ALBEMARLE-PAMLICO NATIONAL ESTUARY PARTNERSHIP

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, 2013 - September 30, 2014

Draft for Review by the
APNEP Policy Board on
April 30, 2013
NOAA Laboratory
Beaufort, NC

U.S. EPA Agreement CE-95451210

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Required Cooperative Agreement Related Contents in this Document:

- A progress report detailing accomplishments in FY 2013 is provided on pages 8 through 21.
- The FY 2014 Proposed Work Plan items are presented on pages 22 through 329.
- The FY 2014 Proposed Work Plan budget is presented on page 37.
- Administrative and financial information items are presented on pages 30 through 42.

Purpose: The purpose of this cooperative agreement is to provide support to the North Carolina 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 Partnership's (APNEP's) Comprehensive Conservation and Management Plan (CCMP) and support for the APNEP mission to identify, restore and protect the significant resources of the region.

Funding: 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, 2014 under Cooperative Agreement CE-95451210. The associated grant application (SF424) will result in the 4th amendment to this agreement.

It is anticipated that the requested grant amount may be impacted by the federal budget sequestration that began on March 1, 2013 as enacted under the Budget Control Act of 2011, and that APNEP will be notified accordingly to make adjustments to the grant budget as needed.

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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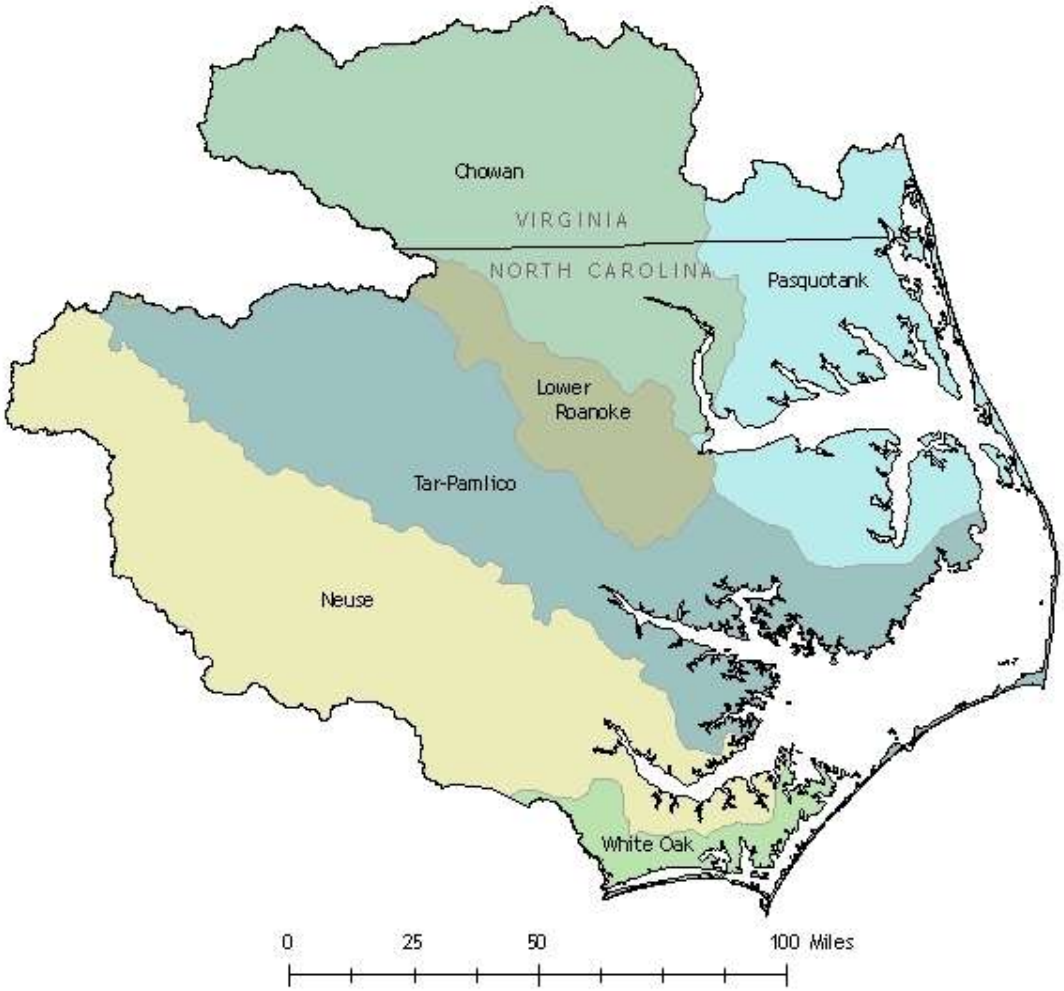
INTRODUCTION

The Albemarle and Pamlico Sounds represent the nation's largest lagoonal estuarine system. The system is composed of eight 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 Partnership (APNEP) is a part of the US Environmental Protection Agency's (EPA's) National Estuary Program (NEP). It was one of the first programs established under amendments to the Clean Water Act in 1987. Its initial Comprehensive Conservation and Management Plan (CCMP) 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.



Ecosystem-Based Management Approach

Ecosystem-Based Management (EBM) is based on the tenet that managing natural resources from a systems perspective increases the likelihood of success by forging more effective connections among humans, nature, science, and management actions. 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 March 2012 with the adoption of a new CCMP to replace the original 1994 CCMP, based on EBM principles. As implementation of this FY 2014 Work Plan begins, APNEP anticipates completing the development of its ecosystem indicators and monitoring strategy to support the new EBM-based CCMP. With a new CCMP established, based on a ten-year planning horizon, this work plan includes a proposal for the development of activities by the CCMP Implementation Workgroups for actions that support the desired ecosystem and management outcomes.

***Ecosystem-Based Management* (EBM)** is a management approach[1] 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 risks 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 (NEP) 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 (CCMP) 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, entitled the Albemarle-Pamlico Estuarine Study (APES). The result of this process was the APNEP CCMP. The initial CCMP was developed over a seven-year period by representatives from 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 estuarine 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 region 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 #133

On November 5, 2012, North Carolina Governor Beverly Eaves Perdue issued Executive Order # 133: *Albemarle-Pamlico National Estuary Partnership*. This Executive Order was developed after more than two years of program review and ecosystem assessment, and the development of a new CCMP. This Executive Order replaces Executive Order # 122 (2007), and provides the operational advisory framework for the partnership office and support for the EBM approach. A copy of the current Executive Order is available from the APNEP office at 1601 MSC, Raleigh, NC 27699 and at www.apnep.org

APNEP Office

The APNEP 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 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 office is located in the Office of Conservation Planning and Community Affairs within the NC Department of Environment and Natural Resources in Raleigh, North Carolina, with additional program personnel in Washington, North Carolina and Suffolk, Virginia.

