research needs are approved by the Management Conference.	The Policy Board and the advisory committees approved research needs and projects as necessary and consistence with the CCMP. Action Teams and Monitoring & Assessment Teams currently identify data, research and monitoring needs relative to the CCMP
MINIMALLY PERFORMING	**PERFORMANCE MEASURES (RESEARCH)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
	The Program does not meet **all** of the performance measures in the Fully Performing level.	

Core Element: Ecosystem Status and Trends

Sub-element: **Assessment and Monitoring**

NOTE: *The EPA expects that, in order to be a Fully Performing Program, all baseline expectations are met. Performance measures in the Good and Excellent levels are not required. They are benchmarks for what the Program can do to improve performance given the Program's priorities and organizational capacity.*

EXCELLENT	PERFORMANCE MEASURES (ASSESSMENT and MONITORING)	EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS
In Progress	The monitoring plan produces sufficient data to support a comprehensive and integrated analysis of environmental conditions.	The integrated monitoring plan currently under development will meet this criterion.
√	The Program or its partners seeks more efficient and cost-effective technologies for monitoring as appropriate.	APNEP Monitoring & Assessment Teams include remote sensing specialists whose responsibility is to ensure that remote sensing will be considered for all APNEP proposed monitoring efforts. Additionally, APNEP is currently engaged in a project to utilize side-scan sonar in mapping SAV.
√	The Program trains volunteer groups to improve the quality of data collection.	The APNEP Citizens Monitoring Network Coordinator trained volunteers in QA/QC prior to their joining the network during the review period. Additionally, as the new monitoring framework is developed, APNEP intends to rely on established citizen science programs to support monitoring efforts when appropriate.
GOOD	**PERFORMANCE MEASURES (ASSESSMENT and MONITORING)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
√	The Program uses monitoring data to assess and re-direct management actions and programs implemented under the CCMP as necessary.	The Program uses monitoring data to assess and re-direct management actions and programs as part of its ecosystem-based/adaptive management approach as highlighted in the CCMP. APNEP SAV data has been used to address SAV management in the region.
In Progress	The monitoring plan has a schedule for review/updates that is approved by the Management Conference.	The development of APNEP's new monitoring plan is currently in progress with the identification of ecosystem outcomes, metrics, and targets as part the CCMP supported process.
√	The Program uses monitoring data to identify gaps in knowledge.	The Monitoring & Assessment Teams used preexisting monitoring data to identify gaps as part of the integrated monitoring planning exercise.
√	Available data is analyzed for ecosystem status and trends.	Existing data sources identified in the integrated monitoring planning exercise were used to construct indicator status and trends in the 2012 regional ecosystem assessment. The Monitoring & Assessment Teams are continuing to assess data in the development of indicators.

√	The Program promotes the establishment of volunteer monitoring groups to supplement NEP monitoring efforts.	With the development of an integrated monitoring plan, the ability of volunteer monitoring efforts to supplement the monitoring of APNEP indicators is being considered. APNEP works with its partners , such as the NC Museum on Natural Sciences, to support other active citizen science/ monitoring projects.
FULLY PERFORMING	**PERFORMANCE MEASURES: Baseline Expectations (ASSESSMENT and MONITORING)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
√	The Program has a Scientific and Technical Advisory Committee (STAC) or analogous structure to ensure that Program decision-making is tied to good science.	APNEP has an active STAC to ensure that program decision-making is tied to good and current science. Information about the STAC and its activities is posted online.
√	The Program has indicators in use that are recognized by the Management Conference.	APNEP has indicators in use that are recognized by the Management Conference and highlighted in the 2012 Ecosystem Assessment. The MC is currently working to further connect these indicators to CCMP implementation efforts.
In Progress	The Program has a monitoring plan in use that is recognized and / or approved by the Management Conference and: • Meets QA/ QC requirements; • Identifies various parties' roles and/or commitments for the monitoring program; • has a timetable for collecting and reporting on data; and • identifies funding needs and / or commitments for the monitoring program.	The development of APNEP's new comprehensive and integrated monitoring plan is currently in progress through the work of seven Monitoring & Assessment Teams (MATs). This monitoring plan development process is recognized by the Management Conference, as all STAC members are assigned to at least one MAT. In total, these MATs represent the technical input of nearly 100 diverse experts from at least 37 different partner organizations. Information about the MATs and their activities is posted online.
In Progress	The monitoring plan produces data to support an analysis of specific environmental conditions	Through extensive discussion and review, APNEP's seven MATs are developing long-term monitoring strategies for ecosystem indicators that will permit robust and timely analysis of trends in specific environmental conditions. These strategies will utilize ongoing monitoring efforts by APNEP's partners that are currently generating many high-quality datasets, as well as will seek to fill monitoring gaps by establishing protocols and identifying and leveraging resources for tracking data-limited ecosystem indicators (e.g., submerged aquatic vegetation).
MINIMALLY PERFORMING	**PERFORMANCE MEASURES (ASSESSMENT and MONITORING)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
	The Program does not meet **all** of the performance measures in the Fully Performing level.	

Core Element: Ecosystem Status and Trends
Sub-element: **Reporting***

NOTE: *The EPA expects that, in order to be a Fully Performing Program, all baseline expectations are met. Performance measures in the Good and Excellent levels are not required. They are benchmarks for what the Program can do to improve performance given the Program's priorities and organizational capacity.*

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

EXCELLENT	PERFORMANCE MEASURES (REPORTING)	EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS
√	Reports discuss adaptive management strategies.	The current CCMP is based on the principles of ecosystem-based management as an adaptive management strategy. The Management Conference is supportive and actively engaged in of this adaptive approach.
√	Reports recognize new and emerging issues to be considered in updates or revisions to the CCMP.	The STAC has continued to work on new and emerging issues. The current CCMP addresses many emerging issues, including climate change, invasive species, and emerging water quality contaminants (e.g., pharmaceuticals, personal care products). The CCMP is available online.
GOOD	**PERFORMANCE MEASURES (REPORTING)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
√	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 inserts, newsletters, websites, etc.).	APNEP produced a regional ecosystem assessment in 2012. The website often provides articles on ecosystem health issues. A copy of the assessment and other materials are available online. Additionally, APNEP is working towards an online tool to provide ecosystem assessment information.
√	Major reports: ○ discuss the Program's goals and priorities, indicators in use, ecosystem status and trends, and maps of study area; ○ discuss the health of the estuary (i.e., habitat, water quality, and living resources); and ○ include conceptual models that represent the best understanding of current ecosystem processes.	APNEP's current ecosystem assessment approach includes these criteria. A basic conceptual model was developed for the drafting of the current CCMP. APNEP is currently refining the conceptual ecosystem model to assist with CCMP implementation.
FULLY PERFORMING	**PERFORMANCE MEASURES: Baseline Expectations (REPORTING)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
	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,	The 2012 Ecosystem Assessment is the first APNEP-sponsored assessment of our region since the early 1990s. APNEP is working

√	Environmental Report Card, significant newspaper inserts, newsletters, websites, etc.).	to provide an updated assessment as well as a "State of the Estuaries" report that will be communicated to the public.
√	Major reports: ○ are linked to CCMP actions, goals, priorities, indicators, and monitoring systems; ○ 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.	All APNEP actions are linked to the CCMP and mission. See www.apnep.org for examples. • Annual workplan links each action to CCMP actions • Reports and website feature a narrative description of the Program's study area • All final reporting will be under the guidance / approval of the Management Conference.
MINIMALLY PERFORMING	**PERFORMANCE MEASURES (REPORTING)**	**EVIDENCE/WORKPLAN CITATION and, if necessary, CLARIFYING COMMENTS**
	The Program does not meet **all** of the performance measures in the Fully Performing level.	

Workplan Narrative Summary

Overview

The Albemarle-Pamlico National Estuary Partnership (APNEP) receives funding for the administration of the program and implementation of the CCMP primarily under a five-year cooperative agreement the United States Environmental Protection Agency (EPA) in the form of an annual Section 320 grant under the Clean Water Act (33 USC § 1330). The APNEP host entity, the NC Department of Environmental Quality, provides match via in-kind personnel and funds for targeted water quality improvement projects (waste water and stormwater projects) in the A-P region. As a result of the direct funding limitations, most of the projects and activities are supported by a wide variety of program partners; for some projects APNEP provides plays a primary role in directing the project with leadership and major funding, while for other projects APNEP plays a significant role but does not lead the project. In other projects APNEP plays supportive role as a partner. However, all APNEP activities are directed at supporting implementation of the CCMP or the Mission, regardless of the role the program plays.

Key Work Plan Goals and Activities

While APNEP engaged in numerous projects with a variety of partners over the past five years, seventy-nine (79) of these projects were supported by EPA Section 320 funds. Many of these projects provided multiple benefits, supporting alignment to the CCMP objectives and actions as identified in each annual workplan. The 2012-2022 APNEP CCMP had been recently adopted prior to the last PE review site visit and implementation planning had only recently begun. Additional CCMP support projects were funded and implemented as a result of partner of collaborative interests. A comprehensive table of all APNEP 320 projects funded during the PE review timeframe are provided below.

Figure 1. shows the distribution of EPA Section 320-funded work plan projects based on categories of activities requested the *National Estuary Program: Program Evaluation Guidance* (August 3, 2016). However, it is important to note that APNEP does not routinely track CCMP implementation in this manner. Instead, the partnership groups activities around the 5 components of the 2012-2022 CCMP: Identify, Protect, Restore, Engage, and Monitor.

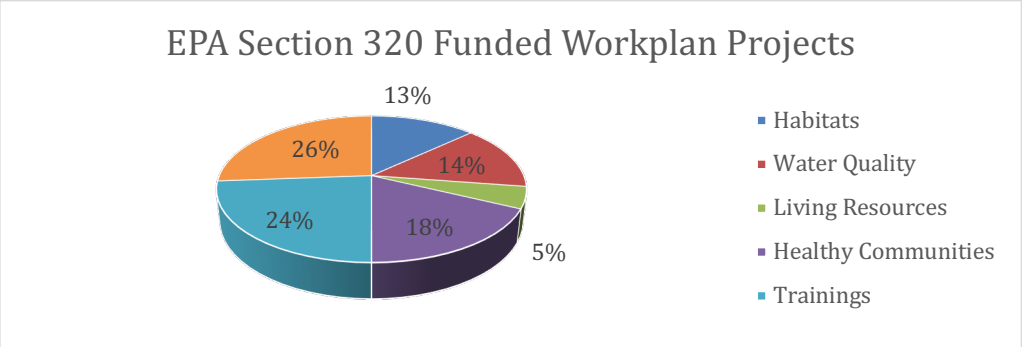

Figure 1. Distribution of EPA Section 320-funded work plan projects based on categories of activities requested under the *National Estuary Program: Program Evaluation Guidance* (August 3, 2016).

Since the full workplans for this review period have been provided to EPA headquarters and Region IV, this Narrative Summary only highlights a variety of workplan items from the evaluation period. Please refer to annual workplans for specific details about all of the projects. All approved annual workplans from 2001 to the present are available on the APNEP website.

Each year, the APNEP workplan contains a variety of projects that support the mission and implementation of the CCMP. All projects must be tied to the CCMP or the mission. Along with the CCMP objectives or actions to be addressed, the annual workplan project descriptions include intended outputs and outcomes for the activity, current status, as well as anticipated leverage as presented in the following example:

> ***Workplan Example*:** *Sentinel Network Monitoring of Submerged Aquatic Vegetation in Roanoke and Neuse River Watersheds* (NC) [Non-320 Funds]
> APNEP received $75,000 in funding from the National Fish and Wildlife Foundation to support the "Support for Sentinel Network Monitoring of Submerged Aquatic Vegetation in Roanoke and Neuse River Watersheds" project. Submerged aquatic vegetation (SAV) is a primary indicator of ecological condition for waters within the APNEP region. This project, conducted in partnership with East Carolina University, will contribute to a multiyear baseline of SAV status and trends in two sub-regions of a SAV sentinel network.
>
CCMP Components:	Monitor
CCMP Actions:	E 1.1, 1.2, 2.1, E2.2
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Outputs:	Sentinel station monitoring to include monitoring data in ecosystem assessment and environmental indicator report card
Intended Programmatic Outcomes:	Information from this project will be used to increase our understanding of factors controlling SAV distribution and abundance. schools
Status:	Ongoing APNEP program (2017-2018)
Estimated 320 Cost:	Staff time, No direct cost
Estimated Leverage:	$75,000

The following list highlights workplan activities and projects to provide key examples addressing each of the six requested elements as requested for this Performance Evaluation: Habitats, Water Quality, Living Resources, Healthy Communities, Trainings, and Direct Assistance. Detailed information is provided within each of the annual workplans.

Workplan Highlights 2012-2017

Habitat

> **FY 2012:** *Enhancing Oyster Reef Ecosystems and Their Beneficial Services in Coastal Tidal Creeks*
> Initiated an oyster restoration program that sought to enhance oyster populations in the low salinity upper portions of coastal tidal creeks in the APNEP region. Restoration sites were selected along tidal creeks that have been shown in survey data to be a refuge for oysters from an important biological stressor. Reefs were constructed using the crab pots-to-oyster reefs restoration methodology being refined by Dr. Joel Fodrie, UNC IMS, under a

previous APNEP grant. The final report is available on the APNEP website at http://portal.ncdenr.org/c/document_library/get_file?uuid=58c252f0-1173-4254-9d54-01c354e6221d&groupId=61563

Outputs:	Oyster reef habitat restoration, report
Outcomes:	Increase in oyster habitat, increase in oyster recruitment, improved water quality and ecological integrity, increased ecosystem resilience to sea level rise
CWA Core:	Addressing diffuse, nonpoint sources of pollution; protecting coastal waters
CCMP Components:	Restore, Monitor
CCMP Actions:	C5.1, C5.2, C5.3
CCMP Outcomes:	2b
320 Funds:	$45,361
Leverage:	$55,036

FY 2013: *Enhancement and Restoration of North Carolina Oyster Resources through Oyster Sanctuaries*;
APNEP partnered with the NC Division of Marine Fisheries to develop approximately 1.25 acres underwater oyster reef structures in the West Bluff Oyster Sanctuary in Pamlico Sound. The sanctuary was permitted, and construction initiated in 2005 with funds from the Clean Water Management Trust Fund and The Nature Conservancy. Sampling of the sanctuary indicated good oyster recruitment, survival and growth. Placement of these reef structures will further the completion of reef complex and create areas that will protect native oyster brood stock, enhance oyster production in adjacent waters, and create new oyster habitat.

Outputs:	Oyster reef habitat creation and restoration, report
Outcomes:	Developed approximately 1.25 acres submerged oyster reef habitat by deploying reef structures. Increase in oyster / estuarine reef coastal habitat, increase in oyster recruitment, improved water quality and ecological integrity, increased ecosystem resilience to sea level rise
CWA Core:	Addressing diffuse, nonpoint sources of pollution; protecting coastal waters
CCMP Components:	Restore
CCMP Actions:	C5.1
CCMP Outcomes:	2b
320 Funds:	$ 34,465
Leverage:	$ 19,105

FY 2013: *Restoration Project: Using positive interactions between bivalves and seagrass to improve water quality and restore essential habitats- Phase II*.
APNEP funded researchers at the UNC Institute of Marine Sciences to expand on a smaller restoration project confirming a beneficial interaction between hard clams and eelgrass. The previous study indicated that clams are able to improve the condition and accelerate the recovery of degraded seagrass meadows by fertilizing sediments and improving water clarity through bio-filtration. The project restored approximately 1 acre of clam

populations by deploying >500,000 clams within seagrass meadows at sites in Back and Pamlico Sounds to spur further eelgrass recovery. The final report is available at http://portal.ncdenr.org/c/document_library/get_file?uuid=7dcaa37d-22fa-4f51-a7c5-8eb2c8886034&groupId=61563

Outputs: Habitat restoration/ creation, monitoring, results presentation, report, permanent displays, film.
Outcomes: Increase in coastal habitats, improved water quality and ecological integrity, increase in ecosystem understanding
CWA Core: Addressing diffuse, nonpoint sources of pollution, protecting wetlands, protecting coastal waters

CCMP Components: Restore
CCMP Actions: C1.3
CCMP Outcomes: 2a, 2b, 3d
320 Funds: $74,985
Leverage: $77,817
Restored clam populations within seagrass meadows at sites in Back and Pamlico Sounds to spur further eelgrass recovery.

FY 2013: *Remote Sensing of Submerged Aquatic Vegetation (SAV) in the APNEP region*; Used a Digital Mapping Camera to obtain remotely sensed imagery of selected SAV sites in the APNEP region. As part of a second SAV mapping cycle (2012-2014), APNEP contracted with NCDOT Photogrammetry staff to (1) acquire aerial imagery in May 2013 along the barrier islands from Nags Head south to Cedar Island and from Cape Lookout west to White Oak River then (2) map SAV bed extent using these images.
Outputs: Map, report
Outcomes: New information for decision-makers, provides baseline information to support other CCMP actions related to protection and restoration of SAV
CWA Core: Protecting wetlands, protecting coastal waters
CCMP Components: Identify, Monitor
CCMP Actions: A1.1,
CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
320 Funds: $198,497
Leverage: $125,000

FY 2014-2015: *Habitat Enhancement at Goose Creek State Park;*
APNEP purchased 300 bald cypress trees that were planted at Goose Creek State Park by volunteers. Upland longleaf pine habitat is slowly transitioning to wetland habitat in this area. Bald cypress trees provide soil stabilization and water filtration in the area, benefiting water quality and habitat in the adjacent Pamlico River.
Outputs: Tree planting, habitat restoration,
Outcomes: Increase in wetland habitat, restore ecological integrity, water quality improvement
CWA Core: Addressing diffuse, nonpoint sources of pollution, Protecting wetlands

CCMP Components: Protect, Restore
CCMP Actions: B1.3, C1.3, C2.3
CCMP Outcomes: 2a, 2b, 3b, 3d
320 Funds: $ 153
Leverage: $ 250

FY 2014-2016: *Habitat Enhancement at Dismal Swamp State Park;*
APNEP purchased 6,000 Atlantic white cedar trees (3000 each purchase) to be planted at Dismal Swamp State Park by volunteers. Among other benefits, white cedar ecosystems provide habitat, stabilize stream flows, temporarily store floodwaters, help protect against the effects of drought, and purify water.

