

Albemarle-Pamlico Estuarine Study
Albemarle Citizens' Advisory
Executive Committee
February 5, 1988

Minutes

Present: Parker Chesson, Captain Al Howard, Joe Stutts, Carolyn Hess, Yates Barber, Wally Jones and Joan Giordano.

Dr. Chesson called the meeting to order at 10:00 am. He welcomed those present and called for reports.

Program Status Report: Joan Giordano. She reported that the second funding cycle is imminent with the "call for proposals" slated for March 15, 1988 (approximately). Assuming the proposals are submitted to EPA in June/July they will become active July 1 - August 15.

The technical and public participation projects are well underway. Examples are Kenny Pearce's Excluder Devices in the Inshore Shrimp Fisheries (due 4/1/88) and Todd Miller's Media Tour (occurring April 26-29, 1988).

The information management position is to be established in approximately 6-8 weeks. The plan is to be adopted by Spring 1988.

The APES newsletter, The Albemarle-Pamlico Advocate, is nearing first issue release, approximately late February, early March. A logo has been created, data and copy collected and a mailing list is being compiled.

Discussion ensued regarding the procedure used in issuing the call for proposals. Due to the lateness of the date, concern was expressed at the lack of a clear understanding of the process to accept the new proposals, evaluate and fund them. It was hoped that a timing situation similar to the first year's funding cycle could be avoided.

Report on January 19, 1988 Pamlico CAC Meeting: See Attachment A.

Report from EPA: Walton Jones. Mr. Jones expressed EPA's desire to "respond to the people." He reinforced EPA's commitment to support the work of the APES and to offer assistance whenever it becomes necessary.

Vacancies on A-CAC: Chairman Chesson referred to the A-CAC Procedures Article 5 and placed the following names in nomination to fill the 2 vacancies on the A-CAC:

Dr. Polk Williams of Elizabeth City to replace Mary Harrell.

Iredell Hassell of Columbia to replace Gilliam Wood.

Joe Stutts made a motion to recommend the proposed replacements with Captain Howard seconding. Motion carried. Chairman Chesson will confirm the willingness of the proposed to serve before submitting their names to the Policy Committee.

EPA Response to Military Air Space: (See Attachment B)

Report on Virginia's proposal to designate nutrient enriched waters:
(See Attachment C)

Governor Martin's Coastal Initiatives Hearings: The Executive Committee expressed a desire to have a representative from the Governor's Coastal Initiatives included on the agenda for the March 2, 1988 meeting.

Proposed Sub-Committee Assignments: (See Attachment D) Note: Also see description of responsibilities for the sub-committees on page 1 of P-CAC Minutes of 1/19/88, attached. Motion to accept the sub-committees as assigned was made by Captain Howard and seconded by Carolyn Hess. Motion carried.

Agenda for March 2, 1988 A-CAC Meeting in Currituck: The following agenda was proposed:

Albemarle Citizens' Advisory Committee
March 2, 1988
Piney Island Gun Club
&
Currituck County Courthouse

Pre-Meeting Agenda

12:00 - 3:00	*Boat Trip on Currituck Sound	Meet at Piney Island Gun Club (see attached map)
	*Please remember to wear warm clothing as the weather is unpredictable at this time of year.	
3:30 - 5:30	Sub-Committee Meetings	Piney Island Gun Club
5:30 - 7:00	Dinner (Dutch)	Coinjock Marine Restaurant

Agenda

Currituck County Courthouse

7:30 - 9:00	Meeting of Albemarle Citizens' Advisory Committee
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1. Sub-Committee Reports
 - a) structure
 - b) plans
2. Program Status Report APES Staff
3. Report from E.P.A. E.P.A. Staff
4. Report on 2/4/88 Currituck Sound Meeting Yates Barber
5. Citizens' Monitoring Project Pamlico-Tar River Foundation Staff
6. Report on Designation of Chowan River Basin as Nutrient Enriched Waters Captain Al Howard
7. Other Business

In other business, Joe Stutts reported on "Project Wild", a program being sponsored by Union Camp. The objective of the summer program is to allow teachers a first-hand view of the environment. He expressed the desire to have an APES speaker address the group in June.