Policy Board

A Policy Board for the APNEP was established by Executive Order (#133) 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 APNEP Office for recommendations pertaining to implementation of CCMP actions at the regional and local levels, 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 APNEP Office, develops an annual report, budget and work plan. The revised Policy Board held its first meeting on February 6, 2013 in Raleigh, North Carolina.

Standing Advisory Committees

The Executive Order established two advisory committees to assist in guiding CCMP implementation, the Policy Board, and the Partnership.

A Science and Technical Advisory Committee (STAC) was established to provide independent advice to the Policy Board and the Implementation Committee on scientific and technical issues, including ecosystem assessment and monitoring in support of CCMP implementation. The revised STAC held its first meeting during November 2012 in Manteo, North Carolina.

An Implementation Committee is being established to work with the Policy Board on CCMP implementation. Committee members will serve as liaisons to agencies and relevant parties regarding environmental and natural resources management relevant to CCMP implementation.

FY 2013 PROJECTS & ACTIVITIES

The following provides an update on activities and projects that APNEP has been involved in since the last annual work plan report (May 10, 2012). All projects which involved contracts or grants are summarized in the table on pages 35 -37.

Board and Committees Support

The key element of CCMP implementation is active citizen participation through the Policy Board and each of the two Advisory Committees. Funds were used to support meetings, speakers, and materials as needed.

CCMP Component:	All
CCMP Actions:	All
CCMP Outcome:	All
Programmatic Output:	Partnership building, outreach, prioritizing CCMP implementation
Programmatic Outcome:	Renewed public involvement
Status:	Ongoing
Estimated Cost:	$ 3,000
Estimated Leverage:	To be determined

Programmatic and Partnership Activities Support

APNEP undertook numerous activities to implement actions within the new CCMP. Expenditures are related to meetings, supplies and potentially contracted support for CCMP implementation.

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:	$ 6,315
Estimated Leverage:	To be determined

CCMP/ EBM Support

To support the continued development of the new EBM-based CCMP and associated monitoring strategy, APNEP contracted with the Virginia Institute of Marine Science to assist in the development of an ecosystem model to support the development of indicators and targets to support CCMP implementation, as well as support assessment functions of diagnosis and forecasting.

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:	In Progress
Estimated Cost:	$ 20,000
Estimated Leverage:	To be determine

Watershed Field Coordinator - Virginia

The APNEP Watershed Field Coordinator for Virginia provides coordination and support to APNEP, NC DENR and the Virginia Department of Conservation and Recreation, and enhances CCMP implementation in the Roanoke, Chowan and Pasquotank river basins. APNEP supports one-half of this position for at least 20 hours per week. This is the final year of direct funding support from APNEP.

CCMP Component:	All
CCMP Actions:	All
CCMP Outcome:	All
Programmatic Output:	Program administration, reports, leverage, presentations
Programmatic Outcome:	CCMP implementation and program support
Status:	Contract pending for current year
Estimated Cost:	$31,000
Estimated Leverage:	$24,000

CCMP/Monitoring Workshops

A series of workshops will be structured to develop priorities among scientists, managers, policy makers, and citizens on how ecological monitoring should be targeted to best support APNEP indicator tracking of CCMP ecosystem outcomes.

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:	Pending
Estimated Cost:	$ 4,000
Estimated Leverage:	$ 4,000

Restoration Project RFP

APNEP posted *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 2012 CCMP.

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 from FY2013 grant, supplanted with $181,611 from remaining funds from previous two years of grant. Total awarded equals $231,612
Estimated Leverage:	$ 246,187

The following projects were funded under the RFP:

- *Hoggard Mill Pond – Dam and River Herring Habitat Restoration*: APNEP funded Mid-East Resource Conservation & Development (RC & D) to coordinate this restoration project, which is a collaborative partnership that will work to improve degraded river herring habitats. Hoggard Millpond, built in 1736, is located on the lower end of Hoggard Mill Creek and the headwaters of navigation on the Cashie River. Storm events have decimated the dam and water control structures. The effort will restore fish passage and the dam, which is a historical and culturally significant landmark.
    - Estimated Cost: $49,500
    - Estimated Leverage: $56,500

- *Water Quality Restoration of Alligator River, Long Shoal River and Pamlico Sound:* APNEP funded the North Carolina Coastal Federation to coordinate a restoration project that will enable storage and filtration of approximately 100 million gallons of runoff from 3,700 acres of cropland in Hyde County. Project funds will be 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.
    - Estimated Cost: $74,989
    - Estimated Leverage: $76,664

- *Use of a Novel Restoration Method to Enhance Oyster Populations and Improve Water Quality in Tidal Creeks:* APNEP funded researchers from the UNC Institute of Marine Sciences to lead a restoration project that tests 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 builds on the knowledge of local fishermen, who have found large oysters free from parasitic boring sponges thriving while buried in tidal creek sediments.
    - Estimated Cost: $32,138
    - Estimated Leverage: $35,203

- *Using Positive Interactions between Bivalves and Seagrass to Improve Water Quality and Restore Essential Fish Habitat in Coastal North Carolina -Phase II:* APNEP funded researchers at the UNC Institute of Marine Sciences to lead this project, which expands 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 will restore approximately 2.5 acres of clam populations within seagrass meadows at sites in Back and Pamlico Sounds to spur further eelgrass recovery.

    - Estimated Cost: $74,985
    - Estimated Leverage: $77,817

Atlantic White Cedar Restoration Project

APNEP partnered with Dismal Swamp State Park, Friends of the State Parks, the Lions Club of Elizabeth City, the Boy Scouts, and other volunteer organizations to plant 10,000 Atlantic white cedar seedlings in an area that received heavy damage from Hurricane Isabel, and then was subsequently burned in a forest fire. APNEP funds covered the cost of purchasing the seedlings from the NC Forest Service.

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:	Complete
Estimated Cost:	$ 3,000
Estimated Leverage:	$ 10,000

2012 Teacher Institute

APNEP partnered with the UNC-CH Institute for the Environment and many other partners to offer a four-day teacher training institute in July 2012 at the Trinity Center in Salter Path, NC. Elementary school teachers were 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.

