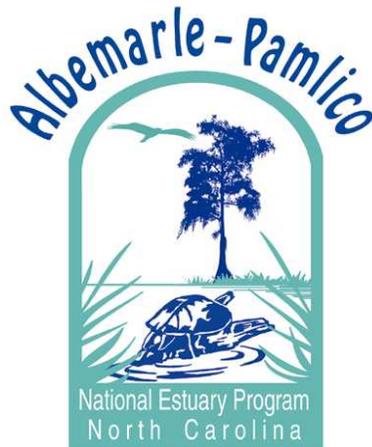


ALBEMARLE-PAMLICO NATIONAL ESTUARY PROGRAM

**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**

October 1, 2010 - September 30, 2011



**Approved by the
APNEP Policy Board on
May 13, 2010
Raleigh, NC**

CE-95451210

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INTRODUCTION

Agreement Related Contents of this Document:

- A progress report detailing accomplishments in FY 2010 is provided on pages 10 through 22.
- The FY 2011 Proposed Work Plan items are presented on pages 25 through 29.
- The FY 2011 Proposed Work Plan budget is presented on page 36.
- Administrative and financial information items are presented on pages 30 through 41.

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

This work plan and the associated grant application represents an increased funding request for the amount of \$800,000 and a time extension to September 30, 2011 under Cooperative Agreement CE-95451210. It also represents completed or ongoing work under CE-97464802 to September 30, 2011.

Period of Performance:

The period of performance under the current Cooperative Agreement (CE-95451210) is from October 1, 2009 through September 30, 2015. The period of performance under the Cooperative Agreement (CE-97464802) is from October 1, 2002 through September 30, 2011.

Principal Contacts:

EPA Project Officer

Steven Blackburn
US EPA Region IV
61 Forsyth Street
Atlanta, GA 30303
(404) 562-9397

APNEP Director

William L. Crowell, Jr.
Albemarle-Pamlico NEP
1601 Mail Service Center
Raleigh, NC 27699-1601
(919) 715-1327

Policy Board Chair

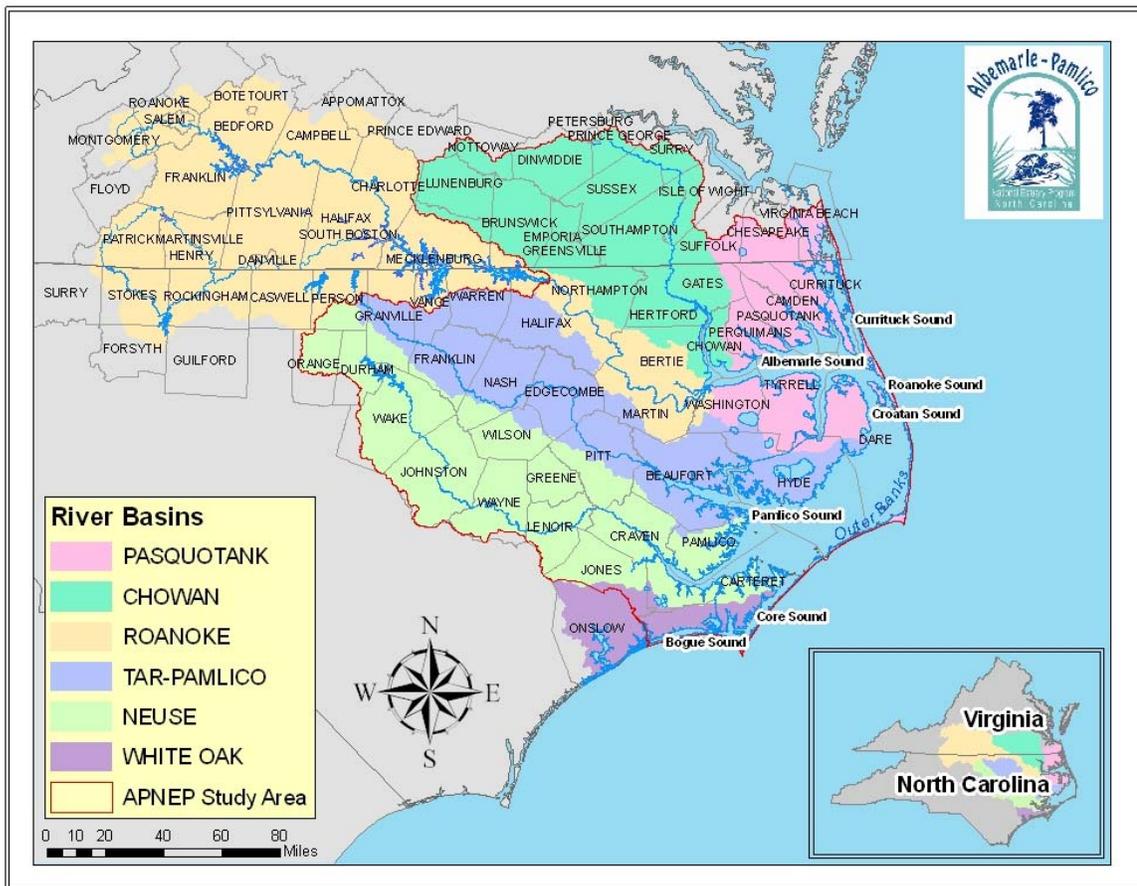
Tony Reevy
337 W. Rosemary St.,
UNC Campus Box 1105
Chapel Hill, NC 27599-1105
(919) 966-9922



BACKGROUND

The Albemarle and Pamlico Sounds represent the nation's largest lagoonal estuarine system. The system is composed of seven sounds and five major river basins draining over 30,000 square miles of watershed in North Carolina and Virginia. The sounds, rivers, creeks, wetlands and terrestrial areas provide habitat for an abundance of animal and plant species. People depend on the system for residential and resort development, food, recreation, mining, forestry, agriculture, business and industry.

The Albemarle-Pamlico National Estuary Program (APNEP), a part of the US Environmental Protection Agency's National Estuary Program (NEP) since 1987, developed a Comprehensive Conservation and Management Plan (CCMP) that was ratified by the Governor of North Carolina and approved by the US EPA in November 1994. The CCMP is intended as a practical, cost-effective and equitable approach to managing the valuable resources of the Albemarle-Pamlico region.



APNEP Transition to Ecosystem-Based Management

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

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

When this APNEP FY 2011 Work Plan comes into implementation, APNEP anticipates only being months away from completing the new CCMP draft based on EBM principles. With a new CCMP established in mid-2011 with a five-year planning horizon, the FY 2012 APNEP Work Plan will propose activities that are directly attributable to "program actions" and associated "implementation steps" under the new CCMP objectives. As this work plan comes at a time when APNEP is in transition, however, the program activities listed herein are attributable to an objectives hybrid: attributable to objectives from the original 1994 CCMP and/or to objectives intended to facilitate the EBM transition.

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

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

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



AUTHORITY

Federal Water Pollution Control Act

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

Comprehensive Conservation and Management Plan

In 1987, Congress designated the Albemarle-Pamlico Estuarine System as an *Estuary of National Significance* and thus began a comprehensive study effort, called the Albemarle-Pamlico Estuarine Study (APES). The result of this process is the Albemarle-Pamlico National Estuary Program Comprehensive Conservation and Management Plan (CCMP). The CCMP was developed over a 7-year period by representatives from the private and public sectors, including government, industry, business, and environmental interest groups and municipal officials. The plan is a guide for environmental stewardship of the Albemarle-Pamlico estuary system. The CCMP reflects the input of people from the region who will be affected by the plan's recommendations. The CCMP seeks to balance the need for economic growth in eastern North Carolina with the need to secure the environmental future of the region. It was submitted to EPA in October 1994 for approval by NC Governor Jim Hunt. The final CCMP was signed by EPA Administrator Carol Browner in November 1994. It is an outstanding example of watershed and community-based environmental management, and demonstrates how targeted federal assistance can serve as a catalyst to achieve major state and local resource commitments.

North Carolina Governor's Executive Order #122

On August 2nd, 2007, North Carolina Governor Michael F. Easley signed Executive Order # 122: *Creation of a Program Office, a Policy Board, and Advisory Committees to Support Natural Resource and Environmental Management in the Albemarle-Pamlico National Estuarine System*. This Executive Order is essential to the future of the APNEP and was developed after more than two years of program review and assessment, and stakeholder participation. This Executive Order replaces Executive Order # 74 (2005), and provides the operational advisory framework for the program office. A copy of Executive Order #122 is attached and is available from the APNEP office at 1601 MSC, Raleigh, NC 27699. APNEP and NCDENR will continue to work with the Governor's office to establish a new executive order under Governor Perdue in 2010.

Program Office

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



the NC Department of Environment and Natural Resources in Raleigh, NC, with additional program personnel in Washington, and Greenville, NC, and Suffolk, VA.

Policy Board

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

Advisory Committees

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

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

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

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



2009 PROGRAM EVALUATION

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

A December 15, 2009 letter stated that the EPA found that the APNEP continues to make “significant progress” in implementing its CCMP and determined that the APNEP “passed” the 2009 Program Evaluation and will be eligible for FY 2010, 2011 and 2012 funding authorized under §320 of the Clean Water Act. A copy of the EPA review letter is attached to this Work Plan (Appendix 1).

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

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

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

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

The Team also noted that given the size of APNEP’s 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 APNEP's mission and enhancing CCMP implementation throughout the study area.

The EPA review also identified the following three challenges:

Maintaining Visibility and Independence

EPA is concerned that APNEP's move 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:

- DENR reverse its decision to move APNEP back into a Division.
- DENR re-locate the Program to an organizational home where the Program is highly visible and regarded as a model of ecosystem-based management.

Demonstrate Environmental Progress

EPA commends the Program for its support of water quality and habitat restoration and protection projects and for its indicator development and monitoring plan design efforts. EPA acknowledges that indicator development and monitoring plan design typically take several years to complete. However, given the increased public sector emphasis on accountability and government stakeholder requests to demonstrate program results, EPA is concerned that the pace of APNEP efforts to set baselines, assess conditions throughout the study area, and measure environmental change is slower than necessary. To promote implementation of monitoring and assessment priority actions, EPA requests that over the next six months:

- DENR provide additional resources to support completion of the STAC monitoring plan.
- The STAC complete development of its monitoring plan and DENR identify resources for monitoring program implementation.
- The State begin conducting a regional ecosystem assessment to help guide the allocation of monitoring resources to waters and other ecosystem components of highest priority.

