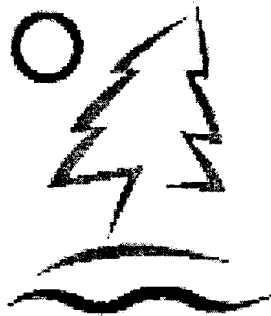


Albemarle-Pamlico National Estuary Program



2002 Implementation Review

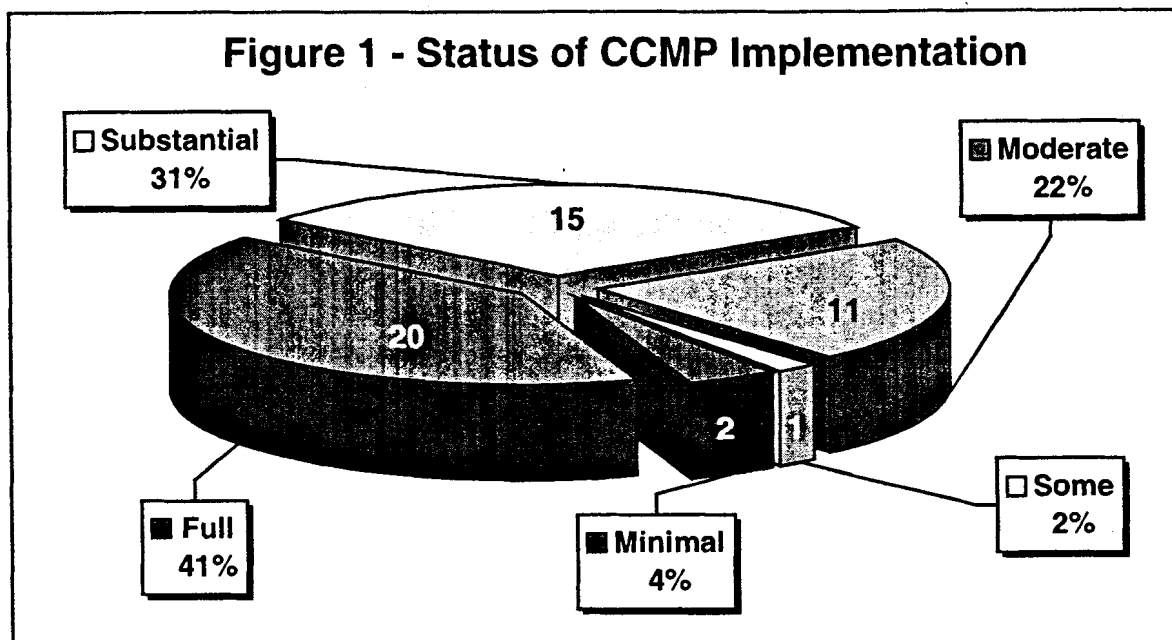
**Submitted to the
US Environmental Protection Agency**

March 2002

**Albemarle-Pamlico
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The Role of the APNEP Program and Public Involvement Offices

APNEP staff at both offices are responsible for the coordination, planning and successful completion of APNEP functions including Regional Council and Coordinating Council meetings, APNEP forums and other APNEP-sponsored events. In addition, APNEP staff monitors, and often becomes involved in, activities of state resource management agencies that relate to CCMP implementation. APNEP staff also attends meetings, conferences and workshops in order to stay apprised of technological advancements that may prove beneficial in the APNEP region.

The APNEP program office typically consists of an APNEP program coordinator and a technical support person (Andrew Coburn) on contract. The program coordinator position has been vacant since the departure of Guy Stefanski in October 2001 and Darlene Kucken, supervisor of the Basinwide and Estuary Planning Unit which houses the APNEP, has assumed the responsibilities of this position in the interim. The APNEP public involvement office consists of a public involvement coordinator (Joan Giordano) and an administrative assistant (Betty Sandow).

Although the Regional Councils and Coordinating Council 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. The 2002 APNEP CCMP Report Card (Table 1) provides a summary of the implementation progress for each of the 49 management actions contained within the CCMP.

Progress is currently measured through communication with the primary agency, as identified in the CCMP, responsible for implementing each management action. The APNEP is currently developing a CCMP Implementation Tracking System (ITS) that will improve the Program's ability to successfully evaluate progress made towards implementing all CCMP management actions. The ITS is discussed in detail in Section III of this report.

2002 APNEP CCMP Report Card

OBJECTIVE Management Action					
	Full	Substantial	Moderate	Some	Minimal Unknown or N/A
WATER QUALITY PLAN					
A	1 Develop and begin implementing basinwide plans	•			
	2 Establish total maximum daily loads (TMDLs)		•		
	3 Renew all discharge permits in a river basin simultaneously	•			
	4 Consider long-term growth when determining assimilative capacity		•		
	5 Improve scientific models for understanding the estuarine system	•			
	6 Continue long-term, comprehensive monitoring of water quality	•			
B	1 Develop and implement basinwide plans to control NPS pollution		•		
	2 Expand funding to implement nonpoint source pollution controls	•			
	3 Continue to develop alternative septic systems and new BMPs	•			
	4 Strengthen enforcement of water quality violations due to NPS		•		
	5 Strengthen implementation of forestry BMPs	•			
	6 Enhance stormwater runoff controls		•		
	7 Implement an inter-agency state marina policy		•		
C	1 Promote pollution prevention and alternatives to discharge	•			
	2 Expand and strengthen enforcement of NPDES permits		•		
D	1 Increase monitoring of contaminated resources & identify causes		•		
	2 Continue to issue fish advisories to protect public health	•			
	3 Remediate toxic contamination where necessary and feasible				•
E	1 Continue to track and evaluate indicators of environmental stress	•			
	2 Improve techniques for evaluating env. health of estuaries		•		
	3 Develop and adopt better indicators of shellfish contamination				•

VITAL HABITATS PLAN					
A	1 Develop ecosystem protection & restoration plans	•			
	2 Develop and maintain accurate maps & records of natural areas	•			
	3 Expand programs to identify wetlands and to evaluate their	•			
B	1 Bring highest priority habitats into public ownership/management		•		
	2 Provide incentives to protect privately owned vital habitats	•			
C	1 Enhance agency enforcement of existing wetlands regulations	•			
	2 Strengthen regulatory programs to protect vital fisheries habitats	•			
	3 Enhance efforts to restore degraded wetlands & fisheries habitats	•			
	4 Establish a consistent and effective wetlands mitigation program	•			

FISHERIES PLAN					
A	1 Develop and implement fishery management plans	•			
	2 Modify the existing marine fisheries license structure	•			
B	1 Continue and expand the development of bycatch reduction gear	•			
	2 Institute a cost-share program for best fishing practices	•			

OBJECTIVE Management Action					
	Full	Substantial	Moderate	Some	Minimal Unknown or N/A
STEWARDSHIP PLAN					
A	1 Provide incentives to integrate env. & economic planning			•	
	2 Provide affordable & accessible GIS data to local governments		•		
	3 Implement a comp. approach to managing public trust waters		•		
	4 Support orgs. that promote nature-based tourism & education	•			
B	1 Expand and coordinate education projects about the estuary	•			
	2 Increase opps. for citizens to communicate with agencies	•			
	3 Enhance public involvement in issues affecting the estuary		•		
	4 Expand involvement in the Citizens W.Q. Monitoring Program	•			
	5 Create a citizen ombudsman position within DENR		•		
C	1 Develop a comprehensive env. science & education curriculum	•			
	2 Provide renewal credits to teachers for in Env. Workshops	•			
IMPLEMENTATION PLAN					
A	1 Create a Coordinating Council and five Regional Councils	•			
	2 Coordinate implementation of the CCMP	•			
B	1 Develop an annual "progress review" of CCMP implementation		•		
	2 Assess the health of the Albemarle-Pamlico Estuary		•		
CCMP TOTALS		20	15	11	1 2 0

Rankings Key:

- **Full:** Fully Implemented or nearing completion (75-100%)
- **Substantial:** Major progress has been made (50-74%)
- **Moderate:** Fair level of progress has been made (26-49%)
- **Some:** Some progress has been made (11-25%)
- **Minimal:** Little progress has been made (1-10%)
- **Unknown or N/A:** Unknown or no longer applicable

This report card provides a summary evaluation of the level of progress that has been made regarding implementation of each management action listed in the APNEP CCMP. For a detailed listing of CCMP implementation activities, please refer to the 1998 APNEP CCMP Implementation Update Document

APNEP Watershed Field Coordinator

The headwaters for the Pasquotank, Chowan and Roanoke River basins are located within Virginia. One of the most critical components to effectively implementing the CCMP within these basins is long-term, comprehensive coordination between North Carolina and Virginia. To provide coordination and support to APNEP, DENR and the Virginia Department of Conservation and Recreation (VADCR), and to enhance implementation of the CCMP in the Roanoke, Chowan and Pasquotank river basins, an APNEP Watershed Field Coordinator was hired by VADCR in August, 2000. The APNEP supports one-half of this position and the contract specifies that the Watershed Field Coordinator will devote approximately 20 hours per week to APNEP needs. A complete summary of activities is presented in Appendix B. Highlights of accomplishments of the watershed field coordinator include:

- Raising awareness of the Southern Watershed Area Management Program (SWAMP) as it relates to the APNEP and CCMP. SWAMP is a very active coalition of local governments, state agencies and other policy-making interests focused on Virginia's southern watersheds of Virginia Beach and Chesapeake.
- Working with SWAMP representatives about the possibility of an information-sharing agreement with the Pasquotank Regional Council.
- Involved in the formation of Virginia's Chowan River Watershed Roundtable. The purpose of the Roundtable was to provide a watershed-based forum for stakeholders to participate in defining critical needs, targeting problems for solution and providing input on potential management options.
- Attended two Pasquotank Regional Council meetings and three Chowan Regional Council meetings, as well as one Coordinating Council meeting.
- Attended the APNEP BasinPro and resource monitoring workshops held in October and December 2000 respectively.
- Arranged for speakers at two Pasquotank Regional Council meetings.
- Updated directory of North Carolina and Virginia environmental organizations and agencies.
- Researched population estimates for VA Chowan and Pasquotank regions for inclusion in DWQ basinwide plans.
- Participated in several public education events to promote NC-VA partnership and highlight specific goals of the CCMP.
- Compiled information about the Chowan and Pasquotank basins for promotional purposes in support of the CCMP.
- Assisted APNEP Coordinator and VA Albemarle, Chowan & Coastal Watersheds Manager in the development of a paper and presentation for the National Watersheds Conference.
- Worked closely with APNEP Outreach Coordinator to establish and facilitate the interstate MOA signing ceremony.
- Worked as part of the planning team for the 8th Annual Virginia Watershed Management Conference in Williamsburg, VA. to ensure that APNEP was a featured program on the agenda and as an exhibitor.
- Researched SAV monitoring plans and approaches for using APNEP supplemental funding.

b. Stakeholder Contribution to CCMP Implementation

While the APNEP implementation framework puts the responsibility of implementing most management actions upon a specific state, local or federal resource management agency, many key stakeholder groups are actively involved in guiding APNEP CCMP implementation. These include:

1. Elected and appointed county and municipal officials;
2. Representatives from agriculture, silviculture, commercial and recreational fishing, conservation, environmental science, business/industry, citizen and tourism groups;
3. Representatives from the State of Virginia;
4. NC citizen commissions and councils;
5. North Carolina state resource management agencies; and
6. Federal resource management agencies.

Each of these stakeholder groups is represented on the five APNEP Regional Councils (one in each major river basin) and on the APNEP Coordinating Council.

Regional Councils

The role of the Regional Councils (RCs) is to establish local environmental priorities based on those outlined in the CCMP, Governor's Coastal Agenda, and the NC Division of Water Quality's Basinwide Water Quality Plan recommendations. Additionally, their role extends to developing support for the most cost-effective methods of dealing with those recommendations. Priorities for resource management will vary from basin to basin because concerns for water quality, habitats and fisheries are diverse and widespread. The Regional Councils are encouraged to develop and implement strategies which are most amenable to local action.

Regional Councils contain three delegates from each county in the basin. Each delegate represents a county, municipality and interest group. Based on this composition, local government representatives make-up two-thirds of each Regional Council, with interest group representatives comprising the remaining third. In river basins that have a small number of counties, such as the Chowan, the number of interest group delegates can equal or even exceed the number of local government delegates. Regional Councils provide public and private interests with a local forum for input into the CCMP implementation process and advise the agencies responsible for environmental management about concerns and issues relative to their respective basins.

A major focus of the APNEP since the 1999 Biennial Review is the Regional Council Demonstration Projects. Although not technically a CCMP Management Action, implementation of these innovative resource protection, preservation and restoration efforts are a priority for the APNEP Coordinating Council. The status of each Regional Council Demonstration Project is presented below along with the major achievements of each Regional Council since the Biennial Review. A more complete summary of the activities of each Regional Council is presented in Appendix C.

Neuse River Basin Regional Council

Demonstration Project Summary

Project Title: "Selected Creek Monitoring Demonstration Project"

Description: Demonstrate feasibility and effectiveness of monitoring the mouth of two selected creeks to determine pollution contribution.

Lead Agency: Neuse River Foundation

Partners: Neuse RC, DENR, APNEP, EPA

Funding: \$25,000 from EPA/APNEP base funds awarded in FY 1995-1996

Time Period: April 1, 2000 through March 31, 2002.

Status: Under the supervision of the Neuse River Keeper, trained volunteers have been collecting water quality data once per week from the mouth of Beards Creek (Pamlico County) since May 2000 and Crabtree Creek (Wake County) since September 2000. Preliminary interpretation of the sample analysis (data) is underway.

Neuse River Basin Regional Council Achievements

- Met 14 times since March, 1999.
- Developed a brochure and compact disc titled "Best in the Basin 2000" which introduces the 20 top places to visit in the Neuse River Basin as determined by members of the Neuse Regional Council.
- Co-sponsored (with DWQ) public workshops related to updating the 2002 Neuse River Basinwide Water Quality Plan.
- Tracking the progress of the Council's demonstration project that is monitoring the mouth of Beard's Creek for nutrient input into the mainstem of the Neuse River and monitoring sedimentation loads from Crabtree Creek.
- Participated in GIS workshops featuring CGIA's BasinPro software.
- Planning a Water Supply Seminar with the Roanoke Regional Council scheduled for early 2002.

Tar-Pamlico River Basin Regional Council

Demonstration Project Summary

Project Title: "Alternative On-site Wastewater Treatment System Demonstration Project"

Description: Demonstrate the effectiveness of an advanced on-site wastewater treatment system in reducing pollutants to groundwater.

Lead Agency: NC State University

Partners: Tar-Pamlico RC, Coop. Ext. Service, County Government, Homeowner, DENR, APNEP and EPA

Funding: \$18,400 from EPA/APNEP base funds awarded in FY 1995-1996

Time Period: May 1, 2000 through April 30, 2002.

Status: Working with local health departments, a residence with a failing conventional septic system has been identified in Pitt County. As a result of poor drainage, the current system has failed and is discharging sewage to the ground surface. Plans are to install a peat biofilter system that will treat the wastewater prior to subsurface disposal. The homeowner is agreeable to this solution, but is currently involved in a lawsuit against numerous parties alleging he is not responsible for the original system's failure. This lawsuit is attempting to cover costs of the repair system. The homeowner is willing to have the peat system installed at a 25% cost-share as soon as the lawsuit is settled. As a result, the installation of the peat biofilter has been put on hold until the lawsuit is settled.

Tar-Pamlico River Basin Regional Council Achievements

- Met 12 times since March, 1999.
- Hosted USGS presentation/discussion regarding 1999 hurricane impacts to eastern North Carolina.
- Hosted an interactive forum regarding isolated wetlands and the current protection efforts of the Army Corps of Engineers and State of North Carolina.
- Toured the River Park North complex in Greenville to view aftermath of 1999 hurricanes.
- Toured the Town of Louisburg's water reclamation facility and nearby open space projects.
- Toured the Town of Aurora's constructed wetlands (which serves as the town's water treatment system) and learned about the function of the constructed system.
- Examined the Council's 2-year Program of Work to review its three "core areas of concern" and assess their relationship to the CCMP.
- Continues to track progress on the Council's demonstration project.

Roanoke River Basin Regional Council

Demonstration Project Summary

Project Title: "Riparian Zone Rehabilitation Demonstration Project"

Description: Demonstrate the effectiveness of cattle fencing and restoration of riparian zone to reduce nonpoint source impacts.

Lead Agency: NRCS

Partners: Roanoke RC, USFWS, Fishing Creek SWCD, Landowner, Coop. Ext. Service, DENR, APNEP and EPA

Funding: \$41,000 (\$25,000 from EPA/APNEP base funds awarded in FY 1995-1996 and \$16,000 from USFWS)

Time Period: April 20, 2000 through April 19, 2002.

Status: This project is nearing completion. To date, two miles of fencing have been installed, a cattle crossing has been repaired and the construction of cattle troughs is almost complete. The final phase of this project, the planting of hardwoods in the buffer area and restoration of the river bank, should be completed by spring, 2002. When fully implemented, this project will restore approximately 36 acres of riparian habitat and benefit various species of anadromous fish and migratory birds that utilize this area.

Roanoke River Basin Regional Council Achievements

- Met 13 times since March, 1999.
- Generated widespread local support for a resolution recommending Congressional funding for an Army Corps of Engineers Section 216 Scoping Study to evaluate flow modifications for the John H. Kerr Reservoir system and to evaluate operation of the project.
- Initiated cooperative action by DENR and the Department of Correction to address cattle impacts (similar to those being addressed by their demonstration project) at the Caledonia Prison Farm in Halifax County and the Odom Prison in Northampton County.
- Co-sponsored public workshops conducted by DWQ regarding development of the 2001 Roanoke River Basinwide Water Quality Plan and provided comments on the plan.

- Met with DFI, Inc. representative regarding the potential siting of an ethanol plant on the banks of the Roanoke River in Martin County (Council members are concerned with potential industrialization of the Roanoke River).
- Examined historical impacts to local fishery populations and current strategies underway to enhance their sustainability.
- Issued a resolution recommending the long-term proper management of the basin's natural resources without compromising its economic viability.
- Conducted boat tour of sections of Roanoke River to view river bank impacts resulting from cattle access.

Chowan River Basin Regional Council

Demonstration Project Summaries

Project Title: "Precision Agriculture Demonstration Project"

Description: Demonstrate the effectiveness of utilizing precision agriculture methodology to optimize agriculture production and reduce nonpoint source loading to surface and groundwater.

Lead Agency: Cooperative Extension Service – Bertie County

Partners: Chowan RC, Colerain Peanut & Supply Co., Landowners, DENR, APNEP, EPA

Funding: \$5,000 from EPA/APNEP base funds awarded in FY 1995-1996

Time Period: April 1, 2000 through March 31, 2001.

Status: Project completed. This demonstration project provided farmers with an opportunity to utilize this new methodology to make comparisons based on standard lime and fertilizer application rates. The demonstration was run on 457 acres of farmland in Bertie County and, when compared to standard application rates and prices, showed that farmers could save 2 tons of lime, 4 tons of phosphorus, 12 tons of potash and reduce costs by \$2800.

Project Title: "Subsoiler/Denitrification Barrier Demonstration Project"

Description: Demonstrate the effectiveness of utilizing subsoiler techniques to improve soil permeability and denitrification walls to remove/reduce nitrate from shallow groundwater.

Lead Agency: Mid-East Resource Conservation and Development Council

Partners: Chowan RC, Municipalities, Landowners, DENR, APNEP, EPA

Funding: \$22,000 from EPA/APNEP base funds awarded in FY 1995-1996

Time Period: May 1, 2000 through April 30, 2002.

Status: Participating municipalities own a subsoiler, but do not have a proper tractor with which to pull it. Grant funds have been shifted from purchasing a subsoiler to tractor rental and project leaders are providing the technical assistance necessary for its operation. Municipalities have offered use of construction equipment and barrier carbon materials as in-kind service to the project. Barrier sites need to be constructed during fairly dry periods to assure that the seasonally low water table is reached. Therefore, the typically dry summer months appear to be the best time for construction of the barrier walls. Three municipalities and one animal operation have agreed to participate in this project, and construction of the first barrier wall and monitoring wells began in June, 2001 at the Winton spray fields.

Chowan River Basin Regional Council Achievements

- Met 13 times since March, 1999.
- Investigated the siting and operation of the Nucor Steel recycling facility located on the banks of the Chowan River.
- Added a Nucor representative to the Council and toured the Nucor facility.
- Hosted a presentation by Division of Marine Fisheries regarding development of Coastal Habitat Protection Plans for the Chowan River Basin and the Coastal Ocean.
- Co-sponsored public workshops conducted by DWQ regarding development of the 2002 Chowan River Basinwide Water Quality Plan and provided comments on the plan.
- Completed its "Precision Agriculture Demonstration Project" demonstrating the effectiveness of utilizing precision agriculture methodology to optimize agriculture production.

Pasquotank River Basin Regional Council**Demonstration Project Summary**

Project Title: "Winfall Water Quality Demonstration Project"

Description: Demonstrate the effectiveness of a constructed wetland in treating backwash water from water treatment plant.

Lead Agency: Albemarle Resource Conservation and Development Council

Partners: Pasquotank RC, Town of Winfall, Perquimans SWCD, NRCS, Wooten Engineering, Royster Clark, Inc., DENR, APNEP, EPA

Funding: \$26,000 from EPA/APNEP base funds awarded in FY 1995-1996

Time Period: August 1, 2000 through July 31, 2002

Status: Project construction is complete. The goal of the project is to demonstrate the effectiveness of using constructed wetlands to treat backwash water from a water treatment plant.

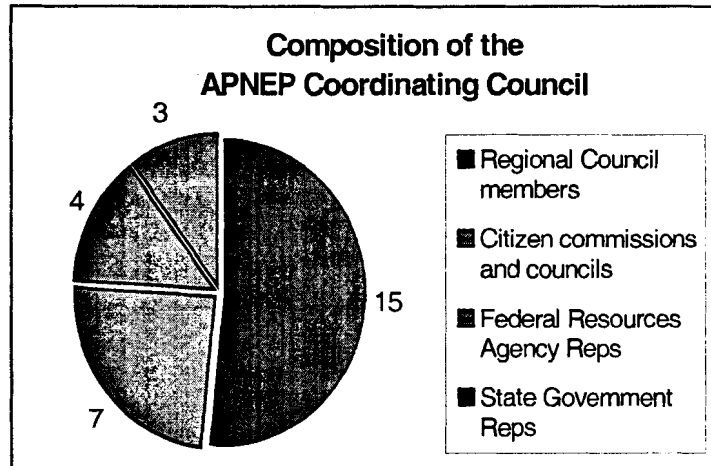
Pasquotank River Basin Regional Council Achievements

- Met 14 times since March, 1999.
- Instrumental in securing Congressional funding (\$100,000) for the Army Corps of Engineers to conduct a comprehensive study of Currituck Sound to address salinity increases that have adversely impacted freshwater fisheries and submerged aquatic vegetation (SAV).
- Completed its Winfall Water Quality Demonstration Project to demonstrate the effectiveness of using a constructed wetland to treat backwash from the Winfall wastewater treatment plant.
- Pursued a Memorandum of Agreement with the Commonwealth of Virginia.
- Participated with Keep America Beautiful-Pasquotank County in observance of Big Sweep.
- Toured the Tidewater On-site Wastewater Demonstration Center at the Vernon James Research Center in Plymouth to view current research/demonstration of alternative septic systems.
- Co-sponsored public workshops conducted by DWQ regarding development of the 2002 Pasquotank River Basinwide Water Quality Plan.

Coordinating Council

The purpose of the 29-member APNEP Coordinating Council is to devise policy and provide continued opportunity for interagency coordination and local government input.

Fifteen Coordinating Council members are representatives from the five Regional Councils (one county, one municipal and one interest group representative), seven are from citizen commissions and councils (Marine Fisheries Commission, Soil & Water Conservation Commission, Environmental Management Commission, Coastal Resources Commission, Wildlife Resources Commission, Forestry Advisory Council and Sedimentation Control Commission), four are from federal resources agencies (US Environmental Protection Agency, US Army Corps of Engineers, US Fish & Wildlife Service, and the National Oceanic & Atmospheric Administration), and three are from state government agencies (the Secretary of the NC Department of Environment & Natural Resources, the Secretary of the NC Department of Commerce, and the Commissioner of the NC Department of Agriculture). Accomplishments of the Coordinating Council are presented below.



Coordinating Council Achievements

- Met 7 times since March, 1999.
- In July 2000, the NC Attorney General's office and Smithfield Foods, Inc., the largest hog producing and pork processing company in the world, signed a legally binding agreement that focuses on the elimination of open-air hog lagoons and sprayfields in North Carolina. A key element of the agreement is that Smithfield Foods will play a leadership role in enhancing the effectiveness of the Albemarle-Pamlico National Estuary Program. Representatives from Smithfield Foods and the NC Attorney General's office discussed this agreement with members of the APNEP Coordinating Council at its meeting in April 2000. The Coordinating Council elected to form a five-member committee, along with Attorney General and Smithfield Foods representatives, to determine what enhancements are necessary and feasible.
- In October 2000, APNEP staff met with representatives of the NC Attorney General's office and Smithfield Foods, Inc. to discuss "enhancements of the APNEP" as referred to in the Smithfield Foods Agreement signed in July 2000. It was agreed that the APNEP Coordinating Council, with input from the AG's office and Smithfield Foods, would be best suited to identify and determine possible "enhancements" to the APNEP.
- An MOA with the Virginia Department of Conservation and Recreation to better coordinate implementation of the CCMP in the Pasquotank, Chowan and Roanoke River basins was signed in October, 2001.
- DWQ staff provided a presentation to the Council on Total Maximum Daily Loads (TMDL) development processes and priorities.
- Developed primary components for consideration in the APNEP FY2002 work plan.

- Developing a comprehensive monitoring strategy for the Albemarle-Pamlico estuaries and sounds is the number one priority of the Coordinating Council as identified in the APNEP FY2001 work plan. APNEP conducted a two-day monitoring workshop in December 2000 to initiate this activity.

Opportunities for Stakeholder Involvement

The Regional and Coordinating Councils of the APNEP are a primary mechanism allowing for stakeholder involvement in APNEP activities. As a result, staff spends a considerable amount of time supporting the Regional and Coordinating Councils. Much of this effort was focused on the implementation of Regional Council demonstration projects and subsequent contract management. Other noted accomplishments that enhanced stakeholder involvement include:

Year 2000

- In January-February 2000, APNEP staff, in accordance with the Government Performance and Results Act (GPRA), provided extensive information to EPA regarding: 1) the number of priority actions initiated across the NEP, and 2) the acres of habitat restored during 1999. These are the two measures chosen that all NEPs should be tracking in order to demonstrate implementation of the CCMP and environmental results.
- In August 2000, APNEP staff, along with Randall Arendt – renowned land-use planner, site designer and lecturer, conducted two open space design workshops in Plymouth and New Bern, NC. Mr. Arendt presented various strategies regarding conservation subdivision design as a tool for building community-wide open space networks. More than 80 people attended the workshops.
- The APNEP was characterized in a six-page article entitled “Coastal Regions: Ecosystems Facing Stress and Habitat Destruction” in the August 2000 issue of Sea Technology magazine.
- In August 2000, staff provided an APNEP exhibit at the NC Association of County Commissioners Annual Meeting in the Research Triangle Park.
- In September 2000, APNEP staff exhibited at the Water Splash event held in Kinston, NC.
- In September-October 2000, APNEP staff coordinated with the NC Center for Geographic Information & Analysis to conduct five “BasinPro Workshops” in the Albemarle-Pamlico region. These workshops offered key local government representatives and planning staff with hands-on training utilizing the BasinPro CD – a desktop geographic information system. Participants received a free copy of the BasinPro CD, a \$285 value. These workshops were held at the computer labs located at the Roanoke-Chowan Community College in Ahoskie, Craven Community College in New Bern and Pitt Community College in Greenville.
- The third edition of “The Beacon”, APNEP’s official newsletter, was mailed to over 2,000 people in October, 2000.
- In November 2000, APNEP staff attended and exhibited at “Virginia’s 7th Annual Watershed Management Conference” in Williamsburg, VA. A newly formatted exhibit focused on the three river basins NC and VA hold in common (Roanoke, Chowan and Pasquotank) and the draft MOA between DENR and VADCR.
- In December 2000, APNEP staff, in coordination with EPA and Battelle, conducted a two-day monitoring workshop for the purpose of developing a comprehensive monitoring plan for the Albemarle-Pamlico region.

Year 2001

- In January-February 2001, APNEP staff provided extensive information to EPA and the Association of National Estuary Programs (ANEP) for the development of an EPA environmental indicators project and an ANEP tech transfer document.

- In January-February 2001, APNEP staff, in accordance with the Government Performance and Results Act (GPRA), provided extensive information to EPA regarding: 1) the number of priority actions initiated across the NEP, and 2) the acres of habitat restored during 2000.
- In March 2001, 1,000 river basin bookmarks (depicting the five major river basins located in the Albemarle-Pamlico region) were updated and reprinted using current statistics and information.
- In March 2001, staff gave a presentation titled "River Basin Demonstration Projects of the Albemarle-Pamlico National Estuary Program" at the Water Resources Research Institute's Watersheds to Estuaries Conference in Raleigh, NC.
- In March 2001, APNEP staff attended and participated in the Chowan and Pasquotank Basinwide Plan workshops conducted by the Division of Water Quality. The Chowan and Pasquotank Regional Councils served as co-sponsors of these workshops.
- APNEP staff, with input from DWQ and EPA, developed its own program letterhead.
- In May 2001, APNEP worked with EPA and its contractor, Horsley & Witten, to conduct a two-day workshop titled "Tools for Watershed Management: A Workshop for Local Government". The workshop explored various tools and approaches that can be used by local governments to achieve a balance of economic prosperity and water resource protection.
- Initiated a contract with a professional writer on May 10, 2001 to produce non-technical document titled "The Albemarle-Pamlico ... North Carolina's Coastal Treasure". A text version of the document is near completion and the final document will enter into the layout/design stage.
- Completed boat tours to promote environmental awareness in October, 2001.
- Distributed numerous APNEP research documents, outreach products, and environmental education materials to those requesting them.

Year 2002

- In January 2002, APNEP staff, in accordance with the Government Performance and Results Act (GPRA), provided extensive information to EPA regarding: 1) the number of priority actions initiated across the NEP, and 2) the acres of habitat restored during 2000.
- New public education and awareness section to be added to the APNEP Web site <http://h2o.enr.state.nc.us/nep> during spring, 2002.
- A formal strategic planning process will be developed to assess the strengths and weaknesses of the program, to assess the strengths of other NEPs and determine which may be applicable to the APNEP, assess the value of the current CCMP and determine if a revised CCMP is needed, and to assess the existing Executive Order to determine if the Order needs to be amended.
- Nine existing contracts will be closed out this year, resulting in the completion of all six demonstration projects, the nutrient loss research project completion and the development of text for the APNEP Atlas. Other contracts for the citizen monitoring program, the VA liaison position, CGIA and the Tryon Palace project will all continue. See Section IV for more information.
- The program coordinator position is expected to be filled in spring 2002.
- With the guidance of the program coordinator, a work plan will be developed for FY2003.
- A contract will be developed to undertake the SAV monitoring.
- An APNEP Estuary conference will held in fall 2002.
- The ITS tracking system will be developed and functional by august 2002.

- A one-half to one-day forum will be held with VA DCR staff to present programs and begin coordination efforts towards the CCMP.

Limitations of the APNEP Implementation Framework

Although the APNEP has made significant progress towards implementing the goals and objectives set forth in the CCMP, three primary challenges and issues still must be addressed:

1. The biggest limitation facing the APNEP is the fact that the APNEP region encompasses over 23,000 mi² of drainage area. As the nation's second largest estuary, the APNEP region includes more than one-third of the state's 100 counties (reaching into 36 counties in North Carolina) and 16 counties and independent cities in southeastern Virginia. Because of the region's extensive geographic area, large number of counties and municipalities and vast distances that often need to be traversed, APNEP Regional Council and Coordinating Council meetings sometimes suffer from a lack of attendance. When meeting attendance is poor, communication between the APNEP, local governments, agencies and the public may suffer; momentum can slow; members may not fully understand their roles and Councils may not function as well as they could. Eventually, discouragement and turnover (due to a lack of progress) can cause the overall public involvement focus of the program to spiral downward.
2. The vast size of the APNEP region also means some stakeholder groups are not participating in the CCMP implementation process. The APNEP has identified that opportunities do exist for the involvement of additional stakeholder groups and is working to develop policies that will help maximize stakeholder participation in CCMP implementation.
3. The APNEP program coordinator position was vacated in October, 2001 and all program activities are currently being carried out by the program supervisor, public involvement coordinator and contract staff. A new coordinator is expected to be hired by April, 2002. Once hired, the new coordinator will arrange for a strategic planning facilitator to identify current program strengths and weaknesses, and determine how to build upon the program's strengths and improve its weaknesses. The final product of this exercise may be a revised CCMP.

c. Shifts in CCMP Priorities

According to the Governor's Executive Order, "The Coordinating Council shall set annual priorities for implementing sections of the CCMP and make recommendations based on progress and success, and shall identify and prioritize needs as described in the CCMP." The Executive Order also says that the Regional Councils shall work to prioritize the problems to be addressed in the region and to design and build consensus support for the most cost-effective strategies for dealing with those problems. Because the Regional Councils are comprised of local representatives, RC members have an intimate knowledge of the progress, success and challenges in their respective basins.

The implementation framework of the APNEP is such that RCs have the ability to identify, prioritize and address issues of local importance through their respective Programs of Work which are updated every two years. In addition to the RC's Programs of Work, state and federal agencies are also involved in the prioritization of APNEP activities. The NC Division of Water Quality's Basinwide Planning

Program regularly assesses and updates the basinwide plan for each river basin, which can help focus attention on existing or emerging problems. Other state agencies, including the Divisions of Coastal Management and Marine Fisheries, also conduct research and monitoring efforts that can help identify local issues or problems not familiar to the Regional Councils.

Finally, APNEP staff uses several valuable sources of information (biennial review, annual CCMP Implementation Update document, CCMP Implementation Forum) to evaluate CCMP implementation and assess whether APNEP activities are adequately addressing the major priorities in the region. The following are the Priority Actions as identified by the APNEP Coordinating Council for FY 2000-2002. See Appendix E for complete work plans for these years.

APNEP Priority Actions Identified in the FY 2000 Work Plan

1. Support Regional Councils and Coordinating Council
2. Support CGIA Geographic Information Systems (GIS)
3. Develop an Albemarle-Pamlico Regional Atlas
4. Develop and implement regional outreach projects
5. Hold third Albemarle-Pamlico Estuary Conference
6. Conduct Coastal Counties Open Space Design Workshops
7. Conduct a fisheries workshop and education symposium
8. Hold a North Carolina-Virginia shared resources forum
9. Participate in the National Estuaries Day
10. Conduct boat tour(s) with environmental non-profits
11. Co-sponsor a habitat protection or restoration project
12. Develop an accountability process to ensure success of the Neuse River Basin nutrient reduction strategy

APNEP Priority Actions Identified in the FY 2001 Work Plan

The APNEP Coordinating Council met on February 2, 2000 to develop priority actions for consideration in the APNEP FY 2001 work plan. The top ten priority actions resulting from this meeting are:

1. Develop a comprehensive monitoring strategy and or plan to improve data available for effective monitoring, problem identification, evaluating model predictions and establishing baselines.
2. Increase participation by local and county officials on the Regional Councils and improve participation by citizen commission representatives on the Coordinating Council.
3. Increase public outreach and education.
4. Expand programs that facilitate restoration and acquisition of critical riparian areas on the mainstems of the five major rivers located in the Albemarle-Pamlico region.
5. Develop CCMP implementation report cards specific to the five individual river basins.
6. Move forward on developing TMDLs for the state's impaired waterbodies; and provide training to CC and RC members regarding TMDL process. (*NOTE: This action has been partially achieved. A TMDL workshop, sponsored by APNEP, was held to educate CC and RC members regarding the TMDL process on February 29, 2000.*)
7. Develop emergency BMPs for human and animal waste before they are needed.
8. Create Waterways Boards or Environmental Advisory Boards at the local level (enabling legislation may be best route to accomplish this).

9. Increase public awareness of toxic sediments by posting signs, etc.
10. Improve enforcement of BMPs, toxics regulations and other environmental statutes.

APNEP staff realized it would be impossible to focus on all ten priority actions in the 2001 work plan and chose only to include the top four priority actions. The third priority action (Increase public outreach and education) is viewed as being inherent with each of the other priority actions and will be a strong component of the strategies to implement the other three priority actions.

APNEP Priority Actions Identified in the FY 2002 Work Plan

The APNEP Coordinating Council met on April 25, 2001 to determine the main components that would be included in the FY2002 APNEP Work Plan. The principal Program objective for FY2002 is to carry out the responsibilities and priority actions as determined by the APNEP Coordinating Council. Below is a summary of the priority initiatives included in the APNEP FY2002 work plan as approved by the Coordinating Council:

1. Coordinate program activities/implementation process
2. Enhance public relations and coordinate outreach
3. Provide coordination and support to DENR and VADCR to enhance CCMP implementation in three common river basins
4. Continue the Citizens Water Quality Monitoring Program
5. Promote a better understanding of the region's many issues and offer opportunities for public involvement
6. With input from the Regional Councils and Coordinating Council, identify and implement a watershed demonstration project for environmental benefit
7. Coordinate a large-scale, long-term SAV monitoring effort to assess the extent of SAV coverage in the Albemarle-Pamlico estuaries (FY2002 Supplemental Funding Initiative).
8. Fully implement ongoing projects and staff support contracts from previous year including implementation of RC Demonstration Projects, completion of Air Deposition Project, and completion of the Nutrient Reduction Accountability Project.

II. Environmental Results

a. Status of the APNEP Environmental Monitoring Strategy

The creation of a comprehensive APNEP monitoring plan for the Albemarle-Pamlico estuarine system and associated watersheds, through the synthesis and assessment of existing environmental monitoring programs, was considered to be a priority action for FY 2001 by the APNEP Coordinating Council. The Coordinating Council recognized the importance of collecting adequate high quality baseline monitoring data for both water and biological resources, and determined that a monitoring program and data acquisition should be designed to ensure that:

1. Data can detect and identify specific water quality and biological resource changes in the estuarine system and the rivers that drain into the estuaries;
2. Sufficient data are available for use with existing and future water quality models; and
3. Sufficient data are available to determine if management actions implemented are having the expected results.

The APNEP, in conjunction with representatives from EPA and Battelle, conducted a two-day monitoring workshop in December 2000. The purpose of the workshop was to bring together APNEP stakeholders and individuals presently performing monitoring, research and assessments in the Albemarle-Pamlico region to discuss measurements being made and monitoring activities that should be included in the development of an APNEP Comprehensive Monitoring Strategy. Results from the workshop indicated that a diverse set of ongoing monitoring activities already exists in the Albemarle-Pamlico region – although gaps in monitoring were identified, particularly in the estuaries and sounds.

Overall, most participants believed that a comprehensive monitoring strategy - not a plan - is needed in this region, and that a strategy should meet the following goals:

- Identify monitoring gaps in the estuaries and sounds;
- Prioritize these monitoring gaps and needs to enable optimum use of limited resources;
- Identify potential funding sources to meet critical monitoring needs;
- Recommend additional environmental monitoring programs, projects and/or assessments as needed;
- Recommend strategies to enhance monitoring coordination, funding opportunities, data management/synthesis and reporting methods.

On April 25, 2001, the Coordinating Council directed APNEP staff to issue an RFP in order to identify and hire a consultant to write/prepare a comprehensive monitoring strategy. It is expected that a contractor will be selected in the summer of 2002.

In addition to developing the APNEP Monitoring Strategy, the APNEP provides funding for the Citizens Water Quality Monitoring Program (CWQMP) which is housed at East Carolina University in Greenville, NC. The CWQMP currently has 90 volunteers that monitor water quality parameters throughout the APNEP region on a weekly (summer) and bi-weekly (winter) basis. The APNEP also coordinates the involvement of CGIA.

Environmental Monitoring in the APNEP Region

Environmental monitoring results are compiled by the responsible reporting organization. The following environmental parameters are currently monitored by various state resource management agencies:

Rivers, Streams and Estuaries	Lakes	Ground Water	Air	Natural Resources
<ul style="list-style-type: none"> dissolved oxygen ph temperature conductance total phosphorus ammonia total Kjeldahl nitrogen chloride chlorophyll A nitrate+nitrite total suspended solids total dissolved solids turbidity hardness fecal coliform bacteria total coliform bacteria aluminum, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, silver, zinc impairment of recreational activities NPDES point sources 	<ul style="list-style-type: none"> trophic state chlorophyll <i>a</i> algal density/blooms light penetration/turbidity fecal coliforms total dissolved solids dissolved oxygen metals sedimentation fish kills 	<ul style="list-style-type: none"> pesticides organic compounds 	<ul style="list-style-type: none"> atmospheric mercury deposition ozone nitrogen dioxide sulfur dioxide particulate matter 	<ul style="list-style-type: none"> fish kills fish tissue contamination (dioxin and mercury) edible commercial fish landings sport fishery landings sea grass distribution fish community data aquatic insect surveys conversion of wetlands

Organizations that monitor environmental progress in the APNEP region of North Carolina include:

- APNEP Citizens Water Quality Monitoring Program (CWQMP)
- NC Division of Water Quality Environmental Sciences Branch
 - Aquatic Toxicology Unit
 - Biological Assessment Unit
 - Intensive Survey Unit
 - Ecosystems Unit
 - Tar-Pamlico/Neuse Response Teams
- NC Division of Coastal Management
- NC Natural Heritage Program
- NC Division of Marine Fisheries
- APNEP Coordinating Council
- US Geological Survey
- NOAA Beaufort Laboratory
- NC Division of Air Quality Air Quality Lab
- NC Division of Land Resources
- NC Cooperative Extension Service
- NC Division of Soil and Water Conservation
- Duke University Marine Laboratory
- University of North Carolina Institute of Marine Sciences
- Department of Biological and Agricultural Engineering, North Carolina State University

Water Quality Monitoring in the APNEP Region

The NC Ambient Monitoring System (AMS) is a network of stream, lake, and estuarine stations strategically located for the collection of physical and chemical water quality data. At approximately 420 locations around the state, ambient chemical monitoring data is collected monthly to allow a comprehensive assessment of water quality criteria. Parameters measured (depending on stream class and characteristics) may include dissolved oxygen, pH, temperature, conductance, total phosphorus, ammonia, total Kjeldahl nitrogen, chloride*, chlorophyll a, nitrate+nitrite, total suspended solids, total dissolved solids*, turbidity, hardness, fecal coliform bacteria, total coliform bacteria*, aluminum, arsenic, cadmium, chromium, copper, iron, lead, manganese*, mercury, nickel, silver and zinc (*collected only at Water Supply classified streams). This information, along with biological data, is used in development of Basinwide Water Quality Plans to assess the quality of waters across the state and to highlight areas needing management actions.

Environmental data collected and stored by DWQ is maintained by the Division's Environmental Sciences Branch (ESB). Biological data (e.g., benthic macroinvertebrate, fish community and fish tissue data) is collected by ESB's Biological Assessment Unit. Data summaries are available by river basin in Assessment Documents prepared for each river basin in the region. Ambient monitoring data, or the chemical water quality data collected at monthly intervals, is entered into EPA's STORET data system and can be obtained directly through STORET, or by contacting the ESB's Ecosystems Unit at (919) 733-9960 (ext. 203). Lakes monitoring data is available through ESB's Intensive Survey Unit.

The North Carolina Division of Water Quality (DWQ) uses other assessment tools in evaluating prevailing water quality conditions and stream biological integrity in the APNEP region including benthic macroinvertebrate surveys, fish community structure analyses, phytoplankton monitoring (includes Pfisteria) and fish tissue assessments.

The National Estuarine Research Reserve System-Wide Monitoring Program (SWMP)

The North Carolina National Estuarine Research Reserve consists of four individual components. Two, Currituck Banks and Rachel Carson NERR, are in the APNEP region. Estuaries are some of the state's most valuable natural, economic and cultural resources and the health and sustained productivity of estuaries and their living resources are critical to all North Carolinians. To maintain the health of these resources, the National Estuarine Research Reserve System has designed a long-term, system-wide monitoring program for detecting change in the status, integrity and biological diversity of estuaries.

Research Reserve staff monitors physical and chemical parameters to assess water quality and the impacts of weather. Subsequent activities will include mapping habitat change, monitoring environmental stresses and assessing watershed land-use changes. Data collected by the SWMP offers a new set of tools for coastal resource managers and assists agencies in describing estuarine habitat conditions and trends, identifying existing and future information needs, developing solutions to pressing estuarine problems, designing effective estuarine management programs and planning emergency response strategies.

The SWMP provides critically needed standardized information on national estuarine environmental trends, while allowing flexibility to assess coastal management issues of regional or local concern. The SWMP is designed to facilitate the use of reserves as active research sites for basic scientific inquiry and as demonstration sites for developing innovative approaches to estuarine management. The SWMP provides valuable long-term data and information to researchers, natural resource program managers and other coastal decision-makers.

The SWMP also provides new opportunities for interdisciplinary research and public education, including-increased understanding of and appreciation for estuaries and coastal watersheds; a focal point for scientific studies and investigations; tools for using real-time data to analyze relationships between the components of coastal ecosystems; collaborative learning among academics, agency investigators, public schools and resource managers; and broad-based knowledge of interactions between land use changes and estuarine ecosystem health.

Vital Habitats Monitoring in the APNEP Region

Assessments of the status of vital habitats in the APNEP region rely on the collection and analysis of comprehensive spatial information concerning critical areas and human land uses. Specifically, data on land cover/land use, wetlands, rare natural communities and essential habitat for threatened and endangered species is used. Conservation and mitigation efforts are monitored by periodic reports from DWQ's Wetlands Restoration Program and those agencies actively involved in wetlands mitigation and restoration.

Assessing the effectiveness of protection efforts, as well as changes and extent of vital habitats within the APNEP region, relies upon a change detection monitoring process. For each data type described above, change detection monitoring is conducted to update spatial information on a five year basis. This information is used to determine trends in land uses and the status of critical areas.

Fisheries Monitoring in the APNEP Region

Assessments of the APNEP region's fisheries resources involve monitoring that is closely linked with efforts outlined under water quality and vital habitats. Information on the status of fish stocks requires the collection of fishery dependent and independent data. Fishery dependent data is collected through commercial and recreational fishery surveys. Fishery independent data (age, size, year class abundance) is collected by the NC Division of Marine Fisheries.

b. Environmental Indicators

Every management action in the APNEP CCMP contains an "Evaluation Methods" section that describes how each management action is to be assessed. Although most evaluation methods involve the assessment of relatively broad parameters such as improved water quality or decreases in permit processing backlogs, specific indicators are used to make accurate assessments of environmental changes in the APNEP region.

Water Quality Indicators

Uses of biological information include basinwide assessments, identifying appropriate classifications for waters within entire North Carolina watersheds, especially outstanding

resource waters and high quality waters, determining compliance of specified discharges with narrative standards for protecting aquatic life and assessment of nonpoint source impacts and improvements through best management practices. Biological ratings, as determined from benthic macroinvertebrate surveys and fish community surveys, constitute a valuable source of data for the most recent state biennial water quality assessment report.

Under the state's basinwide management program, biological and chemical data are presented in individual basinwide assessment reports prepared by the Environmental Sciences Branch. Reports have been produced for all five of the river basins in the APNEP region.