Captain Howard reported on a meeting being held in Edenton at Holmes High School on February 18, 1988. The topic is Water Quality and the Decline of Fisheries Habitat. It is open to the public and is expected to be attended by many fishermen. Harrel Johnson of Marine Fisheries will speak.

Carolyn Hess shared the first issue of "Soundings" the newsletter of the Albemarle Environmental Association.

There being no further business, the meeting was adjourned at 2:00 pm.

ALBEMARLE CITIZENS' ADVISORY COMMITTEE
Executive Committee Meeting
Friday---February 5, 1988---10:00 A.M.

1. Program status report
2. Report on January 19 Pamlico CAC meeting
3. Report on December 15 Technical Committee meeting . . Exhibit 1
4. Report from Walton Jones, EPA
5. Vacancies on CAC
6. EPA response to military airspace proposal Exhibit 2
7. Report on Virginia's proposal to designate nutrient
enriched waters Exhibit 3
8. Governor Martin's Coastal Initiatives hearings
9. Proposed committee assignments Exhibit 4
10. Budget needs for special meetings
11. Agenda for March 2 meeting
12. Other matters



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4PM-EA/GJM

DEC 17 1987

Dr. Parker Chesson
College of the Albemarle
P.O. Box 2327
Elizabeth City, N.C. 27909

Dear Dr. Chesson:

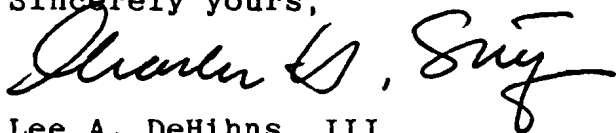
Dr. Douglas Rader, Project Director of the Albemarle-Pamlico Estuarine Study for the North Carolina Department of Natural Resources and Community Development, indicated that the Albemarle Citizen's Advisory Committee had a number of societal and economic concerns regarding present and proposed military airspace use areas along the coast. In response to the issues raised in the November 17, 1987, resolution passed by the committee, let me share the following observations with you.

- ° EPA, Region IV has completed all its pending administrative actions on military airspace utilization in the state (see attached).
- ° A joint briefing of the Technical and Citizen's Committees regarding recent and anticipated expansions of military airspace appears reasonable, but the appropriate military agencies should be contacted to secure this meeting. EPA's role in this matter has been to review and comment on selected environmental ramifications of the subject expansions under the authority of Section 309 of the Clean Air Act. This notwithstanding, the military serves as lead agency in this regard and effectively retains primacy over the actual decision-making process.
- ° The issue of a comprehensive Environmental Impact Statement (EIS) on the cumulative impacts of these incremental airspace restrictions has already been broached by EPA. However, the Department of Defense - not EPA - will make the ultimate decision as to whether this document will be prepared, as well as the level of public input which will occur.

Since the State of North Carolina has such an immediate vested interest in this airspace issue, we have attempted to determine if an official position has been developed. To date, we have been unable to ascertain how the State intends to address these restrictions. Therefore, it would seem prudent that representatives from the involved state agencies (e.g., both environmental and commercial development) be invited to attend the anticipated coordination meeting to aid in expeditious resolution of this problem.

If I can be of further assistance, please do not hesitate to call me at (404) 347-4727.

Sincerely yours,



for Lee A. DeHihns, III
Acting Regional Administrator

Enclosure

cc: Mr. S. Thomas Rhodes, Secretary
North Carolina Department of Natural
Resources and Community Development



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

NOV 16 1987

4PM-EA/GJM

James M. Mead
Brigadier General
U.S. Marine Corps
Marine Corps Air Bases, Eastern Area
Cherry Point, North Carolina 28533-5000

SUBJECT: Cherry I/Core Military Operating Areas
EPA Log No.: F-UMC-E11019-NC

Dear General Mead:

Pursuant to Section 309 of the Clean Air Act, EPA, Region IV has reviewed the Final Environmental Impact Statement (FEIS) for the establishment of the Cherry I and Core Military Operating Area (MOAS) and adds the following comments to our initial observations.

The noise impacts associated with this and similar anticipated Department of Defense training facilities appear to increase both in the short and long-term. The subject military operating areas are located on the coast, therefore, a disproportionate population growth rate is likely to occur during the life of the facility. Further, when considered on an absolute basis the number of people impacted can be expected to rise to significant levels. Currently, the societal/economic implications of operating these facilities are apparent to the affected public as evidenced by the number and content of the comment letters in the FEIS.