Also, EPA believes it is important that APNEP, like all NEPs, consider developing a strategy stating that: (1) achievement of on-the-ground environmental results is a Program priority, and (2) the Program will develop a tool for measuring the environmental progress resulting from implementation of Program-supported projects. To promote those efforts, EPA recommends that over the next six months, APNEP should:

- Draft a strategy as described above that would identify funding and staff resources dedicated to strategy implementation.
- 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.
- Begin setting and documenting project-specific baselines as a first step toward measuring environmental results.



Expedite Funds Draw Down

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

EPA, the Director of APNEP, and a senior DENR official have all agreed that beginning in FY 2010, APNEP and DENR will take steps to ensure that §320 funds are drawn down in an expedited manner:

- The Region IV APNEP Coordinator will regularly monitor APNEP's draw down of old unexpended funds. In late March 2010, the Region will assess whether or not the unexpended balance has been reduced significantly. If not, Region IV will discuss with CMB management the possibility of withholding APNEP's FY 2010 §320 grant award.
- Region IV will no longer approve APNEP project and budget periods exceeding seven years. Beginning in FY 2010, APNEP project and budget periods will not exceed five years.
- Region IV and CMB will take steps to change APNEP's grant cycle to a July 1 - June 30 cycle.
- In FY 2010, the APNEP Director and DENR management will put in place a process that expedites the draw-down of old APNEP funds and ensures the timely draw down of all future §320 awards.

Response

APNEP is working with NCDENR, the Policy Board and EPA Region IV to address these challenges. NC DENR Secretary Freeman responded to the PE letter on May 19, 2010. A copy of the response letter is attached to this Work Plan.

Additionally, the Program Evaluation letter suggested APNEP develop a protocol for measuring the short-term environmental outcomes of projects that it funds and/or in which it plays a lead support role. For the past several years the APNEP Work Plans have included expected outputs and outcomes, with the implementation of this work plan APNEP will work incorporate measures to measure environmental benefits where possible and will adjust its Request for Proposals to require that applicants provide a measure of environmental change for their project. Additionally as APNEP transitions to an EBM framework, staff will develop criteria for an environmental outcomes protocol within the tracking of CCMP actions.



ACCOMPLISHMENTS AND PROJECTS

I. FY 2010 ACTIONS & PROJECTS (CE-95451210)

Program Administration

For more detail, see Administration and Financial section.

Watershed Field Coordinator - Virginia

Currently vacant. For more detail, see Ongoing Projects section.

Board and Committees Support

APNEP worked with its advisory groups (Policy Board, Citizen Advisory Committee, Management Advisory Committee and the Science and Technical Advisory Committee) established under Governor's Executive Order # 122 (8/2/2007) to continue implementation of the CCMP and APNEP mission. The advisory groups are supporting the development of indicators of ecosystem condition, and their own action plans. The Policy Board approved the application of Ecosystem-Based Management principles to the development of the new CCMP and Monitoring Strategy at its December 2009 meeting. For additional information on other projects in more detail, see Ongoing Projects section.

Citizens' Monitoring Network

For more detail see Ongoing Projects section.

Status: Ongoing
Intended Output: Awareness, data
Intended Outcome: Increased environmental awareness
Cost: \$59,100

DWQ Outreach and Engagement Project

APNEP contracted with the NC Division of Water Quality to implement several projects including workshops on coastal stormwater and riparian buffer rules and the development of outreach material regarding riparian buffers and 401 Water Quality Certifications. Additional a project, *What Lives in our Lakes, Streams and Estuaries?* Will provide information to focus students in K-12 on understanding the biodiversity in the lakes, streams, and estuaries.

Status: In Progress
Intended Output: Promote awareness of water quality, buffers, and biodiversity
Intended Outcome: New education programs and materials
Cost: \$8,000
Leverage: Pending

2010 Teacher Institute

APNEP is partnering with the NC Office of Environmental Education, the Environmental Education Fund, and others to offer a teacher training institute during the summer of 2010 at the Trinity Center in Salter Path, NC. Approximately 20-30 middle and high school teachers will be provided with curriculum training in earth/ environmental sciences with hands-on activities, site visits, and specific content to support inquiry,



experiential, and research-based instruction on estuary and water resources. Applications this year exceeded 100 teachers.

Status: Continuing, in progress
Output: 30 teachers trained in environmental education
Outcome: Increased environmental education in schools
Cost: \$22,000
Estimated Leverage: \$9,000

Outdoor Classroom Symposium

APNEP partnered with the NC Botanical Garden, EE Fund, Office of Environmental Education and others to produce an outdoor classroom symposium, a three-day event focused on techniques for creating outdoor classrooms and strategies for using them to integrate environmental education into curriculum and programs. Pre- and post-symposium and mobile workshops provided demonstration of local applications. Attendance was 160 participants, primarily teachers and teacher assistants from across the state of North Carolina.

Status: Complete
Intended Output: 160 teachers exposed to environmental education opportunities on school grounds
Intended Outcome: Increased environmental education in schools
Cost: \$ 8,000
Leverage: Pending

303-D Listed Waters Project (Fishing Creek)

APNEP will continue to partner with NC Ecosystem Enhancement Program and the NC Division of Water Quality, and other local partners on a project to remove Fishing Creek (Tar-Pamlico River Basin) from the 303-D list of impaired waters.

Status: In progress (continued from 2009)
Intended Output: Reports, environmental improvement
Intended Outcome: Restore designated use to a water body
Cost: \$8,000
Leverage: To be determined

Community Involvement and Outreach Activities

This project supports all of APNEP's outreach activities, including the APNEP newsletter, e-mail updates and other outreach materials. Activities include website design and support, printing, and participation in partner outreach and education events.

Status: Ongoing
Intended Output: Public outreach and involvement
Intended Outcome: CCMP implementation, increased environmental awareness
Estimated Cost: \$6,795
Leverage: To be determined



CAC Projects

The Citizens' Advisory Committee solicited for projects that implement the CCMP or support the APNEP mission. Projects were selected by the CAC to provide environmental benefits in the Albemarle-Pamlico region. Results of the demonstration projects will be transferable to all river basins in the Albemarle-Pamlico Region and other National Estuary Programs. A total of \$118,022 (\$75,000 from CE-95451210 and \$43,000 from CE-97464802) in awards were made. The following list includes the grant recipients selected for projects to be completed in 2010:

- The Mid-East Resource Conservation & Development Council was awarded \$19,800 for J.H. Rose High School's In-Stream Constructed Wetlands Schoolyard Demonstration Project. The grant will be used to plant a 0.75-acre constructed wetland, restore 450 linear feet of stream and provide educational programming at J.H. Rose High School in Greenville.
- N.C. Sea Grant was awarded \$20,000 for "Landscaping with Nature in Currituck County," a project that will create an environmental education demonstration site with natural landscape features and native plants at the Currituck County Cooperative Extension Building.
- The Black Family Land Trust in Durham was awarded \$20,000 for the Henderson Affordable Housing Wetland Boardwalk Trail. The grant will help create a protected, one-acre wetland park at the center of an affordable housing subdivision.
- The N.C. Division of Marine Fisheries was awarded \$8,087 to reduce stormwater flowing into Bogue Sound at the division's headquarters in Morehead City. This is part of a comprehensive stormwater project and will involve re-vegetating part of the Bogue Sound shoreline adjacent to the agency's headquarters and educating the community about stormwater pollution.
- The N.C. Coastal Reserve in Carteret County was awarded \$14,929 for the Carrot Island Habitat Improvement Demonstration Project. The project will improve a 22,000-square-foot dredge spoil habitat through native plantings and fencing and provide public outreach about habitat improvement.
- Dinwiddie Junior High School in Dinwiddie, Va., was awarded \$15,206 for its Outdoor Classroom and Nature Trail. The grant will be used to construct an outdoor classroom area with seating, an educational kiosk and a nature trail with signs identifying native plant species.
- Greensville County, Va. was awarded \$20,000 for phase I of the Uriah Branch Nature Trail. The project will consist of trail development next to the Greensville County Government Complex and construction of an observation deck overlooking the floodplain and wetlands along Uriah Branch stream.

The CAC also directed the APNEP to use \$6,000 (CE-97464802) in funding to assist in the printing of the N.C. Environmental Education Plan. This plan is also available online at http://www.eenorthcarolina.org/ee_plan_web_spread.pdf

Status:	In progress
Intended Output:	Community Demonstration Projects
Intended Outcome:	On-the-ground projects that demonstrate environmental benefits
Combined Cost:	\$124,000



Elizabeth City Eco-Park

APNEP will provide seed funds for the creation an EcoPark in Elizabeth City, NC. The Park would offer nature trails/paths through the woods along Knobb's Creek, giving access to flora and fauna viewpoints along the way. Project would utilize undevelopable land areas that are in or adjacent to a flood zone. The potential exists to upgrade fisheries spawning and utilize wetlands restoration techniques to improve watershed drainage along Knobb's Creek. The project consists of all or part of three key land parcels and part of three other adjacent parcels. A key property is owned by City of Elizabeth City.

Type: In progress
Intended Output: Park, increased community involvement
Intended Outcome: Park, wetland restoration
Estimated Cost: \$25,000
Leverage: Pending

ILT Climate Change Workshop

APNEP partnered with NC DENR, EPA, NC DOT and other members of the Inter-Agency Leadership Team (ILT) to produce a workshop of planning and adapting to climate change in North Carolina. This workshop brought together decision makers from across the state to learn how North Carolina can enhance its resilience to the projected threats and impacts of climate change, and how those vary by region. Participants included those involved in planning for land use, transportation, infrastructure, natural resources, cultural resources, public health, economic development, tourism, real estate, insurance, and emergency management. A total of 440 participants attended the workshop.

Additional information and the presentations may be found online at

http://www.climatechange.nc.gov/pages/ClimateChange/CC_Workshop_Archive.html

Type: Complete
Intended Output: Workshop
Intended Outcome: Informed Planning Community
Estimated Cost: \$2,000
Leverage: \$10,000+

Ecosystem Assessment Pilot Project: Pasquotank and Chowan River (VA)

Phase II

This project builds upon the data inventory survey conducted by APNEP in 2006. The Virginia Institute for Marine Sciences will assemble data referenced in the survey for the Virginia portion of the Pasquotank and Chowan Rivers. Data will include monitoring data on water quality and living resources as well as land use, population trends and other potential ecosystem stressors. Analyses will be conducted for indications of change over the period of record. The goal is to develop a preliminary State of the River Basin report for the Pasquotank and Chowan Rivers. The approach will be holistic in that changes in monitored variables will be tracked throughout river basins and river systems. These stations are monitored by the Virginia Department of Environmental Quality. These data can be further analyzed to look for trends in seasons as well as trends in other monitored parameters. An attempt will be made to trace changes in water quality and living



resources back to changes in the basin. This report may serve as a framework for the State of the Sounds report. This report can also serve as a guide to decision makers in the development of the eventual APNEP monitoring strategy.