CCMP Components:	Engage
CCMP Actions:	D 2.1, 2.2, 2.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b
Programmatic Output:	25 teachers trained in environmental education, water quality, watersheds
Programmatic Outcome:	Increased environmental education activities in North Carolina schools
Status:	Ongoing APNEP program
Estimated Cost:	$ 12,000
Estimated Leverage:	$ 15,000

2013 Teacher Institute

APNEP is partnering with the UNC Institute for the Environment and other partners to offer a four-day teacher training institute in July 2013 at the NC Botanical Garden. Approximately 25 elementary school teachers will be provided with curriculum training in earth and environmental sciences with hands-on activities, local 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 is partnering with UNC Coastal Studies Institute to expand the existing BOB project. Funding allows 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.

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
Intended Programmatic Output:	Construct and deploy Basic Observation Buoys, report
Intended Programmatic Outcome:	Increased student engagement, expanded data on the estuary
Status:	In Progress
Estimated Cost:	$ 12,000
Estimated Leverage:	$ 12,000

Shad in the Schools

This collaborative project provides students with an understanding of the science process, an 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.

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 (third year)
Estimated Cost:	$ 40,000
Estimated Leverage:	$ 40,000

Educational bookmark contest II

APNEP is partnering 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 focuses on the importance of estuaries, their significance in the eastern region, 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 throughout local libraries.

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:	In Progress
Estimated Cost:	$ 2,000
Estimated Leverage:	$ 2,000

Wetland Mapping
Project cancelled and funds directed to SAV Monitoring, as a similar project was funded by USFWS.

Submerged Aquatic Vegetation Mapping & Monitoring
APNEP continues to support the mapping and assessment of Submerged Aquatic Vegetation (SAV) in the AP region. In FY 2013 APNEP acquired imagery for Back Bay to Roanoke Sound. NC DOT is currently delineating the visible SAV. In 2009, APNEP was awarded a NC Coastal Recreational Fishing License (CRFL) grant to test protocols for SAV monitoring. Funds will be used for boat use and some required travel. Portions of the project were contracted (non-320 funds) with ECU and NCSU.

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:	In Progress
Estimated Cost:	$ 80,000
Estimated Leverage:	$ 100,000

Submerged Aquatic Vegetation Monitoring (CRFL Project)
This project supplements the SAV work that APNEP has been involved in over the past few years. In 2009 APNEP was awarded a NC CRFL grant to test protocols for SAV monitoring. The project was completed in FY 2013. The final report is available on the APNEP website.

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

NC Coastal Habitat Protection Plan Implementation Support
The NC Coastal Habitat Protection Plan (CHPP), adopted by Coastal Resources, Environmental Management, Marine Fisheries and Wildlife Resources Commissions, has seen routine development since its implementation began in 2004. While differences in scope, geography and mission exist, implementation of APNEP's CCMP and the CHPP are complimentary. Jimmy Johnson, North Carolina's Coastal Habitats Coordinator, serves a

joint detail with APNEP and the NCDENR Office of Conservation, Planning, and Community Affairs. This dual role ensures that both plans are implemented in a coordinated and integrated fashion.

CCMP Components:	Identify, Protect, Restore
CCMP Outcomes:	1a, 1b, 1c, 1d, 2a, 2b, 2c, 3b, 3c, 3d
Intended Programmatic Output:	CHPP annual report
Intended Programmatic Outcome:	Coordinated regulation across NC state agencies to improve estuarine habitats
Status:	In Progress
Cost:	Staff Time
Estimated Leverage:	To be determined

Place-Based Education, Essential Standards, and Citizen Science

APNEP worked with Duke University to test an innovative high schools 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. Digital photography of sampling site conditions and water quality monitoring was conducted by students on a weekly basis.

CCMP Components:	Identify, Engage
CCMP Actions:	D2.1, D2.2
CCMP Outcomes:	1c, 1e, 2a, 2b, 2c, 3b
Intended Programmatic Output:	Peer-reviewed research article(s)
Intended Programmatic Outcome:	Better understanding of blue crab dynamics on Albemarle-Pamlico peninsula, increased knowledge and awareness of environmental assets by local community.
Status:	Complete
Cost:	$5,946
Estimated Leverage:	$ 55,500

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

NC Natural Heritage Program biologists conducted surveys of natural areas in the brown-water floodplains of the Albemarle and Tar-Pamlico River Basins. Regional surveys identified outstanding areas for conservation of rare species and natural communities. Data collected through these surveys is being compiled in the NC Natural Heritage Program's *Biotics* data management system and shared with conservation partners.

CCMP Components:	Identify, Protect
CCMP Actions:	A1.1, B1.3
CCMP Outcomes:	2a, 2b, 3b, 3d
Intended Programmatic Output:	Partnership building, outreach, CCMP implementation prioritization
Intended Programmatic Outcome:	New and greater public involvement, estuarine indicator development
Status:	Complete
320 Funds:	$ 40,117
Leverage:	$ 40,117

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 of the West Bluff Oyster Sanctuary in Pamlico Sound by deploying reef structures. 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 indicates good oyster recruitment, survival and growth. Placement of these reef structures will further the completion of this permitted reef, create areas that will protect native oyster brood stock, enhance oyster production in adjacent waters, and create new oyster habitat.

CCMP Components: Restore
CCMP Actions: C5.1
CCMP Outcomes: 2b
Intended Programmatic Output: Oyster reef
Intended Programmatic Outcome: Improved habitat and fisheries

Status:	In progress
320 Funds:	$ 35,000
Leverage:	$ **19,105**

Citizens' Monitoring Network

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 2013, operation of the CMN (including Coordinator, equipment, supplies, office and lab space and indirect costs) continued under voluntary leadership at East Carolina University (ECU). The CMN maintained its current participating citizens' monitoring efforts. APNEP expenditures covered the costs of chemical supplies, and ECU covered operational expenses.

CCMP Components:	Engage, Monitor
CCMP Actions:	D1.1, E1.3
CCMP Outcomes: :	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	Database of citizen-collected monitoring information
Intended Programmatic Outcome:	Partnership building, outreach, CCMP implementation and prioritization
Status:	In progress – to be replaced by new citizen science program
320 Funds:	$ 2,000
Leverage:	$ 50,000

Climate Ready Utilities

APNEP worked with the towns of Columbia and Manteo to examine the potential impacts of rising sea levels on their wastewater infrastructure. With support from EPA and infrastructure experts from the Horsely Witten Group (EPA contractor), the project team worked 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, reduced risk of wastewater spillage
Intended Programmatic Outcome:	New partnerships, new projects for addressing climate change and sea level rise
Status:	Final report pending EPA review
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Mapping assets and liabilities at risk from Sea Level Rise

APNEP partnered with the NC Division of Public Health and East Carolina University to map assets and liabilities at risk from sea level rise. Water and sewer infrastructure, brownfields sites, solid waste disposal facilities, and various government real property assets were among the assets and liabilities mapped. This initiative seeks to inform the scale and prioritization of adaptation efforts in the region, and may influence the development and improvement of more sophisticated risk management tools. Among other benefits, this partnership led to a grant that will produce risk-related spatial analysis for four coastal municipalities in the A-P region and an invitation to serve on North Carolina's Climate-Related Health working group.

