ROANOKE RIVER BASIN REGIONAL COUNCIL

Roanoke/Cashie River Center
112 W. Water Street
Windsor, NC

April 16, 1999

AGENDA

10:00	Welcome and Call to Order	Chairman Jerry Holloman
10:05	Introductions	ALL
10:10	Acceptance of Minutes from 1/13/99 Meeting in Warrenton	Chairman Holloman
10:15	Developing a Demonstration Project: 1- "Let's Review Our Program of Work" 2- Discuss Project Proposal Criteria 3- Formation of a Demo Project Committee	Guy Stefanski, APNEP
10:45	Forestry Best Management Practices	Jerry Coker, Weyerhaeuser
11:15	Finalize/vote on Draft Resolution titled, *"Minimum Flow Management of the Lower Roanoke River"*	Chairman Holloman
11:30	Old Business: 1- Vacancies Update	Joan Giordano, APNEP
11:35	New Business: 1- GIS/RC Workshops in May 2- APNEP Newsletter 3- Next Coordinating Council Meeting on 4/23/99	Joan & Guy
11:50	Plans for Next Meeting (develop agenda items)	ALL
12:00	Adjourn	

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The meeting was called to order by the Vice-Chairman, Jerry Coker, at 10:00 a.m. After the welcome and introductions, the minutes of the January 13, 1999 meeting at Warrenton were approved as mailed.

Present at the meeting were:.

Jerry Coker	Weyerhauser
Kay Winn	Northampton County, At-large Representative
Bruce Perkinson	Warren County SWCD
James Outland	Northampton County Board of Commissioners
Andy Allen	Town of Plymouth
Michael Taylor	Northampton County Soil and Water
Jean Richter	For Jerry Hollomann, USFWS Roanoke River NWR
Sue Lintelman	Partnership for the Sounds
Jamey Gerlaugh	Roanoke River Partners
Al Weller	Weyerhauser
Jeff Horton	The Nature Conservancy
Joan Giordano	APNEP Staff
Guy Stefanski	APNEP Staff.

Guy Stefanski presented information on the demonstration project. There has been an award of $26,000 made to carry put the project(s). We have been waiting for the Coordinating Council to develop criteria for the projects. Guy distributed a handout from our Program of Work workshop with Bitsy Waters at Williamston in April of 1998. He also handed out two examples of projects from the Tampa Bay NEP.

An update of responses to Council's first resolution, in support of the 216 study, was given. The Chairman has received a letter from Secretary McDevitt stating that the department will continue to work with legislators to seek funding for the study. Joan said that Council has also received a letter from Col. Youngblood of the Corps of Engineers in appreciation of support of the study. Congresswoman Clayton is in support, and the Coordinating Council and all counties in the basin have endorsed the resolution.

In reviewing our discussions of project ideas, the Council was reminded about the meeting in Plymouth, which had yielded several good ideas. There is a need for the project to be action-oriented with a strong education component. Community involvement is important, and it would be good if the project could transfer to other areas. Looking to the Program of Work for guidance, the Council asked Guy and Joan what the other basins were doing so far.

They reported that the Neuse is in the draft stage, working up a proposal to partner with the Rapid Response Team and others to monitor the mouths of streams to see if there are any trends such as fecal contamination, nutrient loading, etc. This would be an attempt to narrow down the source of problems.

The Tar-Pam has two projects that they are about ready to move on. One was presented to us by Bruce Perkinson. There is going to be a purchase of a piece of equipment to aerate pasture land. In a cost-share agreement with several groups, the Council there will engage in a project to see if the aeration will reduce nutrient runoff. Several landowners have already asked to participate, leasing the equipment for a fee. The Tar-Pam Council is investing $10,000 in this project.

The second Tar-Pam project is planned to be the installation of an alternative septic system. They have $16,000 for the site, and it will be implemented by David Lindbo of the Vernon James Center. The problem so far has been in finding a landowner who wants to engage in the project, in light of the monitoring activities that must accompany it.

The Pasquotank is about where our council is in the process, establishing a project team. The Chowan wants to partner with USGS to monitor what is coming down the river from Virginia. They will very likely establish a monitoring station, with links to satellite equipment which would receive data at 15-minute intervals on such measures as DO, pH, etc. There are already five such stations on the Roanoke. The Chowan Council also has something along the lines of the Warren county aeration project, but with cropland rather than pasture.

Looking at these ideas, Council discussed what we might do that is different that would address our basin's concerns. Sue Lintelman noted that the river center has two ponds needing wetland restoration, and that a summer camp for studying water quality is planned.

Joan explained that the grants cannot be made for purely research or education purposes by virtue of the guidelines. Some discussion followed on the types of projects that could be allowed.

Kay Winn mentioned the idea that she and Jerry Hollomann had discussed after the November conference. This would involve reversing the drainage caused by ditches made into a large tract of acreage, some of which is on the Wildlife Reserve. Al Weller described some gates, which might be used to accomplish the reversal of the manmade drainage pattern. Jean Richter said that Jerry Hollomann has had the Corps out to look at the idea, and they have discussed something about plugging the ditches with root wads. There is potential to accomplish the project, but a one-half share of non-governmental money must be made. Kay suggested that we contact Coastal America, as she had been approached by their representative to identify a project.

Jimmy Outland asked that the Council consider something with an ag orientation, along the lines of studying the relative merits of different tillage methods such as no-till, strip till, and conventional till. His thinking is that it would be most advantageous to learn which is most effective at keeping the nutrients and chemicals on the field where they belong. In explaining this idea, he described the different production methods for those unfamiliar with them.

Following this discussion, Al Weller presented information on forestry BMPs and regulations. He provided a history of the development of present requirements, which evolved from voluntary guidelines in the early '70's to code requirements in 1990. He explained how streamside management is conducted under current regulation, then compared that with the temporary Neuse Rules, which are more stringent.

His presentation included very informative slides showing forestry management techniques such as flashboard risers, settling ponds, and vegetative buffers. A handout of information gave the Council a reference to the presentation. Al answered questions asked by the Council and some of its guests.

In pursuit of development of the demonstration project or projects, the Council then agreed to establish a committee to bring back a recommendation in the form of a half-page to page long idea for the next meeting. Kay, Andy Allen, and Jerry Coker agreed to participate in the committee. Council agreed to ask Jerry Hollomann to work on that committee as well. Guy collected e-mail addresses for notification of the meeting time and place.

Returning to the agenda, Council addressed the adoption of the minimum flow resolution. Jean, bringing the Chairman's notes on the resolution, suggested that in the seventh "whereas," after the term "floodplain ecology" the phrase "below the Roanoke Rapids Dam" should be added.

Then, Jean began reading from a set of notes concerning the resolution, which the chairman had asked her to relate to the membership. His concerns seemed to be addressed by changing the "2000 cfs" language to either "range of flows" or "run of the river." After considering copies of these notes, which were made and

distributed, Council decided to adopt the resolution. Jerry Coker called the question, with the change after the seventh "whereas." Andy Allen suggested that the language of the resolution be changed to reflect the phrases "consistent with historical...run of river." Generally, this is 2,000 cfs or greater. Andy moved, Bruce Perkinson seconded, and the Council approved these changes unanimously. Copies of the resolution will be made and signed by the Chairman and Secretary.

Council vacancies are being addressed. Letters went out from Bill Holman and Jerry Hollomann to the five counties. Joan has received responses from Martin, Northampton, and Washington, none from Bertie and Warren. One concern she noted is that county managers have in some cases re-appointed people who had been appointed and not participated in the past. She had asked for responses by March 8, and at this point felt it might be best to just call the counties for expediting the matter.

Joan also asked that Council consider adding one member for education. In a motion made by Jimmy Oultland and seconded by Andy Allen, Council agreed unanimously to have Joan call the counties and to amend the bylaws to add a member from the education concern group.

Under new business, Joan and Guy passed out information on GIS Regional Council workshops. The workshop for the Roanoke is to be held on May 20, from 9:30 a.m. to 4:00 p.m., at the Bertie County Cooperative Extension Service office in Windsor. Each workshop is being developed with pertinence to the Program of Work for that basin. It is requested that each member of the Council bring someone with them - a county planner, developer, etc. - so that the community is linked to the Council.

Jamey Gerlaugh informed Council that there is additional GIS information that Ph.D. candidates are developing for the Roanoke.

Joan showed a prototype of the APNEP newsletter, "The Beacon," which has presently gone to the printer. Council members will receive this, along with others comprising a national mailing list of over 2,000. "The Beacon" will also be available on the Web.

In other matters, Council was informed that the Coordinating Council meets on Friday, April 23, to consider the Neuse Rules, Coastal Shoreline Initiative, and proposed nutrient control strategies for the Tar-Pam.

There is also in development a Memorandum of Agreement with Virginia. Guy asked that we complete and fax or e-mail to him the worksheets he distributed to give input into the process. The Coordinating Council is charged with making cooperative agreements in the three shared watersheds. For reference, Guy asked Council to look over the Chesapeake Bay Agreement. The worksheets are needed by Wednesday, April 21.

Joan also mentioned that she has been asked to add to the mailing list of notifications of our meetings. Some people, mostly government agency persons from Virginia, have asked to be notified of our meetings. Council agreed to add these by consensus. Sue Lintelman asked to be included in the mailings.

Keeping in mind the GIS workshop on May 20, and the project committee meeting to be set by Guy, Council agreed to hold its next regular meeting on Friday, June 11 at the Roanoke-Cashie River Center.

Jamey Gerlaugh asked if it might be possible to have a presentation by someone from Wisconsin Tissue. Council agreed that it would like for staff to arrange for a speaker.

There being no other business, the meeting was adjourned.

Respectfully submitted,

Kay Winn, Secretary

January 15, 1999

ALBEMARLE-PAMLICO NATIONAL ESTUARY PROGRAM

DEMONSTRATION PROJECTS

The Comprehensive Conservation and Management Plan (CCMP) of the Albemarle-Pamlico National Estuary Program (A-P NEP) was officially endorsed by the Governor of North Carolina and the U.S. Environmental Protection Agency (EPA) in November 1994. In September 1994, EPA awarded the North Carolina Department of Environment and Natural Resources (DENR) a grant to demonstrate specific recommendations or action items contained in the CCMP. The Division of Water Quality (DWQ) is administering the grant and has oversight of the CCMP implementation process. The EPA grant has been extended to September 30, 1999 and the total amount of the grant is $1,755,363.

As a part of the implementation strategy, the CCMP recommends the establishment of Regional Councils to foster public input from each of the five major river basins in the Albemarle-Pamlico region. Membership to the Councils consists of citizens and local government officials, representing every county and interest group in the region. In March 1995, Governor Hunt issued an Executive Order directing the creation of the Councils. All five Regional Councils have been established and meet on a regular basis.

A primary role of the Regional Councils is to establish local environmental priorities, based on those outlined in the CCMP, Governor Hunt's Coastal Agenda, and the DWQ's basinwide management plan recommendations. In addition, their role extends to developing support for the most cost-effective methods of dealing with those recommendations. Priorities of resource management vary from basin to basin because concerns for water quality, habitats and fisheries are diverse and widespread. The Regional Councils have been encouraged to develop and implement strategies which are most amenable to local action. Funds from the existing EPA grant have been dedicated to help support local demonstration projects recommended by the Regional Councils. Total funds available for demonstration projects are approximately $130,400. Individual projects approved for funding are eligible to receive a total of $26,080 for a single watershed and $52,160 for a combined watershed project.