Outputs: Tree planting, habitat enhancement/ restoration, activities for the public to experience the Albemarle-Pamlico System
Outcomes: Increase in upland habitat, restore ecological integrity, water quality improvement, increased awareness and engagement in CCMP implementation. This project also compliments the restoration of peatland hydrology underway in the swamp, which is one of the largest forested peatland blocks in the country.
CWA Core: Addressing diffuse, nonpoint sources of pollution, protecting coastal waters
CCMP Components: Protect, Restore, Engage
CCMP Actions: B1.3, C1.3, C2.3, D1.1, D2.1
CCMP Outcomes: 1a, 1b, 1d, 1e, 2a, 2b, 3b, 3d
320 Funds: $ 1,350
Leverage: $ 4 000

Water Quality

FY 2012-2013: *Basic Observation Buoy (BOB) Workshop & Construction*
APNEP partnered with UNC Coastal Studies Institute to expand the existing BOB project. Funding allowed for project expansion and improvement by upgrading sensor packages to provide more reliable and accurate data, while expanding the project to at least one additional school in the Albemarle-Pamlico region. The final report is available on the APNEP website at http://portal.ncdenr.org/c/document_library/get_file?uuid=ba880f33-7a99-469e-a08f-c90b58b72a47&groupId=61563
CCMP Components: Engage, Monitor
CCMP Actions: D 2.1, D2.2, D2.3, E1.3
CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b, 3c, 3d
Outputs: Construct and deploy Basic Observation Buoys, report. teacher and student experiences in estuarine science
Outcome: Increased student engagement, expanded data on the estuary,
320 Funds: $ 23,510
Leverage: $ 20,407

FY 2013: *Restoration Project: Use of a Novel Restoration Method to Enhance Oyster Populations and Improve Water Quality in Tidal Creeks*

Project worked to enhance oyster populations in lower portions of five tidal creeks along the eastern shore of Newport River, Carteret County. Researchers from the UNC Institute of Marine Sciences to lead a restoration project that tested partial oyster burial in sediment as an oyster restoration strategy in the region's tidal creeks. This technique appears to provide oysters an alternative refuge from biological stressors. This project built on the knowledge of local fishermen, who have found large oysters free from parasitic boring sponges thriving while buried in tidal creek sediments. The final report is available on the APNEP website at http://portal.ncdenr.org/c/document_library/get_file?uuid=58c252f0-1173-4254-9d54-01c354e6221d&groupId=61563

Outputs:	Recommendations for oyster restoration, report
Outcome:	Protection/ restoration of oyster habitat, improved ecological integrity, new mariculture/ restoration techniques
CWA Core:	Addressing diffuse, nonpoint sources of pollution; protecting coastal waters
CCMP Components:	Restore
CCMP Actions:	C1.3, 1.4, 1.5, 3.1, 4.1, 4.2, 4.3, 5.1
CCMP Outcomes:	1a, 1b, 2a, 2b, 2c, 3b, 3d
320 Funds:	$ 32,138
Leverage:	$ 35,204

FY 2013: *Restoration Project: Water Quality Restoration of Alligator River, Long Shoal River and Pamlico Sound*;

Installed water control structures, swales, and dikes to direct water into restored wetlands. The North Carolina Coastal Federation coordinated a restoration project that will enable storage and filtration of runoff from cropland in Hyde County, NC. Project funds were used to install one water control structure, ten swales, and core 8,750 feet of dikes. This project will significantly reduce the amount of farm drainage that is currently pumped each year directly into tributaries of Pamlico and Albemarle Sounds. The final report is available at http://portal.ncdenr.org/c/document_library/get_file?uuid=8e35dd6d-79cf-48a9-9205-674b1e3d2223&groupId=61563

Outputs:	Landscape-scale hydrologic restoration project, report
Outcomes:	Improved water quality and ecological integrity, enable storage and filtration of approximately 100 million gallons of runoff from 3,700 acres of cropland
CWA Core:	Addressing diffuse, nonpoint sources of pollution; protecting coastal waters
CCMP Components:	Restore
CCMP Actions:	C1.3, 1.4, 1.5, 3.1, 4.1, 4.2, 4.3, 5.1
CCMP Outcomes:	1a, 1b, 2a, 2b, 2c, 3b, 3d
320 Funds:	$ 74,989
Estimated Leverage:	$ 128,500

FY 2014: *NC DMF Recreational Water Quality Monitoring;*
This Policy Board led project provided support testing in estuarine recreational waters in the A-P region by the N.C. Division of Marine Fisheries' Recreational Water Quality Monitoring Program. The program tests bacterial concentrations in coastal recreational waters to protect public health. The program is responsible for notifying the public when bacteriological standards for safe bodily contact have been exceeded. The program also has an educational component that accompanies the testing. Their educational campaign informs the public how bacteria enter coastal waters and actions that can help prevent it.

Outputs:	Monitoring data, public water quality education
Outcomes:	Improved water quality, integrated monitoring strategy, public understanding of the relationship between human and ecosystem health
CWA Core:	Addressing diffuse, nonpoint sources of pollution; protecting coastal waters
CCMP Components:	Monitor, Engage
CCMP Actions:	D2.3, E1.1, E2.1, E2.2
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
CCMP Components:	Identify, Monitor
CCMP Actions:	A1.1, A2.2, A3.1, E1.2, E2.1
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
320 Funds:	$ 50,0074
Leverage:	$ 283,000

FY 2013-2016: *Neuse River Estuary Modeling and Monitoring Project*;
A Water Quality Monitoring in the Neuse River, ModMon, is a collaborative effort led by the University of North Carolina. It supports space and time-intensive monitoring and assessment of water quality and environmental conditions; including nutrient-eutrophication dynamics, algal blooms, hypoxia, fish kills and related issues. ModMon is the main source of data for calibration, verification and validation of water quality models being used to adaptively test and manage the Total Maximum Daily Load (TMDL) for the Neuse River Estuary (NRE). ModMon also serves State and federal agencies as a ground-truthing data source for aircraft and satellite-based remote sensing of chlorophyll, turbidity and harmful algal blooms.

Outputs:	Report and recommendations, monitoring support to NC DWR
Outcomes:	Improved water quality, integrated monitoring strategy
CWA Core:	Identifying polluted waters and developing plans to restore them (total maximum daily loads), addressing diffuse, nonpoint sources of pollution; protecting coastal waters
320 Funds:	$150,000
Leverage:	$150,000+

Living Resources

FY 2015: *Economic Valuation of the Albemarle-Pamlico Watershed.*
In response to an RFP, RTI International conducted an economic valuation to assist APNEP and its partners in quantifying and the societal contributions made by natural resources within the Albemarle-Pamlico watershed. The findings will also assist in improving policy and decision makers' understanding of the value of ecosystem services provided by the rich resources of the Albemarle-Pamlico region.

Outputs:	Report and recommendations, baseline information to develop a communication strategy and materials on ecosystem services
Outcomes:	Improve policy and decision makers' understanding of the costs and benefits of environmental protection, restoration, planning and monitoring. Informed decisions for environmental management
CWA Core:	Protecting coastal waters
CCMP Components:	Engage
CCMP Actions:	D3.1
CCMP Outcomes:	1a, 1b, 1d, 2a, 2b, 3a
320 Funds:	$79,876
Leverage:	n/a

FY 2015: *Economic Analysis of the Costs and Benefits of Restoration and Enhancement of Shellfish Habitat and Oyster Propagation in North Carolina*.
In response to an RFP, RTI International conducted an economic analysis of the North Carolina Division of Marine Fisheries (NCDMF) Shellfish Rehabilitation Program, Oyster Sanctuary Program, and Artificial Reef Program. The study examined the ecosystem service benefits of oysters as well as the costs incurred by the Division of Marine Fisheries and other agencies and organizations to enhance their populations.

Outputs:	Report and recommendations
Outcomes:	Increased support and funding for oyster and habitat restoration, improve policy and decision makers' understanding of the costs and benefits of habitat enhancement and restoration, informed decisions for environmental management
CWA Core:	Protecting coastal waters
CCMP Components:	Engage, Identify, Restore
CCMP Actions:	D3.1, C5.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
320 Funds:	$34,829
Leverage:	$2,000

FY 2017: *Ecological Flows Assessment*;
This project is designed to assess the status of available flow and related data for the NC/VA Coastal Plain and analyzed these data relative to ecological flows (EF). This research was identified as an action item by the Ecological Flows Action Team during their 2016 meeting. The project will help to find, organize, and review currently available data that can help with ecological flow assessment in the region and identify data gaps. Identifying the existing data and centralizing it will help material, personnel, and monetary

resources to be efficiently distributed toward the ecological flow characterization efforts in the APNEP region. Project currently in progress.

Outputs:	Report and recommendations, Assessment of ecological flows data
Outcomes:	Identify knowledge gaps associated with ecological flows
CWA Core:	Protecting coastal waters
CCMP Components:	Identify
CCMP Actions:	A3.3, D2.2, D3.1, E2.2
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
320 Cost:	$18,435
Leverage:	$ 5,000

Healthy Communities

FY2012-2017: *Shad in the Classroom*;
Students raise American Shad in the classroom from egg to releasable fry, learning about habitats, water quality and watershed connections in the process. This collaborative project provides students with an understanding of the science process, inspiration for careers in science, and a desire to protect our waterways through hands-on experience raising American Shad from egg to releasable fry. This is a collaboration led by the North Carolina Museum of Natural Sciences, US Fish and Wildlife Service, other resource agency partners, and the students and teachers. The objective of this project is to build an understanding of the life history of shad and an appreciation for our natural world.

Outputs:	Workshops for teachers, educational films and multimedia presentations, increased community involvement in water quality and habitat protection
Outcomes:	Educational program, watershed connections among teachers, students and parents, restoration activities
CWA Core:	Protecting coastal waters
CCMP Components:	Engage, Restore
CCMP Actions:	D 2.1, 2.2, 2.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b
320 Funds:	$ 194,4752
Leverage:	$ 203,750

FY 2012: *Jockey's Ridge State Park Community-based Shoreline Restoration*;
Provided direct restoration of coastal marsh and riparian shorelines, which protected and preserved associated intertidal mud flats, submerged aquatic vegetation, and unique riparian areas. This project provides direct restoration of coastal marsh, riparian shorelines, and will provide protection and preservation of associated intertidal mud flats, submerged aquatic vegetation, and unique riparian areas found in the protected natural landscape of Jockey's Ridge State Park.

Outputs:	Shoreline restoration, report
Outcomes:	Increased ecosystem resilience to sea level rise, habitat improvements, community engagement
CWA Core:	Protecting wetlands and coastal waters

CCMP Components: Restore,
CCMP Actions: C1.3
CCMP Outcomes: 2a, 2b, 3d
320 Funds: $16,280
Leverage: $18,398

FY 2012: *Albemarle-Pamlico Peatland Enhancement Project*;
This project used strategic restoration and/or enhancement of forested wetlands in the Alligator River National Wildlife Refuge, Great Dismal Swamp National Wildlife Refuge, and Dismal Swamp State Park to increase the resiliency of these systems to climate change, improve water quality of adjacent receiving waters, and re-establish/augment valuable habitat for wildlife.
Outputs: Hydrologic restoration, report
Outcomes: Increased ecosystem resilience to sea level rise, habitat improvements
CWA Core: Protecting wetlands
CCMP Components: Restore,
CCMP Actions: C3.2, B2.3
CCMP Outcomes: 2a, 2b, 3d
320 Funds: $ 74,500
Leverage: $ 79,002

FY 2012-2015: *Citizens' Monitoring Network*; Citizens' group-based water quality monitoring.
The APNEP Citizens' Monitoring Network (CMN) is a network of private citizens who monitor surface water quality in the Albemarle-Pamlico estuary and its tributaries. For FY 2012-2015, operation of the CMN (including Coordinator, equipment, supplies, office and lab space and indirect costs) continued under contract with East Carolina University (ECU) to maintain the current participating citizens' monitoring efforts. APNEP expenditures covered the costs of chemical supplies, and ECU covered operational expenses.
Outputs: Database of citizen-collected monitoring information
Outcomes: Partnership building, increased community engagement and environmental awareness
CWA Core: Identifying polluted water; addressing diffuse, nonpoint sources of pollution
CCMP Components: Monitor, Engage
CCMP Actions: E1.3, D2.1
CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
320 Funds: $ 7,000
Leverage: $ 40,000

FY 2015: *Extending Distributions of NC Aquarium's Rainwater Harvesting System*; Supported a sustainable approach to provide water for the Roanoke Aquarium native plants and freshwater exhibits. The project utilized the Aquarium's existing rainwater harvesting system (originally funded in 2005 in part by APNEP) for irrigation of the NC Wildflower Meadow. The four 2,500-gallon cisterns provide water for the Wetlands on the Edge conservatory plantings, freshwater exhibit tanks, and landscaping near the Aquarium building. Interpretative signage at the cistern demonstration site educates our visitors about rainwater harvesting and other stormwater BMPs, including our nearby rain garden that functions as an overflow basin for the cisterns. Due to the cistern's large storage capacity, there is often a collection and holding of surplus water, which results in water quality problems in the tanks. To address this surplus and improve water quality the aquarium extended the reach of the cisterns out to the wildflower meadow allowing more cistern water turnover for use of cistern water for irrigation needs.

Outputs:	Improved irrigation of native plant & sustainable landscaping demonstration garden, educational displays
Outcomes:	Knowledge transfer, improved restoration and management techniques, slows/removes up to 10,000 gallons of stormwater runoff of roofs.
CWA Core:	Addressing diffuse, nonpoint sources of pollution, protection coastal waters
CCMP Components:	Protect
CCMP Actions:	B1.3
CCMP Outcomes:	2a, 2b, 3b, 3d
320 Funds:	$4,000
Leverage:	$4,000

FY 2016: *Sound Rivers Film Support*;
Videography to document environmental issues the APNEP region. APNEP partnered with Sound Rivers to partially support an AmeriCorps member for a portion of the year to develop additional videos and support education and outreach activities. Project ended abruptly when Sound Rivers AmeriCorps member resigned.

Outputs:	Education and outreach materials, environmental education programs
Outcomes:	Increased public awareness and involvement
CWA Core:	Protecting coastal waters
CCMP Components:	Engage
CCMP Actions:	D1.1, D1.2, D2.1, D2.2, D2.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Estimated Cost:	$ 2,000
Estimated Leverage:	$ 2,000

FY 2015 & 2017: *Discover North Carolina's River Basins Education Program*; Materials provided information about ecosystems and how humans both affect and depend on the health of North Carolina's rivers. The purpose of the effort is to illustrate the connections between people's everyday choices and the quality of natural resources as well as give citizens a sense of place within the natural environment. The materials were developed by the N.C. Office of Environmental Education and Public Affairs, are a popular teaching resource.

Outputs:	River basin booklets, teacher education
Outcomes:	Increased awareness, watershed connections
CWA Core:	Protecting coastal waters
CCMP Components:	Engage
CCMP Actions:	D2.3, D1.1, D1.5
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a
320 Funds:	$10,000
Estimated Leverage:	$10,000

Trainings

FY 2012-2017: *Teacher Institute;*
Developed and implemented a Teacher Institute to provide professional development opportunities for up to 25 teachers each year. APNEP works with partners to offer a teacher training institute in during the summer. Public and charter school teachers are provided with curriculum training in earth and environmental sciences with hands-on activities, site visits, and specific content to support inquiry, experiential, and research-based instruction on estuarine and water resources. UNC Institute of the Environment has been the lead over the past few years.

Outputs:	Teachers trained in environmental education, water quality, and watersheds. Over the review period approximately 100 teachers have been trained extending programing to approximately 15,000 students
Outcomes:	Increased environmental education activities in North Carolina schools, UNC IE is developing further metrics
CWA Core:	Protecting coastal waters
CCMP Components:	Engage
CCMP Actions:	D 2.1, 2.2, 2.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b
320 Funds:	$ 103,403
Leverage:	$ 64,000

FY 2013-2015; *Education and Outreach Assistant through AmeriCorps Program*;
Education and Outreach Assistant developed materials and organized activities that educate the public in the APNEP region about the significant natural resources within the region and APNEP activities that are underway to identify, protect, and restore them. The targeted audience for the assistant included underserved populations within the APNEP region. One highlight of the AmeriCorps project was the *Pocosin Project*, an environmental education effort to raise awareness about pocosins and their importance for biodiversity, ecosystem services, and water quality. The program was extended a second-year furthered enhancement of APNEP's video outreach capabilities as well as education and outreach events for underserved populations.