CCMP Components:	Engage
CCMP Actions:	A1.1
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	GIS data, decision support documents
Intended Programmatic Outcome:	Informed decisions regarding prioritization of adaptation efforts in the region
Status:	Complete
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Climate Adaptation Project with North Carolina Sea Grant

APNEP staff is working with NC Sea Grant on a National Oceanic and Atmospheric Administration (NOAA) grant to develop, improve, and coordinate communication approaches related to present and future coastal hazards associated with sea level rise and climate change.

CCMP Components:	Engage
CCMP Actions:	D3.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	Engagement materials, campaign, two workshops for local government officials
Intended Programmatic Outcome:	Implementation of adaptation measures
Status:	Pending
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Chowan Healthy Waters Initiative

APNEP is continuing to partner with Virginia Commonwealth University and VA Department of Conservation and Recreation, as well as other state agencies on both sides of the border to implement actions 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 and activities in VA and NC focused on protecting high quality waters
Intended Programmatic Outcome:	Maintain good water quality
Status:	In Progress / Ongoing
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Integrated Monitoring Strategy

An integrated monitoring strategy is an essential component of APNEP's Ecosystem-Based Management approach. Upon completion, the monitoring strategy will provide resource managers and other partners with cost and information quality (uncertainty) alternatives to facilitate the selection of monitoring protocols to be included in the next monitoring deliverable: the integrated monitoring plan.

CCMP Component(s):	Monitor
CCMP Actions:	E1.1, E1.2, E1.3, E2.1, E2.2
CCMP Outcomes:	Integrated monitoring strategy to support CCMP implementation
Intended Programmatic Output:	Document, functional workgroups
Intended Programmatic Outcome:	Integrated monitoring strategy to support ecosystem-based management through the CCMP
Status:	In Progress
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Albemarle Sound Monitoring Project (USGS)

APNEP is partnering with the US Geological Survey's North Carolina Water Science Center on a four-year pilot project in the Albemarle Sound as part of the National Monitoring Network for estuarine systems. The project began in FY 2012 and has multiple goals including: 1) Conduct an inventory of current monitoring projects, 2) Define critical management questions of interest for the Albemarle Sound, 3) Implement a pilot monitoring program in the Albemarle Sound that can help answer an identified management question of interest, and 4) Create a GIS WEB portal to display monitoring data in the sound. APNEP anticipates that the insights gained in supporting this project will benefit the development of an integrated monitoring strategy for the entire APNEP study area.

CCMP Component(s):	Monitor
CCMP Actions:	E1.1, E1.2, E1.3, E2.1, E2.2
CCMP Outcomes:	Monitoring network in Albemarle Sound
Intended Programmatic Output:	Summary report, data
Intended Programmatic Outcome:	Integrative monitoring in AP region
Status:	In Progress
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Submerged Aquatic Vegetation Partnership

Since preliminary discussions among its agency partners began in 2001, APNEP has supported a collaboration among partners that aims to promote the conservation of SAV along the entire coast of North Carolina and southeastern Virginia. The Partnership has been meeting regularly since 2004 and was formalized through a Memorandum of Agreement in late 2006. Whereas the Partnership's initial focus was on baseline mapping and monitoring, the Partnership now also coordinates interagency assessment, protection, restoration, and outreach initiatives.

CCMP Components:	Protect, Restore
CCMP Actions:	B2.2, C3.3
CCMP Outcomes:	2a, 2b, 3d
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	Ongoing
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Albemarle-Chowan Roundtable

Watershed roundtables consist of stakeholders who have a vested interest in their communities and are concerned about local water quality. The Albemarle-Chowan Watershed Roundtable engages stakeholders in the Virginia portions of the Chowan and Pasquotank river basins to collaborate on issues concerning water quality, habitat, and other natural resources within these watersheds. In FY 2013 the Roundtable is providing support for a water quality celebration, trail signage highlighting features of the Meherrin River, and the development of a Chowan River basin booklet analogous to those in North Carolina.

CCMP Components:	Engage
CCMP Actions:	D1.2
CCMP Outcomes:	1a, 1b, 1c, 1d, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	In progress
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Saltwater Connections

Saltwater Connections is a regional initiative aimed at sustaining livelihoods, cultural heritage, and natural resources along the coast, from Hatteras Island to Ocracoke and Carteret County. The Saltwater Connections Resource Team's approach to growing sustainable communities is modeled after Handmade in America's Small Town Revitalization Program, an asset-based economic development project in western North Carolina. The goal for this community vitalization process is to leverage assets, whether cultural, architectural or human, in order to build a complete community vitalization plan. More information is available at www.saltwaterconnections.org

CCMP Components:	Engage
CCMP Actions:	D1.2
CCMP Outcomes:	1a, 1b, 1c, 1d, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	In progress
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Albemarle-Pamlico Conservation and Communities Collaborative (AP3C)

APNEP will continue to 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. The Conservation Fund is currently leading this effort.

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:	Inactive
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

North Carolina Watershed Restoration and Improvement Team

The NC Watershed Restoration and Improvement Team (WRIT) is a working group composed of experts from NCDENR, the NC Department of Agriculture and Consumer Services and the NC Wildlife Resources Commission. Its mission is to "strengthen partnerships in order to enhance each agency's ability to carry out its own water-related goals and activities to improve watershed functions throughout North Carolina." The team provides a forum for managers to share insights and work collaboratively on watershed issues. The team has also focused restoration efforts in four sub-watersheds in North Carolina, including one in the Roanoke River basin.

CCMP Components:	Engage
CCMP Actions:	C2.1, D1.2, also supports B1.3, B1.4, B1.5, C1.3
CCMP Outcomes:	1a, 1b, 1c, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	In progress
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Invasive Species Rapid Assessment Protocol Development

A protocol is being developed for Rapid Assessment Surveys (RAS) of invasive species in the estuary. Similar efforts nationwide typically engage a team of researchers to sample and identify organisms in the estuary. The species of interest include introduced or invasive fouling organisms, macro-invertebrates, fish, and aquatic plants. This project is the subject of a client-based research project with Duke University.

CCMP Components:	Identify
CCMP Actions:	A2.1
CCMP Outcomes:	2c
Intended Programmatic Output:	Report / protocol for rapid marine invasive species assessments
Intended Programmatic Outcome:	Protocol to conduct
Status:	In Progress – final report pending
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Social Network Analysis

This project will characterize the social network of environmental professionals working in the Albemarle-Pamlico region. Analysis of the network is expected to provide important insights regarding information hubs and communication gaps in the region. It may further inform the development of indicators related to organizational efficiency and management outcomes. This project is the subject of a client-based research project with Duke University.

