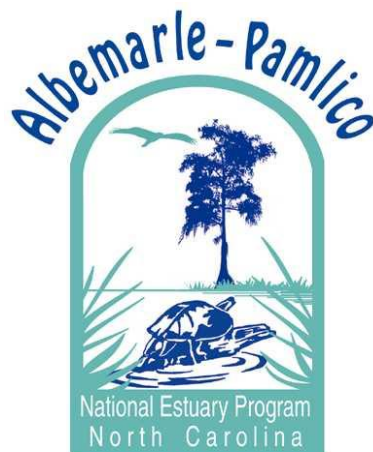


ALBEMARLE-PAMLICO NATIONAL ESTUARY PROGRAM

**Annual Work Plan
for the
Cooperative Agreement Between
The United States Environmental Protection Agency
and
North Carolina Department of Environment and Natural Resources
in
Cooperation with the
Virginia Department of Conservation and Recreation
for
October 1, 2012 - September 30, 2013**



**Draft Submitted to the
APNEP Policy Board on
May 10, 2012
Raleigh, NC**

U.S. EPA Agreement CE-95451210

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CONTENTS & CONTACTS

Required Cooperative Agreement Related Contents in this Document:

- A progress report detailing accomplishments in FY 2012 is provided on pages 8 through 16.
- The FY 2013 Proposed Work Plan items are presented on pages 17 through 23.
- The FY 2013 Proposed Work Plan budget is presented on page 31.
- Administrative and financial information items are presented on pages 24 through 36.

Purpose: The purpose of this cooperative agreement is to provide support to the NC Department of Environment and Natural Resources (NCDENR) from the US Environmental Protection Agency (EPA) for continuing demonstration of implementation of the unique management strategies recommended in the Albemarle-Pamlico National Estuary Program's (APNEP) Comprehensive Conservation and Management Plan and support for the APNEP Mission to identify, restore and protect the resources of the region.

This work plan and the associated grant application represent an increased funding request for the amount of \$597,167 and a time extension to September 30, 2013 under Cooperative Agreement CE-95451210.

Period of Performance:

The period of performance under the current Cooperative Agreement (CE-95451210) is from October 1, 2009 through September 30, 2015.

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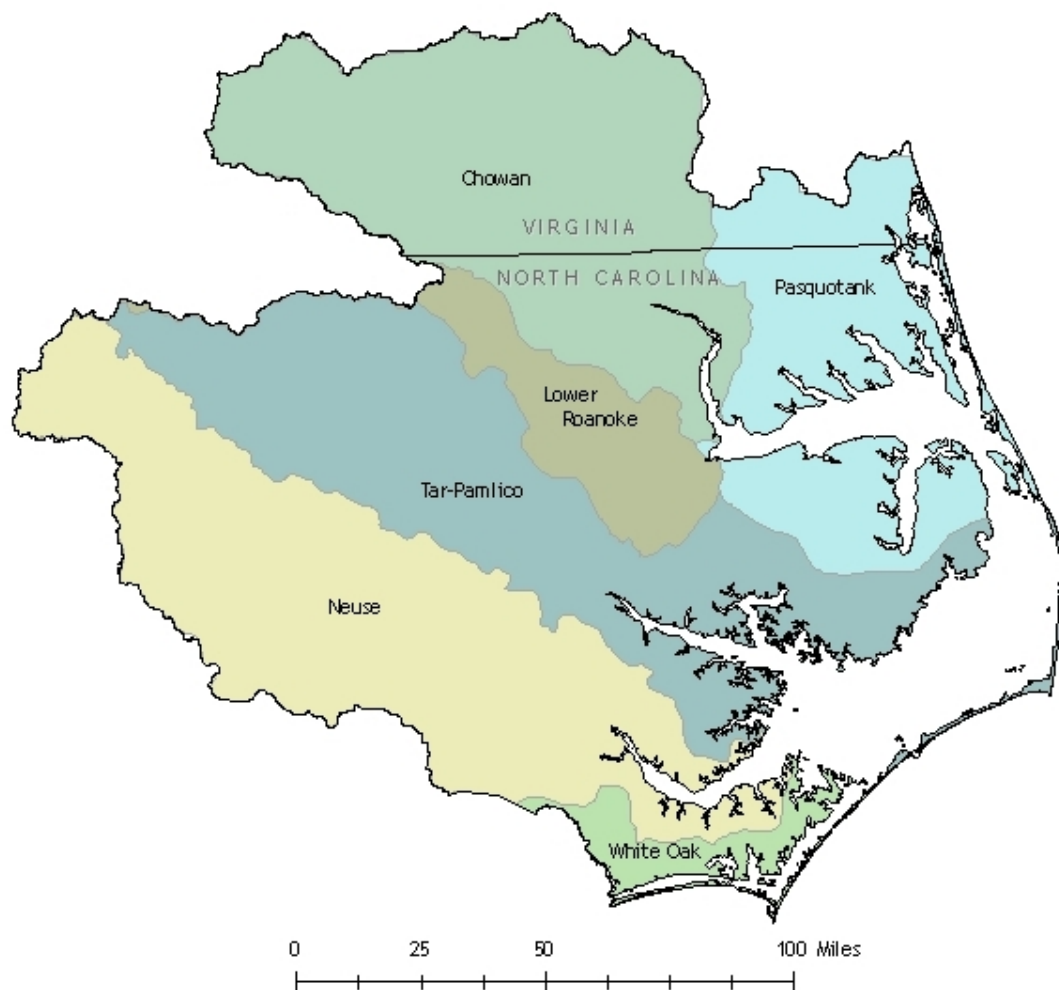
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INTRODUCTION

The Albemarle and Pamlico Sounds represent the nation's largest lagoonal estuarine system. The system is composed of seven sounds and five major river basins draining over 30,000 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 resort development, food, recreation, mining, forestry, agriculture, business and industry.

The Albemarle-Pamlico National Estuary Program (APNEP) is a part of the US Environmental Protection Agency's National Estuary Program (NEP). It was one of the first programs established with amendments to the Clean Water Act of 1987. Its initial Comprehensive Conservation and Management Plan (CCMP) that was ratified by the Governor of North Carolina and approved by the US EPA in November 1994. A revised CCMP was approved in March 2012 by the APNEP Policy Board. The CCMP is based on an Ecosystem-Based Management (EBM) paradigm, and is intended as a practical, cost-effective and equitable approach to managing the valuable resources of the Albemarle-Pamlico region.



APNEP's Ecosystem-Based Management Approach

Ecosystem-Based Management (EBM) is a paradigm that has gained support within many government agencies and other organizations worldwide to effectively manage natural resources in their respective jurisdictions. The tenet is that managing natural resources from a systems perspective increases the likelihood of success by forging more effective connections among humans, nature, science, and government. The Albemarle-Pamlico National Estuary Program (APNEP) has been working with limited resources to integrate and implement EBM concepts and tools within the program and with its local, state and federal partners, albeit in a piecemeal fashion. Given the relative complexity and increased resources required up front to implement EBM in full, APNEP staff decided in 2008 to begin actively working toward a paradigm change with the APNEP Policy Board, Advisory Committees, and partners.

This activity culminated in late 2009 in the form of an EBM transition proposal to the APNEP Policy Board, authored by a small team of APNEP staff, Policy Board members, and partners. The proposal was approved at the Board's December 2009 meeting. With the Policy Board's support, APNEP staff created an EBM Transition Team whose goal was to guide the transition in the most efficient manner possible. One of the products of the transition was the new Comprehensive Conservation Management Plan (CCMP) to replace the original 1994 CCMP. To maintain momentum on all transition fronts, the EBM Transition Team held monthly discussions to create the new CCMP and monitoring plan in the EBM framework.

As this FY 2013 Work Plan comes into implementation, APNEP anticipates completing the development of its ecosystem indicators and monitoring plan to support the new EBM based CCMP. With a new CCMP established with a ten-year planning horizon, this FY 2013 APNEP Work Plan will propose activities that are directly attributable to "actions" toward implementation of the new CCMP objectives.

Ecosystem-Based Management (EBM) is a management approach¹ that:

- Is concerned with the ecological integrity that sustains both human and natural resources systems.
- Integrates ecological, social, and economic goals and recognizes humans as key components of the ecosystem.
- Considers ecological, not just political, boundaries.
- Addresses systems and the complexity of natural processes and uses adaptive management to reduce risk related to decisions and actions.
- Engages multiple stakeholders in a collaborative process to define problems and find solutions providing mutual benefit.

¹ http://www.ebmtools.org/about_ebm.html

AUTHORITY

Federal Water Pollution Control Act

The National Estuary Program was established by Congress in 1987 to improve the quality of *Estuaries of National Significance*. The Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), Section 320 directs EPA to develop plans for attaining or maintaining water quality in an estuary. This includes: protection of public water supplies; the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife; allowance of recreational activities in and on water; and control of point and nonpoint sources of pollution to supplement existing controls of pollution. Each program establishes a Comprehensive Conservation and Management Plan to meet the goals of Section 320.