Outputs:	Education and outreach materials, environmental education programs, established an APNEP YouTube channel
Outcomes:	Increased public awareness and involvement
CWA Core:	Protecting coastal waters
CCMP Components:	Engage
CCMP Actions:	D1.1, D1.2, D2.1, D2.2, D2.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
320 Funds:	$ 20,000
Estimated Leverage:	$ 12,000

FY 2013: *APNEP Symposium*;
APNEP hosted a protection and restoration symposium for APNEP region in New Bern, NC on November 20, 2013. This symposium featured guest speakers, discussion panels, and various sessions to examine the status of the Albemarle-Pamlico Estuarine System's natural habitats and resources, discuss progress made, and discuss challenges ahead for protection and restoration. The proceedings from the conference are available at http://portal.ncdenr.org/web/apnep/conferences?p_p_id=15

Outputs:	Symposium
Outcomes:	Elevated program profile, facilitation of working relationships among committees and partners.
CWA Core:	Protecting coastal waters
CCMP Components:	Engage,
CCMP Actions:	D1.1, D2.1
CCMP Outcomes:	1a, 1b, 1d, 1e, 2a
Estimated Cost:	$ 9,832
Estimated Leverage:	$ 3,826

FY 2013: *North Carolina Low Impact Development Summit*;
APNEP partnered with NC DWR, NCSU, NCCF and others to host a gathering of development, design, planning, and permitting professionals from across the state in March 2014 to discuss the latest technology and tools for low impact development (LID). Presenters included national speakers, government leaders, research experts, and developers. More information is available at http://www.nccoast.org/Content.aspx?key=45a15314-18ce-4dc9-8637-9e453988de33&title=LID+Summit+2014

Outputs:	Water quality improvements, knowledge transfer

Outcomes:	Education, protection and restoration activities
CWA Core:	Addressing diffuse, nonpoint sources of pollution
CCMP Components:	Engage, Protect, Restore
CCMP Actions:	B1.2, B1.4, C1.5, D1.2, D3.1
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b
320 Funds:	$ 2,500
Leverage:	$ 47,500

FY 2014: *Oyster Summit*;
A 2014 **s**ummit to assess current restoration and management activities for oysters. APNEP supported a collaboration of government, non-government, and university organizations that are working to coordinate a workshop to assess the current state of oyster populations in North Carolina. The work focused on how oyster restoration and management activities have progressed in the last 20 years and served as a platform for charting future restoration and management activities. It was attended by government, non-government, and university organizations that are working to restore oyster populations in North Carolina. The NC Coastal Federation posted the proceedings online.

Outputs:	Knowledge transfer, restoration and management activities
Outcomes:	Improved effectiveness of oyster restoration and management activities
CWA Core:	Addressing diffuse, nonpoint sources of pollution, protecting coastal waters
CCMP Components:	Identify, Protect, Restore, Engage
CCMP Actions:	A1.1, A1.2, B2.6, C5.1, C5.2, C5.3, E1.1
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b
320 Funds:	$ 4000
Leverage:	$ 4000

FY 2016: *Living Shorelines Workshop and Video*;
A set of workshops were held in the northern coastal region in late 2015 to provide information on living shorelines to realtors, as well as marine and landscape contractors. A video the technical workshop was also produced to be available to contracts for online learning. This project was led by NC Estuarine Research Reserve.

Outputs:	Workshop, Video
Outcomes:	Increased use of living shorelines to enhance water quality and habitat.
CWA Core:	Addressing diffuse, nonpoint sources of pollution, protecting coastal waters
CCMP Components:	Restore, Protect, Engage
CCMP Actions:	B3.1,3.2; C1.3; D 2.3,3.1
CCMP Outcomes:	2a, 2b, 1d
320 Funds:	$ 4,000
Estimated Leverage:	$ 3,200

Direct Assistance

FY 2012: *Place-Based Education, Essential Standards, and Citizen Science*; Conducted monitoring of blue crab habitats and water quality around Lake Mattamuskeet and in tidal creeks of the Newport River Estuary. Students collected water quality data and the program provided a research experience for high school students. An innovative education program involving monitoring of blue crab habitats and water quality around Lake Mattamuskeet in Hyde County and in tidal creeks of the Newport River Estuary in Carteret County. Monitoring is conducted by students on a weekly basis, and water quality data and digital photography of sampling site conditions will be provided to APNEP in this test program with Duke University Marine Lab and local schools.

Outputs:	Monitoring data, report, curriculum
Outcomes:	Improved water quality, community engagement, environmental awareness
CWA Core:	Addressing diffuse, nonpoint sources of pollution, protecting coastal waters
CCMP Components:	Engage, Monitor
CCMP Actions:	D1.1, E1.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
320 Funds:	$ 5,946
Leverage:	$ 6,000

FY 2013: *Estuary Awareness: Environmental Education Bookmark Contest*; Conducted an educational bookmark contest, targeting fifth-grade students across 16 counties, with a theme focused on the estuaries. The NC Division of Soil and Water Conservation (NC Dept. of Agriculture) was awarded funds to conduct an educational bookmark contest throughout 16 northeastern counties in North Carolina. The bookmark contest focused on the importance of estuaries, their significance in eastern North Carolina, and the challenges estuaries face in the evolving world. This campaign was a hands-on contest, targeting fifth-grade students, and winning bookmarks will be distributed through local libraries.

Outputs:	Bookmark contest in regional schools
Outcomes:	Education and outreach to 4,000 students and 8,000 adults
CWA Core:	Protecting coastal waters
CCMP Components:	Engage
CCMP Actions:	D1.1
CCMP Outcomes:	1a, 1b, 1d, 1e, 2a
320 Funds:	$3,200
Leverage:	$8,600

FY2015-2016: *Graduate Fellowship in Estuarine Research*;
APNEP and the North Carolina Sea Grant (NCSG) College Program are jointly supporting a 2015 Graduate Fellowship in Estuarine Research. The fellowship provides funding for graduate students based in North Carolina and Virginia with an opportunity to conduct applied research within the North Carolina portion of the APNEP management boundary. Fellows must conduct research that addresses focus areas identified in NCSG Strategic Plan and management actions identified in CCMP.

Outputs:	Report, maps, data
Outcomes:	Increased capacity to address CCMP implantation actions
CWA Core:	Protecting Coastal Waters
CCMP Components:	Identify, Engage, Restore
CCMP Actions:	D2.3, C3.3
CCMP Outcomes:	1a, 1b, 1d, 2a, 2b, 3a, 3c, 3d
320 Funds:	$11,264
Estimated Leverage:	$10,000

FY 2017: *Effects of Environment on Blue Crab Size: Fisheries Science Place Based Learning and a Reciprocal Transplant Growth Study*; Outreach and workshops provided enrichment and place-based education for Mattamuskeet schools' students.
This research and education project informs decisions by managers at Mattamuskeet National Wildlife Refuge as they manage the flow of water in and around the lake. This is a place-based STEM educational opportunity with Lake Mattamuskeet schools located 3 miles from optimal recreational crabbing locations on the lake. The requested funds are matched by other grant funds and used specifically to meet a fisheries interest in determining the weight as well as size in adult male and female crabs in the Lake. Local High School Students make bimonthly trips to the Lake, catch crabs, take pictures of crabs, weigh individuals and generate data on gender, size and weight of crabs over the active season. A teacher workshop will also be held.

Outputs:	Report and recommendations, teacher workshop
Outcomes:	Increased awareness and engagement
CWA Core:	Protecting coastal waters
CCMP Components:	Identify, Engage
CCMP Actions:	D2.1, D2.2
CCMP Outcomes:	1c, 1e, 2a, 2b, 2c, 3b
320 Cost:	$4,000
Leverage:	$4,000

BUDGET SUMMARY

Overview

For the federal fiscal years associated this evaluation period, APNEP received a total of $2,847,952 in USEPA section 320 funds for FY 2012 to FY 2017. Table A1 shows the budgeted amounts for each year compared with the general expenditure over the time period. More detailed expenditures (line items) can be generated from monthly reports from NC DEQ's *Xtnd* budget database and NCAS database. Attachment #3 contains an example of an *Xtnd* monthly budget report and Attachment #4 contains an example of an *Xtnd* year-end budget report.

Note that the DEQ *Xtnd* database provides a detailed tracking of budget and expenditures but does not differentiate CCMP projects and administrative cost. For example, a purchase of tress for a restoration project will display as a purchase not a contracted service. The database is used to track budget and expenditures can provide a detail any payment made using grant funds. All expenditures are tracked in the *Xtnd* database and a record of payments is kept by NC DEQ.

APNEP has been involved in numerous CCMP implementation projects and activities over this evaluation period. During the evaluation period actions were funded under CE-9751210 (2012-2016) and CE-OOD20614 (2014-present). Cooperative agreement CE-OOD20614 allows for funds to be carried over multiple years until the end of the agreement ends on September 30, 2020. Further detail on the specific grant funding for projects can be found in the annual workplans. Additionally, annual workplans for each year contain a table of all active and completed contracts to local entities. A summary of budget and spending on specific projects in the evaluation period is shown in Table A2.

Class Object	FY 2013		FY 2014		FY 2015		FY 2016		FY2017		TOTALS	
	Budget	Expend	Budget	Expend	Budget	Expend	Budget	Expend	Budget	Expend	Budget	Expend
Personnel	$225,532	$187,087	$220,809	$168,684	$193,820	$149,195	$319,847	$184,549	$334,034	$265,405	$1,294,042	$954,920
Fringe	$69,512	$58,746	$68,721	$55,881	$61,685	$48,097	$72,116	$60,014	$78,181	$90,218	$350,215	$312,956
Travel	$10,000	$10,023	$10,000	$11,606	$10,500	$18,873	$10,000	$15,533	$10,000	$9,355	$50,500	$65,389
Equipment	$1,000	$0	$1,000	$0	$3,000	$700	$2,700	$0	$0	$0	$7,700	$700
Supplies	$3,800	$1,916	$9,700	$5,643	$9,800	$2,080	$11,047	$12,275	$13,400	$6,263	$47,747	$28,177
Contractual	$253,405	$316,290	$164,000	$394,125	$223,137	$108,110	$107,500	$308,131	$130,000	$121,090	$878,042	$1,247,747
Other	$12,718	$21,564	$8,727	$19,604	$8,500	$28,331	$5,700	$21,901	$5,324	$11,234	$40,969	$102,635
Indirect	$21,200	$17,740	$29,043	$21,894	$27,558	$21,484	$71,090	$41,675	$29,061	$23,293	$177,952	$126,086
Total	$597,167	$613,365	$512,000	$677,437	$538,000	$376,870	$600,000	$644,078	$600,000	$526,859	$2,847,167	$2,838,609

Table A1. APNEP Section 320 budget summary during evaluation period.
Data source: Budget: Standard Form 424A for fiscal years 2012-201. Expenditures *Xntd* year-end reports
Note: Detailed expenditures can be generated from NC DENR *Xntd* budget databases. Example: Attachments #3 and #4 provides examples.

Based on expenditures during the 5-year timeframe there was a carry-over amount of $8.558. It is important to note that the table was generated from the *Xntd* database and line items are not a complete match with the class object categories. For example, many items in travel, supplies and other support implementation projects but are not "contractual" items.

GRANTS & CONTRACTS Involving 320 Funds (Active June 30, 2012 to July 1, 2017)

Project Title	Funded Amount	Project Leader	Purpose	Deliverables	Completion Date	Status
Teacher Institute 2012	$12,000	UNC Institute for the Environment	Develop and Implement a Teacher Institute for up to 24 teachers	Week long Institute, Report	Aug. 2012	Complete
Affordable Housing Wetland Boardwalk	$15,000	Conservation Trust for NC	Create a protected one-acre wetland park at the center of an affordable housing subdivision	Boardwalk, Trail, Educational Materials	Sept. 2012	Complete
Shad in the Schools	$8,752.78	Friends of the NC Museum of Natural Sciences	Students will raise American Shad in the classroom from egg to releasable fry	Teacher workshop, Shad Release, Podcasts & Film	Aug. 2012	Complete
2012 Restoration RFP – Enhancing Oyster Reef Ecosystems and Their Beneficial Services in Coastal Tidal Creeks	$45,361	UNC Institute of Marine Sciences	Initiate an oyster restoration program that seeks to enhance oyster populations in the low salinity upper portions of coastal tidal creeks in the APNEP region	Transport and Deploy Refurbished Crab Pots, Collect Data, Report	Sept. 2012	Complete
2012 Restoration RFP – Jockey's Ridge State Park Community-based Shoreline Restoration	$16,280	NC Coastal Federation	Provide direct restoration of coastal marsh and riparian shorelines; protect and preserve associated intertidal mud flats, submerged aquatic vegetation, and unique riparian areas	Replant Shoreline Area and Repair Oyster Sill, Report	Sept. 2012	Complete
Place-Based Education, Essential Standards, and Citizen Science	$5,946	Duke University	Conduct monitoring of blue crab habitats and water quality around Lake Mattamuskeet and in tidal creeks of the Newport River Estuary	Collect Water Quality Data, Provide a Scientific Experience for High School Students, Report	Sept. 2012	Complete
Shad in the Schools	$40,000	Friends of the NC Museum of Natural Sciences	Students will raise American Shad in the classroom from egg to releasable fry	Teacher workshop, Shad Release, Podcasts & Film	Sept. 2012	Complete
Watershed Coordinator	$30,405 (2012)	VA. Dept. Conservation & Recreation	Fund Watershed Coordinator in VA-NC Shared river basins	Program support, Reports	Sept. 2012	Complete
Citizens' Monitoring Network	$5,000	East Carolina University	Outreach / Monitoring	Program Admin., Reports	Sept. 2012	Complete

An Inventory of Significant Natural Areas: Brown-water River Floodplains of the Albemarle-Pamlico Region	$44,617	NC Natural Heritage Program	Conduct surveys of natural areas in the brown-water floodplains of the Roanoke and Tar River basins	Data collection and Documentation	Dec. 2012	Complete
2012 Restoration RFP – Albemarle-Pamlico Peatland Enhancement Project	$74,500	The Nature Conservancy – NC Chapter	Use strategic restoration and/or enhancement of forested wetlands to increase the resiliency of these systems to climate change, improve water quality of adjacent receiving waters, and re-establish/augment valuable habitat for wildlife	Install Ditch Plugs and/or Water Control Structures at ARNWR, GDWNWR, and Dismal Swamp State Park, Report	Dec. 2012	Complete
Shad in the Schools	$40,000	Friends of the NC Museum of Natural Sciences	Students will raise American Shad in the classroom from egg to releasable fry	Teacher workshop, Shad Release, Podcasts & Film	June 2013	Complete
Enhancement and Restoration of North Carolina Oyster Resources through Oyster Sanctuaries	$34,875	NC Division of Marine Fisheries	Develop approximately 1.25 acres of West Bluff Oyster Sanctuary by deploying reef structures.	Report, Monitoring	June 2013	Complete
Teacher Institute 2013	$12,000	UNC Institute for the Environment	Develop and Implement a Teacher Institute for up to 24 teachers	Week long Institute, Report	Sept. 2013	Complete
Basic Observation Buoy (BOB) Workshop, Construction, and Deployment	$12,000	UNC-Coastal Studies Institute	Local students will construct and deploy "BOB" units to collect data in the Albemarle-Pamlico Sounds	Training Workshop, BOB units, Report	Sept. 2013	Complete
2013 Restoration Project: Using positive interactions between bivalves and seagrass to improve water quality and restore essential habitats	$74,984.9	UNC Institute of Marine Sciences	Restore clam populations within seagrass meadows at sites in Back and Pamlico Sounds to spur further eelgrass recovery.	Report, Monitoring, Results Presentation, Permanent Displays, Film	Sept. 2013	Complete
2013 Restoration Project: Use of a Novel Restoration Method to Enhance Oyster Populations and Improve Water Quality in Tidal Creeks	$32,138	UNC Institute of Marine Sciences	Enhance oyster populations in lower portions of five tidal creeks along the eastern shore of Newport River, Carteret County.	Report, Monitoring, Results Presentation, Permanent Displays	Sept. 2013	Complete

2013 Restoration Project: Water Quality Restoration of Alligator River, Long Shoal River and Pamlico Sound	$74,989	NC Coastal Federation	Install water control structures, swales and dikes to direct water into restored wetlands. Water re-directed to these wetlands reduces the amount of water pumped directly by farm operations into the Albemarle and Pamlico Sounds. Component of high priority comprehensive watershed restoration plan.	Report, Monitoring, Photos, Tours, Interpretative signs	Sept. 2013	Complete
2013 Restoration Project: Hoggard Millpond Restoration Project	$49,500	Mid-East Resource Conservation and Development Council, Inc.	Restore spawning and nursery habitat for two species of river herring by implementing a multi-phase, multi-funded, integrated watershed project for Hoggard Mill Creek in Windsor, NC.	Report, Monitoring, Interpretive signs, Film	Sept. 2013	Complete
Estuary Awareness: Environmental Education Bookmark Contest	$3,200	NCDACS Soil & Water Conservation	Conduct an educational bookmark contest, targeting fifth-grade students across 16 counties, with a theme focused on the estuaries	Conduct Contest, Distribute Winning Bookmark to Local Libraries, Report	Sept. 2013	Complete
Support for the Implementation of an Ecosystem Based-Management CCMP	$30,000	Virginia Institute of Marine Sciences	Assist with facilitating the incorporation of EBM elements into the Albemarle-Pamlico National Estuary Partnership program.	Report, Meetings, Briefs, Conceptual Ecosystem Models	Sept. 2013	Complete
Remote Sensing of Submerged Aquatic Vegetation (SAV) in the APNEP region	$ 69,997	NC Dept. of Transportation	Use a Digital Mapping Camera to obtain remotely sensed imagery of selected SAV sites in the APNEP region	Digital Mosaics of SAV sites	Sept. 2013	Complete
Roanoke River gage near Oak City (USGS Station Number 02081022)	$5,900	NCDENR Div. of Water Resources	Operation and maintenance of Roanoke River Gage near Oak City to keep water flow/water quality historical record intact.	Report, Gage Data	Sept. 2013	Complete
Watershed Coordinator (VA)	$30,405 (2013)	VA. Dept. Conservation & Recreation	Fund Watershed Coordinator in VA-NC Shared river basins	Program support, Reports	Sept. 2013	Complete
Citizens' Monitoring Network	$1,000 (2013)	East Carolina University	Outreach / Monitoring	Program Admin., Reports	Sept. 2013	Complete