Type: In Progress
Intended Output: Condition Report
Intended Outcome: Informed decision makers, APNEP indicators/ status of environment
Cost: \$ 25,000
Leverage: \$25,000

Submerged Aquatic Vegetation (SAV) Image Analysis

APNEP provided the funding necessary to lead interpretation of the acquired digital aerial photography of potential SAV habitats in the APNEP region. This imagery is a necessary step in providing APNEP partners with information on the current status of SAV in the sounds. APNEP is negotiating with the US Fish and Wildlife Service under Indefinite Delivery-Indefinite Quantity (IDIQ) contract under the Federal Acquisition Regulation (FAR), section 16.501(a) to obtain a contractor with a suitable consultant to complete this task.

Status: Ongoing
Intended Output: Report, GIS data, maps, educational opportunities
Intended Outcome: Better environmental data, better resource management and planning
Estimated Cost: \$60,000
Leverage: Pending

SAV Monitoring

This project supplements the SAV work that APNEP has been involved in over the past few years. In the Spring of 2009 APNEP was awarded a grant to test protocols for SAV monitoring. The funds will be used to support the effort and provide a portion of the match. Funds will be used for boat use and some required travel.

Status: In progress as needed
Intended Output: Testing of monitoring protocols.
Intended Outcome: SAV monitoring plan
Estimated Cost: \$1,000
Leverage: \$112,000

River Herring Restoration Project

APNEP staff will continue to work with NCDENR and others on a proposal presenting a set of immediate and long-term actions that will lead to the restoration of blueback herring (*Alosa aestivalis*) and alewife (*Alosa pseudoharengus*), collectively known as “river herring”, in a manner that is scientifically, economically and socially sound.

Status: Developmental stage
Output: Actions to improve water quality and habitat
Outcome: Restoration of regional herring fishery
Estimated Cost: \$100,000
Funding Source: NC State Appropriation (non-federal)
Leverage: Pending



Restoration and Research Projects

APNEP solicited for restoration and research projects that implement the CCMP or support the APNEP mission. Projects were selected by the Executive Committee of the Policy Board using some unspent funds under CE-97464802. The following list includes the grant recipients selected for projects to be completed in 2010:

Research Projects

- East Carolina University was awarded \$58,440 for a research project entitled “Rates and Processes of Vital Wetland Habitat Loss in the Albemarle-Pamlico Estuarine System.” The project aims to determine rates of wetland loss by shoreline erosion across the Albemarle-Pamlico Estuarine System over varying timescales. It will also evaluate the key processes driving this shoreline change using a combination of field and remote-sensing observations.
- Appalachian State University’s Biology Department was awarded \$64,009 for a research project entitled “Assessment of Small Dam Impacts on Freshwater Mussels & Fishes in the Tar, Roanoke, Neuse and Chowan River Drainages, N.C. and Va.” The objectives are to quantify the effects of small dams on mollusk and fish assemblages and stream habitats in the Albemarle-Pamlico basin, provide a baseline estimate of mollusk and fish populations near small dams, and provide resource managers with an empirical ranking system for evaluating and prioritizing dams for removal in the Albemarle-Pamlico basin.
- The University of North Carolina at Chapel Hill’s Office of Sponsored Research was awarded \$67,364 for a research project entitled “Evaluating Restoration Success for Newly Constructed Oyster Reefs Spanning a Critical Intertidal Elevation.” This project involves constructing oyster shell reefs at different intertidal elevations and monitoring reef size and community structure over time. These sites will serve as long-term experimental stations. The data gathered will be used to support more effective restoration models and practices for oyster reefs in intertidal settings and better define their range of ecosystem services and habitat value.

Restoration Projects

- The Albemarle Resource Conservation and Development Council was awarded \$49,000 for a restoration project entitled “Manteo High School Constructed Wetland and Outdoor Environmental Education Classroom.” The project will involve constructing and planting a wetland between Manteo High School and Dough’s Creek. It also will involve constructing a boardwalk over the wetland to provide access for observation and water quality sampling, and developing an environmental education curriculum for high school students that includes using the wetland as an outdoor classroom. This project will be constructed adjacent to another APNEP project at Manteo Middle School that uses several retention areas and a rain garden to reduce stormwater runoff into the creek.
- The North Carolina Coastal Federation was awarded \$99,967 for a restoration project entitled “Hydrologic Restoration for Habitat and Estuarine Water Quality Improvement in Hyde County, N.C.” This funding will contribute to a large landscape-scale restoration project to restore the hydrology on more than 42,000 acres of drained farmland. The drainage district is adjacent to the Alligator River National Wildlife Refuge, Mattamuskeet National Wildlife Refuge, Gull Rock Game Lands, the Long Shoal and Alligator Rivers, the Intracoastal Waterway and



the Pamlico Sound. APNEP funds will be used to construct diking, plant vegetation and install water control structures. This project will improve water quality in estuarine areas targeted for restoration and create vital habitat for shorebirds and waterfowl on the Albemarle-Pamlico Peninsula.

- The Nature Conservancy's North Carolina Chapter was awarded \$65,538 for a restoration project entitled "Building Ecosystem Resilience to Climate Change and Sea-Level Rise through Restoration of an Estuarine Habitat Complex." The objective is to restore the ecosystem function of the abandoned Point Peter waterfowl impoundment at Alligator River National Wildlife Refuge and adjacent estuarine sub-tidal zone through invasive species removal, re-establishment of wetland hydrology and construction of a fringing oyster reef. This project is an essential component of the Point Peter demonstration project where the Conservancy and the U.S. Fish and Wildlife Service have partnered to implement a comprehensive set of climate change adaptation strategies. The strategies will test the project's effectiveness at reducing the impacts of sea level rise on the ecosystems of the Alligator River National Wildlife Refuge.

Status: In progress
Intended Output: Community Demonstration Projects
Intended Outcome: On-the-ground projects that provide environmental benefits and inform restoration efforts
Combined Cost: \$404,318

Regional Wetlands Grant: Development of a Comprehensive Assessment and Tracking Methodology for Wetland Functionality in the Chowan Estuary of Western Albemarle Sound (non-section 320 funds)

APNEP partnered with Environmental Defense to obtain a Regional Wetlands Grant from the EPA to develop a comprehensive assessment methodology for wetland functionality in the Chowan Estuary of Western Albemarle Sound, as the basis for setting goals for wetland extent and condition, developing programs to achieve those goals, and tracking progress. The work will be used to prioritize short-term actions, and as an integral part of the long-term implementation plans for state and federal resource management in the region.

Status: In Progress
Output: A comprehensive assessment methodology for wetland functionality
Outcome: Greater wetland restoration and conservation
Estimated Cost: \$1,013,968
Funding Source: EPA and Environmental Defense funds for Regional Wetland Grant (non-320 funds)
Leverage: \$1,013,968

Albemarle-Chowan Watershed Roundtables

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



Status: Ongoing
Output: Citizen advisory group
Outcome: Increased environmental awareness and citizen participation
Estimated Cost: Associated travel costs
Funding Source: Virginia Dept. of Conservation and Recreation
Leverage: Pending

EBM & Comprehensive Monitoring Plan

The APNEP Scientist is coordinating the activities associated with development of the monitoring strategy within the new APNE Ecosystem-Based Management (EBM) framework. APNEP will continue to address this task in FY 2011 along with support from the STAC. APNEP has contracted support from the UNC Institute of Marine Sciences to support this effort.

Status: In Progress
Intended Output: Program EBM Plan
Intended Outcome: Enhanced environmental monitoring
Estimated Cost: \$36,000
Funding Source: Unencumbered EPA funds from previous years as necessary

Albemarle-Pamlico Conservation and Communities Collaborative (AP3C)

Since October 2006, APNEP has been involved with the development of the Albemarle-Pamlico Conservation and Communities Collaborative (AP3C). This partnership emerged as a result of the interest expressed by numerous institutions in balancing the long-term conservation of natural systems with opportunities for the well-being of all the region's citizens. It is intended to provide a forum for working collaboratively whenever feasible. These organizations believe it will be possible to realize a sustainable future by avoiding duplicative efforts and missed opportunities. The participating organizations represent a broad spectrum of land and water resource managers and conservation and community advocates, each with a different mission. All are dedicated, through partnership in the AP3C, to providing for human needs while protecting the integrity of the region's ecosystems. APNEP helped to convene and facilitate meetings of the AP3C to discuss how to better engage communities in conservation. These meetings drew a diverse representation of community and social issues professionals. Additionally, the AP3C institutions assisted in the sea level rise listening sessions that were held in the summer of 2008.

Status: In Progress - Ongoing
Intended Output: Community engagement
Intended Outcome: Community engagement/ environmental improvement
Leverage: Pending

North Carolina – Virginia Shared Resources Forum

A forum for state resource agencies and local governments in the Roanoke, Chowan and Pasquotank river basins will be held to review resources shared by the two states. This forum has been delayed in order to assess the role of the new Roanoke Bi-State Commission as designated by the General Assembly of both states. Approximately \$1,000 is budgeted for this effort using EPA funds from previous years. The current



strategic planning exercise has identified a Governor's agreement as a possible goal for the program.

Status: Planning
Intended Output: Community engagement, bi-state communication
Intended Outcome: Environmental improvement
Leverage: Pending

II. FY 2009 ACTIONS & PROJECTS

The following are ongoing or completed actions of projects in the FY 2009 Work Plan that occurred from May 1, 2009 to May 1, 2010. All project are funded under CE-97464802.

Spatially-enabled *Content Management System* Development: Phase I of APNEP Decision Support System

APNEP staff are working with NC DENR, NC Wildlife Resources Commission (WRC) and others to begin the development of a comprehensive temporal and spatial database (*Content Management System*) as a form of clearinghouse for pertinent environmental data and modeling information in the AP region. This system will use a new generation of internet portal technology to provide metadata information and data access when possible.

Status: Pending
Intended Output: APNEP content management system
Intended Outcome: Promote awareness of existing regional data and models for pilot APNEP assessment; tool for partners
Estimated Cost: \$5,000 or less
Leverage: Pending

Imagery Catalog

APNEP staff are working with partners to develop a catalog of current and historical remote sensing imagery in the public domain taken within the APNEP region. To initiate the process APNEP plans to sponsor two workshops. The first workshop will be held to discuss the Statewide Mapping Advisory Committee's draft protocol to digitize historical imagery and provide preliminary review of archives by various local, state, and federal agencies. The second workshop will include representatives from Virginia agencies, and focus on counties within the APNEP pilot region. All imagery catalog information resulting from workshop output will be included in the proposed Phase I APNEP Content Management System.