Macroinvertebrate and fish community surveys, special studies and other water quality sampling activities are conducted to provide information for assessing water quality status and trends throughout the basin and for development of management strategies for each basinwide plan developed for the region.

Macroinvertebrate data from North Carolina's basinwide network and special investigations result in 5 bioclassifications; Excellent, Good, Good-Fair, Fair, and Poor. The bioclassifications are based on taxa richness for the three pollution intolerant groups; Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies), referred to as EPT. In addition to EPT taxa richness, biotic index (BI) values are calculated for each sample. Biotic indices are calculated for both the full scale, or standard, qualitative collection technique and the abbreviated EPT collection technique. However, the biotic index is used only in full scale collections to assign a bioclassification. Classification criteria have been derived by examining EPT taxa richness and biotic index values by ecoregion, with corrections made as needed for stream size and season. Fish community structure data are analyzed using the North Carolina Index of Biotic Integrity (NCIBI). This index uses twelve metrics to categorize the ecological health of the waterbody, which are summarized in five NCIBI Classes (same names as benthos bioclassifications).

Specific biological indices, metrics, or numeric biocriteria are not included in North Carolina water quality regulations. Biological data and narrative biocriteria are, however, intrinsically linked to designated use classifications and to standards that protect those uses. Narratives for the protection of aquatic life are incorporated into the regulations, and the standardized biological methods are used to assess water quality impairments. All use classes in North Carolina regulations require protection of aquatic life. Both High Quality Waters and Outstanding Resource Waters require a rating of excellent based on biological data. In general, for use support rating purposes, locations rated as Poor or Fair are considered to be impaired. Stations rated as Good-Fair, Good or Excellent are classified as supporting their designated uses.

North Carolina DWQ has also done a great deal of research towards developing a sampling method and criteria for slow flow, swamp streams that also incorporate habitat assessment into an overall site classification. Also, DWQ is developing fish community boat sampling methods that will have different metrics and criteria than the present NCIBI.

Assessing Benthic Macroinvertebrates in Swamp Streams

Extensive evaluation, conducted by DWQ, of swamp streams across eastern North Carolina suggests that different criteria must be used to assess the condition of water quality in these systems. Swamp streams are characterized by seasonally interrupted flows, lower dissolved

oxygen and sometimes, lower pH. Sometimes they also have very complex braided channels and dark-colored water. Since 1995, benthic macroinvertebrates swamp sampling methods have been used at over 100 sites in the coastal plain of North Carolina, including more than 20 reference sites. Preliminary investigations indicate that there are at least five unique swamp ecoregions in the NC coastal plain, and each of these may require different biocriteria. The lowest "natural" diversity has been found in low-gradient streams (especially in the outer coastal plain) and in areas with poorly drained soils.

DWQ has developed draft biological criteria that may be used in the future to assign bioclassifications to these streams (as is currently done for other streams and rivers across the state). However, validation of the swamp criteria will require collecting data for several years from swamp stream reference sites. The criteria will remain in draft form until DWQ is better able to evaluate such things as: year-to-year variation at reference swamp sites, effects of flow interruption, variation among reference swamp sites, and the effect of small changes in pH on the benthos community. Other factors, such as whether the habitat evaluation can be improved and the role fisheries data should play in the evaluation, must also be resolved. While it may be difficult to assign use support ratings to these swamp streams, these data can be used to evaluate changes in a particular stream between dates or to evaluate effects of different land uses on water quality within a relatively uniform ecoregion.

Assessing Benthic Macroinvertebrate Communities in Small Streams

The benthic macroinvertebrate community of small streams is naturally less diverse than the streams used to develop the current criteria for freshwater, flowing streams. The benthic macroinvertebrate database is being evaluated, and a study to systematically look at small reference streams in different ecoregions is being developed with the goal of finding a way to evaluate water quality conditions in such small streams.

Assessing Fish Communities

Fish communities in most wadeable streams can be sampled by a crew of 2-4 persons using backpack electrofishers and following the DWQ Standard Operating Procedures. The data are evaluated using the North Carolina Index of Biotic Integrity (NCIBI). The NCIBI uses a cumulative assessment of twelve parameters or metrics. Each metric is designed to contribute unique information to the overall assessment. The scores for all metrics are then summed to obtain the overall NCIBI score.

In order to obtain data from non-wadeable coastal plain streams (that are difficult to evaluate using benthic macroinvertebrates), a fish community boat sampling method is being developed with the goal of expanding the geographic area that can be evaluated using fisheries data. This project may many years to complete.

The criteria will remain in draft form until DWQ is better able to evaluate such things as year to-year variation at reference swamp sites, variation among reference swamp sites and the effect of small changes in pH on the benthos community. Other factors, such as whether a habitat evaluation can be improved or if fisheries data should be used, must also be resolved.

Assessing Shellfish Harvest Waters

Water polluted by human or animal wastes can harbor numerous pathogens that may threaten

human health. This is of particular concern in waters where shellfish are harvested for human consumption. Because of the tendency of clams and oysters to concentrate the material they filter from the water column, shellfish can potentially become too contaminated for safe consumption by humans, even when fecal coliform concentrations are relatively low. Therefore, while water quality may be safe enough for swimming, fishing or other forms of recreation, acres closed to shellfish harvesting may be significant and require both corrective and preventive action.

Since routine tests for individual pathogens are not practical, fecal coliform bacteria are widely used as an indicator of the potential presence of disease-causing microorganisms. Fecal coliform bacteria are typically associated with the intestinal tract of warm-blooded animals, and their number is generally assumed to be correlated with the number of pathogens in a water sample. They enter surface waters from a number of sources including urban stormwater, agricultural runoff, improperly designed or managed animal waste facilities, failing on-site wastewater systems, broken sewer lines, improperly treated discharges of domestic wastewater, and wild or domestic animal waste.

The NC Division of Environmental Health Shellfish Sanitation (DEH SS) is the agency responsible for monitoring shellfish and shellfish harvesting waters in North Carolina to evaluate the risk to public health from consuming shellfish meats. DEH SS monitors all coastal waters that have the potential to support shellfish.

DWQ and DEH SS are developing the database and expertise necessary to assess shellfish harvesting use support using a frequency of closure based approach. This database will allow DWQ to better assess the extent and duration of closures.

Habitat Indicators

The status of habitat resources in the APNEP region is based primarily on the number of acres, and the type, of habitat protected, preserved, restored and enhanced each year. This data is obtained by many different state resource management agencies, NGOs and others. The primary organizations that track both qualitative and quantitative changes regarding habitat in the APNEP region include the NC Natural Heritage Program, NC Division of Coastal Management, NC Clean Water Management Trust Fund and NC Wildlife Resources Commission.

Fisheries Indicators

The status of fisheries resources in the APNEP region are based primarily on		Habitat Restored		Habitat Preserved	
		ACRES	PROJECTS	ACRES	PROJECTS
	1999	101,188.00	2	10,750.00	4
	2000	1,365.00	10	24,007.00	12 including CREP
	2001	-	-	26,726.00	15 including CREP
	TOTAL	102,553.00	12	61,483.00	31

Source: 2000, 2001 and 2002 APNEP GPRA Habitat Data Spreadsheets

annual stock status reports developed by the NC Division of Marine Fisheries. Additional indicators of the status of fisheries in the APNEP region include the extent, magnitude and cause of fish kills and the quality of surface waters as determined by the NC Division of Water Quality.

c. Environmental Results and Trends

A number of documented environmental improvements can be attributed to CCMP management actions and APNEP-funded research. The APNEP has been actively involved in projects that have resulted in positive environmental changes in the APNEP region. Just as environmental indicators are obtained through monitoring, environmental results and trends are identified by the status and trends of environmental indicators. While environmental benefits are difficult to quantify, the following changes have taken place in the APNEP region since the 1999 Biennial Review:

- 1) 102,553 acres of habitats and significant natural, cultural and historical places have been restored;
- 2) 61,483 acres of habitats and significant natural, cultural and historical places have been preserved;
- 3) Almost 50 miles of blocked anadromous fish spawning areas has been opened.

Water Quality Results

- **30-Foot Buffer Rule** -- In November 1999, the Coastal Resources Commission adopted a rule requiring structures to be built at least 30 feet from the water on coastal waterfront property. Buffers help water quality by filtering pollutants and nutrients from runoff. The rule applies to property along all waters in the 20 coastal counties.
- **Nutrient Sensitive Waters Rules** - Rules for the Neuse and Tar-Pamlico River basins have been developed and are being implemented. These rules cover a variety of components that are intended to reduce nutrient loading to the estuaries and sounds associated with these basins.

Habitat Results

- The restoration of 102,553 acres and the preservation of 61,483 acres of habitat and significant natural, cultural and historical places.
- Opening almost 50 miles of blocked anadromous fish spawning areas.
- 50,000 acres of federal, state, local, and private lands have been protected for open space purposes statewide in 1999 through the NC Million Acre Initiative.

See Appendix D for more information.

Fisheries Results

- Coastal Habitat Protection Plans are being developed by the NC Division of Marine Fisheries. The CHPP team currently is preparing draft plans for the Chowan River Basin and the Coastal Ocean (the state's coastal waters extending from the beach out three miles). The team also is developing a source document that will contain information designed to clarify the habitat functions necessary for production of important fish stocks and the links between those habitats and fishes at various life history stages of the fish.
- No significant fish kill activity in the northeastern corner of North Carolina, including the Chowan/Pasquotank and Albemarle Sound waters in 2000.

III. Status of Implementation Tracking System

In FY 2001, EPA provided \$20,000 in supplemental funding to be used by the APNEP to address challenges identified by EPA in the 1999 Biennial Review. These funds are being used to develop an APNEP CCMP Implementation Tracking System (ITS) that will help the APNEP track and report on progress made in implementing CCMP management actions. The use of supplemental funds in this manner will strengthen the program's capacity to show and produce environmental results and improve EPA's ability to accurately measure APNEP's progress for reporting under the Government Performance and Results Act (GPRA).

The APNEP Coordinating Council decided that the ITS would be developed by an independent contractor with support and assistance provided by APNEP staff, staff from the NC Division of Water Quality and staff from other state resource management agencies. In mid-November the APNEP entered into a contract with Mr. Andrew Coburn to develop the APNEP CCMP ITS. Although this contract did not officially commence until November, 2001, Mr. Coburn has been working on this initiative under a previous contract since September, 2001.

It is anticipated that successful development of the APNEP CCMP ITS will require 1,000 hours of effort. As of December 31, 2001, Mr. Coburn has dedicated 115 hours towards completion of the ITS and has received compensation in the amount of \$2,300.00 (at a rate of \$20.00/hr).

An integral aspect of the CCMP ITS is the development of an APNEP natural resource/habitat management database. This database, a continuously-updated compendium of natural resource management efforts in the APNEP region, will link individual efforts to their respective CCMP management action and serve as the foundation upon which CCMP implementation will be evaluated.

Mr. Coburn is currently collecting information that will be used to develop this database. As of December 15, 2001, 136 resource management-related efforts had been identified. When complete, the database will include as much of the following information on each resource management effort as possible:

- Project title
- Project partners
- A narrative description of the project
- Organizations/agency contact information
- Project objectives and goals
- Project type (i.e. restoration, preservation, enhancement, regulatory, planning)
- The resource/habitat focus of the project (aquatic, wetlands, terrestrial)
- The river basin(s) in which the project is located or focused
- The county(ies) in which the project is located or focused

- The start date (or projected start date) and ending (or anticipated ending) date
- Project funding sources
- Project sponsors (if different than project coordinators)
- The CCMP Management Action most closely associated with the project
- Project results, findings and conclusions
- Secondary and/or cumulative impacts of the project

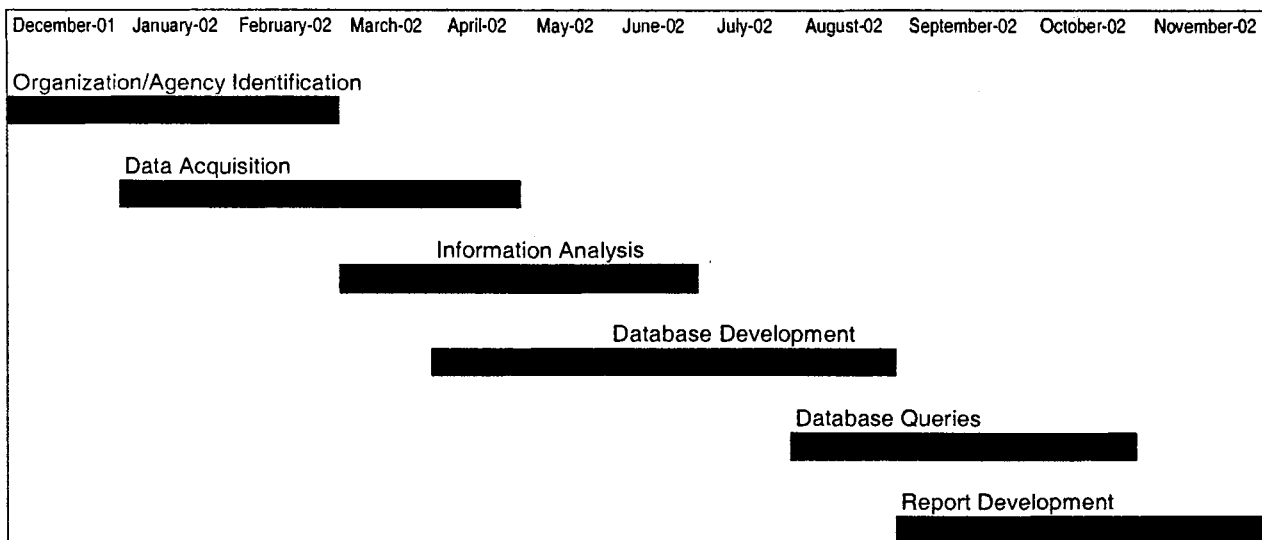
The database will not contain or duplicate any data produced by, or associated with, an identified resource management effort.

Mr. Coburn has met with the APNEP Program coordinator several times to plan and review this project. Much of the discussion has focused on the specific type of database that will be created, strategies for obtaining pertinent information, the types of outcomes that are expected, how information will be presented, etc. In September, an interagency scoping meeting was held to solicit input from other interests. The major discussion points of the meeting included:

- Current Data Collection Methodologies
- Database Content and Development
- Database Accessibility and Compatibility with other State Agency/Program Efforts
- Geographical/Spatial Components of the Database
- Future Data Collection Efforts
- Agency/Stakeholder/Program Assistance

Projected Timeline:

It is anticipated that data collection will be complete by May, 2002 with an MS Access database developed by September, 2002. The ITS will be complete and operational by December, 2002. Database updates and queries will be performed online.



Scope of Work for the Development of an APNEP Implementation Tracking System

For over 14 years, the APNEP has been involved in a diverse array of projects designed to improve, restore and enhance the natural resources of the APNEP Region. Although much progress has been made relative to managing the human use and environmental problems that confront the region's resources, the Program lacks a formal mechanism for tracking, recording and assessing environmental changes. Therefore, it has been extremely difficult for the Program to accurately quantify the direct and indirect impacts that it has had, and will continue to have, in the region.

This project will result in the development of a database that the Program will use to effectively collect, synthesize and evaluate environmental data and information. The database will allow the APNEP to: 1) track progress, 2) monitor environmental conditions, 3) characterize regional resource issues, 4) identify efforts directed at those issues and 5) ascertain programmatic accomplishments and results. Consequently, the APNEP will be better able to clearly communicate results, increase public awareness and support, gain a broader constituency and promote partnerships. This project will also help the APNEP comply with state and federal reporting requirements.

To successfully accomplish this initiative, all organizations (federal, state, local and private) currently involved in resource management efforts, and all environmental projects (management approaches), in the region will be identified. Each organization will be informed of this effort and asked to identify a contact person that may be able to provide additional information if needed. Data including organization type, contact information, project type, project goals and objectives, project location and resource type will be collected and maintained in a database (Microsoft Excel or Access).

Projects will be analyzed and catalogued, based on the goals and objectives of each project and the resource(s) addressed. Project outcomes and results (such as improved resource quality/quantity) will be evaluated, and standards developed. Data will be entered into the database and used to:

- Establish benchmarks for assessing changes in resource quality
- Track the individual, cumulative and secondary impacts of each project
- Identify and quantify changes in natural resource quality
- Identify trends in resource quality and/or quantity
- Identify direct and indirect linkages and potential duplication of efforts among and between organizations and projects
- Identify potential indicators of resource quality
- Identify monitoring efforts in the region

IV. Status of Finance Strategies

One of the most challenging aspects of CCMP implementation is the acquisition of funds. Because post-CCMP funds from EPA are intended to maintain critical staff and fund limited demonstration projects, it is critical for the APNEP to successfully leverage a variety of alternative funding sources beyond that provided by EPA. This section describes funding and other resources that support APNEP implementation:

a. Use of EPA Post-CCMP Funding

*Summary of the APNEP Federal Budget (FY 1999-FY 2002)**

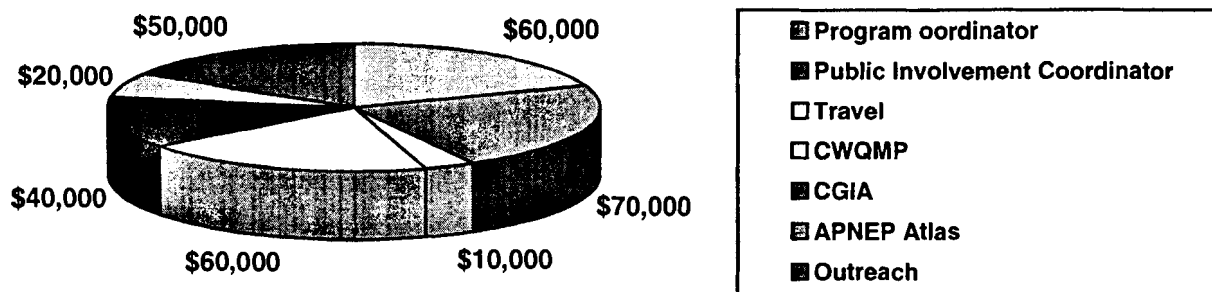
INITIATIVE	FY99	FY00	FY01	FY02	Total	Amt. Spent	Amount Left
PERSONNEL/PROGRAM STAFF							
Public Involvement Coordinator	-	\$70,000	\$70,000	\$82,000	\$222,000	\$186,700	\$35,300
Program Coordinator	-	\$60,000	\$60,000	\$60,000	\$180,000	\$111,600	\$68,400
Watershed Coordinator	-	-	\$25,000	\$25,000	\$50,000	\$25,000	\$25,000
Travel	-	\$10,000	\$10,000	\$10,000	\$30,000	\$19,100	\$10,900
PROJECTS & OTHER ACTIVITIES							
Citizens WQ Monitoring Program	-	\$60,000	\$50,000	\$38,000	\$148,000	\$128,000	\$20,000
APNEP Atlas	-	\$20,000	-	-	\$20,000	\$9,000	\$11,000
CGIA (GIS services)	-	\$40,000	-	-	\$40,000	\$40,000	\$0
Public Outreach Projects	-	\$50,000	-	\$60,000	\$110,000	\$48,400	\$61,600
Implementation of Priority Actions	-	-	\$105,000	-	\$105,000	\$63,000	\$42,000
Nutrient Reduction Accountability Process	-	\$30,000	-	-	\$30,000	\$19,600	\$10,400
Atmospheric Deposition Impact Study	\$65,000	-	-	-	\$65,000	\$65,000	\$0
Watershed Demonstration Project	-	-	-	\$35,000	\$35,000	\$0	\$35,000
Implementation Tracking System	-	-	\$20,000	-	\$20,000	\$2,300	\$17,700
SAV Monitoring Effort	-	-	-	\$20,000	\$20,000	\$0	\$20,000
TOTAL:	\$65,000	\$340,000	\$330,000	\$330,000	\$1,075,000	\$717,700	\$357,300

* All values are estimated to the nearest one-hundred dollars

FY 1999 Post-CCMP Funding (October 1998 - September 1999)

In March 1998, per the US EPA's 1997 Biennial Review, the US EPA determined that adequate progress in implementing the APNEP CCMP had not occurred. As a result, EPA did not provide annual base funds to DENR for FY 1999. EPA did indicate, however, that the APNEP had fulfilled the minimum conditions set by EPA and had made significant progress in other areas of concern identified in the 1997 Biennial Review process. As a result, DENR was eligible to receive federal FY1999 funds in support of CCMP implementation.

In December 1998, the US EPA awarded the APNEP a \$65,000 grant to support ongoing state research pertaining to atmospheric deposition impacts to the Albemarle-Pamlico sounds (no state match was required for this action). The US EPA extended the performance and budget period for this grant to September 30, 1999.

FY 2000 Post-CCMP Funding (October 1999 - September 2000)**INITIATIVE I: IMPLEMENTATION PLAN**

Program Coordinator	60,000
Salary	38,910
Indirect (13.1% of salary)	5,097
Fringe Benefits*	8,826
Office Expenses (Supplies, Postage/Printing, Equipment)	7,167
Public Involvement Coordinator	70,000
Salary	40,400
Indirect (13.1% of salary)	5,292
Fringe Benefits*	9,201
Office Expenses (Supplies, Postage/Printing, Equipment)	5,607
Regional Office/Storage Space and Common Area	9,500
Travel	10,000

INITIATIVE II: STEWARDSHIP PLAN

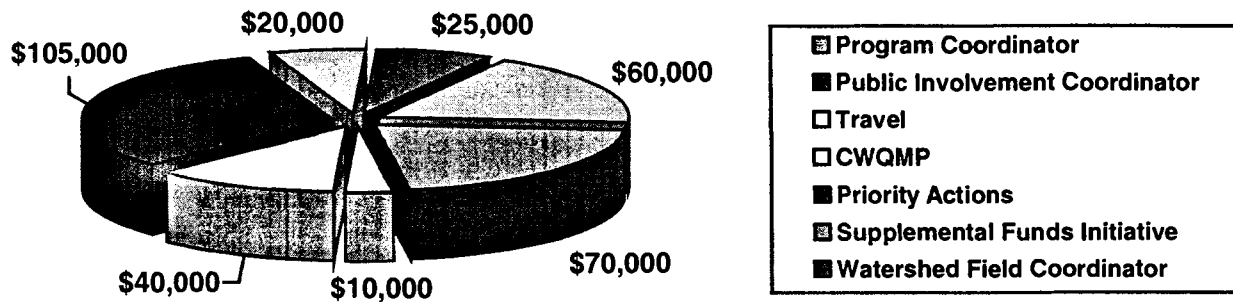
A/P Citizens Water Quality Monitoring Program (contract with ECU)	60,000
Geographic Information System (GIS) Support (contract with CGIA)	40,000
Albemarle-Pamlico Regional Atlas (contract)	20,000
Regional Outreach Projects (contracts)	50,000

INITIATIVE III: ADMINISTRATION'S CLEAN WATER ACTION PLAN SUPPLEMENT

Development of Nutrient Reduction Accountability Process (contract)	30,000
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TOTAL FEDERAL BUDGET FOR FY2000 \$340,000

* Fringe Benefits are based on Social Security (7.65%) & Retirement (10.83%) of the position's annual salary and Medical Insurance Plan rate of (\$1,736).

FY 2001 Post-CCMP Funding (October 2000 - September 2001)**INITIATIVE 1: IMPLEMENTATION PLAN**

Program Coordinator	60,000
Includes salary, fringe benefits, indirect cost, and office/equipment expenses.	
Public Involvement Coordinator	70,000
Includes salary, fringe benefits, indirect cost, office/equipment expenses and regional office rental	
Watershed Field Coordinator	25,000
Travel	10,000

INITIATIVE 2: STEWARDSHIP PLAN

A/P Citizens Water Quality Monitoring Program (contract with ECU)	40,000
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INITIATIVE 3: IMPLEMENTATION OF PRIORITY ACTIONS105,000

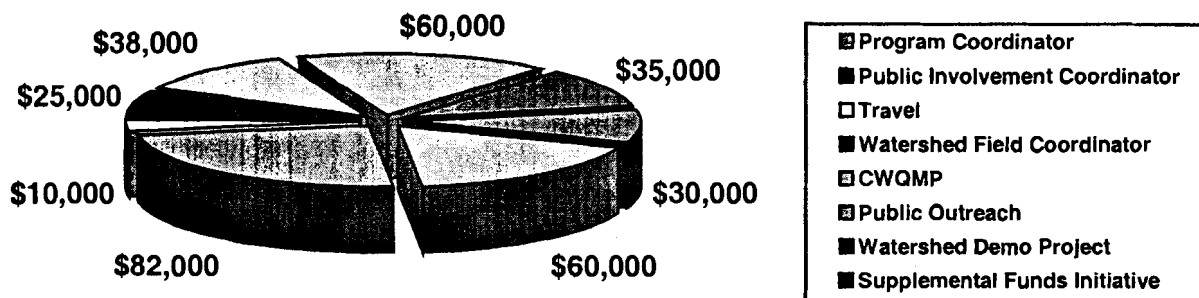
- PRIORITY ACTION #1: Synthesize, assess and determine the need to expand the NC Department of Environment and Natural Resources' existing environmental monitoring program, specifically in the Albemarle-Pamlico estuarine system and its associated watersheds.
- PRIORITY ACTION #2: Improve effectiveness and member-participation with Regional Councils and Coordinating Council.
- PRIORITY ACTION #3: Increase public outreach and education.
- PRIORITY ACTION #4: Expand programs that facilitate restoration and acquisition of critical riparian areas on the mainstems of the five major rivers located in the Albemarle-Pamlico region.

INITIATIVE 4: SUPPLEMENTARY FUNDS INITIATIVE20,000

Supplementary funds which can be spent to (1) improve the APNEP's ability to measure/report environmental results, which is essential under the Government Performance and Results Act (GPRA), or (2) address a specific program weakness as identified in the 1999 Biennial Review.

TOTAL FEDERAL BUDGET FOR FY2001 \$330,000

FY 2002 Post-CCMP Funding (October 2001 - September 2002)



INITIATIVE 1: IMPLEMENTATION PLAN

Program Coordinator	60,000
Includes salary, fringe benefits, indirect cost and office supplies	
Public Involvement Coordinator	82,000
Includes salary, fringe benefits, indirect cost, office supplies, and purchase of new computer, laptop and LCD projector	
Watershed Field Coordinator (contract with VADCR)	25,000
Travel	10,000

INITIATIVE 2: STEWARDSHIP PLAN

Citizens' Water Quality Monitoring Program (contract with ECU)	38,000
Public Outreach Projects	60,000

INITIATIVE 3: WATERSHED DEMONSTRATION PROJECT 35,000

Identify and implement a watershed demonstration project for environmental benefit in the Albemarle-Pamlico region.

INITIATIVE 4: SUPPLEMENTAL FUNDS INITIATIVE 30,000

Coordinate a large-scale, long-term submerged aquatic vegetation (SAV) monitoring effort to assess the extent of SAV coverage in the Albemarle-Pamlico estuaries.

TOTAL FEDERAL BUDGET FOR FY2002\$340,000

* Fringe Benefits are based on Social Security (7.65%) & Retirement (10.83%) of position's annual salary and Medical Insurance Plan rate of (\$1,736). Indirect based on 15.9% of salary.

Overview of Budget Items

Personnel/Program Staff

APNEP Implementation/Program Coordinator

Guy Stefanski has served in this position since October 1994. This position (Environmental Specialist II within the Division of Water Quality) has been paid from state funds since October 1994 and has been considered as part of the state match requirement since that time. However, in March 1999, the funding source for this position was switched to the EPA grant. Mr. Stefanski vacated this position in October 2001. Due to the hiring process requirements, this position will remain vacant until approximately April 2002. Interviews for qualified candidates were conducted in February 2002. Darlene Kucken, program supervisor, serves as the interim coordinator.

APNEP Public Involvement Coordinator

Joan Giordano has served in this position since the beginning of the program and has been funded through the EPA grant since October 1994.

Program Supervisor

Darlene Kucken has been serving as supervisor of this program since mid-1999. Although no program funds are used to support this position, the position is partially used as matching funds for the program.

Administrative and Supporting Staff

EPA funds are allocated to support one administrative staff (Betty Sandow) on a temporary basis. In addition, funds are allocated towards supporting contract staff (Andy Coburn).

Contracts:

Citizens Water Quality Monitoring Program

This volunteer monitoring program has been funded by the EPA grant via contracts with East Carolina University since FY1994. In addition to the obvious benefits of public involvement (e.g., heightened understanding, greater appreciation for resources, stewardship ethic, etc.) tangible benefits are also derived from water quality data collection through the CWQMP. A report that describes the program, synthesizes existing data and develops a trend analysis will be prepared.

- **Total federal funds spent on CWQMP during FY2000, FY2001 and FY2002:** \$138,000
- **Status of contract:** Ongoing and extended to 5/31/02. As of January 2002, approximately \$20,023 remains in contract.

GIS Outreach and Services

According to the FY1999 workplan, \$40,000 was budgeted for a contract with the Center for Geographic Information and Analysis (CGIA) to provide GIS outreach and services. An additional \$18,234 was added to this contract in FY2000. Total contract funding is \$58,234. The contract funds are to be used to provide accessible and affordable GIS data to local

governments for planning and educational purposes. These funds were used to support the development of all GIS layers related to the APNEP region and to provide this information in CD format (free) to local governments in the region in the form of "BasinPro Workshops in September 2000 (See page XX for a full description).

The APNEP may utilize CGIA services to develop an atlas of the Albemarle-Pamlico region featuring a detailed geographic description of pertinent environmental data sets of the region. As a follow-up to the 1996 and 1998 public workshops, another GIS-related public workshop may be conducted in the region to support activities by the Regional Councils, Coordinating Council, local governments and private citizens.

- **Total federal funds spent during FY1999, FY 2000, FY2001 and FY2002 on GIS services:** \$58,234
- **Status of contract:** Approximately \$18, 108 remains in this contract which expires on 5/31/03.

Support for Regional Councils and Coordinating Council

Technical support services are contracted with Andy Coburn to provide administrative and technical support to the APNEP staff and the five Regional Councils and Coordinating Council.

- **Total federal funds spent on this initiative during FY2000, FY2001 and FY2002:** ~\$50,000
- **Status of contracts:** Contract is ongoing. Approximately \$28,900 remains in the contract with Andy Coburn, which expires on 8/14/02, but will be amended and extended for another year.

Regional Council Demonstration Projects

During FY1995 and FY1996, \$58,000 and \$72,000 were budgeted to support the development and implementation of local demonstration projects relative to CCMP management actions.

- **Total federal funds spent on demonstration projects during FY2000, FY2001 and FY2002:** \$130,000
- **Status of project:** All Regional Councils were formed by September 1997. Demonstration project guidelines and proposal criteria were approved by the Coordinating Council in January 1999. Regional Councils are in various stages of implementing demonstration projects within their respective river basins. Most of the projects will be implemented by May 2002, with the exception of one. Brief descriptions are below and full descriptions can be found in Section I.

Neuse River Basin Regional Council

Project Title: "Selected Creek Monitoring Demonstration Project"

Description: Demonstrate feasibility and effectiveness of monitoring the mouth of two selected creeks to determine pollution contribution.

Funding: \$25,000 from EPA/APNEP base funds

Time Period: April 1, 2000 through March 31, 2002.

Status: Water quality data has been collected once per week from two creeks since May 2000 and September 2000. Preliminary interpretation of data is underway.

Tar-Pamlico River Basin Regional Council

Project Title: "Alternative On-site Wastewater Treatment System Demonstration Project"

Description: Demonstrate the effectiveness of an advanced on-site wastewater treatment system in reducing pollutants to groundwater.

Funding: \$18,400 from EPA/APNEP base funds

Time Period: May 1, 2000 through April 30, 2002.

Status: Working with local health departments, a residence with a failing conventional septic system was identified. The homeowner is agreeable to this project, but is currently involved in a lawsuit. This lawsuit is attempting to cover costs of the repair system. The homeowner is willing to have the system installed at a 25% cost-share as soon as the lawsuit is settled. As a result, the installation of the peat biofilter has been put on hold until the lawsuit is settled.

Roanoke River Basin Regional Council

Project Title: "Riparian Zone Rehabilitation Demonstration Project"

Description: Demonstrate the effectiveness of cattle fencing and restoration of riparian zone to reduce nonpoint source impacts.

Funding: \$41,000 (\$25,000 from EPA/APNEP base funds and \$16,000 from USFWS)

Time Period: April 20, 2000 through April 19, 2002.

Status: This project is nearing completion.

Chowan River Basin Regional Council

Project Title: "Precision Agriculture Demonstration Project"

Description: Demonstrate the effectiveness of utilizing precision agriculture methodology to optimize agriculture production.

Funding: \$5,000 from EPA/APNEP base funds

Time Period: April 1, 2000 through March 31, 2001.

Status: Project completed. Draft report submitted by Bertie County Cooperative Extension Service in March 2001. Final report due in June.

Project Title: "Subsoiler/Denitrification Barrier Demonstration Project"

Description: Demonstrate the effectiveness of utilizing subsoiler techniques to improve soil permeability and denitrification walls to remove/reduce nitrate from shallow groundwater.

Funding: \$22,000 from EPA/APNEP base funds

Time Period: May 1, 2000 through April 30, 2002.

Status: Three municipalities and one animal operation have agreed to participate in this project. Construction of the first barrier wall and monitoring wells is scheduled to begin on June 4, 2001 at the Winton spray fields. Construction at the other sites (Aulander and Ahoskie) will follow soon thereafter.

Pasquotank River Basin Regional Council

Project Title: "Winfall Water Quality Demonstration Project"

Description: Demonstrate the effectiveness of a constructed wetland in treating backwash water from water treatment plant.

Funding: \$26,000 from EPA/APNEP base funds

Time Period: August 1, 2000 through July 31, 2002

Status: Project components are underway. Educational signage and brochure to be completed soon thereafter.

Nutrient Reduction Accountability Process

During FY2000, the APNEP allocated \$30,000 to develop an accounting methodology to assist the DWQ in verifying and adjusting the nutrient loading baseline from agricultural fields within the Neuse River basin. The accounting tool is the Nitrogen Loss Estimation Worksheet (NLEW). Staff of the NC Division's of Water Quality and Soil and Water Conservation has been working in conjunction with NC State University researchers and agricultural agencies to develop and modify this methodology.

- **Total federal funds spent on NLEW development:** ~\$19,653
- **Status of project:** Project is ongoing. Contract expires in September 2002.

Albemarle-Pamlico Regional Atlas

During FY2000, the APNEP allocated \$20,000 towards the development of a Albemarle-Pamlico regional atlas that would provide a document featuring the many environmental, cultural, recreational and economic aspects of northeastern NC. The atlas will provide GIS-oriented maps featuring information on water quality, vital habitats, fisheries, historical and cultural areas and recreational access areas. The atlas will promote ecotourism opportunities, such as the environmental education centers established by the Partnership for the Sounds. Maps will be supported by an easy-to-read narrative and colorful graphics. The Atlas will be the first document of its kind to present this type of information about the region.

- **Total FY2000 federal funds spent on resource guide development:** ~\$9,000
- **Status of project:** Project is ongoing. A draft document has been prepared for review. This contract expires in April 2002. An additional contract will need to be developed to acquire layout and design services. This second contract is expected to be about \$11,000.

Virginia/APNEP Watershed Field Coordinator

During FY2001 and FY2002, a total of \$50,000 was allocated to a contract with the Virginia Department of Conservation and Recreation. This contract secures a watershed field coordinator position funded jointly and equally by the two states, and housed in Virginia. The position is intended to improve coordination and cooperation between the two states, and to develop long-term comprehensive water resource management cooperation.

- **Total FY2001 and FY2002 federal funds spent on the coordinator position:** ~\$25,000
- **Status of project:** Contract is ongoing. See **Section I** for details on accomplishments of this contract.

EPA Supported Nonpoint Related Restoration Project

During federal FY2001, APNEP received \$75,000 in additional funds to support an environmental NPS-related restoration project in the APNEP region. These funds were to be used to support and leverage Clean Water Management Trust Fund money to construct wetland and stormwater management project associated with the Tryon Palace in New Bern, NC. Specifically, these funds were to be used to plant cord grass marshland in the designated area.

- **Total FY2001 federal funds spent on restoration project:** none
- **Status of project:** Contract is ongoing and project is still underway. Although much work has been done, no invoice has yet been received for the specific activity defined for this contract.

Air Deposition Project

In December 1998, the US EPA awarded the APNEP a \$65,000 grant to support ongoing state research regarding atmospheric deposition impacts to the Albemarle-Pamlico sounds, particularly as it relates to ammonia from intensive livestock operations. The Water Resources Research Institute (WRI) was the lead on this project. Other partners included NC State University, UNC-Institute of Marine Sciences, EPA and DENR.

- **Total FY1999 federal funds spent on the air deposition project:** ~\$65,000
- **Status of project:** Contract was closed on September 2000. A draft report is currently being peer reviewed through WRI for future publication.

Other Expenditures***Travel –***

Travel funds are used by the Program Coordinator and the Outreach Coordinator to attend the: ANEP/EPA National Meetings; the Virginia Watershed Management Conference in Williamsburg, VA; NEP Directors Meetings; the NEP Financing Workshop in New Orleans, LA; program exchange meetings, and; the NEP Outreach Workshop in Philadelphia, PA.

- **Total FY2000 federal funds spent on travel:** ~\$8,100
- **Total FY2001 federal funds spent on travel:** ~\$8,250
- **Total FY2002 federal funds spent on travel:** travel still being planned

Public Outreach Projects -

The APNEP conducted several workshops and conferences during FY99 to better inform the public of relevant issues in the region. Travel funds are also used to support travel costs associated with these outreach projects. These events involved the agencies and stakeholders involved in post-CCMP activities and highlighted their efforts in dealing with the region's most pressing problems. This outreach campaign complemented the more technically-oriented demonstration projects currently being implemented by the Regional Councils and enriched the APNEP's effort to implement actions of the CCMP's Stewardship Plan. A total of \$110,000 has been allocated to public outreach events. Approximately \$61,600 of these funds remain.

Watershed Demonstration Project -

According to the State's 2000 303(d) List, there are over 930 miles of impaired freshwater streams in the Albemarle-Pamlico watershed. There is a great need to target/prioritize these streams for restoration and to implement the measures necessary to achieve their viability. The APNEP, through its Regional Councils and Coordinating Council, will work to prioritize these streams for restoration and will target some FY2002 funds to implement restoration activities. Results of the watershed demonstration project will be transferable to all river basins in the Albemarle-Pamlico region. A total of \$35,000 is currently budgeted for this project.

Implementation Tracking System -

The ITS is described in Section III on Page III-1.

SAV Monitoring Effort -

The Coordinating Council elected to provide FY2002 supplemental funds as seed money to initiate a large-scale, long-term submerged aquatic vegetation (SAV) monitoring effort to assess the extent of SAV coverage in the Albemarle-Pamlico estuaries. As a first step, APNEP will conduct a scoping meeting/workshop involving local and national experts in SAV research and monitoring to develop a SAV monitoring strategy for the Albemarle-Pamlico estuaries. There is \$20,000 budgeted for this monitoring and there is currently much discussion underway to partner this effort with other agencies and organizations to be better able to assess SAV conditions.

b. Other Sources of Funding for the APNEP

<u>YEAR</u>	<u>EPA Funds</u>	<u>NCDENR Match</u>	<u>TOTAL</u>
FY1999	\$65,000.00	\$0.00	\$65,000.00
FY2000	\$340,000.00	\$114,373.00	\$454,373.00
FY2001	\$330,000.00	\$110,200.00	\$440,200.00
FY2002	\$340,000.00	\$340,000.00	\$680,000.00
TOTAL	\$1,075,000.00	\$564,573.00	\$1,639,573.00

Summary of State Match for FY 1999

No state match was required for FY 1999.

Summary of State Match for FY 2000

The NC Department of Environment and Natural Resources provided \$114,373 as part of the 3:1 non-federal match. The match was provided through in-kind services provided by staff of the Division of Water Quality. Below is a description of the state match:

<u>POSITION</u>	<u>SALARY</u>	<u>% EFFORT</u>	<u>ANNUAL SALARY (AS MATCH)</u>
Environmental Specialist III	33,118	100	33,118
Environmental Supervisor II	40,000	45	18,000
Environmental Supervisor IV	60,000	5	3,000
Environmental Specialist III*	41,000	50	20,500
Environmental Specialist I	26,700	90	24,030
Environmental Specialist II	30,338	15	4,550
Biologist I	30,000	15	4,500
Environmental Technician II	26,700	25	6,675
TOTAL STATE MATCH:			114,373

Description:

- **Environmental Specialist III** -- This position serves as a basinwide planner in DWQ's Planning & Assessment Unit responsible for developing basinwide water quality management plans (including those for the Neuse, Tar-Pamlico, Roanoke, Chowan and Pasquotank river basins).
- **Environmental Supervisor II** -- This position supervises DWQ's Planning & Assessment Unit, which includes the APNEP.
- **Environmental Supervisor IV** -- This position supervises DWQ's Planning Branch, which includes the Planning & Assessment Unit.

- **Environmental Specialist III*** -- This position works in DWQ's Management Planning/Development Unit and spends considerable time on the development of a nutrient control strategy in the Tar-Pamlico River Basin.
- **Environmental Specialist I, Environmental Specialist II, Biologist I and Environmental Technician II** are members of Neuse River Rapid Response Team located in DWQ's Environmental Sciences Branch. The Rapid Response Team is equipped to respond to fish kills (and other water quality-related events) quickly in order to better determine causes and conditions.

Summary of State Match for FY 2001

<u>POSITION</u>	<u>SALARY</u>	<u>% EFFORT</u>	<u>ANNUAL SALARY (AS MATCH)</u>
Environmental Specialist III	33,000	50	16,500
Environmental Specialist III	33,000	25	8,250
Environmental Specialist II	31,000	50	15,550
Environmental Supervisor II	42,000	45	18,900
Environmental Supervisor IV	60,000	5	3,000
Environmental Specialist III	42,000	50	21,000
Environmental Specialist I	27,500	50	13,750
Biologist I	31,000	15	4,650
Environmental Specialist II	31,000	10	3,100
Environmental Technician II	27,500	20	5,500
TOTAL STATE MATCH:			110,150

Description:

- **Environmental Specialist III (2) and Environmental Specialist II** -- These three positions work as basinwide planners in DWQ's Planning & Assessment Unit responsible for developing basinwide water quality management plans (including those for the Neuse, Tar-Pamlico, Roanoke, Chowan and Pasquotank river basins).
- **Environmental Supervisor II** -- This position supervises DWQ's Planning & Assessment Unit, which includes the APNEP.
- **Environmental Supervisor IV** -- This position supervises DWQ's Planning Branch, which includes the Planning & Assessment Unit.
- **Environmental Specialist III*** -- This position works in DWQ's Management Planning/Development Unit and spends considerable time on the development of a nutrient control strategy in the Tar-Pamlico River Basin.
- **Environmental Specialist I, Environmental Specialist II, Biologist I and Environmental Technician II** are members of Neuse River Rapid Response Team located in DWQ's Environmental Sciences Branch. The Rapid Response Team is equipped to respond to fish kills (and other water quality-related events) quickly in order to better determine causes and conditions.

Summary of State Match for FY 2002

The NC Department of Environment and Natural Resources provided \$340,000 as part of the 1:1 non-federal match. The match was provided through: 1) in-kind services provided by staff of the Division of Water Quality and 2) continued operation of monitoring platforms/stations strategically located in parts of the Albemarle-Pamlico estuaries. Below is a description of the state's match:

<u>POSITION</u>	<u>SALARY</u>	<u>% EFFORT</u>	<u>SALARY (AS MATCH)</u>	<u>FRINGE</u>	<u>TOTAL</u>
<u>PLANNING BRANCH</u>					
Env. Spec III ^a	35,337	50	17,669	3,386	21,055
Env. Spec II	33,319	50	16,660	3,257	19,917
Env. Supvsr II	47,378	45	21,320	3,739	25,059
Env. Spec III ^b	44,777	50	22,389	3,989	26,378
<u>NEUSE RIVER RESPONSE TEAM</u>					
Env. Spec I	28,709	50	14,355	2,963	17,318
Env. Spec II	32,553	50	16,277	3,207	19,484
Env. Bio I	33,146	50	16,573	3,244	19,817
Env. Tech IV	28,195	50	14,098	2,928	17,026
<u>TAR-PAMLICO RESPONSE TEAM</u>					
Env. Spec I	29,242	50	14,621	2,996	17,617
Env. Spec II	33,185	50	16,593	3,248	19,841
Env. Bio I	32,514	50	16,257	3,204	19,461
Env. Tech IV	28,195	50	14,098	2,929	17,027
TOTAL:			\$200,910	\$39,090	\$240,000

Description:

- **Environmental Specialist III (2) and Environmental Specialist II** – These three positions work as basinwide planners in DWQ's Planning & Assessment Unit responsible for developing basinwide water quality management plans (including those for the Neuse, Tar-Pamlico, Roanoke, Chowan and Pasquotank river basins).
- **Environmental Supervisor II** -- This position supervises DWQ's Planning & Assessment Unit, which includes the APNEP.
- **Environmental Specialist III** -- This position works in DWQ's Nonpoint Source Planning Unit and spends considerable time on the development and implementation of a nutrient control strategy in the Tar-Pamlico River Basin.
- **The Neuse and Tar-Pamlico Response Teams** are located in DWQ's Environmental Sciences Branch. The Response Teams are equipped to respond to fish kills (and other water quality-related events) quickly in order to better determine causes and conditions.

WATER QUALITY MONITORING

During FY2002, DWQ will be contributing more than \$100,000 to enhance monitoring efforts in parts of the Albemarle-Pamlico estuaries. Utilizing special appropriations from the General Assembly in response to fish kills and associated problems in the Neuse Estuary, DWQ will continue to support (via contract with USGS) the operation of monitoring platforms/stations located in the Neuse, Pamlico and Pungo estuaries. DWQ intends for \$100,000 to be applied as match to this agreement.

Additional Funding Sources that Support the APNEP

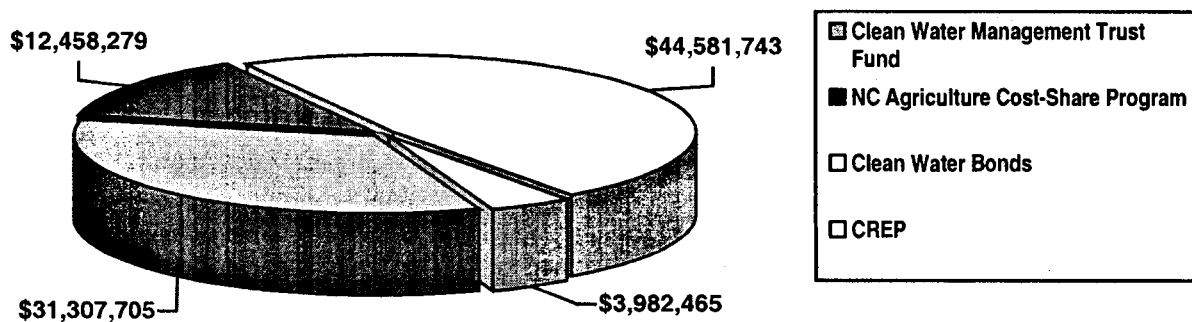
A responsibility of the Coordinating Council, as identified in the CCMP is to assist in the pursuit of funding to implement CCMP recommendations. A role of the Regional Councils is to develop partnerships between the public and private sector, and between local, state and federal governments on a regional scale. They also work to prioritize the problems to be addressed in the Albemarle-Pamlico region and design and build consensus support for the most cost-effective strategies for dealing with those problems. It is through this structure, and an effective working relationship between these Councils, that additional sources of funding have been acquired to implement CCMP management actions.