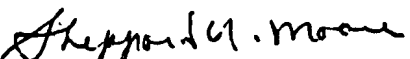
As you are already well aware, the noise and associated air use issues do not immediately lend themselves to satisfactory resolution. That is, there is an inescapable logic to the Marine Corps' desire to provide its aviation personnel with realistic training. On the other hand, homeowners within the noise print of the MOAS are probably less than totally convinced by this logic. Intertwined in this obvious conflict is the generic notion of basic project need. While this was only explicitly mentioned in a percentage of the public comments, it was an implicit theme in most of them. EPA has no mandated review interest in these larger issues and has just attempted to focus on how the noise issue(s) could be mitigated and should be procedurally addressed.

Problem export, i.e., moving the MOAS, merely shifts the noise to other receptors and was deemed infeasible for a number of pertinent reasons during the evaluation process. Suggestions on modifying the size, shape, or use of the MOAS, or duration/type of training within same are beyond this Region's area of expertise. The only practical mitigation measure would seem to be altitude restrictions during the target acquisition flights. While erosion of realistic training by flying higher is an obvious short-coming of this approach, the noise benefits warrant further evaluation by your aviation technical staff when the facilities become operational.

From our reading of the stated objectives of this facility compared to the positions of the majority of the commentors, chronic public relations problems with operating these training areas seem inevitable. Land use or zoning restrictions within the MOAS presumably could be implemented to reduce the number of additional parties that will be affected. However, it would be our experience that neither state or local entities will be disposed to pursue this option. On the other hand, many commentors appeared to favor the no-action alternative. This is a simplistic solution that is highly unlikely to eventuate given the needs of national security. This spectrum of "non-selected" options illustrates the quandaries attendant to this issue.

All of the above notwithstanding, military training in the subject area will produce significant increases in transient noise episodes and volume. Hence, it is our opinion that this document should be supplemented with an evaluation of the cumulative impacts of noise and air use restrictions within Cherry Point's local flying area. Timewise this evaluation should encompass the projected life of the current user aircraft and include any anticipated new training. From our perspective, this is the only manner by which the Marine Corps can adequately discharge its responsibilities under the National Environmental Policy Act. At the same time this approach would fully inform the public and ultimate decision-makers on this issue as to all the consequences of Department of Defense aviation activities in this section of coastal North Carolina.

Sincerely,


Sheppard N. Moore, Chief
NEPA Review Staff
Environmental Assessment Branch



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUG 27 1987

4PM-EA/SNM

Lt. D.A. Wagner, JAGC, USNR
Assistant Staff Judge Advocate
COMFITMATAEWINGSLANT
NAS OCEANA
Virginia Beach, Virginia 23460

SUBJECT: Review of Supplemental Environmental Assessments for Proposed Modification to Restricted Areas R-5301 (Palmetto Point) and R-5302 (Harvey Point) and Proposed Modification to Restricted Area R-5313 (Stumpy Point) dated January 1987
EPA Log No.: A-FAA-870308-NC

Dear Lt. Wagner:

Thank you for your phone call of June 29, 1987 explaining the purpose of the meeting that you held with the State of North Carolina on June 30, 1987. As we discussed by phone, the State had asked the Environmental Protection Agency (EPA) to review the SEA's. We had reviewed the original EAs and commented on April 14, 1986, also at the request of the State. While the two supplements are a great improvement over the original EA's, the fact that neither the EA's nor the SEA's were circulated for agency or public review is of concern to the EPA. The State reported to us that the June 30th meeting was helpful in resolving many of their concerns.

The inclusion of maps with the coordinates plotted on them would have helped in understanding the proposed restricted areas. Maps supplied to the State of N.C. indicate restricted area over land. Is this correct or is the area only over open water as stated in the SEA? The closest refuge, Alligator River National Wildlife Refuge is not mentioned in the SEA nor is Pettigrew State Park which is about 13 miles from 5301 and 5302.

Noise could be an issue. The flight paths and levels of flight, and the arrival routes from NAS Oceana should be identified. Carrier based planes would almost certainly fly across the Cape Hatteras National Seashore to fire on Stumpy Point. The frequency, flight paths, altitude and single event noise levels should be given.