Status: Pending
Intended Output: Two workshops
Intended Outcome: Development of an imagery catalog
Estimated Cost: \$5,000 less
Leverage: Pending



2009 Teacher Institute

APNEP partnered with the UNC Institute for the Environment, the NC Office of Environmental Education, the Environmental Education Fund and others to offer a teacher training institute during the summer of 2009 at the Trinity Center in Salter Path, NC. Teachers were provided with curriculum training in earth/ environmental sciences with hands-on activities, site visits, and specific content to support inquiry, experiential, and research-based instruction on estuary and water resources. Additional information may be found at <http://www.eenorthcarolina.org/edresources/2009institute.html>

Status: Complete
Intended Output: 32 teachers trained in environmental / watershed education
Intended Outcome: Increased environmental education in schools
Cost: \$12,000
Estimated Leverage: Approximately \$12,000

Ecosystem Assessment Pilot Project: Pasquotank and Chowan Rivers (VA)

This project builds upon the data inventory survey conducted by APNEP in 2006. The Virginia Institute for Marine Sciences is assembling data referenced in the previous survey for the Virginia portion of the Pasquotank and Chowan Rivers. Data will include monitoring data on water quality and living resources as well as land use, population trends and other potential ecosystem stressors. Analyses will be conducted for indications of change over the period of record. The goal is to develop a preliminary State of the River Basin report for the Pasquotank and Chowan Rivers. This report can serve as a framework for an eventual State of the Sounds report that will include APNEP's finalized indicators. This report can also serve as a guide to decision-making in the development of the eventual APNEP monitoring strategy.

Type: Complete
Intended Output: Condition Report.
Intended Outcome: Informed decision makers, APNEP indicators
Cost: \$50,000 total
Leverage: \$25,000

303-D Listed Waters Project

APNEP is partnering with NC Ecosystem Enhancement Program, Division of Water Quality and others on efforts to remove Fishing Creek (Tar-Pamlico Basin) from the 303-D list of impaired waters.

Type: In Progress
Intended Output: Report, Local engagement
Intended Outcome: Restore designated use to a water body
Estimated Cost: \$14,000
Leverage: Pending



Public Attitudes toward Estuary Management Survey

This project repeats a 1991 survey on public attitudes toward water quality and management alternatives in the Albemarle-Pamlico watershed. APNEP has contracted with East Carolina University to adapt APNEP's 1991 survey to reflect new interests while retaining a basis for comparison with the older survey.

Status: Complete

Output: Survey report and data about public attitudes and perceptions that can be used to guide APNEP's future work and evaluate APNEP's accomplishments over the last 15 years.

Outcome: Improved public outreach and messaging due to a better understanding by APNEP staff and project partners of public priorities, interests and attitudes.

Cost: \$39,000

CAC Demonstration Projects

The Citizens' Advisory Committee selected 6 proposals for demonstration projects to provide environmental benefits in the Albemarle-Pamlico region. Results of the demonstration projects will be transferable to all river basins in the Albemarle-Pamlico Region and other National Estuary Programs. Projects were delayed due to a delay associated with extension of funds by the EPA. The extension was granted in January 2010. The following list includes the grant recipients selected for projects to be completed in 2010.

- Kitty Hawk Elementary School received a 2009 Albemarle-Pamlico National Estuary Program Citizens' Advisory Committee grant for \$8,800 to construct a Renewable Energy Discovery Zone. The Discovery Zone will be used to educate students, faculty, staff and the local community about the benefits of renewable energy.
- Pamlico County Cooperative Extension Service in cooperation with the Pamlico County School System received a 2009 Albemarle-Pamlico National Estuary Program Citizens' Advisory Committee grant for \$7,000 to install a best management practice in the form of a rainwater harvesting system at the Pamlico County Schools bus garage. This system captures a portion of the estimated 188,697 gallons of water that falls annually on this rooftop and helps protect the water quality of nearby rivers from the unimpeded flow of stormwater runoff.
- East Wake Academy received a 2009 Albemarle-Pamlico National Estuary Program Citizens' Advisory Committee grant for \$12,000 to plant a stream buffer using native plants, enhance the school's nature trail and construct a boardwalk that will connect students to an outdoor classroom and water monitoring station that are part of this project. Students will monitor water quality and integrate monthly water quality monitoring into their curriculum as part of this project.
- Edward Wyatt Middle School in Emporia, Virginia received a 2009 Albemarle-Pamlico National Estuary Program Citizens' Advisory Committee grant for \$12,000 to construct an outdoor classroom, pavilion, dry river bed, teaching pond and nature trail.



- The N.C. Coastal Federation (NCCF) received a 2009 Albemarle-Pamlico National Estuary Program Citizens' Advisory Committee grant for \$10,200 for a project that will reduce stormwater runoff into Core Sound at the Cape Lookout National Seashore Visitor Center at Harker's Island, N.C. NCCF will work with 40 students from the rural Harker's Island elementary school, two teachers and community volunteers to construct a bioretention or infiltration area to capture polluted stormwater runoff coming from the parking lot and road at the Visitor Center. Educational outreach efforts will focus on pre- and post- site monitoring by the students and educating the public about best management practices and the importance of reducing stormwater pollution.

Status:	Six Projects in progress
Intended Output:	Community Demonstration Projects
Intended Outcome:	On-the-ground projects that demonstrate environmental benefits
Estimated Cost:	\$50,000



ONGOING LONG-TERM PROJECTS & ACTIONS

I. Board and Committees Support

The key element of the CCMP's implementation is active citizen participation. On August 2nd, 2007, North Carolina Governor Michael F. Easley signed Executive Order # 122: *Creation of a Program Office, a Policy Board, and Advisory Committees to Support Natural Resource and Environmental Management in the Albemarle-Pamlico National Estuarine System*. Staff work with these advisory groups to guide CCMP implementation, indicator development, and development of a new CCMP.

Intended Output: Partnership building, outreach, CCMP implementation prioritization

Intended Outcome: New and greater public involvement, estuarine indicator development

Estimated Cost: \$10,000

II. Virginia Watershed Field Coordinator

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

Output: Program administration, reports, leverage, presentations

Outcome: Environmental result, CCMP implementation

Cost: \$30,000

❖ The Virginia Watershed Field Coordinator directly supports the CCMP's Implementation Plan, Objective A: Management Action 2: *“Coordinate implementation of the CCMP.”*

III. 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. The program began as an initiative of the Pamlico-Tar River Foundation in 1988, to protect, preserve and promote the water quality of the Tar-Pamlico River and its watershed. Today, the program includes all waters located in the Albemarle-Pamlico region.

The CMN has three areas of activity: Baseline Monitoring, Targeted Monitoring and Surveys, and Water Quality Education. Program volunteers receive support in each of these areas through water quality education and training, QA/QC workshops, distribution of equipment and supplies, data management/analysis, and networking opportunities. Participants primarily monitor dissolved oxygen, pH, salinity, air and water temperatures,



and turbidity to gauge the general health or quality of water in the estuary. Using basic but accurate water quality test kits, citizen volunteers analyze their water samples, observe qualitative factors such as weather conditions and other visual indicators, and record the results. All monitoring data are compiled by the CMN office at ECU. Information is available to the public on the APNEP website at <http://www.apnep.org/> and at <http://www.ecu.edu/icmr/cwqmp>

Operation of the APNEP Citizens' Monitoring Network (including Coordinator, equipment, supplies, office and lab space and ECU indirect costs) will be under contract with East Carolina University.

Output: Awareness, data
Outcome: Increased environmental awareness
Cost: \$60,000

- ❖ The Citizens' Monitoring Network directly supports the CCMP's Stewardship Plan, Objective B: Management Action 4: *“Expand involvement in the Citizens' Water Quality Monitoring Program (CWQMP) and make the program more interactive with regulatory agencies.”*

IV. Submerged Aquatic Vegetation (SAV) Monitoring

Submerged aquatic vegetation constitutes one of the most important estuarine habitats in the Albemarle-Pamlico Region. SAV supports many species of fish and shellfish and are major fishery habitats of the shallow sounds behind North Carolina's barrier islands and along the coastal fringes bordering the western side of these sounds.

In FY 2007 APNEP provided the base funding necessary to foster acquisition of digital aerial photography of potential SAV habitats in the APNEP and stimulate interest in the entire coastal region. This imagery is a necessary step in providing APNEP partners with information on the current status of SAV in the coastal waters.

Output: Report, GIS data, maps, educational opportunities
Outcome: Better environmental data, better resource management and planning
Funding Source: EPA 320 and others
Partners: NC Division of Marine Fisheries, US Fish and Wildlife Service, WRC, NOAA, NC Division of Water Quality, NC Division of Water Resources, ECU, others



PROPOSED PROJECTS & ACTIONS FOR FY 2011

Projects for FY 2011 will continue to support the transition to an Ecosystem Based Management program and the final development stages of a new CCMP. Additionally, projects and actions presented here support restoration and environmental improvement efforts.

I. Program Administration & Indirect Costs

For more detail see Administration and Financial section.

Type: Ongoing

Intended Output: Program administration, partnership building, CCMP implementation

Intended Outcome: CCMP implementation

Estimated Cost: \$277,196 direct and \$38,361 indirect costs (see indirect cost p.30)

❖ These actions support the current CCMP's Implementation Plan goal: *"Implement the CCMP in a way that protects environmental quality while using the most cost-effective and equitable strategies."*

II. Watershed Field Coordinator - Virginia

For more detail see Ongoing Projects section.

Type: Ongoing

Intended Output: Governmental coordination, public involvement

Intended Outcome: CCMP implementation

Estimated Cost: \$32,000

❖ These actions support the current CCMP's Implementation Plan goal: *"Implement the CCMP in a way that protects environmental quality while using the most cost-effective and equitable strategies."*

III. Board and Committees Support

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

Type: Ongoing

Intended Output: Partnership building, outreach, CCMP implementation prioritization

Intended Outcome: New and greater public involvement, estuarine indicator development

Estimated Cost: \$2,000

❖ This action supports the current CCMP's Implementation Plan, Objective B: *"Assess the progress and success of implementing CCMP recommendations and the status of environmental quality in the Albemarle-Pamlico Sounds region."*



IV. Citizens' Monitoring Network

For more detail see Ongoing Projects section.