Comprehensive Conservation and Management Plan

In 1987, Congress designated the Albemarle-Pamlico Estuarine System as an *Estuary of National Significance* and thus began a comprehensive study effort, called the Albemarle-Pamlico Estuarine Study (APES). The result of this process was the Albemarle-Pamlico National Estuary Program Comprehensive Conservation and Management Plan (CCMP). The CCMP was developed over a 7-year period by representatives from the private and public sectors, including government, industry, business, environmental interest groups, and municipal officials. The plan is a guide for environmental stewardship of the Albemarle-Pamlico estuary system. The CCMP reflects the input of people from the region who will be affected by the plan's recommendations. The CCMP seeks to balance the need for economic growth in eastern North Carolina with the need to secure the environmental future of the region. Approved on March 14, 2012, the new CCMP replaces the original 1994 document.

North Carolina Governor's Executive Order #122

On August 2nd, 2007, North Carolina Governor Michael F. Easley signed Executive Order # 122: *Creation of a Program Office, a Policy Board, and Advisory Committees to Support Natural Resource and Environmental Management in the Albemarle-Pamlico National Estuarine System*. This Executive Order is essential to the future of the APNEP and was developed after more than two years of program review and assessment, and stakeholder participation. This Executive Order replaces Executive Order # 74 (2005), and provides the operational advisory framework for the program office. A copy of the current Executive Order is available from the APNEP office at 1601 MSC, Raleigh, NC 27699.

Program Office

The Albemarle-Pamlico National Estuary Program Office coordinates and facilitates the implementation and advancement of the CCMP, the APNEP mission, and the activities of the Policy Board and Advisory Committees. The APNEP Program Office serves as a conduit for information between the Policy Board, Advisory Committees, state and federal agencies, local governments, tribes, academia and the public. The main program office is located in the Division of Natural Resource Planning and Conservation within the NC Department of Environment and Natural Resources in Raleigh, NC, with additional program contact personnel in Washington, and Greenville, NC, and Suffolk, VA.



Policy Board

A Policy Board for the Albemarle-Pamlico watershed was established by Executive Order to advise, guide, evaluate and support the CCMP implementation process and advance the CCMP and its management actions, and to ensure the highest level of collaboration, coordination and cooperation among state and federal agencies, local governments, the public and various interest groups. The Policy Board consults with the Advisory Committees and the Program Office for recommendations pertaining to implementation of CCMP management actions at the regional and local level, and the coordination and development of research and monitoring priorities. A major duty of the Policy Board is to evaluate the relevance of the CCMP and to make recommendations on amending it to address new or emerging issues that may affect the significant natural resources of the Albemarle-Pamlico estuarine system. The Policy Board, in cooperation with the Program Office, develops an annual report, budget and work plan. The Policy Board held its first meeting on October 31, 2005.

Advisory Committees

The Executive Order established three advisory committees to assist the Policy Board in guiding the APNEP and CCMP implementation.

A Committee of Citizen Advisors ("Citizen Advisory Committee") was established to advise and support the Policy Board, and to serve as a liaison to local agencies and interested parties regarding environmental and natural resource management concerns and issues relevant to implementation of the CCMP and the APNEP mission. The Citizen Advisory Committee (CAC) held its first meeting in January, 2006.

A Committee of Management Agency Representatives ("Management Advisory Committee") was established to facilitate and support the implementation and advancement of the CCMP management actions, and the APNEP mission. The Management Advisory Committee (MAC) held its first meeting in November, 2006.

A Committee of Science and Technical Advisors ("Science and Technical Advisory Committee") was established to advise the Policy Board and agencies responsible for implementation of the CCMP on scientific and technical issues. The Science and Technical Advisory Committee (STAC) held its first meeting in July, 2004.

FY 2012 PROJECTS & ACTIVITIES

The following provides an update on activities and projects that APNEP has been involved in since the last annual workplan report (June, 8, 2011). All projects which involved contract or grants are summarized in the table on pages 27 -29.

Board and Committees Support

The key element of the CCMP's implementation is active citizen participation. On August 2, 2007 North Carolina Governor Michael F. Easley signed Executive Order # 122: *Creation of a Program Office, a Policy Board, and Advisory Committees to Support Natural Resource and Environmental Management in the Albemarle-Pamlico National Estuarine System*. Staff work with these advisory groups to guide CCMP implementation, indicator development, and development of a new CCMP. The Policy Board and the STAC held quarterly meetings, the CAC held three meetings and the MAC did not meet as a committee in the past year.

Output: Partnership building, outreach, new CCMP development, Ecosystem Assessment
Outcome: New and greater public involvement, estuarine indicator development
Status: Ongoing
320 Funds: \$ 3,000
Leverage: To be determined

Virginia Watershed Field Coordinator

The headwaters for the Pasquotank, Chowan and Roanoke River basins are located within Virginia. One of the most critical components to effective implementation of the CCMP within these basins is long-term, comprehensive coordination between North Carolina and Virginia. The Watershed Field Coordinator for Virginia provides coordination and support to APNEP, DENR and the Virginia Department of Conservation and Recreation (VA DCR), and enhances implementation of the CCMP in the Roanoke, Chowan and Pasquotank river basins. The APNEP supports one-half of this position for at least 20 hours per week. The contract has been extended for another year.

Output: Program administration, reports, leverage, presentations
Outcome: Environmental result, CCMP implementation
Status: Ongoing
320 Funds: \$ 30,405
Leverage \$ 30,405

Citizens' Monitoring Network Transition

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, operation of the APNEP Citizens' Monitoring Network (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 will cover operational expenses. In concert with development of its monitoring strategy, APNEP will develop a request for proposals (RFP) to establish a revised citizen science/monitoring program for implementation in 2013.

Output: Awareness, data
Outcome: Increased environmental awareness



Status: In progress, ending September 2012
320 Funds: \$ 5,000
Leverage: \$ 50,000

Claridge Nursery Stream Restoration Monitoring Study

This study was designed to evaluate water quality changes associated with future mitigation activities and represents a unique opportunity to document before- and after- stream and floodplain restoration water quality conditions. Approximately 15,000 linear feet of stream and floodplain restoration has been conducted at the NC Division of Forest Resources (NCDFR) Claridge Nursery in Wayne County, NC (Neuse River Basin). Project partners include: NC Division of Forest Resources, NC Department of Transportation, and the NC State University Department of Biological & Agricultural Engineering.

Output: Stream monitoring study, report
Outcome: Better understanding of stream restoration and BMPs
Status: Complete
320 Funds: \$ 8,000
Leverage: \$ 15,000

Climate Ready Estuary

In 2009, APNEP was awarded a grant to address adaptation to climate change. APNEP continues to work with local elected and appointed officials in Beaufort, Dare, Hyde, Tyrrell and Washington Counties and in Columbia, Manteo, Plymouth, and Washington to address awareness and concerns about climate change and sea level rise in the region. NC Sea Grant is also an important partner in many of these activities.

Output: New projects to address impacts associated with climate change
Outcome: New partnerships, new projects for addressing climate change and sea level rise
Status: Ongoing
320 Funds: Staff Time
Leverage: To be determined

Climate Ready Utilities

APNEP has begun working with two local governments to analyze potential climate risks to water infrastructure. APNEP will be working with the towns of Columbia and Manteo to examine the potential impacts of rising sea levels on their wastewater infrastructure. With support from the Environmental Protection Agency and infrastructure experts from the Horsely Witten Group, the project team will work to quantify the risks faced by the towns' infrastructure using the EPA Climate Risk Evaluation and Assessment Tool (CREAT). In addition, the team will provide engineering and financial recommendations for realistic measures the towns might take to improve their resiliency to coastal hazards and flooding.

Output: Report on use of CREAT with EPA and the towns of Manteo and Columbia (see Climate Ready Utilities project)
Outcome: New partnerships, new projects for addressing climate change and sea level rise
Status: Ongoing
320 Funds: Staff Time
Leverage: To be determined



2011 Teacher Institute

APNEP partnered with the NC Office of Environmental Education, the Environmental Education Fund, and many other partners to offer a week long teacher training institute in July 2011 at the Trinity Center in Salter Path, NC. Approximately 25 elementary school teachers were 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 estuary and water resources.

Output: 25 teachers trained in environmental education, water quality, watersheds
Outcome: Increased environmental education activities in North Carolina schools
Status: 2011 Institute Complete, Ongoing annual engagement project
320 Funds: \$ 25,000
Leverage: \$ 20,225

2012 Teacher Institute

APNEP has partnered with the UNC Institute for the Environment and many other partners to offer a 4 day teacher training institute in July 2012 at the Trinity Center in Salter Path, NC. Approximately 25 elementary school teachers will be provided 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 estuary and water resources.

