



... the newsletter of the Albemarle-Pamlico Estuarine Study

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Public release of CCMP draft delayed pending review

Following review by the A/P Study's Technical and Policy committees in April, release of the first draft of the Comprehensive Conservation and Management Plan (CCMP) has been delayed. The delay was urged by Technical and Policy committee members who felt the draft needed refinement and that public release at this point would be premature.

The original schedule had called for the first draft of the CCMP to go out for public review in May following committee review. Under the revised schedule, however, the first draft will go out for public review in September, and the anticipated date for final CCMP authorization is now February 1993.

The delay will not change the Study's intent to have two rounds of public comment for the CCMP; the second round should take place in December.

Major concerns with the draft that prompted the committees to urge delay were:

1 -- The draft did not have thorough enough analyses of ongoing state programs and how those programs may already be working toward CCMP goals.

2 -- The draft did not include enough supporting data for some of its recommendations.

3 -- The Introduction and Implementation sections of the draft were not completed.

Most committee members felt that releasing a draft without this information could cause a negative reaction among the public. They believed that the public's first impression of the CCMP will play a large role in determining whether the public would ultimately accept its recommendations, and thus the draft should be as complete as possible.

A few committee members, however, believed that since the draft was by definition an unfinished document, there was no reason not to let the public comment on what had been produced to that point. These members argued that to pull the draft back for more internal review when it had been on the verge of release could make the public feel alienated from the development process.

In the period since the delay was instituted, the Study staff has been addressing the concerns raised by the committees. Study Director Randall Waite and Study staff have been meeting with personnel from various state agencies to ensure that the CCMP addresses the most pressing problems in the A-P region and puts forth the most effective management recommendations possible.

THE ALBEMARLE-PAMLICO ESTUARINE STUDY

Initiated in 1987, the Albemarle-Pamlico Estuarine Study is a five-year program of research and education on the Albemarle and Pamlico sounds and the rivers that feed them. The Study is charged with developing a Comprehensive Conservation and Management Plan (CCMP) to help guide long-term environmental protection of the estuary. The revised schedule for the drafting, review and publication of the CCMP is as follows:

<u>PROGRAM GOAL</u>	<u>REVISED SCHEDULE</u>
First draft of CCMP to committees	July 1992
First draft to public	August 1992
First series of public meetings on CCMP	September 1992
Second draft of CCMP to committees	October 1992
Second draft to public	November 1992
Second series of public meetings on CCMP	December 1992
Final document to committees	January 1993
CCMP approved and published	February 1993
Implementation Kick-off	February 1993

Researchers need help in testing for toxic algae

How would you like to play a part in solving one of the most intriguing environmental mysteries in the Albemarle-Pamlico estuary? If you're interested, then scientists studying fish kills could use your help.

Over the past year, researchers from N.C. State University have isolated a toxic algae that may be responsible for many fish kills in the A-P region in the past decade. The algae, whose unusual life cycle was noted in the February 1992 *Advocate*, is thought to be a previously unidentified species, and perhaps even a member of a previously unidentified family of species. The mercurial creature could be playing a major role in fish kills all along the mid-Atlantic coastline. It is toxic at very low levels, can be detected only in the presence of live fish.

In order to confirm their findings, NCSU researchers Drs. JoAnn Burkholder and Ed Noga need to get samples from the vicinity of ongoing kills. But since kills often happen in places that neither the researchers nor environmental agency personnel can get to very quickly, they are asking for the public's help in taking the samples.

Drs. Burkholder and Noga have established the following protocol for persons willing to take samples:

1. When a fish kill is in progress, observe whether the water is discolored in the vicinity of the kill. It may not be, but the alga still may be present. Also, note whether the fish are exhibiting erratic behavior, sudden death in a short period, or other symptoms that lead you to suspect that a toxic agent may be present.

2. Always report any significant fish kill as quickly as possible to the N.C. Division of Environmental Management (946-6481 in Washington; or 395-3900 in Wilmington). If it is after hours and you suspect toxic algae, contact JoAnn Burkholder (919 515-2726) or Ed Noga (919 829-4236).

3. If you can get water samples, please:

a. use a clean, quart-sized plastic or glass bottle for each sample

b. if at all possible, get samples from areas where fish are still dying; if they are dying in several different areas, try to get samples from the different areas

c. if the fish are already dead, take the samples where there are large numbers of fish floating to shore

d. take the sample by placing the bottle or jar, opening down, about an elbow's length down into the water, then orienting it upright, fill it at that depth

e. store the sample out of the sunlight at field or room temperature

f. it would also be a great help if another, smaller sample of about 1 cup could be taken from each location and preserved with about 5-8 drops of Lugol's solution (enough to make the water a golden-orange color). The solution can be supplied by NCSU or obtained at regional offices of the Department of Environment, Health and Natural Resources (DEHNR) in Wilmington, Washington, and Elizabeth City.

4. If possible take samples along a rough transect as follows:

a. outside the kill area

b. on the margin of the kill area

c. about 1/4 of the distance into the kill area

d. about 1/2 of the distance into the kill

e. about 3/4 of the distance into the kill

f. and at the center of the kill

For smaller kills, take samples at points a, b, d and f

5. The samples should be sent as quickly as possible to Dr. Burkholder. (You can mail the samples to her at, Dept. of Botany, NCSU, Box 7612, Raleigh, NC 27695.) Or, samples may be taken to a regional office of DEHNR.

Please contact Dr. Burkholder if more information on taking water samples is needed.