The thriving marine life in and around the hulk is well known in the area and attracts fishermen. The restrictive markings need upgrading and need to be maintained. The Inner Coastal Waterway is a very popular route for out of state recreational boats. You should insure that your target areas are accurately marked on marine charts. Also, it is not clear if recreation or fishing would ever be allowed in the 3NM diameter circle of 5313A or the 3NM arc of 5301A as they are proposed for continuous use.

The economic impact on recreational boating and fishing and commercial fishing in the continuous use areas and during intermittent use of the

other areas needs to be better documented. The economic impact of the existing operations could be improved. The relationship between surface and airspace when airspace extends to the surface needs to be better defined as well as the roles of the responsible agencies when this happens.

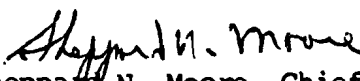
The document could be improved by including baseline data on air quality, water quality and noise. A standard noise contour map would be helpful. The number of receptors and frequency of occurrences should be given along existing and proposed approach routes. There needs to be a more detailed analysis of the ordnance, propellants and other chemicals involved and their potential impact on water quality.

The initial application to the FAA did not propose stand off weapons for Harvey and Palmetto Points. Has this been amended? And the spelling is MATTAMUSKEET rather than MALTAMUSKEET as it appears in both SEA's.

Since the DOD has elected not to address the cumulative impacts of their various existing and proposed activities in eastern North Carolina, especially the cumulative airspace impact, it is the opinion of the EPA that these airspace impacts should be addressed by the FAA. The EPA disagrees with the FAA position that only the Navy has a NEPA responsibility in the proposed restricted airspace areas. Any subsequent DOD, Navy or FAA documents should address the cumulative impacts of airspace usage by the military. While they have not contacted EPA, it is my understanding that the GAO is preparing a report on the military airspace issue and that this report will be available this fall.

Again, I appreciate your call and your efforts to resolve the issues raised by the State of N.C. I hope that the Navy and EPA can work closer together in the future.

Sincerely yours,


Sheppard N. Moore, Chief
NEPA Review Staff
Environmental Assessment Branch

cc: William L. Flourmoy, Jr., Chief
Environmental Assessment Section
State of North Carolina
Department of Natural Resources and
Community Development
521 North Salisbury Street
Raleigh, North Carolina 27611

cc: Walter E. Demby, Manager
Airspace and Procedures Branch
Southern Region
Federal Aviation Administration
P.O. Box 20636
Atlanta, Georgia 30320

Dinah Bear
General Counsel
Council on Environmental Quality
722 Jackson Place, N.W.
Washington, D.C. 20006

bcc: Dr. Alexander Williams (A-104)
Office of Federal Activities

Ken Mittelholtz (A-104)
Office of Federal Activities



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

343 COURTLAND STREET
ATLANTA, GEORGIA 30365

APR 14 1986

4PM-EA/SNM

Ms. Chrys Baggett, Director
State Clearinghouse
North Carolina Department
of Administration
116 West Jones Street
Raleigh, North Carolina 27611

Dear Chrys:

We have reviewed the environmental information including the Environmental Assessments relating to Airspace Docket Number 85-ASO-16 as requested by your letter of March 14, 1986. It is the opinion of the EPA that the one page EA on areas 5301 and 5302 dated April 1985, and the 2 page EA on 5313 dated September 1986 are severely lacking in data and had they been sent to us for review, they would have both been rated inadequate.

We certainly recognize the need for military target ranges, however, it is our understanding that there are alternative ranges in the area and they should have been discussed. It is also our understanding that there are numerous military proposals on the table in eastern North Carolina. It is my feeling that the cumulative impacts of these proposals by the various military services might but be evaluated in one Department of Defense Environmental Impact Statement.

I will not enumerate the many areas in which the Navy's assessments are lacking as you have recognized most of them. However, I would like to stress the health and safety issue. Certainly, something must be done to prevent the safety hazards that currently exists within the airspace and on the water. These safety hazards will be even greater in the future with the use of laser weapons.