Output: 25 teachers trained in environmental education, water quality, watersheds
Outcome: Increased environmental education activities in North Carolina schools
Status: 2012 Institute in progress, Ongoing annual engagement project
320 Funds: \$ 12,000
Leverage: \$ 15,000 estimated

Estuary Awareness Campaign: Estuary Essentials

The North Carolina Aquarium Society was awarded funds to support its “Estuary Essentials” program for libraries. Estuary Essentials is a one-hour presentation to library patrons that introduces the critical components of a healthy Albemarle-Pamlico estuarine system and some of the animals found in the waterways. The North Carolina Aquarium on Roanoke Island (NCA-RI) provided this presentation to 20 libraries within the APNEP region.

Output: Presentations to library patrons across the APNEP region
Outcome: Increased public engagement, increased knowledge of the estuaries
Status: Complete
320 Funds: \$ 6,560
Leverage: \$ 12,488

Estuary Awareness Campaign: Educational bookmark contest

The NC Division of Soil and Water Conservation 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.

Output: Bookmark contest in regional schools
Outcome: Education and outreach to 4,000 students and 8,000 adults
Status: Complete



320 Funds: \$3,200
Leverage: \$8,600

Estuary Awareness Campaign: Promoting Awareness and Stewardship of APNEP's Estuarine Habitats and Shorelines

The North Carolina Coastal Reserve & National Estuarine Research Reserve was awarded funds to conduct an education and awareness campaign across the APNEP region. Target audiences of this campaign are K-12 teachers and students, coastal decision-makers, and the public (including estuarine-front property owners). This campaign taught the value and function of estuarine habitats, how these habitats may be affected by sea level rise, and alternative methods of estuarine shoreline stabilization.

Output: Public information campaign, workshops, public field experiences, educational curriculum, report
Outcome: Increased public awareness and stewardship of estuaries
Status: Complete
320 Funds: \$ 27,698
Leverage: \$ 12,012

CAC Project: Elizabeth City Middle School Created Stormwater Wetland

The UNC Coastal Studies Institute Foundation was awarded funds to construct a stormwater wetland, a boardwalk across the wetland, and develop educational curriculum. Students planted native plant species as part of the project.

Output: Constructed wetland, boardwalk, educational curriculum
Outcome: Water quality improvements, increased access to natural resources
Status: Complete
320 Funds: \$ 25,000
Leverage: \$ 20,000

CAC Project: Recycling Fishing Gear to Enhance Shellfish Productivity and Improve Local Water Quality

The UNC Institute of Marine Sciences was awarded funds for a project that will utilize recycled crab pots in targeted locations to facilitate oyster settlement and growth to create habitats for oysters. The project quantified the environmental and fishery benefits that can be accrued by refurbishing derelict crab pots so they no longer capture unintended animals, and fish that utilize recycled crab pots will be sampled to quantify the ecosystem effects of this restoration.

Output: Re-deploy recycled crab pots, biological surveys, report
Outcome: New oyster habitat, expanded understanding of reef function
Status: Complete
320 Funds: \$ 24,168
Leverage: \$ 29,979

CAC Project: Living Shoreline project to improve habitat and water quality and reduce stormwater runoff

The North Carolina Coastal Federation was awarded funds for a living shoreline project to improve habitat and water quality and reduce stormwater runoff. Approximately 6,000 marsh grass plugs planted by student and community volunteers along the Bogue Sound

shoreline in Morehead City. The marsh grass will create valuable estuarine habitat, protect the shoreline from erosion, help to improve the water quality of Bogue Sound, and capture and infiltrate polluted stormwater runoff.

Output: Shoreline restoration, report
Outcome: Created marsh habitat, improved stormwater runoff
Status: Complete
320 Funds: \$ 8,159
Leverage: \$ 4,196

CAC Project: Basic Observation Buoy (BOB) program

The UNC Coastal Studies Institute Foundation was awarded funds to expand the existing Basic Observation Buoy (BOB) program. This project includes a Teacher Training Workshop, construction of the BOB units at four schools, and deployment for data collection. Data collected from the BOB units were entered by the students and made accessible via the internet.

Output: Construct and deploy Basic Observation Buoys, report
Outcome: Increased student engagement, expanded data on the estuary
Status: Complete
320 Funds: \$ 25,000
Leverage: \$ 20,407

Henderson Affordable Housing Wetland Boardwalk Trail

The Conservation Trust of NC approached APNEP when the initial grantee for this project was unable to raise the additional funds necessary to complete the project. The renewed project aims to fulfill the work under the initial grant, which will create a protected, one-acre wetland park at the center of an affordable housing subdivision.

Output: Boardwalk, wetland, educational products
Outcome: Stormwater management, wetland restoration, increased awareness
Status: In progress
320 Funds: \$ 15,000
Leverage: \$ 93,540

State of the Sounds Conference

APNEP, along with NC Sea Grant, and the UNC Coastal Law Center hosted a one-day science and policy conference on November 17, 2011. The State of the Sounds conference featured sessions examining the status of the Albemarle-Pamlico Estuarine system's natural habitats and resources. Approximated 200 people were in attendance.

Output: Public awareness
Outcome: Public awareness /Environmental Protection and management
Status: Complete
320 Funds: \$ 9,000
Leverage: To be determined

Shad in the Schools

Shad in the Schools is a collaborative project that 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 US Fish and Wildlife Service, and the North Carolina Museum of Natural Sciences, 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. The project has three primary components: 1. Classroom project: Equipping classrooms to raise the shad, providing the shad eggs, assisting with the release. 2. Teacher training: one day training on the process of raising shad and an overnight canoe workshop on the Roanoke to learn about the ecosystem and 3. Multimedia presentations in both short online segments and a longer High Definition movie to be shown at the Museum and shared throughout the state.

Output: Increased community involvement in water quality and habitat protection
Outcome: Educational program, restoration activities
Status: Phase II Complete, Ongoing APNEP partner project
320 Funds: \$ 60,000
Leverage: \$ 40,750

Submerged Aquatic Vegetation Monitoring

This project supplements the Submerged Aquatic Vegetation (SAV) work that APNEP has been involved in over the past few years. In the Spring of 2009, APNEP was awarded a NC Coastal Recreational Fishing License grant to test protocols for SAV monitoring. Funds will be used for boat use and some required travel. Some portions of the project were contracted (non-320 funds) with ECU and NCSU.

Output: Testing of monitoring protocols
Outcome: SAV monitoring plan
Status: In Progress
320 Funds: \$ 1,000 (for travel & boat expenses)
Leverage: \$ 112,000

Albemarle-Chowan Watershed Roundtables

The APNEP partnered with the Virginia Department of Conservation and Recreation to lead the formation of an Albemarle-Chowan Watershed Roundtable on March 29, 2006. Several meetings have occurred since that date.

Output: Citizen advisory group
Outcome: Increased environmental awareness and citizen participation
Status: In Progress
320 Funds: Associated travel costs for attending meetings
Leverage: To be determined

Ecosystem Assessment Support

The APNEP Scientist is coordinating the activities associated with development of the ecosystem assessment and monitoring strategy within the new APNEP Ecosystem-Based Management (EBM) framework. APNEP will continue to address this task along with support from the STAC. The 2012 Ecosystem Assessment was completed and endorsed by the Policy Board in March 2012.

Output: Ecosystem Assessment
Intended: Enhanced environmental awareness, monitoring, support of CCMP
Status: Complete
320 Funds: \$ 36,000
Leverage: To be determined

CCMP/ EBM Support

In order to support the development and production of the new CCMP and associated monitoring plan, APNEP contracted with the Virginia Institute of Marine Science to assist in the development of the Ecosystem-Based approach for the new CCMP

Output: Ecosystem model, new CCMP
Outcome: New management approach (EBM), new CCMP
Status: Phase I complete
320 Funds: \$ 34,995
Leverage: To be determined

NC Coastal Habitat Protection Plan Update Document

APNEP worked with the NC Division of Marine Fisheries to print and bind copies of the 2010 NC Coastal Habitat Protection Plan (CHPP). The 2010 CHPP was finalized and approved by the four required environmental commissions (Marine Fisheries, Coastal Resources, Environmental Management, and Wildlife Resources commissions). This is a DENR interagency plan mandated by the Fisheries Reform Act. Copies of the plan were distributed to the commissioners responsible for implementing the plan.

Output: 100 printed and bound documents
Outcome: Enhanced interagency implementation of the CHPP
Status: Complete
320 Funds: \$ 2,7500
Leverage: To be determined

Place-Based Education, Essential Standards, and Citizen Science

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.