Learning About the Waters

the estuary, its functions and its issues

Dissolved Oxygen: essential measure of the water's health

The concentration of dissolved oxygen (DO) in water is a critical measure of the water's ability to sustain life. While healthy bodies of water can have bouts of low DO, chronic occurrences can indicate serious water quality problems. Reports of fish kills related to low DO have increased in the A-P region in recent years. While better reporting may be part of the reason for the increase, low DO kills do seem to be occurring more frequently than in years past. Long-term monitoring, though fairly limited in scope, has not shown a trend toward a system-wide decline in DO.

DO and the Water

DO enters the water in two primary ways. The first is through the respiration of aquatic plants, which "exhale" oxygen during photosynthesis. The second is from direct contact at the air-water interface. The more turbulent the water's surface is, the more surface area that is exposed to the air, and thus the greater the DO at the surface. The turbulence also helps keep that surface DO mixed into lower depths.

The Problem of Low DO

DO levels of 4 milligrams per liter (mg/L) or greater seem sufficient to sustain most forms of aquatic life (though young fish may need slightly higher levels). When DO falls to a range of around 2.5mg/L to 0.5mg/L, a condition known as *hypoxia*, most aquatic animals become stressed, and sensitive or young animals can die. A virtual absence of DO, called *anoxia*, causes death to most animals caught in it for any length of time.

How Low DO Happens

There are two primary causes of hypoxia in the estuary; these can occur independently or in conjunction with one another. The causes are:

Salinity stratification - When there is little movement in water due to a lack of river flow, winds or currents, the water settles into layers, with denser saltwater sinking to the bottom. The layering keeps the DO up along the surface air-water interface, while waters at the bottom gradually lose DO through the respiration of bottom-dwelling animals. If the water remains stratified for four or five days, hypoxia will develop.

Decay of organic matter - The decay of dead plants and animals and other organic wastes in the water is carried out continually by oxygen-consuming bacteria. When large amounts of dead biomass accumulate, as can happen during an algal bloom, hypoxia can result from the increase in decay. This is most likely to happen at night, as bacteria continue to use oxygen but living aquatic plants stop producing it.

Management Implications

There is no feasible way to protect all waters from occasional hypoxia. Two things that can help minimize chances of hypoxia occurring, though, are limiting nutrient loadings (and thus limit excess algal growth); and limiting the oxygen-consuming wastes contained in industrial and sewage discharges.

State Environmental Agencies: learn your ABCs

One key for the public to be able to participate effectively in environmental policy-making is to understand the structure of the state Department of Environment, Health and Natural Resources. This space will be periodically devoted to brief descriptions of pertinent agencies.

Coastal Resources Commission (CRC) - The CRC is a citizen oversight body that has decision-making authority for Coastal Area Management Act (CAMA). CAMA was created in 1974 to help guide development of the 20 North Carolina counties that border the ocean and coastal sounds.

The CRC, whose 15 members are not state employees, sets CAMA policies, gives approval for local land use plans in coastal areas, and is the first level of appeal for DCM decisions. The CRC meets six times a year.

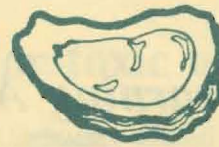
Division of Coastal Management (DCM) - DCM is responsible for day-to-day administering and enforcing of CAMA regulations. DCM staff works with persons who have applied for permits under CAMA, and makes permit decisions based on CAMA regulations.

DCM staff are state employees. In addition to a central Raleigh office, there are regional DCM offices in Wilmington, Washington, and Elizabeth City.

Current Director of DCM is Roger Schecter, who may be contacted at (919) 733-2293 in Raleigh. Current CRC Chairman is James E. Harrington, (919) 829-7317 in Raleigh.

Sound Bites

news, notes and information about the A/P Study



WORKSHOP HELD FOR CITIZEN MONITORING

The A/P Study's Citizen Water Quality Monitoring Program (CWQMP) recently held a Quality Assurance and Quality Control workshop. Some 20 monitors attended the workshop, which was held at River Park North in Greenville.

The purpose of the workshop was to help monitors review their techniques and determine the level of accuracy in their readings. The CWQMP is also working to standardize the analysis of the readings. Program Director Robbie Blinkoff said that the accuracy and consistency of the measurements obtained by monitors was high enough to be a viable complement to the state monitoring database.

Along with program scientific specialist Grace Lekson, a number of of A/P Study and state agency personnel assisted at the workshop. Included were Study staff members Meg Scully and Joan Giordano, Kevin Miller and Lynn Biles of DEM, and Gayla Campbell of the LaMotte Company, which supplies the testing equipment used by monitors.

DEM SETS NON-DISCHARGE HEARINGS

A series of hearings on proposed modifications in rules governing permitting and design of agricultural non-discharge systems will be held by the Division of Environmental Management in June.

Hearings will be held in: Greenville (June 16, Jenkins Aud.); Clinton (June 17, Civic Center); Morehead City (June 22, Carteret CC Aud.); Raleigh (June 23, Archdale Bldg.); Asheville (June 29, UNC-A Humanities Hall); and Statesville (June 30, Mitchell CC Aud.).

Contact Boyd DeVane or Dennis Ramsey at DEM, (919) 733-5083, for more information.

COMMITTEE MEETINGS, JUNE-JULY

Citizen Advisory July 28

Technical July 30

The public is welcome at all meetings. Call Joan Giordano at (919) 946-6481 for location, and agenda specifics.

Coming together is a beginning; keeping together is progress; working together is success

THE ADVOCATE...

is the newsletter of the Albemarle-Pamlico Estuarine Study, a five-year project funded jointly by the US EPA and the State of North Carolina, intended to develop an environmental management plan for the Albemarle-Pamlico estuarine system. The Study, which will conclude in 1992, is part of the EPA's National Estuary Program. It is being conducted within the N.C. Dept. of Environment, Health, and Natural Resources, POB 27687, Raleigh, NC, 27611-7687.

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