Type: Ongoing
Intended Output: Awareness, data
Intended Outcome: Increased environmental awareness
Estimated Cost: \$60,000

❖ This action supports the current CCMP's Water Quality Plan: Management Action 4: *"Expand involvement in the Citizens' Water Quality Monitoring Program (CWQMP) and make the program more interactive with regulatory agencies."*

V. CCMP/ EBM Support (RFP)

In order to support the further development and production of the new CCMP and its associated monitoring plan, APNEP will develop a scope of work and request bids for additional support leading implementation of the Ecosystem-Based approach for APNEP.

Type: New
Intended Output: CCMP, Monitoring Plan, supporting EBM materials
Intended Outcome: CCMP & Monitoring Plan
Estimated Cost: \$40,000
Leverage: Pending

❖ This project supports the development of a new CCMP and Monitoring Plan.

VI. 2011 Teacher Institute

APNEP will partner with the NC Office of Environmental Education, the Environmental Education Fund, and others to offer a teacher training institute during the summer of 2011 at the Trinity Center in Salter Path, NC. Approximately 25-30 middle and high school teachers will be provided with curriculum training in earth/ environmental sciences with hands-on activities, site visits, and specific content to support inquiry, experiential, and research-based instruction on estuary and water resources.

Status: Continuing
Intended Output: 20-30 teachers trained in environmental education
Intended Outcome: Increased environmental education in schools
Estimated Cost: \$24,000
Estimated Leverage: Approximately \$8,000

❖ This project supports the CCMP's Stewardship Plan Goal: *"Promote Responsible Stewardship of the natural resources of the Albemarle-Pamlico sounds region."*

VII. Restoration Projects (RFP)

APNEP will develop a *Request for Proposals* for work in the region that provides a measurable environmental benefit and addresses the potential effects of climate change. The selection of the projects will be made by the Executive Committee of the Policy Board.

Type: New
Intended Output: Restoration Projects, public awareness
Intended Outcome: Environmental / Natural Resource Restoration



Estimated Cost: \$100,000
Leverage: To be determined.

- ❖ This project the CCMP's Water Quality Plan goal: *“Restore, maintain or enhance water quality in the Albemarle-Pamlico region so that it is fit for fish, wildlife and recreation.”*

VIII. Estuary Awareness (RFP)

APNEP will develop a *Request for Proposals* for work in the region that raises awareness and engagement in estuarine management and restoration efforts. The selection of the projects will be made by the Executive Committee of the Policy Board.

Type: New
Intended Output: Public awareness
Intended Outcome: Public awareness /Environmental / Natural Resource Protection
Estimated Cost: \$50,000
Leverage: Pending

- ❖ This project supports the CCMP's Stewardship Plan Goal: *“Promote Responsible Stewardship of the natural resources of the Albemarle-Pamlico sounds region.”*

IX. CAC Projects (RFP)

The Citizens' Advisory Committee will solicit for projects that implement the CCMP or support the APNEP mission. Projects will selected by the CAC to provide environmental benefits in the Albemarle-Pamlico region. Results of the demonstration projects will be transferable to all river basins in the Albemarle-Pamlico Region and other National Estuary Programs.

Type: New
Intended Output: Community Demonstration Projects
Intended Outcome: On-the-ground projects that demonstrate environmental benefits
Estimated Cost: \$80,000

- ❖ These demonstration projects support the CCMP's Water Quality Plan goal: *“Restore, maintain or enhance water quality in the Albemarle-Pamlico region so that it is fit for fish, wildlife and recreation.”*

X. 303-D Listed Waters Project (Fishing Creek)

APNEP will continue to partner with NC Ecosystem Enhancement Program and the NC Division of Water Quality, and other local partners in implementation of actions to remove Fishing Creek (Tar-Pamlico River Basin) from the 303-D list of impaired waters.

Status: Pending contract amendment
Intended Output: Reports, environmental improvement
Intended Outcome: Restore designated use to a water body
Estimated Cost: \$6,000
Leverage: To be determined



- ❖ This project supports the CCMP's Water Quality Plan: Objective B: *“Reduce Sediments, Nutrients and Toxicants From Nonpoint Sources.”*

XI. Outdoor Classroom Symposium

APNEP will partner with the Office of Environmental Education and others to produce a second outdoor classroom symposium. This event will focus on techniques for creating outdoor classrooms and strategies for using them to integrate environmental education into curriculum and programs. Anticipated attendance is 120-150 participants, primarily teachers and teacher assistants from across the state of North Carolina, although administrators and parent volunteers will also be welcome.

Type: New
Intended Output: 130 teachers exposed to environmental education opportunities on school grounds
Intended Outcome: Increased environmental education in schools
Estimated Cost: \$ 9,000
Leverage: Pending

- ❖ This project supports the CCMP's Stewardship Plan Goal: *“Promote Responsible Stewardship of the natural resources of the Albemarle-Pamlico sounds region.”*

XII. State of the Sounds Conference

APNEP will release the 2010 State of the Sounds Report and host a one-day science and policy conference in the early fall of 2011. This conference 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.

Type: New
Intended Output: Public awareness
Intended Outcome: Public awareness /Environmental / Natural Resource Protection
Estimated Cost: \$9,000
Leverage: To be determined

- ❖ This project supports the CCMP's Stewardship Plan Goal: *“Promote Responsible Stewardship of the natural resources of the Albemarle-Pamlico sounds region.”*

XIII. Shad in the Schools

Shad in the Schools is a collaborative project that provides students with an understanding of the science process, inspiration for careers in science, and a desire to protect our waterways through hands-on experience raising American Shad from egg to releasable fry. This is a collaboration led by the US Fish and Wildlife Service, the North Carolina Museum of Natural Sciences and will include Partnership for the Sounds, NC State University, the NC Wildlife Resources Commission, NC Division of Water Quality and the NC Chapter of American Fisheries, the students and teachers. The objective of this project is to build an understanding of the life history of shad and an appreciation for our natural world. The project has three primary components: 1. Classroom project: Equipping classrooms to raise the shad, providing the shad eggs, assisting with the release. 2. Teacher training: one day training on the process of raising shad, overnight



canoe workshop on the Roanoke to learn about the ecosystem and 3. Multimedia presentations in both short online segments and a longer High Definition movie to be shown at the Museum and shared throughout the state.

Type: New
Intended Output: Increased community involvement in water quality and habitat protection
Intended Outcome: Educational program, restoration activities
Estimated Cost: \$60,000
Leverage: Pending

❖ This project supports the CCMP's Water Quality Plan Goal: “*Restore, maintain or enhance water quality in the Albemarle-Pamlico region so that it is fit for fish, wildlife and recreation,*” and

❖ This project supports the CCMP's Stewardship Plan Goal: “Promote Responsible Stewardship of the natural resources of the Albemarle-Pamlico sounds region.”

XIV. Community Involvement and Outreach Activities

This project supports all of APNEP’s outreach activities, including the APNEP newsletter, e-mail updates and other outreach materials.

Status: Ongoing
Intended Output: Public outreach and involvement
Intended Outcome: CCMP Implementation, increased environmental awareness
Estimated Cost: \$2,443
Leverage: To be determined

❖ This project supports the CCMP's Stewardship Plan Goal: “Promote Responsible Stewardship of the natural resources of the Albemarle-Pamlico sounds region.”

ADMINISTRATION AND FINANCIAL

I. PROGRAM ADMINISTRATION

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

Indirect Costs

NC DENR has negotiated an indirect cost agreement with the US EPA for the Division of Soil and Water Conservation at a rate of 18.20 % of all salaries supported by this federal grant. Estimated indirect costs for FY 2011 are \$38,361 based on this indirect rate. APNEP will be placed within an new Division of Conservation (formally the Division of Soil and Water Conservation and Natural Resource Planning and Conservation) on July 1, 2010. The approved rate for FY 2010 was 5.10 % (\$10,469).

Administrative Costs

Overall administration costs for FY 2011 are estimated at approximately \$277,196 and include salaries, fringe, longevity pay, equipment, supplies, IT services and phone, and training and development. Administration costs for FY 2010 were budgeted at \$271,636.

Personnel*

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

The APNEP also has two contract employees: the Citizens' Monitoring Network Coordinator in Greenville, and the Virginia Watershed Field Representative in Suffolk, Virginia. See description under Ongoing Projects for information on these programs.

Program Director

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



Community Specialist

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

Program Scientist

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

Project Coordinator

The Project Coordinator assists the Program Director to administrate the Program and coordinate and manage contracting and associated activities within NCDENR. The position also assists with the CCMP implementation process, involving interaction with numerous federal and state resource management agencies, universities, interest groups, and the general public, and provides staff support to the Policy Board and Advisory Committees. This position is currently vacant.

Watershed Field Coordinator (NC)

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

* Note: All positions funded under EPA section 320 funds are consistent with North Carolina Office of State Personnel rules and policies.



II. GRANTS TO LOCAL ENTITIES

The Albemarle-Pamlico NEP established many contracts in FY 2010 due as a result of awards for Request for Proposals and to the awarding of funds for 2009 Request for Proposals and projects associated 2009 projects that were delayed to the request for extension of 320 funds under CE-97464802. A description of these items are discussed in the Goals and Accomplishments, and the Ongoing Projects sections of this report.

Most actions are funded under CE-95451210 and CE-97464802. In additional project APNEP partnered with Environmental Defense to obtain a Regional Wetland Grant from the EPA in December 2005 and 2007. This grant (CD-9444206) funds support for the development of a comprehensive assessment and tracking methodology for wetland functionality in the Chowan estuary of Western Albemarle Sound. The project will be completed in FY 2010.

The following table provides an overview of all active and completed contracts to local entities since October 1, 2009 for section 320 funds under CE-9746802 and CE-95451210.