Output: Report, curriculum
Outcome: Community engagement, environmental awareness
Status: In progress
320 Funds: \$ 5,946
Leverage: \$ 6,000

Identify: An Inventory of Significant Natural Areas – Brown-water River Floodplains of the Albemarle-Pamlico Region

Natural Heritage Program biologists are conducting surveys of natural areas in the brown-water floodplains of the Albemarle and Pamlico Basins. Regional survey work will identify outstanding areas for conservation of rare species and natural communities. Data collected through these surveys will be compiled in the *Biotics* data management system and shared with conservation partners.

Output: Partnership building, outreach, CCMP implementation prioritization
Outcome: New and greater public involvement, estuarine indicator development
Status: In progress
320 Funds: \$ 40,117
Leverage: \$ 40,117



Albemarle-Pamlico Peatland Enhancement Project

The objective of this project is to use strategic restoration and/or enhancement of forested wetlands in the Alligator River National Wildlife Refuge, Great Dismal Swamp National Wildlife Refuge, and the 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.

Output: Hydrologic restoration, report
Outcome: Increased ecosystem resilience to sea level rise, habitat improvements
Status: In progress
320 Funds: \$ 74,500
Leverage: \$ 79,002

Jockey's Ridge State Park Community-based Shoreline Restoration

This project will provide 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.

Output: Shoreline restoration, report
Outcome: Increased ecosystem resilience to sea level rise, habitat improvements, community engagement
Status: In progress
320 Funds: \$16,280
Leverage: \$18,398

Enhancing Oyster Reef Ecosystems and Their Beneficial Services in Coastal Tidal Creeks

This project initiates an oyster restoration program that seeks to enhance oyster populations in the low salinity upper portions of coastal tidal creeks in the APNEP region. Restoration sites will be selected along tidal creeks that have been shown in recent survey data to be a refuge for oysters from an important biological stressor. Reefs will be constructed based on the crab pots-to-oyster reefs restoration methodology being refined by Dr. Joel Fodrie under a previous APNEP grant.

Output: Oyster reef restoration, report
Outcome: Increased ecosystem resilience to sea level rise, habitat improvements,
Status: In-Progress
320 Funds: \$45,361
Leverage: \$55,036

Albemarle-Pamlico Conservation and Communities Collaborative (AP3C)

Since October 2006, APNEP has been involved with the development of the Albemarle-Pamlico Conservation and Communities Collaborative (AP3C). This partnership emerged as a result of the interest expressed by numerous institutions in balancing the long-term conservation of natural systems with opportunities for the well-being of all the region's citizens. It is intended to provide a forum for working collaboratively whenever feasible. These organizations believe it will be possible to realize a sustainable future by avoiding duplicative efforts and missed opportunities. The participating organizations represent a broad spectrum of land and water resource managers and conservation and community

advocates, each with a different mission. All are dedicated, through partnership in the AP3C, to providing for human needs while protecting the integrity of the region's ecosystems. APNEP continues to participate in meetings of the AP3C and discuss how to better engage communities in conservation.

Output:	Citizen participation
Outcome:	Community engagement
320 Funds:	Associated travel costs for attending meetings
Leverage:	To be determined



PROPOSED PROJECTS & ACTIONS FOR FY 2013

Projects for FY 2013 will continue to support the program's transition to an ecosystem-based management program to guide implementation of the new CCMP.

Program Administration & Indirect Costs

For more detail see Administration and Financial section.

CCMP Component:	All
CCMP Actions:	All
CCMP Outcome:	All
Intended Programmatic Output:	Program administration, partnership building, CCMP implementation
Intended Programmatic Outcome:	CCMP implementation
Status:	Ongoing
Estimated Cost:	\$300,844 direct and \$24,583 indirect costs (see indirect cost p.24).

Watershed Field Coordinator - Virginia

The headwaters for the Pasquotank, Chowan and Roanoke River basins are located within Virginia. One of the most critical components to effective implementation of the CCMP within these basins is long-term, comprehensive coordination between North Carolina and Virginia. The Watershed Field Coordinator for Virginia provides coordination and support to APNEP, DENR and the Virginia Department of Conservation and Recreation, and enhances implementation of the CCMP in the Roanoke, Chowan and Pasquotank river basins. The APNEP supports one-half of this position for at least 20 hours per week.

CCMP Component:	All
CCMP Actions:	All
CCMP Outcome:	All
Intended Programmatic Output:	Program administration, reports, leverage, presentations
Intended Programmatic Outcome:	Environmental result, CCMP implementation
Status:	Ongoing, 1 year renewal of contract
Estimated Cost:	\$31,000
Estimated Leverage:	\$24,000

Board and Committees Support

The key element of the CCMP's implementation is active citizen participation through the Policy Board and each of the three Advisory Committees. Funds will be used support meetings, speakers, and materials as needed.

CCMP Component:	All
CCMP Actions:	All
CCMP Outcome:	All
Intended Programmatic Output:	Partnership building, outreach, CCMP implementation prioritization

Intended Programmatic Outcome:	New and greater public involvement, estuarine indicator development
Status:	Ongoing
Estimated Cost:	\$ 3,000
Estimated Leverage:	To be determined

CCMP/ EBM Support

In order to support the continued development of the new EBM based CCMP and associated monitoring strategy, APNEP will contract with the Virginia Institute of Marine Science to assist in the development of indicators and targets to support the implementation of CCMP. This will be a continuation of work supported under a previous contract.

CCMP Component:	All
CCMP Actions:	All
CCMP Outcome:	All
Intended Programmatic Output:	Indicators, Integrative Monitoring Strategy
Intended Programmatic Outcome:	New resource management approach (EBM)
Status:	New, Phase II
Estimated Cost:	\$ 20,000
Estimated Leverage:	To be determined

CCMP/Monitoring Workshops

A series of workshops will be structured to develop priorities among local scientists and other researchers, managers, policy makers, and citizens on how ecological monitoring should be targeted to best support APNEP indicator tracking for the CCMP ecosystem outcomes. Workshops will be theme-based (e.g., estuarine waters, uplands) and topics will include one or more of the following: policy questions to be addressed, technical questions to support policy, indicator selection, monitoring design (coverage, frequency, technology, and cost-to-information calculations), and monitoring funding.

CCMP Component:	All
CCMP Actions:	All
CCMP Outcome:	All
Intended Programmatic Output:	Indicators, Integrative Monitoring Strategy
Intended Programmatic Outcome:	Detection of environmental changes in support of CCMP implementation
Status:	New
Estimated Cost:	\$ 4,000
Estimated Leverage:	\$ 4,000

Wetland Mapping

During the latter half of FY 2012 APNEP is funding a preliminary wetland mapping exercise, whereby a NC-DENR contractor will develop a wetland inventory data base for three 1:24,000 USGS quadrangle areas in Hyde and/or Dare Counties in accordance with the FGDC Wetland Standard for Wetland Mapping using the publicly available infrared-processed 2010 North Carolina high resolution aerial photography. The photography is serving as the source data for the inventory, as well as the base map on which the wetland delineations will be displayed. Wetlands will be classified in accordance with Cowardin

classification system to include System, Subsystem, Class, Subclass, Water Regime, with special modifiers when observable on the source imagery. The deliverable will be wetland inventory data in an ArcGIS 9.3 geo-database plus a series of 1:12,000 scale Digital Ortho-photo Quarter Quads in an interactive pdf format. This format enables the map user to turn on and off a series of data layers (source imagery, topographic map, hydrography, roads, etc.) while viewing the wetland inventory maps, thereby creating custom map displays.

Pending positive feedback from the FY 2012 wetland deliverables, APNEP in FY 2013 will fund an expanded effort to assess at least ten additional USGS quadrangles with plans to seek additional funding from APNEP partners whose mission would benefit from a synoptic high-resolution map of wetlands in the A-P region.

CCMP Component:	Identify
CCMP Action:	A1.1
CCMP Outcome:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	GIS data, report
Intended Programmatic Outcome:	Enhanced management decisions
Status:	New
Estimated Cost:	\$ 30,000
Estimated Leverage:	To be determined

Programmatic and Partnership Activities Support

APNEP will undertake activities to implement actions within the new CCMP. Expenditures are expected to be related to meetings, supplies and potentially contracted support the initiated implementation of the new CCMP.

CCMP Components:	Identify, Protect, Restore, Engage, Monitor
CCMP Actions:	All
CCMP Outcomes:	All
Intended Programmatic Output:	Public outreach and involvement
Intended Programmatic Outcome:	CCMP Implementation, increased environmental awareness
Status:	New / Programmatic
Estimated Cost:	\$ 5,335
Estimated Leverage:	To be determined

Restoration Project RFP

APNEP will develop a *Request for Proposals* for projects that provide measurable environmental benefits to wetlands, riparian areas, oysters, or diadromous fish, in alignment with the Restore Component within the new CCMP. The selection of the projects will be made by the small ad-hoc group composed of the Board members.

