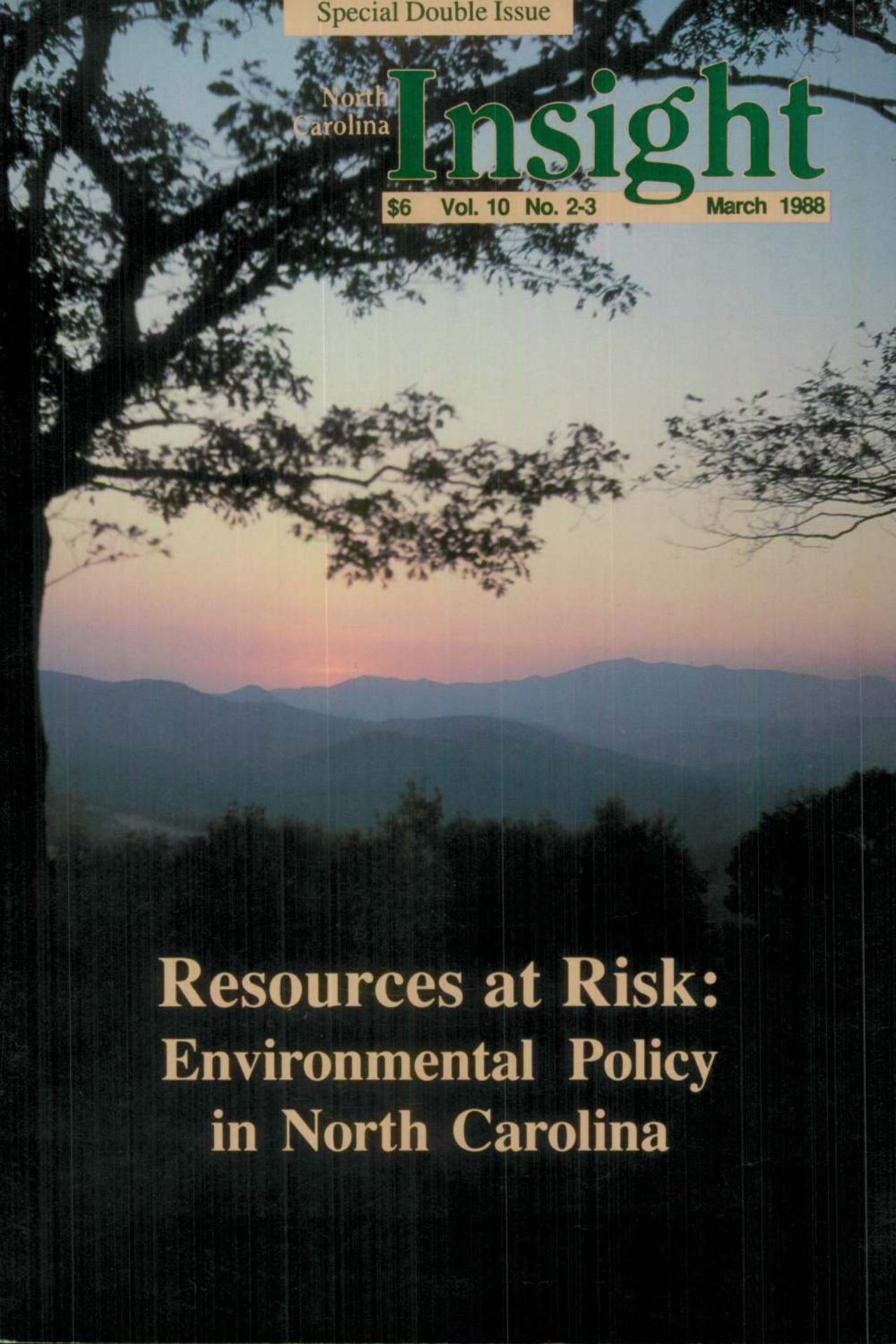
Special Double Issue

North Carolina Insight

$6 Vol. 10 No. 2-3 March 1988



Resources at Risk: Environmental Policy in North Carolina

N.C. Center for Public Policy Research

The North Carolina Center for Public Policy Research is an independent research and educational institution formed to study state government policies and practices without partisan bias or political intent. Its purpose is to enrich the dialogue between private citizens and public officials, and its constituency is the people of this state. The Center's broad institutional goal is the stimulation of greater interest in public affairs and a better understanding of the profound impact state government has each day on everyone in North Carolina.

A nonprofit, non-partisan organization, the Center was formed in 1977 by a diverse group of private citizens "for the purpose of gathering, analyzing and disseminating information concerning North Carolina's institutions of government." It is guided by a self-electing Board of Directors and has individual and corporate members across the state.

Center projects include the issuance of special reports on major policy questions; the publication of a quarterly magazine called *North Carolina Insight;* the production of a symposium or seminar each year; and the regular participation of members of the staff and the Board in public affairs programs around the state. An attempt is made in the various projects undertaken by the Center to synthesize the integrity of scholarly research with the readability of good journalism. Each Center publication represents an effort to amplify conflicting views on the subject under study and to reach conclusions based on sound rationalization of these competing ideas. Whenever possible, Center publications advance recommendations for changes in governmental policies and practices that would seem, based on our research, to hold promise for the improvement of government service to the people of North Carolina.

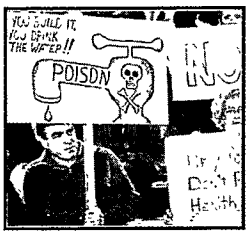
NORTH CAROLINA INSIGHT is a quarterly magazine published by the North Carolina Center for Public Policy Research, Inc. (a nonprofit, tax-exempt corporation), P.O. Box 430, Raleigh, N.C. 27602. Telephone (919) 832-2839. Annual membership rates: Individual, $24; Organizational, $30; Supporting, $50; Corporate, $100; Supporting Corporate, $250; Patron, $500; Benefactor, $1000. Third class postage paid at Raleigh, N.C.

Graphic design by Carol Majors. Production by PUBLICATIONS UNLIMITED. Printed by Edwards & Broughton Co. Raleigh, N.C. The Center is supported in part by grants from the Mary Reynolds Babcock Foundation and the Z. Smith Reynolds Foundation, as well as by corporate contributions and 600 corporate and individual members across the state. This issue made possible in part by a special grant from the Grace Jones Richardson Trust. The views expressed in this publication are those of the authors and are not necessarily those of the Center's Board of Directors or staff. Published March 1988.

Cover: Carol Majors

North Carolina **Insight**

Vol. 10, No. 2-3 **March 1988**
Special Double Issue



FEATURES

POLICY ISSUES

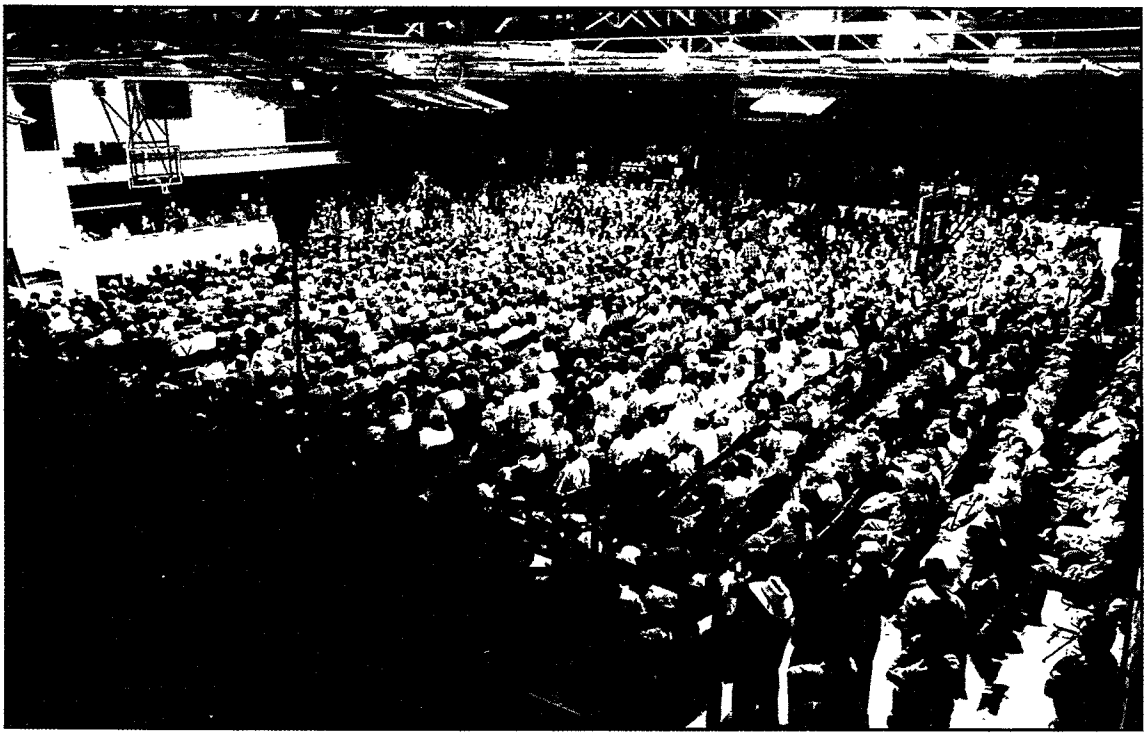
DEPARTMENTS

Editor
Bill Finger

Associate Editor
Jack Betts

Art Director
Carol Majors

Production
PUBLICATIONS UNLIMITED



More than 2,000 people pack the gym at Lexington Senior High School for a North Carolina Hazardous Waste Treatment Commission public hearing. Thousands more were seated elsewhere around and outside the school.

When It Comes to Environmental Politics, Who's Leading Whom?

by Seth Effron

North Carolinians are a particular lot. They want new jobs, new industries, and economic growth. But they don't want to ruin the environment to get them, and in the past few years, the state's citizens have become much more vocal in giving their elected and appointed leaders this message. This upheaval in public sentiment is beginning to have an impact in safeguarding local areas from what residents view as potential polluters—waste treatment facilities, waste repositories, landfills, real estate developments, drainage of wetlands, and the like. How has this trend made itself felt in the halls of government? And will it be a lasting trend?

Gov. James G. Martin glanced out the window onto a downtown street in Salisbury on a bright fall day last October. The colorful autumn foliage was obscured by the dark political clouds he senses are forming. On this day, it is a mere year until voters go to the poll to decide whether Martin will be granted a second four-year term. And what does the Governor see greeting him? Scores of worried—even scared—protesters carrying placards bearing the skull and crossbones and protesting a proposed hazardous waste facility.

But it will take more than any candidate's considerable political skills to solve a potential political problem facing not just the Governor, but any state officeholder. Throughout the state, and particularly in the Piedmont, citizens have organized in huge numbers to voice concerns on environmental issues. More than 15,000 people attended a public meeting in Lexington to protest the possibility of a hazardous waste disposal site in the county. They filled a high school auditorium, spilled over into the cafeteria and classrooms, and packed the football stadium.

What these officeholders are seeing—and what Democratic and Republican politicians alike are taking serious note of—is that environmental issues are moving up on the priorities voters take with them into the voting booths.

At the opening of the 1987 legislative session, Lt. Gov. Robert B. Jordan, Martin's likely challenger for re-election, stressed an environmental protection agenda stronger than any proposed in more than a decade. And Martin, emerging from a policy and politics Cabinet retreat in late October, elevated the task of protecting the coastal environment to a list of his top five governmental priorities. Obviously, both men see the environment as an important issue—both in protecting the state's resources and in safeguarding their political futures. Martin, a Republican, and Jordan, a Democrat, face each other in this year's gubernatorial election.

Public Support Is Growing

This renewed emphasis on environmental protection reflects an official realization of what the public wants. Since the 1970s, voters throughout the nation—and in North Carolina—have repeatedly expressed strong support for strict stewardship of the environment, even when faced with tradeoffs that might result in raising taxes or slowing economic development.

Consider the following:

- 53 percent nationally oppose relaxing environmental controls to allow more economic growth and development, according to a 1987 Gallup Organization poll, while 38 percent favor relaxing controls and 9 percent don't know.[1]
- 59 percent nationally support increasing spending on improving and protecting the environment while just 4 percent would cut spending, 34 percent would keep it the same, and 3 percent said they didn't know.[2]
- 47.4 percent of North Carolinians say environmental protection laws aren't strong enough, 37.8 percent say they're about right, 2.6 percent say they're too strong, and 12.2 percent said they didn't know, according to a 1983 poll by the state Office of Budget and Management.[3]
- The number of people in the state saying environmental protection is overemphasized at the expense of economic growth has dropped over time—reflecting more concern for environmental issues. In 1982, 18.5 percent of those surveyed by the state said environmental protection is overemphasized at the expense of economic growth. Two years later, that share dropped to 12.2 percent.[4]
- Nearly two thirds—64 percent—of the state's citizens agreed with the statement that "protecting the environment is so important that requirements and standards cannot be too high, and continuing environmental improvements must be made, regardless of cost," according to a Friends of the Earth Foundation poll in 1983. (The New York Times and CBS News asked the same question in a national poll, and 58 percent of the respondents agreed with it.) The Friends of the Earth poll in North Carolina also found that the respondents identified "controlling hazardous waste" as the biggest environmental problem facing the state.[5]

"Environmental concerns are a higher priority for people in this state and nationally," says John Crumpler, a Jordan aide and manager of the Lieutenant Governor's campaign for governor. "People talk more about it, read more about it. There are problems that have to be dealt with—and we have to deal with them now."

This concern for the environment in North Carolina mirrors a national trend, according to Neal Peirce, contributing editor of the *National Journal*. "If you want solid proof that the environment is now rivaling the economy and employment as central

---

Seth Effron is a capital correspondent for the Greensboro News & Record.

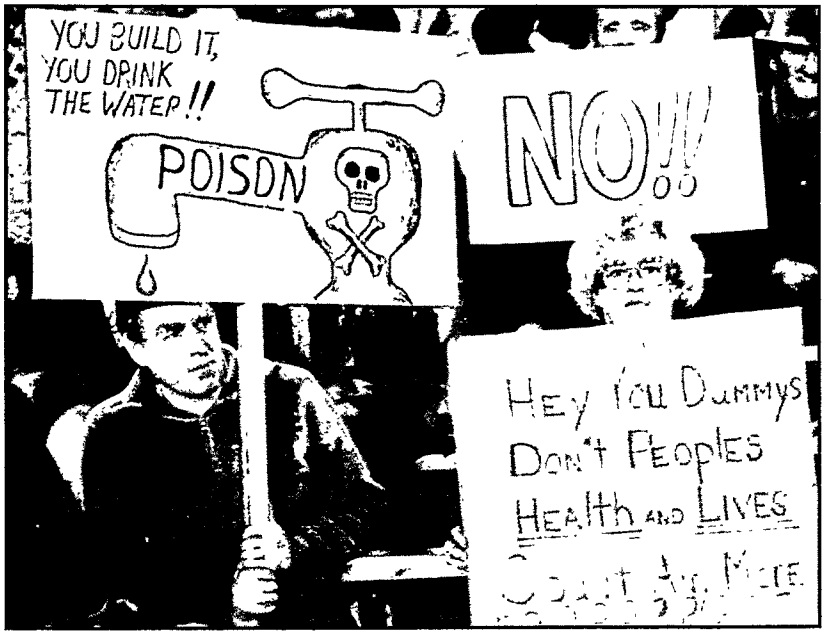
concerns of the American people, check out what the states are doing," says Peirce.[6] The states are beefing up their environmental protection programs across the board. They have been spurred by some of the same factors at work in North Carolina. First, the awareness of hazardous waste problems has prompted more demands for environmental action. Second, notes Peirce, "The anti-environmentalism of the early Reagan years may have had a backlash," prodding politicians and state policymakers to take on polluters. And third, federal agencies and laws have "handed enforcement off to the states," leaving state officials with the job of environmental protection.

North Carolina legislators have begun to sense the increased public sentiment in favor of environmental protection issues. At the close of the 1987 session of the General Assembly, N.C. Sierra Club and Conservation Council of North Carolina lobbyist Bill Holman declared it "the best session for environmental legislation since the 1973-74 session." It was that biennium that many environmental observers consider a landmark period for environmental protection in North Carolina. During the 1973 regular session and the 1974 short session, the General Assembly adopted major environmental bills, including legislation to control sedimentation runoff at construction sites, and the Coastal Area Management Act.[7]

A Good Legislative Session for Environmentalists in 1987

When the gavels hammered the adjournment of the 1987 session, several issues dear to the hearts of environmentalists, and which had been repeatedly defeated in previous sessions over the last decade, had been voted into law. The list included legislation:

- Banning detergents containing phosphates that encourage algae growth in rivers and streams and endanger other fish and plant life;[8]
- Requiring responsible parties to clean up their hazardous waste dumps;[9]
- Limiting the size of commercial hazardous waste treatment plants by limiting the amount of wastewater discharge,[10] a measure aimed specifically at stopping construction of a hazardous waste facility by GSX Corp. on the Lumber River in Robeson County;
- And prohibiting the shallow burial of low-level radioactive wastes.[11]



Glenn Roberson, The Lexington Dispatch

Steve Adams and Noni Rhodes hold up their signs of protest at the Oct. 26, 1987 Hazardous Waste Treatment Commission public hearing in Lexington.

Carol Majors

> "In wildness is the preservation of the world."
>
> *–Henry David Thoreau*

Not only that, but three other bills sought by environmentalists passed the House of Representatives, and thus remain alive in the Senate for the 1988 short session in June. That list includes bills to create an underground storage tank cleanup fund;[12] amendments to the sedimentation control law that would prod developers to clear their sedimentation control plans before beginning a project;[13] and a bill to encourage least-cost energy planning.[14]

Not everyone agrees that all these bills are protective of the environment, of course. The Martin administration considered the phosphate ban as a "window dressing" bill, and the bill limiting wastewater discharge from hazardous waste treatment plants to be anti-environmental bills, says Ernest A. Carl, Martin's deputy secretary of natural resources and community development. Carl says the administration estimated that phosphates would be reduced only about 5 percent under the new law, while the Martin administration would have preferred to require municipalities to extract the phosphate at wastewater treatment plants. Ironically, Carl's boss, and Martin's Secretary of Natural Resources and Community Development, Tommy Rhodes, supported the phosphate ban when he was in the General Assembly, but switched positions when he took the cabinet post.

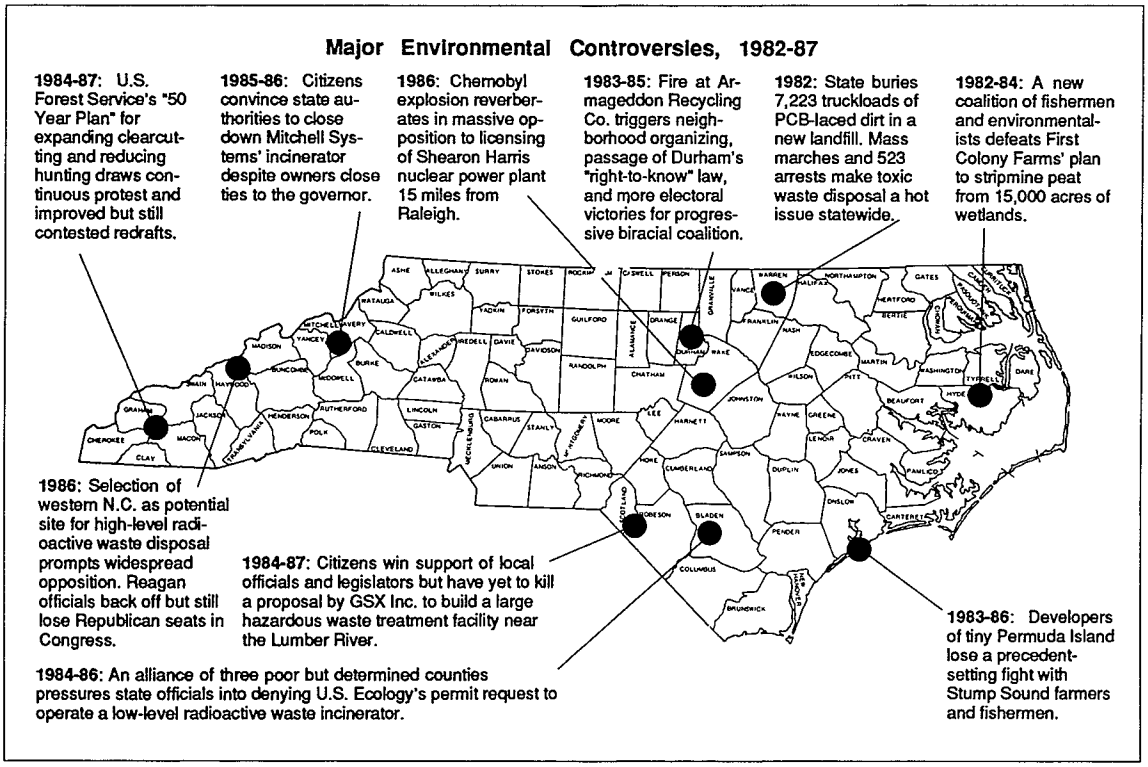
Carl also said the administration considered the anti-GSX facility bill to be harmful to the environment, because it would stop or delay a hazardous waste facility that could help North Carolina clean up its wastes. "Some of these bills are just window-dressing bills," contends Carl.

In earlier years, Holman noted, "all environmental bills were viewed with suspicion. Now, all legislators are calling themselves conservationists and environmentalists." Holman credits many of the 1987 victories to a new attitude in the Senate, where Lieutenant Governor Jordan named a Committee on the Environment and endorsed bills calling for the phosphate detergent ban and for a cleanup of abandoned waste dumps.

The 1987 success was a marked change from the session a decade ago when environmentalists lamented the lack of support for environmental legislation. In 1973 and 1975, the General Assembly passed legislation restricting state environmental quality standards to the level of those of the federal government, and in 1977 a "bottle" bill to control litter from beverage containers was defeated. "We haven't passed any environmental control legislation. We've passed relaxing legislation," fumed then-state Sen. Cass Ballenger (R-Catawba),[15] now a Congressman from the 10th Congressional District. Steve Meehan, then a spokesman for the Department of Natural and Economic Resources, lamented: "It would be more difficult to pass some of the same laws we've got now if it were coming up this time (1977)."

For years, state Sen. Ollie Harris (D-Cleveland) was a leader among pro-business legislators who successfully fought much of the legislation supported by environmental groups. He opposed much of the environmental legislation passed during the 1987 session. Harris, who says he's not anti-environment but feels people need to know the cost of environmental legislation, says the public is more aware of environmental issues now. "I think it has become a big issue because of things that have happened and the publicity of environmental problems," he says. "I think that the general public is more sensitive."

Internationally, the disasters at the Chernobyl nuclear power plant in the Soviet Union and the



Southern Exposure

chemical tragedy in Bhopal, India have aroused worldwide attention. Nationally, the accident at the Three Mile Island nuclear plant in Pennsylvania and the Love Canal waste dump in New York have stirred the fears of environmental accidents. Closer to home, the PCB dumping along North Carolina roadsides in 1978, fishkills and diseased shellfish in the Pamlico Sound, reports of abnormal cancer deaths in the Chatham County community of Bynum, and the explosion of a hazardous waste facility in Durham have stirred up more than headlines (see map, above, for more). In North Carolina, the issues of hazardous waste and low-level radioactive waste disposal are no longer abstract problems to be solved in the distant future. "The general public . . . has become aware of the dangers, and there are dangers," Harris says.

John Runkle, president of the North Carolina League of Conservation Voters, believes one reason for the 1987 successes is the increased public attention. "It doesn't take many public meetings where 4,000 or 15,000 people show up . . . for politicians to line up on that side," Runkle says. And the public is acutely aware of environmental risks. "People understand if they don't make a fuss, they're going to get it," such as hazardous and low-level radioactive waste treatment and storage facilities for which the state is seeking locations. "The environmental problems have reached a point in many areas where much of North Carolina will be completely degraded," he adds.

Environmentalists Becoming a Political Force

Increasingly, local groups opposed to an environmentally-sensitive development project or a waste treatment site are able to delay decisions, force changes in plans, or sometimes to stop projects. The PCB landfill in Warren County, established in 1980, was an early case, when the state built the landfill despite the protests (and the arrests of 523 opponents) of local residents. Since then, grassroots citizen organizations and spontaneous outpourings of opposition—such as the hordes that turned out in Lexington to protest a treatment facility last October—have become more involved.

The Institute of Southern Studies in Durham commented on the success of these groups recently. "In a remarkable number of cases, local citizens groups—even those in relatively isolated rural areas—have won significant victories against impressive odds. They have forced state policy makers to change regulations, enact new laws, and enforce

Gov. Jim Martin

existing environmental standards. They have built ad hoc coalitions and enduring organizations, occasionally across race lines, more often across class and cultural divisions within the white community. And they have moved from crisis-oriented, hit-and-miss organizing to sophisticated political lobbying and effective electoral activism."[16]

Martin administration officials strongly object to characterizing these public protests as pro-environmental. On the contrary, they contend, the mass protests and the opposition to waste treatment facilities are anti-environmental, because they mean delays in constructing facilities to clean up environmental problems. "All these protests were starkly anti-environmental," says Carl. "In each case the material to be handled already exists and is being processed in a dispersed, makeshift and dangerous way. They were simple 'not-in-my-backyard' outpourings of emotion and fear."

The Governor himself argues it's a matter of semantics. "There's a psychology that develops around something called hazardous waste," the Governor said at a December 1 press conference. "Suppose instead of the terminology having been settled on several years ago of calling it hazardous waste, suppose it had been named recycled industrial by-products. Would you be any more concerned as an individual, would you be any more afraid of that than industrial products? Would you be any more concerned about the paint thinner that goes to a recycled byproducts factory, than you are about the paint thinner in your own garage? I don't know. I think there's a psychology that's generated about it. The term hazardous waste leads everybody, all of us, to think of the worst possible ingredients. And that's not really what hazardous waste is."

Environmentalists, however, say the record is clear. Many—not all—hazardous wastes are dangerous, and some are lethal. The government has an obligation to see to it that they are treated properly to protect the public health as well as the natural environment, they say.

The standoff between environmentalists and staff officials illustrate one particularly tough part of solving environmental issues—both sides want to have it both ways. That is, environmental groups want the environment cleaned up, but they don't want facilities to do that built in their neighborhoods. And state officials want to construct and operate facilities to clean up various environmental problems, but they don't want the public to be concerned about where those facilities are put or how they are operated.

Holman, the principal environmental lobbyist (and the 6th most effective, according to the 1985 survey of legislators, lobbyists, and capital news correspondents by the N.C. Center for Public Policy Research), says the grassroots opposition has helped create legislative successes. "I basically think the legislature is catching up with public opinion," notes Holman. "More and more legislators are hearing from their constituents about environmental problems and are becoming more responsive to those concerns."

Holman is reluctant to say there's a trend in environmentalists' favor. "It's too early to tell if it's a trend," he cautions. "It will depend on who is the next lieutenant governor. I do think the environmental issues are getting more debate, and they are starting to pass not only the House but also the Senate. In the past, the Senate was rather hostile to environmental legislation."

In 1987, the Senate was warmer to environmental legislation, and environmentalists want to keep it that way. They're looking hard at the 1988 race for lieutenant governor, where one of their primary villains—state Sen. Harold Hardison (D-Lenoir)—is running with strong backing from business and industry groups. Runkle compares Hardison to James Watt, President Reagan's discredited former Secretary of the Interior who was forced to resign after policy and public statements that infuriated a variety of liberal and conservative environmental organizations.

Bill Holman

Hardison authored a series of legislative initiatives—the "Hardison amendments"—which require state environmental regulations to be no more restrictive than those called for by federal law and regulations (see p. 107 for more). Runkle says his group is plan-

Lt. Gov. Bob Jordan

ning to get involved in the Democratic primary for lieutenant governor to point out Hardison's record. "Hardison has been the leader of the anti-environmental forces in this state.... We really need to show voters where he has stood," Runkle says.

Hardison says he's not troubled by this. "It doesn't bother me one bit," he says. "Some people are saying I'm a born-again environmentalist, but I'm today like I was 30 years ago. I'm trying to do what is best for the people of North Carolina." Hardison says he's pro-growth, not anti-environment. "To say someone is anti-environment is just ridiculous. No one wants to do anything to hurt the environment."

Dangerous Political Ground

Recent N.C. campaigns show how environmental issues can be hazardous to political health. Bill Hendon is one who knows. The environment—particularly the disposal of radioactive waste—may have been the decisive issue in the 1986 campaign in the 11th Congressional District race between incumbent Republican Hendon and Democratic challenger Jamie Clarke. The two had traded terms in the seat since 1982. In early 1986, federal Energy Department officials released a list of potential sites for an eastern high-level radioactive waste repository. High-level radioactive waste is spent fuel from nuclear power plants, and the federal government was eyeing a site in the western part of North Carolina, among other states.

Residents mobilized to fight it. Even though the federal government announced it was going to delay the search for an eastern site (a decision that was rescinded after the 1986 election), Clarke focused on the radioactive waste disposal issue and other environmental issues to defeat Hendon. "It was the issue in the 1986 campaign," says Terry Garren, Clarke's administrative aide, who ran the 1986 campaign. Garren believes that concerns over the fragile mountain environment in an area heavily dependent on tourism hurt Hendon. "People saw a clear and present danger. And environmental concerns are growing in our area," Garren says. When the voting was over, Clarke was back in, and Hendon was out of a job.

Making Political Hay

As Governor Martin takes the environmental issue on the campaign trail, his rhetoric is partly meant to assure residents that he believes a hazardous waste disposal site is safe and will dispose of many common household substances. But it also gives the Governor a chance to blast away at the Democrats and the legislature. At the celebration of the 100th anniversary of Cannon Mills in Kannapolis, for instance, Martin criticized Democrats for "pulling a fast one" when it passed the anti-GSX legislation.[17] And earlier, Martin criticized Democrats for proposing cuts in state environmental budgets, and aides said those cuts might cause "severe havoc" in the state environmental protection programs.

In his statements, Martin seeks to deflect concern about the location of the treatment facility away from his administration, which ultimately will make the siting decision, and onto his favorite whipping boy—the legislature. Martin said it was an "arbitrary" and "political decision" to set an abnormally high wastewater discharge dilution ratio in the GSX bill (see p. 78 for more on this point). Martin said the law, backed by statewide environmental organizations, was engineered by Democratic legislators from the eastern part of the state to keep sites out of their districts. "They [Democratic leaders] pulled a fast one there. It wasn't a sound way to base the decision. It was a political decision," Martin said.

