

# ALBEMARLE-PAMLICO NATIONAL ESTUARY PROGRAM COORDINATING COUNCIL

January 15, 1999

River Bend, NC

## MINUTES

The meeting was called to order by Chairman Bill Holman at 10:30am at the Town Hall in River Bend, NC. Mayor of River Bend and Neuse River Basin Regional Council Chair, Bill Ritchie, gave a few words of welcome and emphasized the efforts of the town's Waterways Board.

Following Mayor Ritchie's welcome, self-introductions were made. See Attachment A. Chairman Holman extended a special welcome to our guests from the State of Virginia, Matt Blye and Ernie Brown.

Chairman Holman then asked for acceptance of the minutes from the October 16, 1998 meeting. It was determined that a quorum of members had not yet been met, so a motion to accept the minutes was tabled until there was a quorum present.

The next agenda item was the acceptance of the by-laws. Chairman Holman asked for any general concerns the membership might have with the by-laws before the specifics were addressed. Joan Giordano asked that under **ARTICLE I, Section 3: Location** the addition of "NEP Coordinator" be added following the phrase "NC Division of Water Quality" in order for mail to be received in a timely manner at the APNEP program office. Following the acceptance of that change, Chairman Holman requested a page-by-page approval of the document.

On page 1, Fred McManus, EPA Region IV representative, asked that for consistency sake, the title of the by-laws be changed from "Coordinating Council for the Albemarle-Pamlico Sounds Region" by-laws, to "Coordinating Council for the Albemarle-Pamlico Sounds National Estuary Program" by-laws. On page 2, Mr. McManus asked that an addition to the description of the Coordinating Council's role be made. He recommended that it be added as number "I" and read "Assist NEP staff in the development of annual APNEP workplan." The membership concurred with the addition. Also on page 2, Brewster Brown asked that number "D" (at the top of the page) be expanded to read "develop and implement a Memorandum of Agreement between North Carolina and Virginia to ensure continued cooperation and coordination in implementing the CCMP, and pursue cooperative programs with the State of Virginia that support the mission of the APNEP." The membership endorsed the suggestion.

On page 3, there were no changes.

On page 4, the recommendation was made that "subcommittee" be removed from several places and be substituted with "committee."

On page 5, the word "subcommittee" was changed to "committee" wherever it appeared.

Jerry Coker raised the question of 15 members being too restrictive in determining a quorum. The consensus of the group was to leave the quorum at 15 members since that number constituted a majority.

On page 6, **Section 6: Alternates** - see Attachment B, options prepared by staff. Chairman Holman asked that Joan Giordano explain the options and the differences between them. The consensus of the group was to adopt options number 2 and 4.

There were no changes on page 7.

On page 8, the paragraph appearing as Note: ... was placed in the working draft as a point of clarification and would not be needed in the actual by-law document. After lengthy discussion of **Article VI, Section 1**, consensus was reached for leaving the language as it appeared.

Chairman Holman then asked for a motion to adopt the by-laws with the changes noted. He reminded the group that a quorum still was not present, but that other members were expected, and the quorum requirement would be satisfied. He suggested that if such a motion was made, seconded and duly voted upon, with the arrival of the member needed to satisfy the quorum, the vote would be legitimate. Motion to approve the amended by-laws was made by Tom Richter, seconded by Fred McManus and supported by the 14 members present. (15 members are needed for a quorum)

The next item on the agenda was the topic of committees. Chairman Holman explained that the by-laws called for the establishment of a number of committees and he expressed his desire to appoint members to them in order that they begin their work. He called the group's attention to the staff prepared "Suggested Names for Coordinating Council Committees" as a straw proposal. See Attachment C. **Note: The names appearing on this listing also reflect those added during the meeting.**