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,
Intended Programmatic Output:	Restoration Projects, public awareness
Intended Programmatic Outcome:	Environmental / Natural Resource Restoration
Status:	New
Estimated Cost:	\$ 50,000
Estimated Leverage:	\$ 50,000

Atlantic White Cedar Restoration Project

APNEP will partner with the Dismal Swamp State Park, Friends of the State Parks, the Lions Club of Elizabeth City, and other volunteer organizations to plant approximately 10,000 Atlantic White Cedar seedlings over a 43-acre parcel called “Bull North”. The area received heavy damage from Hurricane Isabel, and then was subsequently burned in a forest fire. APNEP funds will cover the cost of purchasing the seedlings.

CCMP Components:	Restore
CCMP Actions:	C2.3
CCMP Outcomes:	3a, 3b, 3d
Intended Programmatic Output:	10,000 Atlantic White Cedar seedlings planted
Intended Programmatic Outcome:	Ecosystem restoration, habitats, improved water quality
Status:	New
Estimated Cost:	\$ 3,000
Estimated Leverage:	\$ 10,000

2013 Teacher Institute

APNEP will partner with the UNC Institute for the Environment other partners to offer a 4 day teacher training institute in July 2013. Approximately 25 elementary school teachers will be 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 estuary and water resources.

CCMP Components:	Engage
CCMP Actions:	D 2.1, 2.2, 2.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b
Intended Programmatic Output:	25 teachers trained in environmental education, water quality, watersheds
Intended Programmatic Outcome:	Increased environmental education activities in North Carolina schools
Status:	Ongoing APNEP program
Estimated Cost:	\$ 12,000
Estimated Leverage:	\$ 16,000

Basic Observation Buoy (BOB) Project Expansion

APNEP will partner with UNC Coastal Studies Institute Foundation to expand the existing BOB program. Funding will be used to expand and improve upon the project initially funded in 2011. The funds will allow for program expansion and improvement by upgrading sensor packages to provide more reliable and accurate data, while expanding the program to at least one additional school in the Albemarle-Pamlico region.

CCMP Components:	Engage, Monitor
CCMP Actions:	D 2.1, 2.2, 2.3; E1.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b, 3c, 3d
Intended Programmatic Output:	Construct and deploy Basic Observation Buoys, report
Intended Programmatic Outcome:	Increased student engagement, expanded data on the estuary
Status:	Expansion

Estimated Cost:	\$ 12,000
Estimated Leverage:	\$ 12,000

Shad in the Schools

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 US Fish and Wildlife Service, and the North Carolina Museum of Natural Sciences, 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. The project has three primary components: 1. Classroom project: Equipping classrooms to raise the shad, providing the shad eggs, assisting with the release. 2. Teacher training: one day training on the process of raising shad and an overnight canoe workshop on the Roanoke to learn about the ecosystem; and 3. Multimedia presentations in both short online segments and a longer High Definition movie to be shown at the Museum and shared throughout the state.

CCMP Components:	Engage, Restore
CCMP Actions:	D 2.1, 2.2, 2.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b
Intended Programmatic Output:	Increased community involvement in water quality and habitat protection
Intended Programmatic Outcome:	Educational program, restoration activities
Status:	Ongoing APNEP partner project
Estimated Cost:	\$ 40,000
Estimated Leverage:	\$ 40,000

Engage: Estuary Awareness Campaign: Educational bookmark contest

APNEP will partner with the NC Division of Soil and Water Conservation and others to conduct another educational bookmark contest throughout 16 northeastern counties in North Carolina. The bookmark contest will focus on the importance of estuaries, their significance in eastern North Carolina, and the challenges estuaries face in the evolving world. This campaign will be a hands-on contest, targeting fifth-grade students, and winning bookmarks will be distributed through local libraries. Efforts will be made to extend the program to the VA counties as well.

CCMP Components:	Engage
CCMP Actions:	D 2.1, 2.3
CCMP Outcomes:	1a 1b, 1d, 2a,
Intended Programmatic Output:	Bookmark contest in regional schools
Intended Programmatic Outcome:	Education and outreach to 4,000 students and 8,000 adults
Status:	Returning
Estimated Cost:	\$ 2,000
Estimated Leverage:	\$ 2,000

Submerged Aquatic Vegetation Monitoring

In 2007-2008 the first-ever coast-wide aerial digital imagery survey of submerged aquatic vegetation (SAV) within the Albemarle-Pamlico region was coordinated and funded by

the SAV Partnership, established by a cooperative interagency agreement between partners that included APNEP, NC-DMF, NC-WRC, NOAA, and FWS to map SAV distribution and abundance for that fraction of the resource that can be detected remotely. APNEP funded and published an interpretative SAV map based on the remotely-sensed imagery in September 2011. While long-term monitoring protocols must include labor-intensive in-the-water surveys to detect a significant fraction of SAV habitats that are difficult to detect remotely particularly in dynamic environments and greater depths, a majority of shallow-water SAV habitats can be monitored via remote sensing at a fraction of the per-area cost. With a SAV baseline now established, APNEP in FY 2013 will support the transition to SAV monitoring by contributing to another multiagency-funded aerial survey of a significant fraction of the A-P coast beginning in early FY 2013 (a five-year repeat cycle).

CCMP Components:	Identify, Monitor
CCMP Actions:	A1.1, E2.1
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3d, 3c, 3d
Intended Programmatic Output:	Public outreach and involvement
Intended Programmatic Outcome:	CCMP Implementation, increased environmental awareness
Status:	New
Estimated Cost:	\$ 50,000
Estimated Leverage:	\$ 100,000

Climate Ready Utilities

APNEP has begun working with two local governments to analyze potential climate risks to water infrastructure. APNEP will be working with the towns of Columbia and Manteo to examine the potential impacts of rising sea levels on their wastewater infrastructure. With support from the Environmental Protection Agency and infrastructure experts from the Horsely Witten Group (EPA contractor), the project team will work to quantify the risks faced by the towns' infrastructure using the EPA Climate Risk Evaluation and Assessment Tool (CREAT). In addition, the team will provide engineering and financial recommendations for realistic measures the towns might take to improve their resiliency to coastal hazards and flooding.

CCMP Components:	Identify, Restore, Engage
CCMP Actions:	A2.2, A2.3; C1.4; D3.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	Report on use of CREAT with EPA and the Utilities project
Intended Programmatic Outcome:	New partnerships, new projects for addressing climate change and sea level rise
Status:	Ongoing
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Chowan Healthy Waters Initiative

APNEP is partnering with Virginia Commonwealth University and VADCR, as well as state agencies on both sides of the border to implement action to protect high quality waters. Identification of these pristine waters is a necessary first step in the ultimate preservation of these valuable areas by land trusts and other organizations.

CCMP Components:	Identify, Protect, Engage
CCMP Actions:	A1.1; B3.2; D1.2
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	New partnerships an activities in VA and NC focused on protecting high quality waters
Intended Programmatic Outcome:	Maintain good water quality
Status:	Ongoing
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Albemarle-Pamlico Conservation and Communities Collaborative (AP3C)

APNEP will continue to has be involved with the development of the Albemarle-Pamlico Conservation and Communities Collaborative (AP3C). This partnership emerged as a result of the interest expressed by numerous institutions in balancing the long-term conservation of natural systems with opportunities for the well-being of all the region's citizens. It is intended to provide a forum for working collaboratively whenever feasible.

CCMP Components:	Engage
CCMP Actions:	D1.2
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	Citizen participation
Intended Programmatic Outcome:	Community engagement
Status:	Ongoing
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

ADMINISTRATION AND FINANCIAL

PROGRAM ADMINISTRATION

Program staff are responsible for the coordination, planning and successful completion of APNEP functions, including Policy Board and Advisory Committee meetings, APNEP forums and other APNEP-sponsored/partner events. In addition, staff monitors, and often becomes involved in, activities of state resource management agencies that relate to CCMP implementation, APNEP mission, the Albemarle-Pamlico watershed or estuary. Staff also attend meetings, conferences and workshops in order to stay apprised of technological advancements that may prove beneficial in the APNEP region and the program. Although the Policy Board and Advisory Committees are instrumental in identifying local environmental issues and prioritizing management actions within each basin, most management actions are implemented by various state agencies on a local, basinwide, regional or statewide basis, and require staff involvement and interactions.

Indirect Costs

NC DENR has negotiated an indirect cost agreement with the US EPA for the Office of Conservation and Community Affairs at a rate of 10.9 % of all salaries supported by this federal grant. Estimated indirect costs for FY 2013 are \$24,583 based on the FY2012 indirect rate. The rate is expected to change when NC DENR is notified by the US EPA later this year.

Administrative Costs

Overall administration costs for FY 2013 are estimated at approximately \$300,844 and include salaries, benefits, longevity pay, equipment, supplies, office space, IT services and phone, and training and development.