GRANTS TO LOCAL ENTITIES (Active or completed October 1, 2009 to May 8, 2010)

Project Title	Funded Amount	Project Leader	Purpose	Deliverables	Completion Date	Status
Watershed Coordinator (VA)	\$30,000	VA. Dept. Conservation & Recreation	Fund Watershed Coordinator in VA-NC Shared river basins	Program support Reports	Ongoing	In Progress
Citizens' Monitoring Network	\$59,100	East Carolina University	Outreach / Monitoring	Program Admin Reports	Ongoing	In Progress
Estuary Management Survey	\$38,000	East Carolina University	Measure public attitudes and perceptions; evaluate APNEP's accomplishments: planning	Survey, Report	Sept. 2009	Complete
Teacher Institute 2009	\$12,000	Environmental Education Fund	Develop and Implement a Teacher Institute for 25+ teachers	Week long Institute Report	Aug. 2009	Complete
Teacher Institute 2010	\$24,000	Environmental Education Fund	Develop and Implement a Teacher Institute for 25+ teachers	Week long Institute Report	Sept. 2009	In Progress
Chowan Ecosystem Assessment I	\$25,000	Virginia Inst. Marine Science	Ecosystem analysis of a portion of the watershed	Report, Indicator Support	Sept. 2009	Complete
303-D Waters Restoration (Fishing Creek)	\$14,000	NC Ecosystem Enhancement Program	Support efforts to remove Fishing Creek from 303-D impaired waters list	Report, Community Involvement	Sept. 2009	In Progress
2009 Schoolyard Demonstration Project	\$12,000	East Wake Academy	Outdoor Classroom & Boardwalk	Outdoor Classroom & Boardwalk, Report	Sept. 2010	In Progress
2009 Schoolyard Demonstration Project	\$12,000	E. W. Wyatt Middle School	Nature's Classroom and Exploratory Trail	Outdoor Classroom & Trail, Report	Sept. 2010	In Progress
2009 Schoolyard Demonstration Project	\$8,000	Kitty Hawk Elementary School	Renewable Energy Discovery Zone	Energy Learning Center, solar panels, , Report	Sept. 2009	Complete
2009 Schoolyard Demonstration Project	\$7,000	Pamlico County Schools	Cistern –water saving station	Cistern, , Report	Sept. 2009	Complete
2009 Schoolyard Demonstration Project	\$10,200	NC Coastal Federation	Stormwater Runoff – Cape Lookout Visitors Center	Stormwater BMP, Report	Sept. 2010	In Progress
Chowan Ecosystem Assessment II	\$25,000	Virginia Inst. Marine Science	Ecosystem analysis of a portion of the watershed	Report, Indicator Support	Sept. 2010	In Progress
Climate Ready Estuaries Pilot Project	\$49,000	Duke University	Local government survey: Communications Strategy	Report	Sept. 2010	In Progress
DWQ Outreach and Engagement Project	\$8,000	NC DENR-DWQ	Water Quality -Outreach and Engagement	Regional outreach & materials	August 2010	In Progress
Ecosystem Assessment	\$36,104	Univ. of North	Ecosystem Assessment Support	Support, Report	Dec. 2010	In Progress

& Synthesis Report		Carolina - IMS				
Claridge Nursery Stream Restoration Monitoring Study	\$8,000	NC DENR-Div. Forest Resources	Pre-restoration baseline watershed monitoring	Monitoring, Report	April 2011	In Progress
Reducing Stormwater Runoff into Bogue Sound	\$8,087	NC DENR-Div. Marine Fisheries	Re-vegetate a portion of the Bogue Sound shoreline adjacent to the NCDMF site	Restoration, Report	Sept. 2010	In Progress
Landscaping with Nature in Currituck County	\$20,000	NC Sea Grant	Stormwater control and treatment systems demonstration project	Stormwater BMP, Report	Sept. 2010	In Progress
Carrot Island Habitat Improvement	\$14,929	NC DENR-Div. Coastal Man.	Dredge spoil habitat restoration	Restoration, Report	Sept. 2010	In Progress
Rates and Processes of Vital Wetland Habitat Loss in the Face of Climate Change	\$58,440.00	East Carolina University	Research: Rates and Processes of Vital Wetland Habitat Loss	Research, Report	Dec. 2010	In Progress
Evaluating Restoration Success for Newly Constructed Oyster Reefs	\$67,364	Univ. of North Carolina	Research: Oyster Restoration	Research, Report	Dec. 2010	In Progress
Elizabeth City Eco-Park	\$25,000	Elizabeth City	Design for local eco-park	Park & Stormwater Design, Report	Sept. 2010	Pending
Assessment of Small Dam Impacts on Freshwater Mussels & Fishes	\$64,900	Appalachian State University	Baseline estimate of mollusk and fish populations near small dams	Research, Report	Dec. 2010	Pending
Manteo High School Constructed Wetland and Outdoor Environmental Education Classroom	\$49,000	Albemarle Resource Conservation & Development Council	Constructing and planting a wetland between Manteo High School and Dough's Creek.	Restoration, Report	Dec. 2010	Pending
Hydrologic Restoration for Habitat and Estuarine Water Quality Improvement.	\$99,967	North Carolina Coastal Federation	Restoration project to restore the hydrology on more than 42,000 acres in Hyde County, N.C	Restoration, Report	Dec. 2010	Pending
Climate Change: Sea-Level Rise & Restoration of Estuarine Habitat	\$65,538	The Nature Conservancy	Invasive species removal, re-establishment of wetland hydrology and construction of a fringing oyster reef	Restoration, Report	Dec. 2010	Pending



III. LEVERAGE FUNDS

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

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

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

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

FY 2011

In FY 2011, the Albemarle-Pamlico NEP will continue to seek additional avenues for collaborating with other partners to assist in targeting funds to support CCMP implementation goals 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 2010

In FY 2010, the Albemarle-Pamlico NEP continued to seek partners and additional opportunities for partners in targeting actions and funds towards CCMP implementation. APNEP will submit its FY 2010 Leverage results in September 2010.



IV. FY 2011 ESTIMATED FEDERAL COST SHARE

Federal Funds Budget FY 2011

The estimated federal funds grant for each NEP for FY 2011 is \$800,000*

Program Administration (staff salaries, fringe**, longevity, rent, supplies, etc.)	\$ 277,196
Watershed Field Coordinator	\$ 32,000
Boards & Committees Support	\$ 2,000
Community Involvement & Outreach	\$ 2,443
Citizens' Monitoring Network	\$ 60,000
CCMP-EBM Support (RFP)	\$ 40,000
2010 Teacher Institute	\$ 24,000
Restoration Projects (RFP)	\$ 100,000
Estuary Awareness (RFP)	\$ 50,000
CAC Projects	\$ 80,000
303-D Listed Waters Project (Fishing Creek)	\$ 6,000
Outdoor Classroom Symposium	\$ 9,000
State of the Sounds Conference	\$ 9,000
Shad in the Classroom	\$ 60,000
Travel	\$ 10,000
Indirect Costs (18.2%)	\$ 38,361
	<hr/>
	Total \$ 800,000

** From EPA meeting in February 2010*

*** Includes: Fringe Benefits based on Social Security (7.65 %) & Retirement (10.71 %) of position's annual salary
Medical Insurance Plan rate of \$4,929 per year and
Indirect Costs based on 18.2 % of federal salaries.*



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

APNEP Budget FY 2010

The federal funds budget for each NEP in FY 2010 was \$600,000

Program Administration (staff salaries, fringe**, longevity, rent, supplies, etc.)	\$ 271,636
Watershed Field Coordinator	\$ 32,000
Boards & Committees Support	\$ 10,000
Community Involvement & Outreach	\$ 6,795
SAV Image Analysis	\$ 25,000
SAV Monitoring Support	\$ 1,000
Pasquotank and Chowan River Water Quality Assessment Phase II	\$ 25,000
Elizabeth City Eco-Park	\$ 25,000
DWQ Outreach	\$ 8,000
Citizens' Monitoring Network	\$ 59,100
2010 Teacher Institute	\$ 22,000
Outdoor Classroom Symposium	\$ 8,000
303-D Listed Waters Project (Fishing Creek)	\$ 8,000
CAC Projects	\$ 75,000
ILT Climate Change Workshop	\$ 2,000
Travel	\$ 11,000
Indirect Costs (5.10%)	\$ 10,469
Total	\$ 600,000

** From EPA in April 2009*

*** Includes: Fringe Benefits based on Social Security (7.65 %) & Retirement (8.14 %) of position's annual salary
Medical Insurance Plan rate of \$4,175 per year and
Indirect Costs based on 5.10 % of federal salaries.*



V. NON-FEDERAL COST SHARE (Match for FY 2011)

Summary of Match Requirements

The North Carolina Department of Environment and Natural Resources intends to provide \$800,000 for the required 1:1 non-federal match for FY 2011 under CE-95451210. All non-federal match has been met for CE-97464802. This match will be provided through:

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

Summary of Non-federal State Match

In-kind Position (salaries and fringe):	\$ 84,244
Clean Water Management Trust Fund Project:	<u>\$ 715,756</u>
TOTAL:	\$ 800,000

In-kind Position Non-federal Match

The North Carolina Department of Environment and Natural Resources intends to provide \$84,244 as part of the required 1:1 non-federal match for FY 2011. The match will be provided through in-kind services provided by staff of the Department of Environment and Natural Resources.

Office of Conservation and Community Affairs

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

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

<u>POSITION</u>	<u>#</u>	<u>SALARY</u>	<u>EFFORT</u>	<u>Match</u>
Field Representative	1	67,012	1.0	67,012
			Fringe* 1.0	<u>17,232</u>
		Total In-Kind Service Match:		84,244

* Fringe is based on Social Security (7.65 %) & Retirement (10.71 %) of position's annual salary, plus Medical Insurance Plan rate of \$4,929 per year.



In-kind Project/Services Non-federal Match

The North Carolina Clean Water Management Trust Fund intends to provide \$715,756 as part of the 1:1 non-federal match for FY 2011. The match will be provided through water quality improvement projects in one or more of the APNEP river basins.

Clean Water Management Trust Fund

Created in 1996, in part to a response a CCMP action, the Clean Water Management Trust Fund (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.