One of the primary success stories of the APNEP has been its ability to promote the needs, as well as the successes, associated with natural resource management, protection and enhancement efforts in the APNEP region. As a result, sources other than the EPA have provided over \$90 million in funding to help implement environmental projects in the APNEP region since 1999. Most of these funding sources are either directly or indirectly related to the CCMP, while were formed in response to research funded by the APES Program during its early years.

Clean Water Management Trust Fund (\$31,307,705)

The 1996 General Assembly established the Clean Water Management Trust Fund (CWMTF) (GS 113-145) "to clean up pollution in the State's surface waters and to protect and conserve those waters that are not yet polluted." The CWMTF "shall be used to help finance projects that specifically address water pollution problems and focus on upgrading surface waters, eliminating pollution, and protecting and conserving unpolluted surface waters, including urban drinking water supplies" and "to build a network of riparian buffers and greenways for environmental, educational, and recreational benefits." The CWMTF is an independent agency housed for

Expenditures in the APNEP Region 1999-2002



administrative purposes in the Department of Environment and Natural Resources (DENR). State agencies, local governments or other political subdivisions of the State, and nonprofit conservation organizations, such as land trusts, may apply for grants. The deadline for applications is June 1 and December 1 of each year. Moneys from CWMTF may be used to acquire land or easements for riparian buffers and watersheds; to restore wetlands, buffers and watershed lands; to repair failing wastewater treatment systems; to improve stormwater controls and management practices; for planning, and for administration and staff.

Project Applicant	Project Type	Amount
Dare County	Acquisition-Buffers	\$623,000
NC Coastal Land Trust	Acquisition-Buffers	\$258,000
NC Wildlife Resources Commission - Hyde Co. Tracts	Acquisition-Buffers	\$2,710,000
Orange County	Acquisition-Buffers	\$143,000
NC Coastal Land Trust - Core Creek easement	Acquisition-Buffers	\$59,300
NC Wildlife Resources Commission - Van Swamp	Acquisition-Buffers	\$1,172,700
NC Wildlife Resources Commission - Duck Creek	Acquisition-Buffers	\$1,100,000
Nature Conservancy	Acquisition-Buffers	\$210,000
NC Wildlife Resources Commission - Harrison Tract	Acquisition-Buffers	\$534,360
NC Wildlife Resources Commission - Harrison Tract	Acquisition-Buffers	\$534,360
NC Wildlife Resources Commission - Pollocks Ferry	Acquisition-Buffers	\$1,650,000
NC Wildlife Resources Commission - Pollocks Ferry	Acquisition-Buffers	\$1,650,000
NC Wildlife Resources Commission - Shocco Ck	Acquisition-Buffers	\$1,132,000
Wake Forest	Acquisition-Buffers	\$1,128,300
Wake Forest	Acquisition-Buffers	\$1,128,300
NC Coastal Management	Acquisition-Buffers	\$285,220
NC Coastal Management	Acquisition-Buffers	\$285,220
Piedmont Land Conservancy	Acquisition-Buffers	\$75,100
Piedmont Land Conservancy	Acquisition-Buffers	\$75,100
Piedmont Land Conservancy - Moretz Migrant	Acquisition-Buffers	\$25,000
Piedmont Land Conservancy - Moretz Migrant	Acquisition-Buffers	\$25,000
	Acquisition-Buffers Total	\$14,803,960
Durham County - North Fork Little River	Acquisition-Greenways	\$377,000
NC Wildlife Resources Commission - Roanoke Island Greenway I	Acquisition-Greenways	\$1,207,000
NC Wildlife Resources Commission - Roanoke Island Greenway I	Acquisition-Greenways	\$1,207,000
Wake County Parks & Recreation	Acquisition-Greenways	\$350,000
Wake County Parks & Recreation	Acquisition-Greenways	\$350,000
	Acquisition-Greenways Total	\$3,491,000
Cape Fear RC&D - Nash	Coordinate Public Programs	\$20,000
Cape Fear RC&D - Nash	Coordinate Public Programs	\$20,000
	Coordinate Public Programs Total	\$40,000
Conservation Reserve Enhancement Program	Restoration	\$3,916,010
Durham Soil & Water Conservation District	Restoration	\$30,000
Edenton	Restoration	\$3,285,810
	Restoration Total	\$3,315,810
Mid-East RC&D	Stormwater	\$333,535
Tarboro	Stormwater	\$1,800,000
Goldsboro - Constructed wetlands	Stormwater	\$1,800,000
Smithfield	Stormwater	\$80,000
Smithfield	Stormwater	\$80,000
	Stormwater Total	\$4,113,535
Hobkerton	Wastewater	\$790,000
Kinston - Dewatering facility	Wastewater	\$2,429,000
Apex	Wastewater	\$478,700
Apex	Wastewater	\$478,700
Murfreesboro	Wastewater	\$176,000
Murfreesboro	Wastewater	\$176,000
Scotland Neck	Wastewater	\$430,000
Craven County Board of Education	Wastewater	\$292,500
Craven County Board of Education	Wastewater	\$292,500
	Wastewater Total	\$5,543,400
	Grand Total	\$31,307,705

North Carolina Agriculture Cost Share Program (\$12,458,279)

The approach taken in North Carolina for addressing agriculture's contribution to the nonpoint source water pollution problem is to primarily encourage voluntary participation by the agricultural community. This approach is supported by financial incentives, technical and educational assistance, research, and regulatory programs.

Financial incentives are provided through North Carolina's Agriculture Cost Share Program. This program is administered by the Division of Soil and Water Conservation (Division) in the Department of Environment and Natural Resources. It has been applauded by the U.S. Environmental Protection Agency and has received wide support from the general public as well as the state's agricultural community. The Cost Share program was authorized in 1983 as a pilot program to address nonpoint source problems in the nutrient sensitive waters of Jordan Lake, Falls Lake, and the Chowan River covering 16 counties.

Participating farmers receive 75% of predetermined average costs of installed best management practices (BMPs) with the remaining 25% paid by farmers directly or through in-kind contributions. Some applicants may be eligible to receive as much as \$75,000 per year. Also the program provides local Districts with matching funds (50:50) to hire personnel to plan and install the needed BMPs. The Commission allocates cost share funds to local Districts based on the level of state appropriations and water quality protection priorities.

Cost Share allocation and funding decisions by District Boards are based on their written strategy plans. After receiving their allocation, District Boards review applications from landowners for Cost Share funding and decide who will be funded for BMP installation. The written strategy plans are used to prioritize the BMPs in terms of effectiveness for water quality protection. District Boards are encouraged to place the highest priority on the most cost effective water quality protection measures.

Completed BMPs under the program are subject to random checks by the Division staff and District personnel. Additional checks are required if the BMP relates to animal waste management. Farmers who fail to maintain their BMPs in proper working order are subject to repaying some or all of the original cost share funds.

NC Agriculture Cost Share Program Expenditure by County for 1999-2002

County	Total Amount
Bertie	\$234,178.00
Beaufort	\$422,142.00
Camden	\$114,408.00
Carteret	\$90,885.00
Chowan	\$228,699.00
Craven	\$203,035.00
Currituck	\$180,133.00
Durham	\$73,957.00
Edgecombe	\$699,081.00
Franklin	\$456,043.00
Gates	\$369,889.00
Granville	\$269,216.00
Greene	\$397,459.00
Halifax	\$1,070,415.00
Hertford	\$385,980.00
Hyde	\$332,712.00
Johnston	\$622,849.00
Jones	\$335,758.00
Lenoir	\$574,240.00
Martin	\$306,767.00
Nash	\$685,808.00
Northhampton	\$496,522.00
Pamlico	\$327,152.00
Pasquotank	\$161,590.00
Perquimans	\$362,791.00
Pitt	\$645,192.00
Tyrrell	\$225,527.00
Wake	\$328,778.00
Warren	\$342,823.00
Washington	\$298,112.00
Wayne	\$731,584.00
Wilson	\$484,554.00
Grand Total	\$12,458,279.00

Clean Water State Revolving Fund Program (\$44,581,743)

In November 1998, Governor Hunt signed the Clean Water Bond and pushed for its passage. North Carolina voters approved the referendum for \$330 million in state grants and \$300 million in loans to help local governments repair and improve water supply systems and wastewater collection and treatment, and to undertake water conservation and reuse projects. DENR's Construction Grants and Loans Section of the Division of Water Quality administers the wastewater bond programs, selecting projects based upon need priorities and the ability to improve water quality.

Section 319

Section 319, part of the Clean Water Act of 1987, sets up a grant program for funding innovative nonpoint source management strategies intended to be used as demonstrations to others. The US EPA allocates approximately \$2.4 million for Section 319 in North Carolina; half of which the state designates to competitively-selected projects.

State and local governments, interstate and intrastate agencies, public and private nonprofit organizations and institutions are eligible to apply for Section 319 monies through DWQ. Section 319 requires a non-federal match of 40% of the total project cost. Since 1999, North Carolina's Section 319 Program has provided over \$10 million for demonstration projects to control NPS pollution

**NC Wastewater Bond Program
2000 and 2001 Awards**

Ayden	\$3,000,000
Benson	\$932,267
Benson	\$466,133
Clayton	\$1,833,333
Clayton	\$916,667
Creedmoor	\$150,000
Everetts	\$385,000
Farmville	\$3,000,000
Granville County	\$223,000
Halifax	\$748,745
Louisburg	\$2,295,500
Macclesfield	\$2,907,940
Magnolia	\$3,000,000
Morehead City	\$2,000,000
Parmele	\$2,201,625
Pikeville	\$3,000,000
Pikeville	\$150,000
Pink Hill	\$1,400,000
Rich Square	\$2,999,940
Rose Hill	\$1,458,550
Sanford	\$1,998,700
Scotland Neck	\$3,000,000
Washington	\$3,000,000
Wilson	\$1,586,003
Zebulon	\$1,928,340
TOTAL	\$44,581,743

**FY 1999-2001 Summary of Statewide
Projects Funded by Section 319**

FY 2001 Baseline Award	\$1,985,254
FY 2000 Baseline Award	\$1,926,667
FY 2000 Incremental Award	\$3,797,500
FY 1999 Baseline Award	\$1,005,512
FY 1999 Incremental Award	\$1,647,600

Total Amount Awarded \$10,362,533

Conservation Reserve and Enhancement Program (CREP)

CREP is a program establishing Federal and State partnership agreements to retire environmentally sensitive land. The North Carolina CREP will aid in the restoration of up to 85,000 acres of riparian habitat and 15,000 acres of wetlands.

The North Carolina CREP was developed to help protect the Albemarle-Pamlico Estuarine System (APES) from the effects of excessive nutrient and sediment loading due to agricultural

runoff. The State of North Carolina and the U.S. Environmental Protection Agency (EPA) targeted the APES for protection as signs of environmental stress became increasingly evident in the area. These signs include declining fisheries; outbreaks of fish and crab diseases; blooms of the toxic microbe *pfiesteria piscicida*; frequent harmful algal blooms; contaminated shellfish waters; losses of historic shellfish and submerged aquatic vegetation beds; and degradation of wetlands, essential fish habitat, and upland habitats.

The program is targeted primarily in the Neuse, Tar-Pamlico, and Chowan River Basins. Ninety five thousand acres will be allocated between these watersheds, all of which drain directly to the APES. Each of these tributaries has been designated by the North Carolina Environmental Management Commission as Nutrient Sensitive Waters (NSW), and are subject to either mandated or voluntary nutrient reduction goals. The remaining 5,000 acres are allocated to the Jordan Lake watershed in the central part of the State, a reservoir also classified as NSW.

**Yearly CREP Payments
in the APNEP Region**

1999	\$66,661
2000	\$2,106,552
2001	\$1,481,764
2002	\$327,488
TOTAL	\$3,982,465

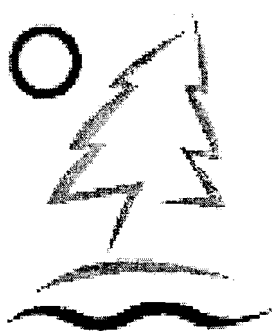
C. Funding Outlook

APNEP staff, the Regional Councils and the Coordinating Council will more actively seek alternative sources of funding for APNEP activities and projects to fulfill the goals of the CCMP. In addition, the APNEP will seek additional avenues for collaborating with other agencies to assist in targeting these program funds towards CCMP and basinwide goals. Where possible, APNEP will cost-share projects with other funding sources to increase the effectiveness and magnitude of enhancement and restoration projects.

Appendix A

2000 Critical Steps Assessment

Albemarle-Pamlico National Estuary Program



**North Carolina Department of Environment and
Natural Resources**

US Environmental Protection Agency

**Implementation
of the
Albemarle-
Pamlico
National
Estuary
Program
Comprehensive
Conservation &
Management
Plan (CCMP)**

CRITICAL STEPS ASSESSMENT

**January
2000**

**Albemarle-Pamlico
National Estuary Program
NCDENR - DWQ
1617 Mail Service Center
Raleigh, NC 27699-1617
919-733-5083 ext 585
<http://h2o.enr.state.nc.us/nep/default.htm>**

FORWARD

The Albemarle-Pamlico National Estuary Program (APNEP), a part of US Environmental Agency's National Estuary Program, culminated in the preparation of a Comprehensive Conservation and Management Plan (CCMP). The CCMP, intended as a practical, cost-effective and equitable approach to restoring, enhancing and protecting the valuable resources of the Albemarle-Pamlico watershed, was ratified by the Governor of North Carolina and US EPA in November 1994. Implementation of the CCMP is being administered through the Division of Water Quality within the NC Department of Environment and Natural Resources (DENR).

Much progress has been made in implementing the objectives of the CCMP. This report provides an assessment of the "progress" -- or lack of progress -- for each of the CCMP's 49 Management Actions since 1994. Each Management Action contains a list of "Critical Steps" which are the specific measures that need to be taken in order to implement the management action. This document is an assessment of those steps.

With substantial input from DENR agency staff and others, APNEP staff assigned the critical steps with a numerical grade based on the level of progress that has been achieved regarding implementation of the activities outlined within each critical step. The average numerical score of all the critical steps in a Management Action was then divided by 5.0 which represents "Fully implemented" (or 100% complete). The results of this assessment were used to develop the 2000 APNEP CCMP Report Card.

The following scale was used during the assessment and for the development of the report card:

- 5 Points = Critical Step Fully implemented (100% complete)**
- 4 Points = Substantial progress (75-99%)**
- 3 Points = Moderate progress (50-74%)**
- 2 Points = Some progress (25-49%)**
- 1 Points = Minimal progress (1-24%)**
- 0 Points = No progress (0%)**

This critical steps assessment document, which supplements previous CCMP implementation progress reports developed in 1996, 1997 and 1998, contains the latest available information and represents the most comprehensive assessment of CCMP implementation progress to date.

The goals, objectives, management actions and explanations contained in this document are taken directly from the APNEP CCMP. Periodic updates to this document will occur as further progress is made in implementing the CCMP's management actions.

2000 APNEP CCMP Report Card

OBJECTIVE Management Action					
	Full	Substantial	Moderate	Some	Minimal
WATER QUALITY PLAN					
A	1 Develop and begin implementing basinwide plans	●			
	2 Establish total maximum daily loads (TMDLs)			●	
	3 Renew all discharge permits in a river basin simultaneously	●			
	4 Consider long-term growth when determining assimilative capacity	●			
	5 Improve scientific models for understanding the estuarine system	●			
	6 Continue long-term, comprehensive monitoring of water quality	●			
B	1 Develop and implement basinwide plans to control NPS pollution	●			
	2 Expand funding to implement nonpoint source pollution controls	●			
	3 Continue to develop alternative septic systems and new BMPs	●			
	4 Strengthen enforcement of water quality violations due to NPS	●			
	5 Strengthen implementation of forestry BMPs	●			
	6 Enhance stormwater runoff controls		●		
	7 Implement an inter-agency state marine policy				●
C	1 Promote pollution prevention and alternatives to discharge	●			
	2 Expand and strengthen enforcement of NPDES permits	●			
D	1 Increase monitoring of contaminated resources & identify causes			●	
	2 Continue to issue fish advisories to protect public health	●			
	3 Remediate toxic contamination where necessary and feasible				●
E	1 Continue to track and evaluate indicators of environmental stress	●			
	2 Improve techniques for evaluating env. health of estuaries		●		
	3 Develop and adopt better indicators of shellfish contamination	●			

VITAL HABITATS PLAN					
A	1 Develop ecosystem protection & restoration plans				●
	2 Develop and maintain accurate maps & records of natural areas	●			
	3 Expand programs to identify wetlands and to evaluate their function				●
B	1 Bring highest priority habitats into public ownership/management	●			
	2 Provide incentives to protect privately owned vital habitats	●			
C	1 Enhance agency enforcement of existing wetlands regulations	●			
	2 Strengthen regulatory programs to protect vital fisheries habitats				●
	3 Enhance efforts to restore degraded wetlands & fisheries habitats		●		
	4 Establish a consistent and effective wetlands mitigation program	●			

FISHERIES PLAN					
A	1 Develop and implement fishery management plans		●		
	2 Modify the existing marine fisheries license structure				●
B	1 Continue and expand the development of bycatch reduction gear		●		
	2 Institute a cost-share program for best fishing practices		●		

STEWARDSHIP PLAN					
A	1 Provide incentives to integrate env. & economic planning				●
	2 Provide affordable & accessible GIS data to local governments				●
	3 Implement a comp. approach to managing public trust waters				●
	4 Support orgs. that promote nature-based tourism & education	●			
B	1 Expand and coordinate education projects about the estuary	●			
	2 Increase opps. for citizens to communicate with agencies			●	
	3 Enhance public involvement in issues affecting the estuary				●
	4 Expand involvement in the Citizens W.Q. Monitoring Program				●
	5 Create a citizen ombudsman position within DENR			●	
C	1 Develop a comprehensive env. science & education curriculum	●			
	2 Provide renewal credits to teachers for in Env. Workshops	●			

IMPLEMENTATION PLAN					
A	1 Create a Coordinating Council and five Regional Councils		●		
	2 Coordinate implementation of the CCMP				●
B	1 Develop an annual "progress review" of CCMP implementation			●	
	2 Assess the health of the Albemarle-Pamlico Estuary			●	

Assessment Key:

- **Full:** Implementation complete (100%)
- **Substantial:** Major progress made (75-99%)
- **Moderate:** Fair amount of progress made (50-74%)
- **Some:** Some progress made (25-49%)
- **Minimal:** Little progress made (1-24%)

This Report Card is an implementation progress summary of each Management Action listed in the APNEP CCMP. For a detailed breakdown of CCMP Critical Step implementation, please refer to the APNEP document entitled, "Implementation of the Albemarle-Pamlico National Estuary Program Comprehensive Conservation & Management Plan (CCMP) Critical Steps Assessment."

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I. WATER QUALITY PLAN (CCMP Page 25)

GOAL: *Restore, maintain or enhance water quality in the Albemarle-Pamlico region so that it is fit for fish, wildlife and recreation.*

OBJECTIVE A: Implement a Comprehensive Basinwide Approach to Water Quality Management (CCMP pg. 27)

+ MANAGEMENT ACTION 1

Develop and begin implementing basinwide plans to protect and restore water quality in each basin according to the schedule established by the Division of Water Quality. The plans would include provisions for basinwide wetland protection and restoration.

Explanation: Basinwide plans are comprehensive, targeted strategies for managing water quality. They assess the cumulative impact of individual projects on water quality within a basin. They can identify and manage pollutants in a way that protects water quality while accommodating economic growth. Basinwide protection and restoration also can help assess and preserve wetlands functions.

Critical Steps Assessment

1. **Fully implemented (5 points)**
Division of Water Quality (DWQ) continues to develop basinwide water quality plans according to schedule.
2. **Substantial progress (4 points)**
Moving forward, however, input from Regional Councils has not been achieved.
3. **Substantial progress (4 points)**
Wetland inventories and functional assessments are included in Division of Coastal Management's (DCM) Wetlands Conservation Plans and DWQ's Basinwide Wetlands and Riparian Restoration Plans on a project by project basis.
4. **Fully implemented (5 points)**
The importance of wetlands to overall water quality management is included in the basinwide water quality plans.
5. **Fully implemented (5 points)**
Portions of agriculture cost share and the federal Section 319 funds are supporting projects that protect and restore wetlands. Approved BMPs, as part of the Forested Wetlands BMP document, are in compliance with current wetlands regulations.
6. **Fully implemented (5 points)**
DWQ does utilize DCM's information regarding the identification and evaluation of wetlands on a county-level basis.
7. **This critical step is redundant.** Same as #4 above.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.7/5.0 = 94% (Substantial Progress)

+ MANAGEMENT ACTION 2

Establish total maximum daily loads (TMDLs) and associated control strategies for all impaired streams in the Albemarle-Pamlico region by 1999.

Explanation: Total maximum daily loads estimate the amount of pollution that can safely enter a body of water. To determine limits to these daily loads, current and projected levels of pollution must be considered in relation to what the system can absorb. Proper use of TMDLs will allow development of management strategies to ensure long-term sustainable growth that does not harm the state's water resources.

Critical Steps Assessment:

1. Some progress (2 points)

Division of Water Quality (DWQ) continues to establish total maximum daily loads (TMDLs) for targeted watersheds within a basin. Much focus has been applied to the Neuse River basin. However, TMDLs have not been established for the majority of freshwater bodies identified on DWQ's 303(d) list of impaired waters. DWQ continues to evaluate key parameters as necessary to ensure limited degradation of water resources.

2. Some progress (2 points)

This is part of the TMDL development process, although input from the Regional Councils has not been achieved.

MANAGEMENT ACTION SUMMARY

Management Action Points: 2.0/5.0 = 40% (Some Progress)
--

+ MANAGEMENT ACTION 3

Renew all discharge permits in a river basin simultaneously by 1999.

Explanation: Renewing permits simultaneously allows the Division of Water Quality (DWQ) to consider the total impact from all dischargers when determining how much pollution each may release into the basin.

Critical Steps Assessment:

1. Fully implemented (5 points)

DWQ places expiration dates on all permits within a basin that expire in the same year.

2. Fully implemented (5 points)

New or revised limits are incorporated into permits as appropriate.

MANAGEMENT ACTION SUMMARY

Management Action Points: 5.0/5.0 = 100% (Fully Implemented)

+ MANAGEMENT ACTION 4

Consider the potential for long-term growth and its impacts when determining how a basin's assimilative capacity will be used.

Explanation: Assimilative capacity is the ability of a river basin to safely absorb pollutants. Basinwide planning should ensure that this capacity is used in a way that sustains long-term growth. However, planning for long-term growth also must consider how secondary impacts such as runoff from new roads will affect water quality.

Critical Steps Assessment

1. Fully implemented (5 points)

Based on available data, point source allocations are distributed on a case-by-case basis in accordance with available data.

2. Substantial progress (4 points)

Distribution of available capacity for a given receiving stream is evaluated on a case-by-case basis during both the basinwide planning and permit renewal process.

3. Fully implemented (5 points)

New permits or modifications to existing permits are required to either submit SEPA documentation or alternative analysis. Should results of the document indicate that there will be significant impacts associated with the proposed activity, the request is either denied or changed. Should the application be accepted, the permit will be developed in accordance to water quality standards and classifications associated with the receiving stream.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.7/5.0 = 94% (Substantial Progress)

+ MANAGEMENT ACTION 5

Improve the scientific models for understanding the estuarine system, the effects of human activities on the system and the viability of alternative management strategies.

Explanation: Scientists use models to understand how systems work. Models for the Albemarle-Pamlico's river basins have been developed, but further refinement and calibration are needed to determine how much pollution can be safely released into the estuary (i.e., total maximum daily loads). This would allow regulators to focus on the most critical sources of pollution, thereby reducing the cost of regulation, monitoring and enforcement. Increased knowledge gained from models will help planners manage water resources to allow for future growth.

Critical Steps Assessment

1. Substantial progress (4 points)

Although a formal work group composed of state, federal and private agencies has not been assembled to coordinate current and future hydrologic and water quality modeling efforts, input and data from these agencies is part of the Division of Water Quality's modeling development process.

2. Substantial progress (4 points)

Modeling is ongoing in the Neuse, Tar-Pamlico and Roanoke basins. Funding has been allocated from the General Assembly to develop models in the Neuse basin.

3. Substantial progress (4 points)

Models are used in the permitting strategy of point source dischargers and in the development of TMDLs. They are designed to support the overall permitting strategy.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.0/5.0 = 80% (Substantial Progress)

+ MANAGEMENT ACTION 6

Continue long-term, comprehensive monitoring of water quality in the APES system, collecting data to assess general system health and target regional problems.

Explanation: On a system-wide basis, water quality monitoring allows managers to assess the effectiveness of management strategies. In addition, monitoring data may be used to develop

scientific models or other methods of evaluating water quality on a smaller scale. Continued monitoring also would assess long-term trends.

Critical Steps Assessment

1. Fully implemented (5 points)

The Division of Water Quality (DWQ) and US Geological Survey (USGS) continue to conduct water quality monitoring at strategic locations within the Albemarle-Pamlico system. Monitoring activity has substantially increased in the Neuse and Tar-Pamlico River basins.

2. Fully implemented (5 points)

The Environmental Monitoring and Assessment Program (EMAP) has been conducted by NOAA. They did additional monitoring in response to Hurricane Floyd. The Citizens Water Quality Monitoring Program (CWQMP) remains active at various estuarine locations.

3. Fully implemented (5 points)

Work by USGS' National Water Quality Assessment Program has provided the Division of Water Quality with very useful information.

4. Fully implemented (5 points)

DWQ, USGS and CWQMP collect water quality data as needed in response to possible concerns.

5. Some progress (2 points)

DWQ is not aware of an effort to expand benthos monitoring from fixed stations in the estuaries. They will continue to rely on EMAP indicators. There is progress underway regarding pesticide monitoring - which will be incorporated into the ambient monitoring network.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.4/5.0 = 88% (Substantial Progress)

OBJECTIVE B: Reduce Sediments, Nutrients and Toxicants From Nonpoint Sources (CCMP pg. 41)

+ MANAGEMENT ACTION 1

For each river basin, develop and implement a plan to control nonpoint source pollution as part of the basinwide management plans.

Explanation: Plans would address all nonpoint sources of pollution in each basin, targeting the most critical areas for controls. These plans would identify the nonpoint source pollution problems specific to each basin. Implementation would vary according to each basin's needs. Plans also would include strategies to control nonpoint source pollution in accordance with the total maximum daily loads (TMDLs) established for each basin. Possible measures include targeted funds for implementation of BMPs, buffer strips along waterways, and continued use of BMPs for highway construction.

Critical Steps Assessment

1. Substantial progress (4 points)

Although comprehensive nonpoint source control plans have not been developed, a comprehensive array of programs exist to address NPS issues (e.g., the nutrient reduction strategies of the Neuse and Tar-Pamlico basins and water quality improvements in the Chowan basin due to effective NPS efforts).

2. Substantial progress (4 points)

The current basinwide management plans developed by DWQ identify the programs that control

pollutants from various sources. These documents provide a picture of the NPS impacts in each basin. Basinwide plans are not intended to "develop methods" of controlling pollution from land-disturbing activities. General recommendations for controlling NPS pollution are presented in the basinwide plans.

3. Substantial progress (4 points)

The targeting of degraded areas is moving forward through DWQ's TMDL Program, Unified Watershed Assessment (UWA), Conservation Reserve Enhancement Program (CREP), Wetlands Restoration Program and Clean Water Management Trust Fund grants (e.g., grant awarded to DWQ to increase personnel to assess problem watersheds to better understand causes and sources of impairment. The outcome of the grant is to develop fundable restoration strategies to improve impaired waters).

4. Fully implemented (5 points)

A database of use-support ratings, 303(d) list of impaired streams and 305(b) report on water quality conditions has been developed. CGIA utilized a CWMTF grant to develop a user-friendly GIS-tool containing 100 layers of geospatial data specific to each river basin.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.2/5.0 = 84% (Substantial Progress)

+ MANAGEMENT ACTION 2

Expand funding to implement nonpoint source pollution controls, particularly agricultural best management practices through the N.C. Agriculture Cost Share Program, and also to develop a broader Water Quality Cost Share Program. Expand the cost share programs to include wetlands restoration. Increase cost share funds to problem areas.

Explanation: Economic incentives and technical assistance have been effective in promoting nonpoint source pollution controls in agriculture. Under this initiative, the Agriculture Cost Share Program would expand and a new Water Quality Cost Share Program, modeled after the one for agriculture, would be created. Cost-sharing would give farmers, marina owners, forestry operations and individual land owners greater incentive to reduce nonpoint source pollution.

Critical Steps Assessment

1. Fully implemented (5 points)

The General Assembly increased funding to the NC Agriculture Cost Share Program in 1996 and 1997 to assist farmers with installation of BMPs and technical assistance.

2. Fully implemented (5 points)

The Division of Soil & Water Conservation (DSWC) hired 10 technicians to target funding and technical assistance in the Neuse basin. Basinwide plans and 303(d) list of impaired streams are used to target priority areas.

3. Fully Implemented (5 points)

A new Water Quality Cost Share Program has not been developed. Rather, substantial funding from the Clean Water Management Trust Fund, Wetlands Restoration Program, NRCS' EQIP (Environmental Quality Incentives Program) and USDA's CREP provide money for targeted BMP installation and technical assistance.

4. Fully Implemented (5 points)

Staff increases have occurred in DWQ, DSWC, Division of Forest Resources, Division of Land Resources, Division of Waste Management and Division of Environmental Health to implement the programs in #3 above.

5. Substantial progress (4 points)

Technical manuals have been developed to better manage land use (e.g., on-site wastewater

treatment, stormwater BMPs, forestry upland/wetland BMPs, and Wetlands Restoration Plan documents).

6. Moderate (3 points)

Implementing the most cost-effective controls for NPS is ongoing in the Neuse and Tar-Pamlico basins.

7. No longer applicable.

This critical step assumes the new Water Quality Cost Share Program has been developed. The programs presented in #3 above provide a great source of funds used to control NPS pollution.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.5/5.0 = 90% (Substantial Progress)

+ MANAGEMENT ACTION 3

Continue to research and develop alternative septic systems and new best management practices to reduce nonpoint source pollution.

Explanation: Alternative septic systems will help protect the environment and support long-term growth by providing effective waste treatment for eastern North Carolina. BMPs improve septic system performance and reduce costly repairs. Developing and demonstrating additional BMPs for other sources of pollution, such as runoff from agricultural lands, urban lands, and highways, would provide proactive, cost-effective means to reduce nonpoint source pollution.

Critical Steps Assessment

1. Fully implemented (5 points)

The Vernon James Research & Extension Center, located in Plymouth, is used to demonstrate various on-site wastewater technologies and to train environmental health specialists, on-site wastewater system operators, and other interested parties.

2. Fully implemented (5 points)

Researchers with the NC Cooperative Extension Service have implemented alternative on-site wastewater systems at various locations in the Albemarle-Pamlico region.

3. Fully implemented (5 points)

Education and outreach are a major focus of developing and implementing these alternative systems.

4. Moderate progress (3 points)

The Division of Water Quality, US Geological Survey and NC Cooperative Extension Service has/is conducting research on groundwater BMPs; particularly with riparian buffers and controlled drainage structures.

5. Moderate progress (3 points)

Extensive development and implementation of agricultural and non-agricultural BMPs has occurred in the Neuse and Tar-Pamlico basins.

6. Moderate progress (3 points)

Federal Section 319 funds have been used to support demonstration projects regarding the development of non-agricultural BMPs to protect surface and groundwater.

7. Fully implemented (5 points)

Two riparian buffer protection rules are moving forward in the Neuse and Tar-Pamlico basins. The Department of Environment & Natural Resources is forming a partnership with NCDA and NRCS to initiate a buffer incentive program totaling over \$280 million in the Chowan, Neuse, Tar-Pamlico and upper Cape Fear basins (CREP). Buffers are also a statewide agriculture cost share item.

8. Fully implemented (5 points)

The Environmental Management Commission, Soil & Water Conservation Commission, Division of Soil & Water Conservation, Natural Resource Conservation Service and Crop Extension Service formed a work group to discuss buffer locations, matrix of BMPs, type of vegetation, etc. As a result, these efforts laid the foundation for buffer rules moving forward in the Neuse and Tar-Pamlico basins.

9. Fully implemented (5 points)

DWQ's Wetlands Restoration Program has taken the lead in utilizing GIS to assess the current extent of stream-side buffers in river basins statewide.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.3/5.0 = 86% (Substantial Progress)

+ MANAGEMENT ACTION 4

Strengthen current enforcement to detect and correct ground and surface water quality violations from nonpoint sources.

Explanation: Although current enforcement authority exists, nonpoint sources of water quality violations are difficult to identify because they are varied and often widespread. The Division of Water Quality's (DWQ's) Water Quality and Groundwater Sections would strengthen enforcement to ensure that these violations are identified and corrected.

*Critical Steps Assessment***1. Fully implemented (5 points)**

Six inspector positions were created by DWQ and assigned to the Washington Regional Office. Four will inspect animal operations, one will be responsible for general non-discharge operations and one will implement buffer rules.

2. Fully implemented (5 points)

See #1 above.

3. Substantial progress (4 points)

Inspectors consider basinwide monitoring data as they work with violators on a case-by-case basis. Enforcement is prioritized based on the level of environmental impact.

4. Substantial progress (4 points)

DWQ has conducted workshops to assist farmers and soil/water specialists regarding the use of BMPs. Certified operator training is now required for all animal waste management systems. Stormwater technicians undergo technical training and participate in educational workshops.

5. Substantial progress (4 points)

Assessments (civil penalties) are issued according to the severity of environmental impact.

6. Fully implemented (5 points)

Staff at the Washington Regional Office, home to the Neuse and Tar-Pamlico Rapid Response Teams, coordinate efforts with EPA and the US Coast Guard on assessment and remedial activities.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.5/5.0 = 90% (Substantial Progress)

+ MANAGEMENT ACTION 5

Strengthen implementation of forestry best management practices through training, education, technical assistance and enforcement.

Explanation: Proper use of forestry best management practices is critical for water quality protection in the APES region. Additional professional foresters would provide needed outreach and technical assistance to forestry operators and landowners regarding implementation of BMPs. Enhanced enforcement would ensure proper use of forestry BMPs and help to eliminate improper forestry practices. Participation by loggers and landowners in education programs, such as the Professional Loggers Program, is vital to the expanding goals of the forest products

industry. Forestry workshops create an opportunity for landowners to learn about forestry management and the use of acceptable forestry BMPs.

Critical Steps Assessment

1. Substantial progress (4 points)

The Division of Forest Resources (DFR) has added seven positions across the state to provide outreach and technical assistance on forestry BMPs. Three of the five districts in the Albemarle-Pamlico region are now covered by these positions.

2. Fully implemented (5 points)

The Division of Land Resources (DLR) has increased its personnel to enforce the requirements of the Sedimentation Pollution Control Act. While not specifically hired to address forestry issues, personnel are cross-trained in areas of erosion/sedimentation control, dam safety, mining and education. Forestry issues are high priority with DLR and there has been increased coordination between DLR and DFR.

3. Fully implemented (5 points)

The DFR, Forestry Association and Cooperative Forest Extension Service have fully implemented a series of ongoing education workshops which promote the use of environmentally sound forestry practices.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.7/5.0 = 94% (Substantial Progress)

+ MANAGEMENT ACTION 6

Enhance stormwater runoff control by strengthening existing regulations and developing new ones, if needed, by 1995. Improve enforcement to ensure that stormwater management systems are properly installed and regularly maintained.

Explanation: At present, the North Carolina Stormwater Management Program targets priority areas and high risk pollutant sources. Additional benefits from this program may be realized by evaluating expansion of the areas of coverage to target more -- or potentially all -- waters. Under this initiative, various regulating agencies would coordinate their efforts to protect all state waters. The Division of Water Quality (DWQ) would dedicate more staff time to monitoring the installation, operation and maintenance of stormwater systems. A critical part of enforcement would be providing education and technical assistance to private land owners, industries, municipalities and others required to comply with these regulations.

Critical Steps Assessment

1. Substantial progress (4 points)

Since 1994, DWQ has modified its stormwater rules; creating a more structured permitting process. Also, DWQ has expanded stormwater rules in the Neuse and Tar-Pamlico basins. DWQ is currently evaluating the federal Phase II Stormwater Rules for future implementation.

2. N/A - Information currently unavailable

3. Moderate progress (3 points)

Most research evaluating the effectiveness of management practices in protecting water quality in coastal areas has been conducted by universities. DWQ has done some studies as funding (e.g., Section 319 funds) becomes available.

4. Substantial progress (4 points)

Since 1994, DWQ has added 1 ½ full time positions dedicated to coastal stormwater issues. DWQ has conducted many educational workshops throughout the coastal area.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.67/5.0 = 73% (Moderate Progress)

+ MANAGEMENT ACTION 7

Implement an inter-agency state policy that addresses marina siting and integrates best management practices through permitting and better public education.

Explanation: There is no consensus on the cumulative impact of marinas on the estuary or on how to manage marina development. A state marinas policy would coordinate agencies concerned with regulating and planning for marinas. It would address such issues as public trust rights and siting, and would integrate new best management practices. New BMPs include designing marinas to contain oil spills and pollution, minimizing the impact of turbulence from boating outside marinas, and controlling pollution from fish wastes and boat cleansers. A marinas policy, along with the appropriate regulations, would be a guide for local government planning. Public education, particularly boater education, plays an integral role in encouraging best management practices.

Critical Steps Assessment

1. Some progress (2 points)

The current permitting process allows for inter-agency coordination (Division of Water Quality, Division of Marine Fisheries, DEH's Shellfish Sanitation Branch and Division of Coastal Management) for the review of new marina permits. Each agency has the opportunity to comment on various resource issues/concerns. However, there has been no formal organization of an inter-agency marina policy committee to address the cumulative impacts of marina sitings in the coastal zone as referred to by this management action.

2. Some progress (2 points)

A comprehensive state marina policy has not been created, but each agency involved in the permit review process has a defined role.

3. No progress (0 points)

This action is predicated on the creation of a comprehensive state marina policy.

4. No progress (0 points)

This action is predicated on the creation of a comprehensive state marina policy.

5. Substantial progress (4 points)

BMPs are considered and encouraged in the current permit review process. Applications referencing the implementation of marina BMPs, receive greater probability of acceptance than those that do not.

6. Substantial progress (4 points)

The Division of Coastal Management (DCM) provides funding (via the Clean Vessel Act) to marina operators to install pump-out stations at their facilities. More than 30 marinas located in the Albemarle-Pamlico region have installed pump-out facilities since 1995. Educational materials have been produced. DCM will also be enrolling marinas under the new Clean Marina Program -- awarded to environmental-friendly marinas.

MANAGEMENT ACTION SUMMARY

Management Action Points: 2.0/5.0 = 40% (Some Progress)

**OBJECTIVE C: Reduce Pollution From
Point Sources, such as
Wastewater Treatment Facilities
and Industry. (CCMP pg. 59)**

+ MANAGEMENT ACTION 1

Promote pollution prevention planning and alternatives to discharge, where feasible, for all point sources to reduce the volume and toxicity of discharges.

Explanation: Environmental problems surface when inadequately controlled or treated wastewater is discharged into the system. Pollution prevention programs are a proactive measure aimed at reducing waste at its source. These programs make treatment more efficient, reduce pollutants in the waste stream, and lower cleanup costs for industry and government. When appropriate, alternatives to discharge should be encouraged.

Critical Steps Assessment

1. Fully implemented (5 points)

There is increased coordination between the Division of Pollution Prevention and Environmental Assistance (DPPEA) and DWQ's Pretreatment Program to help reduce/improve inputs and operating costs from point source discharges.

2. Moderate progress (3 points)

DPPEA has not done much targeting of facilities found in violation of their NPDES permit. Been more successful in working with facilities under pretreatment permits.

3. Fully implemented (5 points)

DPPEA provides information regarding pollution prevention planning to all facilities.

4. Fully implemented (5 points)

DPPEA works directly with industries to reduce waste.

5. Fully implemented (5 points)

DPPEA encourages all facilities with approved pretreatment programs to develop pollution prevention programs. DPPEA also provides technical support to implement this effort.

6. Fully implemented (5 points)

DWQ does require the use of non-discharge alternatives where feasible.

MANAGEMENT ACTION SUMMARY

Management Action Points: $4.7/5.0 = 94\%$ (Substantial Progress)

+ MANAGEMENT ACTION 2

Expand and strengthen enforcement of National Pollutant Discharge Elimination System (NPDES) permits. Increase site inspections and review of self-monitoring data to improve facility compliance by 1995.

Explanation: Increasing the staff of the Division of Water Quality's (DWQ) Compliance Group would allow for more frequent site inspections and would enhance enforcement. More frequent inspections would improve communication between the Division and dischargers, and would help prevent some violations before they occur. Stronger enforcement would dampen incentives for dischargers to violate their permits.

Critical Steps Assessment

1. Fully implemented (5 points)

The General Assembly made statutory changes to increase permit fees beginning January 1999. Generally, there has been an increase in personnel in DWQ's Point Source Compliance Unit.

2. Fully implemented (5 points)

DWQ added personnel to their Regional Offices with specific responsibility of insuring compliance. However, there is a need for additional personnel for more frequent inspections, etc.

3. Fully implemented (5 points)

Since 1994, DWQ has rewritten its enforcement policies and implemented new enforcement

strategies regarding NPDES and non-discharge permitted facilities. This allows for much quicker response and enforcement actions.

4. Fully implemented (5 points)

DWQ staff perform inspections and seek enforcement actions as necessary.

5. Fully implemented (5 points)

Review of permits and effluent data are a part of the permitting process.

6. Moderate progress (3 points)

A recent lawsuit determined that SEPS (supplementary environmental projects) are illegal, therefore, not allowing much flexibility to develop innovative methods of enforcement. DWQ has, however, reevaluated its enforcement policy and is now implementing a more rigorous policy.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.7/5.0 = 94% (Substantial Progress)

OBJECTIVE D: Reduce the Risk of Toxic Contamination to Aquatic Life and Human Health. (CCMP pg. 65)

+ MANAGEMENT ACTION 1

Increase efforts to assess and monitor the extent of estuarine sediment contamination, fish and shellfish tissue contamination, water quality violations, and to identify the causes and sources of these problems.

Explanation: Several areas within the Albemarle-Pamlico region have been identified as exceeding levels of concern for toxicity in water, sediment and fish tissue. Any additional contaminated sites should be identified. Existing contaminated sites would be evaluated to determine the extent of the problem and its impact on aquatic life, wildlife and human health. Management actions should focus on reducing or eliminating further contamination in areas of concern.

Critical Steps Assessment

1. Some progress (2 points)

As a result of Hurricane Floyd, the NC General Assembly has appropriated funds to be used by DWQ to conduct broad scale sediment sampling and tissue analyses in the Albemarle-Pamlico region. EMAP is conducting sediment sampling as well.

2. Some progress (2 points)

Closely related to #1 above.

3. No progress (0 points)

The frequency of sediment sampling and toxicity testing is dependent on the amount of funds provided by the General Assembly. This effort will include the upper and outer estuaries. It has not been determined how long DWQ would continue ambient water quality monitoring at those sites identified as being most contaminated.

4. Substantial progress (4 points)

CGIA does not have databases regarding water quality standard excesses on a case-by-case basis. Use support and benthos classification layers most closely resemble this data. DWQ uses GIS information extensively to determine potential pollution sources and causes.

5. Ranking not applicable

Feasible to do if sediment toxicants are identified as problems, but we don't know that yet.

6. Moderate progress (3 points)

Those actions have been taken where necessary.

7. Moderate progress (3 points)

Where necessary, DWQ has increased efforts to monitor the concentrations of chemical contaminants in fish and shellfish tissues to identify additional contaminated areas.

8. Fully implemented (5 points)

The Division of Epidemiology's Occupational and Environmental Epidemiology Section continues to evaluate fish data and develop criteria for appropriate action to protect public health.

9. Fully implemented (5 points)

DWQ continues to conduct intensive monitoring of fish and shellfish at sites where tissue concentrations are a human health concern.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.0/5.0 = 60% (Moderate Progress)
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+ MANAGEMENT ACTION 2

Continue to issue fish advisories as necessary to protect public health. Improve communication and education about the risks associated with eating contaminated fish and shellfish.

Explanation: Regional fish advisories alert the public to the potential health hazards of eating contaminated fish. The Environmental Epidemiology Section (EES) would continue to review fish tissue analyses and issue advisories as necessary. Public outreach and education should stress the risks associated with eating contaminated seafood to the general population and sensitive populations (e.g., women of child-bearing age and children).

Critical Steps Assessment

1. Fully implemented (5 points)

DWQ conducts intensive monitoring of fish at those sites where tissue concentrations are of concern to human health based on criteria developed by the Division of Epidemiology's Occupational and Environmental Epidemiology Section (DEOEE).

2. Fully implemented (5 points)

DEOEE evaluates EPA's risk assessment approach whenever issuing fish consumption advisories.

3. Fully implemented (5 points)

Creel surveys of fishermen are conducted as needed on a case-by-case basis. Recently, a survey of bank fishermen was conducted in an effort to learn more about mercury contamination in fish tissue.

4. Fully implemented (5 points)

Fish consumption advisories are determined by DEOEE utilizing a risk assessment approach for fish and shellfish consumption at known contaminated sites. Public information is disseminated.

MANAGEMENT ACTION SUMMARY

Management Action Points: 5.0/5.0 = 100% (Fully Implemented)

+ MANAGEMENT ACTION 3

Remediate toxic contamination where necessary and feasible.

Explanation: Considerable efforts should be made to remedy contamination that is an immediate threat to human health and aquatic life. The Division of Water Quality (DWQ) would proceed with sediment cleanup only where necessary and where remediation activities would not cause further damage to ecological communities.

Critical Steps Assessment

1. **Some progress (2 points)**
DWQ and Division of Solid Waste Management evaluate remediation actions of contaminated areas as necessary.
2. **Some progress (2 points)**
Responsible parties are identified and sediment clean-up is pursued where necessary. Known contaminated sediment sites are being monitored.
3. **Some progress (2 points)**
Consider placement of contaminated sites on the National Priority List for clean-up.

MANAGEMENT ACTION SUMMARY

Management Action Points: 2.0/5.0 = 40% (Some Progress)

OBJECTIVE E: Evaluate Indicators of Environmental Stress in the Estuary and Develop New Techniques to Better Assess Water Quality Degradation. (CCMP pg. 73)

+ MANAGEMENT ACTION 1

Continue to track and evaluate indicators of environmental stress, including algal blooms, fish kills, and fish and shellfish diseases.

Explanation: Biological assessments are useful in evaluating the integrity of the estuarine system. Traditional biological indicators such as algal blooms and fish kills can signify water quality problems that chemical and toxicological monitoring may have missed or underestimated.