Martin's advisors believe the Governor, with his science background (a doctorate in chemistry), has a good environmental record since taking office. In fact, agrees Holman, environmental management *has* improved under Martin. "The Division of Environmental Management has been more aggressive since Governor Martin was elected," says Holman. "Civil actions against polluters are up, and the water quality section is more active that it has been. That is truly one of the positive things that has happened at NRCD."

Ernest A. Carl

While the Governor did not have much luck with the legislature, his aides hand out a long list of Martin initiatives on the environment. Under his administration, they say, the EMC has limited the amount of phosphates that municipal water treatment plants can put into nutrient sensitive watersheds; the EMC has increased enforcement actions by 250 percent over the previous administration; the EMC has beefed up water supply classifications to protect watersheds; and the EMC has adopted the state's first coastal stormwater runoff regulations. In addition, the Governor has strongly recommended a number of pro-environmental actions, not all of which the legislature has funded. Martin sought a large increase in staff to oversee leaking fuel tank problems, but the legislature reduced his request; the Governor sought a $50 million state parks bond issue, but the legislature rejected it; and the administration requested and got approval for more than $8 million for a new environmental management laboratory.

Thus both the Governor and the Lieutenant Governor can campaign on some environmental accomplishments. For his part, Jordan can hit the campaign trail taking credit for the creation of the Senate Committee on the Environment, for helping pass the phosphate ban, for backing standards on the treatment of low-level waste and for initiating a legislative study on consolidating state environmental programs.

Despite Martin's improvements in environmental regulation, the public may not know much about Martin's record on the environment. Instead, voters may recall the Governor's promise during the 1984 election to oppose the Hardison amendments. But since then, Martin has made no visible effort to do so. No doubt he'll hear about it again. Environmentalists plan to mention it in 1988, when Martin will be the first Republican governor to seek a second four-year term in office. Martin likely will be seeking his share of the green vote, as the environmental electorate is sometimes called, just as he seeks the votes of other segments of the electorate. Maybe that's one reason that Martin has decided to move some other environmental issues, such as his new emphasis on coastal concerns, onto his priority agenda.

At the same time, Lt. Gov. Robert Jordan faces his own challenges on the environment. The environmental lobby, flush with its success from 1987, will be pressing for further gains in the Senate. Jordan's challenge will be to continue to build his own environmental image and record, just as the Governor seeks to do the same—and to convert that image into votes.

How much impact the environment will have on the election is a matter of debate, but the record shows that environmental questions *have* influenced elections. Larry Sabato, a political scientist at the University of Virginia, notes that the green vote has had a regular influence on statewide elections for nearly two decades. In the 1970s, he wrote, intraparty and interparty politics were important factors in gubernatorial elections, "but new issues also came to the fore. One of these was environmentalism. From Earth Day in 1970 onwards, environmental concerns helped to defeat some pro-growth, pro-industry governors. About one-tenth of all gubernatorial defeats after 1969 could be traced to a concentration on environmental preservation."[18]

That's ample testimony to the power of environmental politics.

FOOTNOTES

[1] *The People, Press and Politics,* national survey by the Times Mirror Company, Los Angeles, September 1987, p. 121.

[2] Ibid.

[3] "North Carolina's Environment: A review of public opinion 1979-1984," *N.C. Citizens Survey,* Office of State Budget and Management, April 1985, p. 57.

[4] Ibid., p. 55.

[5] Tracie Cone, "Protect Environment, Survey of Residents Says," *Winston-Salem Journal,* Dec. 4, 1983. See also Deborah Baldwin, "Playing Politics with Pollution," *Common Cause* magazine, May/June 1983, p. 15.

[6] Neal R. Peirce, "Environmental Concerns Stage Comeback," *State Issues,* Congressional Quarterly Press 1987, pp. 179-181.

[7] Pollution Control Act of 1973, now codified as G.S. 113A-50—113A-66; and Coastal Area Management Act of 1974, G.S. 113A-100—113A-134. Other major N.C. environmental legislation was adopted in 1971, with the Environmental Policy Act, G.S. 113A-1—113A-10; and the Natural and Scenic Rivers Act, G.S. 113A-30—113A-43.

[8] Chapter 111 (SB 164) of the 1987 Session Laws, now codified as G.S. 143-214.4—215.3.

[9] Chapter 574 (HB 134) of the 1987 Session Laws, now codified as G.S. 130A-310.

[10] Chapter 437 (SB 114) of the 1987 Session Laws, now codified as G.S. 130A-295.1.

[11] Chapter 633 (SB 48) of the 1987 Session Laws, now codified as G.S. 104E-5.

[12] Underground Storage Tank Cleanup Fund, HB 1304, 1987 General Assembly.

[13] Sedimentation Control Act Amendments, HB 1171, 1987 General Assembly.

[14] Least-Cost Energy Planning, HB 1260, 1987 General Assembly.

[15] Jack Betts, "Review of Environmental Legislation", *Greensboro Daily News,* April 21, 1977, p. A1.

[16] Bob Hall, "Environmental Politics: Lessons From The Grassroots," *Southern Exposure* magazine, Summer 1987, Vol. XV, No. 2, pp. 16-28.

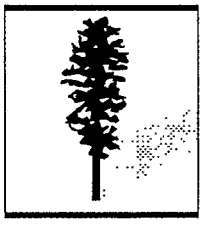
[17] Anne M. Ferguson, "Politics is a sad fact of search site," *The Salisbury Post,* Aug. 30, 1987, p. A1.

[18] Larry Sabato, *Goodbye to Good-time Charlie, The American Governorship Transformed,* CQ Press, 1983, p. 111.

Robert Llewellyn

Who Makes Environmental Policy?

by Bill Finger and Jack Betts



Tommy Rhodes slipped into the legislative committee meeting and found one of the few vacant seats. Legislative fiscal analysts were explaining line-by-line a 29-page "Inventory of Environmental Programs," complete with budget figures, program responsibilities, and other information. The five members of the legislative Study Commission on Consolidation of Environmental Regulatory Agencies[1] attending that Dec. 4, 1987 meeting had already heard Lt. Gov. Robert B. Jordan III endorse consolidation efforts. The views of Gov. James G. Martin were to be presented later in the morning by Rhodes, the Secretary of Natural Resources and Community Development (NRCD).

Nearing the end of the fiscal presentation, the analyst mentioned that federal money came to NRCD's Division of Forest Resources from the Pentagon for a bomb range in Dare County. Snickers rippled through the standing-room-only crowd of about 100. Rhodes chuckled, leaned to the person on his left, and whispered, "We put out the fires." The man looked puzzled. Was Rhodes speaking in metaphors? "We really do," Rhodes went on. "The Pentagon contracts with us to go in and put out the fires after they do their practice bombing."

Bill Finger is Editor and Jack Betts is Associate Editor of North Carolina Insight.

When the fiscal presentation ended a few minutes later, Rep. Joe Hackney (D-Orange), the co-chairman presiding at the meeting, called on the Secretary of Natural Resources and Community Development (NRCD) to present the administration's position on consolidation. Rhodes, a salt-and-pepper-haired former legislator, flipped his papers into a briefcase and moved forward. At home in his old stomping ground, Rhodes got right to the point in his remarks.

"It's difficult for citizens to find the proper agency" for a problem with the environment, Rhodes said. "The agencies often seem to be in conflict with each other. . . . It may be time for realignment." Rhodes listed nine criteria that should be applied to any effort at consolidation, ranging from reducing duplication to providing the public with a focal point.

As the meeting wound down, Hackney mentioned that the staff had a new computer software package that could draw organizational boxes. "The only problem is," spoke up George Givens, counsel to the committee, "I need to know what to put in the boxes." Guffaws bounced off the cinder block walls of the meeting room.

Consolidation of environmental agencies—as Hackney, Jordan, Rhodes, and others have made clear—is not an end in itself. A number of states have recently addressed the issue of the burgeoning number of environmental programs. Maryland, for example, recently reorganized and consolidated its environmental and natural resource agencies. To provide a basis for discussion, the Fiscal Research Division reviewed the overall funding and staff levels of the various N.C. agencies involved with environmental protection and management, which helped the committee members to understand their task.[2] Another way to view the same set of questions is to examine the various agencies and spending according to environmental *function.* How much does the state spend on water quality, or land use, or hazardous waste management, or protecting the fragile coastal environment? And what agencies have responsibilities for which programs? How do they work?

The tables in this article are designed to provide a quick and handy guide to the major environmental protection and management programs within state government—*by function.* The table does not include a program description of the firefighters who put out the bombing fires, for example, but you will find a line in the land management table for protecting the state's forests.

Deciding what exactly is an "environmental function" is not easy to do. The Fiscal Research inventory, for example, did not include the state parks and recreation program, which cost the state $5.4 million last year.[3] These tables do include this program.

In this assessment, state environmental protection and resource management programs fall into six general categories: water, land, hazardous materials and waste management, air, plant and wildlife, and miscellaneous. Hazardous materials and waste management have become such important environmental issues that they merit special attention due to the growing number of agencies and programs grouped around this threat to the environment. In all six areas together, the state is spending about $125 million annually to regulate, protect, enhance and manage these resources and wastes. While that sum is a considerable figure, the total amounts to only 2.4 percent of the state's General Fund annually.

◆

The need for development of natural resources does not justify writing off the environment.

—Felix G. Rohatyn

◆

In addition to these full-time state agencies, 41 boards and commissions in the executive branch establish policies, make quasi-judicial rulings, advise executive branch officials, and work in other ways in this field. Citizens are appointed to these boards, primarily by the governor, and are paid only a per diem (and travel costs) for the days that they meet (see Table 7).

Of these boards, the state Environmental Management Commission, with NRCD's Division of Environmental Management serving as its principal staff, has evolved into the *dominant environmental*

—continued on page 20

Table 1. N.C. State Government Programs Affecting Water Policy

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
WATER QUALITY	
1. Surface Water	
■ **Wastewater Treatment ("Point" Source Pollution)**	
Natural Resources and Community Development (NRCD)/ Environmental Management/ Water Quality Section	Monitors toxic chemicals in N.C. lakes and streams at over 300 sites, including intensive biological and chemical tests at major discharge sites and in pristine waters; Issues permits and regulates 3,500 facilities which discharge to surface waters and 1,000 systems that discharge to the land surface or subsurface (spray irriga of wastes, condominium waste disposa systems etc.), including an EPA-delegated pre-treatment program; Trains operators for wastewater treatment plants
NRCD/Environmental Management/ Construction Grants Section	Administers federal construction grants for wastewater treatment facilities
Governor's Office/Office of State Budget and Management	Administers appropriations to local governments for wastewater treatment facilities (grant program changed to revolving loan program in 1987-88)
Human Resources/Health Services/ Environmental Health/ Public Water Supply	Reviews permits for proposed wastewater discharges to assure that drinking wate sources are adequately protected (perm for discharges to drinking water suppli require DHR approval)
■ **Pollution Contol ("Nonpoint" Source Pollution)**	
NRCD/Environmental Management/ Water Quality Section	Develops and monitors stormwater runoff regulations; Advises local governments on watershed protection; Develops and monitors statewide nonpoint source programs
NRCD/Land Resources/Land Quality Section	Monitors erosion and and erosion control, including overseeing 37 local governments which administer their ow sedimentation control programs

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 90A-35 G.S. 143-215.3 G.S. 143B-282	$0	$3,588	$1,765	$5,353
G.S. 90A G.S. 143B-300	0	40	200	240
P.L. 97-117 (1981 Amendments to Federal Clean Water Act)	0	0	40,000	40,000
Chap. 480, s. 5.12 (SB 2), 1987 Session Laws	NA [1]	31,308 [1]	NA [1]	31,308 [1]
G.S. 143-215.1		(funds included in Item 5)		
Clean Water Act G.S. Chap. 143, Art. 21	0	80	0	80
G.S. 113A-50 to -66		(funds included on Table 2, Item 1)		

—table continued on next page

Table 1. N.C. State Government Programs Affecting Water Policy, *continued*

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
Surface Water, *continued*	
■ **Pollution Contol ("Nonpoint Source Pollution)**	
NRCD/Soil and Water Conservation	Provides technical, monetary, and educational assistance to farmers for pollution control through cost-sharing Best Management Practices program
■ **Pollution Contol Analysis**	
NRCD/Environmental Management/ Laboratory Section	Analyzes surface water quality, including water, wastes, sediment, soils, and tissue samples; Inspects, evaluates, and certifies commercial, municipal, and industrial laboratories performing state-required wastewater analysis
2. Groundwater	
NRCD/Environmental Management/ Groundwater Section	Classifies and monitors the quality and quantity of groundwater; can add conditions to wastewater discharge permits and require restoration at groundwater contamination sites; Administers rules governing location, construction, operation, repair, and abandonment of wells; Administers special permits for "Capacity Use Areas," required because of limited groundwater volume; Regulates underground storage of gasoline and other substances through Underground Storage Tank Program
NRCD/Environmental Management/ Laboratory Section	Analyzes groundwater quality, including water, sediment, and soil samples
Human Resources/Health Services/Environmental Health Section/Sanitation Branch	Regulates subsurface sewage collection, treatment, and disposal systems through local health departments
3. Coastal Waters	
NRCD/Environmental Management/ Water Quality Section	Develops and monitors stormwater runoff regulations;
NRCD/Coastal Management	Administers permit system for development in areas of environmental concern: estuarine waters and shorelines, coastal wetlands, public trust areas, and some public water supply areas

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 143-215.74	$ 965	$3,165	$0	$4,130
G.S. Chap. 143, Articles 21, 21B	0	801	0	801
G.S. 143-214	0	132	0	132
G.S. 143-214.1 G.S. Chap. 87 Article 7 G.S. 143-215.13 G.S. 143-215.3(a)(15)	0	2,000	438	2,438
G.S. Chap. 143, Articles 21, 21B	0	271	26	297
G.S. 130A-335	(funds included in Item 5)			
G.S. Chap. 143, Article 21	(funds included in Item 1, Nonpoint Source)			
G.S. 113A-100 to -108	(funds included in Table 2, Item 3)			

—table continued on next page

Table 1. N.C. State Government Programs Affecting Water Policy, *continued*

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
Coastal Waters, *continued*	
NRCD/Coastal Management *continued*	Administers N.C. National Estuarine Research for research and education on estuaries
NRCD/Marine Fisheries	Manages estuarine and marine fisheries, including research, enforcement, and enhancement
Administration/Marine Affairs	Coordinates state and federal policies and plans affecting ocean waters out to 200 nautical miles (state permits and management laws extend out to 3 nautical miles)
Human Resources/Health Services/ Environmental Health Section/ Shellfish Sanitation	Monitors shellfish waters and recommends closings and openings to Div. of Marine Fisheries/NRCD for public health reasons
WATER SUPPLY AND RESOURCE MANAGEMENT	
4. Water Resource Management	
NRCD/Water Resources	Studies management of river basin regions concerning surface and groundwater supply reservoirs, flood damages, water-based recreation, fish habitat, hydroelectric power, and "capacity use" designation; Provides state financial assistance for navigation, flood control, water-based recreation, and beach protection, including coordinating state role in U.S. Army Corps of Engineers water resource projects and the U.S. Geological Survey Cooperative Program for water data; Manages control of noxious aquatic weeds; Coordinates "Stream Watch" program, more than 100 citizen groups that volunteer to monitor and protect a stream, lake, or rive
NRCD/Soil and Water Conservation	Works with 94 Soil and Water Conservation Districts and with N.C. Soil and Water Commission in watershed planning, design, and implementation

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 113-131 G.S. 113-181	$0	$6,600 [2]	$768	$7,368
G.S. 143B-389(b) -390.2	0	300	0	300
G.S. 130A-230	0	307	0	307
G.S. 143-211, -215.11ff -354,-355 G.S. 113-8,-16,-17 -20,-21	0	690	0	690
G.S.143-215.38ff G.S.143-215.70ff	0	1,301	0	1,301
G.S. 143-215.38ff None	0 0	75 30	0 0	75 30
G.S. 143B-294 139-4(d)	456	550	3 ,064	4,070

—table continued on next page

Table 1. N.C. State Government Programs Affecting Water Policy, *continued*

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
5. Water Supply	
NRCD/Water Resources	Assists local governments in water supply planning, water conservation, and leak detection techniques
NRCD/Environmental Management/ Groundwater Section	Provides advice about groundwater supplies to local governments and communities
Human Resources/Health Services/Environmental Health Section/Public Water Supply	Monitors location, construction, operation, and maintenance of state's 11,000 public water supplies; assures that wastewater dischargers are not located so as to jeopardize drinking water quality
Governor's Office/Office of State Budget and Management	Administers appropriations to local governments for water supply and management (grant program changed t revolving loan program in 1987-88)
NRCD/Land Resources	Monitors safety of dams, including water supply reservoirs
6. Floods	
NRCD/Community Assistance	Provides assistance to local communities on developing floodplain ordinances
NRCD/Water Resources	Assists communities in planning and financing flood control projects
Crime Control and Public Safety/Emergency Assistance	Coordinates National Flood Insurance Program in state
MISCELLANEOUS WATER PROBLEMS	
7. Pollution Prevention	
NRCD/Environmental Manangement/ Pollution Prevention Pays Program	Provides technical assistance and challenge grants to industries and local governments on ways to reduce, recycl and prevent wastes before they becom pollutants (includes work with solid and hazardous wastes and air emission
8. Research	
University of North Carolina System/Water Resources Research Institute	Conducts research, makes research grants, transfers technology from researchers to users, and coordinates information

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 162A-21 to -24 G.S. 143-354,355	$0	$ 120	$0	$ 120
G.S. 143-354	(Included in Item 2)			
G.S. 130A-315 G.S. 90A-20 to-30	55,516[3]	1,050	931	57,497
Chap. 480, s. 5.12 (SB 2), 1987 Session Laws	NA[4]	26,983[4]	0[4]	26,983[4]
G.S. 143-215	(see Table 2, Item 1)			
G.S. 143B-305 G.S. 143-323(c)	(a very small amount of staff time, not broken out in division budget)			
G.S. 143-355	0	20	0	20
P.L. 90-448	0	0	59	59
Res. 54, 1983 Session Laws	0	494[5]	0	494
P.L. 95-467	100	400	300	900[6]

—table continued on next page

Table 1. N.C. State Government Programs Affecting Water Policy, *continued*

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
9. Septic Tanks	
Human Resources/Health Services/ Environmental Health Section/Sanitation	Administers on-site sewage program through local health departments: permits, installation, and management of private septic tanks (55,000 permits issued in 1986)
10. General Laboratory Services	
Human Resources/Health Services	Tests drinking water quality to ensure public safety and certifies private laboratories for this work (also works with solid and hazardous waste management, shellfish sanitation and radiation protection)

FOOTNOTES

[1]In 1985, the General Assembly appropriated $120 million to local governments for water projects—supply and management as well as wastewater and sewage projects. Of this $120 million, $63 million has been committed for wastewater treatment and sewage projects, $31.7 million in FY 1985-86 and $31.3 in FY 1986-87. The original legislation required a dollar-for-dollar match from local governments, but amendments in 1987 dropped the match requirement [Chap. 725 (HB 899) and Chap. 795, s. 31.1 (HB 1516) of the 1987 Session Laws]. The Office of State Budget and Management (OSBM) reports that as of Oct. 12, 1987, $117 of the $120 million in state funds have been committed. To match that $117 million, $364.5 million in local funds and $80.8 million in federal funds have been committed, according to OSBM, but these amounts cannot be broken

—*continued from page 11*

enforcer in North Carolina. Other state agencies have major roles to play as well, including several others that cut across more than one resource area. The Commission for Health Services, for example, regulates state programs affecting solid and hazardous waste management, water supply, subsurface sewage treatment, and all environmental health programs, while the DEM has groundwater responsibility as it relates to solid and hazardous waste treatment facilities. But if there is a single agency in North Carolina that analysts look to in the way they do the Environmental Protection Agency at the federal level, it is the Environmental Management Commission.

The record of the EMC in the Martin administration has come under scrutiny. "There is a lot of timidity present right now with the EMC," says Rep. Joe Hackney (D-Orange). "They are sweeping stuff under the rug." In July 1987, Secretary Rhodes chastised the EMC for suspending or reducing some fines that the Division of Environmental Management (DEM) had previously assessed. Since 1985, the DEM enforcement actions are up more than 250 percent, prompting praise from some environmentalists for aggressive action of the division. By September 1987, the EMC was again upholding stiff fines to polluters and violators of environmental regulations.

The 1987 General Assembly recognized the EMC's dominant enforcement role. Before it adjourned, the legislature gave the EMC the authority to consider financial capability and performance history when making decisions on who should receive permits for air and water discharge permits—authority that amounts to a veto of potential polluters if they have a questionable operating history.

The seven tables are the result of six months of interviewing among the agency personnel directly responsible for the programs described. Drafts of these tables were circulated to all agencies to confirm the figures and data presented here.

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 130A-333 to 339	(separate amount for this program not broken out by Sanitation Branch)			
G.S. 130A-315, -326	$0	$ 190	$ 116	$ 306

FOOTNOTES, continued

down by *wastewater treatment* and *water supply projects*. (Local governments were delegated the authority to transfer their grant money from one project to another.)

[2]Includes $685,000 from sale of commercial fishing licenses, dealers' licenses, and shellfish bottom leases.

[3]Includes cost of construction of water supply system improvements only.

[4]See footnote 1 above for an explanation of this expenditure item. Of the $120 million, $54.6 million has been committed for water supply and management projects, $27.6 million in FY 1985-86 and $27 million in FY 1986-87.

[5]Of this $494,000, $300,000 went for research education grants.

[6]The Water Resources Research Institute also received funds from other sources.

Water

The state spends more money by far on water-related issues—almost $80 million—than it does in the other five areas combined. Nearly three-fourths of that goes for capital-related costs, building wastewater treatment plants and developing water supply capabilities. From flushing the toilet to flushing the pollutants out of industrial wastes, from flycasting in a mountain stream to crabbing in the sounds, North Carolina citizens rely on water. The article beginning on page 53 discusses water policy questions, ranging from the wastewater permit system to interbasin transfer issues. Table 1 provides a quick reference point for understanding how the many water-related programs are managed at the state level.

State government programs affecting water fall into three general categories, as shown in Table 1: *water quality, water supply and resource management, and miscellaneous problems.* There are 10 types of concerns within the three divisions, starting with the most obvious and the most expensive—surface water.

The big ticket item for surface water is the state money that helps local governments build and manage wastewater treatment facilities, a program that has now shifted to a revolving loan program. This program deals with "point" sources of pollution because wastewater treatment facilities generally discharge the treated waste into a river or stream at a specific point. Note that the Division of Environmental Management within NRCD has the major responsibility in managing surface and groundwater programs. But the Division of Land Resources and the Division of Soil and Water Conservation have responsibilities for programs affecting surface water as well. Regarding coastal waters, five different agencies in three departments (NRCD, Human Resources, and Administration) have responsibilities.

The Division of Water Resources within NRCD

— continued on page 30

Table 2. N.C. State Government Programs Affecting Land Management

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
1. Land Resource Conservation	
NRCD/Land Resources	Monitors sedimentation and erosion control plans; oversees 37 local governments which administer their own sedimentation control system; Monitors mining act, including land reclamation provisions; Monitors dam safety
NRCD/Soil and Water Conservation	Provides administrative and technical assistance to the N.C. cooperative soil survey program and soil resources inventory. (See also Table 1, Item 1, Pollution Control)
2. Forestry	
NRCD/Forest Resources	Protects 18.5 million acres of commercial forest land from fire, insects, and disease Makes forest management services available to 245,000 private forest landowners, including cost sharing funding for reforestation by individual owners; Grows 60 million seedlings and sells them at cost to forest landowners; Operates 5 educational state forests; Creates markets for N.C. wood fiber, through Forest Products Market Development Program
3. Planning and Technical Assistance	
NRCD/Community Assistance/ Local Planning and Management Assistance	Provides technical assistance to local governments for land use planning, watershed management, and community development
4. Coastal Land	
NRCD/Coastal Management	Helps fund and oversee preparation of land-use plans in 20 coastal counties and 55 municipalities covered by CAMA Administers permit program for development in areas of environmental concern (AEC) ocean erodible area, high hazard flood area, inlet hazard area, ocean beaches, primary and frontal dunes, natural resour areas (1,589 AEC permits issued in 1986) Helps fund and administer public beach access program;

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 113A-50 to -66	NA	$1,086	$0	$1,086
G.S. 74-46	0	221	0	221
G.S. 143-215.3	0	390	0	390
G.S. 143B-294	332	525	1,175	2,032
G.S. 113-51 to -56 G.S. 113-54 to -81.1 G.S. 113A-176 to -196 G.S. 113-35 G.S. 113-34 G.S. 113-38	6,204 [1]	21,036	1,616	28,556
G.S. 143B-305 G.S. 143-323(c)	0	1,288	0	1,288
G.S. 113A-100 to -128	88	1,602 (land use and permit programs)	844	2,535
G.S. 113A-134.1 to -134.3	448	250	325	1,023

—table continued on next page

Table 2. N.C. State Government Programs Affecting Land Management, *continued*

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
Coastal Land, *continued*	
NRCD/Coastal Management *continued*	Acquires land for and administers the N.C. National Estuarine Research Reserve and N.C. Estuarine Sanctuary programs to protect natural areas for research, education, and recreation; Administers dredge and fill permits system in saltwater wetlands
5. Recreation	
NRCD/Parks and Recreation	Manages 53-unit state park system (30 parks areas, 3 recreation areas, 3 state rivers, 1 state trail, 9 natural areas, and 7 state lakes); Manages natural and scenic rivers program; Manages Natural Heritage program for preserving natural diversity of North Carolina; Manages state trails system; Processes Land and Water Conservation Fund Grants; Provides advisory services, planning assistance, and training programs to public, private and commercial agencies
6. Land Resources Information	
NRCD/Land Resources	Administers land records management progran Provides financial and technical assistance to upgrade county mapping records; Administers Land Resources Information Servi
7. Land Acquisition	
Administration/Office of State Property	Purchases and leases land for state environmental management activities including hazardous and toxic waste disposal sites, parks, and research facilities
8. Submerged Lands	
Administration/Office of State Property	Manages, controls, and dispenses of certain interests in state-owned submerged lands; Grants easements, rights-of-way, and other interests in submerged lands;
NRCD/Marine Fisheries	Resolves submerged land deeds and shellfish leases

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
P.L. 92-583	$0	$ 104	$1,013	$1,117
G.S. 113-229	(separate amount not broken out by Coastal Management Division)			
G.S. 113-44	0	6,858	0	6,858
G.S. 113A-30	0	4	12	16
G.S. 113A-164.4(4)	0	168	0	168
G.S. 113A-83	0	40	0	40
P.L. 95-625	0	0	1,584	1,584
G.S. 143-323 to -326	0	402	0	402
G.S. 102-15	20,000	475	0	20,475
G.S. 143-341(4)d	(acts at request of another agency, which absorbs expense)			
G.S. 146-1	0	0	0	0
G.S. 146-11 and -12	0	0	0	0
G.S. 113-205 and -206	0	127	0	127

Table 3. N.C. State Government Programs Affecting Hazardous and Waste Materials Management

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
1. Hazardous Waste Enforcement	
Human Resources/Health Services/Solid Waste Management Section	Enforces compliance with waste disposal rules; monitors and issues permits for waste storage, treatment, and disposal facilities; produces annual report on waste generation of all hazardous wastes
NRCD/Environmental Management	Reviews waste disposal plans and permit applications for potential impact on the environment
NRCD/Pollution Prevention Pays Program	See Table 1, Item 7, page 18
2. Hazardous Waste Management	
Commerce/Hazardous Waste Treatment Commission	Sites, finances, builds, leases or operates hazardous waste treatment facilities when private companies fail to do so
Human Resources/Governor's Waste Management Board	Plans for and manages both hazardous waste and low-level radioactive waste including assessing need for facilities recommending legislative, administrative, and regulatory actions, disseminating information on waste management technology, and promoting development of needed facilities
3. Hazardous Materials Emergencies	
Crime Control and Public Safety/ Emergency Management Division	Coordinates transportation and site emergency responses to hazardous materials accidents
NRCD/Environmental Management Division/Enforcement and Emergency Response Section	Responds to oil and chemical spills (except pesticides) to investigate and ensure clean-up
Labor/Right-To-Know Division	Administers state's Hazardous Chemicals Right-To-Know Act, requiring businesses to disclose existence of hazardous materials on premises

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 130A-294	$0	$830	$1,378	$2,208
G.S. 143B-282	(no separate budget figures available)			
G.S. 143B-470	0	299	0	299
G.S. 143B-216.12	0	242	0	242
G.S. 166A	0	2,338 (total division budget)	2,438	4,776
G.S. 143-215.75	0	80	0	80
G.S. 95-173	0	157	0	157

Table 3. N.C. State Government Programs Affecting Hazardous and Waste Materials Management, *continued*

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
4. Radiation	
Administration/Low-Level Radioactive Waste Management Authority	Locate, construct, and operate facility for disposal of low-level radioactive waste under terms of the eight-state Southeastern Regional Compact
Human Resources/Facility Services/Radiation Protection Section)	Licenses, registers, and inspects radioactive materials, accelerator facilities, and x-ray equipment; Provides environmental radiation surveillance; Regulates incineration of low-level radioactive wastes
Human Resources/Governor's Waste Management Board	See Table 3, Item 2, page 26
5. Pesticides	
Agriculture/Food and Drug Protection/Pesticide Control and Analysis Section	Regulates registration, quality, sale, use, application, storage, and disposal of pesticides
Agriculture/Division of Structural Pest Control	Enforces compliance with state Structural Pest Control Act, regulates structural pest control industry and its pesticides, monitors and inspects pesticide applications
6. Waste Transportation	
Transportation/Division of Motor Vehicles/Enforcement Section	Enforces regulations on transportation of hazardous and radioactive waste by motor carriers
7. Solid Wastes	
Human Resources/Health Services/Solid Waste Management Section	Enforces compliance with waste disposal rules, monitors and issues permits for solid waste disposal and treatment facilities
NRCD/Environmental Management	Reviews solid waste disposal plans and reviews permits for projects with potential impact on the environment

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 104G-1	(No 1986-87 budget because Authority did not exist until July 1, 1987; The 1987-88 budget is $400,000 in state-appropriated funds)			
G.S. 104E-9 to 104E-19 G.S. 104E-24 G.S. 104E-7	$ 0	$ 1,155	$ 32	$ 1,187
G.S. 143-434 to -470.1	0	1,394	124	1,518
G.S. 106-65.22 to -65.40	0	449	82	531
G.S. 20-167.1 G.S. 20-384	0	23 (estimate)	63	86
G.S. 130A-294	0	829	0	829
G.S. 143B-282	(no separate budget figures available)			

—*continued from page 21*

and the Division of Health Services within the Department of Human Resources have primary responsibility for water management and supply issues. The Environmental Management Commission also has substantial statutory authority over water supply and water resources management. The Division of Water Resources has responsibility for studying river basins as they relate to water supplies, for studying noxious aquatic weeds, for coordinating the "Stream Watch" program, and other programs. The Division of Health Services historically has had responsibility for public health issues relating to water. Today, these functions include monitoring public water supplies, testing drinking water quality, and monitoring private septic tanks. Other agencies involved with water management include the NRCD Division of Community Assistance (technical assistance on floodplain ordinances) and the Department of Crime Control and Public Safety (coordinating the National Flood Insurance Program).