Demonstration projects are scaled-down versions of innovative or unique engineering or management strategies that are designed to test the cost and effectiveness of these actions in addressing priority problems in a particular watershed. These projects also aid in defining the time and resources required for basinwide implementation. Demonstrations may include engineering projects, model ordinances, improved management of living resources, and modifications to remove institutional barriers to achieving progress on priority problems.

In order to be eligible for funding, proposed demonstration projects must address a priority problem identified in the CCMP and involve the demonstration of specific management or engineering strategies (not planning or assessment activities). Each Regional Council may submit its own demonstration project proposal or work with another Council(s) with similar problems and submit a combined proposal. Proposals should include all the required information outlined in the "Criteria for Selection of Demonstration Projects" and the "Demonstration Project Checklist".

Regional Councils are tasked with the solicitation, review, ranking, and selection of projects to be funded. In addition, Regional Councils are strongly encouraged to utilize an existing and approved system or process to evaluate project applications. One example is the evaluation system used by the Clean Water Management Trust Fund in its review of proposals. The Coordinating Council must approve all projects selected for funding.

Albemarle-Pamlico National Estuary Program
Regional Councils

Criteria for Selection of Demonstration Projects

Preparing a Demonstration Project Proposal

A demonstration project is a scaled-down version of an innovative or unique engineering or management strategy. The project proposal should call for immediate action. Available funding will not pay for planning, but is strictly intended for implementation of specific management or engineering strategies (shovel in the ground type projects). These projects are being funded to demonstrate the process of implementation and the effectiveness of a specific control strategy prior to basinwide or regional application. The demonstration project proposals submitted to the Coordinating Council for funding should discuss each of the components described in the Demonstration Project Checklist. It is important that each of the components be addressed under its own section in the proposal. Use of the checklist will ensure that the proposal is complete.

Selection Criteria

Regional Councils convened under Governor Hunt's Executive Order #75 (as amended #118) are eligible to receive funds from the existing U.S. Environmental Protection Agency grant to support local demonstration projects. In selecting demonstration projects, proposals will be reviewed according to and funds provided based on the following criteria:

1. Projects must address a priority problem in the estuary or its watershed as identified in the Comprehensive Conservation and Management Plan (CCMP), Governor Hunt's Coastal Agenda, or a basinwide management plan approved by the North Carolina Department of Environment and Natural Resources.

2. Proposals should demonstrate that the problem identified for action has been adequately characterized and evaluated and show that the cause(s) of the problem have been adequately assessed.

3. A majority of the members of the Regional Council(s) should support the project(s) recommended for funding. The proposal must be signed by the chair(s) or co-chair(s) of the Council(s).

4. Proposals should establish the commitment to action made by the respective local government entity, other agencies and/or educational institutions and the private sector. Commitment to ensuring regulatory, administrative, financial, and political cooperation that would enhance project success would be beneficial.

5. Proposals should establish that the opportunities and likelihood for success and improvements in environmental quality are good.

6. Proposals must accurately and thoroughly address all required components, as described in the Proposal Checklist.

7. Demonstration of innovative techniques or approaches which can be transferred throughout the watershed or other watersheds in the region will improve chances of selection or approval.

8. Proposals must guarantee that the project will include the development of cost estimates for full-scale application of the strategy throughout the watershed.

9. The proposal should describe appropriate public education and outreach methods to reach constituents and stakeholders throughout the watershed/region.

Albemarle-Pamlico National Estuary Program - Regional Councils
Demonstration Project - Proposal Checklist

____ 1. Discussion of the priority problem, identifying the probable causes and resource uses affected.

____ 2. Statement of the specific objectives of the project related to the problem, source, or cause.

____ 3. Discussion of the various management options considered.

____ 4. Discussion of the chosen option with reference to likelihood of success, public support, and time and resources (cost effectiveness).

____ 5. A complete outline of the specific plan needed to abate and control the problem or protect the resource. Each outline should address:

What: Describe specific environmental objectives and related measures of success and what will be done to attain them. For example, specify nutrient load reductions and use designations in the proposed location.

Who: Identify who will act, plan, and enforce; spell out roles and resource commitments for each participating agency, institution, or other entity.

How: Outline the procedure/process used to perform this project.

Where: Describe the location this project will affect.

When: Include schedules.

Budget: Provide detailed cost estimate.

____ 6. Description and schedule of activities to monitor success of the project.

____ 7. Timetable and description of reports (e.g., quarterly, final) concerning progress, costs, and results.

____ 8. Discussion of methods and schedules for review, evaluation, and redirection of the project.

____ 9. Discussion of possible basinwide and/or region wide application of the strategy.

____ 10. Commitment to develop cost estimates for basinwide application of the project.

____ 11. Discussion of public education and outreach methods.

____ 12. Formal endorsement of the demonstration project by the Regional Council(s).

Albemarle-Pamlico National Estuary Program
Regional Councils

Format for Demonstration Project Proposals

I. Discussion of Priority Problem(s)

II. Options Considered

III. Discussion of Selected Option/Project Abstract
- A. Project Title
- B. Lead Agency/Organization
- C. Objectives
- D. Likelihood of Success
- E. Public Support
- F. Time and Resources Required
- G. Cost Effectiveness
- H. Deliverables

IV. Detailed Project Description/Scope of Work
- A. What
- B. Who
- C. How
- D. Where
- E. When
- F. Budget

V. Activities to Monitor Success
- A. Monitoring Requirements
- B. QA/QC Plan

VI. Reports on Progress, Costs, and Results

VII. Review, Evaluation, and Redirection

VIII. Basinwide or Regional Application
- A. General Discussion
- B. Cost Estimate

IX. Public Education and Outreach

X. Endorsement by Regional Council(s) and Other Partners

(B)

Artificial Reef Demonstration Project

Tampa Bay National Estuary Program
Action Plan Demonstration Project

SCOPE OF WORK
June 1993

1. Discussion of the Problem and Project Introduction

Extensive waterfront development has severely altered the natural shoreline of Florida in many areas. Finger-fill canals have been constructed due to dredge-and-fill operations in low lying coastal areas which once were productive mangrove or salt marsh ecosystems. Historically little thought was given to the ecosystems that would be impacted. Main engineering criterion called for providing berthing facilities anywhere within the canal, and this led to the construction of vertical hardened seawalls.

Much of Tampa Bay's and Boca Ciega Bay's shallow uneven fringe of mangroves and marsh grass has been altered through dredge and fill activities. Taylor and Saloman in 1968 attributed the drastic decline in the biological resources of Boca Ciega Bay to the extensive construction of residential canals. Dredging and filling reduced the bay area by 20 percent, and the authors calculated a loss of annual production to be 26,000 metric tons of sea grasses, 73 metric tons of fishery products and 1100 metric tons of infauna (exclusive of meiofauna). While the loss of habitat to canal construction has slowed dramatically, vast areas of inter-tidal habitat have been permanently altered due to development with hardened shorelines (i.e., seawalls); this has had a severe impact on the natural systems. While Taylor and Saloman (1968) noted little difference in the plankton production in canals versus undredged areas of Boca Ciega Bay, they found that canals contained less than 20 percent of the faunal species of nearby unimpacted areas. "Forty-nine species of fish were taken from canal stations and 80 from bay stations. Individuals of a few species of fish in the canals were more numerous; however, none were demersal, indicating the lack of bottom food and habitat. Benthic invertebrate populations were particularly depauperate, apparently because of the soft, unconsolidated sediments occurring at canal sites. Taylor and Saloman further noted that canal creation resulted in the loss of substantial grassbeds and an overall decline in primary and secondary production" (ESE 1993).

The SWIM Department of the SWFWMD has funded a study aimed at developing best management practices for residential canals. Many of the problems associated with canals are difficult to overcome, our consultants did conclude that natural systems could be improved by a habitat enhancement program. Several suggestions were made including "the introduction of structures to encourage colonization of the canal with fish and crustacea species by providing

fabricated habitat structures" (ESE 1993). One system mentioned was that developed by Oyster Reef Designs, Inc. This design is modular and is maintenance free.

2. Statement of Specific Objectives

Although desirable, it is not fiscally possible not practical to return canal systems to a natural state; however, habitat value and natural systems can be markedly improved by introduction of artificial substrates for colonization of shell fish and other organisms. The Action Plan Demonstration Project proposed here will demonstrate the value of artificial substrates for the attachment and development of reef building and habitating organisms. Artificial reefs will attract other organisms including fishes and wading birds, ultimately improving the natural systems of the canal.

Specific objectives will include the installation of artificial reefs at a demonstration site (Madeira Beach Middle School, on Boca Ciega Bay); site monitoring to document habitat enhancement through the development of communities now absent from the area; and education through the monitoring effort which will be conducted by students or volunteers.

3. Management Options Considered

* No Action: do not attempt to improve the natural systems of residential canals by installing artificial reefs. This would lead to no improvement in habitat value of the canals, and canals would continue to be less diverse and less attractive to wildlife.

* Restore canal lands to their historic condition. This was considered impractical in most situations.

* Habitat enhancement to improve natural systems. A number of alternatives are available including the addition of limerock on the waterward side of a seawall, the use of interlocking modular concrete blocks that extend canalward (e.g., MacBlox), and artificial reefs.

4. Chosen Option

One method proposed by ESE (1993) was the use of artificial reefs. This method was chosen because it can be prefabricated, is easy to install, is relatively inexpensive, and can be arranged, modified and adapted to many situations. These reefs have been deployed in a number of places and appear to work based on anecdotal information. They offer considerable surface area for attachment of organisms, appear to be readily colonized, and become firmly anchored as sediment deposits increase.

5. Project Plan

WHO:
The project will be a joint effort between the Tampa Bay NEP and the SWIM Department of the Southwest Florida Water Management District. Madeira Beach Middle School students and teachers will provide additional assistance with ongoing monitoring. In addition, the National Marine Fisheries Service (NMFS) has recently entered into an agreement to provide assistance to the Middle School in their efforts to focus curriculum on marine science, and will be available to assist with long-term monitoring of the results of the artificial reefs. Oyster Reef Designs, Inc. will prefabricate and deploy the artificial seawall reef structures.

WHAT:
Polyethylene seawall reefs will be installed in a pattern creating a broken fringe shoreline of coves. Calmer areas of coves trap and settle out leaf detritus and other particulate organic matter. The polyethylene skeleton provides a substrate for attachment of fouling sessile organisms such as barnacles, oyster, and tunicates. Colonization of the open mesh results in a structure which offers an increasingly complex network of crevices and openings, and becomes the refugia and foraging area of an increasing number and diversity of organisms. Red mangroves have even become established in some of the systems already deployed. Additionally, these structures should help soften wave action against a sea wall, and create wading bird habitat for heron, egrets, etc. The placement of artificial reefs will effectively increase the length of shoreline fringe habitat due to the creation of coves. The particular design shown would increase the fringe by 60%.

WHERE:
The location is adjacent to the Madeira Beach Elementary and Middle School Property on Boca Ciega Bay. Five hundred feet of seawall will be treated with up to 50 perpendicular artificial reefs.

WHEN:
It will require approximately three months to build and install reefs. Site selection will be finalized during this time. Permits will be required which will take three to four months from application.

HOW:
Polyethylene reefs will be prefabricated into 7 inch diameter tubes and assembled into standing nine tube Seawall Reefs. Reefs will be placed along the outside face of the seawall and held in place with approximately sixty pounds of clay brick and four steel pods per four foot section of reef.

6. Monitor
Monitoring will be conducted by students and/or volunteers which will be trained and monitored by SWIM and NMFS staff with the exact scope of monitoring to be developed. One method used has been simply to weight the increase in mass of a small section of reef

over time. It is anticipated that the fauna of the site will at least be qualified over time to document an anticipated increase in species diversity and wildlife usage. Depending on the expertise and equipment available to the monitors, a quantitative approach may be taken.