Critical Steps Assessment

1. **Substantial progress (4 points)**
Although North Carolina already had among the most complete fish kill monitoring records, there has been increased coordination between agencies responsible for responding to algal blooms, fish kills, and fish and shellfish diseases. DENR established a team to develop a comprehensive response to *Pfiesteria* occurrences. Rapid response teams have been established in the Neuse and Tar-Pamlico basins. There has been progress in phytoplankton and algal bloom monitoring, but there is a need for more organismal-level monitoring of stressors regarding fish and shellfish populations.
2. **Fully implemented (5 points)**
Databases on algal blooms and fish kills are being developed and maintained.
3. **Fully implemented (5 points)**
Collaboration and partnerships between DENR, scientists and other relevant experts has occurred.
4. **Fully implemented (5 points)**
In 1996, DWQ, in consultation with the Wildlife Resources Commission and Division of Marine Fisheries, instituted a new fish kill investigation procedure which established a set of protocols and standardized reporting sheets for better documentation.
5. **Minimal progress (1 point)**
There has been minimal involvement by members of the Citizens Water Quality Monitoring Program to assist in acquiring data for algal blooms and/or fish kills.
6. **Substantial progress (4 points)**
Appropriate agencies have utilized information generated by the Albemarle-Pamlico Estuarine Study

and other research by scientists. Necessary research continues through MODMON in the Neuse basin and will get a boost from recent General Assembly allocations resulting from Hurricane Floyd.

7. Minimal progress (1 point)

CGIA does not develop data layers regarding environmental events on a case-by-case basis.

8. Fully implemented (5 points)

Although CGIA does not maintain this information, reliable maps of fish kill events are developed and utilized to track the frequency and extent of these events.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.8 / 5.0 = 76% (Substantial Progress)

+ MANAGEMENT ACTION 2

Improve the techniques for evaluating the overall environmental health of estuarine waters.

Explanation: The sensitivity and diversity of organisms inhabiting an area can be an indication of the system's overall environmental health. Further research is needed to target these "indicator species" in the estuary. Once found, these organisms could be used to monitor the general state of the system and indicate areas that warrant further attention.

Critical Steps Assessment

1. Substantial progress (4 points)

DWQ has determined that the most effective bio-assessment techniques in the estuaries are the population level indicators (e.g., algal populations, fish species populations and fish catches). Significant progress has also been made in bioassessment techniques utilizing benthos.

2. Moderate progress (3 points)

Standardized benthic sampling protocols have been established.

3. Moderate progress (3 points)

On-going as part of DWQ's effort to develop estuarine biological criteria to evaluate indicators of water quality degradation in the estuaries.

4. Moderate progress (3 points)

Types of population-level assessments in the estuaries do not lend themselves to a numeric or narrative criteria due to longer temporal variations in the estuaries as compared to freshwater systems.

MANAGEMENT ACTION SUMMARY

Management Action Points: 2.6/5.0 = 52% (Some Progress)
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+ MANAGEMENT ACTION 3

Develop and adopt better indicators of shellfish contamination as soon as possible.

Explanation: The presence of fecal coliform bacteria currently is used to detect sewage contamination in shellfish beds. This practice has been criticized, however, and the National Oceanic and Atmospheric Administration's (NOAA) National Indicator Study is investigating better indicator tests. These tests, which assess both bacterial and viral contamination, better indicate the health risk from eating contaminated shellfish. They also would establish more reliable criteria for closing shellfish areas or re-opening previously closed areas.

Critical Steps Assessment

1. Moderate progress (3 points)

The Division of Environmental Health's Shellfish Sanitation Branch (SSB) continues to monitor alternative indicator bacteria in cooperation with national efforts. No significant national trend exists from which to begin alteration of existing water quality standards.

2. Fully implemented (5 points)

The Division of Environmental Health's Shellfish Sanitation Branch (SSB) continues to monitor bacterial contamination levels in water and shellfish at appropriate estuarine locations.

3. Fully implemented (5 points)

CGIA produces GIS maps of shellfish closure areas utilizing information from SSB.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.3/5.0 = 86% (Substantial Progress)

paper formats from USFS. Other state and federal wetlands mapping efforts continue to compliment USFWS efforts.

8. Substantial progress (4 Points)

33 of the 36 counties in the APNEP Region have digitized soil survey maps available from CGIA (Franklin, Vance and Warren are not yet available).

9. Substantial progress (4 Points)

Areas identifying human uses on land, vegetation, water, and natural surfaces, were coded according to the 20 categories of Land use / Land cover classifications used in the Albemarle-Pamlico Estuarine Study (APES). The data is from 1987-89 Landsat Thematic Mapper (TM) images from Landsat 5. No updates are scheduled for this data layer.

10. Substantial progress (4 Points)

The Nature Conservancy (TNC) maintains maps of ecologically significant areas on lands they own or help manage.

11. Fully implemented (5 Points)

Locations of rare and endangered species population and occurrences of exemplary or unique natural ecosystems (terrestrial and palustrine) and special wildlife habitats have been mapped and are updated quarterly, or as needed.

12. Minimal Progress (2 points)

The locations of major development permits authorized by the Division of Coastal Management through the Coastal Area Management Act (CAMA) are being collected for Gates, Chowan, Perquimans, Pasquotank, Camden, Currituck, Hyde and Dare counties.

13. Fully implemented (5 Points)

All maps described in this management action are available through CGIA's Corporate Geographic Database.

14. Fully implemented (5 Points)

CGIA maintains a comprehensive database of digital GIS map layers that are available to government and non-government organizations online, by CD-ROM or hard-copy map.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.93/5.0 = 79% (Substantial Progress)

+ MANAGEMENT ACTION 3

Expand programs to identify wetlands on a regional scale and to evaluate and rank wetland function.

Explanation: An accurate identification and evaluation of wetlands, in advance of proposed activities that disturb wetlands, improves our ability to protect the most critical wetlands and to make wetlands permitting more predictable for developers and local governments. An Advanced Identification (ADID) program is a multi-agency effort that tests a variety of methods to evaluate wetlands. Under this program, wetlands regulations would not be expanded. Instead, the wetlands permitting process would become more efficient.

Critical Steps Assessment

1. Substantial progress (4 Points)

DCM has mapped wetlands in all 20 coastal counties, completed a functional assessment for most areas in the 20 coastal counties and begun restoration/ prioritization projects in Craven County. DCM is also conducting a comprehensive Accuracy Assessment Project to determine the accuracy of the wetland type and functional assessment maps that it creates. The NC Wetlands Restoration Program has also mapped areas of water quality degradation and integrated these areas with known habitat areas of concern. The NCWRP has evaluated the opportunity for restoration at these sites to provide effective water quality improvements.

2. Moderate Progress (3 points)

DCM has applied its wetland evaluation methodology in all coastal counties in the APNEP region. The methodology has not yet been expanded for use in other counties.

3. Moderate Progress (3 points)

DWQ's 1996 Wetland Water Quality Standards provide some protection for wetlands. DWQ began using these standards in March 1999 to protect wetlands from activities that were in violation of the standards.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.33/5.0 = 67% (Moderate Progress)

**OBJECTIVE B: Promote the Responsible
Stewardship, Protection, and
Conservation of Valuable Natural
Areas in the APES Region. (CCMP pg. 93)**

+ MANAGEMENT ACTION 1

Bring areas identified as having the highest priority for protection into public ownership and/or management. Expand funding for public acquisition of park lands, gamelands, coastal reserves, and other natural areas.

Explanation: Natural areas that are most vital to maintaining the region's natural heritage have been identified. Further priorities will be determined through basinwide ecosystem planning. Where possible, voluntary acquisition is an important tool for protecting these areas. In addition to preserving rare species and natural communities, public areas that are managed by different agencies can serve a variety of purposes such as recreation, education, or hunting.

Critical Steps Assessment

1. Fully implemented (5 Points)

The North Carolina Natural Heritage Program provides natural area and rare species information to landowners, consulting firms, local, state, and federal agencies, as well as conservation organizations and private citizens. This information is used for conservation planning and to facilitate the design and implementation of ecologically sound development projects. The NC Wetlands Restoration Program also identifies priority areas for protection based on data provided by the Natural Heritage Program.

2. NA - No action defined in this step.

3. Substantial progress (4 Points)

Areas of ecological importance have been targeted for voluntary acquisition and conservation easements by the U.S. Fish and Wildlife Service's National Wetlands Priority Conservation Plan. The Basinwide Wetlands and Riparian Restoration Plans utilize this data for targeting areas for restoration.

4. NA - No action defined in this step.

5. Substantial progress (4 Points)

Fourteen significant natural areas, encompassing over 6,000 acres, identified in the APNEP region by the Natural Heritage Program have been acquired and are being preserved by numerous state resource management agencies. Significant natural areas (dedicated lands) are also identified by the NC Wetlands Restoration Program.

6. Moderate Progress (3 points)

Agencies develop management plans for land that is acquired and retained in federal ownership.

7. Moderate Progress (3 points)

The N.C. Wildlife Resources Commission (WRC) has purchased land on the North Landing River in Currituck County that will be incorporated into a watershed protection project in the upper Currituck Sound. Other examples include the Alligator River National Wildlife Refuge and components of the NC Coastal Reserve and associated National Estuarine Research Reserve Program such as the Rachel Carson National Estuarine Research Reserve.

MANAGEMENT ACTION SUMMARY**Management Action Points: 3.8/5.0 = 76% (Substantial Progress)****+ MANAGEMENT ACTION 2****Provide incentives and technical assistance for the protection of privately owned vital habitats.**

Explanation: High-priority natural areas that are not brought into public ownership can be targeted for private conservation. Efforts would be expanded to inform private land owners of the ecological values of their land, to advise them on appropriate management strategies, and to help them explore options for voluntary protection. Where possible, conservation organizations could acquire vital habitats in order to consolidate management and protection efforts.

Critical Steps Assessment**1. Moderate Progress (3 points)**

The Conservation Fund has protected a total of 148,629.01 acres of important natural areas (statewide); the North Carolina Coastal Land Trust owns, or has protected, approximately 5,000 acres in the APNEP region and the Nature Conservancy and Roanoke River Partners are involved in many aspects of protecting the lower Roanoke River.

2. Fully implemented (5 Points)

Each of the agencies listed in this critical step have expanded their existing stewardship and/or incentive programs that focus on vital habitats. Examples include the USDA Conservation Reserve Enhancement Program, the NC Natural Heritage Trust Fund and the USF&WS' Partners for Fish and Wildlife in North Carolina.

3. Status of this Critical Step Unknown at This Time**4. Fully implemented (5 Points)**

The Division of Coastal Management (DCM) has developed a guide for managing privately-owned wetlands. The NC Wetlands Restoration Program has developed a document entitled "A Guide for North Carolina Landowners" that provides landowners with information on financial incentives and technical assistance programs related to habitat protection.

MANAGEMENT ACTION SUMMARY**Management Action Points: 4.33/5.0 = 87% (Substantial Progress)**

OBJECTIVE C: Maintain, Restore, and Enhance Vital Habitat Functions to Ensure the Survival of Wildlife and Fisheries. (CCMP pg. 101)

+ MANAGEMENT ACTION 1**Enhance the ability of state and federal agencies to enforce existing wetlands regulations by 1995.**

Explanation: Strengthening enforcement of current wetlands regulations and ensuring compliance with the existing permitting process are essential to minimizing inappropriate development in wetlands areas. Aerial monitoring would be expanded to increase coverage and

ensure efficient enforcement. Enhanced enforcement would prevent some actors from gaining an unfair advantage through their failure to comply with wetlands regulations.

Critical Steps Assessment

1. Fully implemented (5 Points)

Aerial compliance monitoring to detect wetlands permit violations, along with aerial wetlands data collection and mapping efforts, are being undertaken by DCM with technical assistance provided by CGIA.

2. Moderate Progress (3 points)

The Wetlands/401 Water Quality Certification Unit of the Division of Water Quality is working with the U.S. Environmental Protection Agency and the Army Corps of Engineers to enforce against illegal wetlands ditching and draining activities. The Corps and DWQ will work to issue any required Permits and Certifications in a timely manner in order to facilitate the expeditious restoration of natural wetland hydrology.

MANAGEMENT ACTION SUMMARY

Management Action Points: 4.0/5.0 = 80% (Substantial Progress)

+ MANAGEMENT ACTION 2

Strengthen regulatory programs to protect vital fisheries habitats, which include submerged aquatic vegetation, shellfish beds, and spawning areas by 1995.

Explanation: Vital fisheries habitats are threatened by water quality degradation, physical destruction and the cumulative impacts of development in the region. Protecting areas in which aquatic organisms breed, live, and feed is essential to the successful propagation of many finfish and shellfish species. Increased protection for vital fisheries habitats will help maintain healthy fish populations for abundant commercial and recreational harvests.

Critical Steps Assessment

1. Substantial progress (4 Points)

The development of Coastal Habitat Protection Plans (CHPPs) is mandated by the Fisheries Reform Act of 1997(FRA). The DMF, DCM, DWQ, WRC and DEH have formed a CHPPs development team and a plan framework has been approved by the MFC, EMC and CRC. Under the FRA, the completion of the CHPPs is scheduled for September 2003. It is through the implementation of these plans that vital habitats will be designated and delineated. Exclusive of this process, the MFC has defined SAV, shellfish beds, anadromous fish spawning areas and anadromous fish nursery areas as "critical habitat areas" under rule 15A NCAC 3I (20). The Wildlife Resources Commission has designated a part of the Roanoke River as an Inland Primary Nursery Area, and reaches of the Tar and Neuse rivers have also been proposed for similar designation.

2. No progress (0 Points)

Specific sites have not been specified by rule. Data is available to delineate most areas, but they are located in "Inland Waters" under the jurisdiction of the Wildlife Resources Commission.

3. No progress (0 Points)

Specific CRC rules to protect SAV, shellfish beds, anadromous fish spawning areas and anadromous fish nursery areas have not been developed because specific sites have not yet been designated.

4. No progress (0 Points)

Specific EMC rules to protect SAV, shellfish beds, anadromous fish spawning areas and anadromous fish nursery areas have not been developed because specific sites have not yet been designated. Work has, however, started on the protection of water quality in Inland Primary Nursery areas.

5. Moderate Progress (3 points)

Through the Coastal Habitat Protection Plan Development Team, the DMF, DWQ, DCM, WRC and DEH (Shellfish Sanitation) have begun to coordinate each agencies' policies regarding habitat and

water quality protection. For example, the group is working to develop consistent terms and definitions for vital habitats.

6. Substantial progress (4 Points)

The agencies comment on permit applications in order to avoid and minimize impacts.

7. Substantial progress (4 Points)

DCM has established a staff position to address the issue of cumulative impacts. This topic will also be addressed in the Coastal Habitat Protection Plans prepared pursuant to the Fisheries Reform Act of 1997.

8. No progress (0 Points)

No specific cumulative impact research projects by DMF, DWQ, WRC, or DCM are underway in the field.

9. Substantial progress (4 Points)

The DOT has initiated interagency coordination to address potential environmental impacts at the early stages of many projects.

MANAGEMENT ACTION SUMMARY

Management Action Points: 2.11/5.0 = 42% (Some Progress)

+ MANAGEMENT ACTION 3

Enhance existing efforts to restore the functions and values of degraded wetlands and vital fisheries habitats. Develop and begin implementing an expanded program to restore wetlands.

Explanation: Natural areas that have been slightly or moderately damaged may be restored by means such as replanting vegetation, repairing hydrological systems and improving water quality. Expanding restoration will increase the region's acreage of valuable, functioning vital habitats. Research and development of successful restoration techniques will ensure that these efforts are cost-effective.

Critical Steps Assessment

1. Fully implemented (5 Points)

DWQ's Wetlands Restoration Program and DCM both target areas for wetlands restoration projects. DCM has identified 31 potential sites in its Wetland Restoration and Creation Site Database. From 1994 - 1999 NC DOT developed 55 wetland and stream mitigation sites for a total of 10,800 acres of wetland restoration and preservation and 24,000 linear feet of stream restoration statewide.

2. Fully implemented (5 Points)

To improve wetland protection coordination, the state departments of Transportation and Environment and Natural Resources formed a partnership to protect the state's wetlands and streams. The agreement calls for the Department of Transportation to pay DENR \$17.5 million over seven years to locate wetlands and streams most in need of restoration. Also, during the seven years, DOT's Transportation Improvement Program will set aside \$175 million to protect wetlands, restore streams and preserve wildlife habitat. In addition, the US Fish & Wildlife Service has restored the hydrology and/or vegetation on 1150 acres of wetlands habitat in the Pocosin Lakes National Wildlife Refuge.

3. No progress (0 Points) - No progress has been made on this step

4. Fully implemented (5 Points)

Through a multi-agency effort coordinated by the APNEP, over 1,050 miles of impeded anadromous fish migration routes were re-opened with the removal of three dams in the Neuse River basin.

5. Moderate Progress (3 points)

The Division of Coastal Management is working with NCDOT on a wetland restoration project designed to compensate for wetland losses associated with the New Bern Bypass and Neuse River Bridge projects in Craven County. The project will provide up-front wetland restoration for unavoidable impacts.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.6/5.0 = 72% (Moderate Progress)

+ MANAGEMENT ACTION 4

Establish by 1995 a consistent and effective mitigation program to compensate for unavoidable permitted wetlands losses.

Explanation: Mitigation compensates for the loss of smaller, fragmented wetlands with the acquisition, enhancement or restoration of larger, contiguous wetlands. A practical and coordinated system of mitigating wetlands damage, that is permitted only after all efforts to avoid and minimize alteration of wetlands have been considered, would ensure the greatest possible long-term benefit to vital habitats. Mitigation banking is a mechanism that allows land developers to alter wetlands in exchange for financial contributions toward the acquisition, enhancement, restoration, or creation of wetlands with similar value. This practice would be evaluated for expanded use in the region.

Critical Steps Assessment

1. Moderate Progress (3 points)

The Division of Water Quality, Division of Coastal Management, NC Department of Transportation and U.S. Fish and Wildlife Service (USFWS) continue to develop effective wetland mitigation procedures that compensate for unavoidable wetlands impacts. DCM has 31 sites in its Wetland Restoration and Creation Site Database. Through the Wetlands Restoration Program Fund, the NC Wetlands Restoration Program (NCWRP) is able to accept mitigation fee payments and apply them where the greatest need/opportunity for restoration exists. The NCWRP is implementing those funds based on the Basinwide Wetlands and Riparian Restoration Plans.

2. Moderate Progress (3 points)

The opportunity to participate in the Wetlands Restoration Program Fund through payment of mitigation fees enhances the Federal 404 and State 401 permitting process. Participation is voluntary (not required).

3. Fully implemented (5 points)

The Mitigation Bank Review Team (MBRT) consists of representatives from US Army Corps of Engineers, US EPA, US Fish & Wildlife Service, NC Wildlife Resources Commission, Division of Coastal Management and Division of Water Quality. The function of the MBRT is to work with the bank sponsor to develop the Mitigation Banking Instrument (MBI) for the prospective bank. The MBI consists of the plans, specifications, monitoring regimes and performance standards for the proposed mitigation bank.

4. Substantial progress (4 Points)

DCM has an interactive wetlands mitigation information and mapping area on its web site that provides education and public awareness of wetland mitigation procedures. A document entitled "A Guide for North Carolina Landowners" developed by the NC Wetlands Restoration Program (see Obj. B, Management Action 2, Critical step 4) assist slandowners in managing properties

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.75/5.0 = 75% (Substantial Progress)

III. FISHERIES PLAN (CCMP Page 112)

GOAL: *Restore or maintain fisheries and provide for their long-term, sustainable use, both commercial and recreational.*

OBJECTIVE A: Control Over-Fishing by Developing and Implementing Fishery Management Plans for All Important Estuarine Species. (CCMP pg. 115)

+ MANAGEMENT ACTION 1

Develop and implement management plans for fisheries that are important to recreational and commercial fishing interests. These plans would include recovery objectives for severely depleted stocks by 1999.

Explanation: State fishery management plans will allow the Marine Fisheries Commission (MFC) and Wildlife Resources Commission (WRC) to identify and maintain healthy stocks of important commercial and recreational fish. The plans will enhance depleted and declining stocks and restore economically important species for future harvest.

Critical Steps Assessment

1. Fully implemented (5 Points)

Fisheries Reform Act of 1997 (FRA) requires preparation of FMPs for those coastal fisheries under Marine Fisheries Commission (MFC) jurisdiction. Implementation will be achieved principally through direct actions of the Division and the MFC. Actions by other agencies will be recommended as appropriate. MFC has formalized and approved established guidelines for these FMPs.

2. Moderate Progress (3 points)

DMF has submitted expansion budget requests to provide the necessary staff support to acquire data and write FMPs and has received partial support from the General Assembly through the creation of 9 new fisheries management positions and substantial resources (non-reoccurring development funds of ~\$3 million and 2 new positions) for the development of an improved computer network (FIN-Fisheries Information Network)

3. Substantial progress (4 Points)

There is an existing MOA with WRC and USFWS for joint consideration of management actions for anadromous species. The federal regional Fishery Management Councils also develop FMPs for species in the federal EEZ (exclusive economic zone) and the MFC has temporary rule making authority to enact complimentary measures in state waters if the MFC deems it necessary. The MFC is also considering the development of a state plan that would adopt FMPs developed by the ASMFC and Council, thereby avoiding a duplication of effort in the creation of state FMPs for the same species as mandated by the FRA. This "umbrella FMP" would include over 20 species or species groups.

4. Moderate Progress (3 points)

The Division continues to lead the coastal states in its long-term fishery dependent and independent data collection programs. The mandatory reporting of commercial trips by fish dealers, the extensive sampling and interviewing (over 20,000 in a year) of recreational fisherman, and a broad-based fish house sampling program provide valuable catch, effort, and biological data for stock assessments. Several independent surveys compliment these efforts. Two major data gaps are the assessment of bycatch in all major fisheries and the development of an independent relative abundance index of adult stocks. Both of these data gaps are complex and would take substantial increases in staff and funding to fulfill.

5. Fully implemented for those FMPs completed (5 Points)

All management alternatives are evaluated in the FMPs and implemented by rules of the MFC, in

accordance with the requirements of the FRA. One amendment to the FRA restricted the use of limited participation measures only to those fisheries where Optimum Yield could not be met in any other way.

6. Minimal Progress (2 points)

Only the blue crab MFP has been approved by the MFC. Guidelines include the criteria for FMP development, provide for interim measures while FMPs are being developed and give a generic timeline for individual FMP development.

7. Minimal Progress (2 points)

A joint WRC/MFC group composed of 3 members from each commission discusses overlapping issues. Most joint actions to date have been in regards to striped bass management under the ASMFC plan. WRC staff participates on several MFC FMP plan development teams.

8. No progress (0 Points) - No progress has been made on this step

The draft river herring FMP discusses the potential for stocking, but no official actions have been taken to date

9. Substantial progress/Nearing completion (4 Points)

See comment under #5 about FRA requirement for limited participation measures. Another FRA amendment also required that all FMP measures be reviewed by the standing regional committees of the MFC, prior to any adoption by the MFC. These citizen advisors are familiar with local fisheries and are able to comment on the social and economic impacts of proposed measure. Each FMP also contains a social and economic section. The Administrative Procedure Act requires an economic evaluation of proposed rule

10. Substantial progress (4 Points)

See comment under #5 about FRA requirement for limited participation measures

11. Moderate Progress (3 points)

Restoration efforts and aquaculture are major issues being addressed in the development of oyster and clam FMPs.

12. Substantial progress (4 Points)

Striped Bass in the Albemarle Sound Management Area have been designated by the ASMFC as a recovered stock. WRC and MFC have increased the harvest quotas with the approval of the ASMFC. The status of the non-ASMA stocks is still unknown and an amendment to the state estuarine Striped Bass FMP is needed to address this issue.

13. Substantial progress (4 Points)

MFC guidelines provide ample opportunity for public comment and review, and plan development teams may include biologists outside of DMF. However, specific scientific review by outside agencies has not been directly solicited. The DENR Science Advisory Council may be an appropriate entity to comment on the draft FMP.

14. Fully implemented (5 Points)

See comments under #9 and #13

15. Fully implemented (5 Points)

MFC guideline provide for the review of FMPs every three years, and includes an approval process for plan revisions.

MANAGEMENT ACTION SUMMARY

Management Action Points: $3.53/5.0 = 71\%$ (Moderate Progress)

+ MANAGEMENT ACTION 2

Modify the existing marine fisheries license structure to improve data collection with respect to landings, demographics and fishing effort, and to generate increased revenues for fisheries management.

Explanation: A license system that enhances fisheries data collection is critical to developing and implementing state fishery management plans. The data collected is necessary for additional research on how regulations impact the fisheries. License revenues can support fisheries research, habitat restoration and other management improvements.

Critical Steps Assessment

1. Fully implemented (5 Points)

Effective July, 1999 a new license structure was implemented. The General Assembly created 6 new positions for licensing. Revenues generated cover the cost of computer support and administering the new system and help support the trip ticket program.

2. Minimal Progress (1 point)

G.S.113-169.1 allows the MFC to adopt rules to establish permits for gear, equipment and other specialized activities. The MFC has not established any new gear permits, but is considering a permit system for crab pots.

3. Minimal Progress (1 point)

Revenues generated under #1 above cover the cost of administering the new system and help support the trip ticket program. Revenues are not sufficient to support fisheries research, habitat restoration or other management improvements.

MANAGEMENT ACTION SUMMARY

Management Action Points: 2.33/5.0 = 47% (Some Progress)

OBJECTIVE B: Promote the Use of Best Fishing Practices that Reduce Bycatch and Impacts on Fisheries Habitats. (CCMP pg. 123)

+ MANAGEMENT ACTION 1

Continue and expand the development of bycatch reduction gear and practices, and require their use as practicality is demonstrated. Aim to reduce inside trawl, long haul seine, pound net, and gill net bycatch by at least 50 percent by 1995.

Explanation: Minimizing non-targeted harvests will preserve the diversity of fish populations and support the long-term use of fisheries resources. Implementing efficient and effective measures to reduce bycatch eventually may result in lower costs to commercial fishermen.

Critical Steps Assessment

1. Minimal Progress (1 point)

Funds from the ASMFC were used to initiate a bycatch reduction program in the Division. However, funding and projects were both limited in scope. When the General Assembly provided expansion positions to implement the FRA, two ASMFC positions were placed on state funds. This provided more stability to the program and allowed ASMFC monies to be used for additional temporary personnel. With additional staff, more labor-intensive projects, such as the determination of bycatch mortality from gill nets in eastern and western Pamlico Sound, have begun.

2. Substantial progress (4 Points)

While still somewhat limited in resources, such a program exists within DMF.

3. Minimal Progress (2 points)

The focus of the program has been to develop gears that minimize bycatch and to quantify bycatch estimates. Given the spatial and temporal variation in bycatch, available resources have not been sufficient to adequately determine statistical valid estimates for major fisheries

4. Fully implemented (5 Points)

Fishermen have been active participants in the development of bycatch reduction devices and have voluntarily used these devices prior to being mandated by the MFC.

5. Substantial progress (4 Points)

Use of devices by MFC rule and Division proclamation have been required in the shrimp trawl, flounder pound net and long haul seine fisheries. Gill net attendance and specified fishing techniques have also been required for flounder nets in the Albemarle Sound to reduce striped bass bycatch, and in small mesh gill nets statewide to reduce red drum bycatch.

6. Minimal Progress (2 points)

As FMPs are developed, relevant bycatch issues will be addressed through the plans. However without adequate estimates and modeling, the need for, and scope of, management actions will be open to debate (see #3). In most cases the MFC and the Division have implemented restrictions to the level that existing data support.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.6/5.0 = 72% (Substantial Progress)

+ MANAGEMENT ACTION 2

Institute a cost share program for best fishing practices for commercial fishing gear by 1995.

Explanation: A cost share program would help alleviate the financial burden and encourage commercial fishermen to implement best fishing practices.

Critical Steps Assessment

1. Fully implemented (5 points)

The Fisheries Resource Grant Program (FRG) is a \$1 million annual grant program. The 1999 General Assembly (Senate Bill 1048) changed the process for awarding the grants. The new process created a "Grant Committee" to conduct proposal reviews and for the final decisions on funding.

2. Minimal Progress (1 point)

The FRG provides funds for development of gear, but not for the other tiers in this critical step.

3. No progress (0 Points) - No progress has been made on this step

4. No progress (0 Points) - No progress has been made on this step

5. Fully implemented (5 points)

The MFC is not responsible for the FRG program. Sea Grant administers the grants.

6. No progress (0 Points) - No progress has been made on this step

MANAGEMENT ACTION SUMMARY

Management Action Points: 2.2/5.0 = 44% (Some Progress)
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IV. STEWARDSHIP PLAN (CCMP Page 131)

GOAL: *Promote responsible stewardship of the natural resources of the Albemarle-Pamlico region.*

OBJECTIVE A: Promote Local and Regional Planning that Protects the Environment and Allows for Economic Growth. (CCMP pg. 131)

+ MANAGEMENT ACTION 1

Support local planning by providing funding and economic incentives to local governments to integrate environmental and economic planning by 1999.

Explanation: Local planning gives governments the opportunity to direct their own growth and enables private investors and local citizens to make informed decisions. Comprehensive planning also promotes economic development and environmental protection that are compatible. Financial assistance to local communities would encourage land and water uses that have the least impact on natural resources while promoting sound economic growth, included increased opportunities for nature-based tourism.

Critical Steps Assessment

1. Moderate progress (3 points)

The critical steps designed to support this management action have not been accomplished as proposed. However, there has been moderate progress in attaining the management action through an alternative route - the Department of Commerce's (Division of Community Assistance) development of "Guidelines for North Carolina Local Government Development Plans: Incorporating Water Quality Objectives in a Comprehensive Land Planning Framework." This document is similar in content, and patterned after, the Division of Coastal Management's land-use plan guidance. It was promulgated by legislation in 1997(HB 515) which states that "Local government units are encouraged to adopt comprehensive land-use plans..." The Divisions of Coastal Management and Water Quality were partners in the development of the guidelines.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.0/5.0 = 60% (Moderate Progress)

+ MANAGEMENT ACTION 2

Provide to local governments affordable and accessible data from the state Geographic Information System (GIS) for use in planning and public education within the region by 1996.

Explanation: Local comprehensive plans influence private and public development and management decisions, and should be supported with accurate and timely geographic information. Increasing the availability of state GIS data to local governments will help in environmental and economic planning.

Critical Steps Assessment

1. Moderate progress (3 points)

CGIA provides services to numerous users (local governments, state agencies, private sector business) of GIS technology including custom maps, customized data, and analytical reports. However, these services are rendered on a fee-for-use basis.

2. Some progress (2 points)

The distribution of digital data to APES region users occurs, but on a fee-for-use basis. Regional office and central office staffing has not occurred because of the absence of funding from the General Assembly.

3. Moderate progress (3 points)

CGIA has a pricing schedule in place for use in billing their users. It would be easy to amend this schedule to reflect a contribution of funds by the General Assembly.

4. Some progress (2 points)

Neither the 6 planning positions within DOC (Obj. A, Management Action 1) nor the installation of CGIA workstations located in the regional offices, has occurred. However, progress is being made in delivering GIS technology and assistance to area local governments various other means such as the Corporate Geographic Database.

5. Moderate progress (3 points)

This critical step is based upon the completion of Obj. A, Management Action 1 and critical step #4, neither of which has been implemented. This step however, has occurred through an alternative path. The APNEP has joined with CGIA on three occasions in delivering GIS workshops throughout the region.

6. Fully implemented (5 points)

CGIA heavily participates in educating the public relative to GIS technology through distribution of their Corporate Geographic Data Base (CGDB), interactive exhibits at fairs, festivals, conferences, etc. and development of teacher training workshops under the auspices of DENR's Office of Environmental Education.

7. Fully implemented (5 points)

CGIA now uses a 1:24,000 scale in production of their products

8. Fully implemented (5 points)

The source agencies and CGIA regularly update -GIS data layers contained in the CGDB. Other databases are updated as funding permits. All data layers are available through CGIA. The CGDB is available "on-line" to more than a dozen state agencies. The NC Div. of Coastal Management and the NOAA Coastal Services center directly assist local governments using this data.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.5/5.0 = 70% (Moderate Progress)
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+ MANAGEMENT ACTION 3

Implement a comprehensive, coordinated and proactive approach to managing the state's public trust waters by 1996.

Explanation: North Carolina holds the waters, the lands beneath them and the resources living in them in trust for its citizens. The state has the authority and responsibility to preserve their natural value as a part of our common heritage. Several state agencies are responsible for the stewardship of this public trust. As the region's population continues to grow, public use of the sounds and waterways will increase as well. Greater conflicts are likely between various groups, including those who use the resources of public trust areas for profit. Therefore, closer coordination is necessary between the agencies that manage these resources. Public trust policy should be proactive and should consider issues related to future population growth, including public access and compensation for uses of public trust resources.

Critical Steps Assessment

1. Some progress (2 points)

A few actions have taken place: the Coastal Resources Commission (CRC) now requires local governments to develop water use plans as part of the process for establishing boat mooring areas; and the NC Legislature, in 1997, funded a 1-year user study of Core Sound.

MANAGEMENT ACTION SUMMARY

Management Action Points: 2.0/5.0 = 40% (Some Progress)

+ MANAGEMENT ACTION 4

Provide support to organizations that promote nature-based tourism and environmental education as a way of fostering environmentally sound economic development in the region.

Explanation: The mission of the Partnership for the Sounds, Inc. (PFS) is to stimulate local, sustainable, community-driven economic well-being within the Albemarle-Pamlico region through the promotion of eco/cultural tourism, environmental stewardship, and education.

PfS was chartered in 1993 as a non-profit organization. It is overseen by a Board of Directors comprised of representatives from local governments, non-profit organizations, businesses, and industries in the Albemarle-Pamlico region. The focus area of Partnership activities includes Beaufort, Bertie, mainland Dare, Hyde, Tyrrell, and Washington counties.

The diverse groups represented by the Partnership were brought together by a common interest in developing environmental/cultural education facilities that would provide focal points for tourism in the region. With coordinated infrastructure improvement, the area could become an appealing destination to the rapidly growing ecotourism and heritage tourism markets. By helping develop that infrastructure, PfS hopes to foster an economic niche that celebrates and conserves the region's unique ecology and ways of life.

Critical Steps Assessment

1. Fully implemented (5 points)

The NC Legislature has appropriated funds for the PfS each year since 1993-'94. Capital funding has been provided for the construction and/or renovation of sites while a recurring line item helps cover staffing and administrative costs.

MANAGEMENT ACTION SUMMARY

Management Action Points: 5.0/5.0 = 100% (Fully Implemented)

OBJECTIVE B: Increase Public Understanding of Environmental Issues and Citizen Involvement in Environmental Policymaking. (CCMP pg. 145)

+ MANAGEMENT ACTION 1

Expand and coordinate education projects about the Albemarle-Pamlico estuary, focusing on both environmental and economic issues.

Explanation: The future security of the estuary depends on whether people, who live, work and vacation there understand its environmental challenges. These education efforts must be innovative, must include adults as well as children, and must take place outside of traditional school settings as well as in the classroom.

Critical Steps Assessment

1. Fully implemented (5 points)

The Office of Environmental Education within DENR continues to excel in the provision of materials, workshops, in-service, a biennial EE conference, guides, and EE certification to the public, agencies, private sector business and others.

2. Fully implemented (5 points)

The EE Advisory Board (within OEE) and the 5 Regional Councils corresponding to the 5 major river basins in the APEP area, complete this critical step.

3. Fully implemented (5 points)

OEE's website, newspaper supplements and inserts, guide to NC EE Centers, and Project Tomorrow EE Model Library Grants program, and the APNEP newsletter "The Beacon" fulfill this critical step.

MANAGEMENT ACTION SUMMARY

Management Action Points: 5.0/5.0 = 100% (Fully Implemented)

+ MANAGEMENT ACTION 2

Increase opportunities for citizens to communicate with members of environmental agencies and policy-making commissions.

Explanation: Citizens are more like to support environmental protection and be involved in decision making when they feel governments and regulatory agencies are working with them as equal partners. Increased opportunities for public participation and education will promote citizen involvement in environmental policy making.

Critical Steps Assessment

1. Substantial progress (4 points)

Regional Councils are meeting regularly with widespread topical representation. In addition, public meetings were held in conjunction with the writing and updating of DWQ's basinwide management plans

2. Moderate progress (3 points)

Many of DENR's Divisions participate on the EE Advisory Council and played an important part in developing OEE's Guide to Environmental Education Programs and Resources.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.5/5.0 = 70% (Moderate Progress)
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+ MANAGEMENT ACTION 3

Enhance and heighten local public involvement in issues affecting the estuary.

Explanation: Public involvement in local policy processes can be promoted through Environmental Advisory Boards. These boards would not have a regulatory role. Instead, they would provide credible information and insight to local governments on the environmental issues surrounding projects such as landfill and roadway siting, water supply and sewage discharge, land use planning and stormwater control.

Critical Steps Assessment

1. Some progress (2 points)

Some formally organized Environmental Advisory Boards exist in the APENP area, although most grassroots input is conveyed through large fora and public meetings, i.e. stakeholder meetings conducted by independent facilitators for DCM and DWQ, APNEP Regional Councils, etc.

MANAGEMENT ACTION SUMMARY

Management Action Points: 2.0/5.0 = 40% (Some Progress)

+ MANAGEMENT ACTION 4

Expand involvement in the Citizens' Water Quality Monitoring Program (CWQMP) and make the program more interactive with regulatory agencies.

Explanation: Citizen monitoring gauges the estuary's health and is an important effort and educational tool. In the APNEP region, the CWQMP serves both purposes. The CWQMP would continue and broaden efforts to provide accurate data to water quality management agencies, thereby expanding their ability to track potential problems.

Critical Steps Assessment

1. Minimal progress (1 point)

While no long-term funding source has been identified for support of this program, the Coordinator's position has been institutionalized at ECU.

2. Some progress (2 points)

Monitoring sites and volunteers are routinely employed in areas of concern. The Coordinator is working on involving DWQ in the utilization of volunteer-gathered data, revamping the data entry program and analyzing historical data.

3. Some progress (2 points)

The CWQMP has association with the NC Rivers Association and the NC Streamwatch group housed in DENR's Division of Water Resources.

MANAGEMENT ACTION SUMMARY

Management Action Points: 1.67/5.0 = 33% (Some Progress)

+ MANAGEMENT ACTION 5

Create a citizen ombudsman position within the Department of Environment, Health and Natural Resources (DEHNR).

Explanation: A citizen ombudsman is an independent advocate for citizen concerns within a government agency. An ombudsman would respond to and track these concerns, and would serve as the public's "eyes and ears" with regard to activities of DEHNR divisions.

Critical Steps Assessment

1. Moderate progress (3 points)

While the position of a citizen ombudsman has not been established the DENR has established the Customer Service and Hurricane Response centers. These efforts contribute greatly to the awareness and concerns of eastern NC citizenry.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.0/5.0 = 60% (Moderate Progress)

**OBJECTIVE C: Ensure that Students,
Particularly in Grades K-5, are
Exposed to Science and
Environmental Education. (CCMP pg. 155)**

+ MANAGEMENT ACTION 1

Support the development of a comprehensive environmental science and education curriculum.

Explanation: The Department of Environment, Health and Natural Resources (DEHNR) will expand the operation of the Office of Environmental Education (OEE) to establish an ongoing liaison between the Department of Public Instruction (DPI) and OEE. DPI must address a variety of concerns in developing curriculum. However, OEE would provide assistance as needed in targeting environmental education components.

Critical Steps Assessment

1. Fully implemented (5 points)

The OEE enjoys an ongoing association with DPI. Environmental education has been included in the NC Standard Course of Study for all school children.

2. Fully implemented (5) points

The OEE routinely updates the "Teachers' Guide to Environmental Education Programs and Resources." These documents array the many, many programs available to teachers and citizens dealing with environmental education.

MANAGEMENT ACTION SUMMARY

Management Action Points: 5.0/5.0 = 100% (Fully Implemented)

+ MANAGEMENT ACTION 2

Provide for teachers, at all levels, ongoing opportunities to gain renewal credits in workshops on environmental and estuarine education.

Explanation: The Office of Environmental Education would assist DPI and other state agencies, such as the Wildlife Resources Commission (WRC), Division of Parks and Recreation (DPR), and the Division of Soil and Water Conservation (DSWC), in conducting teacher in-service workshops that provide renewal credits. These workshops not only would help teachers stay current in environmental science, but also would provide broad perspectives on the relationship between the estuary and human activities.

Critical Steps Assessment

1. Fully implemented (5 points)

Numerous opportunities exist through the OEE for gaining teaching renewal credits. An Environmental Educators Certificate program also exists for those teachers (and others) who wish to become proficient in this area.

MANAGEMENT ACTION SUMMARY

Management Action Points: 5.0/5.0 = 100% (Fully Implemented)

V. IMPLEMENTATION PLAN (CCMP Page 161)

OBJECTIVE A: Coordinate Public Agencies Involved in Resource Management and Environmental Protection to Implement the Recommendations of the CCMP. (CCMP pg. 161)

+ MANAGEMENT ACTION 1

Create a Coordinating Council and five Regional Councils through executive order by the Governor of North Carolina upon approval of the CCMP.

Explanation: The APES program has provided extensive opportunities for interaction between government agencies, private organizations, citizens and local governments. Continued coordination in implementing recommendations in the CCMP would be provided through a Coordinating Council (CC) and five Regional Councils (RCs). The RCs would include representatives from each county in the region, including elected and/or appointed local government officials, interest groups, and members of the general public in each river basin. The CC would include fifteen representatives from the RCs (ten of whom will be local elected and/or appointed officials), seven representatives of citizen commissions and councils, four representatives of federal resource agencies and three representatives of state government. This structure would provide continued opportunity for interagency coordination and citizen and local government input.

Critical Steps Assessment

1. **Substantial progress (4 points)**
While there has not been Memoranda of Agreement between federal agencies to continue CCMP coordination efforts, the five RCs and the CC have been formed and meet with regularity.
2. **Fully implemented (5 points)**
The five RCs, corresponding to each of the major river basins in the APNEP region, have been formed and meet with regularity.
3. **Fully implemented (5 points)**
The formula for CC composition has been accomplished
4. **Moderate progress (3 points)**
While the CC has been formed according to CCMP recommendations, they are not functioning as effectively as is possible. This is due, in part, to poor attendance at meetings, non-participation by certain members, and a possibly limited understanding of the CC members' roles.
5. **Moderate progress (3 points)**
There is representation by the RCs to the CC and reporting by them occurs at each CC meeting. The CC has not assumed the role of defining implementation strategy so this critical step is only partially fulfilled.
6. **Fully implemented (5 points)**
The Program and Outreach Coordinators serve in this capacity.

MANAGEMENT ACTION SUMMARY

Management Action Points: $4.16/5.0 = 83\%$ (Substantial Progress)

+ MANAGEMENT ACTION 2

Coordinate implementation of the CCMP.

Explanation: The best way to ensure efficient operation of government is to increase the coordination and cooperation of existing agencies. Each agency should fulfill its responsibilities without duplicating the efforts of other agencies. The Coordinating Council would take advantage of existing resources and staff, establishing connections between public and private interests and all levels of government, rather than creating another layer of government. The Coordinating Council will guide the implementation process to ensure the highest level of cooperation and coordination among interested parties, as was demonstrated by the original APES Management Conference during the plan's development.

Critical Steps Assessment

1. **Fully implemented (5 points)**
The MOA awaits only a formal signing ceremony.
2. **No progress (0 points)**
There has been no movement toward fulfilling this critical step.
3. **Some progress (2 points)**
Only a partial number of the CC membership complies.
4. **Minimal progress (1 point)**
This critical step has had little attention directed to it.
5. **No progress (0 points)**
There has been no movement toward this critical step.
6. **No progress (0 points)**
There has been no movement toward this critical step.
7. **Minimal progress (1 point)**
DENR's Assistant Secretary of Environmental Protection, serving as CC Chair, has kept the CC informed of legislative issues of interest and environmental developments occurring in the General Assembly.
8. **Some progress (2 points)**
While the CC does not do this as a council, these reviews are conducted within the various Divisions of the DENR whose representatives sit on the CC.
9. **Minimal progress (1 point)**
There has been no movement toward a formal MOA between CC members, however there is a spirit of cooperation among them which supports collegiality and information sharing.
10. **Some progress (2 points)**
While the CC itself does not function as a whole, with respect to this critical step, individual members' organizations and agencies do.
11. **No progress (0 points)**
There has been no movement toward this critical step.

MANAGEMENT ACTION SUMMARY

Management Action Points: 1.27/5.0 = 25% (Minimal Progress)
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OBJECTIVE B: Assess the Progress and Success of Implementing CCMP Recommendations and the Status of Environmental Quality in the Albemarle-Pamlico Region. (CCMP pg. 169)

+ MANAGEMENT ACTION 1

Develop an annual "progress review" of the implementation of CCMP recommendations.

Explanation: The most critical stage of the management program is its implementation. Without carefully thought-out and monitored implementation, the goals of the management plan may never be achieved. A progress review would allow the Coordinating Council, or any interested party to comment on the implementation process. It also allows corrections or changes to be made as necessary.

Critical Steps Assessment

1. Some progress (2 points)

The RCs report annually to the CC on their progress toward implementation vis-a-vis their annual reports. To date, the CC has not assessed implementation success although a workshop for this purpose will occur in February 2000.

2. Fully implemented (5 points)

An Implementation Summary was prepared three years ago by the APNEP staff and is updated annually. Also, the Biennial Review report card and the document in-hand, fulfill this critical step.

MANAGEMENT ACTION SUMMARY

Management Action Points: 3.5/5.0 = 70% (Moderate Progress)

+ MANAGEMENT ACTION 2

Assess the health of the Albemarle-Pamlico Estuary and the success of CCMP recommendations in protecting the environment.

Explanation: Assessing the success of the implementation of the CCMP also requires monitoring of the environment and a thorough evaluation of the results. The CCMP must be flexible to adapt to natural conditions. Data gathered on the state of water quality, habitats, and fisheries may be used to adjust strategies as necessary.

Critical Steps Assessment

1. Moderate progress (3 points)

While this critical step does not occur as such (the CC as a body determining long-term trends), the monitoring to which it refers does exist and is assessed as (high) moderate.

2. Substantial progress (4 points)

Monitoring data are interpreted and incorporated in reports such as the basinwide water quality management plans.

3. Moderate progress (3 points)

There is much support for environmental education and public outreach among individual CC members, however, the CC as a body has not moved toward fulfilling this critical step.

MANAGEMENT ACTION SUMMARY

Management Action Points: $3.33/5.0 = 67\%$ (Moderate Progress)

Appendix B

APNEP Watershed Field Coordinator 2001 Activity Summary

Albemarle-Pamlico National Estuary Program
Virginia Coordination and Liaison Program
Contract Number EW01028

2001 Project Summary Report

The primary objective of this contract is to engender liaison activity between the Commonwealth of Virginia (Department of Conservation and Recreation) and the State of North Carolina (Department of Environment and Natural Resources) relative to the Albemarle-Pamlico National Estuary Program (APNEP). This contract, through the establishment of the Virginia APNEP Watershed Coordinator position, has created solid partnerships that will continue to benefit the natural resources of the Commonwealth of Virginia and the State of North Carolina through the furthering the goals set forth in APNEP's Comprehensive Conservation and Management Plan (CCMP).

One the main focuses during the past year has been to strengthen existing coalitions and local interest while creating new local and bi-state alliances. Towards this end, the Coordinator has been working closely with the Planning District Commissions (PDCs), localities, community groups and Soil and Water Conservation Districts (SWCDs) in both the Pasquotank and Chowan Watersheds. This ongoing effort has resulted in the successful completion of the relevant milestones outlined in the APNEP Annual Work Plan and this contract. Further, many new opportunities have arisen to further the APNEP goals.