The Navy recognizes in their A-63 Trim Laser Safety Program and Operating Procedures, dated December 26, 1984 that "The intensity within the beam of the laser exceeds that produced by the sun, nuclear weapons, burning magnesium or arc lights. Though the laser beam is invisible, the eye is able to focus this energy onto the retina with possibly severe and permanently damaging effects varying from spot blindness, if the direct beam is viewed from a long distance, to complete and total loss of sight if the direct beam is viewed from a distance very close to the aircraft. This hazard exists within the laser beam, along the aircraft's flight path, out to a range of 6.0 within the laser beam, along the aircraft's flight path, out to a range of 6.0 nautical miles from the lasing aircraft. This distance is increased when binoculars, spotting scopes or any other magnification device (including telescopic cameras) are

used. Any optical magnification device required to view the laser source from within the target area must be equipped with a protective filter or the viewer must wear proper eye protection."

The use of laser, although not discussed in the EA, could result in a significant impact on the quality of the human environment. Although they state that the entire area within the 6 nautical mile radius circle around the target must be free of boats and fishermen, prior to conducting laser operations, recent accidents right at the target has revealed the inadequacy of the present warning/clearing procedures.

In summary, we feel that the Navy's assessments are inadequate and do not support a Finding of No Significant Impact.

Sincerely yours,

Sheppard N. Moore
Sheppard N. Moore, Chief
NEPA Review Staff
Environmental Assessment Branch

cc: Director FAA, Southern Region
ATTENTION: Manager, Air Traffic Division
Docket No. 85-ASO-16
Federal Aviation Administration
P.O. Box 20636
Atlanta, GA 30320

CDR Larry Cleghorn
Commander Tactical Wings
NAS Oceana
Virginia Beach, Virginia 23460

Dinah Bear
General Counsel
Council on Environmental Quality
722 Jackson Place, N.W.
Washington, D.C. 20006

Alexander Williams (A-104)
Office of Federal Activities
U.S. Environmental Protection Agency
401 M Street, N.W.
Washington, D.C. 20460



J. R. Horsley

Soil and Water Conservation District

Received

FEB 1 1988

College of The Albemarle
President's Office

SUSSEX • SOUTHAMPTON • GREENSVILLE COUNTIES

425 "D" S. Main Street
Emporia, Virginia 23847

January 28, 1988

Mr. Richard Burton
Executive Director
Virginia Water Control Board
2107 North Hamilton Street
Richmond, Virginia 23230

Dear Mr. Burton:

The J. R. Horsley Soil and Water Conservation District wishes to officially go on record supporting the request of the North Carolina Division of Environmental Management to have the Blackwater, Nottoway and Meherrin river systems in Virginia included in the "nutrient enriched waters" of the State of Virginia.

Our Soil and Water Conservation District has been actively involved with farmers in Virginia to help them to reduce non-point source nutrient inputs into the Virginia river systems of the Chowan for the past several years.

The Food Security Act of 1985 requires that all farmers with highly erodible cropland develop and implement a conservation plan by 1995. This provides us with the opportunity to reach many landowners who have never participated in conservation programs. Without the designation of "nutrient enriched water" we are concerned that future funding to cost-share with farmers to install expensive practices could be endangered.

Again we support the request of North Carolina to include the entire Chowan Basin in Virginia in the "nutrient enriched waters" of the State.

Thank you for your consideration.

Sincerely,

Leland E. Beale, Jr., Chairman
J. R. Horsley Soil and Water
Conservation District

Mr. Richard Burton

Page 2

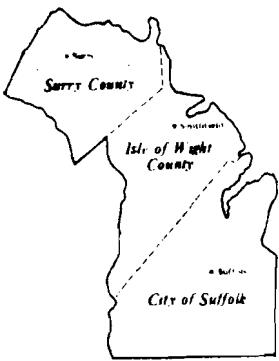
January 26, 1988

cc: Delegate Paul Council
Delegate Beasley Jones
Senator Richard Holland
Senator Elmon T. Gray
Bud Leynes
Roland Geddes
Alan Klemick
Parker Chesson
Joe Stutts

Douglas Lader

PEANUT SOIL AND WATER CONSERVATION DISTRICT

1548 Holland Road, Suffolk, Virginia 23434



January 29, 1988

Mr. Richard Burton
Executive Director
Virginia Water Control Board
2107 North Hamilton Street
Richmond, Virginia 23230

Dear Mr. Burton:

The Peanut Soil and Water Conservation District wishes to officially go on record supporting the request of the North Carolina Division of Environmental Management to have the Blackwater, Nottoway and Meherrin river systems in Virginia included in the "nutrient enriched waters" of the State of Virginia.