Reef modules will be evaluated with regard to cost, ease of installation, stability, durability, longevity, and esthetics.

7. Reports
The SWIM Department will submit quarterly reports documenting costs, problems, and monitoring results. It is anticipated that this report will include extensive photo-documentation which should be useful in promoting other such projects if the proposed project is deemed successful. A Final Report will include methods, results, costs, and estimates of region-wide implementation.

8. Review
A SWIM staff member will be designated as the project manager, and will coordinate volunteer efforts, document project progress, and inspect the site at least monthly.

9. Basinwide and National Application
Residential canals and hardened seawalls are not unique to Florida's coast. Thousands of acres and many miles of shoreline have been impacted by the construction of finger-fill canals. Few viable options exist for improving habitat in these areas; the use of artificial reefs such as proposed here offer some promise. Demonstration projects are needed to document their worth and engender appreciation of the benefits they may offer. Public acceptance of this practice could result in improved habitat and productively in presently depauperate areas.

10. Cost Estimate for Basinwide Application
Costs for individual installations are minimal, and it is possible that some segments of the public may adopt this approach for habitat improvement without outside funding support; however, the public in general does not yet appreciate the benefits of local, small scale habitat enhancement projects. It is anticipated that initially local governments may have to subsidize large scale sea wall habitat enhancement projects before effective biological results can be noticed. It is also likely that several larger projects will have to be implemented and monitored so that the scientific community would openly and enthusiastically endorse such measures. The proposed annual report would attempt to arrive at basinwide cost estimates for a large scale habitat enhancement effort.

11. Project Budget

Construction and installation of 160-nine tube Seawall Reefs	$ 9,000
Monitoring and Volunteer Supplies	950

SWIM Department - Project Oversight, Volunteer Training, Annual Report		4,067
Contract Administration (TBRPC)		250
Permitting		2,000
Total		$ 17,200
	Request	$ 12,200
	Match (in-kind)	$ 4,067

D

ACTION PLAN DEMONSTRATION PROJECT
TAMPA BAY NATIONAL ESTUARY PROGRAM

Alafia River Oyster Bar Restoration

INTRODUCTION

Oyster bars are important natural communities which provide food, filter water and create habitat structure for many important fish and wildlife species. Historic dredge and fill activities and declining water quality have impacted oyster reefs throughout Tampa Bay. This project will initiate a program to place clean oyster shell along the south side of the Alafia River channel. Clean oyster shell is relatively inexpensive and will need to be carefully placed along portions of the Alafia Channel where submerged aquatic vegetation does not exist and the sediments will support the clutch material. Placement of the clean oyster material will be accomplished by barge with trained supervision.

Oyster communities provide a valuable food source for many important wildlife species such as redfish (*Sciaenops ocellatus*) as a targeted recreational fishery and the American oystercatcher (*Haematopus palliatus*) a listed Species of Special Concern in Florida. The oyster reef, once established, will additionally provide a renewed area where the community can fish or birdwatch after restoration of habitat. The project will additionally provide an informational brochure describing the project for distribution at local civic groups and bait shops.

Pinellas and Hillsborough Counties have active artificial reef construction programs. However, oyster bar restoration has not been accomplished in Tampa Bay to date. The Florida Department of Natural Resources will provide technical assistance using experience gained from oyster bar construction projects in the Florida Panhandle. Existing natural oyster communities and observed growth on seawall areas indicate an adequate supply of oyster spat in the area. Construction of oyster communities is expected to greatly enhance water quality and habitats leading to enhanced estuarine productivity.

PROJECT OBJECTIVES

Over the last 100 years, the Tampa Bay estuarine system has lost a significant portion of its natural communities to urbanization activities. The project is structured to facilitate replacement of one important natural community back to the bay, thereby enhancing the resource that are dependant upon oyster communities. The site will be monitored for three years by the Environmental Protection Commission of Hillsborough County (EPCHC) to determine the success of the project and applicability for other areas in Tampa Bay as well as other estuaries around the country.

The project will include a strong public education element through the creation of a brochure detailing the project and benefits to the Tampa Bay cultural and natural community.

MANAGEMENT OPTIONS

In consideration of the project site, the project participants examined locations where oyster communities once existed and have been removed due to dredge or fill activities. A site was selected based upon its ability to enhance local resources while providing recreational or educational opportunities. Additional consideration was given to proximity with onshore transfer area to expedite loading of barge and placement of shell.

Potential oyster sites were ruled out in areas of unconsolidated or fine sediments to prevent burial of shell material. Natural subtidal areas were eliminated from consideration to prevent unintentional impacts to existing or future seagrass communities or other benthic infauna. Locations where heavy boat traffic or future maintenance dredging is planned were not considered viable locations.

The no action scenario accepts existing conditions, which will not allow improvements to water quality and habitats provided by oyster communities.

SELECTED OPTION

The location at the mouth of the Alafia River was selected since:

1) it historically contained oyster communities prior to channel dredging and spoil disposal for industrial shipping activities at the Alafia River

2) it will provide habitat and food for a variety of species who utilize tributary and estuarine systems

3) the oysters will promote water quality benefits by filtering water entering Tampa Bay from the Alafia River basin

4) it will ease transportation access and transfer to the Alafia River Channel from the Williams Park boat ramp, and

5) the site is located in an area with significant recreational and commercial fishing activity that will benefit from oyster bar development, and

6) the area is adjacent to a significant bird nesting island (Alafia Banks), managed by the National Audubon Society, and characterized as one of the most productive bird nesting sites in the southeastern United States.

The Alafia River location is ideal for a number of important resource based criteria as well as

its availability to transfer oyster shell material for reef construction.

PROJECT SCOPE

The project will be accomplished by the Tampa Bay Regional Planning Council (TBRPC) and the Environmental Protection Commission of Hillsborough County (EPCHC). The TBRPC and EPCHC will design the reef along the south side of the Alafia River and apply for any required permits with the US Army Corps of Engineers, the Florida Department of Environmental Protection and Hillsborough County.

The TBRPC and EPCHC will further make application to the Pollution Recovery Fund administered by the EPCHC for additional project support. The Pollution Recovery Fund was established to restore areas impacted from environmental violations. A portion of the fund is specifically earmarked for projects in and around the Alafia River. Receipt of additional support from the EPCHC Pollution Recovery Fund will greatly expand the size and magnitude of the project.

After receipt of permits the TBRPC will submit an RFP to hauling companies and barge firms to transport and place material in the approved location. Clean oyster shell from local shell mines will be transported to the Williams Park boat ramp and loaded onto a small barge. The barge will transport the shell within one mile to a permitted location on the south side of the Alafia River. The shell will be offloaded along the subtidal fringe of the river creating an oyster attachment site similar to natural communities found in undisturbed locations around Tampa Bay. Placement of the material will be accomplished within marked locations and be supervised by staff from TBRPC and EPCHC. Initial indications are that an oyster reef up to one-acre in size can be constructed along the fringe of the Alafia River channel. Final size will be based upon permitting agency negotiations and transportation costs.

After placement of the material the EPCHC will monitor the site for three years, quarterly the first year after construction and semi-annually for the next two years. Monitoring will be critical to document lessons learned and feasibility for construction of oyster bars in other locations. The TBRPC will document the project after one year in an interim final report as well as prepare the informational brochure to be handed out at the boat ramps, bait shops and civic groups in the area and around Tampa Bay.

The project will not only benefit the immediate area surrounding the mouth of the Alafia River, in terms of enhanced water quality and improved habitats, but also the Tampa Bay estuary and ultimately the Gulf of Mexico, since many recreationally and commercially important species of fish are dependent upon estuaries and low salinity habitats within their life history.

The actual project is expected to be accomplished within one year with monitoring to continue for three years. Design of the project will be accomplished in 30-60 days by TBRPC and EPCHC. Permits will be submitted by TBRPC and reviewed within 90-120 days by the permitting agencies. The RFP process and construction will take 60 days and will be supervised by TBRPC and EPCHC. EPCHC will perform the monitoring, which will be initiated prior to

submittal of the permit applications and continue on a quarterly basis after construction. A final interim report will be prepared by TBRPC after one year to document the project. A final report will be prepared after three years of monitoring to identify program results. The brochure will be developed by the TBRPC after the reef has been constructed.

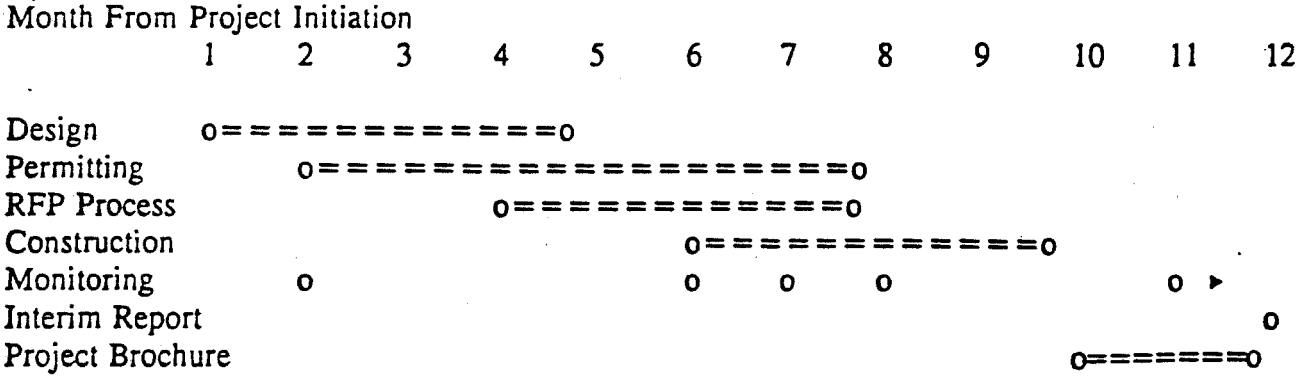
MONITOR

The EPCHC will conduct an initial site evaluation to document existing conditions along the Alafia River to determine acceptable locations for placement of shell material. Staff from EPCHC and/or TBRPC will supervise placement of oyster shell from the selected contractors. After shell placement the EPCHC will describe the area covered by new shell material and area to be monitored. It is expected that the new material will be placed from the mean tide line to depths up to ten feet deep. This will allow establishment of oyster spat over a range of depths to reduce mortalities. After placement, the EPCHC will monitor the project quarterly for the first year and semi-annually for the next two years to determine spat colonization, recruited oyster survival, burial of reef area and level of establishment compared with depth.

An evaluation can be extrapolated on the level of water quality improvements based upon surface area colonized and average filtering rates available in existing literature. Wildlife usage will also be assessed based upon actual sightings and known usage by local species. Results will be documented in an interim report after one year and a final report after three years.

TIMELINE

The project will be accomplished in the following time frame:



The project is designed to be completed in its entirety within a one year time frame. Monitoring will continue for two additional years to document the project and ensure success.

REVIEW

The project will receive oversight review from a design committee that will be established with representatives from the following organizations and areas of interest:

- TBRPC - project coordination, implementation, public education
- EPCHC - project coordination, permitting, implementation, monitoring
- Florida Department of Environmental Protection (FDEP) - permitting, shellfish management
- Florida Department of Natural Resources - technical assistance, project design
- Tampa Bay National Estuary Program - project management, technical support
- Cargill Fertilizer - adjacent terminal facility, support oyster transfer
- Lewis Environmental Services - technical support
- National Audubon Society - Alafia Banks bird sanctuary

This committee will review the initial project workscope, support development of the permitting package and assist with expedition of any required permits. The committee will be reconvened after project construction to evaluate the project and identify any additional monitoring that will support the project. The design committee can also support efforts to develop additional funds to expand the project through FDEP Pollution Recovery Trust Funds that are potentially available for restoration efforts in and around the Alafia River. The project can be redirected based on input from the design committee or permit review agencies prior to construction activities. The proposals in response to the RFP will be reviewed by TBNEP and TBRPC staff to ensure compliance with any permits.