CCMP Components:	Engage
CCMP Actions:	D1.2, E1.1
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	Report
Intended Programmatic Outcome:	Improved communications among partners, strategic recruitment of APNEP implementation team members.
Status:	In Progress – final report pending
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Ecosystem-Based Management Policy Study

This study examines various policy approaches that have been developed to support ecosystem-based management efforts in the United States. Recommendations will be offered regarding potential legislative or policy tools that can enhance APNEP's ability to lead

ecosystem-based management efforts. This project is the subject of a client-based research project with Duke University.

CCMP Components:	Engage
CCMP Actions:	D1.3, D3.1
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	Report, strategy
Intended Programmatic Outcome:	Initial step in implementation of action D3.1
Status:	In Progress – final report pending
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Southeast Natural Resource Leadership Group Pilot Project Development

The Southeast Natural Resource Leadership Group (SENRLG) is comprised of the regional principals of federal natural resource agencies across the Southeast that have undertaken the development of a Landscape Conservation and Restoration Pilot Project (LCRPP) to support climate change adaptation efforts in conservation and restoration in the Southeast that would illustrate how the agencies could coordinate and leverage federal agency mandates and resources to enhance natural resource management. Climate change risks were selected as the point of focus for targeting program resources on the landscape and the North Carolina coastal area of the Albemarle-Pamlico estuary. The final SENRLG report was released late in 2012. APNEP will work with SENRLG to provide guidance and assistance for a project that supports implementation of the CCMP if initiated by SENRLG.

CCMP Components:	To be determined
CCMP Actions:	To be determined
CCMP Outcomes:	To be determined
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	In progress
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

North Carolina Clean Water Management Trust Fund Project

APNEP is working with the North Carolina Clean Water Management Trust Fund (CWMTF) to implement a project to provide water quality improvement projects in one or more of the APNEP river basins. The project will be used as part of the 1:1 non-federal match for the FY 2013 section 320 grant.

CCMP Components:	To be determined
CCMP Actions:	To be determined
CCMP Outcomes:	To be determined
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	Pending
Estimated Cost:	Staff Time
Status:	Pending
Estimated Cost:	Non-federal match
Estimated Leverage:	$510,247

FY 2014 PROPOSED PROJECTS & ACTIONS

Projects for FY 2014 will continue to support the APNEP's transition to an ecosystem-based management program to guide implementation of the 2012 CCMP.

APNEP Administration & Indirect Costs (ongoing)
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:	$304,731 direct and $29,043 indirect costs (see indirect costs page 30).

Advisory Board and Committees Support (ongoing)
The key element of CCMP implementation is active citizen participation through the Policy Board and each of the two Advisory Committees under Executive Order #133, as well as the implementation workgroups. Funds will be used to support meetings, speakers, and materials as needed.

CCMP Component:	All
CCMP Actions:	All
CCMP Outcome:	All
Intended Programmatic Output:	Partnership building, outreach, prioritizing CCMP implementation
Intended Programmatic Outcome:	New and greater public involvement, estuarine indicator development
Status:	Ongoing
Estimated Cost:	$ 4,000
Estimated Leverage:	To be determined

Programmatic and Partnership Activities Support (ongoing)
APNEP will undertake activities to implement actions within the 2012 CCMP. Expenditures are expected to be related to meetings, supplies and potential contracted time to support the initiated implementation of the 2012 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:	$ 1,393
Estimated Leverage:	To be determined

CCMP Implementation Projects (new)

The APNEP Policy Board will work with the Implementation Committee and its associated workgroups to identify projects that need financial support or administrative support from APNEP. The Policy Board will evaluate the requests and administrate the funding for priority projects and activities.

CCMP Component:	All
CCMP Actions:	All
CCMP Outcome:	All
Intended Programmatic Output:	Program administration, partnership building, CCMP implementation
Intended Programmatic Outcome:	CCMP implementation
Status:	New
Estimated Cost:	$ 120,000
Estimated Leverage:	$ 120,000

APNEP Symposium (new)

APNEP will host a protection and restoration symposium in New Bern, NC in November 2013. This symposium will feature guest speakers, discussion panels, and various sessions to examine the status of the Albemarle-Pamlico Estuarine system's natural habitats and resources, measure progress made, and discuss challenges ahead for protection and restoration.

CCMP Components:	Identify, Protect, Restore, Monitor, Engage
CCMP Actions:	To be determined
CCMP Outcomes:	To be determined
Intended Programmatic Output:	Symposium
Intended Programmatic Outcome:	Elevated program profile, facilitation of working relationships among committees and partners.
Status:	New
Estimated Cost:	$ 8,000
Estimated Leverage:	$ 10,000

2014 Teacher Institute (ongoing)

APNEP will partner with the UNC Institute for the Environment other partners to offer a four-day teacher training institute in July 2014. 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:	$ 10,000
Estimated Leverage:	$ 12,000

Citizen Science & Monitoring Program (new)
APNEP supported a Citizens' Monitoring Network (CMN) in the region since 1991. The CMN, which had been maintained by East Carolina University (ECU) through a contract from APNEP through FY 2012, provided a network of citizen volunteers to collect ambient, surface water quality data in the Albemarle-Pamlico estuary and its tributaries. While providing data collection, the CMN further served citizens through experiential and educational opportunities. Presently, the CMN includes about 30 volunteers with approximately 15 monitoring sites and is administrated by a volunteer at ECU.

APNEP seeks to update the citizens' science and monitoring efforts to reflect current management priorities outlined in the 2012 CCMP. The new effort should engage citizen volunteers (individuals and groups) as "Citizen Scientists" in the long-term scientific monitoring of the Albemarle-Pamlico Estuarine System. It will provide both monitoring and educational functions to support the implementation of the CCMP.

APNEP envisions a new program that takes a more holistic approach to data collection and utilization of that data in support of APNEP's integrated monitoring strategy, as well as its engagement objectives. While some of the basic goals of the current CMN will be retained, the approach APNEP takes to citizen engagement and types of data collected will change. Volunteers will be trained and then spend time in the field using various data collection techniques specifically designed to monitor different aspects of the ecosystem. Results of the monitoring effort will be available to natural resource managers so that they can make better management decisions based on sound scientific information.

In FY 2014 APNEP will post a *Request for Qualifications / Proposals* that will ask for organizations that have the required experience to assist APNEP in renewing its Citizen Science and Monitoring Program. The expectation for the first year is to set up and begin implementation of the new program.