The group's attention then turned to the Regional Council demonstration projects. Guy Stefanski led the discussion of the guidelines and criteria developed for evaluation of them. See Attachment D. He emphasized the importance of having criteria in place to evaluate the proposed demonstration projects and that there was approximately \$26K available to each of the five Regional Councils for their respective projects. He also acknowledged Fred McManus' effort in developing the criteria. He stressed that demonstration projects were "on-the-ground activities, something that is action oriented, that shows immediate environmental benefits, something that can be seen, something that can be talked about, that can be promoted not only in the (submitting) basin but in other basins, something that is transferrable." The projects must address a priority problem contained in the CCMP and would involve the demonstration of a specific management action or engineering strategy. Discussion ensued with mention by Chairman Holman that the Department of Environment and Natural Resources would be glad to assist the Regional Councils

in “fleshing out” their proposals, if no other means for doing so was available. He mentioned to the Regional Council representatives that there are other sources of money available to them in addition to the APNEP dollars: namely the Clean Water Management Trust Fund, the Natural Heritage Trust Fund, the Parks and Recreation Trust Fund, and the Conservation Reserve Enhancement Program, to name a few. A motion by Brewster Brown, seconded by Bill Ritchie to accept the draft criteria for demonstration projects was made. The motion was tentatively accepted with 14 votes and was put aside pending one additional member’s vote.

The Memorandum of Agreement was the next agenda item. Guy Stefanski, Ernie Brown and Matt Blye (Va. Dept. of Conservation and Recreation representatives) led the discussion. See Attachment E. Mr. Blye reported that Va. Conservation and Recreation Director, David Brickley, attended the last meeting of the Coordinating Council, and he appreciated greatly the opportunity. He added that they think the States of NC and Va. should work cooperatively. He said that Director Brickley would be approaching the Va. Secretary of Natural Resources, John Paul Woodley, Jr. with this concept to decide upon the best way to develop/implement the MOA. Mr. Blye also stated that, in conversation with Mr. Brickley, Mr. Brickley thought it would take concurrence beyond the level of Secretary - it probably would need to go up to Virginia’s Governor. To that end, they are considering pursuing a Governor’s Executive Order to assign the responsibility/authority for this effort to the Dept. of Conservation and Recreation and potentially any other state agencies that might be involved.

Mr. Brown suggested future brainstorming sessions with Regional Councils, other stakeholders and the Coordinating Council to identify pertinent issues which might be key playing components in the MOA (or even beyond) if an Executive Order is deemed the method to use. He felt it was crucial that Va. have feedback from NC in developing this. Chairman Holman urged the Chairs of the Roanoke, Chowan and Pasquotank Regional Councils, to take this request by Va. home to their full Councils and discuss it, and identify the issues they would like to see addressed cooperatively by NC and Va. That info should then be forwarded to the MOA committee and staff. Discussion ensued with Mr. Blye replying to Brewster Brown’s question that the Va. Dept. of Environmental Quality (they work with point sources) might be another state agency involved with work outlined in the MOA between NC and Va.

Matt Blye reiterated and reinforced Mr. Brickley’s desire that the working relationship between NC and Va. be driven by a consensus approach. Mr. Holman agreed and stated that DENR would greatly appreciate some sense of what the Coordinating Council members felt should be addressed first (a prioritization of issues) in light of the limited resources we all face.

Chairman Holman asked when we could realistically expect the MOA to be worked out. He wondered if it wouldn’t be prudent to set a goal to have Gov. Gilmore and Gov. Hunt “sign on the dotted line.” The consensus of the group was that the committee should work on it and give a progress report at the next meeting with the objective of getting a recommendation from them as to when MOA finalization might be. Chairman Holman asked that this be an agenda item for the next meeting.

The group suspended their work momentarily to retrieve their lunch.

Upon reconvening the group's attention was drawn to the presentation of Regional Council resolutions. (These were mailed in the Coordinating Council meeting package.) Bill Ritchie, Chair of the Neuse River Basin Regional Council reported that the purpose of presenting the resolutions was to make the Coordinating Council aware (of) 1.) what the historical perspective of the Neuse River Basin Regional Council was; 2.) that here may be things in the resolutions about which the other Regional Councils might be interested in adopting; and 3.) that there may be things which should be pursued further. He then outlined the resolutions and the rationale behind composing them. Peggy Griffin asked who the presenters for the Neuse River Basin Regional Council presentation on aquifers was. Guy Stefanski agreed to send her the names and contact information for Nat Wilson (Div. of Water Resources and Dr. Stanley Riggs, ECU). Chairman Holman stated that the DENR appreciated the Neuse Council's work in developing their resolutions and that he felt sure their work was instrumental in causing some of the good work that has happened, such as the passage of the Clean Water Bonds by the General Assembly and NC voters. He urged the other Regional Councils to look at and discuss them, and perhaps adopt resolutions of support or similar resolutions to cause people to begin talking about these issues and, if appropriate, to bring them back to the Coordinating Council. Mr. Ritchie agreed to make himself available to the other Regional Councils to present the resolutions or to answer questions about them.