APPLICATION

Oyster systems are prevalent in nearshore coastal waters of the United States. The communities are critically important in terms of maintaining natural resource systems and providing commercial products for human consumption. The construction of oyster communities in Tampa Bay has not been accomplished to date. Identification of methods and materials, monitoring of construction and oyster reef development and education of Tampa Bay residents will greatly enhance our understanding and ability to restore estuarine systems. Lessons learned from the Tampa Bay project can and will support oyster systems in other locations around the bay as well as document restoration methods for other estuaries around the country. The development of the Comprehensive Conservation and Management Plan (CCMP) by TBNEP will include methods and financial plans for restoring the Tampa Bay environment. The oyster restoration project will support the CCMP effort to document restoration efforts that not only apply to Tampa Bay but to the nation as well.

DELIVERABLES

- one or more constructed oyster communities in Tampa Bay
- final interim report after one year
- final report after three years to include entire monitoring project
- program brochure for public distribution

COST ESTIMATES

17,000 total
4,500 shell transport
3,000 barge transport
6,000 TBRPC 2,917 minimum match
4,000 EPCHC 2,917 minimum match

STATEMENT OF WORK

TASK 1. Project Design

Estimated Costs: $3,150
Due Date: 4th month

TASK 2.

Estimated Costs: $5,000
Due Date: 8th month

TASK 3.

Estimated Costs: $2,000
Due Date: 8th month

TASK 4.

Estimated Costs: $7,500
Due Date: 10th month

TASK 5.

Estimated Costs: $4,000
Due Date: 12 month

TASK 6.

Estimated Costs: $534
Due Date: 12th month

1983 Chesapeake Bay Agreement

We recognize that the findings of the Chesapeake Bay Program have shown an historical decline in the living resources of the Chesapeake Bay and that a cooperative approach is needed among the Environmental Protection Agency (EPA), the State of Maryland, the Commonwealths of Pennsylvania and Virginia, and the District of Columbia (the States) to fully address the extent, complexity, and sources of pollutants entering the Bay. We further recognize that EPA and the States share the responsibility for management decisions and resources regarding the high priority issues of the Chesapeake Bay.

Accordingly, the States and EPA agree to the following actions:

1. A Chesapeake Executive Council will be established which will meet at least twice yearly to assess and oversee the implementation of coordinated plans to improve and protect the water quality and living resources of the Chesapeake Bay estuarine systems. The Council will consist of the appropriate Cabinet designees of the Governors and the Mayor of the District of Columbia and the Regional Administrator of EPA. The Council will be initially chaired by EPA and will report annually to signatories of this Agreement

2. The Chesapeake Executive Council will establish an implementation committee of agency representatives who will meet as needed to coordinate technical matters and to coordinate the development and evaluation of management plans. The Council may appoint such ex officio nonvoting members as deemed appropriate.

3. A liaison office for Chesapeake Bay activities will be established at EPA's Central Regional Laboratory in Annapolis, Maryland, to advise and support the Council and committee.

DATE: December 9, 1983

SIGNERS:

For the Commonwealth of *Virginia--Charles S. Robb, Governor*
For the State of Maryland--*Harry Hughes, Governor*
For the Commonwealth of Pennsylvania--*Mark Single, Lieutenant Governor*
For the District of Columbia, *Marion Barry, Mayor*
For the United States of America--*William Ruckleshaus, Administrator, U.S. Environmental Protection Agency*
For the Chesapeake Bay Commission--*Joseph V. Gartlan, Jr., Chairman*

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1987 Chesapeake Bay Agreement

THE CHESAPEAKE BAY IS A NATIONAL TREASURE and a resource of worldwide significance. Its ecological, economic, and cultural importance are felt far beyond its waters and the communities that line its shores. Man's use and abuse of its bounty, however, together with the continued growth and development of population in its watershed, have taken a toll on the Bay system. In recent decades, the Bay has suffered serious declines in quality and productivity.

REPRESENTING the Federal government and the States which surround the Chesapeake Bay, we acknowledge our stake in the resources of the Bay and accept our share of responsibility for its current condition. We are determined that this decline will be reversed. In response, all of our jurisdictions have embarked on ambitious programs to protect our shared resource and restore it to a more productive state.

IN 1980, the legislatures of Virginia and Maryland established the Chesapeake Bay Commission to coordinate interstate planning and programs from a legislative perspective. In 1985, Pennsylvania joined the Commission. And, in 1983, Virginia, Maryland, Pennsylvania, the District of Columbia, the U.S. Environmental Protection Agency and the Chesapeake Bay Commission formally agreed to a cooperative approach to this undertaking and established specific mechanisms for its coordination. Since 1983, our joint commitment has carried us to new' levels of governmental cooperation and scientific understanding. It has formed a firm base for the future success of this long-term program. The extent and complexity of our task now call for an expanded and refined agreement to guide our efforts toward the twenty-first century.

RECOGNIZING that the Chesapeake Bay's importance transcends regional boundaries, we commit to managing the Chesapeake Bay as an integrated ecosystem and .pledge our best efforts to achieve the goals in this Agreement. We propose a series of objectives ..that will establish a policy and institutional framework for continued cooperative efforts to restore and protect Chesapeake Bay. We further commit to specific actions to achieve those objectives. The implementation of these commitments will be reviewed annually and additional commitments developed as needed.

Goals and Priority Commitments

THIS NEW AGREEMENT CONTAINS Coals and Priority Commitments for Living Resources; Water Quality; Population Growth and Development; Public Information, Education and Participation; Public Access; and Governance.

The parties to this 1987 Agreement are the U.S. Environmental Protection Agency representing the Federal government, the District of Columbia, the State of Maryland and the Commonwealths of Pennsylvania and Virginia (hereinafter the "States") and the Chesapeake Bay Commission. This Agreement may be amended and attachments added in the future by unanimous action of the Chesapeake Executive Council.

Living Resources

GOAL: PROVIDE FOR THE RESTORATION AND PROTECTION OF THE LIVING RESOURCES. THEIR HABITATS AND ECOLOGICAL RELATIONSHIPS. The productivity, diversity and abundance of living resources are the best ultimate measures of the Chesapeake Bay's condition. These living resources are the main focus of the restoration and protection effort. Some species of shellfish and finfish are of immense commercial and recreational value to than. Others are valuable because they are part of the vast array of plant and animal life that make up the Chesapeake Bay ecosystem on which all species depend. We recognizethat the entire natural system must be healthy and productive. We will determine the essential elements of habitat and environmental quality necessary. to support living resources and will see that these conditions are attained and maintained. We will also manage the harvest of and monitor populations of commercially, recreationally and ecologically valuable species to ensure sustained, viable stocks. We recognize that to be successful, these actions must be carried out in an integrated and coordinated manner across the whole Bay system.

OBJECTIVES:

- Restore, enhance, protect and manage submerged aquatic vegetation.
- Protect, enhance and restore wetlands, coastal sand dunes, forest buffers and other shoreline and riverline systems important to water quality and habitat.
- Conserve soil resources and reduce erosion and sedimentation to protect Bay habitat..
- Maintain freshwater flow regimes necessary to sustain estuarine habitats, including. where appropriate. establishing minimum in-stream flows.
- Develop compatible Bay-wide stock assessment programs
- Develop Bay-wide fisheries management strategies and develop complementary state programs and plans to protect and restore the finfish and shellfish stocks of the Bay. especially the freshwater and estuarine spawners.
- Provide for the restoration of shellfish stocks in the Bay especially' the abundance of commercially important species.
- Restore. enhance and protect waterfowl and wildlife.

COMMITMENT:

TO ACHIEVE THIS GOAL WE AGREE:

- by January 1988 to develop and adopt guidelines for the protection of water quality and habitat conditions necessary to support the living resources found in the Chesapeake Bay system and to use these guidelines in the implementation of water quality and habitat protection programs. *by July* 1988 to develop, adopt and begin to implement a Bay-wide plan for the assessment of commercially. recreationally and selected ecologically valuable species.
- *by July 1988,* to adopt a schedule for the development of Bay-wide resource management strategies for commercially, recreationally and selected ecologically valuable species.
- *by July 1989*, to develop, adopt and begin to implement Bay-wide management plans for oysters, blue crabs and American Shad. Plans for other major commercially, recreationally and ecologically valuable species should be initiated by 1900.
- *by December 1988*, to develop a Bay-wide policy for the protection of tidal and non-tidal wetlands.
- Provide for fish passage at dams, and remove stream blockages wherever necessary, to restore

natural passage for migratory fish

Water Quality

GOAL: REDUCE AND CONTROL POINT AND NON-POINT SOURCES OF POLLUTION TO ATTAIN THE WATER QUALITY CONDITION NECESSARY TO SUPPORT THE LIVING RESOURCES OF THE BAY. The improvement and maintenance of water quality are the single most critical elements in the overall restoration and protection of the Chesapeake Bay. Water is the medium in which all living resources of the bay live, and their ability to survive and flourish is directly dependent on it.

To ensure the productivity of the living resources of the Bay, we must clearly establish the water quality conditions they require and must then attain and maintain those conditions. Foremost, we must improve or maintain dissolved oxygen concentrations in the Bay and its tributaries through a continued and expanded commitment to the reduction of nutrients from both point and nonpoint sources. We must do the same for toxics and conventional pollutants. To be effective, we will develop basin-wide implementation plans for the control and reduction of pollutants which are based on our best understanding (including that derived from modeling) of the Bay and its tributaries as an integrated system.

OBJECTIVES:

- Provide timely construction and maintenance of public and private sewerage facilities to assure control of pollutant discharges.
- Reduce the discharge of untreated or inadequately treated sewage into Bay waters from such sources as combined sewer overflows, leaking sewage systems, and failing septic systems.
- Evaluate and institute, where appropriate, alternative technologies for point source pollution control, such as biological nutrient re-moral and land application of effluent to reduce pollution loads in a cost-effective manner.
- Establish and enforce pollutant limitations to ensure compliance with water quality laws.
- Reduce the levels of nonpoint sources of pollution.
- Reduce sedimentation by strengthening enforcement of existing control regulations.
- Eliminate pollutant discharges from recreational boats.
- Identify and control toxic discharges to the Bay system, including metals and toxic organics to protect water quality, aquatic resources and human health through implementation and enforcement of the states' National Pollutant Discharge Elimination System permit programs and other programs.
- Reduce chlorine discharges in critical finfish and shellfish areas. Minimize water pollution incidents and provide adequate response to pollutant spills.
- Manage sewage sludge, dredged spoil and hazardous wastes to protect the Bay system.
- Manage groundwater to protect the water quality of the Bay.
- Quantify the impacts and identify the sources of atmospheric inputs on the Bay system.