Our Soil and Water Conservation District has been actively involved with farmers in Virginia to help them to reduce non-point source nutrient inputs into the Virginia river systems of the Chowan for the past several years.

The Food Security Act of 1985 requires that all farmers with highly erodible cropland develop and implement a conservation plan by 1995. This provides us with the opportunity to reach many landowners who have never participated in conservation programs. Without the designation of "nutrient enriched water" we are concerned that future funding to cost-share with farmers to install expensive practices could be endangered.

Again we support the request of North Carolina to include the entire Chowan Basin in Virginia in the "nutrient enriched waters" of the State.

Thank you for your consideration.

Sincerely,

Carey M. Copeland

Carey M. Copeland, Chairman
Peanut Soil and Water
Conservation District

cc: Governor Gerald D. Baliles
Delegate J. Paul Councill, Jr.
Senator Richard J. Holland
Senator Elmon T. Gray
Senator Mark Earley
John Daniel
Bud Leynes
Roland Geddes
Alan Klimek
Parker Chesson
→ Jne Stutts

FEB 2 1988

COMMUNICATIONS SECTION

Committee Assignments

Program Review Committee

Don Bryan *Chuck Little*
Jimmy Jenkins
Don Flowers
Bill Piland
Bill Richardson
A. B. Whitley
Gerald Perry
John Acree

Technical Review/Environmental Issues Committee

Terry Pratt
Ralph Calfee
John Stallings
Joe Wright
Glen Wood
Yates Barber
W. C. Witherspoon
Quentin Bell
Murray Nixon

Public Awareness/Governmental Relations Committee

Bill McGeorge
Al Howard
Carolyn Hess
Mike Corcoran
Mikey Daniels
Rob Powell
Joe Stutts
Earl Rountree
Lloyd Ballance

*See minutes of P-CHC (1/19/88)
for the charge of these committees*



EXHIBIT 1
Received

JAN 27 1988

College of The Albemarle
President's Office

Bertie Soil and Water Conservation District
Box 566 - Windsor, North Carolina 27983 - Telephone 794-2153

January 26, 1988

Mr. J. Parker Chesson, Jr.
P. O. Box 2327
Elizabeth City, N.C. 27909

Dear Mr. Parker:

I will be out of state from January 29th until the 14th or 15th of February and will miss the next meeting of the Albemarle APES executive committee. Below are a few notes taken at the technical committee meeting on December 15th.

There was a discussion of the decision by the policy committee to turn over the day to day operation of the program to the technical committee. The committee thought that it was a positive move but had questions about some of the details. For instance, whether the technical committee could make some minor changes in funding of projects without going back to the policy committee.

Other topics included:

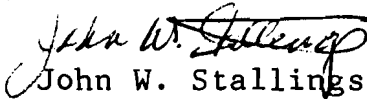
- a. Dave Adam (NCSU, Wetland Protection Strategies) was approved for an additional \$7500.
- b. Gary Smith (ECU, Videotape/Slide Show) was approved for \$10,000 (CACs should work with Gary on this).
- c. Stan Riggs (ECU, Mud Pollutants) was approved for additional \$6,000 to speed up work.
- d. Base monitoring funds will be available through "Clean Water Funds" beginning in April 88.
- e. UNC has applied for \$400,000 of NASA funds for Non-point source Land Use Research.
- f. Red Tide Problem discussed including a proposal for a research project on the problem. A special sub-committee was appointed to meet and study the proposal after the technical committee adjourned.

Appointments of sub-committees was discussed for several areas including:

1. Information Management
2. Administrative Procedures
3. Citizens Affair

I will contact you when I get back.

Sincerely,


John W. Stallings
Chairman
Bertie SWCD

901 West Church Street
Elizabeth City, N.C. 27909
(919) 338-3557
June 9, 1987

Dr. Douglas Rader, Program Coordinator
Albemarle-Pamlico Estuarine Study
Dept. of Natural Resources & Comm. Development
Post Office Box 27687
Raleigh, North Carolina 27611-7687

Dear Doug:

Here are my much-delayed comments on the draft Albemarle-Pamlico Estuarine Study Work Plan. Your people have done an enormous amount of work on this and are to be commended for your efforts. I hope these comments will be of some constructive help to you in developing the final plan or subsequent drafts, as it may be.