Jerry Holloman, Chair of the Roanoke River Basin Regional Council then presented his Council's resolution entitled "The Initiation of a "216 Study" of the Lower Roanoke River." He added that copies of the listing to whom the resolution was sent, were available from Joan Giordano and Guy Stefanski. He stated that responses were received from 4 Boards of County Commissions, 2-3 cities and 1 Va. legal firm. Plans for the resolution (after all interested respondents have been heard from) is to make sure the resolution responses are sent to Secretary McDevitt, Senator Basnight and certain US Representatives.

Chairman Holman asked that a brief description of a 216 Study be given. Mr. Holloman said that a 216 Study is the authority under which the US Corps of Engineers (COE) conducts a basinwide study. Doug Green, COE representative to the Coordinating Council, said that the 216 in particular, always relates to an existing federal project and, in this case, we were talking about John H. Kerr Dam and Reservoir. What the 216 allows the COE to consider doing is to look at flow allocation, storage allocation, and modifications in the flow. These storages were authorized by the US Congress and it takes a Congressional resolution like this to begin studying it and another to actually change anything based on the recommendations that are determined. Mr. Holloman added that although the resolution contained "lower" in its title, the last paragraph spoke to the entire Roanoke River basin.

Chairman Holman added that the DENR does support this study and has worked with the Congressional delegation (former Senator Faircloth and Representative Price) to try to get it into the energy and water appropriations bill for the last session of Congress, but the attempt was not

successful. However, the state will continue to advocate for this project. He thanked Mr. Holloman for the support of the Roanoke River Basin Regional Council and said DENR would welcome support from the Coordinating Council. He said that information concerning flow data, for which the Corps and the USGS are considered expert, is essential to developing better water quality models than those which would be developed using DWQ data only.

A motion was made by Jerry Holloman for the Coordinating Council to accept and endorse the Roanoke River Basin Regional Council's "216 Study" resolution. It was seconded by Yates Barber. The motion passed with 14 votes and, like the other motions made earlier in the day, needed an additional member's vote to ratify it.

The next agenda item was a presentation by Drs. Hans Paerl (UNC-CH) and Joe Ramus (Duke Marine Lab) featuring their proposal concerning the research and management needs for the Pamlico sound in the 21st century. The proposal is known as the "Advanced Water Quality Assessment Program". See Attachment F. Drs. Paerl and Ramus asked for the Coordinating Council's endorsement for it. Through a motion by Erie Haste, Jr., which was seconded by Tom Ritcher, the staff was directed to prepare a resolution stating the Coordinating Council's support for the proposal. Chairman Holman further directed staff to share the resolution with the Regional Councils in order to obtain their endorsement as well. Motion carried. Chairman Holman urged Coordinating Council members to phone Joan Giordano, DWQ staff, 252-946-6481, ext. 269 with any comments they might want included in the resolution language. Bill Ritchie commented to the cost-effectiveness of the project and the utility of the data which would be collected. Chairman Holman asked that the resolution be placed on the next agenda.

Under new business, Chairman Holman informed the membership that the General Assembly was to convene on January 27th and shortly after that Governor Hunt would make his State of the State address and present his budget to the General Assembly. Despite tight money, he expected to see modest expansion in DENR's clean water programs. DWQ has asked for support to expand their monitoring network and for additional personnel to provide technical assistance and to do inspections in both groundwater and surface water programs. Because the whole budget is built around clean water there are also some requests for the Divisions of Coastal Management, Fisheries, Soil and Water and Forestry. These requests are aimed at preventing, reducing and cleaning up water pollution.