COMMITMENT:

TO ACHIEVE THIS GOAL WE AGREE:

- by *July 1988, to* develop, adopt and begin implementation of a basin-wide strategy to equitably achieve by the year 2000 at least a 40 percent reduction of nitrogen and phosphorus entering

the main stem' of the Chesapeake Bay. The strategy should be based on agreed upon 1985 point source loads and on nonpoint loads in an average

- *by December 1991,* to re-evaluate the 40 percent reduction target based on the results of modeling, research, monitoring and other information available at that time.
- *by December 1988, to* develop, adopt and begin implementation of **a** basin-wide strategy to achieve a reduction of toxics consistent with the Water Quality Act of 1987 which will ensure protection of human health and living resources. The strategy will cover both point and nonpoint sources, monitoring protocols, enforcement of pretreatment regulations and methods for dealing with in-place toxic sediments where necessary.
- *by July 1988,* to develop and adopt, as required by the Water Quality Act of 1987, a basin-wide implementation strategy for the management and control of conventional pollutants entering the Chesapeake Bay system from point and nonpoint sources.
- *by July 1988,* the Environmental Protection Agency, acting for the federal government, will develop, adopt and begin implementation of a strategy for the control and reduction of point and nonpoint sources of nutrient, toxic and conventional pollution from all federal facilities.

Population Growth and Development

GOAL: PLAN FOR AND MANAGE THE ADVERSE ENVIRONMENTAL EFFECTS OF HUMAN POPULATION GROWTH AND LAND DEVELOPMENT IN THE CHESAPEAKE BAY WATERSHED. There is a clear correlation between population growth and associated development and environmental degradation in the Chesapeake Bay .system. Enhancing, or even main-mining, the quality of the Bay while accommodating growth will frequently involve difficult decisions and restrictions and will require continued and enhanced commitment to proper development standards. The states and the federal government will assert the full measure of their authority to mitigate the potential adverse effects of continued growth.

Local jurisdictions have been delegated authority over many decisions regarding growth and development which have both direct and indirect effects on the Chesapeake Bay system and its living resources. The role of local governments in the restoration and protection effort will be given proper recognition and support through state and federal resources.

States will engage in an active partner ship with local governments to establish policy guidelines to manage growth and development.

OBJECTIVES:

- Designate a state-level office responsible for ensuring consistency with this Agreement among the agencies responsible for comprehensive oversight of development activity, including infrastructure planning, capita! budgets, land preservation and waste management activities.
- Provide local governments with financial and technical assistance to continue and expand their management efforts.
- Consult with local government representatives in the development of Chesapeake Bay restoration and protection plans and programs.
- Identify and give public recognition to innovative and otherwise noteworthy examples of local government restoration and protection-related programs.
- Assure that government development projects meet all environmental requirements.
- Promote, among local, state and federal governments, and the private sector, the use of innovative techniques to avoid and, where necessary, mitigate the adverse impacts of growth.

COMMITMENT:

TO ACHIEVE THIS GOAL WE AGREE:

- to commission a panel of experts to report, by *December 1988,* on anticipated population growth and land development patterns in the Bay region through the year 2020, the infrastructure requirements necessary to serve growth and development, environmental programs needed to improve Bay resources while accommodating growth, alternative means of managing and directing growth and alternative mechanisms for financing governmental services and environmental controls. The panel of experts will consist of twelve members: three each from Virginia, Maryland and Pennsylvania, and one each from the District of Columbia, Environmental Protection Agency and the Chesapeake Bay Commission.
- *by January 1989,* to adopt development policies and guidelines designed to reduce adverse impacts on the water quality and living resources of the Bay, including minimum best management practices for development and to cooperatively assist local governments in evaluating land-use and development decisions within their purview, consistent with the policies and guidelines.
- to evaluate state and federal development projects in light of their potential impacts on the water quality and living resources of the Chesapeake Bay, and design and carry out each state and federal development project so as to serve as a model for the private sector in terms of land-use practices.
- by *December 1988,* to develop a strategy to provide incentives, technical assistance and guidance to local governments to actively encourage them to incorporate protection of tidal and non-tidal wet lands and fragile natural areas in their land-use planning, water and sewer planning, construction and other growth-related management processes.

Public Information, Education and Participation

GOAL: PROMOTE GREATER UNDERSTANDING AMONG CITIZENS ABOUT THE CHESAPEAKE BAY SYSTEM. THE PROBLEMS FACING IT AND POLICIES AND PROGRAMS DESIGNED TO HELP IT AND TO FOSTER INDIVIDUAL RESPONSIBILITY AND STEWARDSHIP OF THE BAY'S RESOURCES.

GOAL: PROVIDE INCREASED OPPORTUNITIES FOR CITIZENS TO PARTICIPATE IN DECISIONS AND PROGRAMS AFFECTING THE BAY. The understanding and support of the general public and interest groups are essential to sustaining the long-term commitment to the restoration and protection of the Chesapeake Bay system and its living resources. Citizens must have opportunities to learn about that system and associated management policies and programs and must be given opportunities to contribute ideas about how best to manage that natural system.

OBJECTIVES:

- Provide timely information on the progress of the restoration program.
- Assure a continuing process of public input and participation in policy decisions affecting the Bay.
- Enhance Bay-oriented education opportunities to increase public awareness and understanding.
- Provide curricula and field experience for students.
- Promote opportunities to involve citizens directly in Bay restoration efforts.

- Coordinate the production and distribution of Bay information and education materials.

COMMITMENT:

TO ACHIEVE THESE GOALS WE AGREE:

to conduct coordinated education and information programs to inform the general public, local governments, business, students, community associations and others of their roles, responsibilities and opportunities m the restoration and protection effort, and to promote public involvement in the management and decision-making process.

- to provide for public review and comment on all implementation plans developed pursuant to this agreement.
- by March 1988, to develop state and federal communication plans for public information, education and participation, and by May *1988,* to develop a unified, Bay-wide communication plan.
- to promote Chesapeake Bay restoration efforts by establishing an annual Bay-wide series of Chesapeake Bay Watershed Awareness events, to include a Governor's Cup Fishing Tournament.

Public Access

GOAL: PROMOTE INCREASED OPPORTUNITIES FOR PUBLIC APPRECIATION AND ENJOYMENT OF THE BAY AND ITS TRIBUTARIES. Interest in and commitment to the Chesapeake Bay and its tributaries are greatly affected by personal con tact with that natural system. Consequently, improved opportunities for access to the shores and waters of the system are essential if public awareness and support are to be maintained and increased.

OBJECTIVES:

- Improve and maintain access to the Bay including public beaches, parks and forested lands.
- Improve opportunities for recreational and commercial fishing.
- Secure shoreline acreage to maintain open space and provide opportunities for passive recreation.
- Secure necessary acreage to protect unique habitat and environmentally sensitive areas.

COMMITMENT:

TO ACHIEVE THIS GOAL WE AGREE:

- to intensify our efforts to improve and expand public access opportunities being made available by the federal government, the states, and local governments, by developing a strategy, which includes an inventory of current access opportunities by *July 1988, which targets* state and federal actions to secure additional tidal storefront acres by December 1990 along the Bay and its tributaries.
- *by December 1988,* to prepare a comprehensive guide to access facilities and the natural resource system for the tidal Chesapeake Bay.

Governance

GOAL: SUPPORT AND ENHANCE THE PRESENT COMPREHENSIVE, COOPERATIVE AND COORDINATED APPROACH TOWARD MANAGEMENT OF THE CHESAPEAKE BAY SYSTEM.

GOAL: PROVIDE FOR CONTINUITY OF MANAGEMENT EFFORTS AND PERPETUATION OF COMMITMENTS NECESSARY TO ENSURE LONG-TERM RESULTS.

The cooperation necessary to sustain an effective Chesapeake Bay restoration and protection effort requires a formal working arrangement involving the states and the federal government. That institutional arrangement must allow for and promote voluntary individual actions coordinated Within a well-defined context of the individual responsibilities and authorities of each state and the federal government. It must also ensure that actions which require a concerted, Bay-wide approach be addressed in common and Without duplication. One of the principal functions of the coordinating institution is to develop strategic plans and oversee their implementation, based on advice from the public, from the scientific Community and from user groups.

In addition, the coordinating body must exert leadership to marshal public Support, and it must be accountable for progress made under the terms of this agreement. The coordinating body will continue to be called the Chesapeake Executive Council. The Chesapeake Executive Council shall be comprised of the Governors, the Mayor of the District of Columbia, the Administrator of the Environmental Protection Agency and the Chairman of the Chesapeake Bay Commission. The chairmanship of the Council shall rotate annually as determined by the Council. The term of the Chairman shall be one year. The Administrator of the Environmental Protection Agency shall represent the federal government and the Chairman of the Chesapeake Bay Commission shall represent its members.

OBJECTIVES:

- Continue to demonstrate strong, regional leadership by convening an annual public meeting of the Chesapeake Executive Council.
- Continue to support the Chesapeake Executive Council and provide for technical and public policy advice by maintaining strong advisory committees.
- Coordinate Bay management activities and develop and maintain effective mechanisms for accountability
- The Chesapeake Bay Liaison Office shall provide staff support to the Chesapeake Executive Council by providing analyses and data management, and by generating reports related to the overall program. The Implementation Committee shall provide guidance to the CBLO Director in all matters relating to support for the Council and their supporting committees, subcommittees and work groups including the development of all plans and other documents associated with the Council.
- Examine the feasibility of joint funding support of the Chesapeake Bay Liaison Office.
- Track and evaluate activities which may affect estuarine water quality and resources and report at least annually.
- Develop and maintain a coordinated Chesapeake Bay data management system.
- Continue to implement a coordinated Bay-wide monitoring system and develop a Bay-wide living resources monitoring system.
- Develop and implement a coordinated Bay-wide research program.

COMMITMENT:

TO ACHIEVE THESE GOALS WE AGREE:

- to develop an annual Chesapeake Bay work plan endorsed by the Chesapeake Executive Council.
- to continue to support Bay-wide environmental monitoring and research to provide the technical and scientific information necessary to support management decisions.
- to strengthen the Chesapeake Bay Liaison Office by assigning, as appropriate, staff persons from each jurisdiction and from participating federal agencies to assist with the technical support functions of that office.
- by *July 1988,* to develop and adopt a comprehensive research plan to be evaluated and updated annually to address the technical needs of the Chesapeake Bay Program.
- by *July 1988,* develop a Bay-wide monitoring plan for selected commercially, recreationally and ecologically valuable species.
- by *March 1988,* to establish a local government advisory committee to the Chesapeake Executive Council and charge that committee to develop a strategy for local government participation in the Bay program.
- to consider and review the feasibility of establishing an independent Chesapeake Bay Executive Board.
- by *July 1988,* the Environmental Protection Agency, acting for the federal government, will develop, a coordinated, federal agency workplan which identifies specific federal programs to be integrated into a coordinated federal effort to support the restoration of the Chesapeake Bay.

BY THIS AGREEMENT, we reaffirm our commitment to restore and protect the ecological integrity, productivity and beneficial uses of the Chesapeake Bay system. We agree to report in *January 1989* on progress made in fulfilling the commitments in this agreement, and to consider at that time additional commitments. The implementation strategies which will be developed pursuant to this agreement will be appended as annexes, and annual reports will include an accounting of progress made on each strategy.

DATE: December 15, 1987

For the Commonwealth of Virginia -- *Gerald L. Balilis, Governor*
For the State of Maryland -- *William Donald Schaefer, Governor*
For the Commonwealth of Pennsylvania -- *Robert P. Casey, Governor*
For the District of Columbia -- *Marion Barry, Mayor*
For the United States of America -- *Lee Thomas, Administrator, U.S. Environmental Protection Agency*
For the Chesapeake Bay Commission -- *Kenneth J. Cole, Chairman*

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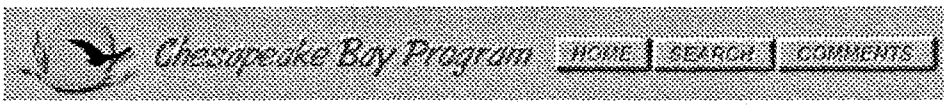

Chesapeake Bay Agreement: 1992 Amendments

In 1987, Virginia, Maryland, Pennsylvania, the District of Columbia, the Chesapeake Bay Commission and the U.S. Environmental Protection Agency formally agreed to reduce and control point and nonpoint sources of pollution to attain the water quality conditions necessary to support the living resources of the Bay. TO achieve this, we agreed to develop, adopt and begin to implement a strategy to equitably achieve by the year 2000 a 40 percent reduction of nitrogen and phosphorus entering the mainstem Chesapeake Bay. WE also agreed to reevaluate the 40 percent reduction target based on the results of modeling, monitoring and other information available to us.