Personnel*

Presently, the APNEP staff consists of the APNEP program office in Raleigh, with the Director, Program Scientist, Community Specialist, and Project Coordinator. The APNEP office in Washington, NC houses the NC Watershed Field Representative.

The APNEP also contracts with the Virginia Department of Conservation and Recreation to host the Virginia Watershed Field Representative in Suffolk, Virginia.

Program Director

The Program Director administrates and coordinates program activities and the CCMP implementation process, involving interaction with numerous federal and state resource management agencies, universities, interest groups, and the general public. This position manages the post-CCMP grants and associated contracts, provides staff support to the APNEP Policy Board and Advisory Committees, and represents the APNEP at local, state, regional and national meetings. Bill Crowell will continue in this role. Dr. Crowell has been the Director since June 2002.



Community Specialist

The Community Specialist supports public/community relations and knowledge concerning issues relating to the Albemarle-Pamlico region; facilitates the implementation of the CCMP; develops and implements educational and outreach programs; promotes dialogue between local government officials and private citizens; and provides liaison responsibility for the Citizens' Monitoring Network. This position also provides valuable staff support to the Policy Board and Citizens' Advisory Committee. Jim Hawhee has served in this role since November 2010.

Program Scientist

The Program Scientist assists the Program Director with administration and coordination of the CCMP. This position helps design and implement a comprehensive monitoring strategy and reporting process, guides the Scientific and Technical Advisory Committee (STAC), and reviews project proposals and reports for merit. This position provides staff support to the Policy Board and Advisory Committees. Dean Carpenter will continue in this role. Dr. Carpenter has served in this role since November 2003.

Project Coordinator

The Project Coordinator assists the Program Director to administrate the Program and coordinate and manage contracting and associated activities within NCDENR. The position also assists with the CCMP implementation process, involving interaction with numerous federal and state resource management agencies, universities, interest groups, and the general public, and provides staff support to the Policy Board and Advisory Committees. Scott Gentry has served in this role since June 2010. He will leave APNEP for another position after May 31, 2012.

Watershed Field Coordinator (NC)

This position provides an essential function as an APNEP liaison to local governments and state agencies. The Watershed Field Coordinator (NC) provides coordination and support to local governments and state agencies to enhance CCMP implementation. This position also provides staff support to the Policy Board and Advisory Committees. This position splits time between the Raleigh and Washington DENR Regional Offices. Jimmy Johnson will continue in this role. Mr. Johnson has served in this role since January 2006. This position is funded by NC DENR through the NC Natural Heritage Trust Fund and provides a portion of the non-federal match for the 320 grant.

* Note: Positions funded under EPA section 320 funds are administrated in compliance with North Carolina Office of State Personnel rules and policies.

I. TABLE of CONTRACTS and GRANTS

The Albemarle-Pamlico NEP established and managed many contracts in FY 2012. A description of these items are discussed in the Projects and Activities section of this report.

Most actions are funded under CE-95451210. Actions associated with CE-97464802 were completed in 2011 and the grant was closed out.

The following table provides an overview of all active and completed contracts to local entities since October 1, 2011.



GRANTS TO LOCAL ENTITIES
(Active or completed October 1, 2010 to May 10, 2012)

Project Title	Funded Amount	Project Leader	Purpose	Deliverables	Completion Date	Status
Watershed Coordinator (VA)	\$30,405 (year 3)	VA. Dept. Conservation & Recreation	Fund Watershed Coordinator in VA-NC Shared river basins	Program support, Reports	Ongoing	In Progress
Citizens' Monitoring Network	\$5,000 (year 2)	East Carolina University	Outreach / Monitoring	Program Admin., Reports	Ongoing	In Progress
Teacher Institute 2011	\$25,000	Environmental Education Fund	Develop and Implement a Teacher Institute for 25+ teachers	Week long Institute, Report	Sept. 2011	Complete
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	In Progress
Ecosystem Assessment & Synthesis Report	\$68,838	Univ. of North Carolina - IMS	Ecosystem Assessment Support	Support, Report	Sept. 2011	Complete
Claridge Nursery Stream Restoration Monitoring Study	\$8,000	NC DENR – Div. Forest Resources	Pre-restoration baseline watershed monitoring	Monitoring, Report	June 2011	Complete
Shad in the Schools	\$60,000	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. 2011	Complete
CAC Projects: Elizabeth City Middle School Created Stormwater Wetland	\$25,000	UNC-Coastal Studies Institute Foundation	Construct a wetland at Elizabeth City Middle School to intercept stormwater from the school's buildings and parking lots	Stormwater Wetland, Boardwalk, Ed. Curriculum	Sept. 2011	Complete
CAC Projects: Recycling fishing gear to enhance shellfish productivity and improve local water quality	\$24,168	UNC-Institute of Marine Sciences	Recycled crab pots will be deployed in targeted locations to facilitate oyster settlement and growth to create habitats for oysters.	Deploy Crab Pots, Surveys & Analysis, Report	July 2011	Complete
CAC Projects: Living Shoreline to Improve Habitat and Water Quality and Reduce Stormwater Runoff into Bogue Sound	\$8,159	NC Coastal Federation	Conduct a shoreline restoration project by planting native vegetation along the Bogue Sound shoreline in Morehead City	Shoreline Planting, Report	July 2011	Complete
CAC Projects: Basic Observation Buoy (BOB) Workshop, Construction, and Deployment	\$25,000	UNC-Coastal Studies Institute Foundation	Local students will construct and deploy "BOB" units to collect data in the Albemarle-Pamlico Sounds	Training Workshop, BOB units, Report	Sept. 2011	Complete

Project Title	Funded Amount	Project Leader	Purpose	Deliverables	Completion Date	Status
Estuary Awareness: Estuary Essentials Program for Libraries	\$6,560	North Carolina Aquarium Society	Conduct presentations across the APNEP region about the estuarine system	Present “Estuary Essentials” at 20 Libraries, Report	Sept. 2011	Complete
Estuary Awareness: Environmental Education Bookmark Contest	\$3,200	NC DENR 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	Jan. 2012	Complete
Estuary Awareness: Promoting Awareness and Stewardship of APNEP’s Estuarine Habitats and Shorelines	\$27,698	NC Coastal Reserve & National Estuarine Research Reserve	Conduct an education campaign in the APNEP region that is complementary across multiple target audiences, including K-12 teachers and students, coastal decision-makers, and the public	Public Information Campaign, Workshops, Public Field Experiences, Report	Sept. 2011	Complete
Remote Sensing of Submerged Aquatic Vegetation (SAV) in the APNEP region	\$5,500	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	June 2012	In Progress
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	In Progress
Printing of the 2010 NC Coastal Habitat Protection Plan	\$2,750	NC DENR Div. of Marine Fisheries	Print and bind 100 copies of the 2010 NC Coastal Habitat Protection Plan	100 copies of the Plan	June 2011	Complete
An Inventory of Significant Natural Areas: Brown-water River Floodplains of the Albemarle-Pamlico Region	\$40,117	NC Natural Heritage Program	Conduct surveys of natural areas in the brownwater floodplains of the Roanoke and Tar River basins	Data collection and Documentation	Sept. 2012	In Progress
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	In Progress
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	In Progress



Project Title	Funded Amount	Project Leader	Purpose	Deliverables	Completion Date	Status
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	Sept. 2012	In Progress
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	In Progress
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	Pending



II. LEVERAGE FUNDS

The Albemarle-Pamlico NEP has more actively sought alternative sources of funding for APNEP activities and projects to fulfill the goals of the CCMP. In addition, the APNEP sought out additional avenues for collaborating with other agencies to assist in targeting these program funds towards CCMP and basinwide goals. Where possible, APNEP worked to cost-share projects to increase the effectiveness or the magnitude of projects, even though in several cases the APNEP was not the primary catalyst for the project.

As the program progresses, the APNEP is working to leverage more funds through partnerships, projects and grants. APNEP will be working with NC DENR to develop a strategy for the development of additional state funds for program activities.

Additionally, the APNEP staff will work with EPA staff to identify and develop strategies for leveraging funds beyond the EPA section 320 grant funds.

The APNEP has been successful in its ability to promote the needs, as well as the successes, associated with natural resource management, protection and enhancement efforts in the APNEP region. Several state conservation-funding sources were developed in response to research funded by the Albemarle-Pamlico Estuary Study. These programs include Clean Water Management Trust Fund, Clean Water State Revolving Fund Program, and the North Carolina Conservation Reserve and Enhancement Program.

FY 2013

In FY 2013, the Albemarle-Pamlico NEP will continue to seek additional avenues for collaborating with other partners to assist in targeting funds to support the new CCMP implementation actions and the APNEP mission. Where possible, APNEP will actively seek alternative sources of funding for APNEP activities and projects to fulfill the goals of the CCMP.