He continued with mention of the clean water bonds that NC voters overwhelmingly approved during the last election - \$800 million for water and wastewater projects across the state (with emphasis given to fixing a lot of the existing infrastructure problems) and addressing nutrient sensitive waters. He added that Governor Hunt urged spending the money wisely, but to "get it out of the door" if projects were deemed sound and useful. It is intended that the money would be spread out for 2-5 years instead of 10 years. The first deadline for applications for water and wastewater projects is March 31st and all are encouraged to speak with cities and counties that have water and sewer needs to make sure they are aware of the deadline for application. There will be two cycles per year, during which applications will be entertained. The DENR will be

working the League of Municipalities and the Association of County Commissioners in making a presentation at the City and County Managers Association meeting on February 3rd and are also planning "town-type" meetings in the mountains, piedmont and in the east, to share this information with city and county managers, public works directors, engineering firms, non-profits, etc. He urged the RCs to ask the DWQ - Construction Grants program for status updates on how the funds are being spent and what projects may be occurring in their regions.

Sondra Riggs invited Chairman Holman to speak at the next Neuse COG meeting to "spread the word" about the clean water bond money and the potential for water and wastewater projects. She added that he would be able to address 48 cities in 9 counties, in one place, by doing so. Mrs. Riggs underscored the fact that the sewers in these locations were aging, having been built in the 1960s and were desperately in need of replacement to forestall disaster.

In addition to the consideration of budgetary matters, Chairman Holman reported that the General Assembly has considerable interest in water quality issues and cleaning up the waters of the state. He felt the legislators were looking for ideas and suggestions dealing with specific problems in streams, lakes and rivers, but also on broader policy discussions, such as storm water runoff, municipal discharge, mariculture runoff, etc. The legislators are going to continue to look for ways that they can address our concerns about clean water, as does the DENR. While there is not a specific clean water bill that the DENR is behind now, it is anticipated that one will evolve through the General Assembly and the suggestions of the Regional Councils and the Coordinating Council are most welcomed.

One specific thing that the General Assembly will be looking for is a report on the buffer rules adopted by the Environmental Management Commission for the Neuse River basin. Especially the rules that require the protection of a forested buffer along the intermittent and perennial streams in the Neuse. A stakeholder group has been working on this issue which is seen as fairly contentious, but DENR is pleased with the way the stakeholder discussions are going. He felt there would be some change recommended for the Neuse buffer rules, and that they may be getting closer to consensus on an approach to protect and restore buffers in the Neuse basin. He added that once consensus and experience are achieved, DENR may well look to propose buffers in other basins where its appropriate, particularly in waters with nutrient sensitive designations. He suggested this be an agenda item for the Neuse Regional Council in the future.

During the open discussion portion of the agenda, Bill Ritchie suggested that the names of persons attending the APNEP Forum in New Bern in November could be used as a potential pool of names for alternates to the Regional Councils' vacancies.

Jerry Holloman asked for a definition of the boundary used for the Roanoke River with respect to the by-laws for the Roanoke River Basin Regional Council.

Guy Stefanski mentioned that the EPA will be doing another biennial review of the National Estuary Programs around the country and the deadline for submitting our information is 4/1/99.

He indicated that he and Joan Giordano would be calling upon Coordinating Council members for assistance in preparing this document.

The next meeting of the Coordinating Council is April 23, 1999 in the Archdale Building in Raleigh, beginning at 10:00am.

There being no further business before the Coordinating Council, the meeting was adjourned.