BASED UPON THE 1991 NUTRIENT REDUCTION REEVALUATION, WE HAVE FOUND THAT:

We have achieved significant improvements in water quality and living resources habitat conditions in the mainstem of Chesapeake Bay.

- There is a clear need to expand our program efforts in the tributaries, since most of the spawning grounds and essential habitat are in the tributaries.
- Intensified efforts to control nonpoint sources of pollution, including agriculture and developed areas, will be needed if we are to meet our 40% nutrient reduction goal.
- We are now able to demonstrate the link between water quality conditions and the survival and health of critically important submerged aquatic vegetation (SAV).

Implementation of the Clean Air Act Amendments will provide additional opportunities to achieve nitrogen reductions.

Achieving a 40 percent nutrient reduction goal, in at least some cases, challenges the limits of current point and nonpoint source control technologies.

THEREFORE, TO FURTHER OUR COMMITMENTS MADE IN THE 1987 CHESAPEAKE BAY AGREEMENT, WE AGREE:

- To reaffirm our commitment to achieve an overall 40 percent reduction of nitrogen and phosphorus entering the mainstem Chesapeake Bay by the year 2000 and to maintain at least this level of reduction thereafter.
- To amend the water quality goal of the 1987 Chesapeake Bay Agreement to reflect the critical importance of the tributaries in the ultimate restoration of Chesapeake Bay: "Reduce and control point and nonpoint sources of pollution to attain the water quality condition necessary to support &e living resources of the Chesapeake Bay **and its tributaries."**
- To develop and begin implementation of tributary-specific strategies by August 1993. These strategies will be designed to:

  1. Meet the mainstem nutrient reduction goals.
  2. Achieve the water quality requirements necessary to restore living resources in both

the mainstem and the tributaries.
3. Incorporate public participation in the development, review and implementation of the strategies, ensuring the broadest possible public involvement.
4. Advance both cost-effectiveness and equity.

- To use the distribution of submerged aquatic vegetation (SAV) in the Bay and its tidal tributaries, as documented by Baywide and other aerial surveys conducted since 1970, as an initial measure of progress in the restoration of living resources and water quality.
- To incorporate into the Nutrient Reduction Strategies an air deposition component which builds upon the 1990 Amendments to the federal Clean Air Act and explores additional implementation opportunities to further reduce airborne sources of nitrogen entering Chesapeake Bay and its tributaries.
- To continue to explore improved technologies that may be cost-effective in attaining further nutrient reductions.
- To explore cooperative working relationships with the other three basin states (New York/West Virginia/Delaware) in the development of tributary-specific strategies for nutrient reduction.

By this AGREEMENT, we reaffirm our commitments made in the 1987 Chesapeake Bay Agreement to restore and protect the ecological integrity, productivity and beneficial uses of the Chesapeake Bay system. In addition, we the undersigned agree to further our efforts through the commitments made here today which are hereby incorporated into the 1987 Chesapeake Bay Agreement.

DATE: August 12, 1992

SIGNERS:

For the Commonwealth of Virginia--*Lawrence Douglas Wilder, Governor*
For the State of Maryland--*William Donald Shaefer, Governor*
For the Commonwealth of Pennsylvania--*Robert P. Casey, Governor*
For the District of Columbia--*Sharon Pratt Kelly, Mayor*
For the United States of America--*William K. Reilly, Administrator, U.S. Environmental Protection Agency*
For the Chesapeake Bay Commission--*Bernie Fowler, Chairman*

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For more information, contact the Chesapeake Bay Program Office, 410 Severn Avenue, Suite 110, Annapolis, MD 21403, Tel: (800) YOUR-BAY, Fax: (410) 267-5777.

Last modified 4 March 1996

FOREST PRACTICES GUIDELINES RELATED TO WATER QUALITY -SUMMARY OF PERFORMANCE STANDARDS-

STREAMSIDE MANAGEMENT ZONE (SMZ)

- **Must establish SMZ along natural, intermittent and perennial streams and water bodies. (Not required along man-made ditches and canals, although erosion protection is needed).**
- **Must have sufficient width and adequate ground cover to confine visible sediment. (Usually it is best to protect the existing natural ground cover).**
- **Place roads, trails and decks outside of SMZ.**
- **Limited cutting (harvesting) is permitted within the SMZ.**

*=existing laws on books before these became mandatory for sediment control in '89

*PROHIBITION OF DEBRIS ENTERING STREAMS

- **Prevent debris (logging slash, soil) of all types from entering intermittent and perennial streams and water bodies which may result in stream obstruction, impediment of stream flow, or water quality degradation.**
- **Remove debris that accidentally enters streams.**

ACCESS ROAD AND SKID TRAIL CROSSINGS

- **Avoid crossing streams where possible.**
- **Avoid using stream channels as roads or trails.**
- **Construct crossings to minimize sediment entering streams.**
- **Protect stream banks and channels from damage.**
- **Provide water control devices and/or structures and , within 10 working days of initial disturbance, provide ground cover sufficient to restrain accelerated erosion and prevent stream sedimentation.**

*ACCESS ROAD ENTRANCE

- **Prevent soil and debris from being deposited on public highways which may result in stream sedimentation.**

*KEEP WASTE FROM ENTERING STREAMS, WATERBODIES AND GROUNDWATER

- **Prevent oil, fuels, fertilizers and other chemical waste from entering streams, water bodies and groundwater.**

*PESTICIDE APPLICATION

- **Application must follow labeling and N.C. Pesticides Board rules. Includes insecticides, herbicides, fungicides, and rodenticides.**

*FERTILIZER APPLICATION

- **Apply in a way to prevent adverse impacts on water quality.**

*STREAM TEMPERATURE

- **Retain shade sufficient to prevent temperature fluctuations which result in a violation.**

REHABILITATION OF PROJECT SITE

- **Within 30 working days after ceasing operations, provide sedimentation control measures to prevent stream water quality damage.**
- **Permanently stabilize SMZ areas and other areas that may contribute visible sediment to streams.**

*** These indicate existing laws.**

2. Streamside Management Zone (SMZ)

Definition/Purpose

An area or zone, covered with vegetation on both sides of perennial and intermittent streams and zones along the margins of bodies of open water, where extra precaution is used in carrying out forest practices to protect stream banks and water quality (Figure 2). The purpose of the zone is to slow and spread surface water flow, trap and filter out suspended sediment before these particulates reach the stream channel. The zone also provides stream shade and functions as a buffer when fertilizers, pesticides, etc., are applied to adjacent lands.

Conditions Where Practice Applies

Along perennial and intermittent streams and along edges of bodies of water where forest disturbances occur and where surface runoff may carry sediment loads to the watercourse.

Specifications

A. Establish an SMZ along each intermittent and perennial stream and perennial waterbody.

B. The width of the SMZs may vary depending on type of stream, primary use of water resource and topography or other physical barrier. See Table 2.

C. Regardless of the width, the SMZ must provide effective sediment protection for the watercourse.

D. Limited cutting (harvesting) is permissible. Fell trees away from the stream channel. Remove timber products with extreme care and leave the forest floor and ground cover vegetation essentially undisturbed. Within SMZ areas along perennial streams, no more than 20 percent bare ground, evenly distributed, is allowed resulting from current operations. And, along intermittent streams, no more than 40 percent bare ground, evenly distributed, is allowed. On those areas where bare ground exceeds the 20 or 40 percent limit, a ground cover must be provided. Seeding or planting materials that stabilize the soil surface and benefit wildlife should be considered.

E. Within SMZ areas where epheremal streams intersect perennial or intermittent streams (confluence), only minimal surface disturbance is allowed. Wheel or track

type skidders should not operate within these zones. Selective cutting is allowed but timber should be removed by cable while skidder is stationed outside of SMZ.

F. Sufficient crown cover should be retained consisting of tall shrubs and understory and overstory trees to maintain a minimum of 75 percent of the pre-harvest shade on the stream channel.

G. All logging and site preparation debris resulting from current operations must be kept out of intermittent and perennial stream channels. Should debris reach the channel, it will be promptly removed. (GS 77-13 and 77-14 make it unlawful to put anything in streams, creeks, rivers...)

H. Many forest renewal and timber stand improvement practices are permissible within SMZs. The following restrictions apply to certain practices:

(1) High intensity, broadcast burns should be kept out of SMZs.

(2) Broadcast application of fertilizers or broadcast spraying of pesticides (except those labeled for aquatic use) should be conducted so that chemicals are not applied directly into intermittent and perennial streams or perennial waterbodies or allowed to drift into such watercourses. Chemicals should not be applied to the land surface closely adjacent to channels or water surfaces or to the surface of ephemeral streams within SMZs or into drainage channels where direct washoff to the stream or waterbody in surface stormflow could ocur.

I. Locate sawmill sites and decks, including mill and deck residue, outside of SMZs. Where physical restrictions (topography, property boundary, etc.) limit decks to within the proximity of the SMZ, earthen berms or other effective means must be installed to protect the stream channel from direct surface runoff. In all cases, mill sites and decks may not be closer than 10 feet of a stream channel.

J. Operations involving chemical or fuel storage, resupply and vehicle servicing will be handled outside of SMZs and in such a manner as to prevent these items from reaching the water course. Where stationary equipment must be serviced within SMZs, the servicing will be done with care to avoid leakage and spillage

and other litter will be collected and disposed of properly.

K. Locate roads and trails outside of SMZs except where stream crossings are necessary and where physical restrictions (property boundary, topography, etc.) cause roads to be within the SMZ. Where restrictions exist and roads and trails are inside an SMZ, alternate techniques or measures must be employed to effectively protect the stream channel. Establish right-angle crossings to stream channels. Avoid the use of fill material placed over logging debris as a stream crossing.

L. Promptly revegetate or provide adequate ground cover for bare soil areas within an SMZ (roads, trails, ditches, crossings, cut and fill banks).

M. Alter SMZ planning to include development and management of wildlife habitat. Consultation with a wildlife biologist is recommended.

Maintenance

During on-going operations inspect SMZs frequently; inspect occasionally during inactive periods. Check for potentially damaging or failing situations that may cause unacceptable water quality impacts. Correct failing situations as soon as practical.

Table 2. RECOMMENDED MINIMUM WIDTH OF STREAMSIDE MANAGEMENT ZONE

	Percent Slope of Adjacent Lands				
	0-5	6-10	11-20	21-45	46+
Type Stream or Waterbody	SMZ Width each side (ft)*				
Intermittent	50	50	50	50	50
Perennial,	50	50	50	50	50
Perennial, Trout waters	50	66	75	100	125
Public Water Supplies (Streams & Reservoirs)	50	100	150	150	200

Note: These are recommended minimum widths. Under given condition and need combinations, the responsible manager will want to expand or contract the distances yet fully protect the stream channel and water quality. SMZ width is measured along the slope in lineal feet on each side from the edge of the pond, lake or stream to the toe of road, skid trail, or other surface disturbance.

Caution: Extra care is recommended within SMZs near public water supplies (streams and reservoirs) to reduce the risk of sudden and severe contamination problems due to failure of BMPs with unusual storms.