In addition to working with and providing information for the Chowan and Pasquotank River Basin Councils of North Carolina and North Carolina's Basin Planners, the Coordinator has continued to strengthen local environmental forums within Virginia, such as the Southern Watershed Area Management Program (SWAMP). SWAMP conservation efforts are focused in the Virginia portion of the Pasquotank (Albemarle) River Basin. Through these ongoing efforts, the coordinator has represented APNEP in key policy discussions and workgroups for the SWAMP region. This participation has and will continue to ensure that North Carolina's efforts within the Pasquotank Basin are a viable consideration in SWAMP planning activities and will seek consistency with the APNEP CCMP and the Pasquotank Basin Plan.

The coordinator has also continued to strengthen coalitions in the Chowan River Basin. By continuing to work with SWCDs, PDC's, localities and the Natural Resource Conservation Service the coordinator has been integral to the formation of the Chowan River Basin Roundtable Steering Committee. The goal of this committee is the formation of a strong, proactive roundtable in the Chowan River Basin by the end of 2002. It is also the desire of the committee to promote APNEP and the CCMP in much of the same fashion as the Chesapeake Bay Program is promoted by organizations within the Chesapeake Bay Watershed. This effort will likely include education and outreach, data and resource sharing and a strong interstate partnership for basin planning.

The coordinator has also been working on the formation of new coalitions. By working with the Virginia Roanoke Roundtable, Roanoke Project Impact, DCR's Roanoke field office and other agencies, interest arose to coordinate with North Carolina on the effectiveness of a Roanoke River Basin Commission. This effort concluded in a bi-state meeting of key agency and legislative representatives. This meeting set forth the recommendation to pursue a bi-state commission that could complement the efforts of APNEP.

Through these coalitions and integration we can effectively coordinate and implement APNEP's CCMP in southeastern Virginia. These coalitions will also serve as a forum for compiling information from local jurisdictions, and the targeting and monitoring of the CCMP in southeastern Virginia.

Activities projected for 2002

- Continue to strengthen alliances and coordination of local initiatives.
- Increase coordination of programmatic efforts between North Carolina, Virginia and the Federal agencies.
- Continue working on linking environmental efforts by local, state and federal government agencies and organizations.
- Strengthen educational initiatives within the watersheds.
- Foster a sustainable relationship with the Virginia Institute of Marine Science to support the scientific endeavors of the APNEP within Virginia and associated marine environments of the Albemarle/Pasquotank Watershed.
- Strengthen coordination amongst inter jurisdictional Basin Planning efforts.

Albemarle-Pamlico National Estuary Program Grant
Watershed Field Coordinator Quarterly Report
Contract Number EW01028
Albemarle, Chowan & Coastal Watersheds

The following report is the progress of work performed by the watershed Field Coordinator during the period of October 1 through December 31, 2001.

Chowan River Basin

Work Continues to progress on the formation of a Chowan River Basin Roundtable. The Watershed Field Coordinator in coordination with J.R. Horsley Soil and Water Conservation District has begun working on an agenda for a Chowan River Basin Roundtable Workshop. The proposed agenda will be distributed to the Chowan River Basin Roundtable Steering Committee for comment in January. This event is tentatively scheduled for early spring 2002.

Pasquotank/Albemarle River Basin

The second meeting of the Designated Uses for Back Bay committee was held in which a number of federal, state interstate and local jurisdictional conflict issues were addressed. All parties agreed on the designated roles in areas on law enforcement and environmental protection of Back Bay.

The task of the committee is to determine the areas best suited for different types recreational uses. The goal is to work to restricted certain activities that may negatively impact those environmentally sensitive areas of Back Bay and to write a MOA stating which areas are best suited for high, medium and low impact recreational activities. A similar MOA has been written for the North Landing River.

Time was given to discussing integrating North Carolina's efforts within the Currituck into the Back Bay effort. It was agreed that these two water bodies are integral and they should be coordinated. However, due to the intricate nature of the multiple jurisdictional issues within Back Bay, it was decided to create the MOA within Virginia then modify it to support the efforts on North Carolina after the fact. This will continue to be an integral role for the APNEP liaison to ensure that this planning effort is consistent with the APNEP CCMP and the Pasquotank Basin Plan.

Roanoke River Basin

The APNEP Liaison has been working with the Virginia Roanoke Watershed Roundtable, Roanoke Project Impact and various state agencies relative to coordination in the Basin. Last year, the Virginia Legislature commissioned a study to evaluate the effectiveness of a Roanoke River Basin Commission. From this effort, an interest arose to coordinate with North Carolina. The result of this multiple month effort concluded in a bi-state meeting of key agency and legislative representatives. This meeting set forth the recommendation to pursue a bi-state commission that could complement the efforts of APNEP.

Specific Deliverable Activities

In Support of the above activities, the following work specific to the contract deliverables was accomplished by the end of the reporting period.

1. Facilitate and foster coordination and communication between Virginia's Roundtables and North Carolina's River Basin Councils.

Meetings

- Attended 2 Chowan River Basin Regional Council meetings during reporting period.
 - Attended 1 Pasquotank River Basin Regional Council meetings during reporting period.
 - Attended 1 Southern Watershed Management Program meetings during reporting period.
 - Regular meetings with representatives of the Southern Watershed Management Program (on going).
 - Regular meetings with representatives of the J.R. Horsley Soil and Conservation District, lead agency for Virginia's Chowan Roundtable (on going).
 - Roanoke Bi-State Commission Meeting.
 - North Carolina Coastal Water Quality Workshop.
- 2. Compile information from local jurisdictions that will aid in implementing the CCMP.**
- Continue to research and give updates on maintenance dredging activities by the City of Virginia Beach on North Landing River at the request of the Pasquotank Council.
 - Continue as DCR representative for the Designated Uses Committee for Back Bay.
- 3. Assist with APNEP CCMP public relations.**
- Provided Pasquotank Regional Council a list of Virginia Representatives for the Currituck Sound Study advisory committee.
 - Worked with APNEP Public Involvement Coordinator, North Carolina SWCD Coordinator and Virginia SWCD Coordinator on setting up a meeting between North Carolina SWCD and Virginia SWCD in the Chowan Region.
 - Appointed DCR contact for the Chowan River Basin and Southern Watersheds Area (SWA).
- 4. Assist with planning and facilitating.**
- Developed a White Paper on The Roanoke River Basin and The A-P National Estuary Program. This document served to support the benefits to APNEP of integrating the upper Roanoke Basin into a bi-state coordination effort such as APNEP.
 - Worked with Representatives from J.R. Horsley SWCD on an Agenda for a Chowan River Basin Roundtable Workshop.

Albemarle-Pamlico National Estuary Program Grant
Watershed Field Coordinator Quarterly Report
Contract Number EW01028
Albemarle, Chowan & Coastal Watersheds

The following report is the progress of work performed by the watershed Field Coordinator during the period of July 1st through September 30th, 2001.

Chowan River Basin

Work continues on the development of the Chowan Watershed Roundtable. On going coordination with J.R. Horsley Soil and Water Conservation District continues to result in great advances to achieve this effort. The first informal meeting of the seven Districts, Natural Resource Conservation Service (NRCS), Planning Districts and the Department of Conservation and Recreation (DCR) was held on September 6th 2001.

The purpose of this meeting was to share information about Roundtables, their purpose and how they work, determine issues and concerns in the Chowan River basin, goals and objectives of the Roundtable, determine a list of future participants and the general structure. Noah Hill, Watershed Field Coordinator, facilitated the meeting and Ernie Brown, DCR Watershed Manager, presented.

The meeting produced a list of concerns, goals, objectives (see attached) and the formation of a Steering Committee for the Roundtable. A follow-up meeting is being discussed for December, followed by a Stakeholders workshop in late January. APNEP will be a strong focus of the workshop and the goals of the CCMP will be addressed.

A Chowan River Roundtable can advise basin planners and other environmental staff members in both states critical environmental on issues including TMDLs, discharge permits, and other water quality and land uses activities. This will be a crucial step in beginning the process of basin wide planning in the Chowan River Basin.

Pasquotank/Albemarle River Basin

We are continuing to work closely to incorporate the APNEP efforts into the Green Sea Festival. This will provide an education and awareness avenue for the general citizenry of the Pasquotank basin within the cities of Virginia Beach and Chesapeake. It is our hope that this added awareness will help to facilitate an information sharing agreement between SWAMP and the Pasquotank River Basin Regional Council. This agreement can provide an avenue for future basin wide planning efforts the Albemarle / Pasquotank River basin.

In addition to our ongoing efforts to incorporate APNEP into SWAMP, the Watershed Field Coordinator has been asked to participate in a subcommittee of SWAMP. The task of the committee is to determine the areas best suited for different types recreational uses. The goal is to work to restrict certain activities that may negatively impact those environmentally sensitive areas of Back Bay and to write a MOA stating which areas are best suited for high,

medium and low impact recreational activities. A similar MOA has been written for the North Landing River.

Specific Deliverable Activities

In Support of the above activities, the following work specific to the contract deliverables was accomplished by the end of the reporting period.

1. Facilitate and foster coordination and communication between Virginia's Roundtables and North Carolina's River Basin Councils.

Meetings

- Attended 2 Chowan River Basin Regional Council meetings during reporting period.
 - Attended 2 Pasquotank River Basin Regional Council meetings during reporting period.
 - Attended 1 Southern Watershed Management Program meetings during reporting period.
 - Regular meetings with representatives of the Southern Watershed Management Program (on going).
 - Regular meetings with representatives of the J.R. Horsley Soil and Conservation District, lead agency for Virginia's Chowan Roundtable (on going).
- 2. Compile information from local jurisdictions that will aid in implementing the CCMP.**
- Continue to researched and give updates on maintenance dredging activities by the City of Virginia Beach on North Landing river at the request of the Pasquotank Council.
 - Provided the APNEP Public Involvement Coordinator with list of invitees form Virginia for the APNEP MOA signing.
 - DCR representative for the Designated Uses Committee for Back Bay.
- 3. Assist with APNEP CCMP public relations.**
- At the request of the APNEP coordinator provided Carla Burgess, Writing. Editing and Desktop Publishing, Virginia Population data and listing of parks, preserves and refuges in Virginia's portion of the Albemarle and Chowan river basins for a document showcasing the APNEP area.
 - Worked with DCR's Public Relation staff on Secretary Hamm and Director Brickley's MOA signing speeches.
- 4. Assist with planning and facilitating.**
- Work with the APNEP Public Involvement Coordinator and Virginia's Albemarle, Chowan and Coastal Watershed Manager on logistics for the Interstate MOA signing ceremony.
 - Worked with DCRs Albemarle, Chowan and Coastal Watershed Manager and the Assistant Director of DCRs, Division of Soil and Water on logistics for Virginia's obligations in the MOA signing ceremony.

Albemarle-Pamlico National Estuary Program Grant
Watershed Field Coordinator Quarterly Report
Contract Number EW01028
Albemarle, Chowan & Coastal Watersheds

The following report is the progress of work performed by the watershed Field Coordinator during the period of April 1st through June 30th, 2001.

Chowan River Basin

Work continues on the development of the Chowan Watershed Roundtable. On going coordination with J.R. Horsley Soil and Water Conservation District has resulted in great advances to achieve this effort. Due to the on going efforts of the Watershed Field Coordinator letters are being sent out to all relevant SWCD, PDC and representatives of USDA-NRCS (list attached) for the first informal meeting of the Chowan River Roundtable.

The purpose of this meeting is to share information about Roundtables, their purpose and how they work, determine issues and concerns in Virginias portion of the Chowan, goals and objectives of the Roundtable, determine a list of future participants and the general structure. Noah Hill, Watershed Field Coordinator, will facilitate the meeting and Ernie Brown, DCR Watershed Manager, will be presenting.

Pasquotank/Albemarle River Basin

Talks continue with representatives of the Southern Watershed Area Management Program (SWAMP) about the possibility of an information sharing agreement with the Pasquotank River Basin Regional Council. Further, we are working closely to incorporate the APNEP efforts into the Green Sea Festival. This will provide an education and awareness avenue for the general citizenry of the Pasquotank basin within the cities of Virginia Beach and Chesapeake.

Specific Deliverable Activities

In Support of the above activities, the following work specific to the contract deliverables was accomplished by the end of the reporting period.

- 1. Facilitate and foster coordination and communication between Virginia's Roundtables and North Carolina's River Basin Councils.**

Meetings

- Attended 3 Chowan River Basin Regional Council meetings during reporting period.
- Attended 2 Pasquotank River Basin Regional Council meetings during reporting period.
- Attended 1 ANEP Coordinating Council meetings during reporting period.
- Attended 2 Southern Watershed Management Program meetings during reporting period.
- Regular meetings with representatives of the Southern Watershed Management Program (on going).

- Regular meetings with representatives of the J.R. Horsley Soil and Conservation District, lead agency for Virginia's Chowan Roundtable (on going).
 - Attended 2 U.S. Fish and Wildlife Service, Refuge Planning for Mackey Island and Currituck National Wildlife Refuges.
 - Participated in APNEP supplemental funds workgroup conference call.
- 2. Compile information from local jurisdictions that will aid in implementing the CCMP.**
- Researched dredging activities on North Landing River at the request of the Pasquotank Council.
 - Provide DENR list of Virginia NPES permit holders at the request of DWQ.
 - Provide DENR list of Virginia water withdraw permit holders at the request of DWQ.
 - Researched SAV monitoring plans and approaches for use of the APNEP supplemental funds in support of the CCMP.
 - Provided APNEP with HRPDC stormwater educational materials at the request of the APNEP Public Involvement Coordinator.
- 3. Assist with APNEP CCMP public relations.**
- Provided the Nottoway/ Blackwater River Keeper information on APNEP.
 - Arrange for speaker from VADCR on Virginia Erosion and Sediment Control Laws for the River Basin Councils.
 - Wrote articles for the APNEP Beacon and ANEP UPDATE on North Carolina and Virginia working together.
- 4. Assist with planning and facilitating.**
- Work with the APNEP Public Involvement Coordinator and Virginia's Albemarle, Chowan and Coastal Watershed Manager on logistics for the Interstate MOA signing ceremony.

Appendix C

Regional Council Activity Summary 2000 and 2001

ACTIVITY SUMMARY FOR THE CHOWAN RC - 2000

- Held regular meetings on 4/6; 6/8; 10/12
- Major focus remained on the siting of the Nucor steel recycling plant on the Chowan River
- Named a Nucor representative to the CRBRC membership
- Toured Nucor facility
- Solicited, selected, and funded proposals for CRBRC demonstration projects: "Precision Ag/GPS Guided Soil Sampling & Nutrient Application Project" and "Subsoiler/Denitrification Barrier Demonstration Project."
NOTE: Precision Ag project successfully completed March 2001.
Subsoiler/Denitrification project, because it was begun late, not yet completed
- Endorsed Noah Hill as VADCR/APNEP Watershed Field Coordinator and commented on his role as liaison between the 2 states, relative to CCMP implementation and the establishment of the Va. Watershed Roundtables
- Hosted presentation pertaining to NC Division of Marine Fisheries' Coastal Habitat Protection Plans (CHPPs)
- Co-sponsored, attended, and offered input during public workshops dealing with 2002 updating of the Chowan River basinwide plan
- Assisted in updating directory of NC/VA agency contacts entitled "A Profile of NC & VA Environmental Organizations, State Agencies and National Organizations."
- Participated in GIS workshops featuring CGIA's BasinPro software
- Responded to workshop development survey for, and participated in, EPA Monitoring Workshop (Battelle) held in Raleigh during December 2000.
- Hosted presentation on hurricane impacts in eastern NC

ACTIVITY SUMMARY FOR THE CHOWAN RC - 2001

- Held regular meetings on 1/25; 5/3; 7/19; 10/4; 12/6 (scheduled)
- Concern remains with the siting of the Nucor steel recycling plant on the banks of the Chowan River
- Hosted presentation by basinwide planner relative to update of the Chowan Basinwide Water Quality Plan
- Co-sponsored (with DWQ) workshops to gather public input relative to updating the Chowan Basinwide Water Quality Plan
- Updated directory of NC and VA agency contacts
- Completed demonstration project entitled *Precision Agriculture*
- Briefed RC on the role of the ANEP and its purpose relative to the 28 NEPs around the US - highlighted the ANEP e-auction effort
- Pursued Memorandum of Agreement with Commonwealth of Virginia
- VA Roundtables of citizens (patterned after RCs) formed
- Continue to track progress of *Subsoiler/Denitrification Barrier Demonstration Project*
- Hosted presentation by DWQ (WaRO) pertaining to the non-discharge program
- Revisited the CRBRC 2-year Program of Work and its correlation to the CCMP for possible modification (ongoing to 12/6)
- Toured the Colerain Wastewater Treatment Plant
- Outlined the FY'01-'02 APNEP Workplan
- Hosted presentation by Tar-Pam Rapid Response Team (scheduled 12/6)
The CRBRC is interested in seeing a RRT developed for the Chowan or having the T-P RRT efforts extended to their area

ACTIVITY SUMMARY FOR THE NEUSE RC - 2000

- Held regular meetings on 2/11; 3/24; 5/25; 7/28; 9/22;
- Developed a brochure entitled "Best in the Basin 2000" which introduces the 20 top places to visit in the Neuse River basin as determined by members of the NRBRC
- Hosted USGS presentation/discussion pertaining to impacts of hurricanes in eastern North Carolina, most notably Floyd and Fran
- Pledged support and cooperation in co-sponsoring (with the Roanoke RC), a water supply seminar to discuss the regions' water supply issues. This has been a much expressed topic of concern by both RCs
- Solicited, selected and funded NRBRC demonstration project entitled "Selected (Beard's and Crabtree) Creeks Monitoring Demonstration Project." **NOTE:** The project is ongoing and is slated for completion in March 2002.
- Co-sponsored, attended and offered input during public workshops pertaining to 2002 updating of the Neuse River basinwide plan
- Participated in GIS workshops featuring CGIA's BasinPro software

ACTIVITY SUMMARY FOR THE NEUSE RC - 2001

- Held regular meetings on 2/23; 6/8; 9/28; 11/30 (planned). Executive Committee meeting held on 2/2.
- Developed brochure entitled "Best in the Basin 2000" which introduces the 20 top places to visit in the Neuse basin as determined by NRBRC
- Depletion of groundwater is of real concern to this RC. A proposed workshop addressing this concern is scheduled for February-March, 2002
- Concern with proposal (by Eagle Water Corp.) of water transfer from PCS Phosphate to counties included in the Central Coastal Plain Regional Water Authority
- Co-sponsored (with DWQ) public workshops relative to update of 2002 Neuse Basinwide Water Quality Plan
- Hosted presentation by basinwide planner briefing RC on update of the Neuse Basinwide Water Quality Plan
- Continue to track progress with demonstration project monitoring the mouth of Beard's Creek for nutrient input into the river mainstem and the sedimentation load coming down from Crabtree Creek in Raleigh
- Briefed the RC on the role of the ANEP and its purpose relative to the 28 NEPs around the US - highlighted the ANEP e-auction effort
- Pledged cooperation for inclusion of the Roanoke RC in planning for the Water Supply Seminar planned for February-March 2002. Meeting was held on August 3rd at the WaRO
- Concern expressed for non-participation by some counties within the basin
- Hosted presentation by Surabhi Shah, Environmental Engineer with the Division of Environmental Health relative to the Source Water Assessment and Protection (SWAP) program
- Host (planned for 11/30/01) presentation by Dr. David Hardy (NCSU) relative to agriculture concerns (i.e. nitrogen runoff, etc.) in the Neuse River

ACTIVITY SUMMARY FOR THE PASQUOTANK RC - 2000

- Held regular meetings on 2/24; 5/4; 7/6; 9/20; 11/15
- Solicited, selected and funded PRBRC demonstration project entitled "Winfall Water Quality Demonstration Project." NOTE: Project was completed successfully in September 2001
- Environmental Professionals, Inc. (Kill Devil Hills) presented findings of the NC Estuarine Shoreline Protection Stakeholders group whose mission was to make recommendations to improve water quality within the 20 coastal counties subject to CAMA including recommendations addressing activities and policy affecting coastal water quality beyond CAMA jurisdiction
- Instrumental in securing Congressional funding (100K) for the Army Corps of Engineers to conduct a comprehensive study of Currituck Sound. The study proposes to address salinity increases that have adversely impacted freshwater fisheries and submerged aquatic vegetation (SAV). A resolution and letter writing campaign supporting the study was submitted by the PRBRC to: Members of Congress; NC Senate and House delegations; Currituck Co. Manager; Hampton Roads Planning District Director; and the US Army Corps of Engineers.
- Hosted presentation by Dare Co. Commissioner and PRBRC member, Cheryl Byrd, regarding Dare Co.'s sustainable development initiative. The PRBRC recommended addressing the Northeastern Economic Partnership (for the purpose of updating them on the initiative) which was done.
- Received input regarding water quality concerns following Hurricane Floyd and acted upon them
- Hosted presentation by EPA Region IV APNEP Project Officer with respect to EPA's role in the APNEP
- Endorsed Noah Hill as VADCR/APNEP Watershed Field Coordinator and commented on his role as liaison between the 2 states, relative to CCMP implementation and the establishment of the Va. Watershed Roundtables
- Responded to workshop developmental survey and participated in EPA's Monitoring Workshop (Battelle) held in Raleigh in December 2000.
- Co-sponsored Virginia's "7th Annual Watershed Management Conference" held in Williamsburg, Va.
- Toured the Scuppernon River boardwalk and learned about the habitat
- Hosted USF&WS presentation pertaining to the development of Comprehensive Conservation and Management Plans for the refuges

- Co-sponsored, attended, and offered input during public workshops dealing with 2002 updating of the Pasquotank River basinwide plan
- Toured the Tidewater On-Site Wastewater Demonstration Center at the Vernon James Research Center to view research/demonstration of alternative septic systems
- Participated in GIS workshops featuring CGIA's BasinPro software

ACTIVITY SUMMARY FOR THE PASQUOTANK RC - 2001

- Held regular meetings on 2/15; 5/24; 7/12; 9/13; and 11/15
- PRBRC was instrumental in securing Congressional funding (100K) for the ACOE to conduct a comprehensive study of Currituck Sound
- Completed *Winfall Water Quality Demonstration Project* which demonstrates the effectiveness of a constructed wetland in treating backwash from the Winfall wastewater treatment plant
- Hosted a tour and presentation pertaining to the Winfall constructed wetlands site
- Hosted presentation by basinwide planner relative to the updating of the Pasquotank Basinwide Water Quality Plan
- Co-sponsored (with DWQ) workshops to gather public input relative to updating the Pasquotank Basinwide Water Quality Plan
- Pursued Memorandum of Agreement with Commonwealth of Virginia
- Hosted presentation on Virginia's *Virginia Outdoors, SWAMP, Adopt-A-Stream, and Riverkeeper* efforts in the Blackwater and Nottaway rivers
- Hosted presentation on the *NC Wetlands Restoration Program*
- Hosted presentation on sustainable development in response to concern about ever-increasing population on the Outer Banks
- Secured and distributed USGS report entitled *Hydrology and Salinity Characterization of Currituck Sound and Selected Tributaries in NC & VA*
- Revisited the PRBRC 2-year Program of Work and its correlation to the CCMP for possible modification
- Participated with Keep America Beautiful-Pasquotank Co. in observance of Big Sweep
- Briefed RC on the role of the ANEP and its purpose relative to the 28 NEPs around the US - highlighted the ANEP e-auction
- Hosted presentations by NC and VA representatives relative to the erosion and sedimentation control programs in their respective states
- Hosted tour of Walter B. Jones, Sr. Environmental Education Center (scheduled 11/15)

ACTIVITY SUMMARY FOR THE ROANOKE RC - 2000

- Held regular meetings on 1/21; 3/31; 6/2; 8/18; 11/17; 12/8
- Solicited, selected and funded RRBRC demonstration project entitled "Riparian Zone Rehabilitation Demonstration Project." NOTE: Project is complete pending season-dependent planting of hardwood trees
- Initiated cooperative action by NCDENR and NCDOC to address cattle impacts (similar to those addressed by the RRBRC demonstration project) at Caledonia Prison Farm in Halifax and Odom Prison in Northampton County.
- Hosted presentation on impacts of Hurricane Floyd in eastern NC
- Generated widespread local support for a resolution recommending Congressional funding for an Army Corps of Engineers Section 216 Scoping Study to evaluate flow modifications for the John H. Kerr Reservoir system and to evaluate operation of the project.
- Co-sponsored, attended, and offered input during public workshops (and at other times) dealing with updating of the Roanoke River basinwide plan
- Hosted presentation by DFI, Inc. representative regarding potential siting of an ethanol plant on the banks of the Roanoke River in Martin Co.
- Examined historical impacts to local fishery populations and current strategies underway to enhance their sustainability
- Issued resolution recommending proper long-term management of the Roanoke basin's natural resources without compromising economic viability
- Conducted boat tour of sections of the Roanoke River to view river bank impacts resulting from cattle access
- Attended and participated in USCOE Citizens' Listening Sessions relative to scoping process for the John H. Kerr Dam and Reservoir
- Engaged in-depth discussion of Weyerhaeuser's proposed, but not implemented, alternative water intake plan developed because of saltwater intrusion occurring during drought conditions
- Pledged support and cooperation in co-sponsoring (with the Neuse RC), a water supply seminar to discuss the regions' water supply issues. This has been a much-expressed topic of concern by both RCs.
- Participated in GIS workshops featuring CGIA's BasinPro software

ACTIVITY SUMMARY FOR THE ROANOKE RC - 2001

- Held regular meetings on 1/19; 3/2; 6/1; 9/21; 11/16
- Hosted presentation by basinwide planner pertaining to the update of the Roanoke Basinwide Water Quality Plan
- Co-sponsored (with DWQ) workshops regarding development of the 2001 Roanoke Basinwide Water Quality Plan
- Developed a resolution recommending Congressional funding for a ACOE Section 216 Scoping Study to evaluate flow modifications for the Kerr Reservoir Dam
- Hosted a presentation by USF&W Service pertaining to the *Riparian Zone Rehabilitation Demonstration Project* which demonstrates the effectiveness of cattle fencing and restoration of the riparian zone to reduce nonpoint source impacts
- Initiated cooperative action by DENR and the Dept. of Corrections to address environmental impacts of cattle trespass in the riparian zone at Caledonia Prison Farm in Halifax Co. and Odom Prison in Northampton Co.
- Revisited the RRBRC 2-year Program of Work and its correlation to the CCMP for possible modification
- Participated in Water Supply Seminar planning meeting (8/3 at WaRO)
- Toured Winslow Farm - site of RRBRC demonstration project
- Developed topics for Joint RC '02 Demonstration Project (scheduled 11/16)

ACTIVITY SUMMARY FOR THE TAR-PAMLICO RC - 2000

- Held regular meetings on 4/12; 6/16; 7/16; 8/4; 11/3
- Hosted USGS presentation/discussion regarding 1999 hurricane impacts to eastern North Carolina
- Toured River Park North complex in Greenville to view aftermath of 1999 hurricanes
- Toured PCS Phosphate Company's mining operation in Aurora
- Considered nutrient reduction strategies/rules being implemented in the Tar-Pamlico basin
- Toured the Town of Louisburg's water reclamation facility and nearby open-space project
- Solicited, selected and funded TPRBRC demonstration project entitled "An Alternative On-Site Wastewater Treatment System Demonstration Project." NOTE: The homeowner originally selected to participate in this project met with much personal difficulty and has since withdrawn his cooperation. The TPRBRC, at their last meeting (1/18/02), voted to allow Dr. Lindbo to search for another willing participant. The contract is being extended.
- Hosted presentation on waste management in aggressively treating hog wastes through the introduction of duckweed.
- Determined that sedimentation and erosion caused by increased development are of major concern in the Tar-Pamlico basin and hosted a presentation on sedimentation and erosion control by NC Division of Land Quality staff
- Participated in GIS workshops featuring CGIA's BasinPro software

ACTIVITY SUMMARY FOR THE TAR-PAMLICO RC - 2001

- Held regular meetings on 2/19; 4/27; 6/15; 8/24; and 10/19
- Toured River Park North (Greenville) to view aftermath of '99 hurricanes
- Briefed the RC on the role of the ANEP and its purpose relative to the 28 NEPs around the US - highlighted the ANEP e-auction effort
- Raised RC awareness of the isolated wetlands issue - Corps vulnerability
- Toured the Town of Louisburg's water reclamation facility and nearby open space projects
- Revisited the TPRBRC 2-year Program of Work and its correlation to the CCMP for possible modification - the top three issues of concern: Extension Service Environmental Education Teams; the River's Edge (initiatives that focus on preserving the important environmental and recreational values of the river - concerns with water quality protection, health and habitat protection and building planning capacity at the local level); and groundwater contamination and availability
- Interest expressed in water reuse (Wilson, Louisburg and Cary are reusing water for golf course irrigation); open-space (development and sprawl are reducing infiltration and increasing sediment flooding); forestry and DOT construction practices; and hurricane contamination.
- Interest was also expressed for a better understanding of erosion and sediment control; Phase II of the stormwater rules; new approaches in development; and the Smart Growth initiative
- Presentation by Division of Land Resources on the Sedimentation and Control Act of 1973 - the regulatory basis for work within that Division
- Outlined the FY'01-'02 APNEP Workplan
- Expression of concern non-participation by some counties within the basin
- Toured the NC Estuarium in Washington, NC
- Presentation by Louisburg's Town Manager on their Greenway project. They are piecing together parcels of land on each side of the Tar to preserve as green space - soon they will have all the land within the town's limits on the north side of the river in public or semi-public hands
- Toured the Town of Aurora's constructed wetlands (which serves as its WWTP); learned about the function of this unique system
- Renewed concern with standard methods of wastewater disposal and interest in alternative septic-system methodologies
- "Continue to track progress on demonstration project Alternative Wastewater Treatment Systems.

Chowan River Basin Regional Council: 2-Year Program of Work

1. Citizen Monitoring Initiative

Council members believe a citizen monitoring initiative can help accomplish two important objectives in the basin: 1) It can supplement data collected by the state to maintain a profile of water quality conditions in the basin, and 2) It can be a useful tool for educating the public and involving them in river conservation efforts.

Council members brainstormed about what such a monitoring program should include and who might participate. They agreed one of the first things that needs to be done is to identify and focus on specific river or tributary segments. They also want to learn about other monitoring efforts that are already underway in the basin, including citizen monitoring efforts. The Council imagines using both citizens and students to do the monitoring, and agreed that it would be important to select the right equipment and protocol in order to produce the best data possible.

The Council identified a four step process for developing and implementing this initiative:

STEP 1: Get briefed on what is already going on

The Council wants to be briefed by state agency representatives and others on: 1) what kind of monitoring information is available from the states of North Carolina and Virginia, major industries in the basin and other citizen monitoring efforts, 2) what kind of information already exists, 3) where monitoring is already occurring, and 4) where gaps may exist.

STEP 2: Design and Implement a program

Building on what they learn from the briefing and from the experience of other citizen monitoring efforts, the Council will design its program by identifying specific stream segments, designing a monitoring protocol and recruiting partners and citizen monitoring teams. Council members see opportunities for partnerships with Chowan College and others who may already have lab and testing equipment.

STEP 3: Provide information and alerts on specific problems

Once data has been collected, it will be passed along to the state to alert them to specific problems that arise. It can also be used to help inform the public about what is going on in the river.

STEP 4: Identify opportunities to stimulate additional monitoring and research

In addition to launching its own citizen monitoring initiative, the Council will continue to look for opportunities and sources of funding to promote monitoring and research in the Chowan Basin.

2. Local Partnerships to Protect and Restore Water Quality

The Council decided the best way to approach many of its major concerns is to build partnerships with local governments and organizations. The Council's goals are to learn, from local governments and organizations, what is already being done to protect water quality, and to share this information to help

communities maximize the economic and recreational benefits that they receive from maintaining a clean river. Local government members on the Council will provide ongoing guidance on this initiative to ensure that it is perceived as a collaborative effort, not as an attempt to evaluate or challenge what is happening at the local level.

The Council identified a number of steps that will be involved in implementing this initiative:

Step 1: Learn what is already out there

The Council wants to start by learning what is already being done at the local level, including:

- What kinds of provisions exist in local plans
- Whether counties are part of the state's Coastal Management Program
- What local health departments may be doing to affect water quality, including programs for permitting septic systems
- What kinds of activities the Cooperative Extension Service and Forest Service are involved in at the local level, including cost share programs
- Which local groups are working on riverfront trails, buffers, or other initiatives that play a role in protecting the Chowan and its tributaries.

Special emphasis will be placed on finding success stories and identifying where leadership is coming from on these efforts.

STEP 2: Launch an information exchange process

Once the Council has learned what is out there, it wants to develop ways to help localities exchange information, learn what can be done to integrate water quality and habitat protection efforts into local planning and decision making, and find ways to capitalize on the opportunities the river and its resources offer communities in the Basin. The Council will consider such things as fostering one- on-one exchanges between communities and developing a newsletter that could share ideas and successes.

STEP 3: Enhance local capacity to deal with environmental planning issues

The Council would like to work cooperatively with localities to help them find ways to increase staff and strengthen their capacity to address environmental planning issues. For example, the Council might explore funding sources for a small team to be shared among localities. The goal is to help local governments be more pro-active in addressing issues related to protecting water quality and the environment.

3. Nonpoint Source Pollution from Non-Agricultural Chemical Application

The Council identified this as a third initiative that it would like to undertake if time permits. Areas that the Council is interested in pursuing include homeowner use of chemicals on lawns and gardens, chemical applications in parks and on golf courses, and the spraying of chemicals in highway and utility corridors as an alternative to mowing. The Council agreed to wait until it had more specific workplans for its first two initiatives before proceeding further on this.

4. Policy Issues

In addition to the basin-specific initiatives that it will pursue, the Council identified several policy issues that it wants to bring to the attention of the Coordinating Council including:

- **Cooperation with water quality agencies in Virginia** - The Council wants to be kept informed about state efforts to work with Virginia on monitoring and water quality issues of mutual concern.

- **Use of spraying in highway and utility corridors** - The Council would like the Coordinating Council to review state policies in this area to see if they need to be changed in order to minimize the amount of nonpoint source pollution entering rivers in all river basins.
- **Land application of wastewater effluent** - The Council is interested in learning more about state programs and policies for land application of wastewater, and the implications this can have on water quality.
- **Establishing a wetlands mitigation bank** - The Council wants to learn more about how landowners in the basin could participate in some type of wetlands mitigation bank when only small areas of wetlands are involved.

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Neuse River Basin Regional Council: 2-Year Program of Work

1. Nonpoint Source Demonstration Projects

Because the Neuse has been designated a nutrient sensitive water, the Council decided to undertake several nonpoint source demonstration projects in the Basin over the next two years. It believes these can have both water quality and educational benefits for the Neuse River basin and its residents.

To coordinate with the existing nonpoint source committees in the upper, middle and lower Neuse, the Council agreed to invite representatives of these committees to attend a meeting and present what they are doing. The Council will ask each representative to describe the projects in which they are involved, and to suggest ways in which the Council could be of help by working in partnership or undertaking a complimentary initiative.

Timeframe and Implementation

To allow time to contact and work with the three non-point source committees, the Council agreed to invite the representatives of these committees to attend its July Council meeting. Members of the Neuse Council that work with these nonpoint source committees will work with staff to arrange presentations. At the September meeting, the Council will select specific partnerships or projects - from all three parts of the basin - in which it may participate.

2. Greenway/Buffer Initiative

Because of the level of interest and concern about the issue of buffer requirements in the Neuse Basin, and because there are a number of greenway initiatives underway, the Council decided it would like to find ways to contribute to efforts to protect water quality in the river through some type of greenway or buffer initiative. Various Council members expressed an interest in working toward more flexible buffer requirements, in becoming partners in a specific greenway project and in engaging in educational activities related to greenways and buffers.

The Council agreed that, before it can select a specific project or approach, it needs to know how much of the Neuse shoreline is already buffered, what the state's proposed buffer regulations are, the controversies they have generated and the alternatives that have been considered. The Council also wants to know more about the greenway program being developed by the Nature Conservancy and the Triangle Land Conservancy. With this initiative, as with the nonpoint demonstration projects, the Council decided to begin with some briefings before setting on a final work program.

Timeframe and Implementation

Staff will work with Council members to invite appropriate representatives from both the state and the non-profit sectors to come to the Council's May meeting to talk about the new buffer regulations and the greenway programs. As with the nonpoint source demonstration presenters, they will be asked to take about 30 minutes to describe their program/activity and to suggest ways in which the Council might be helpful in advancing the programs. At its September meeting, the Council will decide on the best way to proceed with this initiative in terms of specific partnerships, actions or projects.

3. Briefings for Local Governments and Other Organizations

Council members agreed that they should begin an annual process of briefing local governments and other key interest groups in the basin about: 1) water quality concerns in the Neuse, and what the Council is doing to focus attention on and address those concerns, 2) success stories from other communities in the basin, and 3) what groups can do to help protect the river. This could serve an educational purpose, get the word out and open the door to potential partnerships.

Timeframe and Implementation

Council members agreed that each individual member will take the lead in scheduling a briefing for the local government or interest group they represent at some time in the coming year. They will also see that all of these groups get copies of the Council's annual report.

4. Policy Issues

The Council identified three major policy issues it is interested in exploring. If there appears to be potential for meaningful action, the Council will approach the Coordinating Council and others about taking joint action on the following matters:

- **Department of Transportation Policies Affecting Water Quality**

Concern was expressed about a variety of DOT practices that may be having negative effects on water quality in the Neuse, such as land disturbing activities and chemical application. A new regulation is being developed that may address some of these concerns, but it is not expected to address all of them.

- **Enabling Legislation for Waterway Commissions**

Some interest was expressed in getting state enabling legislation adopted to allow the formation of community Waterway Commissions, modeled after the existing Community Appearance Commissions. These commissions could work in partnership with this Council on various initiatives. Success has already been achieved with such a commission in one community.

- **A Feasibility Study on the Use of Remote Sensing for Data Collection**

There is interest in investigating the costs and potential benefits of establishing a remote sensing satellite that would collect a variety of data on eastern North Carolina. This might be an initiative which several regional councils could support if it proved sufficiently beneficial.

Other policy issues that the group indicated interest in, and will continue to track, are how the state will help local governments deal with failing municipal treatment systems, the development of "re-usable water" regulations and groundwater protection.

5. Organizational Issues

The group expressed concern about Council members that never attend meetings, leaving some geographic areas underrepresented. The Council will continue to replace representatives who are unable to attend meetings. The Council agreed that it will use Executive Committee meetings and one-on-one meetings with newly appointed Council members to bring them up to speed on the Council's work. The Council is also interested in getting more publicity for meetings and activities, particularly after it is more fully developed, and when it begins to implement its program of work.

Pasquotank River Basin Regional Council: 2-Year Program of Work

1. Basinwide Clean-Up Event

Council members believe it is essential to raise public awareness and get people involved in protecting water quality in the basin. For this reason, they decided to undertake a high profile activity that will focus on the importance of healthy rivers and sounds to the quality of life in the basin. Specifically, they propose to sponsor (or co-sponsor) a basinwide clean-up day to get the trash out of tributaries and the sound. With multiple partners and wide-spread publicity, the event could help focus attention on a variety of stewardship efforts in the basin, including the need for everyone to be involved. If successful, it could become an annual event.

2. Sub-Area Demonstration Projects

The Council identified the following process for selecting and implementing a series of pilot projects in different parts of the Basin over the next two years:

Step 1: Identify potential action areas

The Council identified the following four objectives that it has an interest in pursuing through pilot projects:

a. Maintain desirable levels of salinity in Currituck Sound

Salinity in the Sound varies with winds and tides. Salinity levels have a major effect on the quality of the sound as a habitat for various fish, plants and water fowl. There is concern that salinity levels are changing in ways outside normal natural fluctuations, but there is not full understanding or agreement on this. The Council does not know what data are available or how much monitoring is being done. Council members believe it is important to clarify what is happening with regard to salinity in the Sound, what kinds of problems this creates in terms of water quality and habitat preservation, and what kinds of management goals and strategies exist or are needed.

b. Improve water quality in tributaries

Council members are aware of serious deterioration in water quality in certain tributaries in the basin. Fish have disappeared, and there is discoloration and debris in the water. The Council is interested in having a clearer understanding of which tributaries and creeks are the most deteriorated, and what is or might be done to begin to reverse these trends.

c. Restore shellfish habitat

Decline and closure of shellfish beds - one of the most visible manifestations of habitat degradation in the region - is a major concern of citizens in the coastal areas of the Pasquotank Basin. Council members are interested in knowing more about the status of shellfish habitats in the basin, and what is being done, or might be done, to restore some of these areas to productive use.

d. Reduce groundwater/surface water contamination from septic systems

Council members are concerned that failing septic systems present a growing water quality problem in the basin, and they may be a significant source of nonpoint source pollution. The Council is interested in getting a better understanding of how much of a threat this problem poses, where the state stands on the use of alternative technologies and what the Council might do on its own, or with the other River Basin Councils, to address this concern.

STEP 2: Scoping and Identification of Potential Solutions and Projects

Because the Council believes it needs further information before pursuing specific projects, it agreed to undertake a scoping process on each potential action areas. Specific questions the Council would like to pursue through presentations and discussions include:

- What kind of background information is available documenting the problem?
- What kind of monitoring or other data exist?
- Who else is involved in working on this issue and what are they doing?
- How effective are current management programs and enforcement?
- How big a problem is this and is it a promising areas for the Council to pursue at this time?

Staff were asked to identify and invite key resource people who could provide brief presentations and respond to questions on these topics to future meetings. Council members will attempt to learn what is being done by local governments or organizations to address any of these issues, review local plans and perhaps invite some local presenters.

STEP 3: Recruit partners and funding

Once these briefings and discussions have been completed, the Council will select, and focus on, one or more of these action areas. Specific actions may include:

- Serving as a catalyst for selected demonstration projects
- Seeking a variety of types of funding to support initiatives
- Undertaking public education initiatives and local action days
- Forging a broad range of partnerships

In making its selections, the Council will be looking for those action areas and projects which it believes offer the greatest opportunities for water quality improvements, public education and involvement and partnership development throughout the basin.

Timeframe and Implementation

Identification of potential action areas (Step 1) has already been completed. Once the scoping and selection process is complete (Steps 2 and 3), the Council will focus on recruiting partners and implementing pilot projects.

3. Policy Issues

In addition to the specific initiatives the Council will pursue within the basin, it has also identified several policy issues that it intends to bring to the attention of the Coordinating Council and state including:

- **Need to keep Oregon Inlet open** - The Council wants to be sure the state shares its concerns about the need to keep the inlet open, recognizing the influences of both natural and man-made forces.
- **Need for a consistent definition of wetlands** - The Council believes the lack of a clear, consistent and reasonable wetlands definition makes planning and permitting difficult, and poses hardships for property owners.
- **Need to understand and address acid rain problems** - The Council believes the state needs to look at, and help it understand, the implications of acid rain on water quality in the region.

- **Need to direct Clean Water Management Trust Fund dollars to CCMP Implementation -**
The Council believes the Coordinating Council and the state should work to direct some portion of Fund dollars to the River Basin Initiatives.
- **Need for educational initiatives across river basins -** The Council believes the Coordinating Council should help develop some broad public awareness initiatives that incorporate all A/P river basins.

4. Organizational Issues

The Council agreed that it should meet monthly in order to select specific action initiatives. Once specific workplan initiatives have been selected, the Council will be able to design and structure a meeting schedule and assign work teams to carry them out.

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Roanoke River Basin Regional Council: 2-Year Program of Work

1. Flow Management Initiative

While some of the flow variation in the Roanoke and its tributaries is the result of natural causes, a considerable amount is the result of flow management by the U.S. Army Corps of Engineers. In the view of the Roanoke River Basin Regional Council, the interests and concerns of the Roanoke basin are not adequately taken into account when establishing managed flow protocols. Specific problems that result include habitat degradation, stress on all fish species other than striped bass, excess sedimentation, interference in vegetational succession and severe limits on eco-tourism potential.

The Council believes North Carolina should have a stronger voice in flow management decisions. It also believes that more study needs to be done regarding the implications of various flow management protocols on habitat and water quality, as well as flow and temperature interactions.

The Council will follow the following steps to launch this initiative and carry it forward:

STEP 1: Receive a thorough briefing

The Council wants to have a thorough briefing by representatives of the state, the US Army Corps of Engineers and Carolina Power and Light regarding:

- The history of flow release management on the Roanoke
- The current parameters or rules governing flow release
- The relationships and authorities of the state, the Corps and the power company related to flow management decisions
- The costs and benefits of managed flows for different areas and interest groups

STEP 2: Develop a strategy for highlighting concerns of the Lower Roanoke

The Council will develop a strategy for addressing the concerns of the Lower Roanoke Basin regarding flow management decisions. This may include a field trip on the river for key decision-makers to allow them to observe problems first hand, supporting additional studies to answer key questions, and/or focusing on the anticipated re-licensing of the dam by the Federal Energy Regulatory Commission in 2001.

STEP 3: Forge appropriate partnerships:

The Council will develop education and outreach initiatives to build a constituency within the river basin. In addition, the Council will establish working partnerships with appropriate state agencies and the US Corps of Engineers to ensure that the concerns of the Lower Roanoke Basin are taken into account.

2. Agriculture/Forestry BMP Demonstration Projects

Several Council members have an interest in exploring the potential for innovative technology based on demonstration projects that help farmers identify optimum levels of chemical application (fertilizer and others) to maximize production and water quality protection. There has been some experience with this in the Chesapeake Bay watershed.

While the Roanoke River has not been designated a nutrient sensitive river by the state, this initiative would address several of the Council's nonpoint source pollution concerns and has the potential to serve an educational purpose throughout the basin. The Council identified several steps that need to be taken to advance this initiative:

Step 1: Research the technology and its cost

The Council needs to learn more the technology that is currently available, the kinds of sites that are most suitable and the associated costs. Council members also need to explore whether money from any of the existing federal or state cost share programs could be used.

STEP 2: Identify demonstration sites

The Council agreed that it should look for three potential demonstration sites in different parts of the Roanoke Basin. One potential site that has already been identified is on the peninsula between the Cashie and the Roanoke Rivers. When selecting sites, the Council will be looking for farmers that have an interest in participating in this kind of demonstration project and that will allow people to visit the project to learn what is going on.

STEP 3: Recruit partners and funding

In addition to identifying interested farmers and sites, the Council will need to seek partnerships with the Cooperative Extension Service, forestry groups and others in order to make this initiative happen. The Council will also need to explore possible funding sources available to the Council and others.

STEP 4: Develop an outreach and educational strategy:

While the demonstration projects themselves will be important, the Council feels that it is important to get information learned out to a broad audience. It will explore opportunities such as working with the NRCS and others to develop field trips to different demonstration projects.

3. Water Quality Conditions in Specific Stream Segments

Before moving forward on alternative technologies for municipal sewage treatment and septic systems, or other initiatives of interest to the Council, it wants to gain a clearer understanding of what the specific water quality problems and concerns are in different stream segments. This will allow the Council to focus its energy on finding solutions to specific problems in specific locations.

The Council feels that it would be beneficial to have selected state agency representatives brief members on stream quality in different areas, the kinds of monitoring being done and what the specific contamination sources are in problem areas. Once this has occurred, the Council will decide where it will focus its energy over the next two years.

4. Policy Issues

The policy issue of greatest concern to the Council at this time is flow management in the Roanoke River. The Council will work with the Coordinating Council and others on this as part of their flow management initiative.