CCMP Components:	Engage, Monitor
CCMP Actions:	D1.1, E1.3
CCMP Outcomes: :	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	Database of citizen-collected monitoring information
Intended Programmatic Outcome:	Partnership building, outreach, CCMP implementation and prioritization
Status:	New
Estimated Cost:	$ 70,000
Estimated Leverage:	$ 100,000

Shad in the Schools (ongoing)
APNEP will continue to support this collaborative project that provides students with an understanding of the science process, an 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 NC 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.

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 (4rd year)
Estimated Cost:	$ 20,000
Estimated Leverage:	$ 40,000

Submerged Aquatic Vegetation Monitoring (ongoing)

In coastal waters of the A-P region, submerged aquatic vegetation (SAV) is widely recognized for many important ecological functions. Currently, there are no long-term SAV monitoring programs established in the region that can provide reliable quantitative data on its status and trends. In accordance with a monitoring protocol developed from APNEP-managed research and supported by a Coastal Recreational Fishing License grant, in FY 2014 APNEP will initiate boat-based monitoring for SAV in the sounds' interior areas, while also establishing monitoring within strategic sentinel sites. This work compliments APNEP's aerial SAV monitoring by enhancing SAV detection in areas with relatively low water clarity.

CCMP Components:	Identify, Monitor
CCMP Actions:	A1.1, E1.1, E2.1
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3d, 3c, 3d
Intended Programmatic Output:	Essential environmental data collection, Public outreach and involvement
Intended Programmatic Outcome:	CCMP Implementation, increased environmental awareness
Status:	Ongoing
Estimated Cost:	$ 20,000
Estimated Leverage:	$ 80,000

Submerged Aquatic Vegetation Partnership (ongoing)

Since preliminary discussions among its agency partners began in 2001, APNEP has supported a collaboration among partners that aims to promote the conservation of SAV along the entire coast of North Carolina and southeastern Virginia. The Partnership has been meeting regularly since 2004 and was formalized through a Memorandum of Agreement in late 2006. Whereas the Partnership's initial focus was on baseline mapping and monitoring, the Partnership now also coordinates interagency assessment, protection, restoration, and outreach initiatives.

CCMP Components:	Protect, Restore
CCMP Actions:	B2.2, C3.3
CCMP Outcomes:	2a, 2b, 3d
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	Ongoing
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Integrated Monitoring Strategy (ongoing)
A continuing priority for APNEP is to facilitate the establishment of an integrated monitoring strategy to detect, measure, and track changes in the ecosystem. Much preparatory work has already been conducted by the APNEP resource monitoring and assessment teams and these teams' contributions will be essential to complete the strategy. Upon completion, the strategy will provide resource managers and other partners with cost and information quality (uncertainty) alternatives that will facilitate the selection of a set of monitoring protocols to be included in the APNEP integrated monitoring plan..

CCMP Component(s):	Monitor
CCMP Actions:	E1.1, E1.2, E1.3, E2.1, E2.2
CCMP Outcomes:	Integrated monitoring strategy
Intended Programmatic Output:	Document, functional workgroups
Intended Programmatic Outcome:	Integrated monitoring strategy to support ecosystem-based management through the CCMP
Status:	New
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Chowan Healthy Waters Initiative (ongoing)
APNEP will continue to partner with Virginia Commonwealth University and VA Department of Conservation and Recreation, as well as other 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 and 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-Chowan Roundtable (ongoing)
Watershed roundtables consist of stakeholders who have a vested interest in their communities and are concerned about local water quality. The Albemarle-Chowan Watershed Roundtable engages stakeholders in the Virginia portions of the Chowan and Pasquotank river basins to collaborate on issues concerning water quality, habitat, and other natural resources within these watersheds.

CCMP Components:	Engage
CCMP Actions:	D1.2
CCMP Outcomes:	1a, 1b, 1c, 1d, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	In progress
Estimated Cost:	Staff Time

Estimated Leverage:	To be determined

Saltwater Connections (ongoing)
Saltwater Connections is a regional initiative aimed at sustaining livelihoods, cultural heritage, and natural resources along the coast, from Hatteras Island to Ocracoke and Carteret County. The Saltwater Connections Resource Team's approach to growing sustainable communities is modeled after Handmade in America's Small Town Revitalization Program, an asset-based economic development project in western North Carolina. The goal for this community vitalization process is to leverage assets, whether cultural, architectural or human, in order to build a complete community vitalization plan.

CCMP Components:	Engage
CCMP Actions:	D1.2
CCMP Outcomes:	1a, 1b, 1c, 1d, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	In progress
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Watershed Restoration and Improvement Team (ongoing)
The Watershed Restoration and Improvement Team (WRIT) is a working group composed of experts from the NC Department of Environment and Natural Resources, the NC Department of Agriculture and Consumer Services and the N C Wildlife Resources Commission. Its mission is to "strengthen partnerships in order to enhance each agency's ability to carry out its own water-related goals and activities to improve watershed functions throughout North Carolina." The team provides a forum for managers to share insights and work collaboratively on watershed issues. The team has also focused restoration efforts in four sub-watersheds in North Carolina, including one in the Roanoke River basin.

CCMP Components:	Engage, Protect, Restore
CCMP Actions:	C2.1, D1.2, also supports B1.3, B1.4, B1.5, C1.3
CCMP Outcomes:	1a, 1b, 1c, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	In progress
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Climate Ready Estuaries / Climate Ready Utilities (ongoing)
APNEP will continue to identify and support local governments interested in analyzing potential risks to their water infrastructure using the EPA Climate Risk Evaluation and Assessment Tool (CREAT). APNEP staff will also follow up with previous utility partners to refine planning recommendations developed through the CREAT process.

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

Invasive Species Rapid Assessment Protocol Development II (ongoing)
This project will further develop the protocol for Rapid Assessment Surveys (RAS) of invasive estuarine species. Similar efforts nationwide typically engage a team of researchers to sample and identify organisms in the estuary. The species of interest include introduced or invasive fouling organisms, macro-invertebrates, fish, and aquatic plants. Phase I of this project was developed in FY2013 as a client-based research project with Duke University.

CCMP Components:	Identify
CCMP Actions:	A2.1
CCMP Outcomes:	2c
Intended Programmatic Output:	Report / protocol rapid invasive species assessments
Intended Programmatic Outcome:	Protocol to conduct
Status:	Pending
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Implementation of APNEP Communications Strategy
APNEP renews and updates its core communications, education, and outreach strategies through its two-year Communications Strategy. APNEP implements this plan in furtherance of its mission and in accordance with its CCMP. Communications efforts are prioritized and linked to CCMP objectives, actions, and associated environmental outcomes. In FY 2014 APNEP will prioritize further development of its videography capabilities and integrate these materials into current social and traditional media approaches, as detailed in the strategy document.