Land Management

Managing the "goodliest soile vnder the cope of heauen" is quite a responsibility. What other state can lay claim to a 1585 phrase that described what later became its native ground? But managing the land resource has not been a major focus of state environmental agencies in recent years, despite a recent boom in land development. From 1986 to 1987, the number of acres under development shot up 55 percent, from 19,700 to 30,600 acres. The tension is obvious in the numbers. How do land-use

Table 4. N.C. State Government Programs Affecting Air Quality

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
1. Air Quality	
NRCD/Environmental Management/ Air Quality Section	Administers state air quality regulations;
	Analyzes vehicle inspection data and recommends vehicle emission standards to the Environmental Management Commission
NRCD/Environmental Management/ Local Air Pollution Control Programs	Administers air quality county ordinances, mandatory for Buncombe, Haywood, Forsyth, and Mecklenburg counties
NRCD/Environmental Management/ Laboratory Services	Provides laboratory services to air quality programs
Transportation/Motor Vehicles/Exhaust Emission Inspection Program	Administers vehicle inspection and maintenance program in areas exceeding fede carbon monoxide emission limits (currently Wake and Mecklenburg counties
2. Pollution Prevention	
NRCD/Environmental Management/	See Table 1, Item 7, page 18

regulations balance development opportunities and environmental protections? The answer to that question lies in land-use plans and zoning ordinances, regulating fragile coastal and mountain areas, and other policy issues. The article on page 94 explores such policies.

State agencies manage eight types of land management concerns at a cost of more than $30 million last year. By far the largest of the eight is the Division of Forest Resources ($19 million), which protects 18.5 million acres of commercial forest land, provides forest management services to 245,000 private forest landowners, and performs other functions (including putting out fires from practice bombing). The next largest is the Division of Parks and Recreation ($5.4 million), which manages the state parks system, trail system, and natural and scenic rivers program.

Neither of these programs, however, addresses the tension between development opportunities and environmental protections. The state agencies most responsible for monitoring and regulating land development are NRCD's Division of Land Resources ($1.7 million), Division of Coastal Management ($2 million), and the Division of Community Assistance ($1.3 million). Often, these three divisions work within the tensions inherent when state agencies serve the dual functions of advising local officials to take actions and ordering actions to be taken. The Division of Land Resources, for example, regulates sedimentation and erosion control for the entire state, but 37 local governments have chosen to exercise that power themselves. Even so, the Sedimen-

—continued on page 34

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 143-213 G.S. 143-215.3-.5, .9,.63-.69, .105-.114	$0	$1,590	$1,221	$2,811
G.S. 20-128.2 143-215.107	0	91	1	91
G.S. 143-215.112	708	0	603	1,311
G.S. Chap. 143, Article 21	0	24	0	24
G.S. 20-128.1 -.2	0	477	0	477

Table 5. N.C. State Government Programs Affecting Plant Life and Wildlife

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
1. Marine Fisheries	
NRCD/Marine Fisheries	Manages estuarine and marine fisheries, including research, enforcement, and enhancement
2. Wildlife and Fisheries	
NRCD/Wildlife Resources	Promulgates hunting, fishing, trapping, and boating regulations; Enforces wildlife and fisheries laws and regulations (inland game and nongam fish); Issues hunting, fishing, and trapping licenses (inland game and nongame fish); Educates public about wildlife resources, with publications and other efforts; Maintains channel and safety markers in navigable waterways and provides boa accesses; Owns and manages gamelands acreage for wildlife habitat conservation and public recreational opportunities
3. Plants and Insects	
Agriculture/Plant Industry/Plant Protection Section	Develops and enforces regulations for insects, plant diseases, and weed pests; Conserves and protects endangered and threatened plants and beneficial insects
4. State Zoo	
NRCD/N.C. Zoological Park	Develops and maintains the N.C. Zoo in Asheboro
5. State Aquariums	
Administration/Office of Marine Affairs	Develops and administers the three N.C. aquariums at Pine Knoll Shores, Fort Fisher, and Roanoke Island

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 113-131 G.S. 113-181	(Included in Table 1, Item 3)			
G.S. Chap. 75A Article 1 G.S. Chap. 113, Articles 12, 13, 14, 20, 21, 22, 22A, 23, 25 G.S. Chap. 143, Article 24	$ 0	$2,739	$3,134	$19,859 [1]
G.S. Chap. 106, Articles 4D, 4F, 19B, 20, 31B, 36, 55	0	1,452	235	1,687
G.S. 143B-335 and -336	0	4,413	0	4,413
G.S. 143B-390.2	0	1,120	0	1,120

FOOTNOTE:

[1]Not shown is nearly $14 million in revenue from various fees, including hunting and fishing licenses, boat registration fees, and other fee revenues. The fee revenue, combined with state and federal funds, produces the Commission's $19.8 million budget.

—*continued from page 31*
tation Control Commission has the power to rescind that local power if the county commissioners do not exercise proper authority. The Division of Community Assistance, in contrast, has no official monitoring role regarding land uses. Instead, it explains growth management options to local government officials and assists in drafting regulations when requested.

Hazardous and Waste Materials Management

The third major table outlines state government programs dealing with waste materials, including hazardous and solid wastes, as well as other materials such as radiation and chemicals. Among other things, the table shows how little North Carolina spends on solid and hazardous waste management programs—less than $8 million per year in state funds (including the entire budget of the Emergency Management Section at Crime Control and Public Safety, which also responds to natural disasters such as hurricanes and tornadoes). That sum of state money seems even smaller in light of the enormous public attention that has been focused on efforts to select sites for a low-level radioactive waste repository and on a separate hazardous waste treatment facility in North Carolina.

At least eight state agencies have a direct role in hazardous and waste material management. These agencies are the Departments of Human Resources; Natural Resources and Community Development; Commerce; Crime Control and Public Safety; Administration; Transportation; Labor; and Agriculture. The first six are under control of the Governor; the latter are two under independently elected Commissioners.

On a day-to-day basis, the Department of Human Resources has far more to do with hazardous and solid waste management than any other agency. The department's Solid Waste Management Section (elevated to section status on Jan. 1, 1988) has responsibility for enforcing compliance with hazardous waste disposal rules as well as monitoring and issuing permits for waste storage, treatment, and disposal facilities. It performs the same role for solid waste facilities.

In addition, several state boards are involved in

—*continued on page 38*

Table 6. N.C. State Government Programs Affecting Miscellaneous Environmental Policies

Area of Concern / Department/Division/Section	Programs/Responsibilities/Activities
1. Planning and Assessment	
NRCD/Natural Resources Planning and Assessment	Provides centralized planning and interagency coordination, including the biennial "State of the Environment" report; Provides economic analysis of air and water quality regulations
2. Highways	
Transportation/Highways/ Environmental Planning Unit	Investigates and analyzes environmental effects of highway construction
3. State Clearinghouse	
Administration/Intergovernmental Relations	Ensures that state agencies comply with provisions of the N.C. Environmental Policy Act; coordinates the intergovernmental review of environmental documents

Robert Llewellyn

Statutory Authority	Expenditures N.C. FY 1986-87 (in $1000s) Local	State	Federal	Total
G.S. 143B-275 to -279 G.S. 143B-214.1 to -215.107	$0	$260	$0	$260
	0	68	386	454
1 N.C.A.C. 25 .0213 G.S. 113A	(no separate budget figures available)			

Table 7. Boards, Commissions, and Councils in the Executive Branch Working With Environmental Management and Natural Resources

Board, Commission, or Council	Where Housed	Statutory Authority	Total Members
GENERAL			
1. Environmental Management Commission	Natural Resources and Community Development	G.S. 143B-282	17
2. Commission for Health Services	Human Resources	G.S. 143B-142	12
3. Board of Natural Resources and Community Development	Natural Resources and Community Development	G.S. 143B-280	20
4. Soil and Water Conservation Commission	Natural Resources and Community Development	G.S. 143B-294	7
LAND MANAGEMENT			
5. Coastal Resources Commission	Natural Resources and Community Development	G.S. 113A-104	15
6. Coastal Resources Advisory Council	Natural Resources and Community Development	G.S. 113A-105	47
7. Natural Heritage Advisory Committee	Natural Resources and Community Development	15 N.C.A.C 12H .0105	9
8. Parks and Recreation Council	Natural Resources and Community Development	G.S. 143B-311	16
9. North Carolina Mining Commission	Natural Resources and Community Development	G.S. 143B-290	9
10. North Carolina Sedimentation Control Commission	Natural Resources and Community Development	G.S. 143B-298	11
11. Forestry Council	Natural Resources and Community Development	G.S. 143B-308	11
12. North Carolina Trails Committee	Natural Resources and Community Development	G.S. 143B-333	7
13. Southeastern Interstate Forest Fire Protection Compact Advisory Committee	Natural Resources and Community Development	G.S. 113-60.14	4 from each state
HAZARDOUS AND WASTE MATERIALS			
14. Governor's Waste Management Board	Human Resources	G.S. 143B-216.12	16
15. N.C. Hazardous Waste Treatment Commission	Commerce	G.S. 143B-470.3	9
16. Southeast Interstate Low-Level Radioactive Waste Management Compact Commission	Office of the Governor	G.S. 104F-1	2 from each state
17. N.C. Low-Level Radioactive Waste Management Authority	Administration	G.S. 104G-5	15

—table continued on next page

Table 7. Boards, Commissions, and Councils in the Executive Branch Working With Environmental Management and Natural Resources, *continued*

Board, Commission, or Council	Where Housed	Statutory Authority	Total Members
18. Emergency Response Commission	Crime Control & Public Safety	Executive Order No. 43, 1987	15
19. North Carolina Radiation Protection Commission	Human Resources	G.S. 104E-7	20
20. North Carolina Pesticide Board	Agriculture	G.S. 143-436	7
21. Structural Pest Control Committee	Agriculture	G.S. 106-65.23	5
AIR			
22. Air Quality Council	Natural Resources and Community Development	G.S. 143B-317	9
(Note: This board is inactive and has not met for years)			
PLANT LIFE AND WILDLIFE			
23. Wildlife Resources Commission	Natural Resources and Community Development	G.S. 143-240	13
24. Atlantic States Marine Fisheries Compact Commission	Natural Resources and Community Development	G.S. 81-721 G.S. 113-251	3 from each state
25. Marine Fisheries Commission	Natural Resources and Community Development	G.S. 143B-289.3	15
26. Marine Science Council	Administration	G.S. 143B-389	28
27. North Carolina Plant Conservation Board	Agriculture	G.S. 106-202.14	7

Other Boards, Commissions, and Councils with Responsibilities for the Environment

28. South Atlantic Fishery Management Council (NRCD)
29. Appalachian National Scenic Trail Advisory Council (NRCD)
30. Community Development Council (NRCD)
31. N.C. Zoological Park Council (NRCD)
32. Outer Continental Shelf Task Force (Administration)
33. N.C. National Park, Parkway, and Forests Development Council (Commerce)
34. Energy Policy Council (Commerce)
35. Utilities Commission (Commerce)
36. Alternative Energy Corporation (Commerce)
37. Mine Safety and Health Advisory Council (Labor)
38. State Advisory Council on Occupational Safety and Health (Labor)
39. Board of Agriculture (Agriculture)
40. Board of Transportation (Transportation)
41. Environmental Policy Act Advisory Committee (Administration)

—*continued from page 34*
overseeing waste management and siting. They are the Governor's Waste Management Board in the Department of Human Resources; the Hazardous Waste Treatment Commission in the Commerce Department; and the Low-Level Radioactive Waste Management Authority in the Department of Administration. Some observers think the functions of these boards overlap. Separate state offices also deal with radiation and with pesticides, as items four and five in Table 3 indicate.

Table 3 (as well as Tables 1 and 4) includes the state's model Pollution Prevention Pays Program. This program, unique among state environmental efforts, tries to prevent or reduce pollution in whatever way it can. Thus it transcends other state programs in that it is not restricted to any single area of the environment, but applies to all types of pollution. Another state office, the Technical Assistance Program in the Department of Human Resources, also offers help in reducing pollution.

Air Quality, Plant Life and Wildlife, and Miscellaneous Areas

The central agency for air quality regulation, as with water quality, is the Division of Environmental Management within NRCD (see Table 4). Several local governments also have responsibility for air pollution programs, as mandated by the General Assembly (Buncombe, Haywood, Forsyth, and Mecklenburg counties). The state spends less than $2 million monitoring and improving air quality.

The state spends nearly $10 million researching, enhancing, and regulating N.C. plant and wildlife (see Table 5). The effort is divided between three major agencies, the Division of Marine Fisheries (NRCD), the Wildlife Resources Commission (a quasi-independent agency operating mostly on receipts from hunting and fishing licenses but attached to NRCD for coordination and reporting), and the Department of Agriculture's Division of Plant Industry. In addition, the N.C. Zoological Park and the state's three aquariums represent substantial efforts in the wildlife field.

Conclusion

This tour through North Carolina's environmental programs and responsibilities provides a look at how the main programs function. It reviews the agencies concerned with the primary environmental resources—water, air, land, and plant and wildlife, plus the high-profile issue of hazardous materials and waste management. It does not examine other state agencies and programs which have a bearing on the environment. It excludes state energy programs, which are closely related to the environment in a number of ways—including use of natural resources, environmental safety, and waste disposal. Nor does it deal with environmental hazards in the workplace, or with worker safety. It omits the impact on the environment by economic development and transportation policy. Finally, not all public health issues are included. Concerns such as food and lodging sanitation, mosquito control, milk sanitation, and indoor air monitoring do not appear in these tables. State policymakers and legislators should take these factors into consideration when debating consolidation or other alterations in state environmental programs.

In whatever fashion these programs are grouped, however, the legislature will still be the state's single most *influential policymaker* on the environment (see article on politics, p. 2, for more on this point). The General Assembly holds the purse

◆

I have found that the brown bears are under the jurisdiction of the Secretary of Agriculture, the grizzly bears under the care of the Secretary of the Interior, and the polar bears under my protection as the Secretary of Commerce.

—Herbert Hoover

◆

Table 8. Standing Legislative Committees of the N.C. General Assembly with Responsibilities for Examining Environmental Legislation

1. Senate Appropriations Committee on Natural and Economic Resources
2. Senate Committee on the Environ ment
3. Senate Committee on Natural and Economic Resources and Wildlife
4. House Appropriations Base Budget Committee on Natural and Economic Resources
5. House Appropriations Expansion Budget Committee on Natural and Economic Resources
6. House Committee on Natural and Economic Resources
7. House Committee on Marine Fisheries
8. House Committee on Water and Air Resources
9. House Committee on Wildlife Resources

strings in one hand and writes environmental law with the other, and state executive branch officials and agencies must follow the direction set by legislators. Often enough, the two branches of government are at one another's throats—as they were in June 1987. On June 5, Governor Martin and NRCD Secretary Rhodes held a press conference to criticize legislative leaders who were about to cut the NRCD budget. In response, the chairmen of the Joint Appropriations Committee on Natural and Economic Resources issued a statement criticizing Martin and Rhodes for criticizing the legislature. And so it went.

Despite the inter-branch bickering, there obviously is sentiment for somehow consolidating or shifting state environmental agencies. Both Gov. Jim Martin and Lt. Gov. Bob Jordan support a consolidation, and so do environmentalists.

The state's leading environmental lobbyist, Bill Holman, presented his views on the issue in a four-page, single-spaced letter on Nov. 23, 1987. For starters, Holman suggested giving the principal environmental agency a new name—the Department of Natural Resources and Environmental Management. "If I could shift only one piece of the bureaucratic puzzle," Holman wrote to Representative Hackney, "I'd move the Solid and Hazardous Waste Management Branch in the Department of Human Resources to [a new] Division of Solid and Hazardous Waste in the Department of Natural Resources & Environmental Management."

Governor Martin proposed a similar alignment on February 17 when he recommended combining the Health Services Division in DHR with the natural resources and environmental regulation functions of NRCD in a new Department of Health and Environment.

Governmental officials to their credit are striving to streamline and improve the cast of characters making and implementing environmental policy. With bipartisan support for consolidation, new configurations appear to be in the making. This series of tables, which groups programs by function, should be useful in the short-term reorganizational process.

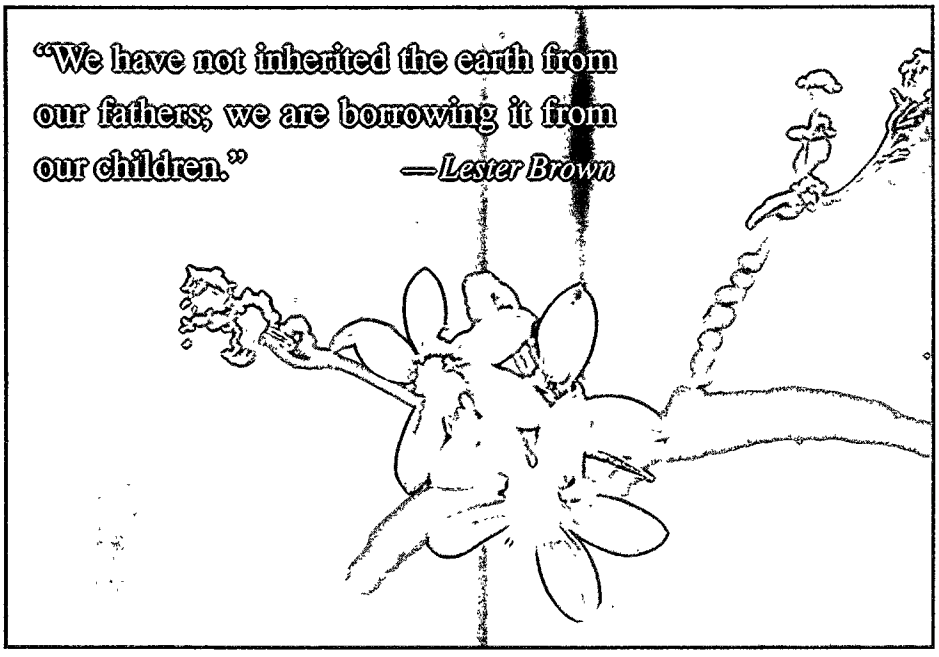
In the long-term, regardless of what the principal department is called or where the chief environmental agencies are housed, legislators and other policymakers should bear in mind what function each agency, division, section, and branch serves—and how those agencies might function better as they seek to preserve and protect North Carolina's natural resources.

FOOTNOTES

[1]Chapter 773, Section 9, 1987 Session Laws, modifying Chapter 1014, Section 150, 1986 Session Laws.

[2]This information is summarized in "Inventory of Environmental Programs in North Carolina State Government," Fiscal Research Division, N.C. General Assembly, December 1987. Staff members working on the report and presenting it to the legislative Study Commission on Consolidation of Environmental Regulatory Agencies were Carol Shaw and Manuel Marbet.

[3]For a book-length review of all state environmental agencies and nonprofit groups, see *The Guide to Environmental Organizations in North Carolina* by Lisa Blumenthal, N.C. Center for Public Policy Research, 1984.



Carol Majors

Municipal Wastes: Trying to Make Molehills Out of Mountains of Trash

by Tom Mather

Barely a generation ago, garbage disposal in North Carolina was rarely a front-page news story. City governments were still handling trash as they always had—they dumped it in noxious, rat-infested mounds and burned what they could. The smoke and the stench could be detected miles away. Then came a revolution in technology—the sanitary landfill, in which governments could dump trash and garbage, compact it with enormous machines, and cover it all with a thick layer of dirt. That was considered an environmentally sound way to handle our refuse—until cities began running out of land, groundwater started becoming polluted from poisons leaking out of landfills, and environmental agencies began applying stricter landfill controls that are driving up the cost of this once-standard method of solid waste disposal. Are the new landfill rules workable? What are the alternatives, such as incineration or recycling of garbage? And what special environmental problems do the alternatives pose?

New Hanover County faced a problem 10 years ago that now is emerging as one of the key environmental issues for cities and counties across the nation: How to dispose of garbage safely and economically. In the late 1970s, New Hanover County was running out of space at its aging landfill. At the same time, several groups were suing the county for polluting nearby ground and surface waters.

"We were the first to have to face the issue," County Engineer C. Ed Hilton Jr. says. "The county was in a predicament.... For almost a week, New Hanover didn't have a place to put its waste. The closest place that would take our waste was in Wake County."

The county dealt with the dilemma in two ways. It built a $13 million incinerator for burning most of its garbage. And it constructed a new $3.2 million landfill—complete with liners and other pollution-control equipment—to handle excess trash, nonburnable items, and incinerator ashes.

"The key factor for us, as far as the incinerator, was the cost of landfilling in this county," Hilton said. "That was a very, very expensive landfill."

Many North Carolina counties soon will be facing similar choices. A third of the state's 119 city- and county-run landfills are expected to run out of space within the next five years, according to estimates by the N.C. Solid Waste Management Section of the state Department of Human Resources. "We've got 12 county landfills that have less than two years of space left," says William L. Meyer, head of the section, the primary state agency dealing with garbage disposal (see table, p. 43-45, for more). And 35 landfills have less than five years to go.

Moreover, state officials in 1987 began enforcing stricter guidelines for permitting landfills[1] in the face of mounting evidence that old-style sanitary landfills pollute the state's groundwater system. State officials also adopted a new policy agreement in June 1987 aimed at phasing out conventional landfills and relying more on incineration, recycling, and other types of waste reduction.[2]

"The intent is to preserve and protect the groundwater as a potential drinking water source," says Meyer. "As a policy, we should minimize our dependency on sanitary landfills. The more [waste] we put in the ground, the more of these resources [land and groundwater] we are tying up and having the potential to contaminate."

Meyer and other state officials acknowledge that new regulations will make waste disposal more costly—perhaps five times more expensive than with conventional landfills. But they say such restrictions are necessary because more than half of the state's homes and industries depend on groundwater [through water wells]. "The real cost is the pollution to the environment," says R. Paul Wilms, director of the state Division of Environmental Management. "Groundwater is a very precious and limited commodity—and it needs to be protected. The counties are going to have to charge more for [trash] collection. They're going to have to recover their costs somewhere. And certainly the consumers and taxpayers are the ones who are going to have to pay."

The June 1987 agreement between the Department of Human Resources and the Department of Natural Resources and Community Development seeks a 90 percent reduction in the volume and toxicity of landfill waste over the next 20 years. That's no small order. North Carolina now generates about 25 million pounds of solid waste daily—or about four pounds per person each day, Meyer's office estimates. Most of that garbage ends up in the state's 150 industrial and public landfills, most of which are operated by county governments.

Waste disposal "is on the verge of becoming a statewide issue of utmost importance to the counties," says Ed Regan, assistant executive director for the N.C. Association of County Commissioners. "The issue is double-edged for counties. On one hand, the state's efforts in protecting groundwater are going to make traditional ways of solid waste disposal greatly more expensive. Although we realize the short-term conversion away from the conventional landfill is going to be expensive, we realize it's necessary. We now know that [landfills] pose a serious threat in many cases to groundwater."

Problems With Landfills

Twenty-five years ago, many communities viewed sanitary landfills as an environmentally sound alternative to more traditional ways of disposing of solid waste, such as open dumps and outdoor burning. Local governments responded to prodding by state officials then to open sanitary landfills, and now there are new pressures. Local, state, and federal officials have begun to seek alternatives as they realize that landfills can pollute ground and surface water, consume huge tracts of valuable property, and lead to controversial siting disputes.

Tom Mather is a reporter covering the environment for The News and Observer *of Raleigh.*

Robert Llewellyn

Municipal and county landfills are rapidly filling up in North Carolina, and 35 have fewer than five years of life left.

(Groundwater is water tapped into by wells; surface water is the state's system of river basins and tributaries.)

Landfills contain a concentration of potential pollutants—ranging from discarded oil to bacteria-infested food scraps—and those contaminants often leak into nearby groundwater and streams. At 50 percent of the sites they've sampled, state investigators have found "acutely toxic" levels of pollutants in water—called leachate—that leaks from landfills, says Wilms. Those findings have prodded the state into pursuing the tighter groundwater controls. The U.S. Environmental Protection Agency also has been developing tougher standards that would require states to regulate groundwater pollution more strictly. Those rules are to be announced in 1988.[3]

For years, the state has encouraged counties to put their landfills near rivers, wherever feasible. The point was not that rivers could help carry away whatever pollution leaked out of the landfills. Rather, the state contends, it was aimed at protecting groundwater, an assertion that environmentalists have not accepted universally. The state's theory was that leaking pollutants would show up quicker in the river surface water, and sanitation engineers could act quickly to treat the pollution and to pinpoint and halt the source of pollution. "Groundwater has minimal effect on streams, and thus the river would tell us if there were any effect," says Meyer. "And rivers can attentuate whatever pollution leaks from landfills."

Such quick detection was impossible when landfills were not located near rivers. Sometimes pollutants leaked from landfills and were carried far away by groundwater, only to show up in a distant water supply where it was impossible to detect the source of the pollution.

Environmentalists oppose the practice because such landfills are a source of contamination, especially for towns down river that depend on the water. "Dilution is not the solution for pollution," says Lark Hayes, former executive director of the Clean Water Fund of North Carolina, and now director of the N.C. office of the Southern Environmental Law Center in Chapel Hill. Under stricter landfill rules adopted by the state, conservationists contend, landfills no longer need to be located near rivers. State engineers, on the other hand, say the policy remains in effect. "We think it's a good policy, especially if you do have a leak in the liner," says James Coffey, an environmental engineer in the Solid Waste Management Section.

Under the new state guidelines, most landfills must use engineered barriers such as liners, caps, and leachate collection systems to prevent pollution. Liners are clay or plastic barriers, roughly the thick-

—continued on page 46

Projected Life for Municipal/County Landfills

Name of Landfill	Year Opened	Total Acres	Acres Used	Acres Remain	Ave. Depth	Remaining Life (Years)*
Alamance County	**1979**	**20**	**16**	**4**	**50**	**-1**
Alexander County	1979	25	10	15	30	+5
Alleghany County	1982	14	5	9	33	+10
Anson County	**1979**	**13**	**13**	**3**	**30**	**+2**
Ashe County	1971	100	25	75	50	+10
Avery County	**1972**	**14**	**8**	**6**	**45**	**+2**
Beaufort County	1978	60	41	19	12	+5
Bertie County	**1973**	**101**	**88**	**13**	**13**	**+2**
Bladen County	**1972**	**57**	**25**	**20**	**16**	**+2**
Brunswick County	1984	54	12	42	8	+5
Buncombe County	**1973**	**90**	**60**	**30**	**60**	**+2**
Burke County	1988	318	0	318	35	+30
Cabarrus County:						
Charlotte Motor Speedway	1973	110	0	110	35	+5
Cabarrus County	**1974**	**242**	**62**	**180**	**40**	**+2**
Caldwell County	**1975**	**60**	**45**	**15**	**125**	**+2**
Carteret County	1984	30	10	20	20	+5
Caswell County	1975	10	5	5	18	+5
Catawba County	**1973**	**90**	**75**	**15**	**30**	**+2**
Catawba County	1981	170	30	140	25	+5
Chatham County	1973	79	40	39	25	+10
Cherokee County	**1972**	**16**	**12**	**4**	**20**	**-2**
Clay County	1976	87	75	100	27	+10
Cleveland County:						
Cleveland Container Service	1975	116	10	106	40	+10
Columbus County	1973	50	50	4	10	+10
Craven County	1983	120	40	80	16	+10
Cumberland County	1980	200	90	110	38	+5
Currituck County	**1974**	**0**	**0**	**0**	**15**	**+2**
Dare County	1982	30	5	25	20	+5
Davidson County:						
Davidson County	**1984**	**60**	**10**	**50**	**15**	**+2**
Lexington, City of	**1972**	**33**	**28**	**5**	**18**	**+2**
Thomasville, City of	1961	105	80	25	40	+5
Davie County	1981	60	52	8	35	+5
Duplin County	**1973**	**100**	**80**	**20**	**13**	**+2**
Durham County:						
Durham, City of	**1974**	**130**	**95**	**25**	**45**	**+2**
Edgecombe County	1974	271	35	60	35	+10
Forsyth County:						
Winston-Salem, City of	1975	176	43	123	85	+10
Winston-Salem, City of	**1969**	**50**	**18**	**32**	**45**	**+2**

— table continued on next page

* **Key:**
Bold type indicates fewer than 5 years remaining.
"+" in front of a number indicates more than; "-" indicates less than.

Projected Life for Municipal/County Landfills

Name of Landfill	Year Opened	Total Acres	Acres Used	Acres Remain	Ave. Depth	Remaining Life
Forsyth County, *continued*:						
Kernersville, City of	1976	68	17	51	35	+5
Franklin County	**1984**	**45**	**30**	**15**	**30**	**-2**
Gaston County	1987	322	0	322	25	+10
Graham County	**1974**	**15**	**15**	**0**	**50**	**-1**
Granville County	**1976**	**66**	**42**	**24**	**30**	**+2**
Granville County	**1982**	**42**	**37**	**5**	**40**	**+2**
Greene County	1982	65	5	60	12	+10
Guilford County:						
High Point, City of	1981	47	37	10	40	+5
Greensboro, City of	1978	184	103	81	40	+5
High Point, City of	1980	125	0	125	0	+10
Halifax County	1981	110	16	94	45	+10
Harnett County	1977	350	90	260	20	+10
Harnett County	1978	61	51	10	15	+5
Haywood County:						
Haywood County	**1982**	**20**	**20**	**0**	**60**	**-1**
Canton, Town of	1975	20	15	5	50	+10
Henderson County	1965	25	15	15	50	+10
Hertford County	**1973**	**49**	**44**	**5**	**10**	**+2**
Hoke County	1974	20	14	6	20	+5
Iredell County	**1979**	**90**	**45**	**20**	**60**	**+2**
Jackson County	1969	18	10	8	50	+5
Johnston County	1973	125	90	35	20	+5
Jones County	1972	20	7	13	7	+10
Lee County	1972	226	110	116	37	+10
Lenoir County	1981	60	20	40	15	+5
Lincoln County	1986	300	0	0	0	+10
McDowell County	**1972**	**25**	**24**	**1**	**35**	**+2**
Macon County	**1975**	**10**	**10**	**0**	**30**	**-1**
Macon County	**1975**	**10**	**10**	**0**	**20**	**-1**
Madison County	**1980**	**12**	**12**	**0**	**18**	**-1**
Martin County	**1973**	**59**	**54**	**5**	**12**	**+2**
Mecklenburg County	**1972**	**105**	**60**	**45**	**35**	**-2**
Montgomery County	1972	27	21	6	14	+5
Moore County	1972	276	55	221	30	+10
Nash County	**1977**	**57**	**43**	**14**	**35**	**+2**
New Hanover County	1981	191	15	125	30	+10
Northampton County	1971	35	27	8	25	+10
Onslow County	1984	90	35	55	15	+5
Orange County	1970	205	35	170	18	+10
Pamlico County	1981	50	10	40	10	+10

— table continued on next page

*** Key:**
Bold type indicates fewer than 5 years remaining.
"+" in front of a number indicates more than; "-" indicates less than.