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Tar-Pamlico River Basin Regional Council: 2-Year Program of Work

1. Extension Service Environmental Education Team Initiative

The Council agreed to seek state legislation and funding for an Extension Service Environmental Education Team to serve the Tar-Pamlico basin. The team would consist of five members: a coordinator, three extension agents and one habitat specialist. They would be supported by the Cooperative Extension Service Program at NC State University and would function as a basin-wide problem solving team. Specific activities the team might engage in include promoting best management practices and nutrient sensitive waters strategies and implementing a variety of CCMP recommendations to reduce nonpoint source pollution.

The Council recognizes the Extension Program as an excellent model for providing leadership, information and support to local land owners and communities on Best Management Practices and other technical support activities. A special Extension Team established in the Neuse Basin has proved beneficial and the Tar-Pamlico Council believes their basin needs a similar dedicated team to address fish kills and other significant water quality concerns. Once the program is established, the Council anticipates sharing staffing with the Neuse Basin to maximize benefits in both basins. The Council sees this as a very effective way to address a wide range of concerns related to nonpoint source pollution in the basin.

Timeframe and Implementation

Council members took a vote endorsing this initiative and the Chairman is sending formal requests to appropriate sponsors to launch the initiative. Council members were asked to meet with their legislators to express support for the initiative and to help with the overall lobbying process. The Council will attempt to have this team established and funding provided in the 1998 session of the legislature. If successful, the Council will work with the new education team over the next two years on specific nonpoint source problems in the basin.

2. River's Edge Initiative

After considerable discussion, Council members agreed that an initiative that preserved the important environmental and recreational values of the river's edge would offer an appealing way to approach many of their concerns including water quality protection, health and habitat protection and building planning capacity at the local level. The Council envisions that this initiative can tie-in to existing cost share programs and local greenways efforts, and provide numerous educational opportunities. They also believe that the river's edge provides a unifying concept around which state/local and public/private partnerships can be formed.

Although the Council is not ready to select specific initiatives or demonstration projects, it has outlined a process that will help members learn what they need to know about various issues related to the river's edge today.

STEP 1: Briefing on state data, laws and regulations

The Council wants to be Briefed by state agency representatives and others on water quality data, special

habitat areas along the river and current and proposed state laws and regulations related to protection of the river's edge.

STEP 2: Briefings on local visions, activities and demonstration projects

The Council wants to get snapshots of what is happening in the upper, middle and lower parts of the Tar-Pamlico basin in terms of: 1) visions for use of the river and its edge, 2) local planning related to flood plains and river banks, and 3) any ongoing public or privately sponsored projects.

STEP 3: Develop a template of river's edge management techniques

The Council wants to use what it learns from various local activities and other sources to begin to build an "idea bank" of creative ways to protect the river's edge. Possibilities include state guidelines, voluntary programs, combining recreation with protection, and recommendations regarding different types of buffers.

STEP 4: Share ideas and initiate projects:

The Council and the Extension Team, when in place, will share ideas with local governments and organizations and look for opportunities to form partnerships on various demonstration projects. The Tar-Pamlico Council will also work with the Coordinating Council to elevate certain issues to the state level for action if and when this is deemed appropriate.

3. Groundwater Contamination and Availability Exploration

A number of Council members expressed serious concerns about current and potential threats to groundwater from failing septic systems, as well as the excessive withdrawal of groundwater. They agreed, however, that they did not know as much as they would like to about the extent of these problems, or the extent to which they are considered significant water quality problems in the Tar-Pamlico basin.

4. Policy and Organizational Issues

The Council will be seeking legislative action on its proposed Extension Team, and may or may not identify policy issues to pursue regarding its river's edge initiative. Beyond this, the Council acknowledged that a number of problems, such as failing septic and municipal waste treatment systems and urban runoff, are being experienced in all river basins, and that these problems will require state action and funding in order to be adequately addressed. The Council's representatives on the Coordinating Council will track these issues and learn which are of greatest interest in other river basins.

The group has agreed to meet in different parts of the basin to try to make it easier for all members to attend some meetings. They continue to work with staff to maintain as active a membership roster as possible.

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Appendix D

GPRA Habitat Data for the APNEP

See notes below project listings for definition of terms and acronyms used in the listings

River Basin	Project Name	County	Habitat Type	Actions	CCMP Action	Acres	Project Cost	Project Partners	Data Source	Project Description
Chowan	Chowan River Basin	Herford	Terrestrial	Reforestation	(2)	122	\$176,000.00	Town of Matthewsboro	CWMTF	The Town of Matthewsboro has been awarded \$176,000 towards the acquisition of a 122 acre tract in the Chowan River basin
Neuse	Neuse/CLT	Wake	Terrestrial	Reforestation	(2)	54	\$69,300.00	CLT	CWMTF	The NC Coastal Land Trust is working to acquire a conservation easement on 54 acres in the Neuse River basin
Neuse	Smith Creek	Wake	Terrestrial	Reforestation	(2)	111	\$1,128,300.00	Town of Wake Forest	CWMTF	The Town of Wake Forest is working to protect 111 acres of riparian buffers on Smith Creek of the Neuse River basin
Neuse	Duck/Northwest Creek	Craven	Terrestrial	Reforestation	(2)	3415	\$1,100,000.00	WRC	CWMTF	The NC Wildlife Resources Commission is working to acquire and dedicate as a State Nature Reserve 3,415 acres along Duck and Northwest Creeks in the Neuse River basin
Neuse	Duck Creek	Craven	Terrestrial	Reforestation	(2)	2711	\$1,400,000.00	WRC	NC NHTF	Project will protect critical critical of bear habitat and large natural area that serves as a corridor along outer Coastal Plain between Croatan National Forest and Great North of Neuse River
Roanoke	Harrison Tract	Camden	Terrestrial	Reforestation	(2)	3915	\$2,064,460.00	WRC	CWMTF/NC NHTF	The N.C. Wildlife Resources Commission (WRC) is acquiring land to protect (and/or restore) regionally significant hunting Creek Pocoson and Marsh, tract will be included in North River Game Land
Roanoke	Rapport Island	Dare	Terrestrial	Reforestation	(2)	39	\$1,200,000.00	WRC	CWMTF	The WRC is working to acquire a 39 acre buffer and greenway tract on Roanoke Island
Roanoke	Barton Woods Tract	Dare	Terrestrial	Reforestation	(2)	40	\$375,000.00	DEFN/DCM	NC NHTF	Expand Barton Woods Coastal Reserve - largest maritime forest in the state
Roanoke	Kitty Hawk Woods	Dare	Terrestrial	Reforestation	(2)	3	\$37,000.00	DEFN/DCM	NC NHTF	Part of largest and best known area of freshwater marsh or 'sedge' which extends along southeastern edge of natural area
Roanoke	Whitford Tract	Dare	Terrestrial	Reforestation	(2)	45	\$55,000.00	DEFN/DCM	NC NHTF	Expand Kitty Hawk Woods Coastal Reserve
Roanoke	Goose Creek	Beaufort	Terrestrial	Reforestation	(2)	217	\$150,000.00	NC DFR	NC NHTF	Expand Goose Creek State Park which has the longest segment of publicly owned, undeveloped, low-salinity estuarine shoreline in the state
Roanoke	Shocco Creek	Wayne	Terrestrial	Reforestation	(2)	1623	\$1,192,000.00	WRC	CWMTF	The N.C. Wildlife Resources Commission working to acquire 1,623 acres in the far River basin
Roanoke	Van Swamp	Beaufort	Terrestrial	Reforestation	(2)	5784	\$1,172,700.00	WRC	CWMTF	North Carolina Wildlife Resources Commission working to acquire 5,784 acres of land adjacent to the Van Swamp of the far River basin
Source of Information: USDA FSA, United States Department of Agriculture Farm Service Agency										
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CRFP: Conservation Reserve Enhancement Program
The Conservation Reserve Enhancement Program, or CRFP, is a joint, State-Federal land retirement conservation program that addresses State and nationally significant environmental issues related to agriculture. The North Carolina CRFP will aid in the restoration of up to 85,000 acres of riparian habitat and 15,000 acres of wetlands. The North Carolina CRFP was developed to help protect the Albemarle-Pamlico Estuarine System (APES) from the effects of excessive nutrient and sediment loading due to agricultural runoff. The State of North Carolina and the U.S. Environmental Protection Agency (EPA) initiated the APES for protection as signs of environmental stress became increasingly evident in the area. Threats signs include declining fisheries, outbreaks of fish and crab diseases, blooms of the toxic microbe *Pfiesteria piscicida*, frequent harmful algal blooms, contaminated shellfish waters, losses of historic shellfish and submerged aquatic vegetation beds, and degradation of wetlands, essential fish habitat, and upland habitats.

DCM: North Carolina Division of Coastal Management

DEH: North Carolina Department of Environment and Natural Resources

NC NHRF: North Carolina Natural Heritage Trust Fund

The NC Natural Heritage Trust Fund accepts grant applications from state agencies (Department of

Environment and Natural Resources, Wildlife Resources Commission, Department of Cultural Resources, and

Department of Agriculture and Consumer Services) for purposes of acquiring natural lands for state parks,

preserves, wildlife conservation areas, coastal reserves, natural and scenic rivers, historic site properties and

other outdoor recreation and natural areas. Funding priorities are given to projects that will protect areas of

state or national ecological significance or outstanding cultural significance. Many of these areas were

identified as part of the APES CRFP and a pre-statehood land document.

USACE: U.S. Army Corps of Engineers

US FWS: United States Fish and Wildlife Service

USDA FSA: United States Department of Agriculture Farm Service Agency

WRC: North Carolina Wildlife Resources Commission

WRP: North Carolina Wetlands Restoration Program

Appendix E

Annual Workplans for FY2000, FY2001 and FY2002

July 14, 1999

**WORKPLAN
for the
COOPERATIVE AGREEMENT BETWEEN
THE US ENVIRONMENTAL PROTECTION AGENCY
AND
NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ALBEMARLE-PAMLICO
NATIONAL ESTUARY PROGRAM
OCTOBER 1, 1999 THROUGH SEPTEMBER 30, 2000**

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INTRODUCTION

Purpose

The purpose of this agreement is to provide support to the NC Department of Environment and Natural Resources (DENR) to continue to demonstrate the implementation of unique management strategies recommended in the Albemarle-Pamlico National Estuary Program's Comprehensive Conservation and Management Plan (APNEP CCMP). This agreement represents a funding increase and time extension to Cooperative Agreement #CE994645-94-6.

Period of Performance

The period of performance under this agreement is from October 1, 1999 through September 30, 2000.

EPA Project Officer

Fred McManus
US EPA Region IV
Water Management Division
61 Forsyth Street
Atlanta, GA. 30303

APNEP Program Coordinator

Guy Stefanski
NC Division of Water Quality Planning
NC DENR
1617 Mail Service Center
Raleigh, NC 27699-1617

Background

The Albemarle-Pamlico Sounds represent the nation's second largest estuarine system -- second only to the Chesapeake Bay. The system is composed of seven sounds and five major river basins draining over 30,000 square miles of watershed in northeastern North Carolina and southeastern 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 food, recreation, resort development, mining, forestry, agriculture, business and industry.

The Albemarle-Pamlico Estuarine Study (APES), a part of the US Environmental Protection Agency's National Estuary Program since 1987, culminated in the preparation of a Comprehensive Conservation and Management Plan (CCMP). The CCMP, intended as a practical, cost-effective and equitable approach to restoring, enhancing and protecting the valuable resources of the Albemarle-Pamlico region, was ratified by the Governor of North Carolina and the US EPA in November 1994.

In 1998, APES was renamed and since then has been known as the Albemarle-Pamlico National Estuary Program (APNEP). The APNEP is located within the NC Department of Environment and Natural Resources, Division of Water Quality and has received annual funds from the US EPA to demonstrate implementation of the CCMP's management actions since 1994.

INITIATIVE OF WORKPLAN

To continue demonstration of the implementation strategy as defined in the CCMP and to implement key actions of the CCMP's Stewardship Plan by providing outreach/education opportunities for the public and to coordinate participation by various agencies and groups to improve/protect environmental quality of the Albemarle-Pamlico region. Also, to engage a project that supports the Administration's Clean Water Action Plan.

This workplan represents an ambitious effort by the APNEP to conduct a series of outreach and educational efforts utilizing the expertise of government agencies and stakeholder groups on a variety of topics. This effort will continue to enhance the coordination/communication between the environmental management agencies of North Carolina and Virginia. The workplan continues to build upon initiatives supported by prior years of funding (e.g., the Citizens Water Quality Monitoring Program and NC Center for Geographic Information & Analysis). The APNEP also intends to develop an atlas of the region to better inform the public about the region's importance. The APNEP proposes to use the Clean Water Action Plan Supplement to enhance the state's effort to successfully implement its nitrogen reduction strategy for the Neuse River Basin.

GRANT FUNDING AMOUNT: The US EPA has indicated that \$340,000 is available for FY2000 to support a fifth year of post-CCMP implementation. The DENR is expected to provide an additional \$114,373 (in the form of in-kind services) as part of the required 3:1 non-federal match, for a total budget of \$454,373. This workplan arrays the strategy for utilization of this funding.

SCOPE OF WORK

INITIATIVE 1: IMPLEMENTATION PLAN

- Continue to demonstrate the implementation strategy as outlined in the CCMP.

I. REGIONAL COUNCILS and COORDINATING COUNCIL

Description: Key elements of the CCMP's Implementation Plan are the operation of Regional Councils (RCs) representing local government and stakeholder interests in each of the five river basins in the Albemarle-Pamlico region, and a Coordinating Council whose role is to devise policy and provide continued opportunity for interagency coordination and local government input. This structure, which is mandated through a Governor's Executive Order, allows for the communication and coordination critical to successful CCMP implementation. All five Regional Councils have been meeting since September 1997 and the Coordinating Council has been meeting since March 1998.

Budgetary Requirements: Two full-time positions are essential in supporting the operational needs of the Regional Councils and Coordinating Council.

PERSONNEL:

- Program Coordinator: A Program Coordinator is necessary to coordinate the implementation process which involves interacting with numerous resource management agencies and interest groups, as well as the general public. This position manages the post-CCMP grant and associated contracts, provides staff support to the Regional Councils and Coordinating Council, and represents the APNEP at local and national meetings.

Guy Stefanski will continue in this role within the Division of Water Quality as he has since 1994. Grant funds will be used to support this position.

- Public Involvement Coordinator: A Public Involvement Coordinator is necessary to enhance public relations and knowledge concerning issues relating to the CCMP; develop educational and outreach programs; promote dialogue between local government officials and private citizens and demonstrate oversight responsibility for the Citizens Water Quality Monitoring Program contract. This position also provides staff support to the Regional Councils and Coordinating Council.

Joan Giordano will continue in this role within the DWQ as she has since the data gathering and research phase of the CCMP. Grant funds will be used to support this position.

Accomplishment: There is work remaining to bring the Regional Councils and Coordinating Council to a better understanding of their roles and to effectively coordinate environmental management strategies in the Albemarle-Pamlico region. This will be accomplished through the continued operation of the Regional Councils and Coordinating Council, along with the retention of the Program and Public Involvement Coordinator positions.

TRAVEL SUPPLEMENT: As part of this post-CCMP grant, EPA is providing the APNEP staff with \$10,000 travel funds. Staff intends to use this funding for attendance at national meetings, including annual meetings with EPA and the Association of National Estuary Programs. Staff also intends to visit other NEPs to share "lessons learned" and to promote a transfer of technical information between programs. Travel money will also be used by APNEP staff to attend Regional Council and Coordinating Council meetings held throughout the region.

USE OF TRAVEL FUNDS DURING FY98 & FY99: Travel funds during FY98 and FY99 were utilized by the APNEP staff to attend the (1) NEP/EPA National Meeting in Washington, DC in March 1998; (2) Tier V Technical Assistance Meeting in Mobile, AL in April 1998; (3) NEP/EPA National Meeting in Santa Monica, CA in October 1998; (4) APNEP Estuary Conference in New Bern, NC in November 1998; (5) EPA's State Revolving Fund National Workshop in Atlanta, GA in December 1998; (6) NEP/EPA National Meeting in Washington,

DC in March 1999; (7) Association of National Estuary Program Executive Committee Meeting in Washington, DC in June 1999; and (8) Regional Council and Coordinating Council meetings held throughout the Albemarle-Pamlico region.

INITIATIVE 2: STEWARDSHIP PLAN

- Continue to demonstrate unique management actions identified in the CCMP's Stewardship Plan

The Stewardship Plan contained in the CCMP, which focuses on planning, education and public participation, is devoted to promoting responsible stewardship of the natural resources of the Albemarle-Pamlico region. The public's awareness of environmental issues is at an all time high.

The APNEP proposes to build on this high level of public awareness by conducting several education/outreach workshops (public forums) focusing on specific topics relevant to the region. These public forums, featuring the 3rd APNEP Estuary Conference, are intended to bring together the various agencies and interest groups involved in implementing the CCMP in a public setting to share information/experiences. Through these workshops, the APNEP will receive a high level of visibility while enhancing community-based efforts in the region. The APNEP also proposes to continue support for the Citizens Water Quality Monitoring Program and NC Center for Geographic Information & Analysis.

I. ALBEMARLE-PAMLICO CITIZENS WATER QUALITY MONITORING PROGRAM

Description: Citizen monitoring helps to gauge the environmental health of the estuary and is an important education/public involvement tool. Volunteer monitors are able to assess water quality conditions in areas that are not accessible to agency staff or in places too numerous for staff to visit. Since 1988, the A/P Citizens Water Quality Monitoring Program (CWQMP), supported by the APNEP, has provided an opportunity for citizen involvement in monitoring specific sites in the estuary. This program has produced abundant information on water quality throughout the Albemarle-Pamlico region and has made it available upon request. Currently, the program resides at East Carolina University.

Budgetary Requirements: A Regional Coordinator is required to continue operation of the A/P Citizens Water Quality Monitoring Program (\$60,000 via contract with East Carolina University).

James "Bo" Dame has been hired recently by East Carolina University to coordinate the activities of the CWQMP. The former coordinator, Patrick Stanforth, resigned in December 1998 to accept employment outside the Albemarle-Pamlico region.

Accomplishment: In addition to the obvious benefits of public involvement (e.g., heightened understanding, greater appreciation for resources, stewardship ethic, etc.) tangible benefit is derived from water quality data collection through the CWQMP. The return of the CWQMP

Regional Coordinator position to this well-organized citizen monitoring program, will continue to enhance program performance and status of this important effort. A report to describe the program, synthesize the existing data, and development of trend analysis will be prepared.

II. GEOGRAPHIC INFORMATION SYSTEMS (GIS) SUPPORT

NC CENTER FOR GEOGRAPHIC INFORMATION & ANALYSIS (CGIA)

Description: Geographic Information System (GIS) technology has the potential to greatly improve efficiency in the provision of many public services, including land use planning and natural resource management. The CCMP recommends providing local governments with affordable and accessible GIS data to enhance planning and public education efforts. The APNEP has effectively utilized post-CCMP funds to contract with CGIA to provide GIS outreach and technical services since 1994. As a result, the APNEP and CGIA launched two very successful GIS outreach campaigns in 1996 and 1999 designed to promote the use of GIS technology in the coastal river basins of North Carolina. Demonstration of key CCMP initiatives will continue to rely on GIS technology/outreach, database administration and production services through a contract with CGIA.

Budgetary Requirements: Post-CCMP grant funds will be used to extend and amend current contract with CGIA to provide GIS outreach and technical services/products (\$40,000 via contract with CGIA).

Accomplishment: The APNEP will utilize the services provided by CGIA to develop an atlas of the Albemarle-Pamlico region, featuring a detailed geographic description of pertinent environmental data sets of the region. The APNEP Atlas will also include a narrative supporting the maps and graphics to be included (discussed below). As a follow-up to the 1996 and 1998 public workshops, another GIS-related public workshop would be conducted in the region to support activities by the Regional Councils, Coordinating Council, local governments and private citizens.

III. ALBEMARLE-PAMLICO REGIONAL ATLAS

Description: An Albemarle-Pamlico Regional Atlas would provide a document featuring the many environmental, cultural, recreational and economic aspects of northeastern North Carolina. The atlas would provide GIS-oriented maps featuring information on water quality, vital habitats, fisheries, historical and cultural areas and recreational access areas. The atlas would promote ecotourism opportunities, such as the environmental education centers established by the Partnership for the Sounds. Maps would be supported with an easy-to-read narrative and colorful graphics. It would be the first document of its kind to present this type of information about the region in a single document. Much of this

information is available, but appears fragmented in many other sources. Bringing all this information together in one document would provide the reader with a tremendous resource of the region.

Budgetary Requirements: The APNEP would hire a consultant/technical writer (via contract for \$20,000) to develop and oversee the production of the atlas. The consultant would work closely with the APNEP staff and the Center for Geographic Information and Analysis on this project.

Accomplishment: The atlas could be used by resource managers, environmental groups, local government officials, planners, recreational/wildlife enthusiasts, scientists, ecotourism centers, school groups, and the many other stakeholders in the region. It could be used as a reference guide to the nation's second largest estuary. It would increase the visibility of the APNEP program with it's concept being transferrable to other parts of the country.

IV. REGIONAL OUTREACH PROJECTS

Description: The APNEP plans to conduct several workshops and conferences during FY99 to better inform the public of relevant issues in the region. These events will involve the agencies and stakeholders involved in post-CCMP activities and highlight their efforts in dealing with the region's most pressing problems. This outreach campaign complements the more technically oriented demonstration projects currently being implemented by the Regional Councils and enriches the APNEP's effort to implement actions of the CCMP's Stewardship Plan.

Budgetary Requirements: The APNEP proposes to budget a total of \$50,000 of post-CCMP grant funds to conduct these outreach projects. Funds are needed to cover facility rental; printing and distribution of invitations, announcements and conference materials; support honoraria for presenters; advertising and other logistical items.

Accomplishment: These outreach projects will increase the visibility of the APNEP and provide citizens and local government officials with additional tools to protect the region's natural resources.

3rd ALBEMARLE-PAMLICO ESTUARY CONFERENCE - In May-June 2000, the APNEP proposes to hold the program's 3rd Estuary Conference. As in previous years (June 1997, and November 1998) this conference will examine implementation of CCMP recommendations. Previous years' efforts were well received with exceptional attendance from a cross-section of participants, speakers and students.

COASTAL COUNTIES OPEN SPACE DESIGN WORKSHOPS - In April 1997, the North Carolina chapter of the American Planning Association selected the APES-funded document entitled Open Space Design Guidebook, Albemarle-Pamlico Estuarine Region for its Large

Community Outstanding Planning Award - Comprehensive Planning Category. The document, as its name implies, is a guidebook for open space development which used three counties located in the Albemarle-Pamlico watershed as case studies. The project sought to link environmental and historic preservation through a common method of development - open space or cluster design. The utility and transferability of this method of development is high, particularly in the APNEP watershed.

Because the document was so well-received (the NC Association of County Commissioners printed and distributed it to local governments in all of NC's 100 counties) APNEP staff conceived of holding two 1-day workshops for local government officials, planners, developers, and others, to fully array the benefits (economic and environmental) accruing to such methods of development. It is hoped that the author of the Guidebook, Randall Arendt, a recognized authority on the subject, would consent to participating. It is anticipated that one workshop will be held in Currituck County and another in Craven County. Both counties, which are undergoing tremendous growth, but whose local officials recognize the utility of sound planning, actively participated in development of the Guidebook.

FISHERIES WORKSHOP and EDUCATION SYMPOSIUM - Because fisheries, both recreational and commercial are established industries in NC, and the practices associated with them as well as the status of fisheries stocks are heavily emphasized in the CCMP, a symposium promoting by-catch reduction gear and practices, updates/discussion of DMF's Fisheries Management Plans, a review of recently changed fishery licensure and laws, and a focus on conservation of the resource, will be of great value to the public and stakeholders.

The symposium(s) would be held in the coastal area of the APNEP region to enable ease in attendance by those engaged in the fishing industry. The Divisions of Water Quality and Marine Fisheries would partner in presenting the symposium and the associations of commercial and recreational fishermen would be targeted, as well as the general public. The possibility of documenting this effort through video may be considered for replication purposes to other areas.

NORTH CAROLINA-VIRGINIA SHARED RESOURCES FORUM - Much interest and approval of a Memorandum of Agreement (MOA) between the States of North Carolina and Virginia has been generated through the APNEP Coordinating Council. A draft document prepared by staff in both states has been approved by the Coordinating Council and is presently being circulated in Richmond. There are several delegates from the State of Virginia who sit on the APNEP Regional Councils and there also is a Virginia presence on the Coordinating Council. Because there has never been as close an environmental association between the states as exists now, capturing this momentum is critical to promoting cooperation in the protection of commonly held resources.

It is envisioned that a 1-day assembling of DENR and VADCR staff occur, at a place in northeastern NC or in southeastern Va., to share information and data relevant to the

environmental protection of natural resources included in the APNEP region. In addition to the 36 counties in NC, the APNEP region extends to 16 independent cities and counties in southeastern Va. Such an effort would help cement the MOA and therefore promote the coordination and cooperation needed to engender environmental protection.

NATIONAL ESTUARIES DAY - This event celebrates our nation's estuaries as places of beauty, productivity, and economic value. The APNEP will join again this year (in October) with other NEPs around the nation (through the Association of National Estuary Programs) in focusing events dealing with the estuarine regions of NC. Print materials, PSAs, estuarine area clean-up efforts and grass plantings are examples of activities undertaken in the past. Partnering with the National Estuary Research Reserves and NOAA will strengthen this effort.

BOAT TOUR(S) WITH ENVIRONMENTAL NON-PROFITS - A boat tour(s) in conjunction with the Pamlico-Tar River Foundation and/or the Neuse River Foundation, to view first-hand the Tar-Pamlico and/or Neuse Rivers, is planned for late summer or early fall, 1999. This educational and outreach effort will be targeted at Regional Council members, media persons and selected others. A water excursion will allow participants to "experience" the information and theory conveyed to them during Regional Council meetings and workshops, as well as acquainting media representatives with water quality, habitat and fisheries issues. Partnering with environmental non-profits demonstrates the cooperation so necessary among all stakeholders in protecting our natural resources. Accomplishing this task will "set the stage" for widespread participation in National Estuaries Day activities.

CO-SPONSOR A HABITAT PROJECT - A Tar-Pamlico Regional Council meeting and a concurrent break-out session held at the '98 APNEP Forum, both dealt with the topic of regional habitat. Participants at each of these well attended gatherings lauded the focus as one of interest, and a welcomed departure from the often dismal issue of water quality. While habitat and water quality cannot be separated, delving into the existence of rare and special communities of plants and animals can often offer a respite from seemingly unending bad news. It is envisioned that this day-long activity would consist of two parts: 1.) a preparatory "classroom" lesson; and 2.) a field experience.

The issue of habitat restoration and protection, particularly where rare or endangered species may exist, is a part of the CCMP habitat plan. Partnering with the NC Divisions of Coastal Management, Forestry, Parks and Recreation and the Wildlife Resources Commission will nicely integrate this project and will demonstrate the coordination and cooperation between agencies that is necessary for complete habitat protection. As with the Fisheries Workshop, the possibility of documenting this effort through video may be considered for replication purposes to other areas.

INITIATIVE 3: CLEAN WATER ACTION PLAN SUPPLEMENT

- To implement actions that are consistent with the Administration's Clean Water Action Plan

DEVELOPMENT OF AN ACCOUNTABILITY PROCESS TO ENSURE SUCCESS OF THE NEUSE RIVER BASIN NUTRIENT REDUCTION STRATEGY

Background: The Neuse River Nutrient Sensitive Waters (NSW) Management Strategy has drawn a lot of public attention since the North Carolina Environmental Management Commission (EMC) approved a draft strategy three years ago. For the first time in state history, the strategy applies mandatory control not only on point source pollution, but also on nonpoint source pollution in the Neuse River basin. After nearly two years in the making, the EMC adopted what Chairman David Moreau called "a landmark piece of basinwide water quality planning" when it approved the Neuse River Basin Nutrient Sensitive Waters (NSW) Management Strategy in December 1997. The strategy mandates the state to reduce by 30 percent the nutrient loading to the Neuse estuary by 2003. Most rules, which include an agricultural reduction strategy rule, became effective in August 1998. However, the documented rebirth of the Chowan River in North Carolina illustrates that water quality improvement on a river basin scale takes considerable time. To ensure the success of the strategy, a well-established accountability process is needed.

Project Description: For agriculture, the effectiveness of BMPs on a field or a small watershed scale has been well documented. However, the relationship between water quality improvement at the Neuse estuary and implementation of agricultural BMPs is less known. Monitoring and accounting for nutrient loading and reductions from agricultural operations is a difficult task.

Staff of the NC Division of Water Quality (DWQ) and NC Division of Soil and Water Conservation (DSWC) have been working in conjunction with NC State University researchers and agricultural agencies to develop and modify an accounting methodology that will be the basis for the accountability process. The proposed accounting tool is the Nitrogen Loss Estimation Worksheet (NLEW). NLEW is a field-based procedure to estimate nutrient export from agricultural management units. To address the accuracy, and to enhance confidence of the accountability process, a statistical field sampling procedure must be conducted. Results from this analysis will be used to verify and adjust the nutrient loading baseline, and to ensure that the county nitrogen reduction goal is reached. The accountability process will also be used in the Tar-Pamlico River Basin when the Neuse-like NSW management strategy is implemented in that basin. Also, the DSWC began to use NLEW to record impacts of BMP systems implemented through the NC Agriculture Cost Share Program statewide in 1996.

Consistency with the Administration's Clean Water Action Plan: The implementation of this project supports several actions located in Chapter II of the Administration's Clean Water Action Plan. This project directly addresses the need to "Define Nutrient Reduction Goals" on page 58, under the section entitled "Strong Polluted Runoff Controls". The project also supports the action to "Improve Monitoring and Assessment" under the section entitled "Improve Information and Citizens' Right To Know" on page 66.

Budgetary Requirement: EPA is providing \$30,000 to help support this action. This amount will be pooled with other sources of funding to conduct this project. A contract will be developed between the APNEP and appropriate principal investigator.

BUDGET: The federal budget for FY2000 funding of \$340,000 is provided below:

INITIATIVE I: IMPLEMENTATION PLAN

Program Coordinator	60,000
Salary	38,910
Indirect (13.1% of salary)	5,097
Fringe Benefits*	8,826
Office Expenses	7,167
(Supplies, Postage/Printing, Equipment)	
 Public Involvement Coordinator	 70,000
Salary	40,400
Indirect (13.1% of salary)	5,292
Fringe Benefits*	9,201
Office Expenses	5,607
(Supplies, Postage/Printing, Equipment)	
Regional Office/Storage Space	9,500
and Common Area	
 Travel	 10,000

INITIATIVE II: STEWARDSHIP PLAN

A/P Citizens Water Quality Monitoring Program (contract with ECU)	60,000
 Geographic Information System (GIS) Support (contract with CGIA)	 40,000
 Albemarle-Pamlico Regional Atlas (contract)	 20,000
 Regional Outreach Projects (contracts)	 50,000

**INITIATIVE III: ADMINISTRATION'S CLEAN WATER ACTION PLAN
SUPPLEMENT**

Development of Nutrient Reduction Accountability Process (contract)	30,000
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TOTAL FEDERAL BUDGET FOR FY1999 **340,000**

* Fringe Benefits are based on Social Security (7.65%) & Retirement (10.83%) of the position's annual salary and Medical Insurance Plan rate of (\$1,736).

STATE MATCH REQUIREMENT

The NC Department of Environment and Natural Resources intends to provide approximately \$114,373 as part of the 3:1 non-federal match for this agreement. The match will be provided through in-kind services provided by staff of the Division of Water Quality. Below is a description of the intended state match:

<u>POSITION</u>	<u>SALARY</u>	<u>% EFFORT</u>	<u>ANNUAL SALARY (AS MATCH)</u>
Environmental Specialist III	33,118	100	33,118
Environmental Supervisor II	40,000	45	18,000
Environmental Supervisor IV	60,000	5	3,000
Environmental Specialist III*	41,000	50	20,500
Environmental Specialist I	26,700	90	24,030
Environmental Specialist II	30,338	15	4,550
Biologist I	30,000	15	4,500
Environmental Technician II	26,700	25	6,675

TOTAL STATE MATCH: 114,373

Description:

Environmental Specialist III -- This position serves as a basinwide planner in DWQ's Planning & Assessment Unit responsible for developing basinwide water quality management plans (including those for the Neuse, Tar-Pamlico, Roanoke, Chowan and Pasquotank river basins). *This position supports the CCMP's Water Quality Plan, Objective A, Management Action 1: Develop and begin implementing basinwide plans to protect and restore water quality in each basin according to the schedule established by the Division of Water Quality.*

Environmental Supervisor II -- This position supervises DWQ's Planning & Assessment Unit, which includes the APNEP.

Environmental Supervisor IV -- This position supervises DWQ's Planning Branch, which includes the Planning & Assessment Unit.

Environmental Specialist III* -- This position works in DWQ's Management Planning/Development Unit and spends considerable time on the development of a nutrient control strategy in the Tar-Pamlico River Basin. *This position supports the CCMP's Water Quality Plan, Objective B, Management Action 1: For each river basin, develop and implement a plan to control nonpoint source pollution as part of the basinwide management plans.*

Environmental Specialist I, Environmental Specialist II, Biologist I and Environmental Technician II are members of Neuse River Rapid Response Team located in DWQ's Environmental Sciences Branch. The Rapid Response Team is equipped to respond to fish kills (and other water quality-related events) quickly in order to better determine causes and conditions. *These positions support the CCMP's Water Quality Plan, Objective E, Management Action 1: Continue to track and evaluate indicators of environmental stress, including algal blooms, fish kills, and fish and shellfish diseases.*

June 20, 2000

PROPOSED

**WORK PLAN
for the**

**COOPERATIVE AGREEMENT BETWEEN
THE US ENVIRONMENTAL PROTECTION AGENCY
AND
NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES**

**ALBEMARLE-PAMLICO
NATIONAL ESTUARY PROGRAM**

**OCTOBER 1, 2000 THROUGH SEPTEMBER 30, 2001
(Federal Fiscal Year 2001)**

ALBEMARLE-PAMLICO NATIONAL ESTUARY PROGRAM

**WORK PLAN for the COOPERATIVE AGREEMENT between the
US ENVIRONMENTAL PROTECTION AGENCY and
NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES**

**OCTOBER 1, 2000 through SEPTEMBER 30, 2001
(Federal Fiscal Year 2001)**

JUNE 20, 2000

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INTRODUCTION

Purpose:

The purpose of this agreement is to provide support to the NC Department of Environment and Natural Resources (DENR) to continue to demonstrate the implementation of unique management strategies recommended in the Albemarle-Pamlico National Estuary Program's Comprehensive Conservation and Management Plan (APNEP CCMP). This agreement represents a funding increase and time extension to Cooperative Agreement #CE994645-94-7.

Period of Performance and Principal Contacts:

The period of performance under this agreement is from October 1, 2000 through September 30, 2001.

EPA Project Officer

Fred McManus
US EPA Region IV
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61 Forsyth Street
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Background

The Albemarle-Pamlico Sounds represent the nation's second largest estuarine system – second only to the Chesapeake Bay. The system is composed of seven sounds and five major river basins draining over 30,000 square miles of watershed in northeastern North Carolina and southeastern 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 food, recreation, resort development, 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 since 1987, developed a Comprehensive Conservation and Management Plan (CCMP). The CCMP, intended as a practical, cost-effective and equitable approach to managing the valuable resources of the Albemarle-Pamlico region, was ratified by the Governor of North Carolina and the USEPA in November 1994.

Since 1995, the APNEP has been located within the NC Department of Environment and Natural Resources, Division of Water Quality and has received annual funds from the USEPA to demonstrate implementation of the CCMP's management actions since 1994.

FY2000 OBJECTIVES AND ACCOMPLISHMENTS (Progress Report)

Objectives for FY2000 focused on further involvement by the Regional Councils and Coordinating Council in carrying out their responsibilities regarding CCMP implementation. As of April 2000, significant progress had been made in accomplishing these objectives. Key accomplishments (from May 1, 1999 through April 30, 2000) are summarized below:

Coordinating Council

The Coordinating Council met on February 2 and April 26, 2000. An earlier meeting, scheduled for September 1999, was postponed due to Hurricane Floyd.

- Robin Smith (DENR Assistant Secretary for Environmental Protection) named new Chair to the Coordinating Council.
- Finalized MOA between DENR and the Virginia Department of Conservation and Recreation to better coordinate implementation of the CCMP in the Pasquotank, Chowan and Roanoke river basins. MOA to be formally signed during summer-fall 2000.
- Participated, along with Regional Council members, in a TMDL Workshop sponsored by APNEP on February 29, 2000. The purpose of the workshop was to educate council members regarding the TMDL process. An overview of North Carolina's draft 2000 303(d) list, legal requirements and federal guidance were the main focus of the workshop.
- Reviewed and approved six proposals submitted by the five Regional Councils as viable demonstration projects.
- Developed priority actions for consideration in the APNEP FY2001 work plan.

Regional Councils

In addition to the accomplishments associated with the research and evaluation of various demonstration projects, and the subsequent decisions relative to their final selection, the Regional Councils (RC) have achieved personal growth and understanding.

Through numerous presentations engaging state and federal agencies, as well as private sector participants, the RCs have addressed issues and concerns that are pertinent to their respective basins. For example, the Chowan and Pasquotank Regional Councils have joined together in examining each facet of the process (EIS vs. EA) allowing the establishment (siting) of a steel recycling plant on the banks of the Chowan River, designated as Nutrient Sensitive Waters (NSW) since 1979.

Through issue/awareness raising, the submission of "concern papers" to appropriate agencies, and invitations to the principal parties involved with siting of this plant, the RCs have gained experience and knowledge of environmental issues, policies and procedures. These experiences and knowledge effect their personal understanding and behaviors, as well as those of their families and friends, resulting in a more informed citizenry.

Some of the RCs have written resolutions that have been distributed to the NC Congressional Delegation, state and federal agencies and others. For example, resolutions dealing with the FERC relicensure of a hydroelectric dam in the region; the need for the US Army Corps of Engineers (ACOE) to engage in a "216 Study" (looking at previously built ACOE projects authorized by Congress) for the possibility of needed change; the concern with the rate of withdrawal of aquifer waters in NC; and supporting a general investigative study of Currituck Sound by the ACOE, to name but a few.

Defining issues environmentally relevant to their respective basins is an accomplishment common to all five RCs. All engaged in this process formally, with the assistance of a professional facilitator during previous periods, and staff correlated these issues to the management actions recommended in the Comprehensive Conservation and Management Plan (CCMP). The RCs continue to address the previously defined issues during the current period and have selected and funded demonstration projects associated with demonstrating the validity of their choices. Among some of the issues raised in each of the five basins and the attendant demonstration project selected for that basin include:

Neuse River Basin Regional Council

Concern – point and nonpoint sources of pollution

Demonstration Project – The "*Selected Creek Monitoring Demonstration Project*" will demonstrate the feasibility and effectiveness of monitoring the mouth of two selected creeks to determine pollution contribution.

Held regular meetings on July 22, August 10, December 8, 1999 and February 11 and March 24, 2000.

Tar-Pamlico River Basin Regional Council

Concern – onsite sewage systems and public education regarding failing systems

Demonstration Project –The "*Alternative On-Site Wastewater Treatment System Demonstration Project*" will demonstrate the effectiveness of an advanced on-site wastewater treatment system in reducing pollutants to groundwater. The project also allows for first-hand observation by the RCs (through agreement with the homeowner whose property is being used for the demonstration) thus aiding in the educational aspects of the project.

Held regular meetings on July 30 and December 6, 1999 and April 12, 2000.

Roanoke River Basin Regional Council

Concern – land use and land use planning; nutrient loads from point & nonpoint sources

Demonstration Project – The “*Riparian Zone Rehabilitation Demonstration Project*” will demonstrate the effectiveness of cattle fencing and restoration of the riparian zone to reduce nonpoint sources impacts.

Held regular meetings on June 11, July 9 and December 6, 1999 and January 21 and March 31, 2000

Chowan River Basin Regional Council

Concern - nonpoint source impacts from agriculture, forestry and septic tanks.

Demonstration Projects - The “*Subsoiler Demonstration Project*” will demonstrate the effectiveness of utilizing subsoiler techniques to improve soil permeability and minimize nutrient runoff. The “*Precision Agriculture Demonstration Project*” will demonstrate the effectiveness of utilizing precision agriculture methodology to optimize agriculture production.

Held regular meetings on June 15, August 5 and December 7, 1999 and April 6, 2000.

Pasquotank River Basin Regional Council

Concern – sub-area demonstration projects; identifying potential action areas (e.g., maintaining salinity levels in Currituck Sound, improving water quality in tributaries, restoring shellfish habitat and reducing septic tank pollutants); and identifying potential solutions and demonstration projects

Demonstration Project – The “*Winfall Water Quality Demonstration Project*” will demonstrate the effectiveness of a constructed wetland in treating backwash water from a water treatment plant.

Held regular meetings on June 16, August 4, November 3 and December 9, 1999 and February 24, 2000.

APNEP Technical and Outreach Activities

- APNEP staff (Guy Stefanski and Joan Giordano) spent a considerable amount of time supporting the Coordinating Council and Regional Councils. Much focus

was on the development of the RCs' demonstration projects and contracts necessary to implement them.

- As required by EPA, APNEP staff submitted its 1999 Biennial Review package to EPA on May 4, 1999. Based on their review, EPA believes that APNEP is making progress implementing its CCMP and "passed" the Biennial Review. Thus, APNEP has received base funding in FY2000 and will be eligible to receive base funding in FY2001.
- APNEP and NC Center for Geographic Information & Analysis (CGIA) conducted a series of five GIS/Regional Council workshops for members of the Regional Councils in May 1999. The purpose of the workshops was to inform the RCs about the applicability of GIS to environmental management issues. Participants included local health departments, emergency management personnel, local government officials, etc. Final report printed in December 1999.
- Continued operation and maintenance of the APNEP website located at <http://h2o.enr.state.nc.us/nep>
- Second edition of the APNEP's newsletter, "The Beacon", was mailed to over 2,000 people in March 2000. This was a special edition focusing on the impacts of Hurricane Floyd which hit North Carolina in September 1999.
- In January 2000, APNEP staff developed the "CCMP Critical Steps Assessment" document and 2000 CCMP Report Card which provide a detailed progress assessment of each of the CCMP's 49 management actions. This document contains the latest available information and represents the most comprehensive assessment of CCMP implementation progress to date.
- As it has since 1991, APNEP continues to support the Citizens Water Quality Monitoring Program through a contract with East Carolina University. Its network of volunteers is comprised of private citizens, school groups and environmental clubs/organizations which routinely sample specific sites. Volunteers contribute a great deal of time and effort collecting water quality information. Presently, the CWQMP features over 50 active volunteers -- monitoring 30 sites. Allen Clark is the program coordinator and has made significant strides in analyzing the data collected from volunteers.
- In February 2000, APNEP staff visited the Barataria-Terrebonne National Estuary Program in Thibodaux, LA. to present a program on Hurricane Floyd's impact on eastern North Carolina and to participate in BTNEP's Management Conference meeting.
- Conceived of and conducted outreach break-out sessions at the ANEP/EPA national meetings in both Portland, OR. and Washington, DC in October 1999 and March 2000 respectively.

- Exhibited at the NC Association of County Commissioners Annual Meeting in Asheville, NC in August 1999 on behalf of APNEP and DENR's Division of Water Quality.
- Exhibited at and participated in the Biennial Environmental Education Conference at Research Triangle Park, NC.
- Participated in Water Quality and Estuarine Awareness Field Day for 2nd grade students in Beaufort, NC.
- In June 1999, participated in an ANEP Executive Committee meeting relative to public involvement in Washington, DC.
- Developed an all-day itinerary for South American (Chilean) visitors, during which several programs and site visits involving environmental partners in the Albemarle-Pamlico region were held. (While this activity actually occurred in February 1999, much follow-up activity occurred during the period of this progress report).
- Distributed numerous APNEP research documents, outreach products, and environmental education materials to those requesting them.

STATUS OF PROJECTS ONGOING FROM PREVIOUS YEAR

The Regional Councils' demonstration projects, Air Deposition Project and Nutrient Reduction Accountability Project (described on the following pages) directly relate to 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"*.

I. REGIONAL COUNCILS' DEMONSTRATION PROJECTS

A primary role of the Regional Councils is to establish local environmental priorities, based on those outlined in the APNEP CCMP and the Division of Water Quality's basinwide management plan recommendations. The Regional Councils have been encouraged to develop and implement strategies which are most amenable to local action. Funds from previous EPA grants have been dedicated to help support demonstration projects recommended by the Regional Councils. Total funds available for demonstration projects are approximately \$130,400 or about \$26,080 per Regional Council. Demonstration project guidelines were approved by the Coordinating Council in January 1999. Much of the past year was devoted to researching and deciding upon a viable demonstration project that would result in local and/or regional environmental benefit.

Neuse Regional Council

Project Title: "Selected Creek Monitoring Demonstration Project"

Description: Demonstrate feasibility and effectiveness of monitoring the mouth of two selected creeks to determine pollution contribution.

Lead Agency: Neuse River Foundation

Partners: Neuse RC, DENR, APNEP, EPA

Funding: \$25,000 from EPA/APNEP base funds

Time Period: April 1, 2000 through March 31, 2002.

Tar-Pamlico Regional Council

Project Title: "Alternative On-site Wastewater Treatment System Demonstration Project"

Description: Demonstrate the effectiveness of an advanced on-site wastewater treatment system in reducing pollutants to groundwater.

Lead Agency: NC State University

Partners: Tar-Pamlico RC, Coop. Ext. Service, County Government, Homeowner, DENR, APNEP and EPA

Funding: \$18,400 from EPA/APNEP base funds

Time Period: May 1, 2000 through April 30, 2002.

Roanoke Regional Council

Project Title: "Riparian Zone Rehabilitation Demonstration Project"

Description: Demonstrate the effectiveness of cattle fencing and restoration of riparian zone to reduce nonpoint source impacts.

Lead Agency: NRCS

Partners: Roanoke RC, USFWS, Fishing Creek SWCD, Landowner, Coop. Ext. Service, DENR, APNEP and EPA

Funding: \$41,000 (\$25,000 from EPA/APNEP base funds and \$16,000 from USFWS)

Time Period: April 20, 2000 through April 19, 2001.

Chowan Regional Council

Project Title: "Precision Agriculture Demonstration Project"

Description: Demonstrate the effectiveness of utilizing precision agriculture methodology to optimize agriculture production.

Lead Agency: Cooperative Extension Service – Bertie County

Partners: Chowan RC, Colerain Peanut & Supply Co., Landowners, DENR, APNEP, EPA

Funding: \$5,000 from EPA/APNEP base funds

Time Period: April 1, 2000 through March 31, 2001.

Chowan Regional Council

Project Title: "Subsoiler Demonstration Project"

Description: Demonstrate the effectiveness of utilizing subsoiler techniques to improve soil permeability and minimize nutrient runoff.

Lead Agency: Mid-East Resource Conservation and Development Council

Partners: Chowan RC, Municipalities, Landowners, DENR, APNEP, EPA
Funding: \$22,000 from EPA/APNEP base funds
Time Period: May 1, 2000 through April 30, 2002.

Pasquotank Regional Council

Project Title: "Winfall Water Quality Demonstration Project"

Description: Demonstrate the effectiveness of a constructed wetland in treating backwash water from water treatment plant.