My comments usually refer to a specific page or section, but in many cases, the same basic comment applies to corresponding items in other chapters either before or after, but I did not repeat them.

In any case, Doug, I feel that the studies you are about to launch are of vital importance to the future of the North Carolina estuaries. They will be vastly more difficult because of the sins of the past, i.e. the lack of any comprehensive monitoring system and the baseline information it would have provided. Unless I overlooked it, I don't think there is a direct reference to creating such a program, although it is perhaps indirectly suggested. I believe that the most important final product of these studies must be a comprehensive monitoring plan in place with a determination to carry it out. Without that, North Carolina will be back five or ten years after you finish trying to pick up the pieces again. I don't think we have the time or the resources (natural or fiscal) to waste in that way.

My comments which follow are intended as constructive suggestions.

Page 4 - In considering the impacts of man's actions on natural systems, we must not overlook the impacts of the several large dams on the Roanoke and Neuse Rivers. Buggs Island, Gaston, Roanoke Rapids, and Smith Mountain have all been added to the Roanoke in the last 40 years. These have effected sediment and nutrient loads from upstream and undoubtedly have changed temperatures downstream. They have also changed the cycle of flow and the amount of detrital materials flushed from the extensive overflow bottomland hardwood forests in North Carolina. Flood peaks are reduced and low flows increased, no doubt.

Also the logging of vast acreage of virgin hardwood forest in the Roanoke bottoms during the past 40 years (as well as for many decades before) may have changed greatly the kind and amount of forest litter now reaching Albemarle Sound. These same impacts over the past 100 years can undoubtedly be extended to nearly all our coastal swamps.

Page 10-11, Agriculture - Discussions here and elsewhere may need to recognize more adequately the change in land use, especially over the last 40 years with re-ditching of lands, clean farming, and use of agricultural chemicals. I question whether pollution increases from pesticides can be totally dismissed in view of the steady increase of new chemicals and combinations of old ones that constantly appear, and the hopelessness that EPA review and testing procedures are likely to catch up anytime soon.

Page 16 - The discussions of point source contributions should recognize those discharges upstream of the North Carolina borders.

Page 19-21 - The Blue crab landing figures for North Carolina may well have been effected greatly over the past 20 years or so by adoption of the wire trap. Since 1980, there have been phenomenal landings in Currituck Sound. Before adoption of the pots, the crab fishing of Currituck Sound was almost nonexistent.

Page 40, Section I.3 - I applaud the proposal for monitoring of SAV in the Pamlico River, Currituck Sound, and Cove Sound areas. However, I doubt that a 5-10 year return period will mean very much. I would advocate establishment of some transects in those areas, and some of those transects should be run every year. I believe that Virginia reruns every year on some of the transects which were set up in Back Bay in the State/Federal studies of the early 60's. I think NCWRC has checked the North Carolina ones (in Currituck Sound) maybe once since then.

SAV can completely change or disappear in only one or two years. For example, invasion water millfoil was discovered in Currituck Sound in late summer of 1965 (I think this year is correct). Within three years it had invaded virtually every acre in the Sound, much of it in unbelievable density. It should not be too costly for responsible state agencies to get out and make some annual transect reruns every years.

Page 42 - The water quality and estuarine relationship section is a vital section of the study, and I agree with what you have included. I believe some emphasis should be added here to ensure that the new water quality data collected includes the details needed for management decisions and to identify where the problems occur. For example,

1 - Water quality sampling must not only be extended into the saline estuaries, but it must also be extended upstream into the smallest tributaries including lead ditches and field ditches as well. This may be especially true in spring during heavy runoff when herring may penetrate even into these ditches.

At planting time, heavy applications of pesticides are made and with BMP (and notill) increasing, more and more of this occurs as wholesale spraying of the land surface. Spray drift occurs, and no doubt, some runoff when it rains. We need to know how much mortality of fish eggs and larva occurs in that first upstream interface.

2 - Water quality sampling must include not only the water column and all suspended materials, but also the bottom sediments and the biota. The biota should include SAV, as well as other organisms. In an area of low flushing, as in Currituck Sound, these have been indications of recycling of nutrients between rooted aquatics and planktonic forms over the past few years.