Attendance Sheet  
Coordinating Council  
River Bend  
1/15/99

NAME	AFFILIATION + ADDRESS
John Fredrick	DWR Staff Washington DC
Brewster W. Brown	Chowan River Council P.O. Box 527 Wintrow NC 27986
Jeff Furness	Tan-Pamlico Regional Council P.O. Box 48 Aurora, NC 27806
David W Engel	NOAA/NOS Beaufort 101 Rivers Island Rd Beaufort, NC 28516
Margaret "Peggy" Giffin	CRC PO Box 375 Columbia NC 27925
DOUG GREENE	US ARMY CORPS OF ENGINEERS P.O. Box 1890 WILMINGTON, NC 28402
T. ERIC HASTE JR	PAEDUCATANK P.O. Box 157 27944 HARTFORD, NC
BILL RITCHIE	CHR. NUSEC RIVER BASIN 324 PLANTATION DR RIVER BEND, NC
Fred McManus	U.S. EPA 61 Forsyth St. Atlanta, GA 30303
Tom Richter	NC DEPT OF COMMERCE P.O. Box 850 WASHINGTON NC 27889
Ann Holm	IDWR Box 27687 Raleigh NC
Matt Bley	VA. Dept. Conserv. & Rec. 203 Governor St. Richmond, VA 23219
ERNE BROWN	VA DEPT CONS + REC 1548 A HOLLAND RD SUFFOLK VA 23434
Gates M. Barber	Pres. RRR C 901 W Church St. Eliz. City, N.C. 27909
John F. Lutz	Chm. NC Forestry Council P.O. Box 527 FLEETBE, N.C. 28338
JOHN KIRKLAND	RIVER BEND TOWN COUNCIL (Lisewerthausen) 118 PAULINE ROAD RIVER BEND, NC 28562
Jerry Laker	Vice Chair R. River Council P.O. Box 36 New Bern, NC 28563
HANS PAERL	UNC-CH Instit. Marine Sciences 3431 ARENDELL ST. MOREHEAD CITY NC 28557
Joe Ramus	Duke University Marine Lab 135 Duke Marine Lab Rd Beaufort NC 28516
ALAN CLARK	NC DIVISION OF WCP P.O. Box 29535, Raleigh, NC 27626
Steve Holman	RRRC PO Box 430 Wintrow, NC 27986
Sandra Spock Riggs	105 Riggstown Rd, Pollockville, N.C. 28593 252-224-7431 Jones Commissioners
Sherry Newiadomski	City of River Bend 317 Lockbridge 28562

Margaret Bojop	Town of River Bend	314 Quantas Ln. New Bern		
Nancy C. Orr	Town of River Bend	Town Clerk	River Bend	
Kathleen Blacklock	Town of River Bend		"	"
Tom Datt	Town of River Bend		"	"
Duke Pratt	Town of River Bend		"	"
TERRY AVERY	TOWN OF RIVER BEND		"	"
Charlie Preatine	Town of River Bend		"	"

**ATTACHMENT C**

**SUGGESTED NAMES FOR - COORDINATING COUNCIL COMMITTEES**

**STANDING COMMITTEES:**

Executive Committee

- \*5 Regional Council Chairs (Bill Ritchie, Earl Bell, Brewster Brown, Jerry Holloman, and Erie Haste)
- \*Coordinating Council Chair, Bill Holman
- \*Coordinating Council Vice Chair (to be determined)

Public Outreach

- \*Joan Giordano, Leeza Aycock, Lee Wynns, Caroline Parker, Jerry Coker and Dick Hamilton

Issues

- \*Brewster Brown, Leo Green, Terry Rolan, Vince Bellis, Paul O'Neal, Jerry Holloman and Yates Barber

**AD HOC COMMITTEES:**

Memorandum of Agreement (MOA) Committee

- \*Guy Stefanski, Fred McManus, Ernie Brown, (Va. Delegate), Brewster Brown, and Yates Barber

Demonstration Project Committee

- \*John Costlow, Fred McManus, Guy Stefanski, Mike Wicker, Coleman Long, Tom Ellis, Don Hoss, and Joan Giordano

Nominating Committee

- \*Caroline Parker, John Bratton and Vince Bellis

## ATTACHMENT B

Draft 1/15/99

### OPTIONS FOR ADDRESSING THE ISSUE OF ALTERNATES TO THE COORDINATING COUNCIL BASED ON DISCUSSION AT LAST CC MEETING

- 1.) Alternates must be affiliated with the same organization as the regular Coordinating Council member.
- 2.) Each Regional Council Chair will be responsible for identifying the alternate who will represent the regular Coordinating Council delegate when the need arises.
- 3.) The Regional Council Chair will approve (**as opposed to naming**) the alternate selected to represent the regular Coordinating Council delegate when the need arises.
- 4.) The Coordinating Council member intending absence should contact the Chair of his sponsoring organization to report his anticipated absence. The sponsoring entity will determine the alternate to be sent.
- 5.) Each Regional Council will select fixed alternates, from their ranks, to attend Coordinating Council meetings when the regular CC delegate is unable to participate.