*Limited management activity is allowed within most SMZ situations. Where activities are allowed additional and more effective BMPs may be required to fully protect the stream channel and water quality.

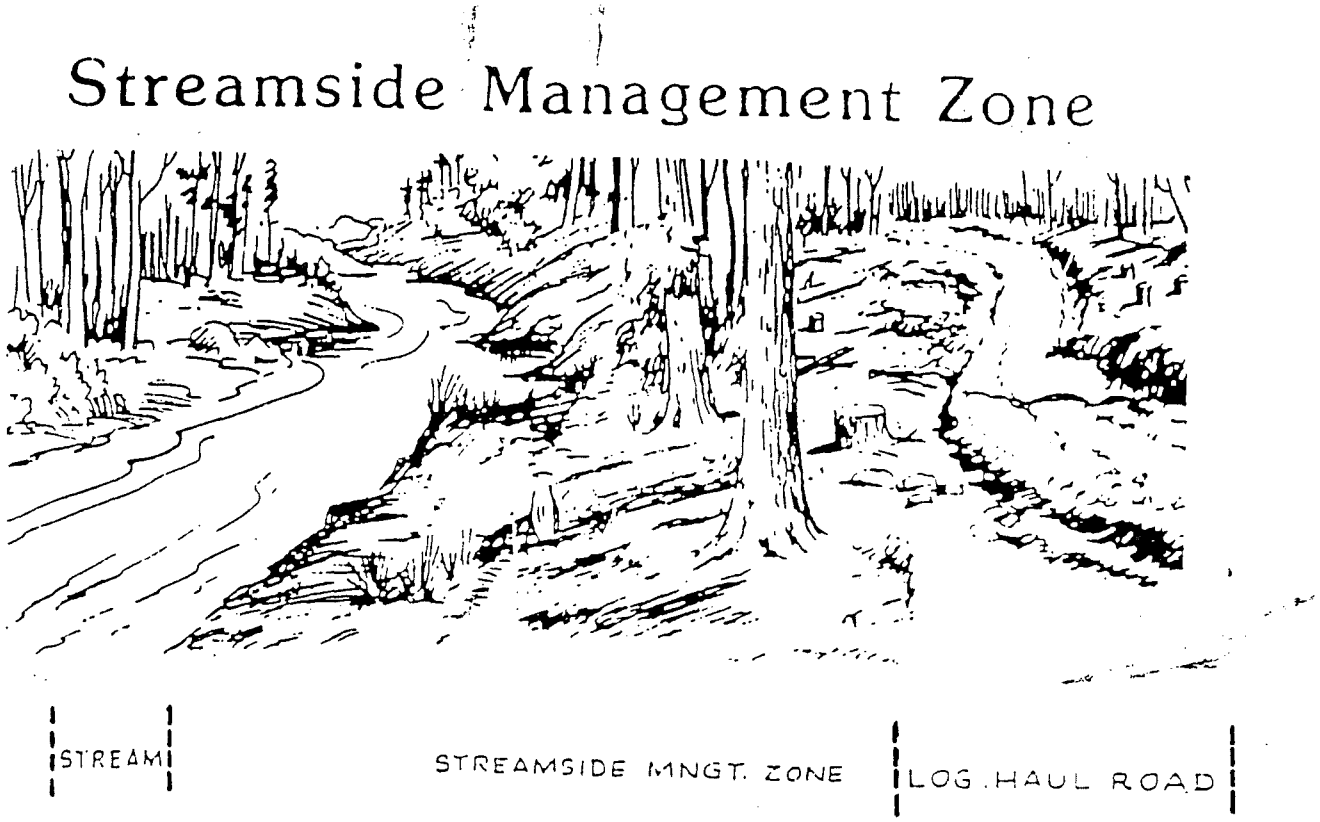

Figure 2. Example of a Streamside Management Zone.

Stream: A body of concentrated flowing water in a natural low area of the land surface.

a. "Ephemeral stream" means a stream that flows only during and for short periods following precipitation and flows in low areas that may or may not have a well-defined channel.

b. "Intermittent stream" means a stream that flows only during wet periods of the year (30-90% of the time) and flows in a continuous, well-defined channel.

c. "Perennial stream" means a stream that flows throughout a majority of the year (greater than 90% of the time) and flows in a well-defined channel.

Neuse River Buffer Rules

The Neuse River Buffer Rules as I know them to be in effect today include the following:

- **Mandatory 50-foot forested buffer along all perennial and intermittent streams and waterbodies in the Neuse River Basin. Streams for the purpose of this rule are defined as blue lines (solid or dotted) on either the county USGS topographic map or the county soils map.**
- **If the maps show a stream where one doesn't exist on the ground, the landowner may request a final determination from the Division of Water Quality to release the landowner from the buffer requirements. Beaver ponds may qualify as waterbodies.**
- **No activity or timber harvesting is allowed in the first 10 feet of the buffer area. Limited exceptions for the removals of dead, diseased or dangerous trees exist.**
- **Selective harvesting is allowed in the next 20 feet of the buffer provided that the basal area remains at or above 75 square feet per acre as calculated every 100 feet along the stream. Basal area includes all trees measured at 4.5 feet from the ground. No tracked or wheeled equipment is allowed in this area (first 30 feet of the buffer). Additional exceptions exist for the removal of dead, diseased or dangerous trees. *This would be quite a complicated process to determine whether trees could be harvested in this zone and it would be expensive to make the determination. Unless I had some extremely valuable trees in this zone, I would stay completely out of the first 30 feet of the buffer. If you make a mistake, the fines may be substantial!***
- **Timber harvesting and management are allowed in the outer 20 feet of the buffer provided that the vegetated buffer**

remains intact and is in compliance with the Forest Practice Guidelines for Water Quality.

The Sedimentation Pollution Control Board is also considering changes to the Forest Practices Guidelines which would be effective in basins or watersheds which have been declared "Nutrient Sensitive". This would include the Neuse River Basin and the Pamlico-Tar River Basins for sure; maybe others. Their proposed changes are as follows:

The Streamside Management Zone shall be a minimum of 50 feet wide on each side of the stream and shall consist of two zones. Zone 1 is 30 feet wide and Zone 2 is a minimum of 20 feet wide.

In Zone 1:

A. Forest vegetation shall be protected and maintained with selective harvesting allowed in accordance with the following restrictions:

1. **No trees with exposed primary roots in the stream channel shall be cut.**
2. **Tracked or wheeled vehicles may not operate in the zone, except at approved stream crossings.**
3. **A maximum of 50% of trees 5 inches DBH and greater may be removed, provided there is minimal disturbance to the soil and remaining vegetation. Remaining trees shall be left as evenly spaced as possible. Time interval between harvests shall be a minimum of five years.**

B. High intensity prescribed burns are not allowed.

C. Application of fertilizers is not allowed except where needed to achieve permanent stabilization. Broadcast application of fertilizer and/or herbicides to the adjacent forest stand shall be conducted so that chemicals are not applied directly into or allowed to drift into the zone.

In Zone 2, harvesting and regeneration of the forest stand shall be allowed provided that surface disturbance is minimized and sufficient ground cover is maintained to provide for diffusion and infiltration of surface runoff.

These changes are only proposed at this time and the normal Forest Practice Guidelines still apply.

Jerry's concerns

Questions to Contemplate

Minimum flow recommendation probably contradicts good biology.

2,000 minimum flow recommendation probably contradicts all the biology.

Does minimum flow for economic development establishes Council's priority?

We can either treat the river like a sewer or like a public natural resource.

An exact minimum flow recommendation obviously conveys that Council is looking for increased assimilative capacity--minus exact recommendations for other equally important values.

It appears that the Councils draft recommendation indicates that Roanoke River is primarily good for assimilative capacity. Other economic values (fish, wildlife, birdwatching, aesthetics, tourism, etc.) Seem to be secondary values to the Council.

Is an exact minimum flow recommendation a bad precedent?

I don't think this is in line with our charge.

Is that what the Council intends?

mb nesting habitat

well-forested riparian habitat, recreational

- timber growth,
- bank stabilization
- reliable, seasonal habitats, the lower limits on some complex food webs
- floodplain integrity

DRAFT
4-16-99

Memorandum of Agreement
Between
North Carolina Department of Environment and Natural Resources
and
Virginia Department of Conservation and Recreation

WORK SHEET

Agreement

The NCDENR and the VADCR will work together to implement the management actions recommended by the CCMP of the APNEP in order to restore and maintain the chemical, physical and biological integrity of the Albemarle-Pamlico Sounds estuarine system and to achieve the specific goals and objectives as described in the CCMP.

Specifically, the NCDENR agrees to:

1. _____

_____

_____

2. _____

_____

_____

Specifically, the VADCR agrees to:

1. _____

_____

_____

2. _____

_____

_____

Key words: water quality, habitats, wetlands, fisheries, stewardship, monitoring, restoration, sharing of data and technologies, aseasonal and managed flows, nutrient reduction strategies, sediment impacts, research, partnership, coordinate, cooperate, educate, funding, nonpoint source pollution, point source pollution, growth impacts, groundwater depletion and contamination, impaired streams, land use planning.

(NVEP →)

Please provide this form by **April 21st** to:

Guy Stefanski
Albemarle-Pamlico National Estuary Program
NC Division of Water Quality
P.O. Box 29535
Raleigh, NC 27626-0535
phone: 919/733-5083 ext. 585
fax: 919/715-5637
guy_stefanski@h2o.enr.state.nc.us

DRAFT

1-11-99

Memorandum of Agreement
Between
North Carolina Department of Environment and Natural Resources
and
Virginia Department of Conservation and Recreation

Purpose

This Memorandum of Agreement (MOA) provides for enhanced coordination and cooperation between the North Carolina Department of Environment and Natural Resources (NCDENR) and the Virginia Department of Conservation and Recreation (VADCR), as partners in the Albemarle-Pamlico Sounds National Estuary Program (APNEP). The APNEP, through its Coordinating Council, is a consortium of organizations, including federal, state, local governments, non-profit institutions, private industry, academia, and private citizens, dedicated to the restoration and protection of the Albemarle-Pamlico estuarine ecosystem. This MOA is established to encourage coordination and cooperation between the NCDENR and VADCR and to heighten awareness of each agency's programs regarding the goals and objectives of the APNEP's Comprehensive Conservation and Management Plan (CCMP) with the objective of improving environmental conditions in the Albemarle-Pamlico Sounds watershed.

Background

The Albemarle-Pamlico Sounds are the nation's second largest estuarine system, second only to the Chesapeake Bay. The system supports an array of ecological, economic, recreational, and aesthetic functions which are of regional and national importance. The critical importance of sustaining the system, to fulfill these functions, is reflected through its nomination to the National Estuary Program by the Governor of North Carolina and the Administrator of the US Environmental Protection Agency (USEPA).

In 1987, through a cooperative agreement between NCDENR and the USEPA, the Albemarle-Pamlico Estuarine Study (APES) was created to study the environmental conditions in over 23,000 square miles of watershed in North Carolina and Virginia. Through APES, scientific information was combined with extraordinary involvement by government agencies, stakeholder groups and citizens to develop a CCMP. This document, which proposes management strategies designed to protect the region's natural resources and allow for responsible economic growth, was officially endorsed by the Governor of North Carolina and the USEPA in November 1994.

APES has been renamed and is now referred to as the Albemarle-Pamlico Sounds National Estuary Program (APNEP). The APNEP is located within the NCDENR and many of the CCMP's management strategies are being implemented in the Albemarle-Pamlico Sounds region of North Carolina. Implementation of the CCMP is guided by the Coordinating Council -- a 29-member council consisting of representatives from state and federal government, citizen commissions, and stakeholder groups represented through five river basin Regional Councils.