Projected Life for Municipal/County Landfills

Name of Landfill	Year Opened	Total Acres	Acres Used	Acres Remain	Ave. Depth	Remaining Life
Pasquotank County	1984	150	8	142	30	+10
Pender County	1973	25	13	12	15	+5
Perquimans-Chowan County	1979	50	14	36	7	+10
Person County	1973	40	20	20	13	+5
Pitt County	1974	100	50	50	15	+10
Polk County	1979	35	11	24	35	+10
Randolph County	1986	95	0	95	40	+10
Union Carbide/Ever Ready	1984	5	1	3	12	+10
Richmond County	1985	125	10	110	16	+10
Robeson County	1985	179	10	169	20	+10
Rockingham County	**1979**	**12**	**9**	**3**	**55**	**+2**
Rowan County	**1978**	**48**	**44**	**4**	**20**	**-2**
Rutherford County	1975	23	10	13	35	+10
Rutherford County	1974	127	27	100	35	+10
Sampson County	1984	90	6	84	20	+10
Scotland County	1980	100	40	60	15	+5
Stanly County:						
Albemarle, City of	1973	50	11	39	20	+5
Stokes County	1987	25	0	25	20	+5
Surry County	1983	45	20	25	20	+5
Surry County	1986	80	16	64	30	+10
Swain County	**1972**	**30**	**29**	**1**	**30**	**+2**
Transylvania County	**1975**	**12**	**12**	**0**	**150**	**-1**
Vance County	**1974**	**64**	**39**	**25**	**12**	**-2**
Wake County:						
Raleigh, City of	1972	160	85	75	25	+10
Wake County	1980	300	100	100	10	+5
Sorrells	1970	60	30	30	75	+5
Wake County	1986	219	3	186	45	+10
Warren County	**1984**	**12**	**4**	**8**	**20**	**+2**
Washington County	**1980**	**30**	**25**	**5**	**10**	**+2**
Watauga County	1968	40	17	23	40	+5
Wayne County	1974	130	30	100	20	+10
Wayne County	1974	85	10	75	20	+10
Wilkes County	**1972**	**32**	**30**	**2**	**35**	**-2**
Wilkes County	1975	22	8	14	10	+5
Wilson County	1974	120	60	60	15	+5
Yadkin County	**1972**	**51**	**31**	**20**	**15**	**+2**
Yancey/Mitchell County	1969	30	29	1	40	+5

Source: Solid Waste Management Section, Division of Health Services, N.C. Department of Human Resources

Note: Not every county operates a landfill

* **Key:**
Bold type indicates fewer than 5 years remaining.
"+" in front of a number indicates more than; "-" indicates less than.

ness of a matchbook cover, that block pollutants from leaking into groundwater. Some environmentalists fear that these liners may create a sort of bathtub effect, and that eventually they will fill to the point that poisons leak over the top or into the ground through punctures in the liner and contaminate ground and surface waters. To prevent that, leachate systems collect pollutants that settle to the bottom of landfills and pump them out so they can be treated. And special caps are designed to prevent water from entering a landfill in the first place.

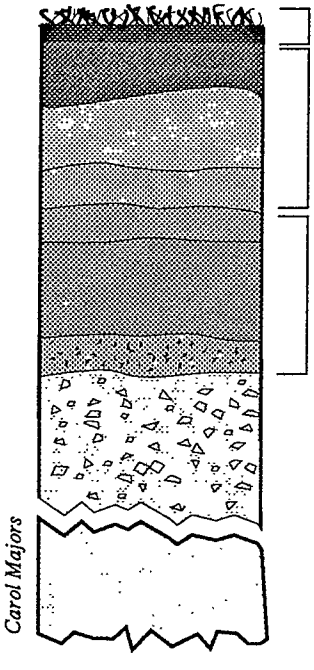
"All new landfill permits are expected to meet these standards," Meyer says. "Probably more than 95 percent will require these high-technology or highly engineered sites to prevent ex-filtration [leaching of pollutants]." The New Hanover landfill, for instance, is lined, and other urban landfill operators face lining theirs when opening new landfills or expanding existing ones. So far, the liners have not been required by federal or state law or regulations, but Ron Levine, director of the Health Services Division of the Department of Human Resources, says the department is considering putting the liner requirement into the N.C. Administrative Code.

Communities can apply for variances if they can demonstrate their sites contain natural barriers, such as thick, impenetrable clay soils, that would prevent groundwater contamination. But for most landfills, the new regulations will increase disposal costs significantly. How much? That depends upon each site, but perhaps 10 times as much, according to one estimate. "Instead of having to pay $5,000 to $10,000 an acre in developing that landfill site, now we're talking about $100,000 to $125,000 an acre for landfills with liners," says Regan of the Association of County Commissioners. Mecklenburg County is developing a new landfill on a 547-acre tract along the South Carolina border. The county estimates that a liner for the entire tract would cost $47 million.

New Hanover County spent more than $2 million—excluding land costs—constructing the first 10 acres of its lined landfill with a leachate treatment system, county engineer Hilton says. A newly opened five-acre segment cost $620,000—or about $125,000 an acre.

In Alamance County, which ran out of burial space at its landfill in July, officials postponed a decision to open a new site after state officials told them it had to be lined. Landfill operators have since been mounding garbage on top of the ground until the county's board of commissioners decides whether to build a lined site or pursue other alternatives. Meanwhile, daily operating costs have increased from about $1,400 to $3,000 by having to mound rather than bury garbage. (That's what Virginia Beach, Va., once did. It now has a man-

A Profile of the Soil



Carol Majors

Soil is the essential pathway between the mineral and organic worlds. Through the soil, vegetation acquires its nutrients which are passed through the food chain and returned again. The chemical, physical and organic content of soil develops from decomposition and mineralization of the vegetation and the rock materials. Thus, all soil has its own distinctive profile.

Soils have four major horizons, each with concentrations of a particular property. Generally, these horizons are:

The O horizon: is the surface layer composed of fresh, matted or decomposing organic matter.

The A horizon: begins as a dark colored layer of high organic content and mineral matter. Heavy leaching and weathering result in the loss of soluble minerals to the next horizon. Resistant minerals concentrate in the lighter layers.

The B horizon: is usually deeper in color and contains the highest concentration of clay minerals or of iron and organic matter. It is firmer in structure.

The C horizon and R horizon: are composed of weathered material and consolidated bedrock, respectively.

made municipal mountain, dubbed Mt. Trashmore, as the centerpiece for a new city park.)

"We can mound until the cost becomes prohibitive," says Commission Chairman Leonard Alcon. "We can go out and bring in 140 dump truck loads of dirt to cover the garbage, but the cost may become prohibitive. I would consider it a crisis. If there is no landfill and there's nowhere to dispose of garbage—how does business operate? I think we may be discouraging industries that are thinking of locating in Alamance County."

The county would need a landfill, he says, even if it eventually built an incinerator or pursued other waste reduction options. "Regardless of what type of disposal alternative you have, you're going to need a landfill," he says. "Once we get a landfill, then we can look at other alternatives."

State officials agree that landfills can't be eliminated entirely. But they say that increased landfilling costs ultimately may force most communities to seek other waste disposal alternatives. "With the new rules that are in place—the groundwater rules and the new federal standards—the cost of landfilling is going to go up drastically," says Gordon Layton, solid waste supervisor for the state. "As the cost of this alternative goes higher, it's going to make waste recovery, recycling, and other alternatives more desirable. Some of the thrust behind this effort is going to have to come from the legislature," he adds.

Most alternatives to landfills involve waste-reduction methods such as recycling, garbage compaction, and shredding. But the most efficient way to reduce volume, some state officials say, is by incineration.

Incineration as a Disposal Alternative

Of the 90 percent waste reduction sought by state officials, Layton estimates that about three-fourths of that cutback could be achieved through greater use of incinerators. New Hanover County operates one of the state's two municipal waste incinerators while Wrightsville Beach operates the other. Soon they will be joined by Charlotte and Mecklenburg County, which have begun construction on an incinerator slated for use in about two years, and Gaston, Rowan, and Alamance counties, and the city of Greensboro, are considering such facilities.

The New Hanover incinerator, located in an industrial district north of Wilmington, reduces the volume of burned trash by more than 85 percent, county officials say. The incinerator burned its first truckload of trash in June 1984 and soon exceeded its design capacity of 200 tons per day. Although the plant operates continuously, it can handle only about 70 percent of the county's 285-tons-per-day garbage production. The county buries the excess garbage in its landfill, along with incinerator ashes, landscape debris, and non-burnable materials such as glass, metals, and concrete.

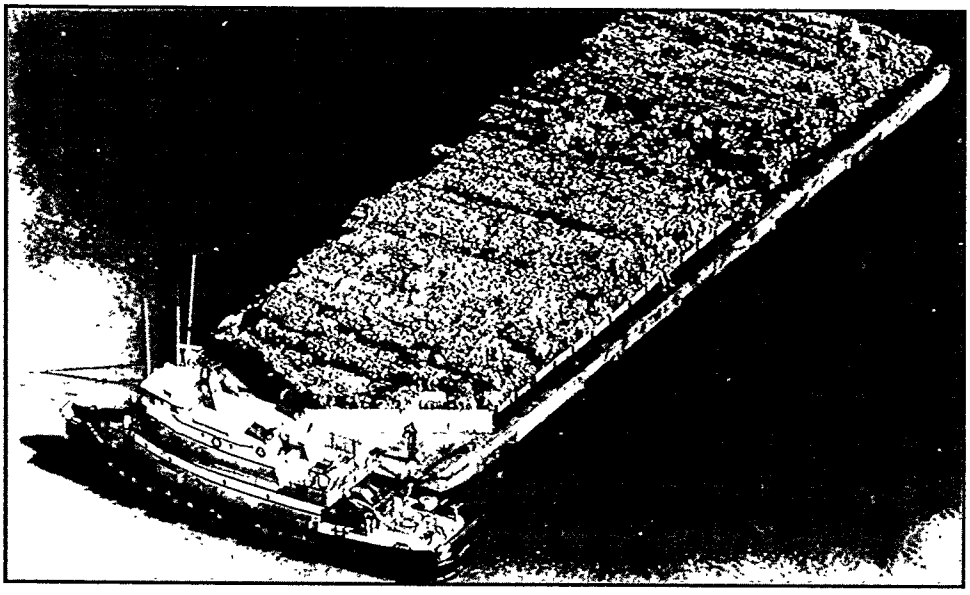
"Roughly for every 10 trucks of garbage that come in, only one to one-and-a-half truckloads come out," county engineer Hilton says. "Without this reduction of waste, that landfill would last only about 10 years. With this incinerator, it will probably last about four times that."

Heat from the burning garbage is used to produce steam, most of which the county sells to W.R. Grace Company, a nearby agricultural chemical manufacturer, for use in its boilers. The county also generates electricity from steam the company can't use and sells that production to Carolina Power & Light Company. This process—called cogeneration—makes waste materials into usable resources.

County officials are quick to point out, however, that the incinerator is not profitable. The county recovers about 80 percent of the incinerator's $4.5 million annual operating costs from steam-electric sales and revenues from garbage dumping fees, Hilton said. But taxpayers still had to contribute about $800,000 to the plant's budget in 1986. Says Hilton, "You don't make any money. You almost pay for what you're doing."

Catawba County, with about the same size population as New Hanover County, operates two county landfills on an annual budget of about $800,000. County Engineer Dick Wyatt, who has studied New Hanover's $4.5 million operation, says the two counties' situations are quite different, and a direct comparison is difficult to make. "It's true that we're spending $800,000 [compared to New Hanover's $800,000 taxpayer costs], but there are a lot of hidden factors. Our budget doesn't include the cost of litigation, or what it will cost us under the new landfill rules, or what it will cost us when we next have to open a new landfill."

Incineration costs, as well as potential air pollution problems from burning trash, have led some observers to describe incinerators as an unlikely disposal option for all but the state's largest municipal areas. "There's a certain cutoff point where it's not economical for a locality to go with incineration .... It's about 200 tons a day," says Philip Prete, a research assistant at the Institute for Environmental Studies at the University of North Carolina at Chapel Hill. "Without getting at least a little above that, it



Wide World Photos

This New York barge loaded with Long Island trash attempted to unload in North Carolina in April 1988, but was denied permission by North Carolina and other states.

would be hard to break even. With the steam generating incinerators, I would venture to say that there's few of them making a profit. It's not a money maker; it's a space saver and a quick fix. They're not going to make money."

That's not the point, responds Hilton. "New Hanover built the steam plant to reduce the costs of solid waste disposal caused by our lined landfill expenses," Hilton says. "As the rest of the state is required to install the liner systems, leachate collection and treatment systems, top-liners, and monitoring systems, landfill costs will force the examination of volume reduction techniques. Burning provides the largest volume reduction for the dollar value. The funds saved could pay for two steam plants while limiting our landfill disposal area to 200 acres instead of 800 acres over a 60-year period."

Besides not breaking even, Prete says incinerators would force taxpayers to pay more money for trash disposal. New Hanover County's $22.00-per-ton dumping fees are the highest in the state, he notes. In contrast, Orange County residents pay $3 to $6 per ton to dispose of garbage in the county landfill. According to Meyer, the statewide average cost is between $8 and $10 per ton.

Incinerators have environmental problems as well, which Prete says are "potentially as serious a problem" as landfills. Incinerators can emit harmful air pollutants if not equipped with state-of-the-art pollution controls.[4] "There's a whole host of things that can be sent off from a plant," he says. Such pollutants include particulates (fine liquid or solid particles such as dust, smoke, or smog), sulfur dioxides, nitrogen oxides, volatile hydrocarbons, carbon monoxide, dioxins, hydrogen chlorides, and hydrogen fluorides. Heavy metals are often present in air emissions, he says, but tend to concentrate in ashes.

Such airborne substances as particulates can cause discomfort and breathing problems, and other substances can have more harmful effects. Carbon monoxide poisoning can cause illness, and in extreme concentrations can lead to death. Sulfur dioxides have been linked to acid rains. Long-term exposure to such emissions as dioxins have been linked to cancer.

Although the technology exists to remove 90 percent of such pollutants from air emissions, Prete says, the U.S. Environmental Protection Agency does not require plants to install state-of-the-art equipment on smaller incinerators—that is, those burning less than 250 tons per day.

The EPA's emission standards are more lenient for smaller incinerators, Prete says, so operators of such plants tend to install less efficient air pollution equipment, such as electrostatic precipitators. These devices set up an electronic field that cause most of

the larger particulates in fly ash—the soot that is emitted by incinerators—to settle. "They can meet those standards by removing the large particulates and still emit small particulates," Prete says. "And it's those small particulates that are most hazardous to human health." Small particles are more dangerous, he said, because they can be drawn deeper into the lungs and absorbed more easily by the bloodstream.

Large incinerators, on the other hand, must contain the "best available technology" for controlling pollutants, such as bag houses and scrubbers. "The bag house works essentially like a vacuum cleaner," Prete explains. "The flue gases pass through this bag, and it filters out the particulates in the fly ash." Scrubbers, on the other hand, spray a fine mist of powdered lime or a mixture of lime and water to neutralize acidic pollutants, such as sulfur dioxide, hydrogen chloride, and hydrogen fluoride.

Environmental groups that have studied incinerators worry about these serious health concerns. While cogeneration incinerators may produce electricity, "the ash the plants produce and the emissions from their stacks are serious—and virtually unregulated—health hazards. Environmentalists also worry that efforts to reduce waste and to create or expand recycling programs will go up in smoke along with the trash," reports *Sierra* magazine.[5]

◆

"Pollution is nothing but resources we're not harvesting."

—Buckminster Fuller

◆

New Hanover County officials, however, say they have had no problems meeting federal emission standards, a claim that is backed up by officials with the state Division of Environmental Management, which monitors air quality. (New air emission standards are on the way from the Environmental Protection Agency.) Moreover, Hilton says that New Hanover County officials were so pleased with their incinerator that they are considering plans to expand the plant or build another one. County officials are also considering a recycling program, but Hilton says they concluded that incineration would be less expensive than a comprehensive recycling program. "One of the shocking things we have learned recently is that there is a tremendous cost in recycling," Hilton said. "From the information we've looked at, the revenues don't cover the costs." Still, says Hilton, New Hanover is "seriously evaluating recycling as a mechanism to reduce the volume of waste to be landfilled. While we do not anticipate that the process will make money, there does seem to be some potential for reasonable 'avoided' costs. In other words, it may cost us no more to recycle than it does to landfill in our expensive landfill."

State officials acknowledge that all waste disposal alternatives are expensive, but they suggest several options that could help communities cover such costs. One potential remedy, Layton says, would be for the N.C. General Assembly to *set up a revolving loan fund for solid waste projects.* Under such a program, the state would offer communities low-interest loans for projects; repaid loans then could be used to finance other projects. In 1987, the state established such a fund for water and sewer projects, with an initial appropriation of $21.5 million. While such a loan fund would not relieve counties and cities of the cost for disposal projects, it would allow them to begin operating quicker and at a potentially lower cost, because the loan funds would be available at less-than-bond-market rates. The table on pp. 43-45, indicates how rapidly the state's counties are running out of room—and which ones are close to being at maximum capacity.

Another option would be for counties to band together in financing *regional waste incinerators.* Such regional facilities would not only have a broader financial base for covering construction costs, but could operate more profitably because of their larger scale. "Volume may be the key when you start looking at expensive alternatives such as incineration," says Regan of the Association of County Commissioners.

A number of counties already have begun exploring the idea of building regional incinerators and recycling centers. For instance, Alamance County and Greensboro are considering plans for a jointly operated incinerator, and Orange and Durham counties have discussed the possibility. And the Neuse River Council of Governments is studying an array of disposal options for the coalition of counties, cities, and military bases in eastern North Carolina.

"We're looking at incineration *and* recycling," says Larry D. Fitzpatrick, a member of the Onslow

County Board of Commissioners and of the state Environmental Management Commission. "Maybe we could have a joint incineration and recycling process for two or more of these entities. We could save the taxpayers money and make a more efficient operation."

Prete believes communities should consider the entire range of disposal options in conducting such studies. In doing so, he says most communities would conclude that recycling and other forms of waste reduction are most cost-effective. "I don't think incineration is the way to go," Prete says. "I would say it's the way to go only after every other alternative has been examined for reducing the waste."

Recycling and Other Alternatives

Those who contend that recycling does not pay off, Prete says, often fail to consider secondary benefits such as conservation of resources, preservation of landfill space, and pollution prevention. "If you take all the benefits of recycling ..., I would say that it's certainly profitable from that standpoint," said Prete. "And if not profitable, it's at least feasible and sensible."

Evidence for that argument, he said, can be found in Charlotte and Mecklenburg County. The joint city-county recycling program started last February with 2,500 households and had 9,100 households within six months, says Brenda F. Barger, a resource recovery specialist for Mecklenburg County. The county now recycles about 10 percent of its waste, and officials hope to increase that to 30 percent by 1994. "We hope to be city-wide by the fall of 1988," Barger said. "By that time we should be serving a little more than 100,000 households in the city limits."

Participants are asked to recycle four items: newspapers, aluminum, glass, and plastic bottles. They simply put all those recyclables in a single trash can, and garbage collectors sort the materials at the curbside. Most eligible residents have responded favorably to the program, she says, with more than three-fourths of the households participating in areas served by the program.

"We thought the best way to get participation was to make the program as simplistic as we could," Barger says. "The behavioral pattern to recycle had become very set after just a few weeks. People outside the service area are extremely anxious to be included in the program."

Local officials view recycling as an integral part of their total waste disposal effort, she says, even though the county is building an incinerator and a new lined landfill. For instance, the county will waive its $3.75 fee for a carload of trash if the driver brings three bags of recyclable materials to the landfill.

Before making a commitment to any disposal alternative, resource recovery experts say that communities should study their waste stream, identify large components, and try to reduce or recycle those materials. A good example is a study by the Land of the Sky Regional Council in Asheville, which serves Buncombe, Transylvania, and Madison counties.[6] "They realized they were all running out of landfill space . . . and wanted to look at alternatives," says Sandi Maurer, a solid waste planner for the council.

"Questions have been raised about regional incinerators because of low population density and the high cost of transportation due to the mountainous terrain in the region," adds Maurer. "My major objection to incinerators is they're so expensive. Who's going to pay for all the incinerators?"

Instead, she says, the council sampled trash at county landfills to determine what kinds of waste were being dumped. The study found that much more trash was being dumped than officials had realized—thereby shortening the predicted life of area landfills. Plus, it helped the council identify several likely targets for recycling efforts. One was cardboard, which accounted for 36 percent of the area's industrial waste. Clean industrial cardboard is easily recycled.

Another easily recycled item is glass, and during the 1970s, environmentalists made a strong push for a so-called bottle law in North Carolina. That proposal would have required consumers to pay a refundable deposit on soft drink and other beverage containers. But business groups, particularly retailers and bottlers, fiercely resisted the proposals before the General Assembly, and the push for recycling diminished. But that doesn't alleviate the need to stimulate recycling of glass, state officials say. Layton, of the Solid Waste Management Section, puts it this way: "There is going to have to be legislation mandating a bottle" [deposit].

Waste reduction and recycling programs have had an extended infancy in North Carolina, but may now be maturing. Since 1983, the state has supported the Pollution Prevention Pays program, which seeks both "waste minimization" as well as recycling. State officials say the program has become the primary waste management strategy in North Carolina (see "Who Makes Environmental Policy," p. 10, for more). And unique programs such as the Southeast Waste Exchange at UNC-

Carol Majors

...and every fish that swims silent, every bird that flies freely, every doe that steps softly, every crisp leaf that falls.
All the flowers that grow on this colorful tapestry — somehow they know.
That if man is allowed to destroy all we need,
He will soon have to pay with his life for his greed.

—from "Tapestry" by Don McLean

Charlotte's Urban Institute seek to promote industrial waste recycling.[7] The Exchange acts as a clearinghouse for businesses that seek waste and by-products for recycling, as well as for industries that offer such materials for sale. In this fashion, waste recycling can play a key role in stimulating economic development, promoting new businesses, and creating new jobs.

Prete cites such efforts as evidence that recycling can work at any scale—not just in large municipalities such as Charlotte. "As far as the cutoff point, I don't think there is one," he says. "A household of one can easily separate and recycle."

Communities should also look at other waste reduction options, he says, such as garbage compaction, shredding, composting, and mulching. For example, the City of Raleigh grinds up leaves and limbs it collects from homes, stockpiles them, and uses them for mulch in parks. The mulch is made available to residents free-of-charge.

Mecklenburg County has even found a way to make recycling pay off. It has instituted a Trash to Treasures program during the warm months of the year. Usable items—such as appliances, lawnmowers, toys, furniture, books, and the like—that have been brought to the county landfill are offered for sale on the first Saturday of each month.[8] These county yard sales attract a variety of buyers and have produced thousands of dollars in revenue for the county over the past few years.

Prete, among other solid waste experts, applauds the state's new policy of seeking a 90 percent reduction in waste. But that policy only sets goals, and he says the state should take stronger actions—such as adopting a bottle recycling bill or promoting other recycling. "Traditionally, solid waste has been an issue that's been left to the local governments," Prete says. "The state ought to take more of an upper hand."

Others say that simple economics and education will bring about changes. One proponent of that view is Jerry W. Johnson, business manager for Reynolds Aluminum Recycling Company's local center in Raleigh. From 1974 to 1986, the company's North Carolina business grew by 6,800 percent, from 100,000 pounds of aluminum to 6.8 million pounds. The company paid customers $1.9 million in 1986 for 176 million aluminum cans brought to its 30 recycling centers in the state. "That's 1,360 trailer loads that would have gone to the landfill, not including any scrap," Johnson said.

Twenty years ago, Reynolds used virtually no recycled material, he said, but it now relies on recycled aluminum for 40 percent of its metal refining needs. Similar results could be achieved for other materials, such as plastics and newsprint, he said, in helping the state reach its goal of reducing wastes by 90 percent.

"I feel like it's a reasonable goal," Johnson said. "The only thing we have to do is educate the public and make recycling centers as convenient to the public as possible. The money's there—if you make it worthwhile as far as the money going into the consumer's pocket—it will work."

FOOTNOTES

[1]Assistant Attorney General Nancy Scott told *Insight* that in February 1987, "A policy decision was made to protect groundwater to the drinking water standard," which was "another way to interpret existing rules. It is a difference in how the [groundwater] standard is accomplished." That policy decision requires

either liners or impermeable clay liners in sanitary landfills. Officials at the Department of Human Resources and at the Attorney General's office agree that the policy is an unwritten one, but it may by incorporated into the N.C. Administrative Code in 1988.

[2]Memorandum of Agreement, "Coordination of the Solid and Hazardous Waste Management Program of the Division of Health Services, Department of Human Resources and the Division of Environmental Management, Department of Natural Resources and Community Development," signed June 4, 1987, by the N.C. Secretaries of Human Resources, of Natural Resources and Community Development, and of Administration.

[3]Proposed "Criteria for New and Existing Municipal Sanitary Landfills," working draft, U.S. Environmental Protection Agency, 1987. See also "Advance Notice of Proposed Rule-Making," Solid Waste Incinerators, *Federal Register*, July 7, 1987.

[4]Philip J. Prete, "Solid Waste Incineration and Air Emissions: Mecklenburg County," An Issue Paper, Dec. 12, 1986, pp. 1-18.

[5]Carolyn Mann, "Garbage In, Garbage Out," *Sierra* magazine, September/October 1987, pp. 20-27.

[6]Sandi Maurer and Cam Metcalf, "Solid Waste Stream Quantity and Composition Study for Buncombe, Madison, and Transylvania Counties, North Carolina," Land-of-Sky Regional Council, Asheville, Jan. 15, 1987.

[7]*Waste Watcher*, published bimonthly by the Southeast Waste Exchange, Urban Institute, Department of Civil Engineering, University of North Carolina at Charlotte.

[8]Betsy Dorn, "Recycling Pays Off: Savings in Money and Landfill Space," *Popular Government*, Spring 1985, p. 23. See also Roger Schecter, "Pollution Prevention," *Popular Government*, Winter 1987, pp. 29-38.

Recommendations

Based on the information in the preceding article, the N.C. Center for Public Policy Research recommends the following:

1. **North Carolina should establish a revolving loan fund for local landfill construction.** North Carolina's county and municipal landfills are rapidly running out of room, with 12 of those landfills having less than two years before they will be full and 35 with less than five years. Because local governments may have difficulty securing financing to open new landfills, the 1988 General Assembly should establish a revolving loan fund to enable county and city governments to open new landfills. The low-interest loans from the loan fund would be paid back to the state to allow continued funding of new landfills. The fund might also be used by counties which decide to band together to open regional waste disposal centers, including regional waste incinerators to reduce waste volume before landfilling the remains.

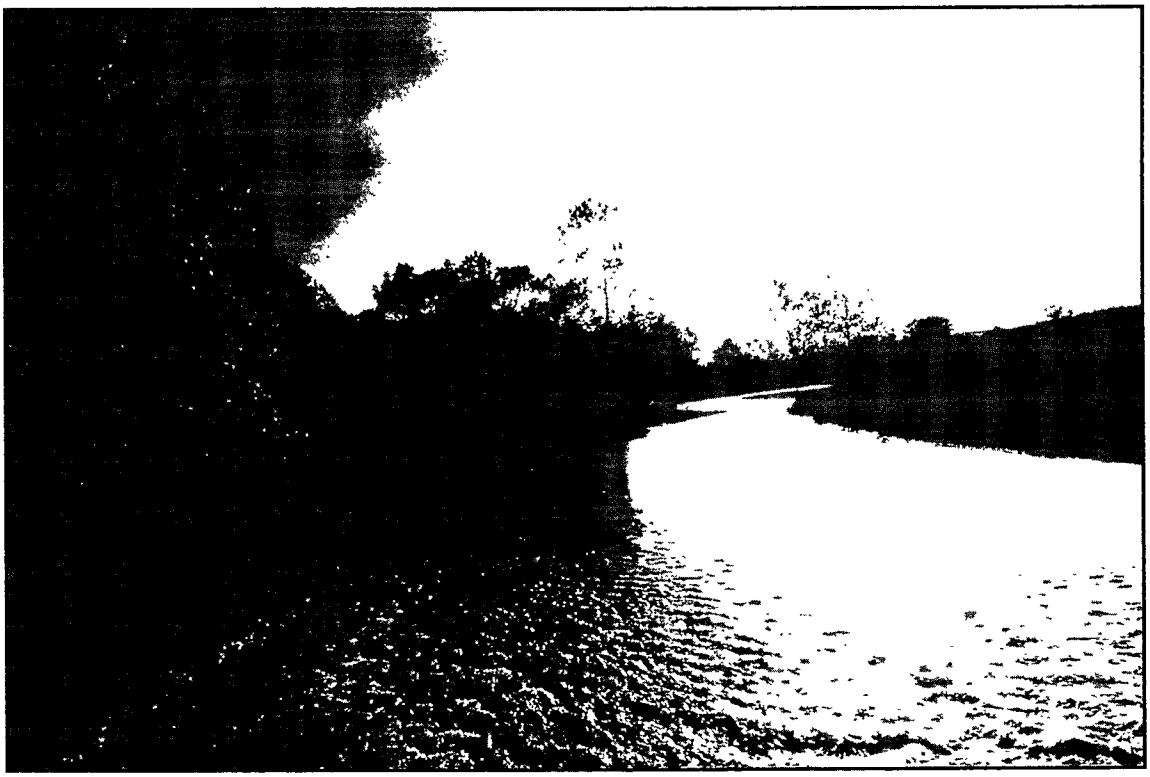
2. **North Carolina should clarify its landfill requirement rules.** State policy currently requires cities and counties to install expensive liners in new landfills unless soil conditions obviate their need. But so far, the state has not adopted the liner requirement as a part of the N.C. Administrative Code, despite N.C. General Statute 150B-2 (8a). That law requires that "any agency regulation, standard, or statement of general applicability that implements or interprets laws enacted by the General Assembly or Congress or regulations promulgated by a federal agency or describes the procedure or practice requirements of any agency" be incorporated into the Administrative Code. To avoid confusion over this policy and forestall legal action challenging the policy, the Department of Human Resources' Division of Health Services should formally adopt rules involving landfill liners.