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, increase program awareness
Status:	Ongoing
Estimated Cost:	Staff time
Estimated Leverage:	To be determined

Southeast Natural Resource Leadership Group Pilot Project Development (ongoing)
The Southeast Natural Resource Leadership Group (SENRLG) is comprised of the regional principals of federal natural resource agencies across the Southeast. In 2013, the SENRLG Principals undertook the scoping for development of a Landscape Conservation and Restoration Pilot Project (LCRPP) to support climate change adaptation efforts in conservation and restoration in the Southeast that would illustrate how SENRLG agencies could coordinate and leverage federal agency mandates and resources to enhance natural

resource management. Climate change risks were selected as the point of focus for targeting program resources on the landscape and the North Carolina coastal area of the Albemarle-Pamlico estuary. APNEP will assist with project(s) that support implementation of the CCMP if enabled by SENRLG.

CCMP Components:	To be determined
CCMP Actions:	To be determined
CCMP Outcomes:	To be determined
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	In progress
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

Climate Adaptation Project with North Carolina Sea Grant

APNEP staff will continue to work with NC Sea Grant on a National Oceanic and Atmospheric Administration (NOAA) grant to develop, improve, and coordinate communication approaches related to present and future coastal hazards associated with sea level rise and climate change.

CCMP Components:	Engage
CCMP Actions:	D3.3
CCMP Outcomes:	1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
Intended Programmatic Output:	Engagement materials, campaign, 2 local government workshops
Intended Programmatic Outcome:	Implementation of adaptation measures
Status:	Pending
Estimated Cost:	Staff Time
Estimated Leverage:	To be determined

North Carolina Clean Water Management Trust Fund Projects

APNEP will work with the North Carolina Clean Water Management Trust Fund (CWMTF) to implement a project to provide water quality improvement projects in one or more of the APNEP river basins. The project will be used as part of the 1:1 non-federal match for the FY 2014 section 320 grant.

CCMP Components:	To be determined
CCMP Actions:	To be determined
CCMP Outcomes:	To be determined
Intended Programmatic Output:	To be determined
Intended Programmatic Outcome:	To be determined
Status:	Pending
Estimated Cost:	Staff Time
Estimated Leverage:	$ 510,248

ADMINISTRATION AND FINANCIAL

APNEP ADMINISTRATION

APNEP 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's mission, and 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 partnership. 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

Under the FY2013-14 negotiated indirect cost agreement between NCDENR and the US EPA, the Office of Conservation Planning and Community Affairs set rate is 13.3% of all salaries supported by this federal grant. Estimated indirect costs are $29,043 based on the indirect rate for grant supported salaries.

Administrative Costs

Overall administration costs for FY 2014 are estimated at approximately $304,731 and include salaries, benefits, longevity pay, equipment, supplies, office and storage space rent (Washington, NC), IT services and phone, and training and development.

Personnel*

Presently, the APNEP staff consists of the APNEP office in Raleigh, with the Director, Program Scientist, Policy and Engagement Manager, and Project Coordinator. The APNEP office in Washington, NC houses the North Carolina Watershed Field Representative.

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

APNEP Director

The Director administrates and coordinates program activities and CCMP implementation, 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 APNEP at local, state, regional and national meetings. Dr. Bill Crowell has been the Director since June 2002.

Program Scientist

The Program Scientist assists the Director with CCMP administration. 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. Dr. Dean Carpenter has served in this role since November 2003.

Policy and Engagement Manager
The Policy and Engagement Manager supports public/community relations and knowledge concerning issues relating to the Albemarle-Pamlico region; facilitates CCMP implementation; 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 other advisory committees. Jim Hawhee has served in this role since November 2010.

Project Coordinator
The Project Coordinator assists the Director to administer the 320 grant and coordinate and manage contracting and associated activities within NCDENR. The position also assists with CCMP implementation, 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. This position also manages the program's GIS functions. Lindsey Smart has served in this role since March 2013.

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 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: All positions are administrated in compliance with North Carolina Office of State Personnel rules and policies.

I. TABLE of CONTRACTS and GRANTS

APNEP established and managed many contracts in FY 2013. 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 the last grant applicant / annual report in May 2012.

GRANTS TO LOCAL ENTITIES

(Active or completed: May 30, 2012 to April 30, 2013)

Project Title	Funded Amount	Project Leader	Purpose	Deliverables	Completion Date	Status
Watershed Coordinator	$30,405 (2012)	VA. Dept. Conservation & Recreation	Fund Watershed Coordinator in VA-NC Shared river basins	Program support, Reports	Ongoing	Complete
Watershed Coordinator (VA)	$30,405 (2013)	VA. Dept. Conservation & Recreation	Fund Watershed Coordinator in VA-NC Shared river basins	Program support, Reports	Ongoing	Pending Contract
Citizens' Monitoring Network	$5,000	East Carolina University	Outreach / Monitoring	Program Admin., Reports	Ongoing	In Progress
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
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	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	June 2013	In Progress
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	In Progress
2013 Restoration Project: Using positive interactions between bivalves and seagrass to improve water quality and restore essential habitats	$74,984.90	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	In Progress
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	In Progress

Project Title	Funded Amount	Project Leader	Purpose	Deliverables	Completion Date	Status
2013 Restoration Project: Water Quality Restoration of Alligator River, Long Shoal River and Pamlico Sound	$74,989.00	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	In Progress
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	In Progress
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	In Progress
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	In Progress
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	In Progress
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
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	In Progress

Project Title	Funded Amount	Project Leader	Purpose	Deliverables	Completion Date	Status
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	In Progress
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 – 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	Oct. 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
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
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

II. LEVERAGE FUNDS

APNEP has actively sought alternative funding sources for partnership activities and projects to fulfill the CCMP goals. In addition, APNEP sought out additional avenues for collaborating with other agencies to assist in targeting these program funds towards CCMP and basin-wide 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.

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

Additionally, 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 A-P 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 2014

In FY 2014 APNEP 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 2013

In FY 2013 APNEP continued to seek partners and additional opportunities for partners in targeting actions and funds towards CCMP implementation. APNEP submitted its FY 2012 Leverage results in September 2012 to the EPA NEPORT database. The approximate overall leverage reported for FY 2012 was 36:1.