Teacher Institute 2013	$10,403	UNC Institute for the Environment	Develop and Implement a Teacher Institute for up to 24 teachers	Week long Institute, Report	Sept. 2013	Complete
Basic Observation Buoy (BOB) Workshop, Construction, and Deployment	$11,510	UNC-Coastal Studies Institute	Local students will construct and deploy "BOB" units to collect data in the Albemarle-Pamlico Sounds	Training Workshop, BOB units, Report	Sept. 2013	Complete
Education and Outreach Assistant through AmeriCorps Program	$6,392	NCDEE	Assisting with implementation of APNEP communication strategy through videography development/ integration, other education and outreach events.	Public outreach & involvement, increased environmental awareness	Oct. 2013	Complete
APNEP Symposium	$9,832	APNEP	Symposium on health status and trends in APNEP region.	Elevated program profile, facilitation among committees and partners	Nov. 2013	Complete
Shad in the Classroom 2014	$30,000	Friends of the NC Museum of Natural Sciences	Students will raise American Shad in the classroom from egg to releasable fry	Teacher workshop, Shad Release, Podcasts & Film	June 2014	Complete
North Carolina Low Impact Development Summit	$2,500	NCCF	Summit to unveil the latest technology and tools for low impact development.	Knowledge transfer, water quality improvements	June 2014	Complete
NC Division of Water Resources Project WET Facilitator Workshop	$2,000	NC DWR	Workshop to train environmental educators.	Education and Outreach materials, training	June 2014	Complete
NC Coastal Federation Oyster Summit	$4,000	NCCF	Summit to assess current restoration and management activities for oysters.	Knowledge transfer, improved restoration and management techniques	June 2014	Complete
NC Coastal Federation CAMA Land Use Planning Workshop 2013	$652	NCCF	Workshop to discuss effective land use planning.	Knowledge transfer, implementation of LID	June 2014	Complete
NC Museum of Natural Sciences Egret Workshop	$2,250	NC MNS	Workshop to train educators on egret monitoring and the importance of estuaries.	Knowledge transfer, education and outreach materials, training	June 2014	Complete
Chowan River Basin Booklet Printing	$2,000	ACRT	Booklet printed for the roundtable for the Chowan river basin.	Education and Outreach materials	June 2014	Complete

Remote Sensing of Submerged Aquatic Vegetation (SAV) in the APNEP region	$128,500	NC Dept. of Transportation	Use a Digital Mapping Camera to obtain remotely sensed imagery of selected SAV sites in the APNEP region	Digital Mosaics of SAV sites	Sept. 2014	Completed
Regional Workshop on CAMA Land Use Planning 2014	$1,500	NCCF/ NC DCM	Workshop to discuss effective land use planning.	Knowledge transfer, implementation of LID	Sept. 2014	Complete
Roanoke River gage near Oak City (USGS Station Number 02081022)	$4,900	NCDENR Div. of Water Resources	Operation and maintenance of Roanoke River Gage to keep water quality historical record intact.	Report, Gage Data	Sept. 2014	Complete
Teacher Institute 2014	$11,000	UNC Institute for the Environment	Develop and Implement a Teacher Institute for up to 24 teachers	Week long Institute, Report	Sept. 2014	Complete
Habitat Enhancement at Goose Creek State Park	$153	Goose Creek State Park	APNEP purchased 300 bald cypress trees that were planted at Goose Creek State Park.	Habitat Restoration; Increased Awareness	Sept. 2014	Complete
Watershed Coordinator (VA)	$30,405 (2014)	VA. Dept. Conservation & Recreation	Fund Watershed Coordinator In VA-NC Shared river basins	Program support, Reports	Sept. 2014	Complete
NC Catch Placemat Printing	$2,000	NC Catch	Restaurant placemat printing.	Education and outreach materials	Sept. 2014	Complete
NC Heritage Trails Map Printing	$2,000	Core Sound Waterfowl Museum & Heritage Center	Trail brochure printing.	Education and outreach materials	Sept. 2014	Complete
Citizens' Monitoring Network	$1,000 (2014)	East Carolina University	Outreach / Monitoring	Program Admin., Reports	Sept. 2014	Complete
Teacher Institute 2014	$11,000	UNC Institute for the Environment	Develop and Implement a Teacher Institute for up to 24 teachers	Week long Institute, Report	Sept. 2014	Complete
Neuse River Estuary Modeling and Monitoring Project 2014	$35,000	NC DWR	Water Quality Monitoring	Data & report	Sept. 2014	Complete
NC DMF Recreational Water Quality Monitoring	$20,000	NC DMF	Bridge funding for bacteria contamination testing in coastal recreational waters.	Monitoring data, report	Nov. 2014	Complete

NC Catch Summit	$400	NC Catch	Support for Annual meeting and information exchange	Meeting expenses	March 2015	Complete
Survey of Submerged Aquatic Vegetation in Albemarle Sound	$41,007	ECU	Boat-based SAV survey in Albemarle and Roanoke Sounds	Assessment data, map & report	June 2015	Complete
Shad in the Classroom 2015	$30,000	Friends of the NC Museum of Natural Sciences	Students will raise American Shad in the classroom from egg to releasable fry	Teacher workshop, Shad Release, Podcasts & Film	June 2015	Complete
Neuse River Estuary Modeling and Monitoring Project 2015	$30,000	NC DWR	Water Quality Monitoring	Data & report	June 2015	Complete
Graduate Fellowship in Estuarine Research 2015	$5,632	North Carolina Sea Grant	Funding a graduate student fellowship to conduct applied research within the North Carolina portion of the APNEP management boundary.	Knowledge transfer, improved restoration and management techniques, report	July 2015	Complete
Extending Distributions of NC Aquarium's Rainwater Harvesting System	$4,000	North Carolina Aquarium on Roanoke Island	To provide water for the Roanoke Aquarium native plants and freshwater exhibits	Knowledge transfer, improved restoration and management techniques	Aug 2015	Complete
NC OEEPA River Basin Publication Program	$5,000	NC OEEPA	To create maps, inserts, and posters to distribute for river basin education to the public	Knowledge transfer, public outreach & involvement, increased environmental awareness	Aug 2015	Complete
Seeds of Inspiration: An educational partnership between the N.C. Coastal Federation and Mano al Hermano	$2,530	NCCF	Engages underserved populations in environmental education and restoration work	Knowledge transfer, outreach & involvement, increased environmental awareness	Sept. 2015	Complete
Teacher Institute 2015	$25,000	UNC Institute for the Environment	Develop and Implement a Teacher Institute for up to 24 teachers	Week long Institute, Report	Sept. 2015	Complete
NC DMF Recreational Water Quality Monitoring	$20,000	NC DMF	Bridge funding for bacteria contamination testing in coastal recreational waters.	Monitoring data, report	Sept. 2015	Complete

Habitat Enhancement at Goose Creek State Park	$153	Goose Creek State Park	APNEP purchased 300 bald cypress trees that were planted at Goose Creek State Park.	Habitat Restoration; Increased Awareness	Sept. 2015	Complete
Habitat Enhancement at Dismal Swamp State Park	$675	Dismal Swamp State Park	APNEP purchased 3,000 Atlantic white cedar trees to be planted at Dismal Swamp State Park by volunteers.	Habitat Restoration; Increased Awareness	Sept. 2015	Complete
East Carolina University Ecosystem Assessment	$9,998	ECU	Report to provide a management level synthesis of 24 key environmental indicators	Assessment, report	Sept. 2015	Complete
North Carolina State University Ecosystem Assessment	$9,200	NSCU	Report to provide a management level synthesis of 24 key environmental indicators	Assessment, report	Sept. 2015	Complete
Economic Valuation of the Albemarle-Pamlico Watershed in the AP Resources	$79,876	Research Triangle Institute	To assess economic value of the Albemarle-Pamlico watershed's natural resources	Assessment & Report	Dec. 2015	Complete
Economic Analysis of the Costs and Benefits of Restoration and Enhancement of Shellfish Habitat and Oyster Propagation in North Carolina.	$34,829	Research Triangle Institute	Economic analysis of the North Carolina Division of Marine Fisheries (NCDMF) Shellfish Rehabilitation Program, Oyster Sanctuary Program, and Artificial Reef Program	Assessment & Report	Dec. 2015	Complete
Education and Outreach Assistant through AmeriCorps Program	$6,392	NCDEE	Assisting with implementation of APNEP communication strategy through videography development/ integration, other education and outreach events.	Public outreach & involvement, increased environmental awareness	Dec. 2015	Complete
Living Shorelines Workshop and Video	$4,000	NC Coastal Reserve	Workshops and workshop videos increase awareness and encouraging a shift away from hardened structures	Education and Outreach materials, training	Jan. 2016	Complete
Sound Rivers Film Support	$4,103	Sound Rivers	Videography to document environmental issues the APNEP region	Video, education and outreach materials	Feb. 2016	Complete
NC Catch Summit 2016	$500	NC Catch	Support for Annual meeting and information exchange	Meeting expenses	March 2016	Complete

Shad in the Classroom 2016	$22,000	Friends of the NC Museum of Natural Sciences	Students will raise American Shad in the classroom from egg to releasable fry	Teacher workshop, Shad Release, Podcasts & Film	June 2016	Complete
Neuse River Estuary Modeling and Monitoring Project	$85,000	NC DWR	Water Quality Monitoring	Data & report	June 2016	Complete
NC Division of Water Resources Project WET Facilitator Workshop	$2,000	NC DWR	Workshop to train environmental educators.	Education and Outreach materials, training	June 2016	Complete
Sea Wolf at CMAST Communication Project	$730.67	NCSU Center for Marine Sciences and Technology	The Sea Wolf at CMAST program provide marine science and STEM opportunities for area high school students through educational programs, presentations, and experiential learning.	Knowledge transfer, Public outreach & involvement, increased environmental awareness	July 2016	Complete
Graduate Fellowship in Estuarine Research 2016	$5,632	North Carolina Sea Grant	Funding a graduate student fellowship to conduct applied research within the North Carolina portion of the APNEP management boundary.	Knowledge transfer, improved restoration and management techniques, report	July 2016	Complete
Teacher Institute on Watersheds 2016	$22,000	UNC Institute for the Environment	Develop and Implement a Teacher Institute for up to 24 teachers	Week long Institute, Report	Sept. 2016	Complete
Habitat Enhancement at Dismal Swamp State Park	$675	Dismal Swamp State Park	APNEP purchased 3,000 Atlantic white cedar trees to be planted at Dismal Swamp State Park by volunteers.	Habitat Restoration; Increased Awareness	Sept. 2016	Complete
Secrets of the Swamp and River Days	$3,000	Friends of the NC Museum of Natural Sciences	A two-day, one-night field-based workshop for educators in the Roanoke River basin.	Educator workshop, knowledge transfer, education & outreach materials	Sept. 2016	Complete
Seeds of Inspiration: An educational partnership between the N.C. Coastal Federation and Mano al Hermano	$3,550	NCCF	This program engages underserved populations in environmental education and restoration work by partnering with a local group called Mano al Hermano.	Knowledge transfer, outreach & involvement, increased enviro-awareness	Sept. 2016	Complete

Coastal Discovery Camps	$1,668	NCCF	NC Coastal Federation will engage students in outdoor, experiential learning during summer enrichment programs (Coastal Discovery Camps).	Education and outreach materials, training	Sept. 2016	Complete
Effects of Environment on Blue Crab Size: Fisheries Science Place Based Learning and a Reciprocal Transplant Growth Study	$4,000	Duke University Marine Lab	Outreach and workshops will provide enrichment and place-based education for Mattamuskeet schools' students	Knowledge transfer, Public outreach & involvement, increased enviro awareness	March 2017	Compete
NC DMF Recreational Water Quality Monitoring	$10,074	NC DMF	Bridge funding for bacteria contamination testing in coastal recreational waters.	Monitoring data, report	March 2017	Complete
Ecological Flows	$18,435	East Carolina University	Assess the status of available flow and related data and analyze these data relative to ecological flows	Assessment, report	April 2017	Complete
Shad in the Classroom 2017	$24,000	Friends of the NC Museum of Natural Sciences	Students will raise American Shad in the classroom from egg to releasable fry	Teacher workshop, Shad Release, Podcasts & Film	June 2017	Complete
Discover North Carolina's River Basins Education Program	$5,000	Office of Environmental Ed. & Public Affairs, NC DEQ	Materials provide information about ecosystems and how humans both affect and depend on the health of NC's rivers.	Education and Outreach materials	June 2017	Complete

Table C2. Funds allocated to specific workplans and other projects during the evaluation period.

Leveraging and Habitat Summary

Cumulative Total of Funds Leveraged

During the past five years, the APNEP has leveraged financial support for CCMP implementation related activities and projects. Through these efforts, over $ **38,177,939** of cash and in-kind support was realized in CCMP support, nearly **13 times** the amount of Section 320 funds provided to the Partnership.

APNEP reported on leveraged funds to US EPA through the *NEPORT* online reporting system under the Government Performance and Results Act (GPRA). The US EPA *NEPORT* database contains additional data on leverage information. A cumulative total of the funds leveraged for the years covered in the PE cycle, and breakdown by primary and significant leveraging roles is provide in Table A3.

US EPA Definitions of Leveraging Roles and Examples:

> **Primary role** indicates that the NEP played the central role in obtaining leveraged resources.
> **Significant role** indicates that the NEP actively participated in but did not lead the effort to obtain additional resources. For example, the NEP:

Fiscal Year	EPA Section 320 Grant	Leveraging Role	Amount
2012-13	$ 567,167	Primary	$ 1,106,337
		Significant	$ 438,881
		TOTAL	$ **1,545,218**
2013-14	$ 512,000	Primary	$ 1,155,853
		Significant	$ 9,039,383
		TOTAL	$ **10,195,236**
2014-15	$ 538,000	Primary	$ 6,913,699
		Significant	$ 1,746,887
		TOTAL	**$ 8,660,586**
2015-16	$ 600,000	Primary	$ 3,324,068
		Significant	$ 1,353,282
		TOTAL	**$ 4,677,350**
2016-17	$ 600,000	Primary	$ 3,612,070
		Significant	$ 10,487,479
		TOTAL	**$ 14,099,549**
CUMMLATIVE TOTAL	**$ 2,847,167**	Primary	$ 16,112,027
		Significant	$ 23,065,912
TOTAL			**$ 38,177,939**

Table A3. Funds leveraged by APNEP during the evaluation period (2012-2017) according to NEP leveraging role (primary, significant, or support).
Data Source: *NEPORT*
Note: Additional information on leverage can be supplied by the NEPORT database.

Cumulative Total of acres Protected and Restored

The restoration and protection of habitats in the Albemarle-Pamlico region are important CCMP components and vital to the mission of APNEP, as well as its many partners. It is of utmost importance to understand that the level of restoration and protection actions reported could not occur without these partners throughout the watershed. Their efforts and collaborations are essential to the success of APNEP and its ability to pursue such projects.

During the PE period, APNEP and its partners documented 360 projects that restored or protected 74,959 acres, 28,0782 linear feet, and 2,558 miles of habitats within the APNEP region. Additional data is provided annually and reported to EPA within the NEPORT database under the Government Performance and Results Act (GPRA).

External Factors and Challenges

APNEP faced challenges during the review period from July 1, 2012 – June 30, 2017, many of which are highlighted in the response to the 2013 PE letter in this document. However, it is important to note that at present (post PE review period) many changes are currently in process to address problems and issues that arose during that period. However, many challenges remain for the program. The following is a list of significant issues and challenges for the program based on an internal review and discussions with the Management Committee members.

- **Large Geographic Program Boundary**
  APNEP's extensive bi-state watershed of nearly 30,000 square miles presents numerous challenges. As the nation's second-largest estuary, the APNEP region includes more than one-third of North Carolina's 100 counties (reaching into 36 counties) and 16 counties and independent cities in southeastern Virginia. The program area also crosses EPA Regions, USFWS regions, and ACOE districts. Additionally, numerous media outlets, school districts, state, regional, and local issues contribute to the complexity of adequately reaching out to all partners in the region.

  Due to a large geographic area and the vast distances that often need to be traveled, extensive citizen participation and effective engagement environmental change remain difficult. Thus, the complexity of addressing and engaging stakeholders in environmental issues and estuarine at this scale remains a significant challenge for APNEP.

  Limited resources constrain the program's ability to impact the significant ecological / environmental change in the watershed. This underlines the importance of strategic stakeholder alliances and effective fund-raising efforts for projects or partner activities under the CCMP. Although the large geographic area makes efforts for effective environmental change difficult, APNEP's pursuit of an ecosystem-based management

paradigm is an effort to increase meaningful active citizen participation that will benefit the program and enhance CCMP implementation, leading to adaptive management for positive and trackable environmental change.

- **Non-point Source Pollution**
  Non-point source pollution continues to be a significant challenge throughout the entire watershed. In particular, atmospheric deposition and suburban and agricultural stormwater runoff are sources of greatest concern and are difficult to address effectively. The primary agricultural non-point source pollutant is sediment eroded from tilled fields, drainage ditches, irrigation channels, and areas where livestock congregate. Sediment damages streams by burying aquatic organisms, clogging fish gills, reducing water clarity, and blocking light to aquatic plants.

  The second biggest pollutant of waters is nutrients. Excess use of fertilizers can cause nutrients to drain into streams and other surface waters. High concentrations of nutrients in the water lead to overgrowth of algae, increased cloudiness, lower oxygen, and fish kills. Agricultural operations may contribute pesticides from crop production areas. The waste from animal operations and grazing lands can contribute nutrients, bacteria, and pathogens to streams, rivers and sounds. Nutrient runoff from agricultural land is often addressed through cost-shared projects, but within the Neuse and Tar-Pamlico River Basins nutrients are also regulated by the State. Other non-point sources of concern include; construction and land conversion, forestry, hydro-modification, marinas, onsite wastewater systems, roadways, and loss of wetlands and riparian areas.

- **Limited Funding**
  Currently, APNEP primarily operates only on EPA Section 320 funds. Given the recent and current status of state budget priorities, the outlook for additional state financial support appears to be limited. Limitations in funds to address regional issues can be problematic. Therefore, APNEP recognizes that it cannot accomplish full implementation or advancement of the CCMP without partnerships with federal, state, local agencies and citizen participation. APNEP will be seeking additional funds for future actions. The staff plans, with the support of DEQ and DNCR, to work with the new Management Conference to develop a foundational strategy to support CCMP implementation. Additionally, consideration of a new host that will allow for greater funding flexibility is currently under consideration.