3. **The state should expand funding of the model Pollution Prevention Pays program.** This program, which has helped the state reduce its production of solid and hazardous wastes substantially, promises increased savings in terms of waste reduction. Yet the 1987 General Assembly cut its research budget in half and declined to increase its staff. The 1988 legislature should restore its research budget to $300,000, and increase its operating budget to expand its staff and provide more technical services to local governments wishing to avail themselves of the program.

4. **Similarly, the state should consider expanding the Department of Human Resources' Technical Resource Unit,** which also works with local governments in waste reduction and recovery.

5. **The General Assembly should examine whether a beverage container deposit law** would (a) significantly reduce solid waste and thereby address local problems, and (b) harm the growing container recycling industry in North Carolina. A legislative study commission may be the best way to determine the answers to these questions.

—*Jack Betts*

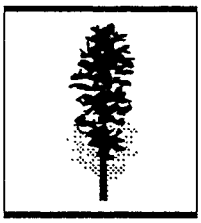


Robert Llewellyn

Clean Water— A Threatened Resource?

by Frank Tursi and Bill Finger

Water quality and water supply problems have reached the 17 river basins and 820,000 wells in North Carolina (no state has more wells). Fish kills, oxygen-depleted water, and other evidence point to a lethal mixture of pollutants in the state's surface waters. *Meanwhile, underground storage tanks and other pollution sources endanger the state's* groundwater system. *As the population grows, water supply needs increase along with sources of pollution. How can North Carolina manage the dual challenge of protecting water quality and ensuring an adequate water supply?*



The blue crabs spilled out of the plastic bucket onto the big wooden table. They scurried in all directions, trying to outrun the gloved hand that approached. One male stood his ground and raised his claws defiantly. Bill Mayo grabbed the crab and held it out for inspection. Almost a quarter of the crab's shell was gone, as if it had just dissolved away. Its organs were visible through the hole.

"I ain't seen nothing like it," said Mayo, who's been a commercial crabber on the Pamlico River for most of his 50 odd years. "I've been working the water all my life and I didn't think nothing could eat through a crab's shell." Bacteria can, and last summer they started eating holes in crabs in the Pamlico River in Beaufort County.

Four years ago, a mysterious fish disease leaving ugly red sores on its victims began killing millions of menhaden, causing fishermen to begin to notice that things weren't right on the river. Once common sea grasses were disappearing, and the oysters were vanishing. So were the striped bass.

"Something's wrong out there," Mayo said one day in late summer as he unloaded his day's meager catch at a crab packing house on the south side of the river. "I don't know what it is but something ain't right."

The Pamlico is being slowly poisoned by a lethal cocktail of industrial, urban, and agricultural wastes. Into the river flow the by-products of modern society—herbicides and insecticides, phosphorus and nitrogen, heavy metals such as lead and mercury, and toxins. They are robbing the Pamlico of its life forces.[1]

Two hundred and seventy miles inland, lush Piedmont farmland straddles the line between Guilford and Randolph counties. In the 1940s, a dam on the Deep River was envisioned to flood this farm country, as both a flood control project and as a source of water for the post-war Greensboro population. Never built when land was cheap and "wastewater" was not yet in the dictionary, the project remains on the drawing board today. Wastewater problems in the Deep River, which flows by High Point and would be captured by Randleman Dam, have delayed the project. A 1984 editorial in the *Greensboro News & Record* cautioned that pollution in the Deep River could make the Randleman reservoir "a giant cesspool."[2]

While the dam would be built in Randolph County, much of the reservoir would back up into Guilford. When federal money appeared to be available, the Randolph County commissioners, including stock car racer Richard Petty, objected, but the Guilford County commissioners favored it. By the time all the local officials signed on, the dam was no longer needed to control floods, and hence the federal funding was lost. The Randleman Dam reservoir, in short, has hardly gotten past the checkered flag.

If the Randleman Dam project moves no further than it has in the last 40 years, the Guilford officials may have to turn to the Dan River basin. "This alternative would involve a transfer of water from a river basin outside the Greensboro area," says David H. Moreau, director of the Water Resources Research Institute, part of the University of North Carolina system. This process is called an "interbasin transfer."

With a few notable exceptions, North Carolinians have always been able to count on a clean, abundant supply of water. Fish kills and water shortages have not plagued this state. The horrors of Boston Harbor, the Chesapeake Bay, and oil spills on the Monongahela River in Pittsburgh have always been someone else's problems. But with the dying fish and scores of other signals of declining quality, together with droughts in 1986 and 1987, North Carolinians cannot take bountiful, clean water for granted any longer.

In the last decade, the state's population has grown rapidly, about 1.5 percent a year, to 6.3 million people, the 10th most populous state. More people mean more demand for water, and shortages have begun to appear regularly in some parts of the state. With those new residents come new businesses and industries, new housing subdivisions and condominiums. Growth may be good for the state's economy, but it may be overpowering its rivers and streams. Likewise, groundwater is no longer invulnerable to the abuses that pour into the streams and rivers. More than half of the state's residents depend on underground aquifers for their drinking water. But now, leaks from underground storage tanks, seepage from sanitary landfills and septic tanks, and pesticides from farm runoff threaten the state's groundwater supplies.

The number of industrial, municipal, and private sewage-treatment plants that dump their wastewater into the state's waterways is growing rapidly. North Carolina now has the somewhat dubious distinction of having the most federal wastewater dis-

Frank Tursi, a reporter and editor for the Winston-Salem Journal *since 1978, currently covers environmental issues. Bill Finger has been editor of* North Carolina Insight *since 1979.*

charge permits of any state in the Southeast, including the boom-state of Florida. The cumulative number of such permits in North Carolina jumped from 1,500 in 1980 to 3,159 in 1986, an 111 percent increase.

The N.C. Division of Environmental Management (DEM) has the job of processing these permits and inspecting the facilities for compliance. The engineers are working nights and weekends just to keep up with the 100 or so new requests for permits that come in *each month.* The inspectors cannot possibly get to all the permit sites, some of which go years without an inspection. "We've still got over 600 requests for discharge permits on backlog," says George T. Everett, deputy director of DEM. "We can't catch up at the rate we're going." Meanwhile, the added wastes are damaging rivers and streams. Some can no longer absorb large amounts of additional wastes and still spawn fish or remain sources of drinking water. Other rivers and streams are approaching that point (see sidebar on page 66).

The state's water system is divided into two parts—the overland system of streams, rivers, basins, lakes, estuaries, and reservoirs known as *surface water;* and the underground system of waters known as *groundwater.* Separate legal and administrative systems regulate and monitor surface water and groundwater. In addition, the systems regulating water *quality* are different from those that affect water *supply.* The state agency that sets most of the rules and regulations for water is the N.C. Environmental Management Commission (EMC), composed of 17 citizen appointees meeting monthly.

Water may be to the 1990s what energy was to the '70s: an abundant, undervalued resource taken for granted, but with the potential for great economic disruption if mismanaged. How much time does the state have to change its rules and the public to change its habits?

"The decisions made over the next three to five years will determine the ability of this state to grow economically and socially and still preserve environmental quality," says R. Paul Wilms, director of the Division of Environmental Management, the primary staffing office for the EMC.[3] "I am hopeful that we still have three to five years to make those decisions, that the time hasn't slipped past us."

◆

North Carolina now has the somewhat dubious distinction of having the most federal wastewater discharge permits of any state in the Southeast, including the boom-state of Florida.

◆

The Federal Carrot and Stick—The Clean Water Act

North Carolina has 37,000 miles of streams and rivers and millions of acres of reservoirs and lakes. Forty years ago, nobody gave all that water much thought. Like most states, North Carolina didn't make a serious effort to curb water pollution until after World War II. In 1950, there were about 250 communities with more than 2,500 people. About two-thirds either weren't treating their sewage at all or had very minimal treatment. The city of Raleigh was dumping raw sewage into the Neuse River.

In response to such actions, the 1951 General Assembly directed the State Stream Sanitation Committee, the forerunner of the Environmental Management Commission, to begin the state's first comprehensive water-pollution program. The committee classified waters as to their "best uses," surveyed the extent of the pollution, and started pollution-control programs.

The "best-use" classification system begun in the 1950s has been refined over the years. Today, all surface fresh water is classified into two general categories: water supplies (6,380 miles) and fishable/swimmable (30,998 miles). There are sub-classifications in each category and new classes such as "nutrient sensitive" and "outstanding resource waters."[4]

The federal government got into the act in 1956 by making technical and financial assistance available to local governments for water pollution controls. The federal role expanded in 1965 when

Bill Wade, The Pittsburgh Press

Volunteer fireman helps people near Pittsburgh, Pennsylvania, fill containers with drinking water. When an Ashland Oil Co. storage tank burst and sent one million gallons of diesel fuel into the Ohio River, towns had to import water for their needs.

Congress established minimum criteria for state water-quality standards. Congress took the next step in 1972 with the passage of the Federal Water Pollution Control Act. Amendments to the act in 1977 gave the law its popular name, the Clean Water Act.[5]

The law mandated a clean-up of the nation's waters and included a range of regulatory management features. Local governments found them easier to swallow because of the hefty financial incentives that came with them. The carrots for stiff new regulations were grants for municipal sewage treatment plants. The federal money covered up to 75 percent of eligible costs.

Two sections of the 1972 act had the most impact on regulating water quality. Section 402 required that all so-called "point sources" of pollution have a permit with the ponderous title of National Pollutant Discharge Elimination System, or NPDES. *Point sources of pollution* are places where industries and sewage-treatment plants (private or governmental) discharge wastes into the state's surface waters. The NPDES permit sets limits on each pollutant that these facilities can discharge into rivers and streams. Second, Section 404 required a permit from the U.S. Army Corp of Engineers prior to the discharge of dredged or fill materials into U.S. waters, including wetlands.

In addition, the act recognized that *"nonpoint sources"*—runoff from agricultural fields, animal pens, parking lots, and streets, for example—were major contributors of pollution. To control those, the act called for "areawide waste-treatment management planning" which could include stricter land-use measures and programs to reduce pollutants carried by soil erosion and stormwater runoff.

Along with all this came more than the usual government red tape and the grumbling of local officials who resented the federal muscle. Even so, local officials couldn't very well ignore all those federal dollars that were building sewer systems and treatment plants and keeping water and sewer bills so low. So the Clean Water Act became the nucleus around which states built their water-pollution programs.

Federal money, though, has been cut back severely since the gravy days of the mid-1970s and will be phased out totally after 1995.[6] "The federal hooker in this thing has always been the money," says Moreau of the Water Resources Research Institute. Under the Clean Water Act, the Environmental Protection Agency (EPA) has the responsibility of monitoring water pollution, and it can delegate the NPDES permit system to individual states. The states generally want to administer their own permit system, to control the program in-state. Local governments, meanwhile, had another kind of incentive to meet the wastewater treatment regulations.

Since 1973, under the Clean Water Act, nearly $700 million in federal dollars have gone into public wastewater-treatment plants in North Carolina. To get that money, communities had to develop plans on wastewater treatment. When the federal money ends, local communities will no longer have to develop such plans, since state law does not require them. "The only way the feds have been able to get them to do this stuff is by hanging those big bucks out there," says Moreau. "Now comes the question of

what to do in place of that."

The carrot and stick approach has worked on the water *supply* side as well. Federal funds have helped build water supply projects while the Section 404 dredge-and-fill permit generally has applied to dam construction for water supply projects. As with water quality, the ballgame is changing for water supply. "The federal government, pushed by the budget deficit crisis, is rapidly withdrawing from its previous role of assisting with water supply projects," says John Morris, director of the N.C. Division of Water Resources. "There are no more Corps reservoir projects on the planning horizon for North Carolina."

With such changes underway, the need for more state and local initiatives are critical. "We've never had a comprehensive water-supply planning program on the state level," says Moreau. "What are we offering in place of the federal planning requirement?" asks Moreau. "Nothing."

North Carolina towns aren't alone. A survey of 700 communities in the Southeast by Moreau's institute found very few do adequate planning for water supply and quality.[7] The Commission on the Future of the South, a project of the Southern Growth Policies Board, found the same thing. The commission recommended in 1986 that states adopt strategic statewide management plans by 1992 that would provide strong protection for water quality and assure adequate water supply.[8] Florida has moved closest toward reaching this goal.

Permits for Point Pollution— A System Overwhelmed

In 1975, the EPA delegated the responsibility to North Carolina for administering the NPDES permits. The state has built a water-quality program that includes monitoring for problems, inspections for compliance, and, starting in February 1987, limits on the amount of toxins that can be dumped into the water. Meanwhile, the state has gradually become more involved in regulating groundwater.

The Water Quality Section in the Division of Environmental Management has the job of issuing permits, inspecting the facilities once they're operating, and checking the monthly *self-monitoring* reports that each permit holder is required to file. Until recently elevated to deputy director of the division, George Everett directed the water quality staff. With the current staff and budget, the section can administer 2,500 permits, says Everett. As of January 1988, 3518 facilities had NPDES permits in North Carolina, more than any other state in the Southeast. In addition, 577 other facilities have requested new or renewal permits which have not yet been processed. No other state in the Southeast has as big a backlog.

◆

Water may be to the 1990s what energy was to the '70s: an abundant, undervalued resource taken for granted, but with the potential for great economic disruption if mismanaged.

◆

In 1982, the state issued 341 NPDES permits. Four years later in 1986, 943 permits were granted. Last August, a typical month, the state issued 84 permits and got 88 new requests. And these numbers only refer to the initial permit request (see Table 1).

Inspectors can't possibly visit each plant regularly. Major municipal treatment plants are checked yearly for compliance, Everett says. Some smaller dischargers go five years between inspections. More than half of the 266 public water supplies that rely on surface waters now are downstream from at least one discharge point. Since inspections are so rare, the water quality staff has to rely on the monthly reports filed by the dischargers themselves. The inspections and reports indicate that about 40 percent of the municipal treatment plants and 21 percent of all other N.C. dischargers currently *do not* meet the standards of their permits.[9]

"Plant inspection is a real problem," says Lisa Finaldi, executive director of the Clean Water Fund

of North Carolina, a nonprofit research and advocacy organization based in Raleigh. "The state could go beyond a self-monitoring system and inspect more plants more frequently but not without more funding for more inspectors."

State Rep. Joe Hackney (D-Orange) goes further. "The NPDES program does not work," he says. "In our state, we depend largely on self-monitoring. You can't protect the water quality relying on self-monitoring." Hackney has sponsored much of the legislation promoted by environmental groups in recent years.

Regular monitoring becomes particularly important, Finaldi says, when it comes to so-called *package-treatment plants*. These are small, private plants that treat mostly domestic wastewater from residential subdivisions or condominiums, each dumping 5,000 to 1 million gallons a day into streams and rivers. Some of that discharge meets standards and some doesn't, depending on how well the plants are operated and maintained.

There are about 1,500 such plants in North Carolina, and they represent the bulk of the new NPDES permits being issued.[10] On the Yadkin River, for instance, five such plants are discharging about two miles upstream from Winston-Salem's freshwater intake. Wake County has about 40 of them. In all, package plants make up about one of every seven NPDES permits (14 percent), so many that state inspectors check each one only about once in five years.

"I'm disturbed by the poor record of the reliable operation of these plants," says Finaldi. "For example, in New Hanover and Pender counties, there has been a history of poorly maintained and operated package plants. Sludge is being discharged into creeks, and some plants are providing no chlorination for extended periods of time."

State officials do not view package-treatment plants with such alarm. First, these facilities work well if they are properly operated and maintained, explains Wilms. "They do have to file monthly reports. It's very difficult, despite what people say about the fox watching the henhouse, to falsify these reports," he adds. Wilms thinks these small plants have a compliance record that is at least as good as municipal plants.

But Everett isn't so sure. "Probably not," he says. "Our problem is that we don't get to them enough to tell you."

That should change. The General Assembly last year allowed the Division of Environmental Management to raise its fees for an NPDES permit from a maximum of $1,500 for a five-year permit to $7,500. The increase will raise an additional $1.7 million which could be used to hire about 45 people.[11] The results should be more frequent inspections, better monitoring, and more careful permitting. If it's not, Everett's not afraid to ask the legislature for more. Some states, says Everett, charge $900,000 for a five-year permit—*more than 100 times* what North Carolina can charge even under the new enabling legislation.

The Nonpoint Sources—The Toughest Challenge?

As problematic as the permit system is, the bulk of surface water pollution in North Carolina comes not from wastewater discharges directly into the waterways but from nonpoint sources. That includes runoff from farmland, feedlots, and cleared land; residue from car exhausts washed off highways into drainage ditches; failing septic systems; and stormwater runoff. The data on the "best-use" of water systems show the damage done by nonpoint sources.

All surface waters have a best-use classification (drinking, swimming, etc.). With increased pollution, a stretch of water can move down to a lower level "best-use" category. When this happens, the water does "not support its best use." In 1987, 71 percent of the rivers and streams that *did not support their best uses* were being polluted by nonpoint sources (for lakes/reservoirs, it was 50 percent; for sounds/estuaries, it was 65 percent).[12]

"What we don't have a good handle on yet in this state are the unregulated and certainly more ubiquitous and probably more important inputs from nonpoint sources," says Wilms.

Herbicides, insecticides, and heavy metals flow into the water system from nonpoint sources. The most important pollutants may be the organic nutrients phosphorus and nitrogen, which are the basis of many fertilizers and are also in animal wastes. They wash off of fields and feedlots, and even backyard lawns, with each rain and eventually settle in the water. A certain amount of the nutrients keep a river, stream, or lake healthy and productive. But too much will lead to excessive plant and algae growth, called algae blooms, which can deplete water of its dissolved oxygen and can contribute to fish kills.

Coastal rivers and sounds are especially susceptible to excessive nutrient loading. The Pamlico River is a case study. The river is little more than a

Robert Llewellyn

Go underneath the river bed;
To burn the river down;
This is where they walked, swam;
Hunted, danced, sang;
Take a picture here;
Take a souvenir. Cuyahoga.
—From "Cuyahoga," by R.E.M.

settling pond for the Tar River, which drains from 16 coastal and Piedmont counties, mostly in prime farmland. Corn requires heavy doses of nitrogen-based fertilizer, which runs off in the Tar River and ends up in the Pamlico. State officials estimate that 78 percent of the nitrogen that enters the Pamlico each year comes from non-point sources.[13]

When nonpoint and point sources of pollution combine, the lethal cocktail goes to work. In the Pamlico River, the nonpoint nitrogen mixes with phosphorus entering the river from sewage-treatment plants and from Texasgulf Chemicals Company. Texasgulf operates a massive phosphate mine and fertilizer plant on the river and legally dumps about 3,000 pounds of phosphorus *a day* into the river.[14] The result of all of this is algae blooms, now common on the river, and episodes of oxygen-depleted or "dead" water, as the fishermen call it. Dead water used to occur only on the hottest days of the summer and in the deepest part of the river. But now fish kills happen year-round at all depths.

Another source of pollution, the phosphate used in detergents, also contributes to the fish kills. In 1987, after several years of strident debate, the legislature passed a ban on phosphate detergents.[15] Some environmentalists feel the bill was watered down in the legislative process, but the new law does apply to the two major sources, household and commercial laundry detergents. The Environmental Management Commission has also adopted regulations to reduce the phosphate load at wastewater discharge plants.

Rep. Hackney, who spearheaded the phosphate-ban bill, thinks the state's programs to control non-point sources have "made great strides. The money is not wasted," he says. "It has a long-term payback."

In administrative and legal systems, nonpoint pollution falls into three groups—agriculture, land development, and coastal development. These types of pollution flow together, if looking at it from the water's point of view. But separate agencies are in charge of each program.

Agriculture. In 1984, the state began encouraging landowners to control sedimentation and runoff through such means as crop rotation, conservation tillage, and animal-waste systems—called "best management practices" or BMPs. The state offers technical assistance and will help pay for the programs. Since the cost sharing began, almost 2,500 landowners have signed three-year agreements to use BMPs on some 200,000 acres. State officials believe the program has saved about 570,000 tons of soil a year. Estimating the extent to which this soil retention reduced nonpoint pollution is difficult, however.

The N.C. Division of Water and Soil Conservation, which coordinates the program, began working in 23 coastal counties. In 1987, the program was expanded to 33 more counties, many in the west. Called the Agriculture Cost Share Program for Non-Point Source Pollution, it also covers "nutrient sensitive" areas. The Environmental Management Commission has designated as nutrient sensitive areas Jordan Lake and Falls Lake in the Raleigh-Durham-Chapel Hill Triangle, the Chowan River (which separates four counties in the northeast before spilling into the Albemarle Sound), and just this January, the entire Neuse River area from below

Falls Lake all the way to New Bern. This classification requires more stringent pollutant levels in NPDES permits and various land-use controls.

A three-year old federal law also should help with the nonpoint pollution. The conservation compliance provisions of the federal Food Security Act of 1985 require that farms with highly erodable land prepare a conservation plan by 1990.[16] Plans have to be in effect by 1995. Landowners who don't comply with this and two other provisions already in effect (the "sodbuster" and "swampbuster" sections) will not be eligible for price supports, crop insurance, disaster relief, and other federal programs.

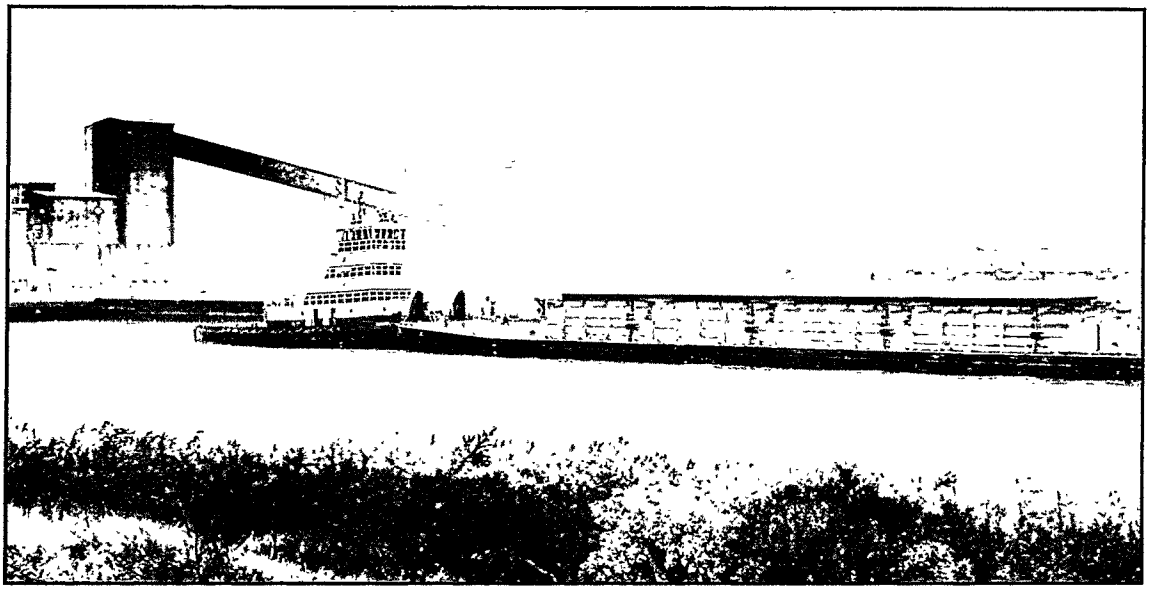
Water pollution from agriculture highlights the conflicts that can occur with state economic development goals. As poultry farms have sprung up across North Carolina, for example, most economic development specialists have applauded this diversification of the state's agricultural base. (The state now ranks number one nationwide in poultry production, which has also moved ahead of tobacco as the state's number one agricultural product.)[17] "But poultry manure is a serious non-point pollution problem," says George Everett. "Few farmers have enough land to absorb all the chicken droppings as fertilizer in their fields. It has to go somewhere."

Land Development in General. Engineers know that when concrete replaces trees and other vegetation, more pollutants can run into the surface water faster. Development allows water to flow across the land and pavement and into the surface water rather than seeping into the vegetation and the groundwater. With disturbances of natural vegetation, water carries red clay, sand, and other sediments that settle to the bottom of streams and ponds.

The N.C. Sedimentation Control Commission sets standards regarding how sediment must be managed on any development project disturbing more than one acre. Developers must construct retaining ponds or use other means to mitigate the damage caused by excessive sedimentation. Agricultural and forestry lands are exempt from the standards. The monitoring and enforcement of the sedimentation regulations are considered a land-management, not a water-quality, function. Hence, the Land Quality Section within the Division of Land Use Resources has responsibility for this program (see article on page 94 for more).

Coastal Development. Nonpoint pollution issues in the coastal area have special problems due to both the fragile ecosystem involved and the special governmental systems established by the Coastal Area Management Act (CAMA). "Large-scale land clearing, draining, and agriculture has a much more significant impact on coastal water quality than does urban development," says David Owens, director of the Division of Coastal Management. The draining of coastal wetlands for peat mining and other uses

A barge pushes a load of phosphate from Texasgulf Chemicals Company near Aurora to the coast for shipment worldwide.



The Charlotte Observer

has been particularly controversial. This has altered the drainage patterns in many eastern counties, thus contributing to a reduced salinity and a decline in shellfish in many estuaries, including the Pamlico. (For more, see the coastal article on page 70.)

Of growing significance in the coastal area, however, is the impact of development patterns. Until 1985, the state had no comprehensive regulations designed to control stormwater runoff in coastal areas. The concern about stormwater runoff increased because of rapid developments along the shoreline and adjacent to shellfish waters. Like agricultural nonpoint runoffs, rain water washing across developments carry bacteria and other pollutants into the surface water system. Condominiums, shopping centers, and other high-density or commercial projects were causing the runoffs to increase sharply, contributing to the fish kills and contaminating drinking water supplies.

The Coastal Resources Commission, created by CAMA, regulates development in 20 coastal counties through a permit system and other means which focus on land development rather than water quality. A land-use density regulation would have addressed the stormwater issue directly because higher-density developments create a greater stormwater problem. The coastal commission was tackling the stormwater issue in the context of its long history of addressing water quality issues through land regulations. It had already prepared draft regulations when NRCD Secretary Thomas Rhodes asked the commission to stop working on them. "Secretary Rhodes preferred that the EMC do it because they had greater jurisdiction," says Karen Gottovi, a member of the Coastal Resources Commission.

In 1986, the Environmental Management Commission adopted interim stormwater runoff regulations.[18] The regulations required developers of more than one acre within 575 feet of shellfish waters to limit density or to hold up to 4.5 inches of rain (from a 24-hour storm) on the development site. Later in 1986, the EMC proposed permanent regulations which would expand the stormwater runoff requirements to the entire 20-county area covered under CAMA but reduce the amount of rainfall that had to be contained to 1.5 inches. At four public hearings on the proposal, coastal residents and environmental groups strongly objected to what they viewed as a weakening of the standards. Developers objected somewhat to expanding them to all 20 counties but viewed the 1.5-inch standard as less costly.

On Oct. 8, 1987, the EMC adopted the proposed rules. But N.C. Attorney General Lacy Thornburg found that a closed and secret gathering on the night of October 7 of the 10 EMC members appointed by Gov. James G. Martin had a chilling effect on the full EMC meeting the next day. In responding to a question raised by a member of the EMC, Thornburg advised the EMC to consider the October action to be null and void in order to avoid litigation challenging the regulations.[19] The Governor in turn advised the EMC to vote on the stormwater regulations again. On Nov. 12, 1987, the EMC did so and passed the final regulations again, basically the same ones as had been proposed—the 20-county, 1.5-inch rules.[20]

Some observers wondered why the rules could not retain the 4.5-inch standard adjacent to shellfish waters and adopt the 1.5-inch level for the rest of the 20 coastal counties. This combination would have ensured low-density development around shellfish waters. Mary Joan Pugh, NRCD assistant secretary for natural resources, says, however, "It is not the EMC's job to determine development densities or the pattern of land-use [but] to set standards that protect the quality of the environment, in this case, water."

The Water Under the Ground

Stormwater runoff, other nonpoint pollution sources, wastewater discharge, NPDES permits—all affect the quality of the state's system of surface waters. The federal Clean Water Act and most state laws have emphasized this system. But the quality of groundwater in North Carolina is gaining attention, as the dangers to this resource increase.

Statewide, 55 percent of North Carolinians depend on wells for drinking water; in rural areas, the figure is 85 percent. The state has 820,000 domestic wells, more than any other state, and 5,100 community wells, fourth highest among the states.[21] But it doesn't have good laws to protect them, agree experts such as Moreau and Wilms. In 1983, groundwater aquifers were classified under the state's water quality statutes.[22] That is a cumbersome way to protect an extremely valuable water supply, says Wilms.

"We need a groundwater protection act in this state, and that's one of the things I'm going to be pressing for," says Wilms. "It will be a significant piece of legislation and a significant debate."

Currently, an elaborate system of test wells around the state checks on groundwater supply and quality. All of the water in the state's eight principal

underground aquifers is classified as drinking water. So far, no major groundwater supplies have been lost to pollution. Two, though, may soon be reclassified as so polluted that they will never be potable again. One area is near a chemical plant in Buncombe County, and the other is under a landfill in New Hanover County. If this happens, people living in these areas would not be allowed to use well water, as they currently do.

"We know we're just seeing the fringe through a lot of isolated, small cases," says Perry Nelson, head of the Groundwater Section in Wilms' division. Each year, Nelson's staff investigates about 200 reports of groundwater pollution. Last August, there were about 300 cases still active. About 75 percent of the incidents, says Nelson, are caused by leaks in underground storage tanks. There are some 100,000 such tanks in the state, and 35 percent of them may be leaking, the division estimates.

Both legislators and environmentalists have been concerned about these storage tanks. In 1985, the legislature gave the Environmental Management Commission the authority to govern the location, construction, installation, monitoring, leak detection, repair, and operations of underground tanks used for the storage of oil and hazardous substances.[23] But the bill did *not* include funding to clean up existing leaks.

The 1985 action prompted a Legislative Study Committee on Underground Storage Tanks. It reported to the 1987 General Assembly, recommending a $1 million appropriation to the EMC to begin investigating and cleaning up leaking underground storage tanks. But the legislature did not act on this recommendation. Meanwhile, oil distribution companies were realizing that aging storage tanks could begin to leak, which would cause them problems with liability insurance. A bill addressing the insurance problem (HB 1304) passed the House and could be taken up in the N.C. Senate in the "short" 1988 session. The 1987 legislature also authorized another study committee on the issue.