Authority

This MOA is entered into pursuant to North Carolina Executive Order No. 75 (amended as No. 118) and the CCMP for the Albemarle-Pamlico Sounds National Estuary Program. Authority is further pursuant to the Virginia Water Quality Improvement Act (WQIP), §10.1-2124B.

Agreement

The NCDENR and the VADCR will work together to implement the management actions recommended by the CCMP of the APNEP in order to restore and maintain the chemical, physical and biological integrity of the Albemarle-Pamlico Sounds estuarine system and to achieve the specific goals and objectives as described in the CCMP.

Disclaimer

This MOA does nothing to diminish the independent authority of each agency in the administration of its statutory authority. This MOA is intended to facilitate the mission of each agency through the cooperative mechanisms of the APNEP. All activities conducted under or pursuant to this MOA are subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation of payment of funds in violation of the Anti-Deficiency Act, 31U.S.C. 1341. This MOA is not a funding document and does not represent the obligation or transfer of funds.

Effective and Termination Dates

This MOA is effective upon signatures of authorized representatives of both agencies and shall remain in effect until terminated. This MOA may be modified in writing by the mutual consent of the agencies, and may be terminated at any time by either agency, at its discretion, subject to negotiation of the completion of ongoing projects.

Individuals Authorized to Sign the MOA

As to the NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES:

_____

The Honorable Wayne McDevitt, Secretary

As to the VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION:

_____

The Honorable David Brickley, Director

Witnessed By:

_____

_____

_____

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

April 24, 1998
Williamston, NC

Introduction

The Roanoke River Basin Regional Council held a workshop on April 24, 1998 in Williamston, NC, to begin to develop a two year program of work for the Council.

At this and earlier sessions, members identified a number of issues of concern in this basin. They include:

- negative impacts of aseasonal flows and managed flow
- low dissolved oxygen levels
- water quality in relatively stagnant creeks
- nutrient loads and sediment impacts
- problems with small municipal waste treatment facilities
- toxins
- land use and land use planning
- landowner rights and responsibilities
- need for more incentives/cost share initiatives.

Related topics that emerged during the discussion of these concerns included constructed wetlands and other alternate sewage treatment technologies, and potential sources of funding to address some of these problems like the Clean Water Management Trust Fund. Council members also agreed some of these water quality problems are caused by natural conditions and that this has to be acknowledged.

After considerable discussion, the Council selected two initiatives to proceed with over the next two years. They also decided they wanted to learn more about water quality in specific parts of the river and its tributaries, to see what the most important problems are before selecting additional action areas, and discussed policy concerns, setting the following agenda:

1. a flow management initiative; and
2. agriculture/forestry BMP demonstration project
3. water quality conditions in specific stream segments
4. policy issues.

The following is a summary of their first round of discussion on these topics.

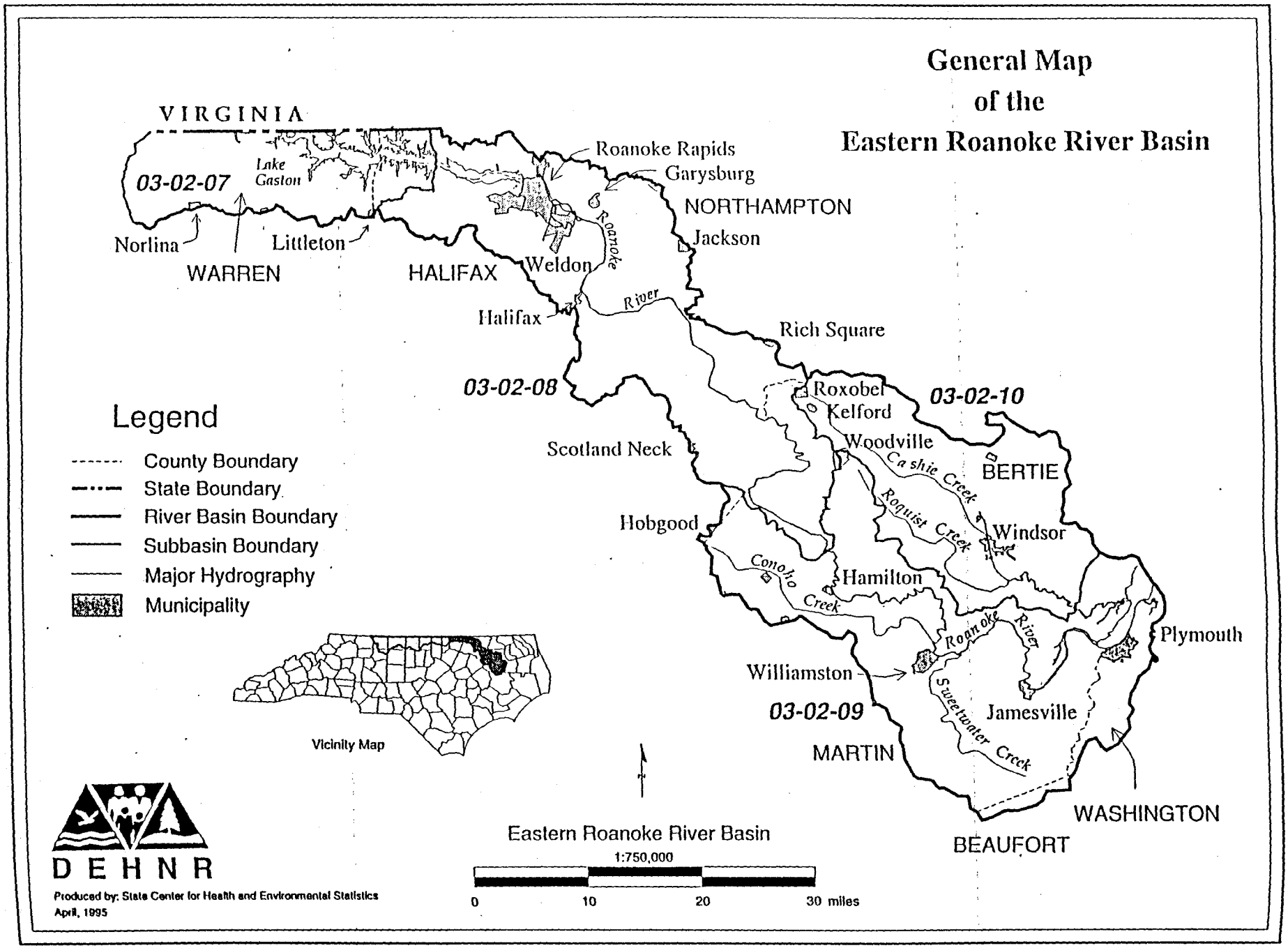

Figure 2.4b Eastern Roanoke River Basin

2-Year Program of Work

1. Flow Management Initiative

While some of the flow variation in the ~~Chowan~~ Roanoke and its tributaries is the result of natural causes, a considerable amount of it is the result of flow management by the U. S. Army Corps of Engineers. In the view of the ~~Chowan~~ Roanoke River Basin Council, the interests and concerns of the ~~Chowan~~ Roanoke Basin are not taken into account adequately in establishing managed flow protocols. Specific problems that result from this 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.

They believe North Carolina should have a stronger voice in flow management decisions. They also believe more study needs to be done about the implications of various flow management protocols on habitat and water quality, and on flow and temperature interactions.

The Council identified 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 of North Carolina, the U.S. Army Corps of Engineers and Carolina Power and Light, on:

- the history of flow release management on the ~~Chowan~~ Roanoke;
- what the current parameters or rules governing flow release are;
- what the relationships and authorities are 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. Once the briefing has occurred, the Council will develop a strategy for elevating the concerns of the Lower Roanoke Basin in flow management decisions. This may include a fall/winter field trip on the river for key decisionmakers 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. They also want to develop working partnerships with appropriate state agencies and the U.S. Corps of Engineers to see that the concerns of the Lower Roanoke Basin are taken into account.

Timeframe and Implementation

The briefing on flow management will be scheduled for the Council's May 27th meeting, provided the appropriate resource people are available. Council member Jerry Holloman agreed to take the lead in setting this up with help from staff. Once the briefing is complete, the Council will develop a strategy and timeline for building a constituency, highlighting concerns and forging partnerships.

2. Agriculture/Forestry BMP Demonstration Projects

Several Council members have an interest in exploring the potential for innovative technology based 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 also 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 about how the actual technology works, what kinds of sites are most suitable, and what it would cost. They 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 they should look for three potential demonstration sites in different parts of the Basin. One potential site identified is on the peninsula between the Cashie and the Roanoke. In selecting sites the Council will be looking for farmers with an interest in participating in this kind of demonstration project, including having a willingness to allow people to visit the project and 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 other partnerships to help make this happen including with the Cooperative Extension Service at N.C. State, forestry groups and others. They 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 wants to get the information learned out to a much broader audience. They will explore things like working with NRCS and others to develop field trips to see different demonstration projects.

Timeframe and Implementation

Jack Powell and Jerry Coker agreed to undertake a first round of reconnaissance on this initiative, learning more about the technology and its cost, and identify some potential partners and funding sources. They will report back to the full Council at which time a specific workplan and timeline can be developed.

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, they want to gain a clearer understanding of what the specific water quality problems and concerns are in different stream segments. This will allow them to focus their energy on areas where they know specific problems exist and try to identify potential solutions to these problems.

They asked staff to arrange for selected state agency representatives to brief them 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, they will decide where else it is most important for them to focus their energy over the next two years.

4. Policy Issues

The policy issue of greatest concern to the Council at this time has to do with flow management in the river. They will work with the CCMP Coordinating Council and others on this as part of their flow management initiative.

DRAFT RESOLUTION

Minimum Flow Management of the lower Roanoke River

WHEREAS, the Roanoke River Basin is considered a great natural resource for all the people of North Carolina and the United States, and

WHEREAS, the Roanoke River Basin Regional Council (Council) has identified river flow issues in the lower Roanoke River Basin as its primary concern and reported that concern to the Albemarle-Pamlico Sounds National Estuary Program Coordinating Council, and

WHEREAS, the Council recognized that maintaining an adequate range of flows for the lower Roanoke river is vital to maintain a healthy aquatic and riverine environment, and

WHEREAS, due to river flows and weather patterns, lower Roanoke river industry has experienced episodes of potential salt water intrusion, and

WHEREAS, at the present time, except during flood events, flows within the upriver by-pass reach are inadequate to provide life requisites for resident and migratory aquatic organisms, and

WHEREAS, the Council also recognized that towns and industries on the lower Roanoke River require a reliable source of water to protect existing uses and to allow for growth and economic development, and

WHEREAS, the integrity of the bottomland hardwood floodplain ecology below the Roanoke Rapids Dam is impaired by the managed flow regime, which has implications for international migratory bird management, and

WHEREAS, flood control and hydropower peaking operations destabilize the Roanoke River banks and make part of the river unsuitable as habitat for native and endemic fish and shellfish, and

WHEREAS, the Council desires to be an advocate for a biologically based range of flows that also enhances fish and wildlife and its habitats, and

NOW, THEREFORE, BE IT RESOLVED that the Roanoke River Basin Regional Council supports the establishment of a range of flows for the lower Roanoke River by the North Carolina Department of Environment and Natural Resources ~~of 2000 cubic feet per second (cfs),~~ or run of river, and further resolves that a portion, to be determined by the State and Federal Fish & Wildlife Agencies, be directed through the by-pass reach below the Roanoke River lake Dam.

Approved this the 16th day of April 1999.

Jerry L. Holloman, Chair
Roanoke River Basin Regional Council

Kay Winn, Secretary
Roanoke River Basin Regional Council