- **Other Significant Issues and Emerging Environmental Issues**
  Several significant emerging environmental issues have been presented since the last Program Evaluation, such as new emerging chemical contaminants and coal ash management. Additionally, climate change impacts, sea level rise, and invasive species continue to be issues. Fortunately, these items are addressed in the 2012-2022 CCMP. The following are additional issues that APNEP is working to address:

Communication:

- Defining and making significant connections with diverse and representative stakeholders in the Albemarle-Pamlico region.
- Communication with non-primary English speakers.

Comprehensive Conservation and Management Plan Implementation Tracking:

- Clearly and specifically communicating how the CCMP implementation is being tracked.

APNEP as an EPA partner:

- Creating stronger connections with EPA in the Region III and IV, particularly in regard to brownfields, environmental justice, and water quality activities.

APNEP and its partners are currently working to address many of these challenges. The updated CCMP and actions to address these challenges should allow for greater citizen participation, leveraging of funds, and the development of non-320 funding sources for CCMP implementation as the program moves forward.

ON-SITE VISIT

The Performance Evaluation's Worksheets and Narrative only provide a small picture of APNEP and its partnerships, projects, activities, challenges, and successes. The Partnership looks forward to hosting the Program Evaluation Team for an on-site visit. APNEP recommends that the on-site visit be at least two days in length to provide ample time for opportunities to view on-the-ground projects within the program area and meetings with key partners and stakeholders in the region.

On-site visit expectations for APNEP include:

- Opportunities to demonstrate partnerships, successes and accomplishments,
- Opportunities to meet with APNEP partners and discuss the program,
- Opportunities to visit project locations,
- Opportunities to discuss and expand upon the items in the narrative summary,
- Discussion and demonstration of external challenges and factors influencing progress toward environmental milestones and targets and CCMP implementation, and
- Opportunities to discuss programmatic challenges and work together on recommendations for improvements.

A draft agenda is contained in Attachment 7

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For additional information please contact

William L. Crowell, Jr., Ph.D., AICP, CEE
Director
Albemarle-Pamlico National Estuary Partnership
(919) 707-8633
Bill.Crowell@APNEP.org

ATTACHMENTS

Attachment: 1 2013 EPA Program Evaluation Letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP. 30 2013.

OFFICE OF WATER

John E. Skvarla, III, Secretary
North Carolina Department of Environment
and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

Dear Secretary Skvarla:

The purpose of this letter is to provide the results of the U.S. Environmental Protection Agency's (EPA) 2013 Program Evaluation (PE) of the Albemarle-Pamlico National Estuary Partnership (APNEP). We want to thank APNEP's Director and staff, as well as their many partners, for the PE package, the site visits, and their responses to our follow-up questions about the package. We also appreciate APNEP's facilitation of the PE Team's site visit that enabled the Team to meet APNEP staff and visit project sites and leaders in the Program's study area.

The PE benefited from the voluntary participation of Troy Rice, Director of the Indian River Lagoon National Estuary Program, who served in an ex officio capacity on the PE Team. Mr. Rice's participation provided other Team members (Marilyn Katz, EPA Headquarters, and Rhonda Evans, EPA Region 4) with an invaluable National Estuary Program (NEP) director's perspective on the perceived strengths and challenges of the Program. He also shared ideas that might be useful for the Program and received insight into APNEP work that he can apply to his own NEP.

The primary purpose of a PE is to help the EPA determine whether the 28 programs included in the NEP are making adequate progress implementing their Comprehensive Conservation and Management Plans (CCMPs). The evaluation process has considerably enhanced EPA Headquarters and Regional knowledge of each individual NEP and promoted sharing of innovative projects and approaches across the NEPs. In addition, EPA uses the evaluation process to assess how the NEPs support Clean Water Act (CWA) core programs and to evaluate the extent and effectiveness of the NEPs' contributions to achievement of one relevant EPA *2011-2015 Strategic Plan* goal—Goal 2: Protecting America's Waters, Objective 2.1, Protect Human Health and Objective 2.2, Protect and Restore Watersheds and Aquatic Ecosystems.

Based on the PE Team findings, APNEP made significant progress implementing its original 1994 CCMP during the first three years of the review period and demonstrated that it was making significant progress implementing its 2012 CCMP during the fourth year of the review period. We are pleased to announce that APNEP has passed the 2013 PE and is eligible for continued funding under §320 of the CWA.

2013 Program Evaluation Findings

The following summary highlights the PE Team's key findings by identifying APNEP's: (I) Progress Made in the Areas Highlighted in the 2009 Program Evaluation, (II) Support of CWA Core Programs, (III) Strengths, and (IV) Challenges. This summary is intended to recognize the Program's successes and to recommend efforts to further strengthen the Program. The Program's response to these recommendations will be evaluated in the next PE cycle.

I. Progress Made in the Areas Highlighted in the 2009 PE Review

Program Implementation and Reporting--Maintaining Visibility and Independence

The 2009 PE findings letter recommended that the North Carolina Department of Environment and Natural Resources (DENR) re-locate APNEP from the Division of Natural Resource Planning and Conservation (Division) to which the Program had been moved in 2007 to a different organizational home in which the Program would be more visible, independent, and able to fully play a leadership role in the Albemarle-Pamlico estuarine system protection and restoration. While DENR did not re-locate APNEP during the 2009-2012 period, it moved APNEP from a "division" to an "office", which helped to make the Program more visible and influential. The move enabled APNEP and the entire Management Conference to develop more credibility as an autonomous entity independent of any particular political party, agency, stakeholder, or interest group. It ensured that the Program complied with the governance provisions of NEP authorizing language--§320 of the Clean Water Act and associated policy.

As a result, during the review period the Program:

- continued to increase the number of important partnerships with other DENR programs as well as with federal agency, non-governmental organization, and academic research scientist groups in order to complete and begin full-scale implementation of its significantly-enhanced CCMP;
- made full use of social media tools, which greatly enhanced the Program's on-line presence and raised awareness of estuarine protection and restoration issues on the part of the general public, and
- worked to engage the public in development of the 2012 CCMP.

Ecosystem Status and Trends--Demonstrate Environmental Progress

The 2009 PE findings letter also called for expedited completion of the Program's Science and Technical Advisory Committee monitoring plan, implementation of the monitoring program, and initiation of a State regional ecosystem assessment that would influence decision makers' allocation of

monitoring resources. In addition, the findings letter recommended that APNEP draft a strategy for measuring the achievement of environmental results stemming from Program-supported projects.

The PE Team found that during the 2010-2013 review period, the Program took very important steps to set the stage for demonstrating environmental progress. The Program focused considerable effort on reforming its approach to estuarine protection and restoration by completing both the new *2012-2022 Comprehensive Conservation and Management Plan* that reflects an ecosystem-based management approach to estuarine protection and restoration and the *2012 Albemarle-Pamlico Ecosystem Assessment (*Assessment). The Assessment provides information about the study area's ecosystems and is intended to guide policy and management decision making about monitoring and priority efforts to sustain the region's significant resources. The NEP Science and Technical Advisory Committee (STAC) Executive Board guided development of the Assessment and oversaw the peer review of individual indicator assessments included in the document.

The Program also supported research that helped identify significant data gaps that warrant additional monitoring or sampling. The Assessment includes discussion of those gaps and presents a common indicator monitoring proposal template for a long-term monitoring strategy. In the coming years, the Program will continue to develop indicators, including socioeconomic indicators, and identify ecosystem targets necessary to track CCMP implementation.

The Program acknowledged in 2013 PE documentation that it deferred new monitoring plan development until APNEP was in a position to identify ecosystem outcomes, metrics, and targets. Over the next five years EPA expects that the Program will have completed development of an integrated monitoring strategy and that priority monitoring will be well underway. The Ecosystem Assessment provides a strong foundation for the development of the monitoring strategy. Based on mapping completed last year, seagrass abundance/distribution could be a measure to which the Program might aspire. Other metrics could be chlorophyll *a*, total nitrogen, or total phosphorus concentrations.

II. Support of CWA Core Programs

EPA commends APNEP for working with its partners to reduce potential nutrient inputs to the system. The Program's assessment of water quality trends and monitoring needs, DENR's stakeholder forum on nutrient loadings, the Program's development of a *Nitrogen Loss Estimation Worksheet*, and the STAC's support of science-based standards are all evidence of an increased focus on nutrient issues.

Annual work plans for the years 2009-2012 included the following activities that supported CWA core programs:

- the Chowan Healthy Waters Initiative—APNEP was instrumental in coordinating with the bi-state team working on this initiative, which targets protection of the healthiest waters in the Chowan River Basin watershed;
- wastewater infrastructure risk analysis and planning—APNEP garnered federal, state, and local resources to analyze wastewater treatment systems in the towns of Columbia and Manteo (North Carolina) and provided recommendations to municipal staff about how to improve the resiliency of those systems in a cost-effective manner;

- restoration projects—APNEP initiated, funded, and participated in numerous restoration projects including hydrologic restoration at Dismal Swamp and Alligator River National Wildlife Refuges, several oyster restoration projects, demonstration projects for stormwater treatment and detention projects, rain gardens, nature trails, natural landscaping demonstrations and a number of wetlands and riparian buffer restoration projects;
- local area leadership activities—APNEP funded a number of projects aimed at enhancing local government and teacher knowledge about CWA programs and ways to enhance CWA program implementation. Projects included: (1) a "Coastal Growth Leadership Training for Local Governments" event, (2) sponsorship of annual teacher training institutes and outdoor classroom symposia, (3) sponsorship of an agricultural BMP symposium, (4) funding of several county water reuse and rainwater harvesting demonstration projects, and (5) sponsorship of a Coastal Explorations Workshop for formal and informal educators; the workshop purpose was to develop curricula for 3rd to 5th grade teachers;
- research and monitoring initiatives—APNEP provided funds and assistance to a number of area universities and non-governmental organizations for research on the effectiveness of restoration projects, river herring sampling, and water quality monitoring efforts like FerryMon—a partnership among North Carolina Department of Transportation ferries, University of North Carolina-Chapel Hill, and Duke Universities, and the DENR Division of Water Quality that monitors water quality and habitat changes within the Sounds; and
- supported the Citizen's Advisory Committee and the Science and Technical Advisory Committee in their efforts to provide leadership on identification of, initiation and completion of numerous projects that support CWA core program implementation.

III. Strengths

Program Implementation and Reporting--Publication of Two Crucial APNEP Documents

The PE Team was very impressed by the Program's completion and release of two key documents—the *2012-2022 Comprehensive Conservation and Management Plan* (CCMP) and the *2012 Albemarle-Pamlico Ecosystem Assessment (*Assessment). The PE Team found the updated CCMP to be a holistic, ecosystem-based management plan that lays the groundwork for effective watershed management of the study area's natural resources in the coming years. The PE Team noted the fact that the CCMP's three over-arching goals derive from ecosystem-based management principles, i.e., the goals take into account the need for both natural resource health and human well-being. The PE Team also was impressed by the fact that CCMP outcomes, objectives, and priority actions are based on the Program's rigorous analyses of study area conditions and established partner actions. In addition, the PE Team liked the straightforward and comprehensive focus of the three CCMP goals—the sustenance of human communities, the health of native living resources, and healthy and abundant water resources.

The PE Team also appreciated that the Assessment brings together in one document essential data about the biological, physical, and chemical characteristics of the estuarine ecosystem as well as data about human population and extent of land cover across the study area. In addition, like the CCMP, the Assessment is a major tool to inform policy and natural resource decision making. The Program and its partners will use the Assessment to help establish protection and restoration priorities, identify emerging issues that need heightened management attention, and determine where there are gaps in scientific understanding of particular ecosystem conditions.

The PE Team congratulates DENR leadership--Dr. Crowell and Dr. Carpenter--for having had the vision, collaborative skills, and determination to lead the development and completion of the updated CCMP and the Assessment. Also, the Team acknowledges that collaborative effort between DENR and the Virginia Institute of Marine Sciences that was crucial to development of the CCMP. Adoption of the ecosystem-based management plan and the Assessment, both of which are based on widely-accepted watershed-management principles, has put APNEP in a leadership role within the wider estuarine management community as well as within the community of federal, non-governmental organization, and academic partners focused specifically on the Albemarle-Pamlico system. The Program now has the standing to inform decision makers about policies and programs to effectively address current and emerging challenges to that system.

Ecosystem Restoration and Protection (Habitat and Water Quality)--Partnerships with Expert Scientists

APNEP is one of many NEPs that has forged extensive partnerships with applied research scientists from federal agencies like the U.S. National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service, and from the North Carolina Division of Marine Fisheries. During the review period, the Program formed partnerships with scientists who have expertise in such areas as: (1) shallow habitat nitrogen cycling and oyster de-nitrification, (2) native fish populations, essential fish habitat, and fish hatcheries; (3) stormwater runoff microbial source tracking, (4) impacts of land use on nutrient and sediment loadings in coastal streams, (5) aerial mapping of submerged aquatic vegetation, (6) sentinel site restoration and monitoring, and (7) sea level rise.

In addition, during the review period senior scientists from federal and state agencies as well as from academic institutions demonstrated their commitment to the Program and its mission by serving on the Science and Technical Advisory Committee (STAC), which helped develop the Assessment. By forging partnerships with a variety of scientists, the Program brought world-class expertise to bear on CCMP priority issues and challenges and reinforced the importance of fully engaging the scientific community in evidence-based approaches to addressing stubborn challenges in the study area like excess nutrient loads, loss of fish habitat, coastal erosion, and sea level rise.

Outreach and Public Involvement--Development and Implementation of a Social Media Strategy

The PE Team was very impressed by the development and implementation of a social media strategy and associated tools. The Program now has an important on-line presence, and is well-positioned to raise awareness about study area natural resources and to educate even more audiences than it already has via its intensive teacher education workshops and school demonstration projects. The strategy is a model for how NEPs can effectively use new media to expand the number of individuals and communities with a basic knowledge of the ecosystem and with a good understanding of ways that they can participate in its protection and restoration. The PE Team recommends that the Program take advantage of opportunities to present information about the strategy at local and national meetings, especially at EPA–NEP national meetings and those sponsored by the Association of National Estuary Programs.

IV. Challenges

Program Implementation and Reporting--Maintaining Visibility and Independence

Given the success of APNEP efforts to increase the Program's visibility and influence and the importance of Program independence to effective CCMP implementation, EPA looks forward to DENR's continued support of APNEP autonomy to manage and implement its programs and activities as specified in the terms and conditions of every future assistance agreement and as called for by the APNEP Policy Board. However, the PE Team remains concerned about APNEP's visibility and independence, and notes that the Program must operate under a governance scheme that supports the decisions of its Management Conference as called for by §320 of the Clean Water Act. The Governor's Executive Order establishing APNEP provides important guidance about governing principles for the Program.

In light of recent personnel policy changes announced by DENR, the Department is reminded that APNEP staff positions are funded via the annual federal EPA assistance agreement and that Program staffing levels as well as Program and position assignment decisions require the consensus of the APNEP Policy Board. To continue effective program operations and successful CCMP implementation, APNEP should maintain current staffing levels, which include the Program's established positions of Program Director, Program Scientist, Project Manager, Policy and Engagement Manager, and Coastal Habitat Coordinator. Also, information gathered during the PE Team's site visit indicated that the Program has lacked adequate administrative support for many years. To better support APNEP, the PE Team encourages DENR to provide the Program with much-needed direct administrative support.

Ecosystem Status and Trends—Need for Assessment and Monitoring

Now that the 2012-2022 CCMP and 2012 Assessment are in place, the Program needs to focus on development of a long-term monitoring plan and of indicators of ecosystem and socio-economic conditions. The PE Team recognizes that the size of the study area, its diversity of natural resources, and the distribution of its human population pose special challenges to those attempting to assess and monitor ecosystem conditions. The Program will need support from DENR senior and division leadership while also leveraging other state and federal agency partner resources in order to develop and implement a full-scale monitoring plan and to effectively track indicators of condition.

Ecosystem Restoration and Protection—Need to Measure and Report on Short-term Project Outcomes

The Program should work to develop a protocol for measuring the short-term outcomes of projects and to establish and document project baselines against which to measure, track, and report on progress. These steps would move the Program beyond CCMP Update and Assessment to measurement of project success. They would also promote the Program as an entity committed to producing environmental results. Additionally, the Program's engagement with the North Carolina Watershed Restoration and Improvement Team, Chowan River Roundtable, the South Atlantic Landscape Conservation Cooperative, and the Southeast Natural Resource Leadership Group Pilot Project Development should provide APNEP opportunities to enhance regional partnerships and can facilitate

the joint achievement of both CCMP goals and the goals of these collaborative networks. This would place the Program in a regionally significant leadership position to leverage projects with new partners and focus these larger groups toward meeting the goals of the CCMP.

Ecosystem Restoration and Protection—Need to Address Nutrient Criteria

The multiple ecosystem outcomes under APNEP's CCMP Goal 3 are intended to ensure that contaminants do not harm species dependent on waters of the Albemarle-Pamlico Estuarine System. One contaminant class long targeted by APNEP and included in CCMP Ecosystem Outcome 3b is nutrients, specifically, forms of nitrogen and phosphorus. A well-established regulatory tool in the water quality manager's toolbox is the establishment of state water quality standards, which include a designated use and criteria. Numeric nutrient criteria (NNC) are favored by EPA for the designated use of protecting aquatic life. While North Carolina's Division of Water Resources, has established a numeric chlorophyll-*a* criteria, it has yet to embrace NNC as a complementary water quality management tool.

EPA recognizes that as a non-regulatory entity, APNEP can't develop (in the case of nutrient concentrations) nor revise (in the case of chlorophyll-*a* concentrations) numeric water quality criteria per se. But, EPA proposes over the next five years to conduct the following activities to ensure that water quality criteria in the Albemarle-Pamlico Basin help meet CCMP Ecosystem Outcome 3b:

- work with partners to collect water quality monitoring data,
- support the development of models,
- facilitate stakeholder involvement in nutrient management,
- investigate relationships between contaminant loads and living resources, and
- propose scientifically-based targets that DWR may consider as numeric criteria.