FY 2012

In FY 2012, the Albemarle-Pamlico NEP continued to seek partners and additional opportunities for partners in targeting actions and funds towards CCMP implementation. APNEP will submit its FY 2012 Leverage results in September 2012.

FY 2011

APNEP submitted its leverage estimates for FY 2011, in September 2011. A final total of approved leverage funds will be made available when released by the EPA. The approximate overall leverage for FY 2011 reported was nearly 10:1.

III. FY 2013 ESTIMATED FEDERAL COST SHARE

FY 2013 Budget

The estimated federal cost share grant for each NEP for FY 2013 is \$597,167*

Program Administration (staff salaries, benefits**, longevity, rent, supplies, etc.)	\$ 300,844
Boards & Committees Support	\$ 3,000
Travel	\$ 10,000
Programmatic & Partnership Activities	\$ 5,335
Watershed Field Coordinator - Virginia	\$ 30,405
CCMP/ EBM Support	\$ 20,000
CCMP / Monitoring Workshops	\$ 4,000
Wetland Mapping	\$ 30,000
Restoration Projects (RFP)	\$ 50,000
Atlantic White Cedar Reforestation	\$ 3,000
Teacher Institute	\$ 12,000
Shad in the Classroom	\$ 40,000
Basic Observation Buoy	\$ 12,000
Bookmark Contest	\$ 2,000
Submerged Aquatic Vegetation Monitoring	\$ 50,000
Indirect Costs (10.9%)	\$ 24,583
	\$ 597,167

* US EPA, April 2012

** Includes: Benefits are based on Social Security (7.65 %) & Retirement (14.13 %) of position's annual salary
Medical Insurance Plan rate of \$5,192 per year and
Indirect Costs based on 10.9 % of federal salaries.



APNEP Policy Board requests that the previous year's budget be included in the annual work plan for review and comparison purposes.

FY 2012 Budget

The federal cost share grant for each NEP for FY 2012 was \$598,800

Program Administration (staff salaries, benefits**, longevity, rent, supplies, etc.)	\$ 289,315
Boards & Committees Support	\$ 3,000
Travel	\$ 10,000
VA Watershed Field Coordinator	\$ 32,000
Community Involvement & Outreach	\$ 8,009
Citizens' Monitoring Network Transition	\$ 5,000
CCMP- Identify	\$ 100,000
CCMP- Restoration***	\$ 50,000
CCMP – Engagement	\$ 80,000
CCMP – Monitoring	\$ 2,000
Indirect Costs (8.8%)	\$ 19,476
	\$ 598,800

*** Includes: Benefits are based on Social Security (7.65 %) & Retirement (10.51 %) of position's annual salary
Medical Insurance Plan rate of \$4,929 per year and
Indirect Costs based on 8.8 % of federal salaries.*

**** Will be combined with FY2011 funds for a total of \$150,000*



IV. NON-FEDERAL COST SHARE (Match for FY 2012)

Summary of Match Requirements

The North Carolina Department of Environment and Natural Resources intends to provide \$597,167 for the required 1:1 non-federal match for FY 2013 under CE-95451210. This match will be provided through:

- 1) In-kind services provided by staff support for the NC Field Representative from the Department of Environment and Natural Resources: Office of Conservation and Community Affairs.
- 2) State funds allocated to cover costs associated with projects to improve water quality through funding of the NC Clean Water Management Trust Fund for one or more projects in the APNEP program boundary.

Summary of Non-federal State Match

In-kind Position (salaries and benefits)	\$ 86,799
Clean Water Management Trust Fund Project(s):	<u>\$ 510,368</u>
TOTAL:	\$ 597,167

In-kind Position Non-federal Match

The North Carolina Department of Environment and Natural Resources intends to provide \$86,799 as part of the required 1:1 non-federal match for FY 2013. The match will be provided through in-kind services provided by staff of the Department of Environment and Natural Resources.

Office of Conservation and Community Affairs

NC DENR's Office of Conservation and Community Affairs manages the *One North Carolina Naturally* initiative by leading the development and implementation of a comprehensive statewide conservation plan involving government agencies, private organizations, landowners and the public. Protecting the state's open space areas in this coordinated manner facilitates the more effective use of limited funding sources. OCCA also provides support for development of regional open space plans, providing assistance through regional meetings and resource materials.

The match position is responsible for program administration, support, community involvement and guiding implementation of the APNEP Comprehensive Conservation and Management Plan and the NC Coastal Habitat Protection Plan.

<u>POSITION</u>	<u>#</u>	<u>SALARY</u>	<u>EFFORT</u>	<u>Match</u>
Field Representative	1	67,012	1.0	67,012
		Benefits*	1.0	<u>19,787</u>
Total In-Kind Service Match:				\$ 86,799

* Benefits are based on Social Security (7.65 %) & Retirement (14.13 %) of position's annual salary, plus Medical Insurance Plan rate of \$5,192 per year.

In-kind Project/Services Non-federal Match

The North Carolina Clean Water Management Trust Fund intends to provide \$510,368 as part of the 1:1 non-federal match for FY 2013. The expenditure of non-federal funds will be provided through water quality improvement projects in one or more of the APNEP river basins.

Clean Water Management Trust Fund

The Clean Water Management Trust Fund (CWMTF) was created in 1996, in part in a response to a 1994 CCMP action. The CWMTF provides grants to local governments, state agencies, and conservation non-profits to help finance projects that specifically address water pollution problems. CWMTF funds projects that enhance or restore degraded waters, protect unpolluted waters, and/or contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits.

V. TRAVEL

The APNEP and EPA consider personal, face-to-face contact with peers and colleagues essential for information sharing and technology transfer. As part of the federal grant requirements to attend EPA-NEP meetings, APNEP will allocate \$10,000 as travel funds for program support, enhancement, education, and outreach support. These funds are to be used for activities such as:

- 1) Presentations at or participation in national or regional NEP and EPA meetings
- 2) Presentations at or participation in workshops or conferences
- 3) Travel to other NEPs or communities to provide peer-to-peer technical assistance
- 4) Travel to other NEPs or watersheds for assistance
- 5) Travel by NEP staff or stakeholders from other NEPs or watershed programs to provide NEP with assistance
- 6) Travel to national or international conferences to share information on the National Estuary Program

Stakeholders may include citizens, members of environmental or public interest organizations, business or industry representatives, academicians, scientists or technical experts. As a requirement of this grant agreement, members of the APNEP core staff are required to attend all meetings called on behalf of the NEPs. These funds cannot be used to pay for travel of Federal employees.

FY 2012

APNEP staff attended a number of meetings and conferences using the allotted travel funds and specific project funds or administration costs. Below is a summary of these activities that have occurred or are currently planned for the year:

Personnel	Date	Purpose	Location	Cost*
APNEP Staff	10/1/11 to 9/ 30/12	Normal Program Activities/ projects	APNEP area	5400
Crowell	2/ 2012	EPA- ANEP/NEP National Meeting	Washington, DC	1200
Carpenter	11/ 2011	CERF	Daytona, FL	1200
Gentry	2/ 2011	EPA meeting	Atlanta	800
			Total*	\$8,600

*Estimate up to
May 10, 2012



FY 2012 Projected Travel Estimates

All travel is allocated into three categories: In-State, Out-of-State, and EPA Required. All travel must be consistent with published 2010 NC DENR travel policies and regulations (<http://www.enr.state.nc.us/ooc/pdf/trav.pdf>). Due to the dynamic nature of the NEP, all travel cannot be scheduled a year ahead: therefore, only an estimate can be provided based on established NC DENR rates (below). Some travel is associated with specific projects, and travel costs are included in budgeted amounts.

In-State:

In-State travel is primarily for program staff to conduct routine business associated with APNEP daily operations, staff training or topical meetings germane to the program. It may also cover non-staff for NEP business (i.e., board and committee members, guest speakers, and experts). Rates are listed below.

In-state estimate for FY 2013: 30 trips, among 4 staff members; average cost per trip approximately \$100. Total \$3,000

EPA-associated Out-of-State:

The NEPs hold two national meetings each year (these may be in same fiscal year or not). Each program is strongly encouraged to participate in the meetings. The spring meeting is held in the Washington, D.C. area and the fall meeting location rotates among the different NEP locations. The level of staff participation will vary depending on the agenda for a particular meeting. Generally one or two staff members attend. Travel may also cover non-staff (e.g., Policy Board or Advisory Committee members).

Estimate for FY 2013: 2 trips, 3 persons; average cost per trip per person is approximately \$1000.00 (based on prior travel). Total \$6,000

Other Out-of-State:

Out-of-State travel is primarily for program staff to conduct business associated with the NEP, and to attend training or topical meetings germane to the program. It may also cover non-staff (e.g., board and committee members, guest speakers, experts) for NEP related activities. Rates are listed below.