The liability issue, viewed together with existing statutes regarding oil leaks, has complicated the legislative discussions over HB 1304. Rep. Hackney believes the EMC already has the authority to force oil companies to clean up any leaks. "We have strict liability for petroleum spills," says Hackney. Dan Oakley, special deputy attorney general, supports this view. "The Oil Pollution and Hazardous

Table 1. NPDES Permits, 1977-1988 (Selected Years) Number and Type of Permit, As Percent of Total Issued

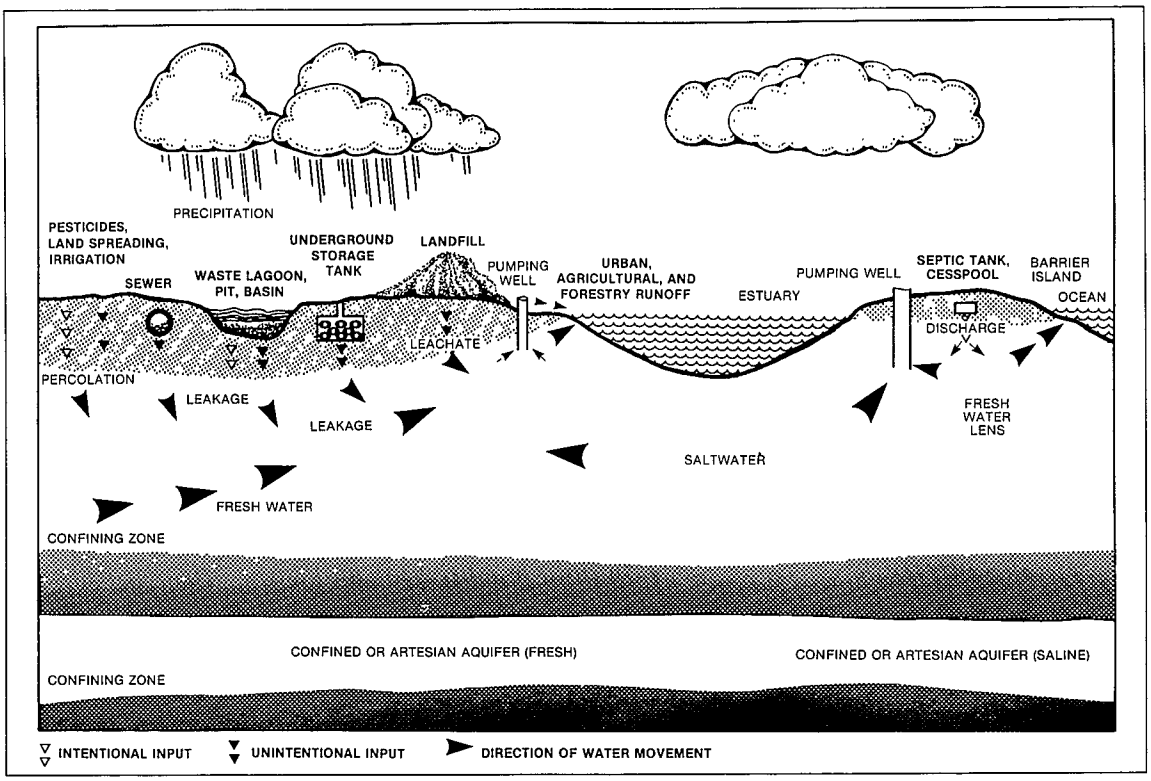
Type of Wastewater Discharger	1977 #	1977 % of Total	1980 #	1980 % of Total	1983 #	1983 % of Total	1986 #	1986 % of Total	Cumulative Total of Permits in Effect[2] (Jan. 1988) #	Cumulative Total of Permits in Effect[2] (Jan. 1988) % of Total
Municipalities	157	26%	59	30%	31	7%	49	5%	308	9%
Non-Municipal										
Major Industries	33	6%	21	11%	52	11%	18	2%	98	3%
Minor Industries[1]	404	68%	119	60%	375	82%	616	65%	2,612	74%
Package-Treatment Plants[1]	NA	NA	NA	NA	NA	NA	260	28%	500	14%
Total Issued	**594**	**100%**	**199**	**100%**	**458**	**100%**	**943**	**100%**	**3,518**	**100%**
Cumulative Total of Permits in Effect	**700**	**100%**	**1,500**	**100%**	**2,489**	**100%**	**3,159**	**100%**		

FOOTNOTES

[1]Separate data on package-treatment plants were not kept during 1983 or previous years. In the above data for 1977, 1980, and 1983, NPDES permits for package-treatment plants are included in the "minor industries" category.

[2]These numbers are estimates because the data was not broken down into these categories for 1977, 1980, and 1983.

Source: Water Quality Section, N.C. Division of Environmental Management



Department of Natural Resources and Community Development

Sources of Groundwater Contamination

Substances Control Act is a strict liability statute," says Oakley.[24]

The bill that passed the House in 1987 would weaken that liability. "The oil companies would put up the money for a clean-up fund if we do away with some of their liability," says Hackney. "The bill shifts the liability to the fund and away from the assets of each individual company—if the company chooses to use the fund. And consumers would be the source of the money for the fund. But the main point for those who supported [House Bill] 1304," he continues, "is that it's more important to get a pot of money to get the cleanups going in the near term than to rely on any separate state appropriation or executive action. The way to get action is to create some sort of fund where the money is readily available to clean them up. I support getting HB 1304 on through the legislature."

Sanitary landfills present another huge problem. Rainwater percolates down through a landfill and into the water table. This liquid filtering into the groundwater is called leachate; the chemicals in the leachate vary according to what's dumped in the landfill. The state recently began requiring liners to prevent leachate from getting into the groundwater.[25] Only one of the 150 sanitary landfills currently operating with a state permit uses a special liner, the one in New Hanover County. (For more on liners, see article on solid wastes, page 40.)

Water Supply— Drought and Growth Ups the Ante

North Carolinians have generally enjoyed an adequate supply of water, thanks to a dispersed population and a generous amount of rain which feeds our rivers and aquifers. But as the state grows, water shortages are becoming more evident in several areas, particularly in areas of high growth where water supply is naturally limited. Greensboro and Hillsborough, for example, are in the upstream ends of river basins where streams are small. In the coastal plain, Kinston, Jacksonville, and New Bern have depended heavily on groundwater for decades. Now the pressure level in the aquifer is dropping, creating concerns about the long-range water supply. There's rapid growth on the Outer Banks, where the principal water supply is a shallow aquifer of limited capacity. And throughout the state, many reservoirs are now too small to handle emergency drought conditions.

The drought of 1986 highlighted the need for more comprehensive planning. About 50 public water supply systems activated water conservation

programs, including voluntary or mandatory water restrictions. But many had no plans for droughts, and others with plans never used them. Some faced serious threat of running out of water.

"The key to resolving water supply problems is timely, knowledgeable, and cooperative action by local governments, with appropriate assistance from state government," says John Morris. "The state's responsibility is to provide a framework of laws and policies within which water supply problems can be solved, to provide plans or studies of river basins or regions that can guide the more detailed local government plans, to offer technical and financial assistance, and to assure the protection of water quality and fish habitat."

Within this general mission, hard questions will emerge as future water shortages increase. In most cases, the questions inevitably focus on issues of local governments working together—e.g., one municipality buying water from another. Perhaps the most controversial water-supply issue though is transferring water from one river basin to another.

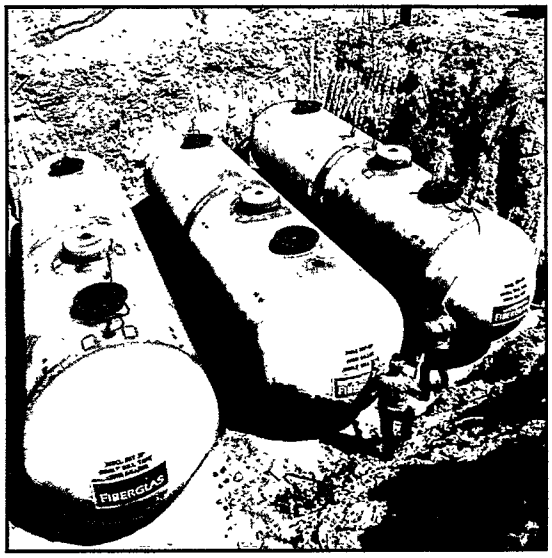
"Inter-basin transfer," as the process is known, has a long history in western states, where water supplies vary to a great extent. Because of the relative abundance of water throughout North Carolina, river-basin transfers have not yet been widely considered. Small scale transfers have been used in North Carolina, increasingly during droughts. But large-scale transfers have been a highly emotional issue. People living in a certain area feel they have a right to their own water.

Virginia Beach, Va., in the Pasquotank River basin, wants to withdraw 60 million gallons of water a day from Lake Gaston, which straddles the state line in the Roanoke River basin. The Army Corps of Engineers issued a permit for the pipeline in 1984, but the state of North Carolina sued, claiming that the pipeline would violate various federal laws. If the federal courts rule in favor of an inter-basin transfer to Virginia, asks Moreau, how could North Carolina defend its position against such transfers? Within the state, pressure is building to transfer water from rural river basins to urban areas. Greensboro, for example, could solve its water-supply problem by transferring water from the Dan River (Roanoke River basin) to the Cape Fear basin.[26]

In the late 1970s, Speaker of the House Carl Stewart (D-Gaston) found out how strong feelings can be on the inter-basin transfer issue. In speeches, he called for a study of whether the state should consider inter-basin transfers or establishing a state water authority. In the 1979 legislative session, he pushed through a measure to establish a $50,000 Legislative Study Commission on Alternatives for Water Management. But the commission ran into opposition from citizens against inter-basin transfers and from interagency turf considerations over who would conduct a statewide assessment of water supplies. The commission met only eight times, returned about $45,000 of its appropriation unspent, and made its position crystal clear on the controversy. "This commission does not recommend inter-basin transfers of water as a means of solving the general water management problems of the state of North Carolina," it concluded.[27] The study commission thus buried any consideration in the early 1980s of the inter-basin transfer issue.

In 1980, Stewart ran for lieutenant governor and lost. "I don't think there's any doubt that my willingness to consider the possibility of inter-basin transfers in the context of future planning of water resources cost me votes in a number of counties," said Stewart in a recent interview. "I don't think we've made significant progress in water resource planning in the last decade. It's the kind of issue," concluded Stewart, "that will be a dominant issue as we approach the turn of the century simply because in reality some inter-basin incursion is almost inevitable."

Three of four reports of groundwater pollution stem from leaking underground storage tanks such as these.



Department of Natural Resources and Community Development

Managing a Threatened Resource

An overwhelming array of problems confront the 18 different state agencies and scores of local offices that have some responsibility for water management (see Table 1 on page 12 for more on these agencies). Many of the short-term problems mentioned above, such as the backlog in permit applications, are rapidly becoming so great that they may require new kinds of intergovernmental arrangements to manage the long-term solutions.

As the federal money—and the requirement for planning—phase out, the state management role becomes paramount. Any community of more than 5,000 to 10,000 people needs a water management plan that can be systematically updated, says Moreau. Such plans should be required as a condition for receiving a state grant for a sewage-treatment facility, he adds. In 1987, the legislature appropriated $21.5 million for the 1987-89 biennium for wastewater and water-supply facilities. The money will be distributed primarily through low-interest loans from a revolving loan account, which will be coordinated by the Office of State Budget and Management. The state action did *not* require local water planning.[28]

From 1973 to 1986, nearly $700 million in federal grants went to N.C. municipalities for new or expanded wastewater-treatment facilities, plus $412 million from state clean water bonds. But the state bonds are gone and the federal money is declining. Some communities will now have to pay as much as 60 percent of the cost of building or upgrading treatment plants, as opposed to the 12.5 percent maximum local contribution required during the height of the federal involvement. And after 1995, the percentage could go even higher.

About $1 billion will be needed to make municipal sewage-treatment plants meet their permit standards. The 1987 reauthorization of the federal Clean Water Act in 1987 requires that all municipal treatment plants comply with state standards by July 1988.[29] Under the Clean Water Act, the Environmental Protection Agency has the power to monitor water-quality standards established at the state level, according to stream conditions. If a state does not run its NPDES system properly, the EPA can assume control of the permit process. This July, a municipality not in compliance with its permit faces tough penalties, unless it can convince a judge to grant an extension.

Between the pressures of drought and the demands of finding money to replace aging wastewater-treatment facilities, municipalities have a hard question to answer. N.C. municipalities currently cover only 76 percent of the cost of wastewater treatment through fees, according to the Water Resources Research Institute.[30] Can municipalities continue to keep the cost of water and sewer services at a price well below cost? Moreau and others believe the legislature should force municipalities to raise water and sewer bills.

"As you put more and more pressure on a constant resource base, it takes more and more intensive management to maintain that quality," says Moreau. "There's ample money out there to pay for reasonable rates for water and sewer service. Local elected officials have no incentive to raise the rates. It's not a popular thing to do." Without such a legislative requirement, explains Moreau, the legislature will remain under pressure by local governments to help pay for the cost of new wastewater-treatment facilities.

Some recent efforts have been made to link water quality and water supply regulations. For example, the Department of Natural Resources and Community Development has begun a watershed protection program tied to the best-use classification system. A local government might want the state to assign a higher best-use classification to a watershed area; such action would require more stringent requirements on point-source polluters. To get NRCD to assign a higher best-use classification, the local government must have a watershed protection plan that controls nonpoint sources. Such a plan often involves density regulations. "Already 40 communities have requested an upgrade in classification and thus have shown a willingness to enact watershed protection measures," says NRCD Assistant Secretary Pugh.

How can the agencies responsible for water supply and quality manage both day-to-day challenges and plan for the future? The task is fraught with technical, interagency, financial, and practical issues. The logical agencies to address such questions are the Environmental Management Commission and the Divisions of Environmental Management and Water Resources. The most urgent issues for consideration, as discussed above, are:

- how—and how fast—communities can develop water management plans;
- how the state can adequately manage a backlogged NPDES permit system;
- whether a new state law is needed to protect groundwater;

–continued on page 68

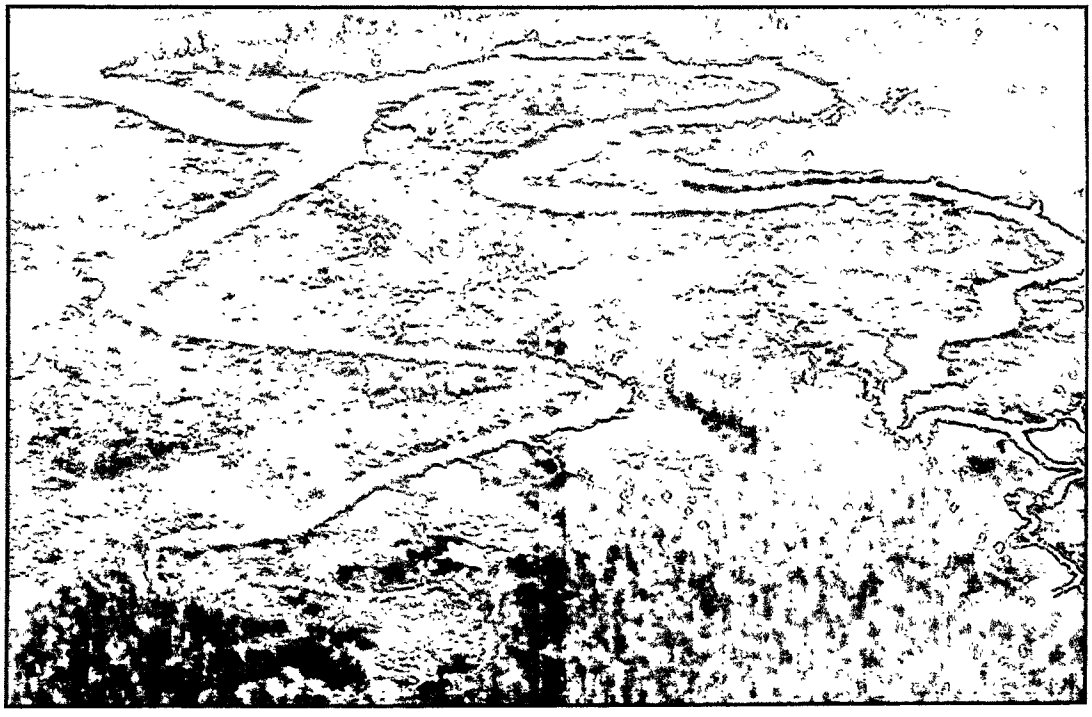
How Much Can the Rivers Take?

Twenty-nine plants dump their waste along a small section of Jackson Creek outside of Cherokee in western North Carolina. In rural Henderson County, 175 facilities discharge into rivers and streams. "At what point do we start having to turn down permits because there are too many on a reach of stream which can't take it anymore?" asks George T. Everett, deputy director of the Division of Environmental Management. "It's just coming up now. It's going to be a big issue that we face, and somebody's going to have to make a big policy decision."

Everett is talking about *"assimilative capacity,"* a cumbersome name for what soon may be a river's biggest and most valued asset. To put it simply, assimilative capacity refers to the amount of waste a stretch of water can absorb. Remember that rivers and streams move waste. It is different from the kind that garbage trucks haul away. Most of it is treated trash. As more and more plants discharge their wastes into the state's waters, those waters become less and less able to absorb, or assimilate, any more. What capacity they have left becomes very valuable.

"We rarely think of assimilative capacity of rivers as a resource, but it's a significant resource," says R. Paul Wilms, head of the Division of Environmental Management. "We are seeing the complete exhaustion of rivers' ability to assimilate additional waste. It's gone. That's a relatively new problem that we're facing."

The problem is peaking in the lower portion of the Cape Fear River basin. Four large companies, the city of Wilmington, and numerous small dischargers use the river for their waste. Everett and Wilms doubt the Cape Fear can take much more. Everett estimates that the river could probably handle a small company that would



Robert Llewellyn

discharge a few thousand gallons of wastewater a day. A large company, with multi-million gallon discharges, would be another matter, he says. What happens, then, when Interstate 40 is completed to Wilmington and large companies want to come to town?

Computers, using elaborate models, figure how much waste a section of water can hold before an NPDES permit is issued, and the state engineers use the results when assigning pollutant limits. Under the theory that everyone is entitled to equal slices of the pie, *the elaborate analysis is done every time a new permit is issued.* That takes the state time, contributing to a severe backlog of permit requests (see main article, page 57, for more). The result is tougher pollutant limits on everyone to make up for the additional waste load. That means more money because all the facilities have to upgrade their treatment of their water discharged when their permit expires. The lower Cape Fear is so close to the threshold, however, that accommodating the wastes of another large company may result in pollutant limits too strict and too expensive for the existing permit holders.

"The continual re-allocation of available assimilative capacity equally among all users manifests itself in ever more stringent permit levels," says Wilms. "Is that really an equitable and effective way to protect water quality? The facilities are never in compliance with final limits. And it's always more expensive."

A better way of assigning waste loads, says Wilms, might be to assign waste capacity on a first-come, first-serve basis in certain overtaxed river basins. Then let capitalism take over. As an example, say the computers figure that the lower Cape Fear can absorb 100 pounds of waste. The state could assign it all to the city of Wilmington for its sewage-treatment plant. If one of the large companies wants 10 pounds of capacity for its waste, it would have to strike a deal with the city. Either the city's plant could treat the company's waste or the city could sell 10 pounds to the company and use the money to recoup the costs of meeting the tighter permit limits that would follow.

Under this system, the waste loads would have a dollar value. Hence, planners would have an economic basis for making decisions on the water's use. Is it, for instance, worth more as a place to move waste or as a drinking supply?

"We would let the market drive those values," says Wilms. "The market does that very well. It would provide decision-makers with a better basis to make decisions than what they have right now, which is essentially nothing in terms of economic value. You can then assess the value of a potential water supply, like B. Everett Jordan Lake."

In 1983, 100 million gallons of water in Jordan Lake were set aside for future drinking water needs. Wilms wonders, though, if that water isn't worth more downstream. It could be used to increase the flow of the Cape Fear River so that the river could absorb more waste and thus accommodate more growth—maybe that big company that wants to move to Wilmington when I-40 gets there.

"Right now, those decisions are made by default," says Wilms. "We built the Jordan Lake impoundment, and part of its capacity is for drinking supplies. We assume that's its highest value. That may be true today, but that may not be its highest value 50 years from now."

Such a policy, he thinks, also would cut the time it takes to process permits and cut into the backlog because there would usually be no need for the time-consuming analysis for neighboring facilities each time a permit is issued.

"I'm hoping that we get to that point," says Wilms. "I'm going to propose that we do that in many watersheds to reduce backlog."

—Frank Tursi

Stream Watch

If you want to see how a broad-based volunteer program can help government work more efficiently, look no further than "Stream Watch." More than 110 local stream watch groups have "adopted" a segment of stream or river, like a person might do with a troubled teenager. Groups do everything from technical monitoring of pollutants in the stream to keeping the creekside cleared of trash. Some stream watch groups are affiliated with environmental organizations, such as the 22 groups joined with the Haw River Assembly. Others are as small as a single person who sends water samples to the state laboratory for regular checks. The Z. Smith Reynolds Foundation has made small grants available to stream watch programs.

Both citizen groups and government officials have high praise for the program. As the 1987 NRCD report on the "State of the Environment" said: "The Stream Watch Program is becoming an important way for citizens to play an active role in managing and protecting the state's valuable water resources." Thousands of miles of streams could still use protector advocates. For more information, contact Jim Mead, director of N.C. Stream Watch, Division of Water Resources, P.O. Box 27687, Raleigh, N.C. 27611-7687, (919) 733-4064.

- whether the new stormwater regulations will protect shellfish waters effectively or have an impact on land-use patterns, and whether they should be extended statewide;
- whether current N.C. law is adequate to resolve competition among public water supply systems, including questions of inter-basin transfers, and competition among industrial and agricultural users;
- whether the state should set minimum water and sewer rates; and
- what action should be taken in areas where rapid growth or increases in water use are threatening to outstrip available groundwater supplies.

On each of these issues, more research and a broader consensus among policymakers, environmentalists, municipal officials, and developers are needed. Only state-level leadership can build a consensus broad enough to support meaningful actions regarding such issues. Is it too late to save the state's water?

"I hope it's not too late, and I have to believe it's not," says Wilms. "But it soon will be. We will have lost our ability to overcome what we've done to the land. We'll just have to wait and see. You and I won't see it. But our grandchildren will. I'd like them to look back and say, 'They at least tried.' I hope they don't look back and say, 'Why didn't those people do something?'"

FOOTNOTES

[1]A detailed account of the river's problems appeared in the *Winston-Salem Journal,* April 5-9, 1987, pp. 1A ff.

[2]"Up the Polluted River," *Greensboro News & Record,* Feb. 19, 1984, p. 12A.

[3]While the Division of Environmental Management plays the central staffing function for the EMC, the Division of Water Resources and the Division of Land Resources provide staff assistance to the EMC on water supply and water management and on dam safety issues, respectively.

[4]15 NCAC 2B .0214 and 2B .0216, respectively.

[5]33 U.S.C. 1251 et seq. For historical background on the state's water-pollution control program and the components of the Clean Water Act, see David Moreau, "Water Management: A Tenuous State/Local Partnership," *North Carolina Insight,* June 1984, pp. 66ff.

[6]Construction grants for water and sewer facilities ranked fifth among the largest cuts in federal aid to North Carolina in the sweeping budget cuts made after President Reagan came to office. For more, see, Jim Bryan et al., *Federal Budget Cuts in North Carolina,* N.C. Center for Public Policy Research, April 1982, p. ii.

[7]Raymond J. Burby, David H. Moreau, and Edward J. Kaiser, "Financing Water and Sewer Extension in Urban Growth Areas—Current Practices and Policy Alternatives," Water Resources Research Institute, September 1987, p. 25.

[8]"Education, Environment, and Culture: The Quality of Life in the South, 1986 Commission on the Future of North Carolina," Southern Growth Policies Board, Cross-Cutting Issue No. 5, 1987, p. 12.

[9]*North Carolina—State of the Environment Report, 1987,* N.C. Department of Natural Resources and Community Development, April 1987, pp. 5-6, and data from the Division of Environmental Management.

[10]*State of the Environment Report,* p. 6.

[11]Chapter 767 of the 1987 Session Laws, sections 1-3. When the House Judiciary III Committee was considering the fee increase during the 1987 legislative session, George Everett said that the state needs $5 million for the permit granting and inspection process, rather than its $3.9 budget.

[12]*State of the Environment Report,* p. 5.

[13]"Surface Water Quality Concerns in the Tar-Pamlico River Basin," Water Quality Section, N.C. Division of Environmental Management, final draft, April 1987. The report is an excellent technical overview of the problems plaguing the Pamlico River.

[14]*Ibid.*

[15]Chapter 111 and Chapter 817 of the 1987 Session Laws, now codified as G.S. 143-214.4.

[16] 16 U.S.C. 3801, *et seq.*

[17]Bill Finger, "Making the Transition to a Mixed Economy," *North Carolina Insight,* April 1986; see especially pp. 14-16.

[18]15 NCAC 2B .0217; 15 NCAC 2H .0408 and .0409.

[19]Letter from Chief Deputy Attorney General Andrew A. Vanore Jr. to EMC member Anthony R. Combs, dated Oct. 15, 1987.

[20]15 NCAC 2H .1001 to .1004.

[21]*State of the Environment Report,* pp. 10-13.

[22]G.S. 143-214.1.

[23]Chapter 551 of the 1985 Session Laws (SB 831), codified within G.S. 143B-282(2) and 143-215.3(a).

[24]G.S. 143-215.75 *et seq.*

[25]In February 1987, says Assistant Attorney General Nancy Scott, "A policy decision was made to protect groundwater to the drinking water standard," which was "another way to interpret existing rules. It is a difference in how the [groundwater] standard is accomplished." That policy decision requires either liners or impermeable clay liners in sanitary landfills. Officials at the Department of Human Resources and at the Attorney General's Office agree that the policy is an unwritten one, but it may by incorporated into the N.C. Administrative Code in 1988. To avoid a possible violation of the N.C. Administrative Procedure Act, the Center recommends including the policy in the Code.

[26]For more on the legal issues involved, see G.S. 153A-285 and 162A-7, which require that "counties and cities acting jointly or through joint agencies" and water and sewer authorities get permission from the Environmental Management Commission before diverting water from one stream or river to another. The commission is directed to consider seven criteria in evaluating whether to approve a proposed diversion.

[27]"Alternatives for Water Management, Report of the Legislative Study Commission to the North Carolina General Assembly," Feb. 28, 1980, p. 12.

[28]Chapter 796 (SB 110) of the 1987 Session Laws, now codified as G.S. Chapter 159G, "North Carolina Clean Water Development Loan and Grant Act of 1987."

[29] 33 U.S.C. 1311(i). The new amendments to the act force additional emphasis on a "water-quality based" approach to regulating sources of pollution, in contrast to the old "technology-based" approach. Currently, categories of dischargers (e.g., paper mills, textile mills, petroleum refineries) are required to meet specified national standards of performance in removing pollutants from their wastewater; the standards are based on the best treatment technology. The new water-quality approach, instead, examines the receiving waters to determine the types and amounts of pollution which can be assimilated without impairing the designated uses of the waters.

[30] David H. Moreau and Dale Whittington, "Financing Water Supplies and Wastewater Services in North Carolina in the 1980s," Water Resources Research Institute, Report No. 212, February 1984, p. 14.

Robert Llewellyn

Beside the grand history of the glaciers and their own, the mountain streams sing the history of every avalanche or earthquake or snow, all easily recognized by the human ear, and every word evoked by the falling leaf and drinking deer, beside a thousand other facts so small and spoken by the stream in so low a voice the human ear cannot hear them. Thus every event is written and spoken. The wing scars the sky, making a path inevitably as the deer in the snow, and the winds all tell it though we hear it not.

—John Muir from "Trails of Wonder"

Carol Majors

Upcoming Issues on the Coast

by Todd Miller

Coastal North Carolina contains an estuarine system second in size only to Louisiana's in the lower 48 states. The region includes 4,500 square miles of shallow sounds, bays, tidal creeks, and salt marshes, as well as over 315 miles of ocean beaches. Pamlico Sound is the nation's largest body of water behind a barrier island.

The region's impressive natural features are attracting more and more people. The coast contains three of the four fastest growing counties in North Carolina. More than 18,000 people per year are moving into the counties within the watersheds of Pamlico and Albemarle Sounds. The population of coastal North Carolina is *expected to double by the year 2000.*

Crowded out of an ocean front that is now almost entirely developed or in public ownership, new residents look to buy property along the coast's sounds and rivers. When a tobacco farmer in Carteret County discovered that the value of his Bogue Sound farm had increased to over $10,000 an acre, it didn't take long for him to sell to real estate agents from Raleigh. Similar transactions throughout the rural coast are setting the stage for a new wave of coastal development. The growth presents a major

Todd Miller is executive director of The Coastal Federation, a citizens advocacy group based in Carteret County, North Carolina.

threat to an already endangered coastal environment.

"Over the past 20 years, there have been significant efforts to protect these resources," writes David W. Owens, director of the N.C. Division of Coastal Management. "Our combined efforts, although extensive and well intentioned, may only be slowing the rate of decline."[1]

Mike Street, research chief for the N.C. Division of Marine Fisheries, cites a number of examples of this environmental decline, which he says are best reflected in fisheries production. "There are serious problems along the U.S. Atlantic Coast, and North Carolina absolutely shares these problems," says Street. Some of the fisheries-related problems are familiar to the weekend visitor to the coast. Shellfish waters are closed, and crabs appeared last summer with mysterious diseases. In other cases, marine biologists are studying more complex issues such as damage to spawning grounds of striped bass and other types of fish.

Problems in the Albemarle-Pamlico estuaries appear particularly acute, much like those that have occurred in the Chesapeake Bay. Bottom vegetation that used to extend 350 feet or more into Pamlico Sound is now completely gone in many areas. Low dissolved-oxygen levels are killing fish and eels during hot summer months. "The salinity levels in Pamlico Sound and some of its tributaries appear to have declined markedly over the last 20 years or more," says Street. "This has resulted in the dislocation of oyster beds and other problems."

Extensive real estate, agricultural, and forestry development have contributed to such problems. Stormwater runoff and drainage from these developments alter salinity patterns and carry higher loads of nutrients, sediments, bacteria, and pesticides into primary nursery areas and shellfish waters. These estuarine waters provide the basis for 90 percent of the commercial seafood landings. The life cycle of shrimp, blue crab, spot, croaker, flounder, and more than 70 other species are dependent upon primary nursery areas. As Mike Street puts it, "The coastal environment in North Carolina has very serious problems."