Lead Agency: Albemarle Resource Conservation and Development Council

Partners: Pasquotank RC, Town of Winfall, Perquimans SWCD, NRCS, DENR, APNEP, EPA

Funding: \$26,000 from EPA/APNEP base funds

Status: Contract expected in July 2000.

II. AIR DEPOSITION PROJECT

Project Title: "Ammonia/Ammonium Monitoring & Modeling in Eastern North Carolina"

Description: Atmospheric deposition plays a substantial role in nitrogen loading to North Carolina's estuaries. Current estimates are that about 44% of the annual N input into NC's Albemarle-Pamlico Sound is attributable to atmospheric deposition. This project complements ongoing, state-funded research that has an overall goal of developing modeling capabilities to aid in formulating nutrient management strategies in the Neuse River Basin. The project's main focus is to determine the contribution of atmospheric nitrogen deposition to the sounds, particularly as it pertains to ammonia from intensive livestock operations.

Update: Acid (including NO_x) and base (including NH₃) gases, and particulate NH_x and NO_x have been measured from January 1999 to present. There were significant differences observed between gaseous NH₃ concentrations for winter and spring seasons (December-February and March-May) and the summer and fall seasons (June-August and September-November). Despite relatively high variability, the winter and spring season had a significantly higher mean 12 hour NH₃ air concentration than the summer and fall seasons. This was unexpected in that NH₃ emissions rates should be highest in the spring and summer (especially from animal operations). It is possible that seasonal transport/meteorological differences may explain this pattern. There were no other significant seasonal differences for the other N species.

Lead Agency: Water Resources Research Institute

Partners: NC State University, UNC-Institute of Marine Sciences, EPA, DENR and APNEP

Funding: \$65,000 from EPA add-on

Status: Contract ends on September 30, 2000. Final report expected.

III. NUTRIENT REDUCTION ACCOUNTABILITY PROJECT (Clean Water Action Plan Supplement – FY2000).

Project Title: "Sample Analysis: Comparison of Field-Scale and Aggregated Versions of NLEW"

Description: The nitrogen TMDL standard determined by DENR for the Neuse River has been set at 30% reduction in nitrogen. In order to meet this 30% reduction, mandatory rules have been established in the Neuse River Basin. One of the regulations requires that the agricultural sector utilize a nitrogen accounting tool to track changes in nitrogen loading from the implementation of BMPs. The development of an accounting methodology will assist the Division of Water Quality in verifying and adjusting the nutrient loading baseline from agricultural fields within the Neuse River Basin. This will help to ensure that the county nitrogen reduction goal is achieved in accordance with the Neuse River Basin Nutrient Sensitive Waters (NSW) Management Strategy being implemented in that basin. The proposed accounting tool is the Nitrogen Loss Estimation Worksheet (NLEW).

Lead Agency: NC State University

Partners: NC Department of Agriculture & Consumer Service, DENR, USDA-NRCS, APNEP and EPA.

Funding: \$241,800 (\$30,000 from EPA CWAP supplemental funds, \$120,000 from Federal 319 Program and \$91,800 as state in-kind match)

Time Period: July 1, 2000 through September 2, 2002.

IV. FY2000 PUBLIC OUTREACH PROJECTS

The FY2000 Public Outreach Projects directly relate to the CCMP's Stewardship Plan goal: *Promote responsible stewardship of the natural resources of the Albemarle-Pamlico region*".

1. Coastal Counties Open Space Design Workshops
Proposed for August 14 and 15, 2000
2. Fisheries Symposium
Proposed for October 2000
3. NC/VA Shared Resources Forum
Timing is dependent on the official signing of the interstate MOA between DENR and VaDCR
4. National Estuaries Day
Proposed for September 30, 2000
5. Boat Tours to promote environmental awareness
Proposed for a day during week of September 18-22, 2000

6. Habitat Protection and Restoration Conference
Proposed for September 12, 2000.
7. 3rd Albemarle-Pamlico Estuary Conference
Proposed for February 2001.
8. Albemarle-Pamlico Resource Guide
Proposed contract by July 31, 2000 and final product by April 2001

V. STAFF SUPPORT CONTRACTS (Andy Coburn and Julie Indicott)
Two contracts supporting key technical and outreach staff to the APNEP will continue in FY2001.

Technical Support Staff: Since August 1998, Andy Coburn has provided technical assistance to the APNEP for purposes of staffing the Regional Councils and Coordinating Council, and other tasks as necessary to support implementation of the CCMP. During FY2001; Mr. Coburn will:

- continue development of a quarterly program newsletter,
- manage program mailing list database,
- maintain the program's website,
- assist in the development of reports, news articles, educational pieces, public presentations, etc., and
- assist with meeting preparations and relevant mailing distributions.

Administrative/Outreach Assistant: Since January 2000, Julie Indicott has provided administrative/outreach assistance to the APNEP for purposes of staffing the Regional Councils and Coordinating Council, and outreach activities necessary to support CCMP implementation. During FY2001, Ms. Indicott will:

- assist with meeting preparation, including arrangement of meeting locations, identifying equipment needs, providing appropriate meeting materials, scheduling speakers, arranging refreshments, producing name tags and generally assisting with the Public Involvement Coordinator's administrative needs,
- assist with the development and distribution of mailing materials relevant to meetings, including agendas, minutes, mailing labels, and necessary enclosures, and
- assist with the development of reports, news articles, educational pieces, school presentations, etc. Assist with arrangements for educational/outreach/public information meetings, workshops, etc. as necessary.

RANKING OF PRIORITY ACTIONS FOR FY2001 WORK PLAN

The APNEP Coordinating Council, a consortium of state, federal, local government and interest group representatives whose role is to oversee implementation of the CCMP, met on February 2 and April 26, 2000 to develop priority actions for consideration in the APNEP FY 2001 work plan. The top ten priority actions resulting from these meetings are listed below:

Ranking of top ten priority actions:

1. Develop a comprehensive monitoring plan through the synthesis and assessment of the existing environmental monitoring programs, specifically in the Albemarle-Pamlico estuarine system and associated watersheds.
2. Improve effectiveness and member-participation with Regional Councils and Coordinating Council.
3. Increase public outreach and education.
4. Expand programs that facilitate restoration and acquisition of critical riparian areas on the mainstems and major tributaries of the five major rivers located in the Albemarle-Pamlico region.
5. Develop CCMP implementation report cards specific to the five individual river basins.
6. Move forward on developing TMDLs for the state's impaired waterbodies; and provide training to CC and RC members regarding TMDL process. *(NOTE: This action has been partially achieved. A TMDL workshop, sponsored by APNEP, was held to educate CC and RC members regarding the TMDL process on February 29, 2000).*
7. Develop emergency BMPs for human and animal waste before they are needed.
8. Create Waterways Boards or Environmental Advisory Boards at the local level (enabling legislation may be best route to accomplish this).
9. Increase public awareness of toxic sediments by posting signs, etc.
10. Improve enforcement of BMPs, toxics regulations and other environmental statutes.

APNEP staff, along with several Coordinating Council members, realize it is improbable to include all ten priority actions for implementation in this year's work plan. Therefore, implementing the top four priority actions were viewed as plausible and will be the focus of the work plan. The third priority action (Increase public outreach and education) is viewed as being inherent with each of the other priority actions and will be a strong

component of the strategies to implement the other three priority actions. These actions are presented in more detail beginning on page 18.

SUMMARY OF FY2001 WORK PLAN COMPONENTS

The principal Program objective for FY2001 is to carry out the responsibilities and priority actions as determined by the APNEP Coordinating Council and to continue support for the Citizens Water Quality Monitoring Program. Below is a summary of the major initiatives/personnel to be included in the APNEP FY2001 work plan as approved by the Coordinating Council on April 26, 2000:

- Personnel:
 - Program Coordinator – coordinate program activities/implementation process
 - Public Involvement Coordinator – enhance public relations and coordinate outreach
 - Watershed Field Coordinator – supports VaDCR efforts to implement CCMP
- Citizens Water Quality Monitoring Program – important public involvement effort
- PRIORITY ACTION #1: Develop a comprehensive monitoring plan through the synthesis and assessment of the existing environmental monitoring programs, specifically in the Albemarle-Pamlico estuarine system and associated watersheds.
- PRIORITY ACTION #2: Improve effectiveness and member-participation with Regional Councils and Coordinating Council.
- PRIORITY ACTION #3: Increase public outreach and education.
- PRIORITY ACTION #4: Expand programs that facilitate restoration and acquisition of critical riparian areas on the mainstems and major tributaries of the five major rivers located in the Albemarle-Pamlico region.
- Establish contractor to enhance APNEP's ability to measure/report environmental results and to develop a CCMP implementation tracking system (Supplemental Funds Initiative).
- Ongoing projects and staff support contracts from previous year as presented on pages 6 through 10.

GRANT FUNDING AMOUNT

The US Environmental Protection Agency has targeted \$330,000 of FY2001 federal funds to support a sixth year of post-CCMP implementation. The full base funding (\$300,000) and travel supplement (\$10,000) will be available. In addition, EPA is providing \$20,000 of supplemental funds which can be used to assist APNEP with tracking and reporting progress in implementing CCMP actions. Use of supplemental funds in this manner can also strengthen the program's capacity to show and produce environmental results.

The DENR is expected to provide an additional \$110,150 (in the form of in-kind services) as part of the 3:1 non-federal match requirement, for a total budget of \$440,150.

SCOPE OF WORK

INITIATIVE 1: IMPLEMENTATION PLAN

- Continue to demonstrate the implementation strategy as outlined in the CCMP. This action directly supports the CCMP's Implementation Plan goal: *Implement the CCMP in a way that protects environmental quality while using the most cost-effective and equitable strategies.*

I. REGIONAL COUNCILS and COORDINATING COUNCIL:

Key elements of the CCMP's Implementation Plan are the operation of Regional Councils (RCs) representing local government and stakeholder interests in each of the five river basins in the Albemarle-Pamlico region, and a Coordinating Council (CC). The CC's role is to devise policy and provide continued opportunity for interagency coordination and local government input. This structure, which is mandated through a Governor's Executive Order, allows for the communication and coordination critical to successful CCMP implementation. All five Regional Councils have been meeting since September 1997 and the Coordinating Council has been meeting since March 1998.

Establishment of Implementation Priorities: As identified in the 1999 Biennial Review, in order to ensure that progress is made on the most important CCMP activities first, APNEP and the Coordinating Council need to develop a list of ranked implementation priorities. Input from the Regional Councils is necessary. The outcome should be reflected in yearly work plans and the implementation tracking matrix. During FY2001, the Coordinating Council will conduct a strategic planning process to establish implementation priorities.

Budgetary Requirements: Two full-time APNEP personnel are essential in supporting the operational needs of the Regional Councils and Coordinating Council (\$130,000). A Watershed Field Coordinator is necessary to support the Virginia Department of Conservation and Recreation's effort to implement the CCMP (\$25,000 via contract).

II. APNEP PERSONNEL:

Program Coordinator: A Program Coordinator is necessary to coordinate the implementation process which involves interacting with numerous resource management agencies and interest groups, as well as the general public. This position manages the post-CCMP grant and associated contracts (including management of the Regional Councils' demonstration projects), provides staff support to the Regional Councils and Coordinating Council, and represents the APNEP at local and national meetings.

Guy Stefanski will continue in this role within the Division of Water Quality as he has since 1994. Grant funds will be used to support this position.

Public Involvement Coordinator: A Public Involvement Coordinator is necessary to enhance public relations and knowledge concerning issues relating to the CCMP; develop educational and outreach programs; promote dialogue between local government officials and private citizens and demonstrate oversight responsibility for the Citizens Water Quality Monitoring Program contract. This position also provides valuable staff support to the Regional Councils and Coordinating Council.

Joan Giordano will continue in this role within the Division of Water Quality as she has since 1987. Grant funds will be used to support this position.

Accomplishment: Much work remains to fully engage the Regional Councils and Coordinating Council to effectively carry out their roles in implementing the priority actions of the CCMP and to coordinate environmental management strategies in the Albemarle-Pamlico region. Primarily, APNEP staff will work to:

- fill all positions on the Regional Councils and Coordinating Council;
- enhance their effectiveness;
- continue dialogue with the Commonwealth of Virginia in preparation and signing of the interstate MOA;
- work with contractors to fully implement the Regional Councils' demonstration projects;
- increase the level of program outreach to better inform the public on APNEP activities in the region through completion of the FY2000 outreach projects and air deposition and nutrient reduction accountability projects;
- enhance coordination between the Regional Councils, Coordinating Council and DWQ's Basinwide Program as it relates to the development of this year's basinwide plans for the APNEP region (Roanoke, Chowan and Pasquotank). Encourage participation at various public meetings and workshops necessary for the development of these plans;
- continue to develop annual progress assessments regarding CCMP implementation;
- increase level of coordination between APNEP and the state's 319 Program Coordinator which may lead to a project identified by the Coordinating Council that would be funded through the 319 Program; and
- work towards fulfillment of the top four priority actions.

III. CONTRACT WITH THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION:

Watershed Field Coordinator: The headwaters for the Pasquotank, Chowan and Roanoke river basins contributing to the estuary system are located within Virginia. One of the most critical components to effectively implementing the CCMP within these basins is long-term, comprehensive coordination between North Carolina and Virginia. The APNEP will provide partial funding of \$25,000 to support a Watershed Field Coordinator to support VaDCR's effort to implement the CCMP. The VaDCR is providing an additional \$25,000 to support this position. The contract for this position will be initiated in October 2000.

Specifically, APNEP funds will pay for ½ of a part-time employee. Approximately 20 hours per week will be dedicated to the APNEP CCMP efforts. This position will be working out of the VaDCR Albemarle, Chowan and Coastal Watersheds Office in Suffolk, VA. The VaDCR Albemarle, Chowan and Coastal Watersheds Manager will supervise this employee, providing the following implementation support services:

- Provide coordination and support for Virginia's Watershed Conservation Roundtables (basin councils) being formed in the Albemarle, Chowan and Roanoke river basins. The Roundtables will play a critical role in providing regional forums for stakeholders to discuss and develop CCMP implementation protocols and efforts in Virginia.
- Facilitate and foster coordination and communication between Virginia's Watershed Roundtables and North Carolina's River Basin Regional Councils.
- Compile information from local jurisdictions that will aid in APNEP CCMP work plans, targeting and monitoring of progress. Examples of information needed could include: demographics, current and projected land uses, nonpoint source pollution control programs, local GIS maps, BMPs implemented, etc.
- Assist with APNEP CCMP public relations by preparing material for regionally-targeted fact sheets, news releases, and other articles for publishing purposes.
- Assist VaDCR Watershed Managers in the Albemarle, Chowan and Roanoke basins by preparing materials, presentations, and mailings on the APNEP CCMP implementation efforts for distribution to the 14 Soil & Water Conservation Districts in the basin. This activity will further DCR's technical support for SWCDs and facilitate increased participation among the agricultural community in the implementation of the APNEP CCMP.
- Assist with event planning and facilitation.

IV. FY2001 TRAVEL SUPPLEMENT

As part of this FY2001 federal grant, EPA is providing the APNEP with \$10,000 travel funds. Staff intends to use this funding for attendance at national meetings/conferences, including annual meetings with EPA and the Association of National Estuary Programs. Staff also intends to visit other NEPs to share "lessons learned" and to promote a transfer of technical and outreach information between programs. Travel money will also be used by APNEP staff to attend Regional Council and Coordinating Council meetings, and other associated events, scheduled throughout the region. This travel supplement is also available to Coordinating Council and Regional Council members for attendance at important program-related functions as those opportunities arise. Although these funds cannot be used to pay for travel of Federal employees.

V. USE OF FY2000 TRAVEL SUPPLEMENT

Travel funds during FY2000 were utilized by APNEP staff to attend a number of important meetings and conferences. Below is a summary:

<u>Personnel</u>	<u>Date</u>	<u>Purpose</u>	<u>Location</u>	<u>Cost</u>
Stefanski/Giordano	Oct. 1999	NEP Regional Directors Meeting	Atlanta, GA.	\$900
Stefanski/Giordano	Oct. 1999	ANEP/EPA National Meeting	Portland, OR.	\$1600
Stefanski/Giordano	Feb. 2000	Barataria-Terrebonne Program Exchange	Thibodaux, LA	\$2600
Stefanski/Giordano	Mar. 2000	ANEP/EPA National Meeting	Washington, DC	\$3000
TOTAL (approximate):				\$8100

Additional travel funds were expended by APNEP staff to attend a series of local meetings/conferences, including:

- National Stormwater Conference in Raleigh, NC in November 1999;
- Coordinating Council Progress Assessment and Priority-Setting Workshop in Greenville, NC in February 2000;
- TMDL workshop for Regional Council and Coordinating Council members in Greenville, NC in February 2000;
- NC Water Resources: The Year of the Hurricanes Conference in Raleigh, NC in March 2000;
- Coordinating Council FY2001 Work Plan Development Meeting in Greenville, NC in April 2000; and

- various Regional Council and Coordinating Council regularly scheduled meetings held throughout the Albemarle-Pamlico region.

INITIATIVE 2: STEWARDSHIP PLAN

- Continue to demonstrate the utility of the Citizens Water Quality Monitoring Program as an effective public involvement and education tool and expand the program's interaction with regulatory agencies. This action directly supports the CCMP's Stewardship Plan, Objective B, Management Action 4: *Expand involvement in the CWQMP and make the program more interactive with regulatory agencies*".

ALBEMARLE-PAMLICO CITIZENS WATER QUALITY MONITORING PROGRAM

Citizen monitoring helps gauge the environmental health of the estuary and is an important education/public involvement tool. Volunteer monitors are able to assess water quality conditions in areas that are not accessible to agency staff or in places too numerous for staff to routinely visit. Since 1988, the A/P Citizens Water Quality Monitoring Program (CWQMP), supported by APNEP with EPA funds, has provided an opportunity for citizen involvement by monitoring specific sites in the estuary. This program has compiled abundant monitoring data on water quality – particularly in estuarine portions of the Albemarle-Pamlico region. This information is readily available upon request. Currently, the CWQMP resides at East Carolina University (ECU).

Budgetary Requirements: A Regional Coordinator is required to continue operation of the A/P Citizens Water Quality Monitoring Program (\$40,000 via contract with East Carolina University).

Allen Clark was hired several months ago by East Carolina University to coordinate activities of the CWQMP. This position has been institutionalized at ECU, but long-term funding support is questionable.

Accomplishment: In addition to the obvious benefits of public involvement (e.g., heightened understanding, greater appreciation for resources, stewardship ethic, etc.) tangible benefit is derived from water quality data collection through the CWQMP. Information gathered by the CWQMP will be used by state biologists and the basinwide planning program. The return of the CWQMP Regional Coordinator position to this well-organized citizen monitoring program, will continue to enhance program performance and status of this important effort. The development of trend analysis synthesized from existing and future data, a program newsletter, and outreach/presentations to interested groups will continue during FY2001. The CWQMP will also develop a web site and program brochure to increase its visibility and contact with interested groups. Expansion of the program (e.g., establishing and manning monitoring sites) to include more inland locations will be a focus during FY2001.

INITIATIVE 3: IMPLEMENTATION OF PRIORITY ACTIONS

- Implement the four priority actions as determined by the Coordinating Council at its work plan development meeting held in Greenville, NC on April 26, 2000.

Budgetary Requirement: \$105,000 from this grant will be targeted to support the implementation of the following priority actions.

PRIORITY ACTION #1. Develop a comprehensive monitoring plan through the synthesis and assessment of the existing environmental monitoring programs, specifically in the Albemarle-Pamlico estuarine system and associated watersheds.

Supports the CCMP's Water Quality Plan, Objective A, Management Action 6: Continue long-term, comprehensive monitoring of water quality in the APNEP system, collecting data to assess general system health and target regional problems.

The Coordinating Council recognized the importance of collecting adequate high quality baseline monitoring data for both water and biological resources. Monitoring programs and data acquisition should be designed to ensure that: (1) data can detect and identify specific water quality and biological resource changes in the estuarine system and the rivers that drain into the estuaries; (2) sufficient data are available for use with existing and future water quality models; and (3) sufficient data are available to determine if management actions implemented are having the expected results.

Currently, there are many agencies/groups conducting environmental monitoring efforts in the Albemarle-Pamlico region, including the NC Division of Water Quality's Ambient WQ Monitoring Program, NC Division of Marine Fisheries resource monitoring, Shellfish Sanitation Branch monitoring for coliform in shellfish and bathing beaches, NOAA remote sensing, EPA/NOAA Environmental Monitoring Assessment Program, USGS WQ and flow monitoring, ModMon in the Neuse Estuary, universities (J. Burkholder @ NC State University and D. Stanley @ East Carolina University), atmospheric deposition monitoring by NC Institute of Marine Science and NC Division of Air Quality and the APNEP Citizens Water Quality Monitoring Program.

At their April 26th meeting, the Coordinating Council recognized the amount of monitoring effort ongoing in the Albemarle-Pamlico region, but believed adequate communication and coordination between the monitoring programs was lacking. Therefore, the Coordinating Council determined that a comprehensive environmental monitoring plan should be developed to enhance the efficiency of the overall monitoring effort.

The Coordinating Council agreed that a workshop should be held to develop a comprehensive monitoring plan. It has been determined that Battelle (through an existing contract with EPA) could conduct the workshop during November 2000. APNEP staff are currently working with EPA and Battelle on the logistics and arrangements for this workshop. During the Battelle workshop, the details of this action item will be developed. The implementation steps will be provided to EPA later this year.

Draft Implementation Steps for Developing a Comprehensive Environmental Monitoring Plan

Critical Steps	Lead Implementer	Additional Partners	Resources	Targeted Completion Date
1. Identify source of funding	EPA	APNEP Staff & CC	EPA contract with Battelle	Done
2. Prepare Scope of Work and estimated budget for workshop	Battelle	APNEP EPA	EPA contract with Battelle	September 30, 2000
3. Invite appropriate personnel (including scientists and monitoring program staff) to workshop.	APNEP Staff	CC members	Regional Councils & other stakeholder groups	September 30, 2000
4. Conduct workshop to develop comprehensive monitoring plan	Battelle	APNEP EPA and CC	APNEP grant to support expenses associated with workshop (e.g., facility rental)	November 2000
5. Begin plan implementation	TBD	TBD	TBD	TBD
6. Or carry out "next steps" as determined by workshop (unknown at this time)	TBD	TBD	TBD	TBD

TBD = "To Be Determined"

PRIORITY ACTION #2: Improve effectiveness and member-participation with Regional Councils and Coordinating Council.

Supports the CCMP's Implementation Plan, Objective A: Coordinate public agencies involved in resource management and environmental protection to implement the recommendations of the CCMP.

The Coordinating Council recognized that to be truly effective in carrying out its responsibilities, it, as well as the Regional Councils, must have better participation from members. At their April 26th meeting, the Coordinating Council established two working committees charged with devising innovative methods for ensuring increased participation and vacancy-related issues on both the Regional Councils and Coordinating Council. Certain members of the committees reported their recommendations to the APNEP Public Involvement Coordinator in June 2000.

**Draft Implementation Steps for Improving Regional Councils (RCs) and
Coordinating Council (CC) Participation**

Critical Steps	Lead Implementer	Additional Partners	Resources	Targeted Completion Date
IMPROVE REGIONAL COUNCILS				
1. Develop language to clearly communicate RC purpose and member responsibilities and participation (e.g., participate in rule-making, public education & outreach, etc.)	APNEP Staff	Regional Council Sub-committees with facilitator	EPA HQ and Region IV Staff	December 1, 2000
2. Clarify process for selection of special interest group members.	DENR Secretary	APNEP Staff, RC sub-comm.	Stakeholder Groups, RC members	December 1, 2000
3. Study/revise the Executive Order establishing the RCs.	Governor's Staff	APNEP staff, DENR Sec., RC members	DENR Senior Staff	January 31, 2001
4. Communicate information in #3 to APNEP region county managers and others.	Governor's Office thru DENR Sec.	APNEP staff, RC Chairs County Comm(s).	Newspapers, environmental & other stakeholder groups	March 15, 2001
5. Visit county managers to present desired county/municipality participation and RC purpose.	RC Chairs	APNEP Staff	Other RC members	June 30, 2001
IMPROVE COORDINATING COUNCIL				
1. Devise meaningful roles for CC members.	DENR Senior Staff	APNEP Staff, CC members, EPA/other facilitator	DENR, Division reps.	December 1, 2000
2. Study/revise the Executive Order establishing the CC.	Governor's Staff	APNEP staff, DENR Sec., CC Members	DENR Senior Staff	January 31, 2001
3. Recruit people who are really interested in participating in order to promote more dialogue among members and DENR.	DENR Division Directors	APNEP Staff, CC members	Presentations to Citizen Commissions & others.	February 1 through June 1, 2001

* Activities to implement this priority action may begin during the 4th quarter of FY2000.

PRIORITY ACTION #3: Increase public outreach and education.

Supports the CCMP's Stewardship Plan, Objective B: Increase public understanding of environmental issues and citizen involvement in environmental policy making.

The Coordinating Council considers this action item as being inherent in each of the other priority actions and will be a strong component of the strategies designed to implement them. No critical steps are necessary for this action. (For purposes of this work plan, specific public outreach and education strategies will be applied to the other three priority actions upon the completion of their critical steps; e.g., local media coverage, public meetings for informational purposes where applicable, exhibitry and presentations, print pieces for newsletters, magazines, fact sheets, etc.). These specific actions will be provided to EPA later this year.

PRIORITY ACTION #4: Expand programs that facilitate restoration and acquisition of critical riparian areas on the mainstems and major tributaries of the five major rivers located in the Albemarle-Pamlico region.

Supports the CCMP's Vital Habitats Plan, Objective B: Promote the responsible stewardship, protection, and conservation of valuable natural areas in the APNEP region.

The Coordinating Council recognizes the importance of riparian buffers in controlling runoff and providing habitat for wildlife. Many of the agencies represented on the Coordinating Council are involved in programs that work to restore/acquire riparian habitats. A role for the Coordinating Council would be to help coordinate the various programs and initiatives underway to restore/acquire critical riparian areas. This action could help prioritize areas in need of restoration and develop strategies for acquisition.

Draft Implementation Steps for Riparian Area Restoration & Acquisition

Critical Steps	Lead Implementer	Additional Partners	Resources	Targeted Completion Date
1. Determine acreage that would be involved to establish/maintain 30 foot and/or 50 foot buffers on river mainstems and major tributaries for the five major rivers in APNEP region.	USFWS	Center for Geographic Info & Analysis, USGS	USFWS	January 1, 2001
2. Estimate potential acquisition costs for willing sellers only. Determine: <ul style="list-style-type: none">• Survey & title costs• Title or easement holders	USFWS (may change as project develops)	DSWC is gathering this information as part of CREP, and NRCS	USFWS (initially for 1 st stage – may change)	April 1, 2001

3. Identify potential funding sources	Coordinating Council	Other Stakeholder groups	CWMTF, ACOE, USFWS, EPA, DOT mitigation, FEMA, Div. Emergency Mngt, CREP, Wetlands Restoration Program	May 1, 2001
4. Coordinate with NC Wetlands Restoration Program, NRCS, Div. of Soil & Water	CC working committee (USFWS, ACOE, APNEP)	Coordinating Council	Coordinating Council	August 1, 2001
5. Consolidate information from steps 1-4 and present to CC for goal-setting.	CC working committee (USFWS, ACOE, APNEP)	Coordinating Council	Coordinating Council	Begin August 1, 2001
6. Public advertisement of program to acquire buffers through purchase from willing sellers and donors.	Coord. Council	Regional Councils, NGOs (i.e., Nature Conservancy	Existing public outreach venues.	August 1 through September 30, 2001

INITIATIVE 4: SUPPLEMENTAL FUNDING INITIATIVE

EPA is providing \$20,000 of supplemental funds which can be used to assist APNEP in addressing challenges identified by EPA in the 1999 Biennial Review. In particular, these funds will assist APNEP with tracking and reporting on progress in implementing CCMP actions. Use of these supplemental funds in this manner can also strengthen the program's capacity to show and produce environmental results. It will also enhance EPA's ability to accurately measure APNEP's progress for reporting under the Government Performance and Results Act (GPRA).

Supplemental funds may be used for staff or outside support to initiate or implement activities in one or all of the following areas (the first two items could be combined):

- 1) develop or enhance a CCMP report card or environmental progress report on the estuary (provides information on environmental results achieved during CCMP implementation or from early action);

- 2) develop or enhance a CCMP implementation tracking system (indicates level of progress being made in implementing CCMP actions); or
- 3) develop new or augment existing environmental indicators (including any necessary monitoring, modeling or data management activities, or to conduct workshops).

The Coordinating Council elected to hire someone via contract to enhance APNEP's ability to measure/report environmental results and to develop a CCMP implementation tracking system.

SUMMARY OF FEDERAL BUDGET: The federal budget for FY2001 funding of \$330,000 is provided below:

INITIATIVE 1: IMPLEMENTATION PLAN

Program Coordinator	60,000
Salary	40,077
Indirect (21.1% of salary)	8,455
Fringe Benefits*	9,142
Office Expenses (supplies, postage/printing, equipment)	2,326
 Public Involvement Coordinator	 70,000
Salary	41,612
Indirect (21.1% of salary)	8,780
Fringe Benefits*	9,425
Office Expenses (supplies, postage/printing, equipment)	683
Regional Office/Storage Space & Common Area	9,500
 Watershed Field Coordinator (contract with VaDCR)	 25,000
 Travel	 10,000

INITIATIVE 2: STEWARDSHIP PLAN

Citizens Water Quality Monitoring Program (contract with ECU)40,000

INITIATIVE 3: IMPLEMENTATION OF PRIORITY ACTIONS105,000

- PRIORITY ACTION #1: Develop a comprehensive monitoring plan through the synthesis and assessment of the existing environmental monitoring programs, specifically in the Albemarle-Pamlico estuarine system and its associated watersheds.
- PRIORITY ACTION #2: Improve effectiveness and member-participation with Regional Councils and Coordinating Council.
- PRIORITY ACTION #3: Increase public outreach and education.
- PRIORITY ACTION #4: Expand programs that facilitate restoration and acquisition of critical riparian areas on the mainstems and major tributaries of the five major rivers located in the Albemarle-Pamlico region.

INITIATIVE 4: SUPPLEMENTAL FUNDS INITIATIVE20,000

Establish contractor to enhance APNEP's ability to measure/report environmental results and to develop a CCMP implementation tracking system.

TOTAL FEDERAL BUDGET FOR FY2001\$330,000

* Fringe Benefits are based on Social Security (7.65%) & Retirement (10.83%) of position's annual salary and Medical Insurance Plan rate of (\$1,736).

September 19, 2001

PROPOSED

**WORK PLAN
for the**

**COOPERATIVE AGREEMENT BETWEEN
THE US ENVIRONMENTAL PROTECTION AGENCY
AND
NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES**

**ALBEMARLE-PAMLICO
NATIONAL ESTUARY PROGRAM**

**OCTOBER 1, 2001 THROUGH SEPTEMBER 30, 2002
(Federal Fiscal Year 2002)**

ALBEMARLE-PAMLICO NATIONAL ESTUARY PROGRAM

WORK PLAN for the COOPERATIVE AGREEMENT between the US ENVIRONMENTAL PROTECTION AGENCY and NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

**OCTOBER 1, 2001 through SEPTEMBER 30, 2002
(Federal Fiscal Year 2002)**

PROPOSED – August 22, 2001

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INTRODUCTION

Purpose: The purpose of this agreement is to provide support to the NC Department of Environment and Natural Resources (DENR) for continuing demonstration of implementation of the unique management strategies recommended in the Albemarle-Pamlico National Estuary Program's Comprehensive Conservation and Management Plan (APNEP CCMP). This agreement represents a funding increase and time extension to Cooperative Agreement #CE994645-94-9.

Contents of this document: A progress report, detailing APNEP accomplishments and project updates for FY2001, is provided on pages 2 through 21. The FY2002 APNEP Work Plan and budget items are presented on pages 22 through 34.

Period of Performance and Principal Contacts:

The period of performance under this agreement is from October 1, 2001 through September 30, 2002.

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Background

The Albemarle-Pamlico Sounds represents the nation's second largest estuarine system – second only to the Chesapeake Bay. The system is composed of seven sounds and five major river basins draining over 30,000 square miles of watershed in northeastern North Carolina and southeastern 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 food, recreation, resort development, 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 since 1987, developed a Comprehensive Conservation and Management Plan (CCMP). The CCMP, intended as a practical, cost-effective and equitable approach to managing the valuable resources of the Albemarle-Pamlico region, was ratified by the Governor of North Carolina and the USEPA in November 1994.

Since 1995, the APNEP has been located within the NC Department of Environment and Natural Resources, Division of Water Quality and has received annual funds from the USEPA to demonstrate implementation of the CCMP's management actions since 1994.

FY2001 OBJECTIVES AND ACCOMPLISHMENTS (Progress Report)

Objectives for FY2001 focused on further involvement by the Regional Councils and Coordinating Council in carrying out their responsibilities regarding CCMP implementation. As of May 2001, significant progress had been made in accomplishing these objectives. Key accomplishments (from May 1, 2000 through April 30, 2001) are summarized below:

Coordinating Council

The Coordinating Council met on April 25, 2001 in Raleigh, NC. Highlights from this meeting are summarized below:

- In July 2000, a major agreement was signed by the NC Attorney General's Office and Smithfield Foods, Inc., and its subsidiaries, the largest hog producing and pork processing companies in the world. It is a legally binding agreement that focuses on the elimination of open-air hog lagoons and sprayfields in North Carolina. A key element of the agreement states that the Smithfield companies will play a leadership role in enhancing the effectiveness of the Albemarle-Pamlico National Estuary Program. Representatives from Smithfield Foods and the NC Attorney General's Office discussed this agreement with members of the APNEP Coordinating Council. The Coordinating Council elected to form a five-member committee, along with representatives from the Attorney General's Office and Smithfield Foods, to determine what type of enhancements are necessary and feasible. This committee is expected to convene its first meeting during the summer 2001.
- Plans are underway for the signing of the MOA between DENR and the Virginia Department of Conservation and Recreation to better coordinate implementation of the CCMP in the Pasquotank, Chowan and Roanoke river basins. The MOA is scheduled to be signed by the appropriate entities on October 26, 2001.
- Developing a comprehensive monitoring strategy for the Albemarle-Pamlico region is the number one priority of the Coordinating Council as identified in the APNEP FY2001 work plan. The APNEP conducted a two-day monitoring workshop in December 2000 to initiate this activity. The Coordinating Council directed staff to solicit possible contractors for the purposes of writing/developing the monitoring strategy. A contractor will be identified and hired during the fall 2001.
- Developed primary components for consideration in the APNEP FY2002 work plan (presented on pages 22-31).

Regional Councils

Neuse River Basin Regional Council

Held regular meetings on May 25, July 28, September 22, 2000 and February 23, 2001.

Highlights include:

- Developed a brochure and compact disc titled "Best in the Basin 2000" which introduces the 20 top places to visit in the Neuse River Basin as determined by members of the Neuse Regional Council.
- Depletion of groundwater provided by Coastal Plain aquifers is a major concern. Many counties in eastern North Carolina depend on groundwater as their primary public water supply. This region is faced with a gradual reduction of groundwater withdrawal rates and will be reckoning with new methods of conserving water while simultaneously locating alternative water sources. A regional water supply system, using groundwater currently pumped by PCS Phosphate and discharged into the Tar-Pamlico Estuary (about 60 million gallons per day), is being considered for this region. The Neuse Regional Council will be sponsoring a meeting/workshop to discuss the region's water supply issues during November 2001 (see Public Outreach Projects on pg 28).
- In June, co-sponsored public workshops conducted by DWQ regarding development of the 2002 Neuse River Basinwide Water Quality Plan.

Tar-Pamlico River Basin Regional Council

Held regular meetings on June 16, August 4, and November 3, 2000; and February 19 and April 27, 2001.

Highlights include:

- USGS presentation/discussion regarding 1999 hurricane impacts to eastern North Carolina
- Toured PCS Phosphate Company's mining operation in Aurora
- Consideration of nutrient reduction strategies/rules being implemented in the Tar-Pamlico basin
- Toured the River Park North complex in Greenville to view aftermath of 1999 hurricanes
- Toured the Town of Louisburg's water reclamation facility and nearby open space projects.
- Determined that sedimentation and erosion caused by increased development are a major concern in the Tar-Pamlico basin. Future meetings will focus on implementation of the NC Sedimentation and Erosion Control Rules and local efforts to control stormwater.

Roanoke River Basin Regional Council

Held regular meetings on June 2, August 18, November 17 and December 8, 2000; and January 19 and March 2, 2001.

Highlights include:

- Generated widespread local support for a resolution recommending Congressional funding for an Army Corps of Engineers Section 216 Scoping Study to evaluate flow modifications for the John H. Kerr Reservoir system and to evaluate operation of the project.
- Initiated cooperative action by DENR and the Department of Corrections to address cattle impacts (similar to those being addressed by their demonstration project) at the Caledonia Prison Farm in Halifax County and the Odom Prison in Northampton County.
- Met extensively with DWQ basin planner and provided comments regarding the 2001 Roanoke River Basinwide Water Quality Plan.
- Co-sponsored public workshops conducted by DWQ regarding development of the 2001 Roanoke River Basinwide Water Quality Plan.
- Met with DFI, Inc. representative regarding the potential siting of an ethanol plant on the banks of the Roanoke River in Martin County. Some Council members are concerned with potential industrialization of the Roanoke River.
- Examined historical impacts to local fishery populations and current strategies underway to enhance their sustainability.
- Highlighting the concerns of down-river interests, the Council issued a resolution recommending the long-term proper management of the basin's natural resources without compromising its economic viability.
- Conducted boat tour of sections of Roanoke River to view river bank impacts resulting from cattle access.

Chowan River Basin Regional Council

Held regular meetings on June 8 and October 12, 2000; and January 25 and May 3, 2001.

Highlights include:

- As was the case last year, major focus remains with the siting and operation of the Nucor steel recycling facility located on the banks of the Chowan River.
- Nucor representative named as a member of the Chowan Regional Council
- Toured the Nucor facility
- Presentation by Division of Marine Fisheries regarding development of Coastal Habitat Protection Plans (CHPPs) for the Chowan River Basin and the Coastal Ocean management units.
- Discussion with DWQ basin planner regarding development of the 2002 Chowan River Basinwide Water Quality Plan.

- Co-sponsored public workshops conducted by DWQ regarding development of the 2002 Chowan River Basinwide Water Quality Plan.
- With assistance from Noah Hill (APNEP/VADCR liaison), a directory of NC and VA agency contacts was updated.

Pasquotank River Basin Regional Council

Held regular meetings on May 4, July 6, September 20, and November 15, 2000; and February 15, 2001.

Highlights include:

- Instrumental in securing Congressional funding (\$100,000) for the Army Corps of Engineers to conduct a comprehensive study of Currituck Sound. The study proposes to address salinity increases which have adversely impacted freshwater fisheries and submerged aquatic vegetation (SAV).
- Toured the Tidewater On-site Wastewater Demonstration Center at the Vernon James Research Center in Plymouth to view current research/demonstration of alternative septic systems.
- Presentation by Fred McManus (EPA Region IV) regarding EPA's role in the Albemarle-Pamlico National Estuary Program.
- Presentation by Rodney Johnson (Albemarle RC&D) regarding constructed wetlands (major component of Council's demonstration project).
- Presentation by Council-member Cheryl Byrd regarding sustainable development in response to ever-increasing population pressures being applied to communities along the Outer Banks.
- Presentation by Bob Glennon (USFWS) pertaining to the development of comprehensive conservation and management plans for each of the wildlife refuges in North Carolina and Virginia.
- Discussion with DWQ basin planner regarding development of the 2002 Pasquotank River Basinwide Water Quality Plan.
- Co-sponsored public workshops conducted by DWQ regarding development of the 2002 Pasquotank River Basinwide Water Quality Plan.
- Updates from Noah Hill (APNEP/VADCR liaison) regarding Virginia's Watershed Roundtables, SWAMP (Southern Watersheds Area Management Plan), draft MOA between DENR and VADCR, Virginia's Adopt-A-Stream Program and Riverkeeper efforts in the Blackwater and Nottoway rivers.

APNEP Technical and Outreach Activities

APNEP staff (Guy Stefanski and Joan Giordano) spent a considerable amount of time supporting the numerous meetings and other activities of the Coordinating Council and Regional Councils. Much focus was on the implementation of the RCs' demonstration projects and subsequent contract management. Other noted accomplishments follow:

- In July 2000, APNEP staff exhibited at the annual Tar-Fest in Rocky Mount
- The Albemarle-Pamlico NEP was characterized in the August 2000 issue of Sea Technology magazine. The six-page article entitled "Coastal Regions: Ecosystems Facing Stress and Habitat Destruction" was the issue's featured article.
- In August 2000, APNEP staff, along with Randall Arendt, renowned land-use planner, site designer and lecturer, conducted two open space design workshops in Plymouth and New Bern, NC. Mr. Arendt presented various strategies regarding conservation subdivision design as a tool for building community-wide open space networks. More than 80 people attended the workshops.
- In August 2000, Ms. Giordano designed and manned an APNEP exhibit at the NC Association of County Commissioners Annual Meeting in the Research Triangle Park.
- In September 2000, APNEP was awarded a \$75,000 grant from EPA to support a NPS restoration project in the Albemarle-Pamlico region. The identified effort, a stormwater management project, includes wetlands construction and shoreline restoration components along the Trent River in New Bern. This money, which supplements funding provided by the Clean Water Management Trust Fund and others, will be used specifically for the planting of a cord grass marshland along the river bank.
- In September 2000, APNEP staff exhibited at the Water Splash event held in Kinston, NC.
- In September-October 2000, APNEP staff coordinated with the NC Center for Geographic Information & Analysis to conduct five "BasinPro Workshops" in the Albemarle-Pamlico region. These workshops offered key local government representatives and planning staff with hands-on training utilizing the BasinPro CD – a desktop geographic information system. Participants received a free copy of the BasinPro CD, a \$285 value. These workshops were held at the computer labs located at the Roanoke-Chowan Community College in Ahoskie, Craven Community College in New Bern and Pitt Community College in Greenville. This action directly helps to implement Objective A, Management Action 2 of the CCMP's Stewardship Plan: *"Provide to local governments affordable and accessible data from the state geographic information system for use in planning and public education within the region"*.
- In October 2000, APNEP staff met with representatives of the NC Attorney General's Office and Smithfield Foods, Inc. to discuss "enhancements of the APNEP" as referred to in the Smithfield Foods Agreement signed in July 2000. Staff drafted options for "enhancements" which included a request for a portion of the annual funds offered by Smithfield Foods to support environmental restoration

projects. It was also agreed that the APNEP Coordinating Council, with input from the AG's office and Smithfield Foods, would be best suited to identify and determine possible "enhancements" to the APNEP. (Note: On April 25, 2001, the Coordinating Council, along with representatives from the Attorney General's Office and Smithfield Foods, formed an eight-member ad-hoc committee to accomplish this).

- The third edition of "The Beacon", APNEP's official newsletter, was mailed to over 2,000 people during October.
- Oversight of continued operation and maintenance of the APNEP website located at <http://h2o.enr.state.nc.us/nep>.
- In November 2000, APNEP staff attended and exhibited at "Virginia's 7th Annual Watershed Management Conference" in Williamsburg, VA. A newly formatted exhibit focused on the three river basins NC and VA hold in common (Roanoke, Chowan and Pasquotank) and the draft MOA between DENR and VADCR.
- In December 2000, APNEP staff, in coordination with EPA and Battelle, conducted a two-day monitoring workshop for the purpose of developing a comprehensive monitoring strategy for the Albemarle-Pamlico region. Developing a comprehensive monitoring strategy was determined by the APNEP Coordinating Council to be its highest priority during FY2001. Contractor to prepare/write the monitoring strategy will be hired this fall.
- In January-February 2001, APNEP staff provided extensive information to EPA and the Association of National Estuary Programs (ANEP) for the development of 1) an EPA environmental indicators project and 2) an ANEP tech transfer document.
- In January-February 2001, APNEP staff, in accordance with the Government Performance and Results Act (GPRA) which measures performance or progress towards established goals, provided extensive information to EPA regarding 1) the number of priority actions initiated across the NEP, and 2) the acres of habitat restored during 2000. These are the two measures chosen that all NEPs should be tracking in order to demonstrate implementation of the CCMP and environmental results.
- In February 2001, APNEP staff participated in the Roanoke Basinwide Planning Program workshops conducted by the Division of Water Quality. The Roanoke Regional Council served as co-sponsors of these workshops.
- In March 2001, 1000 river basin bookmarks (depicting the five major river basins located in the Albemarle-Pamlico region) were updated and reprinted based on current statistics and information.

- In March 2001, Mr. Stefanski gave a presentation titled "River Basin Demonstration Projects of the Albemarle-Pamlico National Estuary Program" at the Water Resources Research Institute's Watersheds to Estuaries Conference in Raleigh, NC.
- In March 2001, APNEP staff participated in the Chowan and Pasquotank Basinwide Planning Program Workshops conducted by the Division of Water Quality. The Chowan and Pasquotank Regional Councils served as co-sponsors of these workshops.
- APNEP staff, with input from DWQ and EPA, developed its program letterhead.
- In May 2001, APNEP worked with EPA and its contractor, Horsley & Witten, to conduct a two-day workshop titled "Tools for Watershed Management: A Workshop for Local Government". The workshop explored various tools and approaches that can be used by local governments to achieve a balance of economic prosperity and water resource protection.
- APNEP staff continued to work with representatives from the Virginia Department of Conservation and Recreation (VADCR) regarding the signing of the interstate MOA between DENR and VADCR that calls for enhanced coordination of CCMP implementation in the Roanoke, Chowan and Pasquotank river basins. Official signing ceremony is being planned for October 26, 2001.
- APNEP staff continued to provide support to the Citizens' Water Quality Monitoring Program (CWQMP).
- Distributed numerous APNEP research documents, outreach products, and environmental education materials to those requesting them.

STATUS OF PROJECTS ONGOING FROM PREVIOUS YEAR

The Regional Councils' demonstration projects, Air Deposition Project and Nutrient Reduction Accountability Project (described on the following pages) directly relate to 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"*.

I. REGIONAL COUNCILS' DEMONSTRATION PROJECTS

A primary role of the Regional Councils is to establish local environmental priorities, based on those outlined in the APNEP CCMP and the Division of Water Quality's basinwide management plan recommendations. The Regional Councils have been encouraged to develop and implement strategies which are

most amenable to local action. Funds from previous EPA grants have been dedicated to help support demonstration projects recommended by the Regional Councils. Total funds available for demonstration projects are approximately \$130,400 or about \$26,080 per Regional Council. Demonstration project guidelines were approved by the Coordinating Council in January 1999. As of August 2000, all Regional Council demonstration projects were underway. Much of the past year was devoted to managing contracts and working with contractors during various stages of their respective projects.

Neuse Regional Council

Project Title: "Selected Creek Monitoring Demonstration Project"

Description: Demonstrate feasibility and effectiveness of monitoring the mouth of two selected creeks to determine pollution contribution.

Lead Agency: Neuse River Foundation

Partners: Neuse RC, DENR, APNEP, EPA

Funding: \$25,000 from EPA/APNEP base funds

Time Period: April 1, 2000 through March 31, 2002.