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

**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:

\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_



# The Pamlico Sound

## Water Quality Consequences of Anthropogenic Nutrient Enrichment and Reduction: A Perspective on Research and Management Needs for the 21st Century

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### Abstract

The Pamlico Sound is:

- Among North Carolina's most important natural and economic resources,
- the nation's largest lagoonal estuary, and
- an impoundment of water derived from five river watersheds and which processes nearly half of the freshwater runoff from North Carolina.

The Pamlico Sound fishery is in decline, the beginnings of which were measured two decades ago and are coincident with accelerated land use changes in tributary watersheds and increased nutrient loading.

Proposed here is a research and monitoring program to evaluate the effects of watershed nutrient enrichment and legislatively mandated nutrient reductions on water quality and trophic state of the Pamlico Sound. The program will utilize North Carolina vast scientific manpower and infrastructure to make measurements using advanced technologies on a Sound-wide scale for a period of time sufficient to calibrate the effects of anthropogenic nutrient manipulations to the watersheds. These include use of:

- the NC DOT's ferry system for automated sampling,
- satellite- and aircraft-flown ocean color and infrared sensors,
- moored instrument packages at indicator river estuary mouths and inlets,
- a comprehensive atmospheric nutrient deposition network,
- nitrogen-nutrient biogeochemistry,
- stratigraphic records in the sediments,
- bulk properties of phytoplankton communities,
- fisheries resource and habitat evaluations, and
- predictive modeling.

Executive Summary

The Pamlico Sound is the largest lagoonal estuary in the US. It is itself an important fishery and as well provides critical nursery and foraging habitats for the surrounding mid-Atlantic fishery. Physically, the Pamlico Sound is an impoundment of receiving water from five large watersheds and drains to the coastal ocean by three narrow passages (inlets). It processes nearly half of the freshwater runoff from the state of North Carolina. In contrast to other estuaries of the US, the accelerated change in Pamlico Sound watershed land use is a 20th Century phenomenon. Since the early 1960's conversion of its watersheds to crop, livestock, and forest agriculture, suburbanization and urbanization has greatly increased nutrient loading to the river estuaries of the Pamlico Sound; estimates indicate at least a 10-fold increase in nitrogen loading. The geomorphology and hydrology of these river estuaries predisposes them to accelerated eutrophication, and the consequences are well documented in the decades of the 80's and 90's, e.g., nuisance algal blooms, hypoxia, anoxia, toxicity, and mass mortalities of finfish and shellfish. Eutrophication and its consequences are well studied for the river estuaries (the Chowan, Pamlico and Neuse) which drain to the Pamlico Sound, but the downstream consequences are not, i.e., the impact on the Pamlico Sound. Commercial fisheries landings for the Pamlico Sound reached historic peaks in 1980 and have since declined to a fraction of those landings. Although many factors contribute to fishery declines, the landings data signal major changes in the trophic-dynamic structure of the

The 6-year Albemarle-Pamlico Estuarine Study (APES), supported by the EPA and managed by the NC-DENR, concluded in 1994 with the Comprehensive Conservation Management Plan (CCMP). This was the most comprehensive effort of its kind for the Pamlico Sound and its watersheds, although it pales in comparison to the massive research and management efforts which have been directed to its sister estuary, the Chesapeake Bay. APES and the CCMP establish an imperative for an improvement of water quality by a reduction of nutrient loading to watersheds of the Pamlico Sound. Commemorating the 25th Anniversary of the Coast in 1994, the NC Coastal Futures Committee (L. Richardson Preyer, Chmn.) in a report to the Governor established an imperative for an improvement of water quality by a reduction in nutrient loading to watersheds of the Pamlico Sound. This language is also included in HB 515 of 1997, the Clean Water Responsibility Act. The NC-DENR has begun to implement these imperatives with river-basin management plans which include reduction in nutrient loading. For example, a goal of a 30% nutrient loading reduction has been established for the Neuse River by the year 2003. It is absolutely essential to be able to predict the consequences of upstream anthropogenic nutrient manipulations, both enrichment and reduction, to the trophic-dynamic relations in the ultimate receiving basin, the Pamlico Sound, and the subsequent downstream interaction of the Pamlico Sound with the coastal ocean. This dimension was not in the scope of the APES, and is the compelling next step to fully implement the recommendations of the CCMP, the Coastal Futures Committee and the Clean Water Responsibility Act.