Not all state officials share this view. Mary Joan Pugh, assistant secretary of the Department of Natural Resources and Community Development (NRCD), says, "I do not agree with the doom and gloom projection. I think that these changes in fisheries indicate a change in the environment that needs to be carefully evaluated. The Albemarle-Pamlico Estuarine Study's goal is to do just that and to come up with possible solutions."

Congress' 1987 amendments to the Clean Water Act established a national estuary program to address water quality problems in the nation's bays, sounds, and estuaries. On Nov. 14, 1987, the Albemarle and Pamlico Sounds officially became the first coastal waters in the country to be designated as estuaries of national significance under the new program. In North Carolina, NRCD is the designated agency working with federal officials to oversee the five-year study of these sounds, called the Albemarle-Pamlico Estuarine Study, known as APES. Environmental Protection Agency and NRCD officials jointly head a policy and a technical committee for the APES project. In addition, two citizens' advisory councils—one focusing on the Albemarle and one on the Pamlico—are sponsoring a number of events to assist with the study, and formal research studies are underway, funded through the project.

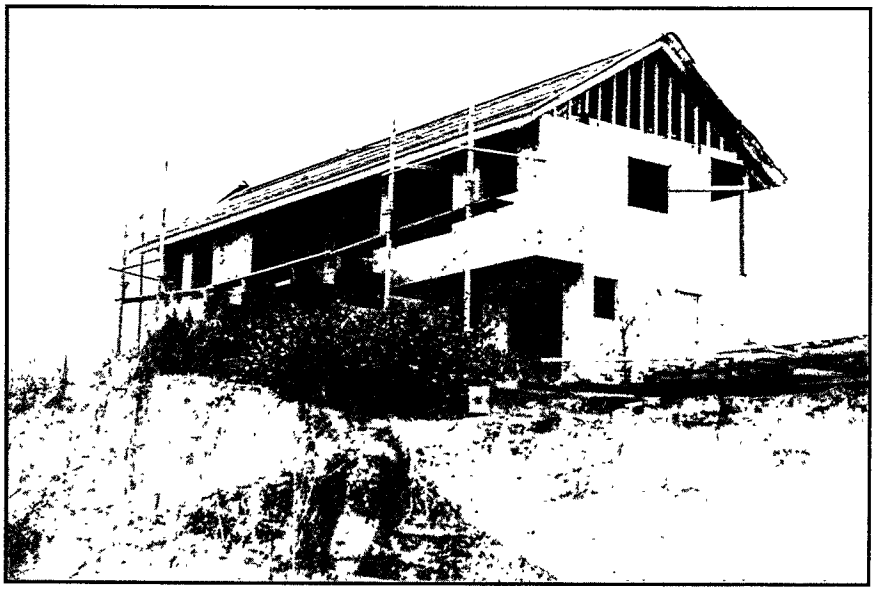
◆

The coast contains three of the four fastest growing counties in North Carolina.

◆

"We need to take some time and figure out what the problems are, not just the symptoms," says Pugh. "We know what the symptoms are. It's not a luxury to take five years [for the study]. It's an absolute necessity. We've got to get to the root of the problem. It's a web of cause-and-effect relationships, and it's going to take five years to try to untangle that. There just aren't any quick fixes. We've been reacting to things and trying to find quick solutions for 20 years."

While the Albemarle-Pamlico Estuarine Study promises to tackle these problems in the future, coastal residents and visitors are upset by the site of diseased crabs and fish and closed shellfish waters. What must be done now to protect the coast better? A key provision in the federal Clean Water Act, first enacted in 1972, requires that existing uses of the nation's waters be protected. *Protection of existing*



Todd Miller

Erosion threatens foundation of new house on Figure 8 Island, near Wrightsville Beach.

uses has become the litmus test by which to measure the performance of resource management agencies.

Two state commissions have the primary task of regulating the coastal environment—the Environmental Management Commission (EMC) and the Coastal Resources Commission (CRC). The EMC is the *statewide* authority over water quality issues. Meanwhile, under the Coastal Area Management Act, the CRC establishes regulations for development throughout the 20-country *coastal* area.[2] Both commissions are composed of nonpaid citizens, appointed to a limited term (for more on these and other commissions, see page 36). The Division of Environmental Management in NRCD is the primary staff agency for the EMC; the Division of Coastal Management in NRCD staffs the CRC and administers coastal permit regulations. Other state and federal agencies also have jurisdiction over coastal concerns, most notably the U.S. Army Corps of Engineers. The Army Corps administers what's known as the "Section 404" or "Dredge and Fill" permit under the federal Clean Water Act.

The joint state-local partnership created by CAMA has received much praise. Specifically, CAMA mandates that each county develop a land-use plan every five years. CAMA does not require, however, that the counties pass ordinances to enforce these plans. Through a permit process, the state regulates about 3 percent of the total land area in the 20 counties, known as "Areas of Environmental Concern (AEC)." After an extensive public hearing and formal rulemaking process, the Coastal Resources Commission has designated as AECs beach-front property, land adjacent to estuaries, coastal marshes, and other lands.

A sharp increase in permit applications for AEC areas reflects the pressure that developers are putting on fragile coastal lands. In 1982, there were 998 permit applications; in 1986, there were 2,740—a 175 percent increase in just four years.[3]

CAMA is criticized by some as being too intrusive, but a growing number of coastal residents and visitors think it is not forceful enough in its regulations. Passed in 1974, it has in its first 14 years protected some critical coastal areas but at the same time allowed property owners to develop many new projects. CAMA is praised for its innovative state-local partnership, its coordinated permit system, the mandatory process of developing county land-use plans, and other features. "North Carolina has one of the most excellent coastal management laws on the books," says Mike Gantt, field supervisor for the U.S. Fish and Wildlife Service.

Nevertheless, CAMA, its regulatory structure, and other state agencies such as the Environmental Management Commission have been unable to arrest the decline of the estuarine waters or curtail

—continued on page 74

What Are Wetlands?

by Suzanne Goyer

Wetlands lie in coastal or inland areas and may contain fresh water or salt water. Marshes, swamps, bogs, bays, and pocosins are all types of wetlands. Once thought to be dangerous to public health, wetlands were drained to eliminate their noxious fumes and, once drained, were used for agricultural development. In more recent years they have been drained, filled, and used for agricultural and real estate development, converted to timber plantations, or mined for peat.

"The lack of comprehensive studies over the past century precludes an accurate determination of trends in total wetland use along coastal North Carolina," writes Curtis Richardson, a wetlands specialist at Duke University's School of Forestry and Environmental Studies.[1] Another problem is data comparison. Mike Gantt, of the U.S. Fish and Wildlife Service, explains, "We all know we are losing wetlands, but the problem in [knowing how many] is in comparing data. Different inventories have been done for different reasons."

The U.S. Fish and Wildlife Service is currently classifying and mapping the nation's wetlands as part of the natural wetland inventory. The southeastern states are its highest priority mapping area. Because North Carolina is the last remaining Atlantic seaboard state to complete its inventory of coastal wetlands, Gantt says, "The Fish and Wildlife Service has recently committed $170,000 to complete the wetland inventory in North Carolina. This effort will complement APES" (see page 71 for more on APES, the Albemarle-Pamlico Estuarine Study).

Under the Coastal Area Management Act, the Coastal Resources Commission regulates a relatively small subset of wetlands—regularly and irregularly flooded marshes—through its permit system for areas of environmental concern (AEC). The coastal commission protects these salt marshes fairly well, but thus far it has not designated as AECs freshwater wetlands, such as swamp forests, bottomland hardwoods, pocosins, and bays. Without such a designation, they are not protected under CAMA.

Under Section 404 of the federal Clean Water Act, the U.S. Army Corps of Engineers administers a permit program to regulate the discharge of dredged or fill materials into wetlands. But the Corps of Engineers has never considered Section 404 to be a wetlands protection program. In 1979, to identify wetlands for resource management, the U.S. Fish and Wildlife Service began classifying wetlands by their vegetation, soil type, and frequency of flooding. Although this classification system is widely used, the U.S. Army Corps of Engineers has used a narrower system of definition and hence has taken a limited view of its regulatory function. Recent litigation has forced the Corps to expand its jurisdiction over wetlands.[2] (See page 76 for more on the litigation.)

Derb Carter, an environmental lawyer, says that despite the litigation, loopholes exist in the law. "The Corps is actively counseling applicants that they can drain the wetland in a way that does not require a permit," says Carter. Once the area is drained, the hydrology may change, and it may no longer be considered a wetland. This is going against the express intent of the program, says Carter. "The law is adequate, but the implementation by the Corps of the program is not," he adds.

Two types of wetlands are of special concern, pocosins and wetlands west of the coastal plain region. Pocosins comprise over 50 percent of the state's freshwater wetlands and account for 70 percent of the nation's pocosins.[3] The vegetation—pond pine, loblolly and sweet bay, wax myrtle, titi, and fetterbush—is generally evergreen and under 20 feet tall. Black bears and the endangered red-cockaded woodpecker and pine barrens treefrog are among the many wildlife inhabitants. Two important functions of pocosins are stabilizing water quality and balancing salinity in coastal waters.

—continued on page 74

Suzanne Goyer, an intern at the N.C. Center, is working on a Master's of Public Administration at UNC-CH.

coastal developments harmful to the environment. Moreover, these agencies face complex and expanding problems, such as managing how septic tanks, package treatment plants, and agricultural interests affect water quality. These and other related issues, such as regulating urban growth, are discussed in the articles on water quality (see page 53) and land use (see page 94). Responsibility for balancing the fundamental tensions between development and the environment lies with governmental officials—those adopting regulations and administering them.

Below is a brief roundup of six major coastal issues where officials will determine what kind of coastal resource North Carolina will have in the future.

1. *Can beach-front development be managed?* Along the ocean beaches, erosion is gradually undercutting high density development. The Environ-

Wetlands

continued

Using data from the North Carolina Wildlife Resources Commission, analysts have calculated that there were some 2.2 million acres of pocosins in North Carolina in 1962, some of which had already been developed.[4] By 1980, only 695,000 acres of pocosins remained in their natural state and without some proposal for development.[5] Agricultural development and timber plantations are the primary reasons for this conversion of pocosins out of their natural state. Timber companies now own about 44 percent of the state's pocosins. In 1984, the U.S. Fish and Wildlife Service identified the N.C. pocosins as a "national problem area," because of the rate of loss of wetlands.[6]

A 1985 federal law, the Food Security Act, will help with the problem of wetland conversion, especially under the so-called "swampbuster" provision. "Under this provision, a farmer who converts wetland to cropland loses all U.S. Department of Agriculture crop supports," explains Lawrence S. Earley.[7] "Under the 'swampbuster' provision, a farmer who wishes to put land into production that has not been farmed since 1981, or who wishes to convert new land to cropland, will have to prove that the land is not a wetland."

Another area of increasing concern is the inland wetland. The extent to which the Corps of Engineers extends the 404 permit program inland concerns a wide range of environmentalists, developers, and government officials. "There are some areas of land in Raleigh's proposed Outer Loop that are wetlands," says Charles Hollis, head of the Army Corps office covering all of North Carolina. The Army Corps has generally enforced 404 permits only on the coast, although 404 permits have been issued for areas as far west as Asheville.

Some states have enacted their own wetlands protection programs. Michigan, for example, has assumed authority to issue the federal 404 permits. North Carolina examined this issue two years ago in a 404 Assumption Feasibility Study and recommended that the state *not* assume the authority to issue 404 permits. Opposition to the state adopting its own program is related to several issues, including the cost to the state and the public's opposition to land-use regulations in general.

FOOTNOTES

[1]Margie B. Stockton and Curtis J. Richardson, "Wetland Development Trends in Coastal North Carolina, USA, from 1970 to 1984," *Environmental Management*, Vol. II, No. 4 (in press).

[2]See *National Wildlife Federation v. Hanson*, 623 F.Supp. 1539 (E.D.N.C. 1985); for an overview of the legal issues involved, see Derb S. Carter Jr., "Developments in Federal Wetlands Regulation," *1987 Environmental Law Update*, North Carolina Bar Foundation, Continuing Legal Education Program, 1987, pp. DSC1-DSC8.

[3]Ralph W. Tiner Jr., *Wetlands of the United States: Current Status and Recent Trends*, U.S. Fish and Wildlife Service, March 1984, p. 49.

[4]The 1962 data comes from a report by Kenneth A. Wilson, *North Carolina Wetlands: Their Distribution and Management*, North Carolina Wildlife Resources Commission, 1962. Various articles and reports have used this base study for data comparisons, including Curtis Richardson (see footnotes 1 and 5).

[5]Curtis J. Richardson et al., "Pocosins: An Ecosystem in Transition," in *Pocosin Wetlands* (C.J. Richardson, editor), Hutchinson Ross Publishing Company (Stroudsburg, Pa.), 1981, pp. 3-19.

[6]Tiner, *op. cit.*, p. 35.

[7]Lawrence S. Earley, "Hope for Our Wetlands," *Wildlife in North Carolina* (Part 3 of a "Protecting Wetlands" series), N.C. Wildlife Resources Commission, September 1987, pp. 4ff.

mental Protection Agency estimates the sea level will rise a foot in the next 30 to 40 years. The Coastal Resources Commission has designated ocean-front land as an AEC; yet building permits on this land continue to be issued, and many beach-front structures were built before the AEC regulation began. "A growing problem is posed by the hundreds of ocean-front structures that are threatened by storms and long-term erosion," explains the *State of the Environment Report* issued by NRCD in 1987. "Even new structures conforming to setback requirements will eventually face a choice between relocation of the structure or destruction, due to the migration of barrier islands in the face of rising sea level."[4] The report also points out that some 5,000 ocean-front structures "will be endangered" in 60 years.

In order to protect the public's right to use the beach, the Coastal Resources Commission in 1986 adopted regulations prohibiting the construction of seawalls along the ocean (the first state in the country to do so). Seawalls can protect private property but at the expense of the public beach. As more buildings become endangered, including some large multi-story and multi-owner condominiums, pressures on the Coastal Resources Commission to allow seawalls through variances will intensify. Public beaches will remain in jeopardy as long as the state allows developers to construct new high-density, ocean-front developments without provisions for how they can and will move the building when they become threatened by erosion. Proposed federal action would make relocated structures eligible for flood insurance coverage and limit disaster relief and insurance if not relocated.

Todd Miller

Dragline at work at the Texasgulf phosphate mine near Aurora, which pumps considerable phosphorus and fluoride into the Pamlico River.

2. *Can controls of stormwater runoff from urban and residential areas prevent increased closure of shellfish waters?* Approximately 25 percent of the shellfish waters in North Carolina are closed to shellfishing. Scientific studies reviewed by the state Division of Environmental Management in 1984 provided overwhelming evidence that runoff from residential and urban areas almost always violates the water quality standards for shellfish waters. Municipal wastewater discharges, water runoff over agricultural lands, and other pollution sources also affect water quality. To protect public health, shellfish cannot be harvested when violations of water quality standards are found.

In September 1986, the Environmental Management Commission adopted temporary rules requiring a development of more than an acre within 575 feet of shellfish waters to limit density or hold up to 4.5 inches of rain (from a 24-hour storm) on the development site. The EMC then drafted permanent regulations and held field hearings on them. In November 1987, the EMC adopted permanent stormwater rules that extended the regulations to all 20 counties but reduced the amount of rainfall that had to be contained to *1.5 inches*. Under the new rules, high density developments are more feasible financially and technically, even though experiences in other states indicate that stormwater controls are seldom maintained and thus are only minimally effective. The EMC adopted these rules despite

Carol Majors

The gull is an important feature of the coastal ecosystem. Feeding on mollusks, crustaceans, small fish, and other scavenged animal matter, the gull cleans the beaches and water.

overwhelming public testimony in favor of maintaining and expanding the temporary rules. Stronger regulations for coastal waters can now be enforced only if they are designated as "Outstanding Resource Waters," a special water quality classification with limited applicability. (For more on the stormwater issue, see page 61.)

3. *How much do new marinas threaten coastal waters?* Many developers are attempting to build marinas as part of their resort projects. Marinas degrade water quality from sewage discharges from boats, hydrocarbons from engine exhaust and bilges, anti-fouling compounds in bottom paints, and other pollutants. Due to the direct threat of sewage discharges from boats, waters in and near marinas are automatically closed to shellfishing. Fishermen have successfully blocked the development of some marinas on the grounds that they would preclude shellfishing as an existing use.

4. *Will the U.S. Army Corps of Engineers protect all wetlands?* Two lawsuits have been filed in federal district court against the U.S. Army Corps of Engineers because of its failure to protect wetlands (see "What Are Wetlands?," page 73). One action was decided in late 1984 when federal Judge W. Earl Britt ruled that the Corps was "arbitrary and capricious" when it determined that 32,750 acres of peat bogs in Hyde, Tyrrell, and Washington counties owned by First Colony Farms were not wetlands and therefore were not protected by the Clean Water Act.[5] In October 1987, Britt issued a second order in the case awarding $408,306 for both attorneys' fees and court costs to the environmental coalition that brought the case. A similar suit is still pending challenging the Army Corps' failure to regulate a 7,500-acre peat mining project (White Tail Farm) planned in Hyde County by Chicago investor Sam J. Esposito.[6]

Losses of wetlands are also occurring because of real estate development. At least ten new golf courses are under various stages of construction in Brunswick and New Hanover counties, portions of which are located in converted wetlands. The Corps maintains that while they can prevent a developer from dumping dirt into a wetland, they cannot prevent him from clearing and draining it or removing dirt from it. This "loophole" in the law has not yet been tested in court.

5. *Can the coast stand industrial development?* The overall lack of heavy industrial development along much of the North Carolina coastline has spared it from the toxic pollution problems many other states are experiencing. Nationally, some of the most contaminated coastal waters are those bordered by a heavy concentration of industrial development. The heavy industries that are situated along the North Carolina coast represent major regulatory challenges for government agencies. One example: The phosphate mine and chemical plants operated by Texasgulf Chemicals Company on the banks of the Pamlico River near Aurora contribute 25 to 40 percent of the total phosphorus loadings into the river

and nearly 100 percent of the fluoride loadings. Since its wastewater discharge permit came up for renewal in 1984, company officials have continued to negotiate with the state Division of Environmental Management and citizen groups over what major process changes are needed to improve water quality. In December 1987, DEM proposed an innovative wastewater discharge permit which involves recycling rather than discharging. Texasgulf has expressed interest in the concept and is currently reviewing its feasibility. Such efforts to reduce waste discharges from existing industries are one vital step to address fishery and water quality problems. However, additional pollution resulting from the region's rapidly growing population means that coastal waters will have little capacity to absorb additional waste discharges from new or expanded industries.

6. *Will isolated and special resources be protected?* The 20-county coastal area has unique pockets of wildlife, unusual water bodies, and land formations which could not be replaced. Both state and private actions have saved many areas, such as the Alligator River National Wildlife Refuge and Carrot Island. But many other unique areas have not been saved and are under threat of being destroyed forever. On the Outer Banks near Buxton, for example, citizens have worked for nearly two years to convince the Coastal Resources Commission to provide protection to a 3,000 acre maritime forest called Buxton Woods. The forest anchors the island and protects a shallow fresh water aquifer that provides most of the drinking water for Hatteras Island. In February 1988, the commission designated the woods as a "coastal complex" Natural Area of Environmental Concern.[7] But the commission delayed implementing that decision until Dare County had a chance to take local action to protect the area, such as adopting zoning ordinances that could help save Buxton Woods.

FOOTNOTES

[1]David W. Owens, "Estuary Reports: Albemarle-Pamlico Sounds," *EPA Journal*, July/August 1987, p. 27.

[2]G.S. 113A-100 to 113A-128. For background on how CAMA began, see Barry Jacobs and Bill Finger, "Coastal Management—A Planning Beachhead in North Carolina," *N.C. Insight*, Vol. 5, No. 1, May 1982, pp. 2-13.

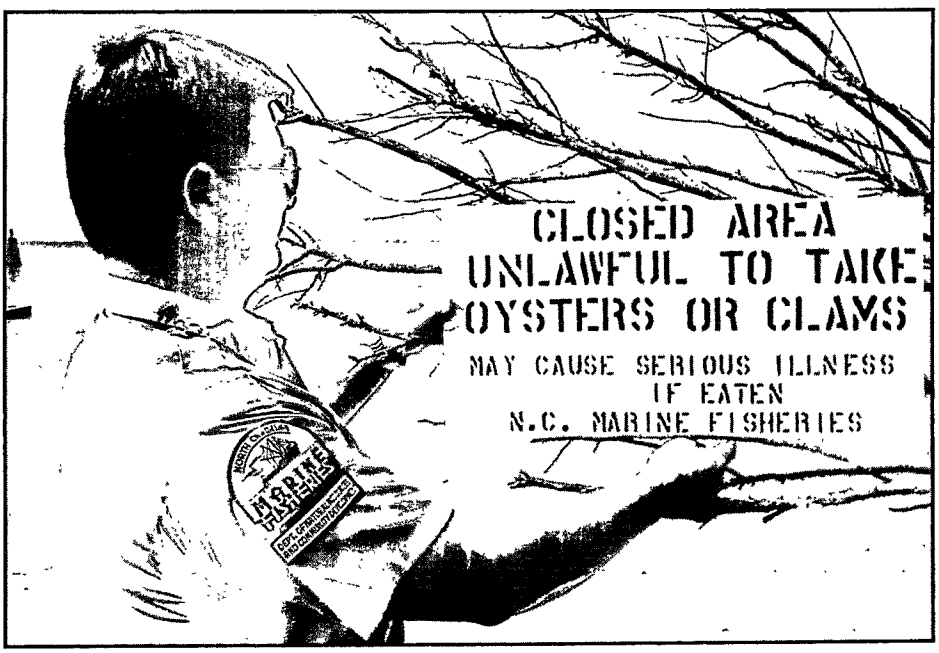
[3]*North Carolina—State of the Environment Report, 1987*, N.C. Department of Natural Resources and Community Development, April 1987, p. 26.

[4]*Ibid.*

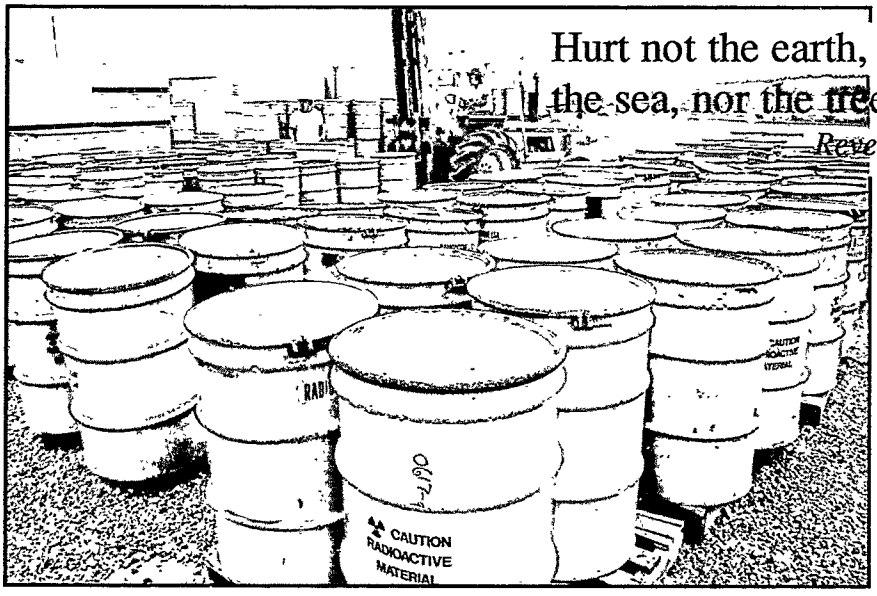
[5]*National Wildlife Federation v. Hanson*, 623 F. Supp. 1539 (E.D.N.C. 1985); order concerning attorneys' fees was issued Oct. 1, 1987.

[6]*North Carolina Wildlife Federation, North Carolina Coastal Federation et al. v. Colonel Paul Woodbury, U.S. Army Corps of Engineers et al.*, E.D.N.C. (Raleigh Div.) 87-584-CIV5.

[7]See 15 N.C.A.C. 7H.0506.



Department of Natural Resources and Community Development



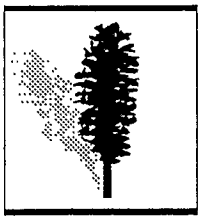
Hurt not the earth, neither the sea, nor the trees.

Revelation 7:3

Hazardous and Radioactive Wastes: A High Anxiety Problem

by Dee Reid

Hazardous and radioactive wastes are among the most difficult materials we must deal with in a modern society. For one thing, there's so much of the three principal kinds of these wastes—two billion pounds of hazardous waste and 83,000 cubic feet of low-level radioactive waste produced each year in North Carolina, plus 700 tons of highly-radioactive waste stored temporarily at the state's nuclear plants. State commissions are searching for a ***hazardous waste*** *treatment facility site and a* ***low-level radioactive*** *waste site, while federal officials have considered North Carolina and other states for an eastern U.S. repository for* ***high-level radioactive*** *wastes. North Carolina will be home to at least two. But both technical problems and public opposition to treatment and storage facilities force state and local policymakers to make exhaustive searches for sites and to consider a broad range of options for dealing with these potentially harmful wastes. Why does North Carolina have so many kinds of wastes? How can the state dispose of them to protect its citizens and the environment without undercutting the state's economy and its attractiveness to its people and to new businesses?*



On a warm summer evening in 1978, an unmarked tanker truck on a clandestine mission began dumping a load of hazardous chemicals along 210 miles of local roadways in piedmont North Carolina. Until that incident, the words "hazardous waste" had not been a part of the Tar Heel vocabulary. But all that changed forever when thousands of gallons of oil mixed with an industrial material called PCB—polychlorinated biphenyl, linked to cancer in laboratory animals—gushed onto the right-of-way, contaminating the soil and threatening the groundwater in 14 counties.

It became an environmental nightmare both for state officials trying to clean up the mess and place it in a secure repository and for a wary public that wasn't even sure what a hazardous waste was—or how dangerous it might be. Since the summer of 1978, hazardous wastes have been a subject of frequent headlines as the state grapples with the problems of safely handling its hazardous wastes as well as its radioactive refuse.

After years of public debate over where and how to get rid of the waste, hundreds of thousands of cubic yards of PCB-tainted soil were scraped up from the sides of North Carolina roads, hauled away, and deposited in 1982 in a specially designated landfill in Warren County. The construction and filling of that landfill came only after heated and bitter opposition from residents of Warren County, one of the poorest counties—financially and politically—in the state. Despite concerted protests, the state proceeded with its plans to bury the waste in a remote area of the county.

Some citizens might have thought that would be the end of all the talk about hazardous wastes, but they were wrong. Burial of the PCBs did nothing to solve the problem of what to do about the billions of pounds of other types of hazardous and radioactive waste that are produced, stored, or transported in North Carolina every year.

Nearly a decade after the PCB incident, the state still has no central facility for treating and disposing of its most dangerous waste. It's a problem that refuses to go away. Consider the following:

■ During 1986 alone, North Carolina business and industry generated more than 2 billion pounds of hazardous wastes—industrial by-products that can pose a serious threat to human health and the environment if treated improperly.[1] They include everything from drycleaning fluid to printer's ink to industrial dyes and agricultural pesticides.

■ There are more than 700 inactive hazardous waste sites statewide.[2] Some of them are primitive storage sites or lagoons that threaten groundwater. Federal law implies that if North Carolina does not have a comprehensive hazardous waste treatment facility in operation by 1989, the state could lose its federal funds for cleaning up the worst of these "orphan dumps," as environmentalists call them.[3]

■ Nuclear power plants, research labs, fuel production facilities, and hospitals produce about 100,000 cubic feet of low-level radioactive waste each year in North Carolina, enough to fill a 100-foot silo.[4] Even the experts debate what levels of radioactivity are harmful to public health and the environment. But these experts do agree that even low-level radioactive waste must be disposed of carefully since it remains *potentially* dangerous for decades. Most of North Carolina's low-level radioactive waste is shipped to a South Carolina landfill that is scheduled to shut down in 1992, while some of it is shipped to two other states—Nevada and Washington.

■ And two of North Carolina's three nuclear power plants now store about 700 tons of high-level radioactive waste.[5] This high-level radioactive waste—which can cause cancer and birth defects—can remain dangerous for many years if not stored properly. The federal government has designated Nevada as the site for one repository. North Carolina was once on the list for potential sites in the eastern U.S. but is no longer.

The primary obstacle to establishing adequate treatment facilities for hazardous and radioactive waste in North Carolina has been citizen opposition to locating the facilities in their counties. Public officials, many of them convinced that the public is acting on misinformation or misunderstanding, call it the NIMBY (Not In My Back Yard) Syndrome.

"The biggest problem is the lack of understanding," says Linda Little, executive director of the Governor's Waste Management Board, the state board charged with planning and administering a safe system of hazardous and radioactive waste disposal.[6] "It's hard to understand why people oppose a facility that would take something that is hazardous and make it into something that is less hazardous or not hazardous," says Little.

But environmentalists argue that citizen concerns are well-founded. "The public might be more

---

Dee Reid is a freelance writer, editor and Insight *contributor who lives in Pittsboro.*

willing to accept a hazardous waste treatment facility if they read in the newspapers about polluters being fined, and they saw that everything was being done by industry to treat waste on-site," says William Holman, lobbyist for the N.C. Chapter of the Sierra Club and the Conservation Council of North Carolina. "Instead they see the state bending over backwards to help some polluter. They see an abandoned dump sitting there and not being paid attention to."

So after a decade of grappling with the hazardous waste disposal problem, citizens and state officials have reached an impasse. As a result, state government has begun trying to exercise its statutory authority to site and construct treatment facilities. The Hazardous Waste Treatment Commission[7]—an appointed body—is searching for a large disposal site for North Carolina's first comprehensive *hazardous (chemical) waste treatment facility.* Meanwhile the *Low-Level Radioactive Waste* Management Authority[8] has been given the job of selecting a regional site for a repository for the Southeast by 1990. And the federal government is looking for one or two national *high-level radioactive waste* repositories, and for a time considered sites in North Carolina. Three different kinds of sites for three kinds of potentially dangerous wastes—two of them, and possibly all three—located in North Carolina.

How did we arrive at this juncture? Where do we go from here?

◆

"Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you and the storms their energy, while cares will drop off like autumn leaves. As age comes on, one source of enjoyment after another is closed, but Nature's sources never fail."