Status: Under the supervision of the Neuse River Keeper, trained volunteers have been collecting water quality data once per week from the mouth of Beards Creek (Pamlico County) since May 2000 and Crabtree Creek (Wake County) since September 2000. Preliminary interpretation of the sample analysis (data) is underway.

Tar-Pamlico Regional Council

Project Title: "Alternative On-site Wastewater Treatment System Demonstration Project"

Description: Demonstrate the effectiveness of an advanced on-site wastewater treatment system in reducing pollutants to groundwater.

Lead Agency: NC State University

Partners: Tar-Pamlico RC, NC Cooperative Extension Service, Pitt County, Homeowner, DENR, APNEP and EPA

Funding: \$18,400 from EPA/APNEP base funds

Time Period: May 1, 2000 through April 30, 2002.

Status: Working with local health departments, a residence with a failing conventional septic system was identified in Pitt County. As a result of poor drainage, the current system has failed and is discharging sewage to the ground surface. Plans are to install a peat biofilter system that will treat the wastewater prior to subsurface disposal. The homeowner is agreeable to this solution, but is currently involved in a lawsuit against numerous parties alleging he is not responsible for the original system's failure. This lawsuit is attempting to cover costs of the repair system. The homeowner is willing to have the peat system installed at a 25% cost-share as soon as the lawsuit is settled. Consequently, the installation of the peat biofilter has been put on hold until the lawsuit is settled.

Roanoke Regional Council

Project Title: "Riparian Zone Rehabilitation Demonstration Project"

Description: Demonstrate the effectiveness of cattle fencing and restoration of riparian zone to reduce nonpoint source impacts.

Lead Agency: NRCS

Partners: Roanoke RC, USFWS, Fishing Creek SWCD, Landowner, NC Cooperative Extension Service, DENR, APNEP and EPA

Funding: \$41,000 (\$25,000 from EPA/APNEP base funds and \$16,000 from USFWS)

Time Period: April 20, 2000 through April 19, 2002.

Status: This project is nearing completion. To date: (1) two miles of fencing have been installed, (2) cattle crossing has been repaired, and (3) cattle troughs are almost finished with one functioning (additional troughs to be completed by mid-June). The final phase of this project, the planting of hardwoods in the buffer area and restoration of the river bank, will be done this fall and winter. When fully implemented, this project will restore approximately 36 acres of riparian habitat and benefit various species of anadromous fish and migratory birds that utilize this area.

Chowan Regional Council

Project Title: "Precision Agriculture Demonstration Project"

Description: Demonstrate the effectiveness of utilizing precision agriculture methodology to optimize agriculture production.

Lead Agency: NC Cooperative Extension Service – Bertie County

Partners: Chowan RC, Colerain Peanut & Supply Co., Landowners, DENR, APNEP, EPA

Funding: \$5,000 from EPA/APNEP base funds

Time Period: April 1, 2000 through March 31, 2001.

Status: Project completed. Draft report submitted by Bertie County Cooperative Extension Service in March 2001. Final report due in June. This demonstration project allowed farmers, who otherwise could not afford to, the opportunity to try this new methodology and make comparisons based on standard lime and fertilizer application rates. The demonstration was run on 457 acres of farmland in Bertie County. As a result, compared to standard application rates and prices, the project showed participating farmers a collective savings of: 2 tons of lime, 4 tons of phosphorus, 12 tons of potash and \$2800.

Chowan Regional Council

Project Title: "Subsoiler/Denitrification Barrier Demonstration Project"

Description: Demonstrate the effectiveness of utilizing subsoiler techniques to improve soil permeability and denitrification walls to remove/reduce nitrate from shallow groundwater .

Lead Agency: Mid-East Resource Conservation and Development Council

Partners: Chowan RC, Municipalities, Landowners, DENR, APNEP, EPA

Funding: \$22,000 from EPA/APNEP base funds

Time Period: May 1, 2000 through April 30, 2002.

Status: Participating municipalities own a subsoiler, but do not necessarily have a tractor of proper size to pull it, or know the proper techniques for operating it. Grant funds have been shifted from purchasing a subsoiler to tractor rental and project leaders are providing the technical assistance necessary for its operation. Construction of underground denitrification barriers (or walls) will serve to remove/reduce nitrate from shallow groundwater. Conceptually, the wall provides an ideal environment for denitrification and a net loss of nitrogen because nitrate is converted to nitrogen gases that are then released into the atmosphere. Municipalities have offered use of construction equipment and barrier carbon materials (such as sawdust, peanut hulls, and/or wood chips) as in-kind service to the project. Barrier sites need to be constructed during fairly dry periods to assure the seasonally low water table is reached. Therefore, the typical dry summer months appear to be the best time for this construction. Three municipalities and one animal operation have agreed to participate in this project. Construction of the first barrier wall and monitoring wells is scheduled to begin on June 4, 2001 at the Winton spray fields. Construction at the other sites (Aulander and Ahoskie) will follow soon thereafter.

Pasquotank Regional Council

Project Title: "Winfall Water Quality Demonstration Project"

Description: Demonstrate the effectiveness of a constructed wetland in treating backwash water from water treatment plant.

Lead Agency: Albemarle Resource Conservation and Development Council

Partners: Pasquotank RC, Town of Winfall, Perquimans SWCD, NRCS, Wooten Engineering, Royster Clark, Inc., DENR, APNEP, EPA

Funding: \$26,000 from EPA/APNEP base funds

Time Period: August 1, 2000 through July 31, 2002

Status: Negotiations between project officers and adjacent landowner occurred during March-August 2000. Area for the proposed constructed wetland was cleared in December 2000. Cross sections and final design completed by NRCS in February 2001. Final meetings with Army Corps of Engineers, Winfall Town Council and fertilizer distributor to review final

designs and begin bid packets for wetlands construction/excavation held in March 2001. 404 Permit was received in April. 401 Certification from DWQ is expected by early June. Bid packets were distributed in June. Once the bid is awarded and vendor identified, wetlands construction will take about three months to complete, followed by the planting of aquatic plants. Educational signage and brochure to be completed soon thereafter.

II. AIR DEPOSITION PROJECT

Project Title: "Comparison of atmospheric concentrations of ammonia and ammonium aerosols at three sites in eastern North Carolina".
Description: The project's main focus is to determine the contribution of atmospheric nitrogen deposition to the sounds, particularly as it pertains to ammonia from intensive livestock operations.
Lead Agency: Water Resources Research Institute (WRI)
Partners: NC State University, UNC-Institute of Marine Sciences, EPA, DENR and APNEP
Funding: \$65,000 from EPA add-on

Status: Contract expired on September 30, 2000. Draft report currently being peer reviewed through WRI for future publication. This study showed that a region in eastern North Carolina (particularly Sampson County) with a high density of large-scale animal operations is experiencing relatively high atmospheric concentrations of ammonia near the earth's surface. Indirect evidence in the form of rainwater chemistry collected by the NADP program suggests that significant changes in atmospheric ammonia began to occur around 1990. Data from the study strongly suggests that the swine industry in this portion of eastern North Carolina has a strong influence on local atmospheric ammonia concentrations. The relatively high concentrations of atmospheric ammonia measured at the Sampson County site suggests a strong source term with a resultant dispersion of ammonia throughout the region, including possible transport to local estuaries.

III. NUTRIENT REDUCTION ACCOUNTABILITY PROJECT (Clean Water Action Plan Supplement – FY2000)

Project Title: "Sample Analysis: Comparison of Field-Scale and Aggregated Versions of NLEW"
Description: The nitrogen TMDL standard determined by DENR for the Neuse River has been set at 30% reduction in nitrogen. In order to meet this reduction, mandatory rules have been established in the Neuse River Basin. One of the regulations requires that the agricultural sector utilize a nitrogen accounting tool to track changes in nitrogen loading from the implementation of BMPs. The development of an accounting methodology will assist the Division

of Water Quality in verifying and adjusting the nutrient loading baseline from agricultural fields within the Neuse River Basin. This will help to ensure that the county nitrogen reduction goal is achieved in accordance with the Neuse River Basin Nutrient Sensitive Waters (NSW) Management Strategy being implemented in that basin. The tool developed for this purpose, Nitrogen Loss Estimation Worksheet (NLEW), has been developed at two different scales – a field-scale and an aggregated scale. The aggregated scale of NLEW was developed to allow for the historical baseline nitrogen loading determination from agricultural activities. It is necessary, however, to compare the results from the aggregated version of NLEW with the field-scale version of NLEW in order to ensure accuracy of the baseline results. To compare the two tools, statistically valid field-scale information must be collected, analyzed and compared.

Lead Agency: NC State University

Partners: NC Department of Agriculture & Consumer Service, DENR, USDA-NRCS, APNEP and EPA.

Funding: \$241,800 (\$30,000 from EPA CWAP supplemental funds, \$120,000 from Federal 319 Program and \$91,800 state in-kind match)

Time Period: July 1, 2000 through September 2, 2002.

Status: The field-scale information necessary to conduct this project has been collected and the data is being finalized. Data analysis is expected to begin shortly and conclude by early fall 2001.

IV. FY2000 PUBLIC OUTREACH PROJECTS

The FY2000 Public Outreach Projects directly relate to the CCMP's Stewardship Plan goal: *Promote responsible stewardship of the natural resources of the Albemarle-Pamlico region*". Funding to implement the remaining outreach projects (approximately \$45,000) is encumbered in the FY2000 EPA grant.

1. Coastal Counties Open Space Design Workshops (completed)

In August 2000, APNEP staff, along with Randall Arendt, renowned land-use planner, site designer and lecturer, conducted two open space design workshops in Plymouth and New Bern, NC. Mr. Arendt presented various strategies regarding conservation subdivision design as a tool for building community-wide open space networks. More than 80 people attended the workshops.

2. Fisheries Symposium

The NC Division of Marine Fisheries, a key entity in making this event happen, has indicated that, given current state budget constraints, they

cannot devote the resources necessary to conduct this event in the near future. Therefore, it has been determined that this event will not happen and should no longer be considered a part of this work plan.

3. NC/VA Shared Resources Forum

This will be included as part of the 3rd Albemarle-Pamlico Estuary Conference scheduled for December 12, 2001.

4. Boat Tour to promote environmental awareness

Scheduled for October 30, 2001.

5. Habitat Protection and Restoration Conference

Timing is dependent on status of Coastal Habitat Protection Plans (CHPPs) being developed by DENR and watershed restoration plans being developed by the NC Wetlands Restoration Program. Proposed for March 2002.

6. 3rd Albemarle-Pamlico Estuary Conference

Scheduled for December 12, 2001 in New Bern, NC.

7. Albemarle-Pamlico Resource Guide

Contract with professional writer was initiated on May 10, 2001 to produce non-technical document titled "The Albemarle-Pamlico ... North Carolina's Coastal Treasure". Text version of document due by November 2001. Next step will be to hire a layout/design specialist.

V. STAFF SUPPORT CONTRACTS

A contract supporting a key technical staff-person (Andy Coburn) will continue in FY2002 utilizing FY1997 funds budgeted specifically for program support. A new contract to hire an outreach assistant will be accomplished using FY2002 funds (see FY2002 Public Outreach Projects on page 28). Julie Indicott, who performed as outreach assistant during the past year, is no longer with the program. Her replacement is under consideration.

Technical Support Staff: Since August 1998, Andy Coburn has provided technical assistance to the APNEP for purposes of staffing the Regional Councils and Coordinating Council, and other tasks as necessary to support implementation of the CCMP. Among other things, Mr. Coburn was very instrumental in developing APNEP's GPRA and tech transfer documents during the past year.

During FY2002, Mr. Coburn will:

- continue development of a quarterly program newsletter,
- manage program mailing list database,
- maintain the program's website,

- assist in the development of reports, news articles, educational pieces, public presentations, etc., and
- assist with meeting preparations and relevant mailing distributions.

Administrative/Outreach Assistant: The search for a replacement for Julie Indicott is underway. This new person will provide much-needed administrative/outreach assistance to the APNEP for purposes of staffing the Regional Councils and Coordinating Council, and outreach activities necessary to support CCMP implementation.

During FY2002, the new outreach assistant will:

- assist with meeting preparation, including arrangement of meeting locations, identifying equipment needs, providing appropriate meeting materials, scheduling speakers, arranging refreshments, producing name tags and generally assisting with the Public Involvement Coordinator's administrative needs,
- assist with the development and distribution of mailing materials relevant to meetings, including agendas, minutes, mailing labels, and necessary enclosures, and
- assist with the development of reports, news articles, educational pieces, school presentations, etc. Assist with arrangements for educational/outreach/public information meetings, workshops, etc. as necessary.

STATUS OF FY2001 WORK PLAN COMPONENTS

I. APNEP WATERSHED FIELD COORDINATOR

Purpose: Provide coordination and support to APNEP, DENR and the Virginia Department of Conservation and Recreation (VADCR) to enhance implementation of the CCMP in the Roanoke, Chowan and Pasquotank river basins.

Status: In August 2000, Noah Hill was hired by VADCR to fulfill the duties of this position. The APNEP contract, which supports ½ of this position, was initiated in January 2001. Specific accomplishments include:

- Instrumental in raising the awareness of the Southern Watershed Area Management Program (SWAMP) relative to the APNEP and CCMP. SWAMP is a very active coalition of local governments, state agencies and other policy-making interests focusing on Virginia's southern watersheds of Virginia Beach and Chesapeake. Working with SWAMP representatives about the possibility of an information sharing agreement with the Pasquotank Regional Council.

- Involved in the formation of Virginia's Chowan River Watershed Roundtable. The purpose of the Roundtables is to provide a watershed-based forum for stakeholders to participate in defining critical needs, targeting problems for solution, and providing input on potential management options.
- Attendance at three Pasquotank Regional Council meetings and two Chowan Regional Council meetings, as well as the Coordinating Council meeting held on April 25th.
- Attendance at the APNEP BasinPro and resource monitoring workshops held in October and December 2000 respectively.
- Arranged for speakers at two Pasquotank Regional Council meetings.
- Updated directory of North Carolina and Virginia environmental organizations and agencies.
- Researched population estimates for VA Chowan and Pasquotank regions for inclusion in DWQ basinwide plans.
- Participated in several public education events to promote NC-VA partnership and highlight specific goals of the CCMP.
- Compiled information about the Chowan and Pasquotank basins for promotional purposes in support of the CCMP.
- Assisted APNEP Coordinator and VA Albemarle, Chowan & Coastal Watersheds Manager in the development of a paper and presentation for the National Watersheds Conference. Presentation was made at this conference by VA's Albemarle, Chowan & Coastal Watersheds Manager on May 21st. The focus of this presentation was to increase the awareness of NC and VA's collaborative efforts to implement the CCMP.
- Worked closely with APNEP Outreach Coordinator to establish and facilitate the interstate MOA signing ceremony (planned for this summer).
- Worked as part of the planning team for the 8th Annual Virginia Watershed Management Conference held last November in Williamsburg, VA. to ensure that APNEP was a featured program on the agenda and as an exhibitor.

II. ALBEMARLE-PAMLICO CITIZENS' WATER QUALITY MONITORING PROGRAM

The APNEP Citizens' Water Quality Monitoring Program (CWQMP) 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. The CWQMP was expanded under the APNEP several years ago to include all waters located in the Albemarle-Pamlico region.

The CWQMP has three areas of activity, as its focus: 1) baseline monitoring, 2) targeted monitoring and surveys, and 3) 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 "vital signs" of the estuary. Specifically, parameters tested include: dissolved oxygen, pH, salinity, air and water temperatures, and turbidity to gauge the general health or quality of water in the estuary. Occasionally, program volunteers gather water samples for specific pollutants such as bacteria and nutrients. 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 collected are forwarded to the program office where staff compiles the information and enters the data into report form for citizen and government agency use. Often, these monitoring efforts serve as a useful supplement to existing governmental activities. For example, specific monitoring data was requested by the 1) Army Corps of Engineers during the scoping phase of a pending Currituck Sound Study, 2) Division of Marine Fisheries for consideration in the Chowan River Coastal Habitat Protection Plan, 3) Division of Water Quality for consideration in various basinwide management plans, and 4) Cypress Landing Group (grass-roots organization) for local use/information.

Status: In addition to the obvious benefits of public involvement (e.g. heightened understanding, greater appreciation for resources, stewardship ethic, etc.) tangible benefit is derived from water quality data collection through the CWQMP. Currently, there are 75 volunteers actively involved in the program who are monitoring 34 sites within the APNEP region. Selected FY2001 accomplishments include:

- development of trend analyses for specific sampling sites synthesized from existing and future data,
- continuation of a program newsletter,
- development of a program website located at www.ecu.edu/icmr/cwqmp/
- outreach activities and presentations made to area schools and civic groups
- contract with East Carolina University (program sponsor) was extended/amended through May 2002.

III. IMPLEMENTATION OF PRIORITY ACTIONS

Following is the status of the four priority actions as determined by the APNEP Coordinating Council for FY2001:

PRIORITY ACTION #1: Develop a comprehensive monitoring strategy through the synthesis and assessment of the existing environmental monitoring programs, specifically in the Albemarle-Pamlico estuarine system and associated watersheds.

Background: The Coordinating Council recognized the importance of collecting adequate high quality baseline monitoring data for both water and biological resources. Monitoring programs and data acquisition should be designed to ensure that: (1) data can detect and identify specific water quality and biological resource changes in the estuarine system and the rivers that drain into the estuaries; (2) sufficient data are available for use with existing and future water quality models; and (3) sufficient data are available to determine if management actions implemented are having the expected results.

Status: Working with representatives from EPA and Battelle, APNEP conducted a two-day monitoring workshop in December 2000. The purpose of the workshop was to bring together APNEP stakeholders and people presently performing monitoring, research and assessments in the Albemarle-Pamlico region, to discuss measurements being made and monitoring activities that should be included in development of an APNEP Comprehensive Monitoring Strategy. Results from the workshop indicated that a diverse set of ongoing monitoring activities exists in the Albemarle-Pamlico region – although gaps in monitoring were also identified, particularly in the estuaries and sounds. Overall, most participants believed that a comprehensive monitoring strategy is needed for this region.

The goals of the comprehensive environmental monitoring strategy are to:

- develop strategies to address identified monitoring gaps in the estuaries and sounds,
- prioritize these monitoring gaps and needs to enable optimum use of limited resources,
- identify potential funding sources to meet critical monitoring needs,
- recommend additional environmental monitoring programs, projects, and/or assessments where needed, and
- recommend strategies to enhance monitoring coordination, funding opportunities, data management/synthesis and reporting methods.

The Coordinating Council, at their April 25, 2001 meeting, directed APNEP staff to solicit possible contractors to write/prepare the comprehensive monitoring strategy. A contractor will be hired during the fall 2001.

PRIORITY ACTION #2. Improve effectiveness and member-participation with Regional Councils and Coordinating Council.

Background: The Coordinating Council recognized that to be truly effective in carrying out its responsibilities, it, as well as the Regional Councils, must have better participation from members. Led by APNEP's Outreach Coordinator, two working committees charged with devising innovative methods for ensuring increased participation and vacancy-related issues on both the Regional Councils and Coordinating Council were established.

Status: A committee meeting, chaired by the APNEP Public Outreach Coordinator, occurred on June 20, 2001. Recommendations to improve the effectiveness and member-participation of these councils have been made. The next step will be to refine the recommendations and devise/implement a formal strategy to achieve the desired outcome. Modification of the Governor's Executive Order, which created these councils, is being considered.

PRIORITY ACTION #3. Increase public outreach and education.

Background: The Coordinating Council considered this action item as being inherent in each of the other priority actions and will be a strong component of the strategies designed to implement them. APNEP staff view this action as being inherent to all program activities.

Status: Specific public outreach and education activities supported by APNEP during FY2001 include:

- Regional Council members and citizen-involvement in basinwide planning workshops
- Production of river basin bookmarks
- GIS-oriented BasinPro workshops targeted at key local government officials
- "Tools for Watershed Management Workshop" conducted by Horsley and Witten
- "Open Space Design Workshops" promoting conservation subdivision design as a tool for building community-wide open space networks
- APNEP newsletter titled "The Beacon" and the program's website
- Various presentations and exhibits made by APNEP staff and CWQMP

PRIORITY ACTION #4. Expand programs that facilitate restoration and acquisition of critical riparian areas on the mainstems and major tributaries of the five major rivers located in the Albemarle-Pamlico region.

Background: The Coordinating Council recognizes the importance of riparian buffers in controlling runoff and providing habitat for wildlife. Many of the agencies represented on the Coordinating Council are involved in programs that work to restore/acquire riparian habitats. A role for the Coordinating Council would be to help coordinate the various programs and initiatives underway to restore/acquire critical riparian areas. This action could help prioritize areas in need of restoration and develop strategies for acquisition.

Status: A preliminary meeting was held by APNEP's Program Coordinator and USFWS representatives in March 2001. They determined that a larger scoping meeting should be conducted to better assess current activities related to this action. The scoping meeting will involve agencies/stakeholders currently involved in riparian restoration and acquisition activities. Through this process, it is intended that a new strategy be devised to help achieve this action. The scoping meeting will occur during summer-fall 2001.

IV. FY2001 SUPPLEMENTAL FUNDING INITIATIVE

Background: EPA provided \$20,000 of supplemental funds to be used to assist APNEP in addressing challenges identified by EPA in the 1999 Biennial Review. In particular, these funds will assist APNEP with tracking and reporting on progress in implementing CCMP actions. Use of these supplemental funds in this manner can also strengthen the program's capacity to show and produce environmental results. It will also enhance EPA's ability to accurately measure APNEP's progress for reporting under the Government Performance and Results Act (GPRA).

The Coordinating Council elected to hire someone (via contract) to enhance APNEP's ability to measure/report environmental results and to develop a CCMP implementation tracking system.

Status: Contract with Andy Coburn is expected to commence in early-July. Though a contract is not yet in place, Mr. Coburn is setting up the database and has begun to accumulate some information regarding CCMP implementation activities. Preceding this, Mr. Coburn and the APNEP Program Coordinator met several times to plan for this project. Much of the discussion focused on the type of database to be used, strategies on ways to obtain information, what type of outcomes are expected, how the information should be presented, etc. Mr. Coburn has provided a draft monitoring and tracking report suggesting what type of information could be included and how it could be presented (formatted). This contract will also provide for the continued annual development of progress assessments regarding CCMP implementation.

V. USE OF FY2001 TRAVEL SUPPLEMENT

Travel funds during FY2001 were utilized by APNEP staff to attend a number of important meetings and conferences. Below is a summary:

Personnel	Date	Purpose	Location	Cost
Stefanski/Giordano	Oct. 2000	ANEP/EPA National Meeting	Sebasco, ME	\$2300
Stefanski/Giordano	Nov. 2000	Virginia Watershed Management Conf.	Williamsburg, VA	\$700
Stefanski/Giordano	Mar. 2001	ANEP/EPA National Meeting	Washington, DC	\$2600
Stefanski/Giordano	Apr. 2001	NEP Financing Workshop	New Orleans, LA	\$1800
Giordano	June 2001	NEP Outreach Workshop	Philadelphia, PA	\$850
TOTAL (approximate):				\$8250

Additional travel funds were expended by APNEP staff to attend a series of local meetings/conferences, including:

- APNEP GIS BasinPro Workshops held at several locations in eastern NC during September-October 2000;
- After the Perfect Storm: Managing Coastal Stormwater Conference in Wilmington, NC in October 2000;
- Coastal Plain Streams Restoration Workshop in Greenville, NC in February 2001;
- Roanoke Basinwide Public Meeting in Windsor, NC in February 2001;
- Impacts to Dam Removal Presentation in Raleigh, NC in April 2001;
- Chowan and Pasquotank Basinwide Public Workshops held at several locations in eastern NC during March 2001;
- Coordinating Council FY2002 Work Plan Development Meeting in Raleigh, NC in April 2001;
- Tools for Watershed Management Workshop in Greenville, NC in May 2001; and
- various Regional Council regularly scheduled meetings held throughout the Albemarle-Pamlico region.

ADDITIONAL TOTAL (approximate):\$1000

FY2002 WORK PLAN
ALBEMARLE-PAMLICO NATIONAL ESTUARY PROGRAM

GRANT FUNDING AMOUNT

The US Environmental Protection Agency has targeted \$340,000 of FY2002 federal funds to support a seventh year of post-CCMP implementation. The full base funding (\$300,000) and travel supplement (\$10,000) will be available. In addition, EPA is providing \$30,000 of supplemental funds which can be used to assist APNEP in a variety of ways. Use of FY2002 supplemental funds is presented on pages 29-31.

The NC Department of Environment and Natural Resources (DENR), as the grant recipient, intends to provide an additional \$340,000 (in the form of in-kind services) as part of the 1:1 non-federal match requirement, for a total budget of \$680,000.

SUMMARY OF FY2002 WORK PLAN COMPONENTS

The APNEP Coordinating Council met on April 25, 2001 to determine the main components to be included in the FY2002 APNEP Work Plan. The principal Program objective for FY2002 is to carry out the responsibilities and priority actions as determined by the APNEP Coordinating Council.

Below is a summary of the major initiatives/personnel to be included in the APNEP FY2002 work plan as approved by the Coordinating Council:

- Personnel:
 - Program Coordinator – coordinate program activities/implementation process
 - Public Involvement Coordinator – enhance public relations and coordinate outreach
 - Watershed Field Coordinator – provides coordination and support to DENR and VADCR to enhance CCMP implementation in three common river basins
- Citizens' Water Quality Monitoring Program – important public involvement effort
- Public Outreach Projects/Personnel – to promote a better understanding of the region's many issues and offer opportunities for public involvement
- With input from the Regional Councils and Coordinating Council, identify and implement a watershed demonstration project for environmental benefit

- Coordinate a large-scale, long-term SAV monitoring effort to assess the extent of SAV coverage in the Albemarle-Pamlico estuaries (FY2002 Supplemental Funding Initiative).
- Fully implement ongoing projects and staff support contracts from previous year as presented on pages 8 through 20.

SCOPE OF WORK

INITIATIVE 1: IMPLEMENTATION PLAN

- Continue to demonstrate the implementation strategy as outlined in the CCMP. This action directly supports the CCMP's Implementation Plan goal: *Implement the CCMP in a way that protects environmental quality while using the most cost-effective and equitable strategies.*

I. REGIONAL COUNCILS and COORDINATING COUNCIL:

Key elements of the CCMP's Implementation Plan are the operation of Regional Councils (RCs) representing local government and stakeholder interests in each of the five river basins in the Albemarle-Pamlico region, and a Coordinating Council (CC). The CC's role is to devise policy and provide continued opportunity for interagency coordination and local government input. This structure, which is mandated through a Governor's Executive Order, allows for the communication and coordination critical to successful CCMP implementation. All five Regional Councils have been meeting since September 1997 and the Coordinating Council has been meeting since March 1998.

In FY2002, the Coordinating Council will focus on the following:

- Establishment of Implementation Priorities: As identified in the 1999 Biennial Review, in order to ensure that progress is made on the most important CCMP activities first, APNEP and the Coordinating Council need to develop a list of ranked implementation priorities. Input from the Regional Councils is necessary. The outcome should be reflected in yearly work plans and the implementation tracking matrix. During FY2002, the Coordinating Council will conduct a strategic planning process to establish implementation priorities. This was a component of last year's work plan, but was not accomplished.
- Determine APNEP "enhancements" relating to Smithfield Foods Agreement: A key element of the Smithfield Foods Agreement states that the Smithfield companies will play a leadership role in enhancing the effectiveness of the APNEP. The Coordinating Council will be working with NC Attorney General and Smithfield representatives to determine what type of enhancements are necessary and feasible. (See page 2).

Budgetary Requirements: Two full-time APNEP personnel are essential in supporting the operational needs of the Regional Councils and Coordinating Council (\$138,000).

A Watershed Field Coordinator will provide coordination and support to APNEP, DENR and the Virginia Department of Conservation and Recreation to enhance CCMP implementation in the Roanoke, Chowan and Pasquotank basins (\$25,000 via contract).

II. APNEP PERSONNEL:

Program Coordinator: A Program Coordinator is necessary to coordinate the implementation process which involves interacting with numerous resource management agencies and interest groups, as well as the general public. This position manages the post-CCMP grant and associated contracts (including management of the Regional Councils' demonstration projects), provides staff support to the Regional Councils and Coordinating Council, and represents the APNEP at local and national meetings.

Guy Stefanski will continue in this role within the Division of Water Quality as he has since 1994. Grant funds will be used to support this position.

Public Outreach Coordinator: A Public Outreach Coordinator is necessary to enhance public relations and knowledge concerning issues relating to the CCMP; develop educational and outreach programs; promote dialogue between local government officials and private citizens and demonstrate oversight responsibility for the Citizens Water Quality Monitoring Program contract. This position also provides valuable staff support to the Regional Councils and Coordinating Council.

Joan Giordano will continue in this role within the Division of Water Quality as she has since 1987. Grant funds will be used to support this position. A portion of these grant funds (\$10,000) will be allocated for the purchase of a new computer, laptop and LCD projector to support an increase in outreach efforts.

Objectives: Much work remains to fully engage the Regional Councils and Coordinating Council to effectively carry out their roles in implementing the priority actions of the CCMP and to coordinate environmental management strategies in the Albemarle-Pamlico region. Primarily, APNEP staff will work to:

- implement components of FY2002 work plan;
- develop and implement recommendations to enhance effectiveness of Regional Councils and Coordinating Council;
- continue dialogue with the Commonwealth of Virginia in preparation and signing of the interstate MOA;
- work with contractors to fully implement the Regional Councils' demonstration projects;
- increase the level of program outreach to better inform the public of APNEP activities in the region through completion of the FY2000 outreach projects identified on pages 13-14;

- enhance coordination between the Regional Councils, Coordinating Council and DWQ's Basinwide Program as it relates to the development of this year's basinwide plans for the APNEP region (Neuse, Chowan and Pasquotank). Encourage participation at various public meetings and workshops necessary for the development of these plans;
- continue to develop annual progress assessments regarding CCMP implementation achieved through use of FY2001 Supplemental Funding Initiative (new contract with Andy Coburn; see page 19-20);
- increase level of coordination between APNEP and the state's 319 Program Coordinator which may lead to a project identified by the Coordinating Council that would be funded through the 319 Program; and
- work towards fulfillment of the FY2001 top four priority actions.

III. CONTRACT WITH THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION:

Watershed Field Coordinator: The headwaters for the Pasquotank, Chowan and Roanoke river basins contributing to the estuary system are located within Virginia. One of the most critical components to effectively implementing the CCMP within these basins is long-term, comprehensive coordination between North Carolina and Virginia.

As it did last year, APNEP will provide partial funding of \$25,000 to continue an existing contract with VADCR which supports a Watershed Field Coordinator (see page 15). This position will support VADCR's effort to implement the CCMP. The VADCR is providing an additional \$25,000 to support this position. The current contract period supporting this effort is from January through December 2001. This contract will be amended effective January 2002.

Specifically, APNEP funds will pay for ½ of a part-time employee. Approximately 20 hours per week will be dedicated to the APNEP CCMP efforts. This position will be working out of the VADCR Albemarle, Chowan and Coastal Watersheds Office in Suffolk, Virginia.

The VADCR Albemarle, Chowan and Coastal Watersheds Manager will supervise this employee, providing the following implementation support services:

- Provide coordination and support for Virginia's Watershed Conservation Roundtables (basin councils) being formed in the Albemarle, Chowan and Roanoke river basins. The Roundtables will play a critical role in providing regional forums for stakeholders to discuss and develop CCMP implementation protocols and efforts in Virginia.
- Facilitate and foster coordination and communication between Virginia's Watershed Roundtables and North Carolina's River Basin Regional Councils.

- Compile information from local jurisdictions that will aid in APNEP CCMP work plans and DWQ basin plans, targeting and monitoring of progress. Examples of information needed could include: demographics, current and projected land uses, nonpoint source pollution control programs, local GIS maps, BMPs implemented, etc.
- Assist with APNEP CCMP public relations by preparing material for regionally-targeted fact sheets, news releases, and other articles for publishing purposes.
- Assist VADCR Watershed Managers in the Albemarle, Chowan and Roanoke basins by preparing materials, presentations, and mailings on the APNEP CCMP implementation efforts for distribution to the 14 Soil & Water Conservation Districts in the basin. This activity will further VADCR's technical support for SWCDs and facilitate increased participation among the agricultural community in the implementation of the APNEP CCMP.
- Assist with event planning and facilitation as necessary.

IV. FY2002 TRAVEL SUPPLEMENT

As part of the FY2002 federal grant, EPA is providing APNEP with \$10,000 travel funds for outreach support. These funds are to: 1) cover travel for the APNEP Program Office, Management Conference members, or other associated stakeholders to appropriate national and regional conferences, workshops, or meetings; 2) provide peer-to-peer technical assistance to other National Estuary Programs (NEPs) or neighboring communities; and 3) bring in staff or stakeholders from other NEPs or watershed programs to assist APNEP. As a requirement of this agreement, APNEP staff are required to attend all national or regional meetings called on behalf of the NEPs. These funds cannot be used to pay for travel of Federal employees.

INITIATIVE 2: STEWARDSHIP PLAN

- Continue to demonstrate the utility of the Citizens' Water Quality Monitoring Program as an effective public involvement and education tool and expand the program's interaction with regulatory agencies. This action directly supports the CCMP's Stewardship Plan, Objective B, Management Action 4: *Expand involvement in the CWQMP and make the program more interactive with regulatory agencies.*
- Conduct Public Outreach Projects to promote a better understanding of the region's many issues and offer opportunities for public involvement. This action directly supports the CCMP's Stewardship Plan, Objective B: *Increase public understanding of environmental issues and citizen involvement in environmental policy-making.*

I. ALBEMARLE-PAMLICO CITIZENS' WATER QUALITY MONITORING PROGRAM

Since 1988, the APNEP Citizens' Water Quality Monitoring Program (CWQMP), supported by APNEP with EPA funds, has provided an opportunity for citizen involvement by monitoring specific sites in the estuary. Currently, the CWQMP resides at East Carolina University (ECU) in Greenville, North Carolina.

It should be noted that APNEP staff was successful in negotiating with ECU representatives in lowering their indirect cost rate from 39.5% to 15%. This rate is consistent with what other universities are charging to sponsor other DENR projects/contracts. With less indirect cost applied by ECU, the program will now have more operating funds.

Budgetary Requirements: A Regional Coordinator is required to continue operation of the A/P Citizens' Water Quality Monitoring Program (\$40,000 via contract with East Carolina University).

Allen Clark will continue in his role as Regional Coordinator. This position has been institutionalized at ECU, but long-term funding support is questionable.

Objectives: In addition to the obvious benefits of public involvement (e.g., heightened understanding, greater appreciation for resources, stewardship ethic, etc.) tangible benefit is derived from water quality data collection through the CWQMP. Information gathered by the CWQMP can be used by state biologists and the basinwide planning program. The CWQMP Regional Coordinator will continue to enhance program performance and status of this important effort.

During FY2002, the Regional Coordinator will focus on the following:

- continued development and presentation of trend analysis synthesized from existing and future data,
- continued production and distribution of a program newsletter,
- continued outreach/presentations to interested groups;
- maintenance of the program's web site;
- development of program brochure to increase its visibility and contact with interested groups; and
- planning and participation in APNEP Volunteer Monitoring Workshop being proposed for spring 2002. In June 2001, the Center for Marine Conservation contacted the APNEP Coordinator regarding a possible volunteer monitoring workshop in the Albemarle-Pamlico region. This workshop will be funded by EPA through its agreement with the Center for Marine Conservation. Details of the workshop will be worked out in the near future.

II. PUBLIC OUTREACH PROJECTS and PERSONNEL

The FY2002 Public Outreach Projects directly relate to the CCMP's Stewardship Plan goal: *"Promote responsible stewardship of the natural resources of the Albemarle-Pamlico region."* Proposed activities, staffing requirements, and dates are arrayed below:

1. **One or two national campaigns**, featuring estuaries, which will be collectively produced by several of the NEPs around the nation. Identification and development of these efforts are to be the focus at the June 25-26, 2001 NEP Outreach/Education workshop in Philadelphia. National campaigns will be modified for regional NEP use. (\$15,000)

Examples might include collaboration with a national sponsor, such as McDonald's, to perhaps produce place mats featuring estuaries. The front side would explain what estuaries are, their importance/function, the location of regional/local sites; while the back could be devoted to a "puzzle page" for children to apply the information gleaned from the front.

Another example might be to engage in a national campaign to stencil storm drains while underscoring the importance of where storm drains lead. A brochure detailing this information can be developed and distributed. Each NEP would have the latitude to customize their stencil. The brochure would have generic information.

2. **A permanent exhibit**, featuring an aspect of estuarine life, will be developed by APNEP staff, and staff of the NC Estuarium. The exhibit will be displayed at the Estuarium in Washington, NC, which is part of the Partnership for the Sounds initiative. The Tar-Pamlico River Basin Regional Council could be involved in generating ideas for the exhibit or in offering comment on exhibit draft proposals. (\$12,000)
3. **A day-long seminar** dealing with the issue of water supply in general, and diminishing aquifer waters within the coastal plain of the APNEP region specifically, featuring university scientists, state agencies, local government officials, and APNEP Regional Council members. This event/issue is recognized as the highest priority of the Neuse Regional Council. (\$3,000)
4. **Outreach Assistant.** An assistant to the Outreach Coordinator is needed. This position would be responsible for administrative and outreach activities necessary to support CCMP implementation and to provide help with day-to-day requirements of staffing the APNEP Public Involvement Office in Washington, NC. This person will fill the vacancy made available by Julie Indicott's departure (see page 14). (\$25,000)
5. **Promotional Items.** The development of promotional items (e.g. tee-shirts, hats, mugs, refrigerator magnets, key rings, etc.) are useful in drawing attention to the APNEP and its purpose. These items (which have not been produced during the implementation phase of the APNEP) can be distributed at festivals, Regional

Council meetings, annual meetings and other "public" gatherings. Such items were very popular during the research and development phase of the program and aided in program identity. Cost would depend on items and quantities produced. (\$5,000)

TOTAL \$60,000

INITIATIVE 3: WATERSHED DEMONSTRATION PROJECT

- Identify and implement a watershed demonstration project for environmental benefit in the Albemarle-Pamlico region. Supports the CCMP's inherent goal to restore, maintain or enhance the region's natural resources.

According to the State's 2000 303(d) List, there are over 930 miles of impaired freshwater streams in the Albemarle-Pamlico watershed. There is a great need to target/prioritize these streams for restoration and to implement the measures necessary to achieve their viability. The APNEP, through its Regional Councils and Coordinating Council, will work to prioritize these streams for restoration and will target FY2002 funds to implement restoration activities. Results of the watershed demonstration project will be transferable to all river basins in the Albemarle-Pamlico region.

Budgetary Requirement: \$37,000 from this grant will be targeted (via contract) to support this initiative.

INITIATIVE 4: SUPPLEMENTAL FUNDING INITIATIVE

Last year, EPA provided supplemental funds to develop or enhance environmental indicators, produce an implementation tracking system, or produce an environmental progress report. These topics had been identified in the previous Implementation Reviews as areas where NEPs faced challenges, or areas that would assist in meeting Government Performance and Results Act (GPRA) goals.

After consideration of the many possible uses of these funds, EPA has determined that the categories outlined during the last fiscal year are still valid, and of a very high priority. However, EPA recognizes that invasive species is an area where an increasing number of NEPs are facing challenges.

Therefore, FY2002 supplemental funds (\$30,000) are to be targeted to one or more of the following criteria (supplemental funds can be used for staff or outside support to initiate or implement these activities):

- 1) develop or enhance a CCMP report card or environmental progress report on the estuary (provides information on environmental results achieved during CCMP implementation or from early action);
- 2) develop or enhance a CCMP implementation tracking system (indicates level of progress being made in implementing CCMP actions);

- 3) develop new or augment existing environmental indicators (including any necessary monitoring, modeling or data management activities, or to conduct workshops); or
- 4) conduct discrete projects or activities to address invasive species such as early detection/rapid response, monitoring, education or outreach, or management approaches.

At their April 25th meeting, the Coordinating Council elected to coordinate a large-scale, long-term submerged aquatic vegetation (SAV) monitoring effort to assess the extent of SAV coverage in the Albemarle-Pamlico estuaries. This action relates to item 3 above. Items 1 and 2 above are being accomplished using FY2001 supplemental funds (see page 20).

Submerged aquatic vegetation constitutes one of the most common estuarine habitats in North Carolina. The 1990 published estimate of area of SAV is 200,000 acres. In the contiguous 48 states, North Carolina is second only to Florida in acreage of SAV, and has twice the acreage reported for Chesapeake Bay. SAV provides food and cover for a great variety of commercially and recreationally important fauna and their prey. Thirteen species of SAV have been reported for the Albemarle-Pamlico estuary. SAV support 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.

Previous studies by NOAA and East Carolina University to delineate and quantify the location and extent of SAV, based on conventional color aerial photography and field sampling, were conducted in the late-1980s and early-1990s for major portions of the Albemarle-Pamlico estuary. This information, some of which has been digitized in GIS-format, has proven valuable to habitat managers in their review of dredge and fill related permit applications and help achieve the nomination of Core Sound, Back Sound and western Bogue Sound for designation as Outstanding Resource Waters.

Since that time, no major organized effort to map the location and extent of SAV coverage in the Albemarle-Pamlico estuary has been conducted. SAV is being used as a critical environmental indicator in several other estuarine systems (e.g., Indian River Lagoon, Sarasota Bay, Tampa Bay and Chesapeake Bay). Currently, North Carolina lacks the information necessary to determine reliable trends in SAV based on data generated almost 10 years ago.

For this reason, the Coordinating Council elected to provide FY2002 supplemental funds as seed money to initiate a large-scale, long-term submerged aquatic vegetation (SAV) monitoring effort to assess the extent of SAV coverage in the Albemarle-Pamlico estuaries. As a first step, APNEP will conduct a scoping meeting/workshop involving local and national experts in SAV research and monitoring to develop a SAV monitoring strategy for the Albemarle-Pamlico estuaries.

This action directly supports the CCMP's Water Quality Plan, Objective E: *Evaluate indicators of environmental stress in the estuary and develop new techniques to better assess water quality degradation*; and the Vital Habitats Plan, Objective C: *Maintain, restore, and enhance vital habitat functions to ensure the survival of wildlife and fisheries*.

SUMMARY OF FEDERAL BUDGET: The federal budget for FY2002 funding of \$340,000 is provided below:

INITIATIVE 1: IMPLEMENTATION PLAN

Program Coordinator	58,000
Salary	40,546
Indirect (11.4% of salary)	4,622
Fringe Benefits*	9,229
Office Expenses (supplies, postage/printing)	3,603
 Public Involvement Coordinator	 80,000
Salary	42,297
Indirect (11.4% of salary)	4,822
Fringe Benefits*	9,553
Office Expenses (supplies, postage/printing)	3,828
Regional Office/Storage Space & Common Area	9,500
New computer, laptop and LCD projector	10,000
 Watershed Field Coordinator (contract with VADCR)	 25,000
 Travel	 10,000

INITIATIVE 2: STEWARDSHIP PLAN

Citizens' Water Quality Monitoring Program (contract with ECU).....	40,000
 Public Outreach Projects	 60,000

INITIATIVE 3: WATERSHED DEMONSTRATION PROJECT37,000

Identify and implement a watershed demonstration project for environmental benefit in the Albemarle-Pamlico region.

INITIATIVE 4: SUPPLEMENTAL FUNDS INITIATIVE30,000

Coordinate a large-scale, long-term submerged aquatic vegetation (SAV) monitoring effort to assess the extent of SAV coverage in the Albemarle-Pamlico estuaries.

TOTAL FEDERAL BUDGET FOR FY2002\$340,000

* Fringe Benefits are based on Social Security (7.65%) & Retirement (10.83%) of position's annual salary and Medical Insurance Plan rate of (\$1,736).

SUMMARY OF STATE MATCH REQUIREMENT

The NC Department of Environment and Natural Resources intends to provide \$340,000 as part of the 1:1 non-federal match for this agreement. The match will be provided through: 1) in-kind services provided by staff of the Division of Water Quality and 2) continued operation of monitoring platforms/stations strategically located in parts of the Albemarle-Pamlico estuaries. Below is a description of the intended state match:

<u>POSITION</u>	<u>SALARY</u>	<u>% EFFORT</u>	<u>SALARY (AS MATCH)</u>	<u>FRINGE</u>	<u>TOTAL</u>
<u>PLANNING BRANCH</u>					
Env. Spec III ^a	35,337	50	17,669	3,386	21,055
Env. Spec II	33,319	50	16,660	3,257	19,917
Env. Supvsr II	47,378	45	21,320	3,739	25,059
Env. Spec III ^b	44,777	50	22,389	3,989	26,378
<u>NEUSE RIVER RESPONSE TEAM</u>					
Env. Spec I	28,709	50	14,355	2,963	17,318
Env. Spec II	32,553	50	16,277	3,207	19,484
Env. Bio I	33,146	50	16,573	3,244	19,817
Env. Tech IV	28,195	50	14,098	2,928	17,026
<u>TAR-PAMLICO RESPONSE TEAM</u>					
Env. Spec I	29,242	50	14,621	2,996	17,617
Env. Spec II	33,185	50	16,593	3,248	19,841
Env. Bio I	32,514	50	16,257	3,204	19,461
Env. Tech IV	28,195	50	14,098	2,929	17,027
TOTAL:			\$200,910	\$39,090	\$240,000

Description

Environmental Specialist III^a and Environmental Specialist II – These positions work as basinwide planners in DWQ's Basinwide & Estuary Planning Unit responsible for developing basinwide water quality management plans. During FY2002, developing plans for the Neuse, Chowan and Pasquotank river basins will be a major focus. *These positions support the CCMP's Water Quality Plan, Objective A, Management Action 1: Develop and begin implementing basinwide plans to protect and restore water quality in each basin according to the schedule established by the Division of Water Quality.*

Environmental Supervisor II – This position supervises DWQ's Basinwide & Estuary Planning Unit, which includes the APNEP.

Environmental Specialist III^b – This position works in DWQ's Nonpoint Source Planning Unit and spends a considerable amount of time on the development and implementation of a nutrient control strategy in the Tar-Pamlico River Basin. *This position supports the CCMP's Water Quality Plan, Objective B, Management Action 1: For each river basin,*

develop and implement a plan to control nonpoint source pollution as part of the basinwide management plans.

The Neuse and Tar-Pamlico Response Teams are located in DWQ's Environmental Sciences Branch. The response teams are equipped to respond to fish kills (and other water quality-related events) quickly in order to better determine causes and conditions. *These positions support the CCMP's Water Quality Plan, Objective E, Management Action 1: Continue to track and evaluate indicators of environmental stress, including algal blooms, fish kills, and fish and shellfish diseases.*

WATER QUALITY MONITORING

During FY2002, DWQ will be contributing more than \$100,000 to enhance monitoring efforts in parts of the Albemarle-Pamlico estuaries. Utilizing special appropriations from the General Assembly in response to fish kills and associated problems in the Neuse Estuary, DWQ will continue to support (via contract with USGS) the operation of monitoring platforms/stations located in the Neuse, Pamlico and Pungo estuaries.

DWQ intends for \$100,000 to be applied as match to this agreement. *This action supports the CCMP's Water Quality Plan, Objective A, Management Action 6: Continue long-term, comprehensive monitoring of water quality in the Albemarle-PamlicoNEP system, collecting data to assess general system health and target regional problems.*

SUMMARY OF STATE MATCH

In-kind Positions (salaries and fringe):	\$240,000
Water Quality Monitoring	<u>100,000</u>
TOTAL:	\$340,000