VI. 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, APNEP will allocate \$10,000 as travel funds for program support, enhancement, education, and outreach support. These funds are to be used for activities such as:

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

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

FY 2010

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	10/09 to 9/ 2010	Normal Program Activities/ projects	APNEP area	\$6,000
Crowell	2/10	EPA- ANEP/NEP National Meeting	Washington, DC	\$2,000
Carpenter	11/09	EPA- ANEP/NEP National Meeting CERF meeting	Portland OR	\$2,000
			Total	\$10,000

**Estimate*



FY 2011 Projected Travel Estimates

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

In-State:

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

In-state estimate for FY 2011: 30 trips, among 4 staff members; average cost per trip approximately \$100. Total \$3,000

EPA-associated Out-of-State:

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

Estimate for FY 2011: 2 trips, 3 persons; average cost per trip per person is approximately \$1000.00 (based on prior travel). Total \$6,000

Other Out-of-State:

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

Out-of-State Estimate for FY 2011: 2 trips, 2 days; average cost per trip approximately \$500.00. Total \$1,000



2010 NC DENR TRAVEL RATES

Item	In-State	Out of State	Overnight Trip	Day Trip
Breakfast	\$ 7.75	\$ 7.75	Leave Office before 6:00 AM	Leave Office before 6:00 AM; Extend workday by 2 hours
Lunch	\$ 10.10	\$ 10.10	Leave Office by 12:00 Noon; Overnight return after 2:00 PM	Never claimed on day trip
Dinner	\$ 17.30	\$ 19.65		Depart office before 5:00 PM Return after 8:00 PM Extend workday by 3 hours
Breakfast/ Dinner				Leave office before 6:00 AM; Return after 8:00 PM; Extend workday by 5 hours
Hotel (+ taxes)	\$ 65.90	\$ 78.05		

FY 2011 Projected Travel

Personnel	Date	Purpose	Location	Estimated Cost
APNEP Staff & volunteers	October to September	Normal program activities	Albemarle – Pamlico Region	\$3,000
APNEP Staff	October 2010	NEP national meeting	Charlotte Harbor, FL	\$3,000
APNEP Staff	February 2010	NEP national meeting	Washington, DC	\$2,000
APNEP Staff	October to September	Additional relevant national meetings	TBA	\$2,000



APPENDIX

Appendix I: Text from 2009 Program Review Letter

December 15, 2009
Mr. Dee Freeman, Secretary
North Carolina Department of Environment
and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

Dear Secretary Freeman:

The purpose of this letter is to provide the results of the Environmental Protection Agency's (EPA) 2009 Program Evaluation (PE) and to thank you and the Albemarle-Pamlico National Estuary Program (APNEP) Director and staff, as well as the Program's partners, for contributing to the 2009 PE process. We recognize that the Program put considerable effort into both the PE package and the responses to our follow-up questions. In addition, we would like to thank APNEP for arranging the on-site visit for the PE Team and for actively participating in meetings and field trips to various sites in the APNEP study area.

The primary purpose of the EPA PE is to help the EPA determine whether the 28 Programs in the National Estuary Program (NEP) are making adequate progress in implementing their Comprehensive Conservation and Management Plans (CCMPs). The evaluation process has added considerably to EPA Headquarters and Regional knowledge of each individual NEP and promotes sharing of innovative projects and approaches across all 28 NEPs. In addition, EPA uses the evaluation process to assess how the NEPs support Clean Water Act (CWA) core programs and to evaluate the extent and effectiveness of the NEPs' contributions to achievement of two relevant EPA 2006 - 2011 Strategic Plan goals--Goal 2: Clean and Safe Water, Objective 2.2, Protect Water Quality; and Goal 4: Healthy Communities and Ecosystems, Objective 4.3, Restore and Protect Critical Ecosystems.

Based on the PE Team findings, we believe the Program continues to make significant progress in implementing the APNEP CCMP. The Program has passed the 2009 Program Evaluation and is eligible for continued funding under §320 of the CWA.

2009 Program Evaluation Findings

The following summary highlights the PE Team's key findings by identifying several of APNEP's strengths and recommending areas for improvement. This summary is intended both to recognize the Program's successes and to recommend efforts to further strengthen the Program. The Program's response to these recommendations will be evaluated in the next PE cycle.

1. Progress Made in Areas Highlighted in 2005 Implementation Review

Update CCMP and Change Priorities

The PE submission and discussions with the Program confirm that APNEP is now on track to issue a revised CCMP in 2010. The new CCMP will reflect revised goals and objectives and priority actions intended to address current priority problems.

Visibility and Independence

The PE submission and on-site visit confirmed that APNEP became much more visible after it was moved into the Secretary's Office in the Department of Environment and Natural Resources (DENR) in



2002. Moving from a Division to the Secretary's Office elevated the Program's status and gave APNEP name recognition, created opportunities for APNEP to develop relationships with senior staff in other State agencies, and enabled the Program to leverage other organizations' resources.

The PE submission and discussions during the on-site visit described how APNEP's placement in the Secretary's Office had enabled the Program to form important partnerships that helped advance CCMP implementation. During the visit, several APNEP partners commended the Program for its: (1) leadership of water quality and living resources protection and restoration efforts; (2) commitment to environmental education initiatives; (3) ability to effectively communicate its messages using a range of materials that target diverse stakeholder groups and communities; (4) capacity to form productive alliances and to encourage stakeholder collaboration; and (5) capacity to engage expert scientists in planning and implementing critical research, assessment, and monitoring activities.

Now that APNEP has been moved from the Secretary's Office back to a Division, EPA is concerned that the Program may be unable to sustain the visibility and independence it achieved during the past several years. The need for visibility and independence thus continues to be an area for improvement, and will be discussed in further detail in the Challenges section below.

Form More Partnerships and Conduct Effective Fund Raising

The Team was impressed by the large number of productive partnerships and strategic stakeholder alliances that APNEP formed over the past four years. The Team noted that everyone on the APNEP staff has formed effective partnerships with DENR managers and staff, with other State and Federal agency staff, and with representatives from non-profit organizations. With regard to effective fund raising, the PE submission indicates that fund-raising plans will be discussed in the revised CCMP. EPA looks forward to learning more about those plans and about DENR's plans to generate additional sources of matching funds for Program activities.

Develop Environmental Indicators/Monitoring Plan

A March 2009 summary report issued by APNEP's Science and Technical Advisory Committee (STAC) describes progress made since 2005 on environmental indicator and monitoring plan development. For example, the STAC has made significant progress developing individual monitoring plans for each candidate indicator. When completed, those plans will serve as the foundation for APNEP's integrated ambient monitoring program. The PE Team commends APNEP for designing and implementing a comprehensive data collection and analysis effort that supports development of robust indicators. The PE Team also commends APNEP for fully involving the public in indicator selection.

Nonetheless, EPA is concerned that the pace of indicator and monitoring plan development has been slower than the pace recommended in the 2005 Implementation Review findings letter. The letter recommended that the Program complete indicator development by the end of 2005 and monitoring plan development by 2006. Further discussion about this issue appears in the "Challenges" section below.

EPA is also concerned that there may not be sufficient resources to fully implement the monitoring and assessment program once it has been formally adopted by APNEP. EPA advises the Program and its partners to begin identifying now the resources that will be available to support full program implementation.

Demonstrate Environmental Progress

As noted above, the PE Team is encouraged that the Program has made progress developing a comprehensive program for measuring environmental progress. Once monitoring plan development is complete and supporting resources are made available, Program partners will have a very good tool for collecting and analyzing monitoring data and assessing conditions throughout the study area. Further discussion about this issue appears in the "Challenges" section below.

2. Support of CWA Core Programs



In support of the CWA goal to restore impaired waters and protect and restore wetlands, the Program worked with partners to select an impaired water body and to promote State and local efforts to remove that water body from the 303(d) list of impaired waters. EPA looks forward to learning the status of those efforts over the next few years.

Wetlands assessment, protection, and restoration are critical to effective implementation of both the Program's mission and that of partner organizations. EPA NEPORT data depicting acres of APNEP habitat restored and protected reveal that most of that acreage comprises tidal and forested wetlands. Since the study area is so vulnerable to erosion, salt water intrusion, and sea level rise, it is commendable that the Program and its partners have made wetlands restoration and protection a priority. EPA encourages the Program to continue those efforts to sustain wetland resources.

3. Strengths

Research

The PE Team commends APNEP for its commitment to using robust science and technical data to set broad policy goals and to inform project selection. APNEP demonstrates its commitment in several important ways:

- Program staff includes a Ph.D. Program Scientist with expertise in ecological risk assessment and ecosystem-based management. This expert staffer has convened a high-quality, well-respected, multi-disciplinary group of senior scientists to serve on the STAC.
- STAC members are committed to addressing the highest-priority scientific and technical issues facing the Program and its stakeholders. The STAC has complete autonomy to lay the scientific groundwork for Program efforts and is fully involved in development of the comprehensive monitoring and assessment plan. EPA believes that the Program is well-served by the expert scientists leading APNEP scientific and technical initiatives.

The PE Team noted the STAC's development of one- to two-page technical issue papers as the mechanism for introducing scientific and technical issues and STAC recommendations to stakeholders. EPA commends the Program for adopting this innovative approach to communicating complex scientific issues to non-scientists, and looks forward to learning during the next PE if the Program finds this to be an effective approach to educating and engaging non-scientific audiences.

Education and Training

The 2009 APNEP PE submission and discussions with several partner organizations during the May on-site visit highlighted the Program's leadership in several areas, one of which involves promoting the design and delivery of comprehensive environmental education curricula. As a direct result of APNEP leadership and grant support, between 2005 and 2009, expert educators provided water quality and living resource classroom and experiential training to approximately 150 science teachers from across the study area. The PE Team also commends the Program for its leadership of local efforts to build the capacity of educators to teach environmental science to students living in economically- and socially-distressed communities.

The Team was impressed by the partners' systematic tracking and analysis of post-workshop/training survey results and by the results themselves. Those results showed that teachers thought that the workshops and training sessions had enhanced their ability to effectively teach environmental science to a broad cross-section of students. The Team had an opportunity to see on-the-ground evidence of workshop impacts when it visited a high-functioning wetland designed and constructed by students whose teacher had attended one of the environmental education workshops.



Outreach and Public Involvement

Like other NEP study areas, APNEP faces challenges such as habitat loss and excess nutrient loadings to water bodies from agricultural and stormwater runoff. The study area also faces unique environmental and socio-economic challenges¹ that make effective outreach to State and local leaders and community residents both difficult and extremely important.

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

The PE Team commends 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 APNEP's 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 APNEP's mission and enhancing CCMP implementation throughout the study area.

4. Challenges

Maintaining Visibility and Independence

Between 1999 and 2002, EPA grew increasingly concerned that APNEP's lack of visibility and independence was a major obstacle to the Program's progress implementing its CCMP. As of 2002, the Program did not have the status of an independent entity with its own distinctive NEP mandate, and had little visibility outside the DENR Division where it was housed. EPA regarded the State's decision to place APNEP in a Division and to make it a low-profile Program as an indicator of the State's lukewarm support for the Program .

In 2002, senior EPA representatives--Suzanne Schwartz, former Director of the Oceans and Coastal Protection Division; Darrell Brown, former Chief of the Coastal Management Branch; and Tim Jones, NEP Headquarters Coordinator—met with DENR representatives in Raleigh to discuss EPA concerns about the Program's limited implementation of its CCMP. In response to those concerns, DENR moved APNEP into the Secretary's Office and hired both a new Director with greater authority to manage the Program and additional technical staff. The Program went on to successfully form strategic, productive partnerships; garner the support of State and local policymakers, scientists, educators, environmental non-profits, and communities throughout the study area; and co-sponsor initiatives, like the climate change listening sessions, to provide opportunities for the general public to inform policymaking about critical environmental issues.