Also, in the revised CCMP, nutrient management is addressed either implicitly or explicitly under multiple plan objectives. The PE team commends APNEP on its current approach to addressing the nutrient management issue by identifying several CCMP actions such as: C1.1--Establish contaminant strategies for waters not meeting water quality standards), C1.2--Facilitate the implementation of existing contaminant management strategies), and D1.4--Coordinate outreach efforts regarding the proper application of fertilizers to reduce nutrient runoff).

Program Implementation and Reporting—Financial Strategy

The PE Team recognizes that APNEP is dependent on §320 funding and state match for most of its financial resources and that it can sometimes be challenging to collaborate across program boundaries. However, the Team encourages DENR to assist the Program in leveraging the resources of other DENR and state programs. Those efforts will help promote the Program's mission and to raise its visibility among those who are unfamiliar with APNEP. These efforts also may provide new opportunities to leverage projects with new partners, and may promote the adoption of holistic approaches to estuarine protection and restoration by those partners.

The PE Team also recommends that over the next three years, APNEP develop a strategy and funding plan for its communications efforts and identify a tool for assessing the impact of its

investments in communications and outreach, including in social media. By following up on this recommendation, the Program will effectively engage planning and adaptive management tools to set goals for and assess the effectiveness of its outreach and communications efforts. Program follow-up on this recommendation will also demonstrate that the Program is results-driven and works to provide deliverables in the most efficient manner.

Thank you again for participating in the PE process and for DENR's support of APNEP. The Program is poised to make significant progress implementing the 2012-2022 CCMP. We welcome any additional thoughts you may have either about the evaluation process itself or about EPA's involvement in the implementation of the APNEP CCMP. If you have any questions or comments, please contact me at (202) 566-1244.

Sincerely,

Bernice L. Smith, Ph.D., Chief
Coastal Management Branch

cc: Brad Ives, DENR, Assistant Secretary for Natural Resources
Dr. William L. Crowell, Jr., Director, APNEP
Todd Miller, Chair, APNEP Policy Board
Linda Pearsall, DENR, Director of Office of Communications, Planning and Community Affairs
Benita Best-Wong, U.S. EPA Headquarters
Paul Cough, U.S. EPA Headquarters
William Cox, U.S. EPA Region 4
Jennifer Derby, U.S. EPA Region 4
Dr. Linda Rimer, U.S. EPA Region 4
Troy Rice, Director, Indian River Lagoon National Estuary Program
Rhonda Evans, U.S. EPA Region 4
Marilyn Katz, U.S. EPA Headquarters

Attachment: 2 EPA Giattina Memo

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

January 6, 2014

Memorandum

To: Cecilia Holden
Special Assistant to the Secretary
North Carolina Department of Environment & Natural Resources

From: Jim Giattina
Director, Water Protection Division
U.S. Environmental Protection Agency

Subject: Combined Management Structure – APNEP and CWMTF

Thank you for reaching out to me to discuss your plan to implement a common management structure for the Albemarle-Pamlico Nation Estuary Program and the Clean Water Management Trust Fund programs. The Environmental Protection Agency fully supports your plan and we recognize the benefits of having one manager overseeing both of these business units. I understand the manager will be jointly funded and will provide personnel management and on-going oversight over program results. As you know the EPA is a strong supporter of the National Estuary Program, recognizing the significant benefits this type of locally-led, collaborative effort has provided and will continue to provide to the Albemarle-Pamlico ecosystem. Similarly, while not a federal program, we recognize the significant contribution the CWMTF has made to restoring and protecting the waters of North Carolina. As I understand your plan, the intent in joint funding is to have additional money available to further the core mission of each program. For example, money saved can be used for grants management automation that can result in more efficiently managing grants and a quicker turnaround time on the overall administration of the grants. Long-term, the savings in administrative costs can be used to award additional grants, again ensuring maximum use of the total funding available.

As you noted in our telephone conversation today, NCDENR staff will accurately account for time spent on each of these programs through proper time accounting and recording. This will ensure resources working on APNEP versus CWMTF are charged according to the program benefitting from hours worked. If you encounter any unexpected problems or determine that the shared management structure is no longer functioning as expected, we stand ready to work with you to reassess the situation and develop further approaches that are mutually beneficial to the State and the EPA in accomplishing our shared objectives of restoring and protecting the waters of the Albemarle-Pamlico estuary and the waters of North Carolina.

Again, thank you for seeking our input on this effort. We look forward to continuing to work with you as you implement these changes. We realize the importance and necessity of continually improving administrative processes as we both face ongoing budget challenges. Feel free to contact me directly with any questions (404)562-9345.

cc: John Skvarla, NC DENR Secretary
Bill Crowell, NC APNEP Director
Bryan Gossage, Office of Land and Water Stewardship Director

Jennifer Derby, Acting Chief of the Wetlands, Coastal and Oceans Branch
Rhonda Evans, Albemarle-Pamlico NEP Coordinator

Attachment 3: CCMP Goals & Outcomes

Goal 1: A region where human communities are sustained by a functioning ecosystem

Ecosystem Outcomes:

a. *Waters are safe for personal contact.*
b. *Designated surface and ground water supplies are safe for human consumption.*
c. *Surface hydrologic regimes sustain regulated human uses.*
d. *Fish and game are safe for human consumption.*
e. *Opportunities for recreation and access to public lands and waters are protected and enhanced.*

Goal 2: A region where aquatic, wetland, and upland habitats support viable populations of native species

Ecosystem Outcomes:

a. *The biodiversity, function, and populations of species in aquatic, wetland, and upland communities are protected, restored, or enhanced.*
b. *The extent and quality of upland, freshwater, estuarine, and near-shore marine habitats fully support biodiversity and ecosystem function.*
c. *Non-native invasive species do not significantly impair native species' viability or function, nor impair habitat quality, quantity, and the processes that form and maintain habitats.*

Goal 3: A region where water quantity and quality maintain ecological integrity

Ecosystem Outcomes:

a. *Appropriate hydrologic regimes support ecological integrity.*
b. *Nutrients and pathogens do not harm species that depend on the waters.*
c. *Toxics in waters and sediments do not harm species that depend on the waters.*
d. *Sediments do not harm species that depend on the waters.*

Mission

To identify, restore, and protect the significant resources in the Albemarle-Pamlico estuarine system.

Attachment 4: CCMP Actions Summary

IDENTIFY

A1.1 Facilitate the mapping of significant ecological, bathymetric, geologic, demographic, and cultural features.
A1.2 Facilitate the refinement and use of online conservation planning tools.
A2.1 Facilitate the development of protocols and conduct rapid assessments to determine presence and potential threat of invasive species.
A2.2 Create and improve projections of land use and climate change related impacts on the regional ecosystem.
A2.3 Support research on adapting to impacts associated with climate change and sea level rise.
A2.4 Facilitate risk assessments of targeted personal care and pharmaceutical products in the aquatic system.
A3.1 Assess the effectiveness of policies and regulations to minimize wetland loss.
A3.2 Assess the effectiveness of policies and regulations regarding riparian buffers.
A3.3 Develop and refine ecological flow requirements for each major river.

PROTECT

B1.1 Minimize the introduction of toxics from targeted sources.
B1.2 Minimize the introduction of pathogens from targeted sources.
B1.3 Facilitate the protection of natural riparian buffers to reduce runoff.
B1.4 Facilitate the development of state and local policies that support the use of low impact development.
B1.5 Facilitate5 Facilitate the use of best management practices on agricultural and silvicultural lands.
B2.1 Facilitate1 Facilitate the development and implementation of an integrated freshwater habitat protection strategy.
B2.2 Develop and implement a submerged aquatic vegetation (SAV) protection strategy.
B2.3 Facilitate the development of incentives for protection and management of targeted natural communities and habitats.
B2.4 Facilitate the development of policies to minimize dredge and fill activities in naturalized areas and sensitive habitats.
B2.5 Facilitate protection of designated anadromous fish spawning areas and inland primary nursery areas from marina impacts.
B2.6 Minimize and rapidly respond to the introduction of invasive species through the development and implementation of integrated prevention and control strategies.
B3.1 Assist local governments in the development of incentives for protecting natural shorelines.
B3.2 Develop and distribute educational materials encouraging landowners to protect natural shorelines.

B3.3 Facilitate the development of requirements for living shoreline stabilization projects that optimally protect estuarine aquatic and shoreline habitats while minimizing regulatory requirements.

RESTORE

C1.1 Establish contaminant management strategies for waters not meeting water quality standards.
C1.2 Facilitate the implementation of existing contaminant management strategies.
C1.3 Facilitate the restoration of riparian and estuarine shorelines.
C1.4 Reduce unregulated discharge from wastewater treatment systems.
C1.5 Facilitate voluntary retrofitting of existing development and infrastructure to reduce runoff.
C2.1 Facilitate the development and implementation of coordinated landscape-scale hydrological restoration strategies.
C2.2 Facilitate the development of incentives to replace hardened estuarine shorelines with living shorelines.
C2.3 Facilitate the hydrologic restoration of floodplains and streams.
C3.1 Develop and refine integrated invasive species eradication and control strategies.
C3.2 Develop and implement a coordinated wetland restoration strategy.
C3.3 Develop and implement a submerged aquatic vegetation restoration strategy.
C4.1 Install fish ladders and eel-ways on existing dams and other permanent barriers.
C4.2 Facilitate the removal of dams, culverts, and other in-stream barriers.
C4.3 Restore degraded anadromous fish spawning habitats.
C4.4 Facilitate research to improve fish passage.
C5.1 Construct new oyster habitats.
C5.2 Reduce the adverse impacts of harvests to existing oyster habitat.
C5.3 Facilitate research to improve oyster restoration technologies and methods.

ENGAGE

D1.1 Communicate the importance of stewardship and offer opportunities for volunteerism to further APNEP's mission.
D1.2 Facilitate efforts to improve collaborations to protect and restore ecosystem processes.
D1.3 Coordinate outreach and engagement efforts regarding the impacts of invasive species.
D1.4 Coordinate outreach efforts regarding the proper application of fertilizers to reduce nutrient runoff.
D1.5 Increase opportunities for public access to waterways, public lands, and trails.
D2.1 Provide and promote opportunities for outdoor experiences that connect individuals with the Albemarle-Pamlico ecosystem.

D2.2 Provide environmental education training opportunities for educators in the region.

D2.3 Increase public understanding of the relationship between ecosystem health and human health advisories relating to water, fish, and game.

D3.1 Develop and implement a strategy to improve decision-makers' understanding of the costs and benefits of environmental protection, restoration, planning, and monitoring.

D3.2 Facilitate the development and implementation of basinwide water management plans to ensure no less than minimum in-stream flows are maintained.

D3.3 Provide assistance to state, regional, and local governments to incorporate climate change and sea level rise considerations into their planning processes.

MONITOR

E1.1 Facilitate the development and implementation of an integrated monitoring network through the guidance of regional monitoring and assessment teams.

E1.2 Assess the value of information for measuring ecosystem and CCMP implementation outcomes.

E1.3 Facilitate the expansion of volunteer monitoring into a core element of the integrated monitoring network.

E2.1 Facilitate the design and content acquisition of a regional database based on partners' data and information needs.

E2.2 Develop and maintain an online resource that clearly conveys regional information in support of ecosystem-based management.

Attachment 5: Sample Monthly Budget Report (*Xtnd*

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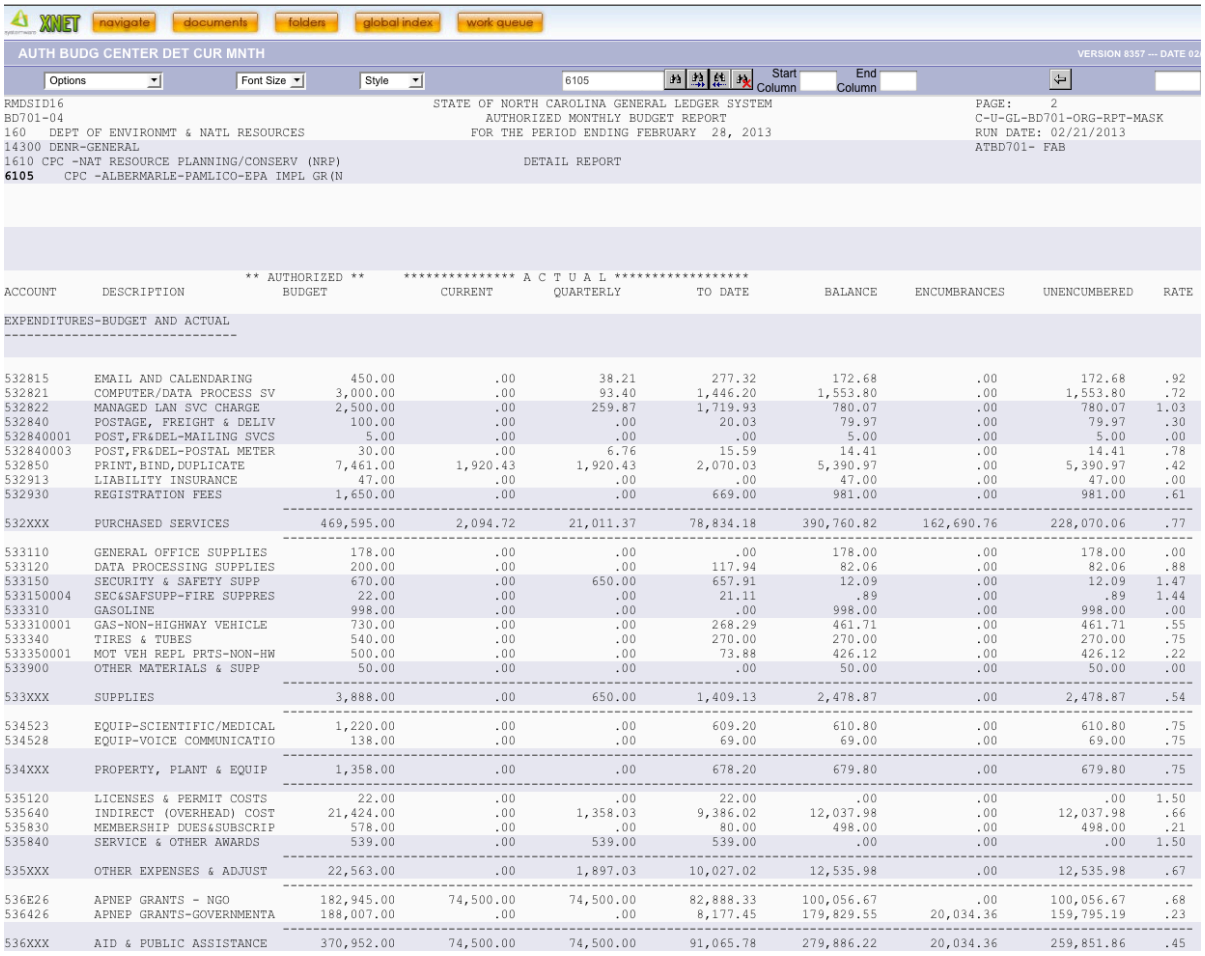
RMDSID16 STATE OF NORTH CAROLINA GENERAL LEDGER SYSTEM PAGE: 2
BD701-04 AUTHORIZED MONTHLY BUDGET REPORT C-U-GL-BD701-ORG-RPT-MASK
160 DEPT OF ENVIRONMT & NATL RESOURCES FOR THE PERIOD ENDING FEBRUARY 28, 2013 RUN DATE: 02/21/2013
14300 DENR-GENERAL ATBD701- FAB
1610 CPC -NAT RESOURCE PLANNING/CONSERV (NRP) DETAIL REPORT
6105 CPC -ALBERMARLE-PAMLICO-EPA IMPL GR(N