Out-of-State Estimate for FY 2013: 2 trips, 2 days; average cost per trip approximately \$500.00. Total \$1,000

2012 NC DENR TRAVEL RATES

Item	In-State	Out of State	Overnight Trip	Day Trip
Breakfast	\$ 8.00	\$ 7.75	Leave Office before 6:00 AM	Leave Office before 6:00 AM; Extend workday by 2 hours
Lunch	\$ 10.45	\$ 10.10	Leave Office by 12:00 Noon; Overnight return after 2:00 PM	Never claimed on day trip
Dinner	\$ 17.90	\$ 20.30		Depart office before 5:00 PM Return after 8:00 PM Extend workday by 3 hours
Breakfast/ Dinner				Leave office before 6:00 AM; Return after 8:00 PM; Extend workday by 5 hours
Hotel (+ taxes)	\$ 63.90	\$ 75.60		

FY 2013 Projected Travel

Personnel	Date	Purpose	Location	Estimated Cost
APNEP Staff & volunteers	October 2012 to September 2013	Normal program activities in the region	Albemarle – Pamlico Region	\$3,000
APNEP Staff	October 2012	NEP national fall meeting		\$3,000
APNEP Staff	February 2013	NEP national spring meeting	Washington, DC Area	\$2,000
APNEP Staff	October 2012 to September 2013	Additional relevant national meetings		\$2,000

APPENDIX A: 2009 PROGRAM EVALUATION UPDATES

The EPA Coastal Management Branch conducted a Program Evaluation of APNEP with staff between March and June 2009.

A December 15, 2009 letter stated that the EPA found that the APNEP continues to make “significant progress” in implementing its CCMP and determined that the APNEP “passed” the 2009 Program Evaluation and would be eligible for FY 2010, 2011 and 2012 funding authorized under §320 of the Clean Water Act. A copy of current Executive Order EPA review letter is available from the APNEP office at 1601 MSC, Raleigh, NC 27699.

The Program Evaluation (PE) Team complemented APNEP on many of its accomplishments and progress made in areas highlighted during the 2005 Implementation Review. In particular the team applauded APNEP for its commitment to using robust science and technical data to set broad policy goals and to inform project selection as well as the actions of the STAC.

The PE Team commended the APNEP for its leadership of local efforts to build the capacity of educators to teach environmental science to students living in economically- and socially-distressed communities. The PE Team was impressed by the partners’ systematic tracking and analysis of post-workshop/ training survey results and by the results themselves. Those results showed that teachers thought that the workshops and training sessions had enhanced their ability to effectively teach environmental science to a broad cross-section of students. The PE Team had an opportunity to see on-the-ground evidence of workshop impacts when it visited a high-functioning wetland designed and constructed by students whose teacher had attended one of the environmental education workshops.

The PE Team was impressed by the APNEP leadership in multi-faceted outreach and public involvement efforts such as the 2008 public listening sessions that focused on sea level rise impacts on the Albemarle-Pamlico Sound study area. Those listening sessions and follow-up discussions with local civic and business leaders and State policymakers exemplify a well-planned, strategic approach to developing effective climate change adaptation policies and action plans and engaging a broad cross-section of the public.

The PE Team commended APNEP and its partners for their commitment to engaging communities which, while especially vulnerable to sea level rise because of their location and/or lack of economic resources, are not typically provided opportunities for public involvement on environmental issues. Since fewer participants than expected actually attended those listening sessions, partner co-sponsors noted in their final report that in the future, they would use different strategies to more successfully engage members of those communities.

The Team also noted that given the size of the APNEP study area, field staff is critical to effective outreach and priority action implementation in outlying communities. Field staff’s daily interaction with community stakeholders enables staff to tap into the pulse of communities, effectively serve as liaisons to the Program offices in Raleigh, and raise awareness among communities about APNEP mission and priorities. The Team believes that assigning staff to serve in field positions has been an important step toward promoting the program’s mission and enhancing CCMP implementation throughout the study area.

The EPA review also identified the following three challenges:

1) Maintaining Visibility and Independence



EPA is concerned that moving APNEP back to a Division jeopardizes the Program's status, visibility, and independence, thereby slowing the momentum attained over the past several years and compromising the Program's leadership of efforts to improve Albemarle-Pamlico Sound water quality and living resource conditions. Since APNEP has demonstrated that it operates most effectively when it has visibility and autonomy, EPA recommends that 1) DENR reverse its decision to move APNEP back into a Division; and 2) DENR re-locate the Program to an organizational home where the Program is highly visible and regarded as a model of ecosystem-based management.

Update:

On July 1, 2010 the APNEP was relocated within a new Office of Conservation, Planning, and Community Affairs. This new office integrates programs that provide the science, incentives and guidance that inform, guide and support conservation of the state's significant natural areas, coastal habitats and working lands. This new office strengthens APNEP's role within the NC DENR and will enable the program to better accomplish its mission.

2) Demonstrate Environmental Progress

EPA commends the Program for its support of water quality and habitat restoration and protection projects and for its indicator development and monitoring plan design efforts. EPA acknowledges that indicator development and monitoring plan design typically take several years to complete. However, given the increased public sector emphasis on accountability and government stakeholder requests to demonstrate program results, EPA is concerned that the pace of APNEP efforts to set baselines, assess conditions throughout the study area, and measure environmental change is slower than necessary. To promote implementation of monitoring and assessment priority actions, EPA requested that: 1) DENR provide additional resources to support completion of the STAC monitoring plan; 2) The STAC complete development of its monitoring plan and DENR identify resources for monitoring program implementation; 3) The State begin conducting a regional ecosystem assessment to help guide the allocation of monitoring resources to waters and other ecosystem components of highest priority.

Also, EPA believes it is important that APNEP, like all NEPs, consider developing a strategy stating that: (1) achievement of on-the-ground environmental results is a Program priority, and (2) the Program will develop a tool for measuring the environmental progress resulting from implementation of Program-supported projects. To promote those efforts, EPA recommends that APNEP should: 1) Draft a strategy as described above that would identify funding and staff resources dedicated to strategy implementation, 2) Include in its next work plan a description of its protocol for measuring the short-term environmental outcomes of projects that it funds and/or in which it plays a lead support role; 3) Begin setting and documenting project-specific baselines as a first step toward measuring environmental results.

Update:

As the EPA acknowledged, indicator development and monitoring plan design typically take several years to complete, and APNEP is working to accomplish this important task with input from its many partners. During FY2012, APNEP with support from the Science and Technical Advisory Committee (STAC) completed an ecosystem assessment that evaluated present conditions and provided a measure of baseline conditions throughout the study area for a set of indicators.

The APNEP Policy Board adopted a new Comprehensive Conservation and Management Plan (CCMP) at its March 14, 2012 meeting. As a result the Program will use an Ecosystem Based Management (EBM) paradigm established in the new CCMP.



Advantages of the new EBM approach are numerous:

- *This is a significant action by the Program to further the connection between policy development and environmental improvements.*
- *Provides a strategy to achieve on-the-ground environmental results and develop a tool for measuring the environmental progress resulting from implementation of program-supported projects as recommend in the PE letter.*

Additionally, APNEP staff worked with partners to integrate their environmental priorities into the new CCMP using the EBM approach. Better integration between the program, partners, including DENR divisions will result in an increased level of support that will benefit APNEP and increase its potential to produce measurable environmental results.

APNEP continues to strive for a strong science-based program for the protection and restoration of our estuary of national significance. Will the CCMP in place, staff are working on a monitoring strategy that uses an EBM, paradigm. The program's EBM approach will provide a strategy to achieve on-the-ground environmental results and develop tools for measuring the environmental progress resulting from implementation of program-supported activities. The EBM approach is well-suited for this purpose and will allow APNEP to adapt its approach over time to address emerging issues.

3) Expedite Funds Draw Down

As of September 30, 2009, APNEP still had an unexpended balance of \$769,805 in FY 2007-2008 and FY 2008-2009 appropriated funds. The PE Team became concerned about the slow draw down of those funds.

Update:

APNEP has taken significant action to expedite the draw-down of the unexpended balance of the FY2007-2008 and FY2008-2009 remaining appropriated CWA §320 grant funds. All projects and expenditures were completed by September 30, 2011.

Additionally, APNEP and DENR have taken the following steps to ensure that §320 funds are drawn down in an expedited manner in the future:

- *The APNEP Director, the Director of the Division of Conservation Planning and Community Affairs, and the DENR Budget Analyst meet monthly to review the budget and implement steps to ensure efficient budgeting and the timely draw-down of all §320 awards.*
- *The APNEP Director and the Director of the Division of Conservation Planning and Community Affairs meet monthly to address progress on all aspects of the program, including fiscal issues, and ensure progress on PE Challenges.*

APPENDIX B: 2012 CCMP GOALS AND 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.