Thus, needed for the Pamlico Sound is a system-wide analysis of biological change and a monitoring and assessment program for system inputs from river estuaries and outputs through inlets to the coastal ocean. Nitrogen (N) is the limiting nutrient in the Pamlico Sound and the key element to understanding significant biogeochemical (nutrient flux cycling) and trophic (eutrophication) change. Specific questions that require urgent attention include:

- Is the Sound a source, sink or conduit for N and other growth-mediating nutrients (phosphorus)?



- In what forms and by what routes (watershed, airshed) do N and other nutrients enter the Sound, and what are the key transformations controlling N and other nutrient budgets?
- Most importantly, how does anthropogenic nutrient (with emphasis on N)-loading affect the composition and activity of primary producers mediating nutrient cycling, water quality, habitability, productivity of higher trophic levels, fisheries yields and resources in the Sound?

The Pamlico Sound is quite heterogeneous in time and space due to the many scales of physical forcing that interact with nutrient loading, ecosystem productivity and nutrient cycling response. A particularly important temporal scale for shallow, well-mixed systems like the Pamlico Sound is the meteorological synoptic scale, ca. 2 days to 2 weeks, the scale of atmospheric frontal systems. Atmospheric fronts bring with them precipitation (hence nutrient and sediment loading), wind stress (hence vertical and horizontal mixing) as well as sunlight interception and water column turbidity. The annual and interannual scales as well contain important drivers and the effects of these drivers must be known. Spatially, processes at the mouths of river estuaries are distinct from the body of the Sound which are distinct from inlets. Thus, the sampling regime must resolve the synoptic, annual and interannual temporal scales, as well as the spatial dimension.

It is proposed here to capture these various temporal and spatial scales with an extraordinary opportunity, ships of opportunity, the NC Department of Transportation's extensive ferry system plying the Sound and its tributaries. The ferries can serve as spatially and temporally intensive sampling platforms which are highly reliable, relatively low cost to the project and provide the appropriate temporal and spatial scales for statistical trends analysis. Coupled with the intensive monitoring from ferries are additional opportunities for synoptic scale sampling, including remote sensing and a network of atmospheric deposition collectors. Remote sensing can take advantage of currently-available ocean color and infrared sensors flown on aircraft or satellites. Assessments of atmospheric nutrient inputs can be facilitated by encirclement of the Sound with a set of a wet/dry collectors and coupling data acquisition to the existing atmospheric deposition collection sites (NADP/Castnet) on the mainland.

The ultimate goal of this project is forecasting, predicting the impacts of current and future nutrient loading on the trophic-dynamic structure, water quality and fisheries resources of the Pamlico Sound. The potential for hindcasting is weak for lack of project-driven data acquisition. The potential for forecasting will be realized only by using intensive process-level data collection in predictive models. The Pamlico Sound readily adapts to simple two-dimensional box models. It is shallow, vertically well-mixed, has discrete inputs (rivers, atmosphere and groundwater) and discrete outputs (the atmosphere and inlets to the coastal ocean).

Now at the millenium, two areas of inquiry seem imperative for the Pamlico Sound for the purposes of clarifying ecosystem trophodynamics and developing a management plan:

- a fundamental understanding of the function of the Sound and
- status and trends in basic processes particularly as they are affected by upstream changes in land use, nutrient and sediment loading.

There are some historic data with which to establish a baseline, albeit the quality and quantity are not adequate for a high degree of assurance for forecasting purposes. This likely confers to the Pamlico Sound the dubious distinction of being the largest estuary in the US for which there is the least known.

The project will be directed by H.Paerl and J.Ramus, will utilize a multidisciplinary team drawn from North Carolina universities, state agencies and federal agencies, and industry located in the state, and utilize the considerable science infrastructure present in the area of the Pamlico Sound.

#### A. Prospectus