ACCOUNT	DESCRIPTION	** AUTHORIZED ** BUDGET	********** A C T U A L ********** CURRENT	QUARTERLY	TO DATE	BALANCE	ENCUMBRANCES	UNENCUMBERED	RATE
EXPENDITURES-BUDGET AND ACTUAL									
532815	EMAIL AND CALENDARING	450.00	.00	38.21	277.32	172.68	.00	172.68	.92
532821	COMPUTER/DATA PROCESS SV	3,000.00	.00	93.40	1,446.20	1,553.80	.00	1,553.80	.72
532822	MANAGED LAN SVC CHARGE	2,500.00	.00	259.87	1,719.93	780.07	.00	780.07	1.03
532840	POSTAGE, FREIGHT & DELIV	100.00	.00	.00	20.03	79.97	.00	79.97	.30
532840001	POST,FR&DEL-MAILING SVCS	5.00	.00	.00	.00	5.00	.00	5.00	.00
532840003	POST,FR&DEL-POSTAL METER	30.00	.00	6.76	15.59	14.41	.00	14.41	.78
532850	PRINT,BIND,DUPLICATE	7,461.00	1,920.43	1,920.43	2,070.03	5,390.97	.00	5,390.97	.42
532913	LIABILITY INSURANCE	47.00	.00	.00	.00	47.00	.00	47.00	.00
532930	REGISTRATION FEES	1,650.00	.00	.00	669.00	981.00	.00	981.00	.61
532XXX	PURCHASED SERVICES	469,595.00	2,094.72	21,011.37	78,834.18	390,760.82	162,690.76	228,070.06	.77
533110	GENERAL OFFICE SUPPLIES	178.00	.00	.00	.00	178.00	.00	178.00	.00
533120	DATA PROCESSING SUPPLIES	200.00	.00	.00	117.94	82.06	.00	82.06	.88
533150	SECURITY & SAFETY SUPP	670.00	.00	650.00	657.91	12.09	.00	12.09	1.47
533150004	SEC&SAFSUPP-FIRE SUPPRES	22.00	.00	.00	21.11	.89	.00	.89	1.44
533310	GASOLINE	998.00	.00	.00	.00	998.00	.00	998.00	.00
533310001	GAS-NON-HIGHWAY VEHICLE	730.00	.00	.00	268.29	461.71	.00	461.71	.55
533340	TIRES & TUBES	540.00	.00	.00	270.00	270.00	.00	270.00	.75
533350001	MOT VEH REPL PRTS-NON-HW	500.00	.00	.00	73.88	426.12	.00	426.12	.22
533900	OTHER MATERIALS & SUPP	50.00	.00	.00	.00	50.00	.00	50.00	.00
533XXX	SUPPLIES	3,888.00	.00	650.00	1,409.13	2,478.87	.00	2,478.87	.54
534523	EQUIP-SCIENTIFIC/MEDICAL	1,220.00	.00	.00	609.20	610.80	.00	610.80	.75
534528	EQUIP-VOICE COMMUNICATIO	138.00	.00	.00	69.00	69.00	.00	69.00	.75
534XXX	PROPERTY, PLANT & EQUIP	1,358.00	.00	.00	678.20	679.80	.00	679.80	.75
535120	LICENSES & PERMIT COSTS	22.00	.00	.00	22.00	.00	.00	.00	1.50
535640	INDIRECT (OVERHEAD) COST	21,424.00	.00	1,358.03	9,386.02	12,037.98	.00	12,037.98	.66
535830	MEMBERSHIP DUES&SUBSCRIP	578.00	.00	.00	80.00	498.00	.00	498.00	.21
535840	SERVICE & OTHER AWARDS	539.00	.00	539.00	539.00	.00	.00	.00	1.50
535XXX	OTHER EXPENSES & ADJUST	22,563.00	.00	1,897.03	10,027.02	12,535.98	.00	12,535.98	.67
536E26	APNEP GRANTS - NGO	182,945.00	74,500.00	74,500.00	82,888.33	100,056.67	.00	100,056.67	.68
536426	APNEP GRANTS-GOVERNMENTA	188,007.00	.00	.00	8,177.45	179,829.55	20,034.36	159,795.19	.23
536XXX	AID & PUBLIC ASSISTANCE	370,952.00	74,500.00	74,500.00	91,065.78	279,886.22	20,034.36	259,851.86	.45



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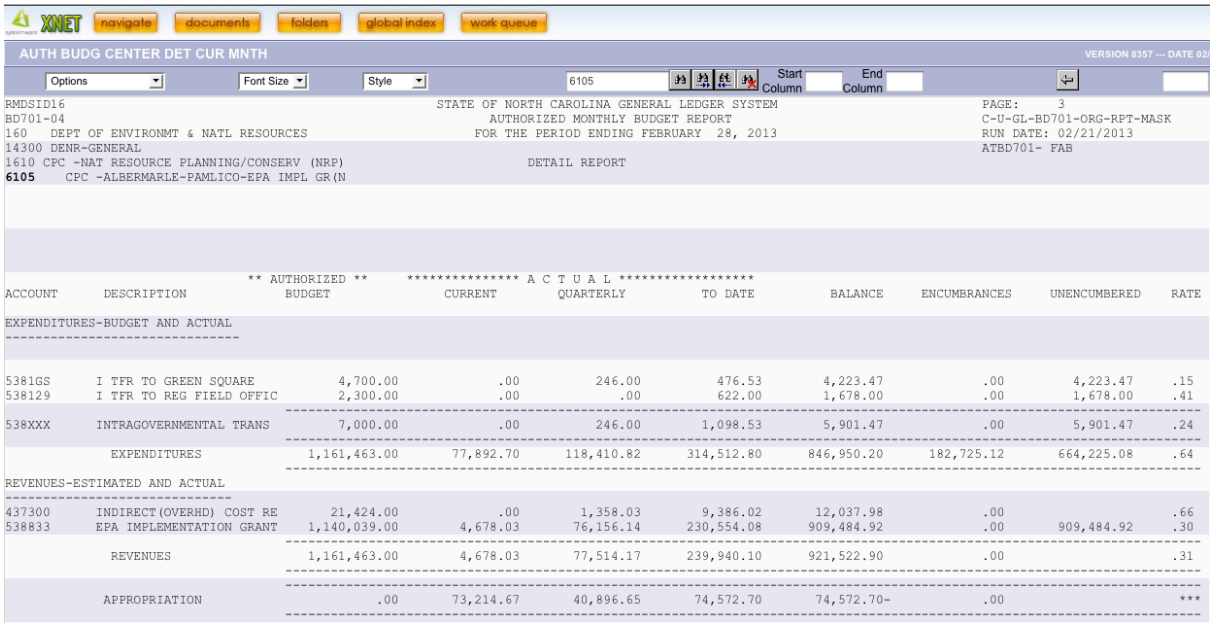
RMDSID16 STATE OF NORTH CAROLINA GENERAL LEDGER SYSTEM PAGE: 2
BD701-04 AUTHORIZED MONTHLY BUDGET REPORT C-U-GL-BD701-ORG-RPT-MASK
160 DEPT OF ENVIRONMT & NATL RESOURCES FOR THE PERIOD ENDING FEBRUARY 28, 2013 RUN DATE: 02/21/2013
14300 DENR-GENERAL ATBD701- FAB
1610 CPC -NAT RESOURCE PLANNING/CONSERV (NRP) DETAIL REPORT
6105 CPC -ALBERMARLE-PAMLICO-EPA IMPL GR(N

ACCOUNT	DESCRIPTION	** AUTHORIZED ** BUDGET	********** A C T U A L ********** CURRENT	QUARTERLY	TO DATE	BALANCE	ENCUMBRANCES	UNENCUMBERED	RATE
EXPENDITURES-BUDGET AND ACTUAL									
532815	EMAIL AND CALENDARING	450.00	.00	38.21	277.32	172.68	.00	172.68	.92
532821	COMPUTER/DATA PROCESS SV	3,000.00	.00	93.40	1,446.20	1,553.80	.00	1,553.80	.72
532822	MANAGED LAN SVC CHARGE	2,500.00	.00	259.87	1,719.93	780.07	.00	780.07	1.03
532840	POSTAGE, FREIGHT & DELIV	100.00	.00	.00	20.03	79.97	.00	79.97	.30
532840001	POST,FR&DEL-MAILING SVCS	5.00	.00	.00	.00	5.00	.00	5.00	.00
532840003	POST,FR&DEL-POSTAL METER	30.00	.00	6.76	15.59	14.41	.00	14.41	.78
532850	PRINT,BIND,DUPLICATE	7,461.00	1,920.43	1,920.43	2,070.03	5,390.97	.00	5,390.97	.42
532913	LIABILITY INSURANCE	47.00	.00	.00	.00	47.00	.00	47.00	.00
532930	REGISTRATION FEES	1,650.00	.00	.00	669.00	981.00	.00	981.00	.61
532XXX	PURCHASED SERVICES	469,595.00	2,094.72	21,011.37	78,834.18	390,760.82	162,690.76	228,070.06	.77
533110	GENERAL OFFICE SUPPLIES	178.00	.00	.00	.00	178.00	.00	178.00	.00
533120	DATA PROCESSING SUPPLIES	200.00	.00	.00	117.94	82.06	.00	82.06	.88
533150	SECURITY & SAFETY SUPP	670.00	.00	650.00	657.91	12.09	.00	12.09	1.47
533150004	SEC&SAFSUPP-FIRE SUPPRES	22.00	.00	.00	21.11	.89	.00	.89	1.44
533310	GASOLINE	998.00	.00	.00	.00	998.00	.00	998.00	.00
533310001	GAS-NON-HIGHWAY VEHICLE	730.00	.00	.00	268.29	461.71	.00	461.71	.55
533340	TIRES & TUBES	540.00	.00	.00	270.00	270.00	.00	270.00	.75
533350001	MOT VEH REPL PRTS-NON-HW	500.00	.00	.00	73.88	426.12	.00	426.12	.22
533900	OTHER MATERIALS & SUPP	50.00	.00	.00	.00	50.00	.00	50.00	.00
533XXX	SUPPLIES	3,888.00	.00	650.00	1,409.13	2,478.87	.00	2,478.87	.54
534523	EQUIP-SCIENTIFIC/MEDICAL	1,220.00	.00	.00	609.20	610.80	.00	610.80	.75
534528	EQUIP-VOICE COMMUNICATIO	138.00	.00	.00	69.00	69.00	.00	69.00	.75
534XXX	PROPERTY, PLANT & EQUIP	1,358.00	.00	.00	678.20	679.80	.00	679.80	.75
535120	LICENSES & PERMIT COSTS	22.00	.00	.00	22.00	.00	.00	.00	1.50
535640	INDIRECT (OVERHEAD) COST	21,424.00	.00	1,358.03	9,386.02	12,037.98	.00	12,037.98	.66
535830	MEMBERSHIP DUES&SUBSCRIP	578.00	.00	.00	80.00	498.00	.00	498.00	.21
535840	SERVICE & OTHER AWARDS	539.00	.00	539.00	539.00	.00	.00	.00	1.50
535XXX	OTHER EXPENSES & ADJUST	22,563.00	.00	1,897.03	10,027.02	12,535.98	.00	12,535.98	.67
536E26	APNEP GRANTS - NGO	182,945.00	74,500.00	74,500.00	82,888.33	100,056.67	.00	100,056.67	.68
536426	APNEP GRANTS-GOVERNMENTA	188,007.00	.00	.00	8,177.45	179,829.55	20,034.36	159,795.19	.23
536XXX	AID & PUBLIC ASSISTANCE	370,952.00	74,500.00	74,500.00	91,065.78	279,886.22	20,034.36	259,851.86	.45



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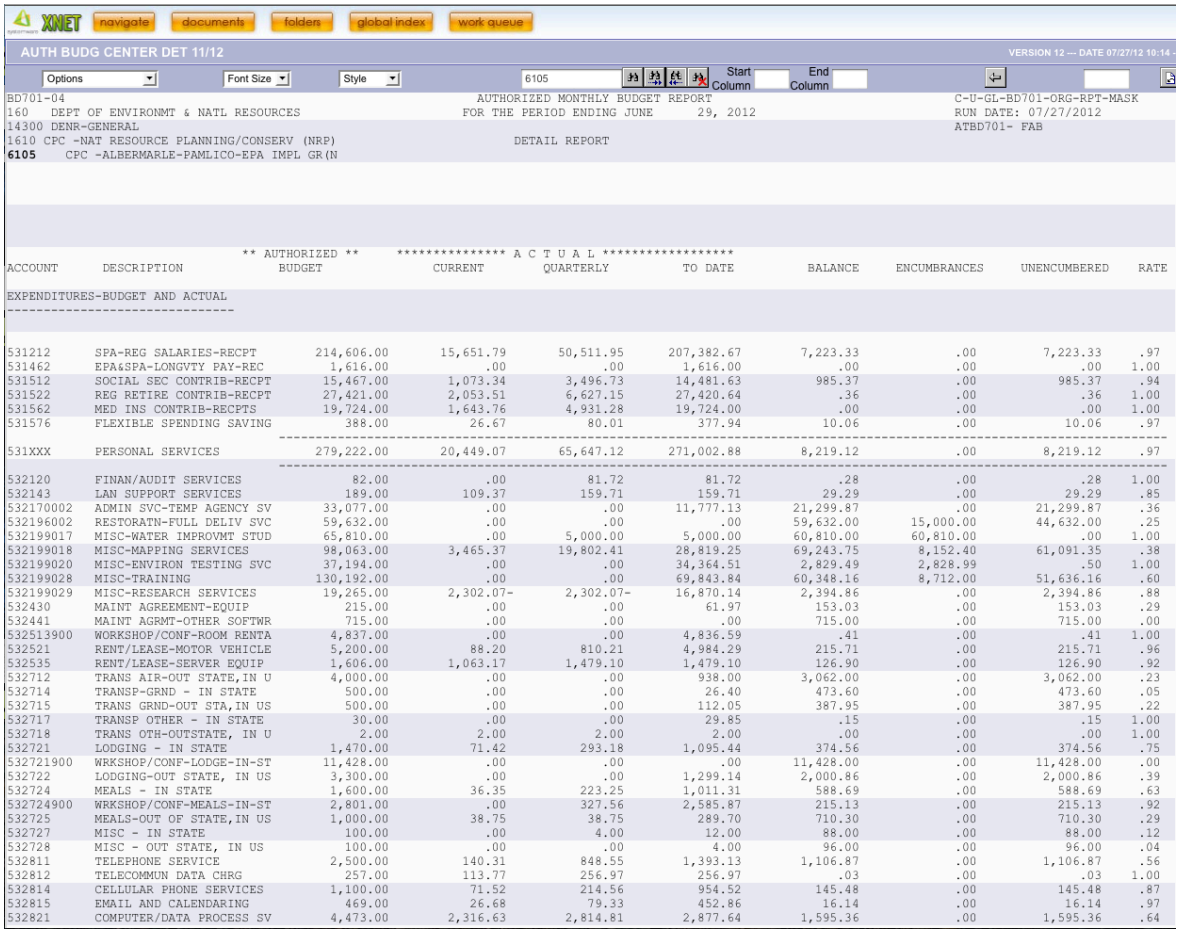
ACCOUNT	DESCRIPTION	** AUTHORIZED ** BUDGET	********** A C T U A L ********** CURRENT	QUARTERLY	TO DATE	BALANCE	ENCUMBRANCES	UNENCUMBERED	RATE
EXPENDITURES-BUDGET AND ACTUAL									
5381GS	I TFR TO GREEN SQUARE	4,700.00	.00	246.00	476.53	4,223.47	.00	4,223.47	.15
538129	I TFR TO REG FIELD OFFIC	2,300.00	.00	.00	622.00	1,678.00	.00	1,678.00	.41
538XXX	INTRAGOVERNMENTAL TRANS	7,000.00	.00	246.00	1,098.53	5,901.47	.00	5,901.47	.24
	EXPENDITURES	1,161,463.00	77,892.70	118,410.82	314,512.80	846,950.20	182,725.12	664,225.08	.64
REVENUES-ESTIMATED AND ACTUAL									
437300	INDIRECT(OVERHD) COST RE	21,424.00	.00	1,358.03	9,386.02	12,037.98	.00		.66
538833	EPA IMPLEMENTATION GRANT	1,140,039.00	4,678.03	76,156.14	230,554.08	909,484.92	.00	909,484.92	.30
	REVENUES	1,161,463.00	4,678.03	77,514.17	239,940.10	921,522.90	.00		.31
	APPROPRIATION	.00	73,214.67	40,896.65	74,572.70	74,572.70-	.00		***

Attachment 6: Sample Year-end Budget Report (*Xtnd*)



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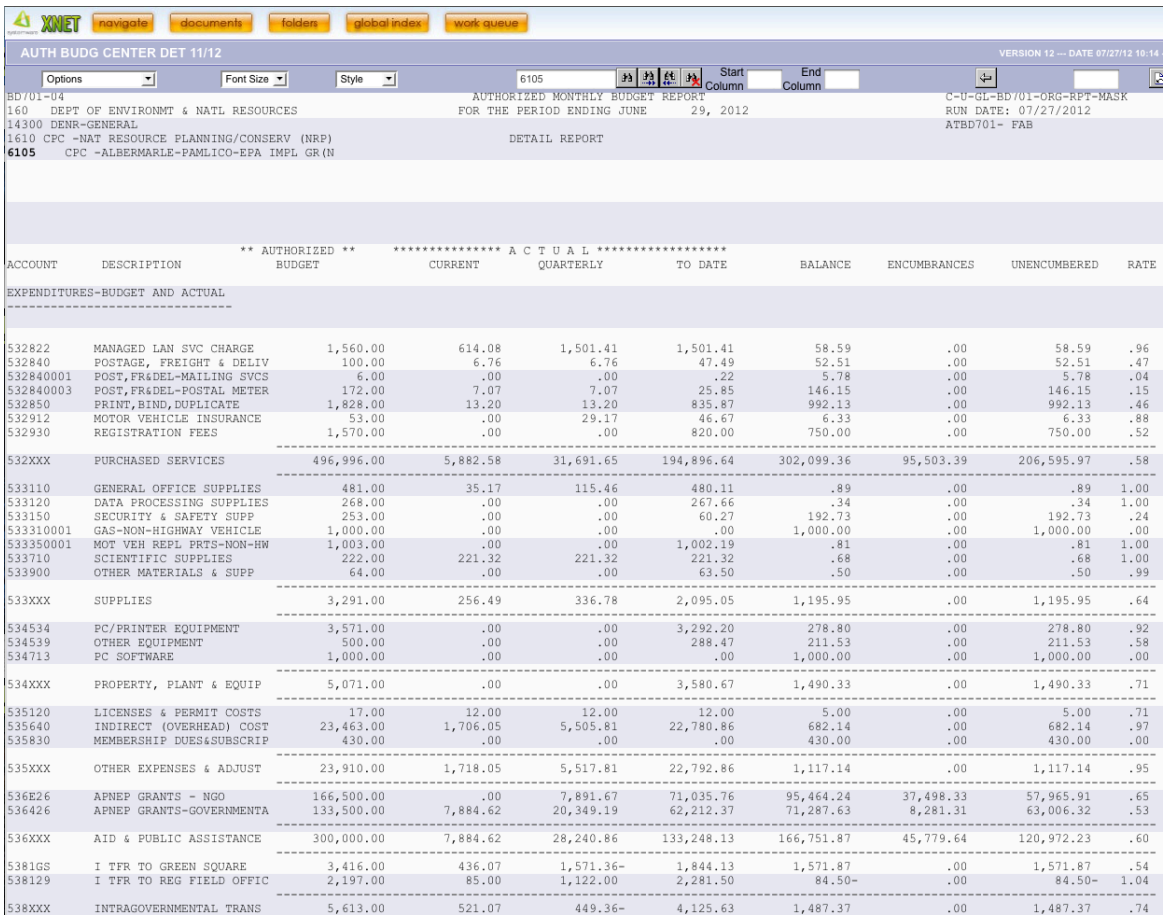
6105 CPC -ALBERMARLE-PAMLICO-EPA IMPL GR(N