III. FY 2014 ESTIMATED FEDERAL COST SHARE

FY 2014 Budget

The estimated* federal cost share grant for each NEP for FY 2014 is $*567,308

APNEP Administration (staff salaries, benefits**, longevity, rent, supplies, etc.)	$ 304,731
Boards & Committees Support	$ 4,000
Travel	$ 10,000
Programmatic & Partnership Activities	$ 1,393
APNEP Symposium	$ 8,000
Citizen Science and Monitoring	$ 70,000
Implementation Projects	$ 120,000
Engage: Teacher Institute	$ 10,000
Engage: Shad in the Classroom	$ 20,000
Monitor: Submerged Aquatic Vegetation	$ 20,000
Indirect Costs (13.3%)	$ 29,043
	$ 597,167

** Amount not finalized, estimate from US EPA Region IV in March was $597,167. A 5% reduction is expected.*
*** Includes: Benefits are based on Social Security (7.65 %) & Retirement (14.31 %) of position's annual salary*
Medical Insurance Plan rate of $5,192 per year and
Indirect Costs based on 13.3 % 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 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*.)	$ 303,247
Boards & Committees Support	$ 3,000
Travel	$ 10,000
Programmatic & Partnership Activities	$ 6,315
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 (9.4%)	$ 21,200
	$ 597,167

** US EPA, April 2012*
*** Includes: Benefits are based on Social Security (7.65 %) & Retirement (14.31 %) of position's annual salary*
Medical Insurance Plan rate of $5,192 per year and
Indirect Costs based on 9.4 % of federal salaries.

IV. NON-FEDERAL COST SHARE (Match for FY 2014)

Summary of Match Requirements

NCDENR intends to provide $597,167 for the required 1:1 non-federal match for FY 2014 under CE-95451210. This match will be provided through:

1) In-kind services provided by staff support for the NC Field Representative from the NCDENR Office of Conservation Planning 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 (CWMTF) for one or more projects in the APNEP program boundary.

Summary of Non-federal State Match

In-kind Position (salaries and benefits)	$ 86,920
Clean Water Management Trust Fund Project(s):	$ 510,247
TOTAL:	$ 597,167

In-kind Position Non-federal Match

The North Carolina Department of Environment and Natural Resources (NCDENR) intends to provide $86,920 as part of the required 1:1 non-federal match for FY 2014. The match will be provided through in-kind services provided by staff of NCDENR.

Office of Conservation, Planning and Community Affairs

The NCDENR Office of Conservation, Planning and Community Affairs (OCPCA) 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. OCPCA 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 CCMP and the NC CHPP.

POSITION	#	SALARY	EFFORT	Match
Field Representative	1	67,012	1.0	67,012
		Benefits*	1.0	19,908
		Total In-Kind Service Match:		$ 86,920

* *Benefits are based on Social Security (7.65 %) & Retirement (14.31 %) 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 $510,247 as part of the 1:1 non-federal match for FY 2014. 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

CWMTF was created in 1996, in part in a response to a 1994 CCMP action. 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 is required to allocate minimum of $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 NEP

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 2013

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	10/1/12 to 9/ 30/13	Normal Program Activities/ projects	APNEP area	7000*
Crowell	10/2012	EPA- ANEP/NEP National Meeting	Tampa, FL	800
Crowell	2/ 2013	EPA- ANEP/NEP National Meeting	Washington, DC	1285
Hawhee	2/2013	EPA Climate Assessments	Washington, DC	340
Crowell	8/2012	SENRLG Meeting	Atlanta, GA	557
			Total*	$ 9982

**Estimate up to September 2013*

FY 2014 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 NCDENR 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 NCDENR 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 2014: 30 trips, among four 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, DC 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 2014: two trips, three persons; average cost per trip per person is approximately $1000 (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 2014: two trips, two days; average cost per trip approximately $500. Total $1,000

2012-13 NC DENR TRAVEL RATES

Item	In-State	Out of State	Overnight Trip	Day Trip
Breakfast	$ 8.00	$ 8.00	Leave Office before 6:00 AM	Leave Office before 6:00 AM; Extend workday by 2 hours
Lunch	$ 10.45	$ 10.45	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 Workday extended by 3 hours
Breakfast/ Dinner				Leave office before 6:00 AM; Return after 8:00 PM; Workday extended by 5 hours
Hotel (+ taxes)	$ 63.90	$ 75.60		

FY 2014 Projected Travel

Personnel	Date	Purpose	Location	Estimated Cost
APNEP Staff & volunteers	October 2013 to September 2014	Normal program activities in the region	Albemarle – Pamlico Region	$3,000
APNEP Staff	October 2013	NEP national fall meeting		$3,000
APNEP Staff	February 2014	NEP national spring meeting	Washington, DC Area	$2,000
APNEP Staff	October 2013 to September 2014	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 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 complimented 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 APNEP for its leadership in local efforts to build environmental science curricula capacity in educators teaching students in economically- and socially-distressed communities. They were 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 the Team 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 APNEP leadership in multi-faceted outreach and public involvement efforts, an example being 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 exemplified a well-planned, strategic approach to the development of effective climate change adaptation policies and action plans and broad public engagement.

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's 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 was 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) NCDENR reverse its decision to move APNEP back into a Division; and 2) NCDENR 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 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 NCDENR and will enable the program to better accomplish its mission.

2) Demonstrate Environmental Progress

EPA commended 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) NCDENR 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 believed it was 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 recommended 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 FY 2012, APNEP with support from the 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 CCMP at its March 14, 2012 meeting. As a result, the Partnership will use an EcosystemBased Management (EBM) paradigm established in the new CCMP.

An EBM approach has several advantages. Implementation of EBM is a significant action by the Partnership to further the connection between policy development and environmental improvements. It also provides a strategy to achieve on-the-ground environmental results most efficiently and develop tools for measuring the environmental progress resulting from implementation of partnership-supported projects, as recommend in the PE letter.

Additionally, APNEP staff worked with partners to integrate their environmental priorities into the 2012 CCMP using the EBM approach. Better integration between the program and 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. With the CCMP in place, staff members are working on a monitoring strategy that uses an EBM paradigm. The partnerhip'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 expressed concerned about the slow draw down of those funds.

Update:

APNEP took significant action to expedite the draw-down of the unexpended balance of the FY 2007-2008 and FY 2008-2009 remaining appropriated CWA §320 grant funds. All projects and expenditures were completed by September 30, 2011.

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

- *The APNEP Director, the OCPCA Director, and the NCDENR 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 OCPCA Director meet monthly to address progress on all aspects of the partnership, including fiscal issues, and ensure progress on challenges expressed by the PE Team.*

2013 Program Review

The EPA Coastal Management Branch will conduct an on-site program evaluation of APNEP with staff and program partners between April 29 and May 1. APNEP submitted the required evaluation materials in February. A copy of the review package is available in the APNEP Office.

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.