¹ E.g., (1) the region's peat soils are degrading quickly, natural communities are in retreat due to saltwater intrusion, and one million acres of land could be lost by 2100 due to rising sea levels; (2) persistent poverty in the study area is a major socio-economic issue; 50 percent of North Carolina's most economically-distressed counties are in the study area, and the regional poverty rate averages 29 percent higher than the state average. From *Public Listening Sessions: Sea Level Rise and Population Growth in North Carolina*, The Albemarle – Pamlico Conservation and Communities Collaborative and The Albemarle – Pamlico National Estuary Program, pages 5-6.



EPA is concerned that APNEP's move 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:

- DENR reverse its decision to move APNEP back into a Division.
- DENR re-locate the Program to an organizational home where the Program is highly visible and regarded as a model of ecosystem-based management.

Demonstrate Environmental Progress

EPA commends the Program for its support of water quality and habitat restoration and protection projects and for its indicator development and monitoring plan design efforts. EPA acknowledges that indicator development and monitoring plan design typically take several years to complete. However, given the increased public sector emphasis on accountability and government stakeholder requests to demonstrate program results, EPA is concerned that the pace of APNEP efforts to set baselines, assess conditions throughout the study area, and measure environmental change is slower than necessary. To promote implementation of monitoring and assessment priority actions, EPA requests that over the next six months:

- DENR provide additional resources to support completion of the STAC monitoring plan.
- The STAC complete development of its monitoring plan and DENR identify resources for monitoring program implementation.
- The State begin conducting a regional ecosystem assessment to help guide the allocation of monitoring resources to waters and other ecosystem components of highest priority.

Also, EPA believes it is important that APNEP, like all NEPs, consider developing a strategy stating that: (1) achievement of on-the-ground environmental results is a Program priority, and (2) the Program will develop a tool for measuring the environmental progress resulting from implementation of Program-supported projects. To promote those efforts, EPA recommends that over the next six months, APNEP should:

- Draft a strategy as described above that would identify funding and staff resources dedicated to strategy implementation.
- Include in its 2010 work plan a description of its protocol for measuring the short-term environmental outcomes of projects that it funds and/or on which it plays a lead support role.
- Begin setting and documenting project-specific baselines as a first step toward measuring environmental results.

Expedite Funds Draw Down

EPA's National Estuary Program FY2008-2009 Funding Guidance encouraged NEPs to expedite implementation of work plan projects and funds expenditure whenever possible.² When the PE Team learned that as of September 30, 2009 APNEP still had an unexpended balance of \$769,805 in FY2007-

² “NEPs that spend most of their CWA Section 320 funds on salaries and expenses should set an equivalent expenditure target for the one-year period following the NEP grant award dates. Those NEPs should draw down that targeted amount by September 30 of the following fiscal year.

- Each NEP should aim to spend 50 percent or more of CWA Section 320 funds budgeted in an annual work plan within 18 months of the assistance award date.

- NEPs that are uncertain about whether they will complete a project within the two-year project budget window should notify the EPA Project Officer to discuss approaches for achieving project goals and bringing the project to closure by the approved project end date.”



2008 and FY2008-2009 appropriated funds, the PE Team became concerned about APNEP's slow draw down of those funds.

EPA, the Director of APNEP, and a senior DENR official have all agreed that beginning in FY2010, APNEP and DENR will take steps to ensure that §320 funds are drawn down in an expedited manner:

- The Region IV APNEP Coordinator will regularly monitor APNEP's draw down of old unexpended funds. In late March 2010, the Region will assess whether or not the unexpended balance has been reduced significantly. If not, Region IV will discuss with CMB management the possibility of withholding APNEP's FY2010 §320 grant award.
- Region IV will no longer approve APNEP project and budget periods exceeding seven years. Beginning in FY2010, APNEP project and budget periods will not exceed five years.
- Region IV and CMB will take steps to change APNEP's grant cycle to a July 1 - June 30 cycle.
- In FY2010, the APNEP Director and DENR management will put in place a process that expedites the draw down of old APNEP funds and ensures the timely draw down of all future §320 awards.

Thank you again for participating in the PE process and for DENR's support of APNEP. We welcome any additional thoughts you may have either about the evaluation process itself or about

EPA's involvement in the implementation of the APNEP CCMP. If you have any questions or comments, please contact me or Dr. Bernice Smith, Chief, Coastal Management Branch, at (202) 566-1244.

Sincerely,

/s/

Paul Cough, Director
Oceans and Coastal Protection Division

cc: William L. Crowell, Jr., Director,
Albemarle-Pamlico National Estuary Program
Dr. John F. Thigpen, Albemarle-Pamlico NEP Policy Board Chair
Suzanne Schwartz, U.S. EPA
Deborah Nagle, U.S. EPA
Darrell Brown, U.S. EPA
Dr. Bernice Smith, U.S. EPA
Linda Rimer, U.S. EPA RTP
Tom Welborn, U.S. EPA Region IV
David Parker, U.S. EPA Region IV
Steven Blackburn, U.S. EPA Region IV
Dr. Curtis Bohlen, Director, Casco Bay Estuary Partnership
Marilyn Katz, U.S. EPA



Appendix II: Text from 2009 Program Review NCDENR Response Letter

May 19, 2010

Mr. Paul Cough
Director, Oceans and Coastal Protection Division
US Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 4504T
Washington, DC 20460

Dear Mr. Cough:

I am writing to inform you of the actions that the North Carolina Department of Environment and Natural Resources (DENR) has taken in response to the challenges presented in the December 15, 2009 letter reporting the results of the Environmental Protection Agency's (EPA) 2009 Program Evaluation (PE) of the Albemarle-Pamlico National Estuary Program (APNEP).

I am pleased that APNEP passed the 2009 Program Evaluation and remains eligible for continued funding under §320 of the *Clean Water Act* (CWA). APNEP strives for a strong science-based program for the protection and restoration of our estuary of national significance. The program also works to support core CWA programs, as well as the DENR *Strategic Plan* and the *NC Coastal Habitat Protection Plan*.

Additionally, I am pleased with the recognition of APNEP's many partnerships, successes, and strengths. I assure you DENR will work to further strengthen the program and address the challenges presented in the review letter during the next PE cycle.

The following provides an update on each of the three challenges presented in the December 15th letter:

1. Maintaining Visibility and Independence

The PE letter noted a concern regarding APNEP's relocation to the Division of Natural Resource Planning and Conservation. Effective July 1, APNEP's position within the DENR structure will change. APNEP will become part of a new division which we are planning to call the Division of Conservation. This new division is a merger of several programs within the Department that focus on voluntary conservation activities. Included with APNEP in this new division are the former Division of Soil and Water Conservation, the Natural Heritage Program, the Stewardship Program, and the Conservation Incentives Program. By consolidating these programs, we hope to increase their effectiveness, and strengthen partnerships within the Department. We also believe that this new division will be able to more effectively draw upon existing relationships with outside agencies and organizations. We believe that this change will also reflect Governor Perdue's efforts to increase effectiveness and streamline state government.



The Secretary's Office has very close ties with APNEP and its Policy Board. It is my intent that the program's inclusion in our newly structured Division of Conservation should strengthen its role within the department; and, in fact, APNEP should be in a position to increase its ability to influence DENR's conservation implementation activities with the new emphasis this division will have on conservation. We will include EPA and the Policy Board in our monitoring of the program and the application of performance measurements used to judge the success of the program within this structure. Most importantly, however, APNEP will enjoy my full support as we move ahead with the program, and my office will insist on its demonstration of environmental progress in achieving the program's goals.

2. Demonstrate Environmental Progress

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 2010, the APNEP Science and Technical Advisory Committee (STAC) will conduct an ecosystem assessment to evaluate present conditions and provide a measure of baseline conditions throughout the study area. This information will be used to measure the amount of environmental change that has occurred since the initial estuarine study. APNEP has contracted with the University of North Carolina to assist in this effort.

The APNEP Policy Board adopted a new approach to addressing and integrating environmental monitoring in the Comprehensive Conservation and Management Plan (CCMP) at its December 16th, 2009 meeting: the Program will use an Ecosystem Based Management (EBM) paradigm as a framework for the new CCMP. APNEP staff are currently working on the new CCMP, with the assistance of an EBM implementation team composed of five Policy Board members, representatives of the NC Division of Water Quality and the US Fish and Wildlife Service, and faculty from the Virginia Institute of Marine Sciences. Also, a college intern, supported in whole by DENR, will assist during the summer of 2010 in drafting the new CCMP.

Advantages of the new EBM approach are numerous:

- This is a significant action by the Program to further the connection between policy development and environmental improvements.
- The PE letter stated that APNEP should consider developing a strategy to achieve on-the-ground environmental results and develop a tool for measuring the environmental progress resulting from implementation of program-supported projects. The EBM approach is well suited for this purpose and will allow APNEP to adapt its approach over time to address emerging issues.
- Most importantly, APNEP staff are working with DENR divisions to integrate their environmental priorities into the new CCMP using the EBM approach. Better integration between the program and DENR divisions will result in an increased level of support that will benefit APNEP and increase its potential to produce measurable environmental results.

I believe that the Program's EBM approach will be successful and emerge as a model for other NEPs. I believe that these actions will make significant progress toward development of a program strategy for measuring environment improvements.



3. Expedite Funds Draw Down

APNEP has taken significant steps over the past few months to expedite the draw-down of the unexpended balance of \$769,805 from the FY2007-2008 and FY2008-2009 appropriated CWA §320 grant funds. Since January 14th, 2010, APNEP staff have encumbered funds for FY2009 awarded projects, including the Climate Ready Estuary Grant, and awarded grants for on-the-ground community demonstration, restoration and research projects, for a total of \$596,005. The remaining funds (\$173,800) are currently being encumbered under additional contracts or other expenditures. It is expected that all projects will be completed by December 31 and all funds will be expended by February 1, 2011.

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

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

We also look forward to working with the EPA in implementing a process that will allow EPA Region IV and Coastal Management Branch to change APNEP's grant cycle to a July 1- June 30 cycle to match the state fiscal year.

Thank you again for noting APNEP's numerous strengths and identifying a few challenges to enhance the Program. Please feel free to contact me, Assistant Secretary David Knight or APNEP Director Bill Crowell, if you have any additional comments regarding APNEP.

Sincerely,

Dee Freeman

cc: David Knight, DENR Assistant Secretary for Natural Resources
William L. Crowell, Jr., Director, Albemarle-Pamlico National Estuary Program
Tony Reeve, Chair, Albemarle-Pamlico National Estuary Program Policy Board
Bernice Smith, Chief, Coastal Management Branch, US EPA
Marilyn Katz, Coastal Management Branch, US EPA
Steven Blackburn, US EPA, Region IV
Linda Rimer, US EPA, RTP, NC