ACCOUNT	DESCRIPTION	** AUTHORIZED ** BUDGET	********** A C T U A L ********** CURRENT	QUARTERLY	TO DATE	BALANCE	ENCUMBRANCES	UNENCUMBERED	RATE
EXPENDITURES-BUDGET AND ACTUAL									
531212	SPA-REG SALARIES-RECPT	214,606.00	15,651.79	50,511.95	207,382.67	7,223.33	.00	7,223.33	.97
531462	EPA&SPA-LONGVTY PAY-REC	1,616.00	.00	.00	1,616.00	.00	.00	.00	1.00
531512	SOCIAL SEC CONTRIB-RECPT	15,467.00	1,073.34	3,496.73	14,481.63	985.37	.00	985.37	.94
531522	REG RETIRE CONTRIB-RECPT	27,421.00	2,053.51	6,627.15	27,420.64	.36	.00	.36	1.00
531562	MED INS CONTRIB-RECPTS	19,724.00	1,643.76	4,931.28	19,724.00	.00	.00	.00	1.00
531576	FLEXIBLE SPENDING SAVING	388.00	26.67	80.01	377.94	10.06	.00	10.06	.97
531XXX	PERSONAL SERVICES	279,222.00	20,449.07	65,647.12	271,002.88	8,219.12	.00	8,219.12	.97
532120	FINAN/AUDIT SERVICES	82.00	.00	81.72	81.72	.28	.00	.28	1.00
532143	LAN SUPPORT SERVICES	189.00	109.37	159.71	159.71	29.29	.00	29.29	.85
532170002	ADMIN SVC-TEMP AGENCY SV	33,077.00	.00	.00	11,777.13	21,299.87	.00	21,299.87	.36
532196002	RESTORATN-FULL DELIV SVC	59,632.00	.00	.00	.00	59,632.00	15,000.00	44,632.00	.25
532199017	MISC-WATER IMPROVMT STUD	65,810.00	.00	5,000.00	5,000.00	60,810.00	60,810.00	.00	1.00
532199018	MISC-MAPPING SERVICES	98,063.00	3,465.37	19,802.41	28,819.25	69,243.75	8,152.40	61,091.35	.38
532199020	MISC-ENVIRON TESTING SVC	37,194.00	.00	.00	34,364.51	2,829.49	2,828.99	.50	1.00
532199028	MISC-TRAINING	130,192.00	.00	.00	69,843.84	60,348.16	8,712.00	51,636.16	.60
532199029	MISC-RESEARCH SERVICES	19,265.00	2,302.07-	2,302.07-	16,870.14	2,394.86	.00	2,394.86	.88
532430	MAINT AGREEMENT-EQUIP	215.00	.00	.00	61.97	153.03	.00	153.03	.29
532441	MAINT AGRMT-OTHER SOFTWR	715.00	.00	.00	.00	715.00	.00	715.00	.00
532513900	WORKSHOP/CONF-ROOM RENTA	4,837.00	.00	.00	4,836.59	.41	.00	.41	1.00
532521	RENT/LEASE-MOTOR VEHICLE	5,200.00	88.20	810.21	4,984.29	215.71	.00	215.71	.96
532535	RENT/LEASE-SERVER EQUIP	1,606.00	1,063.17	1,479.10	1,479.10	126.90	.00	126.90	.92
532712	TRANS AIR-OUT STATE,IN U	4,000.00	.00	.00	938.00	3,062.00	.00	3,062.00	.23
532714	TRANSP-GRND - IN STATE	500.00	.00	.00	26.40	473.60	.00	473.60	.05
532715	TRANS GRND-OUT STA,IN US	500.00	.00	.00	112.05	387.95	.00	387.95	.22
532717	TRANSP OTHER - IN STATE	30.00	.00	.00	29.85	.15	.00	.15	1.00
532718	TRANS OTH-OUTSTATE, IN U	2.00	2.00	2.00	2.00	.00	.00	.00	1.00
532721	LODGING - IN STATE	1,470.00	71.42	293.18	1,095.44	374.56	.00	374.56	.75
532721900	WRKSHOP/CONF-LODGE-IN-ST	11,428.00	.00	.00	.00	11,428.00	.00	11,428.00	.00
532722	LODGING-OUT STATE, IN US	3,300.00	.00	.00	1,299.14	2,000.86	.00	2,000.86	.39
532724	MEALS - IN STATE	1,600.00	36.35	223.25	1,011.31	588.69	.00	588.69	.63
532724900	WRKSHOP/CONF-MEALS-IN-ST	2,801.00	.00	327.56	2,585.87	215.13	.00	215.13	.92
532725	MEALS-OUT OF STATE,IN US	1,000.00	38.75	38.75	289.70	710.30	.00	710.30	.29
532727	MISC - IN STATE	100.00	.00	4.00	12.00	88.00	.00	88.00	.12
532728	MISC - OUT STATE, IN US	100.00	.00	.00	4.00	96.00	.00	96.00	.04
532811	TELEPHONE SERVICE	2,500.00	140.31	848.55	1,393.13	1,106.87	.00	1,106.87	.56
532812	TELECOMMUN DATA CHRG	257.00	113.77	256.97	256.97	.03	.00	.03	1.00
532814	CELLULAR PHONE SERVICES	1,100.00	71.52	214.56	954.52	145.48	.00	145.48	.87
532815	EMAIL AND CALENDARING	469.00	26.68	79.33	452.86	16.14	.00	16.14	.97
532821	COMPUTER/DATA PROCESS SV	4,473.00	2,316.63	2,814.81	2,877.64	1,595.36	.00	1,595.36	.64



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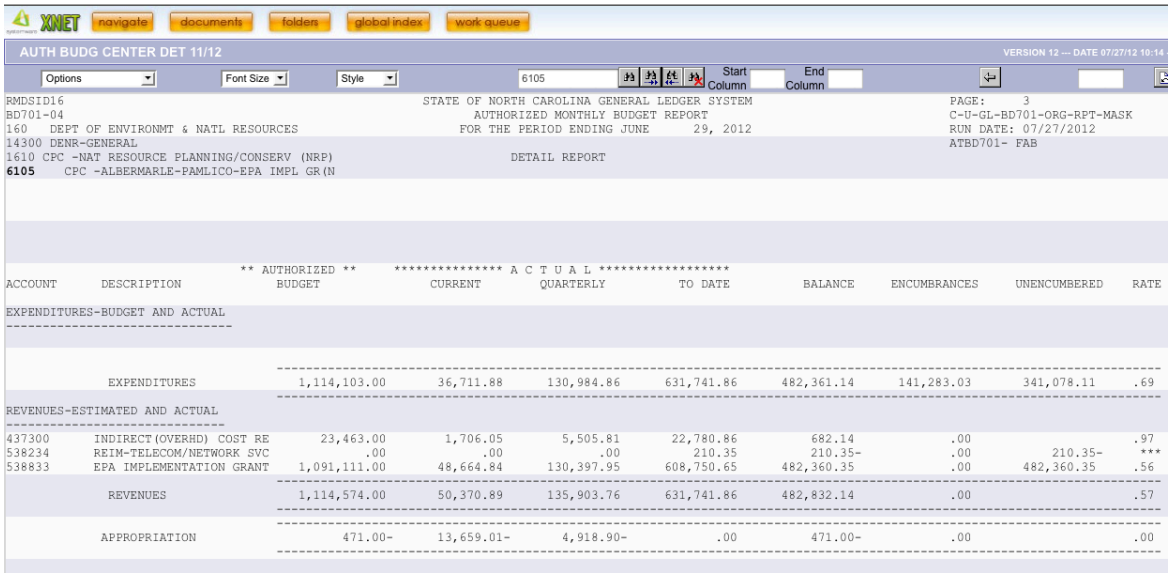
ACCOUNT	DESCRIPTION	** AUTHORIZED ** BUDGET	********** A C T U A L ********** CURRENT	QUARTERLY	TO DATE	BALANCE	ENCUMBRANCES	UNENCUMBERED	RATE
EXPENDITURES-BUDGET AND ACTUAL									
532822	MANAGED LAN SVC CHARGE	1,560.00	614.08	1,501.41	1,501.41	58.59	.00	58.59	.96
532840	POSTAGE, FREIGHT & DELIV	100.00	6.76	6.76	47.49	52.51	.00	52.51	.47
532840001	POST,FR&DEL-MAILING SVCS	6.00	.00	.00	.22	5.78	.00	5.78	.04
532840003	POST,FR&DEL-POSTAL METER	172.00	7.07	7.07	25.85	146.15	.00	146.15	.15
532850	PRINT,BIND,DUPLICATE	1,828.00	13.20	13.20	835.87	992.13	.00	992.13	.46
532912	MOTOR VEHICLE INSURANCE	53.00	.00	29.17	46.67	6.33	.00	6.33	.88
532930	REGISTRATION FEES	1,570.00	.00	.00	820.00	750.00	.00	750.00	.52
532XXX	PURCHASED SERVICES	496,996.00	5,882.58	31,691.65	194,896.64	302,099.36	95,503.39	206,595.97	.58
533110	GENERAL OFFICE SUPPLIES	481.00	35.17	115.46	480.11	.89	.00	.89	1.00
533120	DATA PROCESSING SUPPLIES	268.00	.00	.00	267.66	.34	.00	.34	1.00
533150	SECURITY & SAFETY SUPP	253.00	.00	.00	60.27	192.73	.00	192.73	.24
533310001	GAS-NON-HIGHWAY VEHICLE	1,000.00	.00	.00	.00	1,000.00	.00	1,000.00	.00
533350001	MOT VEH REPL PRTS-NON-HW	1,003.00	.00	.00	1,002.19	.81	.00	.81	1.00
533710	SCIENTIFIC SUPPLIES	222.00	221.32	221.32	221.32	.68	.00	.68	1.00
533900	OTHER MATERIALS & SUPP	64.00	.00	.00	63.50	.50	.00	.50	.99
533XXX	SUPPLIES	3,291.00	256.49	336.78	2,095.05	1,195.95	.00	1,195.95	.64
534534	PC/PRINTER EQUIPMENT	3,571.00	.00	.00	3,292.20	278.80	.00	278.80	.92
534539	OTHER EQUIPMENT	500.00	.00	.00	288.47	211.53	.00	211.53	.58
534713	PC SOFTWARE	1,000.00	.00	.00	.00	1,000.00	.00	1,000.00	.00
534XXX	PROPERTY, PLANT & EQUIP	5,071.00	.00	.00	3,580.67	1,490.33	.00	1,490.33	.71
535120	LICENSES & PERMIT COSTS	17.00	12.00	12.00	12.00	5.00	.00	5.00	.71
535640	INDIRECT (OVERHEAD) COST	23,463.00	1,706.05	5,505.81	22,780.86	682.14	.00	682.14	.97
535830	MEMBERSHIP DUES&SUBSCRIP	430.00	.00	.00	.00	430.00	.00	430.00	.00
535XXX	OTHER EXPENSES & ADJUST	23,910.00	1,718.05	5,517.81	22,792.86	1,117.14	.00	1,117.14	.95
536E26	APNEP GRANTS - NGO	166,500.00	.00	7,891.67	71,035.76	95,464.24	37,498.33	57,965.91	.65
536426	APNEP GRANTS-GOVERNMENTA	133,500.00	7,884.62	20,349.19	62,212.37	71,287.63	8,281.31	63,006.32	.53
536XXX	AID & PUBLIC ASSISTANCE	300,000.00	7,884.62	28,240.86	133,248.13	166,751.87	45,779.64	120,972.23	.60
5381GS	I TFR TO GREEN SQUARE	3,416.00	436.07	1,571.36-	1,844.13	1,571.87	.00	1,571.87	.54
538129	I TFR TO REG FIELD OFFIC	2,197.00	85.00	1,122.00	2,281.50	84.50-	.00	84.50-	1.04
538XXX	INTRAGOVERNMENTAL TRANS	5,613.00	521.07	449.36-	4,125.63	1,487.37	.00	1,487.37	.74



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ACCOUNT	DESCRIPTION	** AUTHORIZED ** BUDGET	********** A C T U A L ********** CURRENT	QUARTERLY	TO DATE	BALANCE	ENCUMBRANCES	UNENCUMBERED	RATE
EXPENDITURES-BUDGET AND ACTUAL									
	EXPENDITURES	1,114,103.00	36,711.88	130,984.86	631,741.86	482,361.14	141,283.03	341,078.11	.69
REVENUES-ESTIMATED AND ACTUAL									
437300	INDIRECT(OVERHD) COST RE	23,463.00	1,706.05	5,505.81	22,780.86	682.14	.00		.97
538234	REIM-TELECOM/NETWORK SVC	.00	.00	.00	210.35	210.35-	.00	210.35-	***
538833	EPA IMPLEMENTATION GRANT	1,091,111.00	48,664.84	130,397.95	608,750.65	482,360.35	.00	482,360.35	.56
	REVENUES	1,114,574.00	50,370.89	135,903.76	631,741.86	482,832.14	.00		.57
	APPROPRIATION	471.00-	13,659.01-	4,918.90-	.00	471.00-	.00		.00

Attachment 7: 2018 Site Visit Draft Schedule

Monday (5/14)

Review Team Members Arrive at local hotel(s)

Tuesday (5/15)

8:00	Pick Team Members at area hotel(s)
8:30	Meet with APNEP staff, overview of APNEP, review schedule, Initial PE Team Questions
9:30	Meet with Leadership Council Members: Paul Cough, US EPA Retired Dr. Susan White, NC Sea Grant & NC WRRI Wilson Laney, US Fish & Wildlife Service
10:30	Break
10:45	Shad in the Classroom: Melissa Dowland, Coordinator of Teacher Education, NC Museum of Natural Sciences Danielle Pender, Shad in the Classroom Program Specialist, APNEP/ NC Museum of Natural Sciences Lisa Tolley, Director, NC Office of Environmental Education
11:15	Nutrient Criteria Development Project Overview: Jim Hawhee, NC Div. Water Resources/ Non-Point Source Planning Branch
11:45	Lunch @ Daily Planet
13:00	Sound Learning Teacher Institute: Sarah Yelton, Environmental Education Coordinator, UNC Institute for the Environment Lisa Tolley, Director, NC Office of Environmental Education
13:30	Depart for Morehead City, NC
16:30	Estuarine Swimming Beach Monitoring: J.D. Potts. Recreational Water Quality Supervisor, NC Division of Marine Fisheries Meet with APNEP Field Staff: Jimmy Johnson & Trish Murphey
17:30	Check-in hotel: Hampton Inn Morehead City
18:30	Dinner: Clawson's 1905 Restaurant & Pub, Beaufort, NC Todd Miller, Past Policy Board chair Dr. Jud Kenworthy, Past STAC vice-chair Steve Murphey, NC Division of Marine Fisheries Director Braxton Davis, NC Division of Coastal Management Director

Wednesday (5/16)

	Breakfast at hotel
7:30	Depart for Maritime Museum, Beaufort, NC
8:15	Meet with STAC Members: Dr. Don Field, NOAA, Beaufort Lab Dr. Joel Fodrie, UNC Inst. of Marine Science Dr. Jud Kenworthy, NOAA Retired Dr. Hans Paerl, UNC Inst. of Marine Science Dr. Michael Piehler, UNC Inst. of Marine Science
9:00	SAV Mapping / Assessment: Dr. Don Field, NOAA, Beaufort Lab Dr. Jud Kenworthy, NOAA Retired Dr. Dean Carpenter, APNEP
9:30	2015 NCCA Effort Insights: Dr. Dean Carpenter, APNEP
10:00	Boat Ride to NOAA Lab (*if feasible*) Waterside view of living shoreline, oyster reef
10:15	Piver's Island Living Shorelines: Trish Murphey, Watershed Manager, APNEP Dr. Carolyn Currin, Research Ecologist, NOAA National Ocean Service Beaufort Lab
11:30	Lunch @ Duke Marine Lab
12:20	Depart for Engelhard, NC
13:00	Cross Neuse River at Via Cherry Branch/Minnesott Beach Ferry (FerryMon)
16:00	Mattamuskeet Ventures Farm Hydrologic Restoration: Mac Gibbs, Council Member
17:30	Dinner at *Martelle's* Feed House Restaurant Council Member: Mac Gibbs STAC members: Dr. Brian Boutin, Dr. Reide Corbett, Erin Fleckenstein
18:30	Depart for Manteo hotel Hotel: Tranquil House Inn

Thursday (5/17)

	Breakfast at Hotel
7:30	Depart for Jockey's Ridge
8:00	Jockey's Ridge Restoration Site & Mano al Hermano: Sarah Hallas, Coastal Education Coordinator, North Carolina Coastal Federation Julie Stewart, Program Literacy Coordinator, Mano al Hermano Holly White Council Member, Principal Planner, Town of Nags Head
9:45	Depart for Edenton, NC
11:00	Edenton Stormwater Wetland, Chowan County Center: Mark Powell, Consultant, Albemarle Commission & Albemarle RC&D
11:20	Travel to Edenton Town Council Chambers
11:30	Chowan Algal Blooms: Cathy Davison, Executive Director, Albemarle Commission Anne Marie Knighton, Town Manager, Town of Edenton
12:00	Lunch hosted by the Town of Edenton Dr. Kirk Havens, VIMS, Council Chair Dr. Tom Allen, ODU, Past Policy Board Chair Cathy Davison, Executive Director, Albemarle Commission Anne Marie Knighton, Town Manager, Town of Edenton
13:00	Depart for Raleigh (*Initial PE discussion in van* among staff and PE team)
15:00	Monitoring in the AP Region Dr. Michelle Moorman, Field Biologist, US Fish & Wildlife Service
15:30	Continue PE Debrief with APNEP Staff and PE Team
17:00	Conclude Site Visit
	Transportation to RDU if needed