If intensive analysis of bottom sediments for toxicants is not practical on a wholesale basis, then at least a portion of the samples from each body of water should be intensively analyzed.

Consideration should be given to preservation of a series of bottom sediment samples for future reference. They should be collected at the site of water quality sampling stations and preserved for future reference. It is recognized that some components will not "keep" but others undoubtedly would.

3 - I concur completely that "Local. . . phenomena are difficult to understand, . . . without a general knowledge of how basic physical processes affect flow patterns in this complex estuarine system".

It is imperative that whatever data-gathering systems are used, they must be sophisticated and intensive enough to produce the picture of how the physical-chemical system of these sounds actually works. Until we understand that more fully, we cannot properly interpret the biological results of either that system or the effects of man on it. Too many scientists, engineers, and decision-makers of the past have failed to recognize the uniqueness of the Albemarle-Pamlico complex through the absence of lunar tides over most of the area.

Page 42, Section C.1 - To accompany this important map there should be a continually updated (year to year) assessment of the kinds and amounts of toxicants and nutrients being added in these areas, especially in the most critical areas.

The increasing numbers of chemicals and of combinations of chemicals on the market, as more immunities develop in both plants and animals, may require frequent updates of this information.

Page 44, Section E.3 (and E.6) - In considering land conversion, don't overlook the frequent and probably sometimes serious impacts of inter-basin diversions on small streams simply through connecting one new ditch to reverse the flow on a farm or to save money by finding the closest outlet.

Also note that this land conversion includes the re-ditching (since tractor farming came about 1940) of virtually every acre of land in cultivation prior to that time in many areas. The new drainage system has often produced over-drainage and increased sediment loads with stream channels and swamps catching a great deal of the silt. In many cases, the larger, deeper ditches have brought up quantities of clay from the subsoils and these have been worked into the field surface. (Before, the shallow ditches brought up little or no clay, and it was bound up in the spoil bank.) Now a brief shower can suspend the clay and its into a waterway in ten minutes. Some of this clay is colloidal, or nearly so, and can remain suspended indefinitely.

Page 45, Section E.4 - There needs to be a monitoring system set up now for swamps threatened with being used as treatment areas, as well as on-site studies of swamps already impacted by nutrients, etc.

Overflow, seepage, and outright discharge from livestock sewage lagoons is already effecting many swamp areas in the Albemarle area. There are indications that the herbaceous vegetation in the understory of such swamps may be drastically changed by these discharges. Waterfowl use can be drastically reduced or eliminated by these changes.

Page 46, Section E.8 - This effort might also be applied to Chowan River and various parts of Albemarle Sound, even though these may be less salty. All fish kills could be more intensively investigated to show whether the kill really came from anoxia, blue-greens, dinoflagellates, toxic substances, etc.

Page 47-48, Items I.1 & I.2 - These are worthy efforts to determine, (1) the effectiveness of fecal coliforms as pollution indicators, and (2) the effectiveness of BMPs.

I agree these need to be done, but I question that we should spend the APES' money for it. Those are basic research needs which have wide application everywhere. Therefore, they should be done not under APES but by using some of the vast monies available through EPA, PHS, SCS, AR, and the Extension Service. To squander our meager funds on this now is too put the cart before the horse.

Page 49, Fishery Dynamics - Fishery resources are especially important to the region because of their recreational values as well as their commercial values.

Page 49, Section E.1 - In investigating the effects of fishing practices on water quality and habitat in the sounds, it would be well to evaluate the effects of trawling and power dredging for oysters on oyster beds. Also the effects of trawling on SAV should be evaluated.

The destruction of vast numbers of small fish by shrimp trawlers and some haul seining bares continued attention.

Dr. Douglas Rader
June 9, 1987
Page 5

As a last comment, I want to suggest that some attention be given to acid rain, if we have that problem here in eastern North Carolina. Maryland workers report that they have already lost their herring from some small streams on both the eastern and western shores. Apparently, the low pH dissolves aluminum from clay soils and it is very toxic to fish. If we have proof that we don't have any problem, fine, otherwise I think we should at least check on the acidity of our precipitation.

I hope these comments will be helpful. If you have any questions, I'll be happy to respond.

Yours truly,

Yates M. Barber
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