—John Muir from "Wilderness Essays"

◆

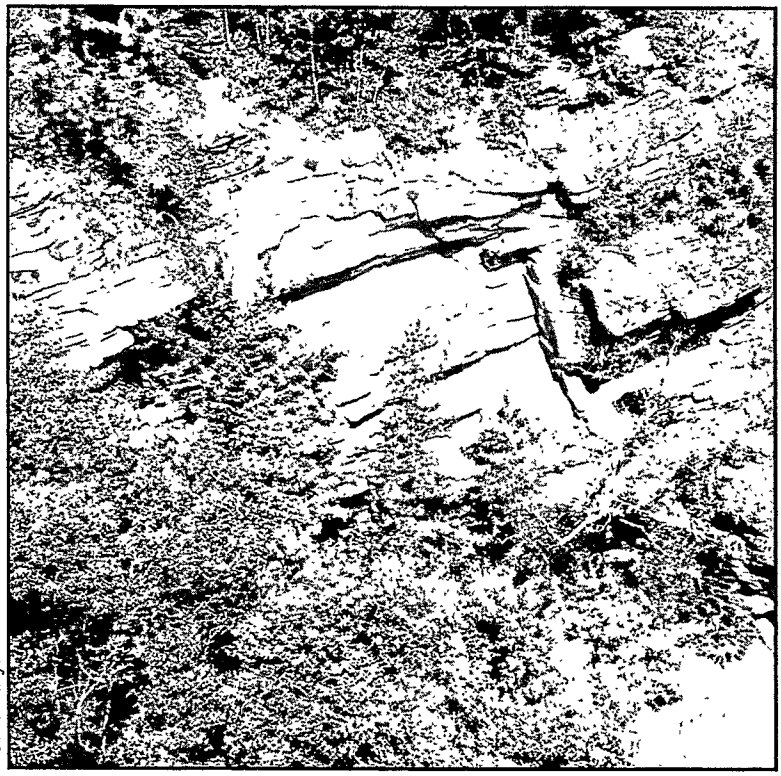
A Major Hazardous Chemical Waste Producer

By any measure, North Carolina produces and handles an enormous quantity of hazardous waste each year, more than 2 billion pounds or about 325 pounds for every man, woman, and child in the state, although that sum has been going down steadily since 1983 (see Tables 2 and 3, pp. 85 and 86, for more). The state's 1986 waste totals include about 75 million pounds shipped here from out of state to be treated at state-permitted, commercial treatment plants, and 130 million pounds that are shipped to 27 other states for treatment.[9] The waste is produced by industrial plants, research facilities, and hospitals.

"Both hazardous wastes and radioactive wastes are necessary by-products of today's technology, a by-product that stems from our quality of life," says Russell B. Starkey Jr., manager of nuclear safety and environmental services at Carolina Power & Light Company in Raleigh. "Every state in the country has hospitals producing waste by-products. Every state has research facilities producing hazardous wastes. Every state has hospitals producing low-level radioactive wastes. But the benefits, on balance, far outweigh the disadvantages."

The majority of the state's hazardous waste (63 percent, or about 1.26 billion pounds) is produced at one facility, Sandoz Chemicals Corp.'s textile dye facility in Mecklenburg County. Most of Sandoz Chemicals' hazardous waste (99.9 percent) is actually wastewater, classed as hazardous only because of its acid content. The wastewater is treated and neutralized at the plant. That process destroys nearly 63 percent of all the hazardous waste produced in North Carolina. Sandoz has spent more than $10 million on environmental improvements in recent years, and has reduced its own hazardous waste by 75 percent since 1981.

In fact, about 90 percent of North Carolina's hazardous waste is treated right where it is produced.



Carol Majors

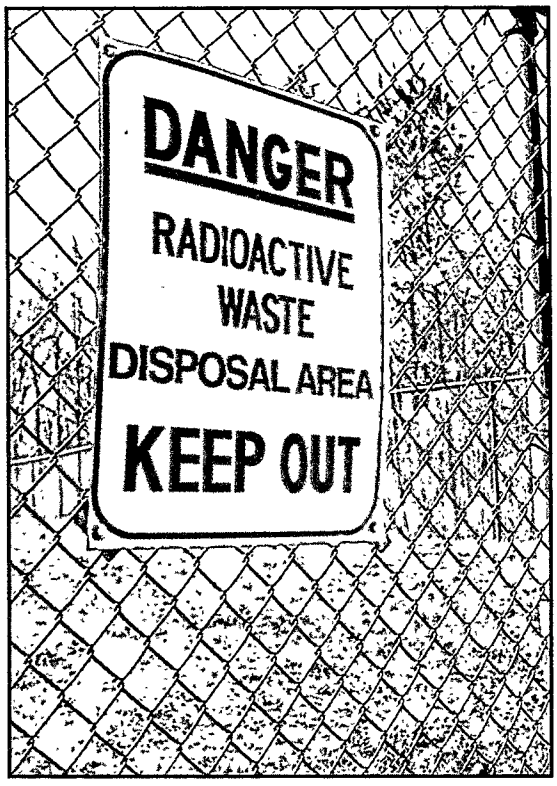
Still, 22 million pounds are transported to small local facilities and another 130 million pounds are shipped out of state each year.[10] These figures do not take into account the number of companies that produce less than 220 pounds of hazardous waste each month. Those companies are not required to report their hazardous waste production to state authorities. Nor do the statistics measure the amount of waste that individual households contribute to the problem. Every year, a typical community of 20,000 uses about 100,000 pounds of home products that result in hazardous waste (hair spray, cleaning fluid, glue, nail polish, and the like). That same community will also use 1,000 pounds of pesticides and 3,000 gallons of automotive and paint products.[11] As soon as any of those products are discarded, they become hazardous wastes. State and industry officials say this is a major problem, yet these wastes are largely unregulated.

What are hazardous wastes? By definition, hazardous wastes are substances that fall into one of four categories: ignitable, corrosive, reactive, or toxic. Ignitable waste is highly flammable, such as gasoline, paint thinner, or nail polish remover. Corrosive substances, such as alkaline cleaner or battery acid, can eat through human tissue. Reactive products, such as cyanide or chlorine, can cause an explosion or produce fumes when mixed with air or water. And toxic waste is any poison that can be harmful to health, such as chemicals like pesticides and herbicides or heavy metals. Exposure to unsafe levels of any hazardous material—waste or otherwise—can result in a variety of health problems ranging from coughing and sneezing to cancer and birth defects. Some of these hazards exist in the home and the workplace—paint remover fumes, gasoline, fingernail polish remover, and the like. The list of hazardous waste materials runs from arsenic to the residue from printer's ink, such as used in this magazine, to spent pickle liquor—not from the state's eastern pickle producers, but a material used to clean metals.

The regulatory definition of hazardous waste does *not* refer to radioactive wastes, a distinction not widely understood, state officials say. While radioactives wastes can be highly hazardous or toxic, federal and state laws have established separate definitions for hazardous wastes and for radioactive wastes. See Table 1, p. 84, for more.

Years ago, the common way to get rid of hazardous waste was to bury it in the ground. But Love Canal—where the leakage of chemical wastes in an unmarked New York dump was linked to birth deformities—and citizen opposition to landfills changed their minds. Thanks to federal and state legislation, North Carolina officials have been urging business and industry to prevent, recycle, detoxify, and reduce their hazardous wastes. Landfills are now considered the option of last resort—suitable only for wastes that have been treated to the maximum extent possible.

State officials also once hoped the job of treating and disposing of most of our hazardous wastes could be borne by the private sector. While many industries did treat and dispose of their wastes properly and voluntarily, others did not. In 1983, the state launched an innovative program to encourage industries to take steps to prevent pollution and thereby reduce hazardous waste. The "Pollution Prevention Pays" program caught on, and case studies of 55 North Carolina industries have shown they are saving more than $12 million a year in operating and



Wendy Walsh, N.C. Independent

Inactive radioactive waste disposal site in Duke Forest.

disposal costs by reducing, recycling, or preventing wastes before they become pollutants.[12] Instead of waiting to deal with such wastes after they've been produced, the program aims at first preventing waste production, and recycling into usable material the by-products that are produced. The program has become popular with industry not only because it helps solve industrial waste problems, but also because savings show up on corporate income statements.

The program is now being used by the U.S. Environmental Protection Agency as a model for other states. Roger N. Schecter, director of the program, is on loan to the EPA to run the national program. Says Schecter, "North Carolina is recognized as the leading state in the nation in implementing a multi-media waste reduction program"—aimed at reducing pollution in air, in water, and in hazardous wastes.

"We've come a long way," says Holman, the environmental lobbyist. "The debate has shifted from disposal of hazardous waste to prevention and treatment."

Despite the success of the Pollution Prevention Pays program and the steady reduction in the volume of hazardous waste generated annually, North Carolina's hazardous waste problem has not disappeared. Industries continue to generate two billion pounds of waste annually as a by-product of the manufacturing process. And private sector efforts to provide commercial treatment facilities have largely failed. For example, consider the fate of two commercial hazardous waste incinerators that have been located in the state: One, in Mitchell County, voluntarily closed down in 1986 following citizen complaints about the operation. The other, a county-owned incinerator in Caldwell County, has drawn the state's attention following allegations that employees suffered health problems because of exposure to hazardous chemicals at the plant. In November 1987, the county Board of Commissioners voted to seek a new operator for the plant, the state's only commercially operated chemical waste incinerator, but later decided to shut it down.[13]

The most recent attempt to locate a major treatment facility in North Carolina was made by GSX Services, Inc. The company has been trying to establish a major hazardous waste treatment facility that could discharge up to 500 million gallons of treated wastewater daily in rural Scotland County. The plant would treat wastes from North Carolina and six other states. Citizens opposing the plant fear it would pollute the adjacent Lumber River and drinking water supplies, and lower property values.

Local opposition to the proposed GSX plant was so strong that the 1987 General Assembly enacted special legislation that may effectively halt the company's plans.[14] Sponsored by Sen. J. Richard Conder (D-Richmond), the bill requires all commercial hazardous waste treatment facilities that discharge upstream from drinking water supplies to dilute the discharge wastewater by a factor of at least 1000 gallons of water for every gallon of treated waste. If that requirement holds up against legal challenges, GSX will have to find another site or sharply curtail its plans, because the proposed site near Laurinburg would not be able to maintain the 1000:1 dilution ratio the law requires.

The anti-GSX legislation was opposed by both Gov. James G. Martin and several of the General Assembly's leading environmentalists. One of the criticisms of the GSX legislation was that it might lead the EPA to remove the state's authority to run its own hazardous waste treatment programs. Sure enough, the EPA threatened in the fall to revoke that authority, and Gov. Jim Martin briefly toyed with the idea of calling a special legislative session to

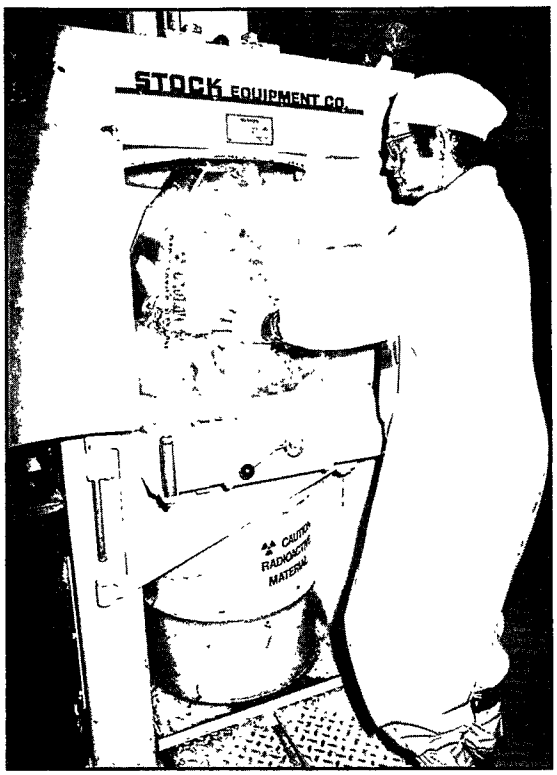
amend the law. But when legislative leaders balked, Martin dropped that idea and said he would rely on Attorney General Lacy Thornburg's advice that if the EPA took action to revoke the state's regulatory authority, the law would automatically be repealed because of a special proviso in the anti-GSX law. That may have the effect of reviving the GSX facility plans.

Under a federally imposed guideline, North Carolina is to have an adequate waste treatment facility in place by 1989—a deadline that may be impossible to meet. The body charged with choosing a facility site is the Hazardous Waste Treatment Commission, a panel of nine members appointed by the governor, lieutenant governor and speaker of the House.

The Commission's goal was to find by October 1, 1987 a suitable site for a facility that will treat up to 90 million pounds of hazardous waste annually, but it was unable to do so, and now aims to pick a site by June 1988. Plans call for establishment of hazardous waste incinerators and a treatment plant at one location. Under state law, a hazardous waste landfill cannot be established until the treatment plant is in place, and even then the landfill must be at least 25 miles from the treatment facility.

Plans call for a hazardous waste facility with a series of liquid treatment tanks and a pair of incinerators. The liquid treatment facility would process liquids that are acidic, corrosive, or contain metal. The process would involve adding liquids that could neutralize the acids and corrosives and precipitate (cause particles to settle) the dissolved metals. The incinerators would burn solvents and other flammable liquids such as waste jet fuel and cleaning substances at a temperature of about 2,200 degrees Fahrenheit, a temperature that will reduce the chemicals to steam and carbon dioxide. Ashes from the furnaces would be solidified, sealed in a drum, and then buried in a hazardous waste landfill.

As one might expect, the site selection process met with strong public opposition, although in the early stages there was relatively little public comment. The commission first elicited from county officials statewide a list of more than 500 sites in 51 counties that might be suitable for the state's first comprehensive hazardous waste treatment facility. The commission then scheduled regional public meetings in each county where sites were under serious consideration. Gradually, more and more citizens began to turn out for the meetings, and in September 1987, public meetings were packed with citizens and local officials overwhelmingly opposed



Carolina Power and Light Company

Low-level radioactive waste being packed for shipment at CP&L's Brunswick Plant.

to the commission's plans. The tone, state officials say, became tense in October when the commission narrowed its choices to sites in Rowan and Davidson counties—the latter a last-minute candidate—and in November the Hazardous Waste Treatment Commission reversed itself and began the process anew.

One dramatic indication of the public's opposition to construction of such a facility came on October 25, 1987, when the Hazardous Waste Treatment Commission held a public meeting at Lexington High School to hear from citizens. Local residents filled the school's gymnasium, spilled over into the school cafeteria, then filled the 6,000-seat football stadium, and sprawled over a grassy bank to listen to opponents via loudspeaker. In all, police estimated, more than 15,000 residents—a tenth of the county's population—turned out to express their opposition.

Why the commission failed to pick a site by the original deadline has been the subject of some debate. (See sidebar on page 89 for more). Commission members point the finger at politicians and a lack of public education about the real versus the perceived risk of such facilities, while others say the state's businesses were not sufficiently supportive of

Table 1. A Guide to Hazardous and Radioactive Materials

Type of Material	Definition	Source
A. Hazardous Materials and Wastes	Often used erroneously to refer to both hazardous and nuclear wastes, this term applies to the following four broad categories of chemical wastes:	
1. Ignitables	Highly flammable materials including such items as gasoline, paint thinner, nail polish remover and motor oil	Petroleum processors and dealers Paint products manufacturers Chemical companies Furniture companies
2. Corrosives	Corrosive substances such as battery acid or alkaline cleaners, which can eat the skin or dissolve tissue	Battery manufacturers Chemical companies Microelectronics companies
3. Reactives	Chemicals such as cyanide or chlorine, which can cause an explosion or harmful fumes when mixed with air or water	Chemical companies Munitions manufacturers
4. Toxics	Poisonous materials, such as pesticides or herbicides, or other forms of chemicals harmful to animal or plant life	Chemical companies Lawn products manufacturers Electronics insulators Dry cleaners
B. Radioactive Materials and Wastes	These materials, which certainly can be dangerous, are not referred to as "hazardous" wastes. And although radiation can be "toxic," radioactive wastes generally are regarded as a different kind of potentially harmful waste:	
1. Low-Level Nuclear Wastes	Moderately radioactive trash from nuclear power plants, hospitals, and research institutions, such as papers, uniforms, filters, and other disposal items. Individual states are responsible for the disposal of these items, which can be stored in a low-level waste repository, or incinerated in low-level radioactive waste incinerators	Nuclear power plants Hospitals Medical clinics Research organizations
2. High-Level Nuclear Wastes	Highly radioactive wastes, constituting a much greater threat to life than low-level nuclear wastes, left over from spent nuclear power plant fuel or nuclear-powered military vessels. The federal government is responsible for disposing of high-level wastes.	Nuclear power plants Military vessels Arms plants

Source: N.C. Center for Public Policy Research

the commission's efforts. Still others say there was not enough public participation earlier in the process, and that the state must mount a massive education plan and offer incentives to counties to alleviate some of their objections to being chosen for a site. Governor's Waste Management Board Director Linda Little says she encouraged the Hazardous Waste Treatment Commission to undertake more of an education effort, and says she has repeatedly sought more appropriations from the General Assembly to finance such efforts. "The Board has made an effort on public education, but I'd be the first to say that we haven't been able to get enough resources to do the job that we need to be doing," says Little.

Through the fall, the Commission was still seeking a location for the facility, and opponents were threatening court action to forestall creation of the facility. Meanwhile, North Carolina still has no comprehensive hazardous waste treatment center, and it may take years before it does. Most of the public opposition to the facility was based on where it might be located, and relatively few of the objections were based on what technology would be involved, notes Professor Richard Andrews of the Institute for Environmental Studies at UNC-Chapel Hill. "There are lots of questions [besides where to put them] that ought to be acknowledged on hazardous waste treatment plants," says Andrews.

Two notable pieces of legislation have been adopted in recent years to deal with the problems of hazardous materials and inactive hazardous waste sites. In 1985, the General Assembly adopted the Hazardous Chemicals Right-to-Know Act, which enables any citizen to find out what sort of chemical materials or wastes are used by a particular industrial plant.[15] The law also requires businesses to notify the local fire chief if they have more than 55 gallons or 500 pounds of a hazardous material on the premises.

And the 1987 General Assembly adopted an Inactive Hazardous Waste Sites Cleanup Act—some call it the Orphan Dumps Act—to clean up inactive and sometimes abandoned sites. The same bill set up a Carolina Clean Drinking Water Fund—a state-level Superfund—to clean up abandoned sites and to protect drinking water.[16] This bill, sought since 1983 by environmentalists, requires the responsible parties to clean up their abandoned hazardous waste sites. Federal funds help clean up the worst sites in the country, but only nine of the more than 700 abandoned sites in North Carolina qualify for the federal "Superfund" expenditures. The N.C. legislation requires state officials to identify, inventory, and set priorities for cleaning up the abandoned sites. Owners of those properties are given an incentive to voluntarily clean up these sites; those who volunteer can limit their liability to $3 million for the cost of cleaning up such sites.

—continued on page 88

Table 2. Trends in Hazardous Waste Management

	1981	1982	1983	1984	1985	1986	Change from 1985 to 1986 Number	Percent
** Number of Generators	806	618	618	610	700	655	-45	-6.4
Number of Treaters, Storers, or Disposers	323	157	111	89	77	78	+1	+1.3
* Total Generation in billions of pounds	1.8	6.2	7.3	5.8	2.6	2.0	.6	-20.58
Shipped to other states (in millions of pounds)	113.5	77.0	113.9	134.9	141.2	130.7	-10.5	-7.4
Shipped from out-of-state to N.C. (in millions of pounds)	3.3	15.8	27.2	57.4	82.0	75.4	-6.6	-8.1

* It is difficult to compare waste generation from year to year because wastewater reporting and the definition for hazardous waste have changed some from year to year. These figures also do not include waste from 1,864 small generators.

** These figures are as of Dec. 31, 1986.

Source: Governor's Waste Management Board

Table 3. Amount of Hazardous Waste by County (1986)

County	Number of Generators	Amount of Waste Generated in Pounds	Number of Treaters, Storers, or Disposers	Amount of Waste Handled* in Pounds
Alamance	6	406,078	-	40,965
Alexander	2	109,481	-	8,058
Anson	2	40,909	-	200
Ashe	1	30,450	-	917
Beaufort	6	286,480	-	6,655
Bladen	2	5,034,762	2	205,802
Brunswick	5	402,380	2	147,839
Buncombe	21	3,838,986	3	1,666,028
Burke	13	3,004,999	-	79,432
Cabarrus	9	4,215,736	3	24,200
Caldwell	23	3,221,647	3	22,871,461
Carteret	1	49,178	-	49
Catawba	32	23,286,523	1	20,164,241
Chatham	1	521,455	1	30,295
Cherokee	4	211,587	1	16,412
Chowan	2	40,645	1	1,320
Cleveland	7	622,123	-	73,352
Columbus	4	257,435	1	108,173
Craven	7	3,048,880	1	569,438
Cumberland	10	2,527,586	1	350,383
Dare	1	39,350	-	39,350
Davidson	30	2,603,253	2	577,347
Davie	4	500,585	1	13,130
Duplin	1	82,000	-	40,000
Durham	19	114,820,774	3	113,189,982
Edgecombe	5	324,125	-	16,212
Forsyth	28	29,524,291	3	35,777,040
Franklin	1	116,706	-	715
Gaston	19	44,499,012	5	37,128,480
Graham	1	197,720	-	18,160
Granville	5	1,487,370	-	96,096
Guilford	59	9,375,592	6	10,381,229
Halifax	4	59,250	-	4,740
Harnett	2	602,831	-	12,519
Haywood	1	112,293	-	9,190
Henderson	7	785,092	-	49,755
Hertford	1	800,640	-	273,510
Hoke	1	530,001	-	58,800
Iredell	12	29,917,166	1	27,898,765
Jackson	1	106,963	-	7,315
Johnston	13	6,633,052	1	5,553,890
Lee	9	208,051,324	2	202,178,053
Lenoir	5	342,344	2	59,986

Table 3. Amount of Hazardous Waste by County (1986), *continued*

County	Number of Generators	Amount of Waste Generated in Pounds	Number of Treaters, Storers, or Disposers	Amount of Waste Handled* in Pounds
Lincoln	1	103,916	-	13,674
McDowell	4	143,3168	-	7,108
Martin	3	42,780	-	243,102
Mecklenburg	88	1,293,133,851	8	1,280,224,671
Mitchell	2	271,292	1	2,852,555
Montgomery	1	5,264	-	320
Moore	1	3,502,810	-	2,759,540
Nash	11	668,551	1	307,331
New Hanover	15	5,257,345	1	2,557,905
Northampton	2	-	-	-
Onslow	4	220,147	1	41,238
Orange	2	282,921	-	15,817
Pasquotank	2	114,496	1	1,223,209
Pender	1	190	-	54
Person	3	294,607	-	22,322
Pitt	8	5,169,315	1	3,090,388
Randolph	8	3,000,006	-	20,553
Richmond	2	42,068	-	1,275
Robeson	6	253,877	1	597,037
Rockingham	6	6,420,257	1	9,644,968
Rowan	8	1,456,319	1	257,275
Rutherford	8	7,384,683	-	174,042
Sampson	3	1,026,956	-	2,200
Scotland	5	363,088	-	22,900
Stanly	4	21,332,450	1	83,247,029
Stokes	1	129,000	-	2,450
Surry	4	170,538,146	-	240,820,461
Swain	1	311,150	-	-
Transylvania	3	185,964	1	73,190
Union	9	4,193,117	-	83,044
Wake	30	11,908,278	10	6,384,193
Watauga	1	38,800	-	1,750
Wayne	7	317,572	1	3,050
Wilkes	6	408,150	-	3,050
Wilson	5	181,449	-	4,041
Yadkin	2	38,975	1	2,400
Yancey	1	180,587	-	20,600
Total*	**655 ** **	**2,041,590,599**	**78 ** **	**2,114,510,785**

* Includes Treatment, Disposal and Storage by Treaters, Storers, and Disposers (TSD's) as of Dec. 31, 1986; and 90-day Storage by Non-TSD's as of Dec. 31, 1986.

** Number of facilities in the North Carolina Hazardous Waste System as of Dec. 31, 1986.

Note: Not every county produces measurable hazardous waste.

Source: Solid Waste Management Section, N.C. Department of Human Resources

◆

"This we know.
The earth does not belong
to man; man belongs
to the earth ...
All things are connected,
like the blood which
unites one family ...
Man did not weave the web
of life; he is merely a strand
in it. Whatever he does
to the web, he does
to himself."

—Chief Seattle, 1854
Sequamish Tribe,
Washington Territory

◆

The Low-Level Radioactive Waste Question: Low Level, High Anxiety

Disposing of the state's low-level radioactive waste has been easier than managing its hazardous chemical waste. North Carolina generated 102,073 cubic feet of low-level radioactive waste in 1985 and 82,936 square feet in 1986,[17] clear evidence that efforts to reduce low-level waste are working. A majority of North Carolina's low-level waste (90.3 percent by volume, but 99.6 percent by radioactivity, according to state estimates) comes from three existing nuclear power facilities (in Wake, Brunswick and Mecklenburg counties) and the General Electric nuclear fuel manufacturing plant in Wilmington. The rest is produced by industrial, governmental, academic, and medical research facilities, and hospitals where radioactive materials are used for diagnosis and treatment.

This low-level waste isn't nearly as harmful as highly radioactive, spent nuclear fuel, but exposure to it could mean an increased risk of cancer and birth defects. Low-level wastes decrease in strength over a period of years, but must be disposed of carefully to minimize the risk of contamination.

So far, only one company has tried to locate a commercial low-level radioactive waste treatment facility in North Carolina. In 1984, U.S. Ecology, Inc. applied for the necessary state permits to build a low-level radioactive waste incinerator in Bladen County. More than 20 local government agencies and organizations within a 50-mile radius of Bladen County opposed the site, and two years later, the state Division of Environmental Management denied U.S. Ecology the required air quality permit, based on the company's lack of experience in incinerating low-level radioactive waste and its "history of non-compliance with environmental laws."[18]

A month later, the state Radiation Protection Section notified U.S. Ecology that it intended to deny the company's application for a radioactive material license on the basis that its other low-level radioactive waste facilities had not been operated properly and because of a lack of qualified personnel. The company eventually withdrew all of its permit applications.

North Carolina has been sending most of its low-level waste to a state-licensed facility in Barnwell, S.C., operated by ChemNuclear, Inc. The state of South Carolina plans to close the facility by 1992, despite ChemNuclear's objections, forcing officials in North Carolina and seven surrounding states to discuss and to create in 1983 the Southeast Interstate Low-Level Radioactive Waste Management Compact. That group, known as the Southeast Regional Compact for short, has agreed to take turns hosting a repository for the region's low-level waste.[19]

Because it is one of the region's largest producers of low-level waste, its location, and several other factors, North Carolina was selected to be the next site, a decision that aroused many environmentalists. During the 1987 General Assembly, some House members objected to that selection and proposed legislation withdrawing from the compact, but that move was derailed and North Carolina remains a member of the compact. Under conditions of the legislation setting up the state Low-Level Radioactive Waste Management Authority, North Carolina will dispose of up to 32 million cubic feet (current projections put the total at probably 12 million cubic feet) of the region's low-level radioactive waste for the next 20 years. One important concession to compact opponents was made, however.

If the other seven members states do not adopt an agreement to limit the possibility of their withdrawal from the Southeast Compact, North Carolina will withdraw.

Many environmentalists oppose the compact agreement, arguing that North Carolina would be better off managing its own waste forever than the entire region's waste for 20 years. "At its current rate [of waste generation] it would take North Carolina over 300 years to produce 32 million cubic feet of low-level radioactive waste," says Marion Nichol, president of the Conservation Council of North Carolina.[20]

Moreover, says environmental lobbyist Holman, there are no guarantees that the other states will keep their end of the bargain and take their turn disposing of N.C. wastes. "We'd like to see the compact select the next host [state] now and have that state select a site as North Carolina selects its site, as a show of good faith," he says.

Hazardous Waste Issues: Balancing Real Fears With Real Facts

by Truman L. Koehler Jr.

North Carolina's struggle to locate a site and begin construction of a hazardous waste treatment facility illustrates the gap between the rational and political sides of public policymaking. Our rational side led legislators to spend 15 years studying and choosing the most technologically sound solution to our hazardous waste problem. Our political side prevents us from moving with courage to deal effectively with public fear to implement the solution.

But the unfavorable political consequences of that rationality seem to be posing an insurmountable barrier to implementing the solution. If progress is to be made, if North Carolina is to clean up existing waste and prevent further build-up, it is critical that a distinction be recognized between the rational or technical solution and political issues. Those who deal with public policy, namely our politicians, must participate in the removal of the barrier. They, in turn, will need the substantial help of the Governor's Waste Management Board to understand and then explain the underlying problems and solutions to their constituents. Our citizens deserve to understand, for example, why their legislative representatives have chosen this solution and how they can balance real fears with real facts to truly guarantee the best possible quality of life.

Consider some of the facts behind the current policy on managing hazardous wastes. The N.C. General Assembly determined in 1973 that the responsibility for managing hazardous waste was too important to leave in the hands of private or local control. The Governor's Waste Management Board, set up in 1981, was authorized to preempt local decision-making and to guide state policies to encourage prevention, recycling, detoxification, and reduction of hazardous wastes.

After 10 years of study and lawmaking regarding handling of hazardous wastes, both the governor's office and the N.C. General Assembly agreed the state needed to go further and develop a statewide solution for treating waste. The resulting Hazardous Waste Study Commission, established in 1983, included three senators, three representatives, two environmentalists and two industry representatives. They spent 15 months studying the question of whether North Carolina needed a hazardous waste treatment facility. At its

—continued on next page

Truman L. Koehler Jr. is a former member of the N.C. Hazardous Waste Study Commission and is a current member of the N.C. Hazardous Waste Treatment Commission. He is chairman of the City of Charlotte's Citizens Advisory Council on Hazardous Chemicals. Koehler also is Group Vice President, Chemicals, for Sandoz Corporation, parent company of Sandoz Chemicals Corporation, the state's largest generator and on-site treater of hazardous wastes. Because the company treats 99.9 percent of its waste on-site, Sandoz would not be a major user of a state hazardous waste treatment facility.

State officials and industries, however, argue that a central storage facility would be far easier to manage and oversee rather than on-site storage facilities. And they point out that numerous legal questions have been raised as to whether North Carolina could withdraw and prohibit other states from shipping and storing their low-level radioactive wastes here.

The 15-member Low-Level Radioactive Waste Management Authority has been appointed by the governor, lieutenant governor and House speaker, and has begun the process for selecting the most suitable site for the regional repository. The law requires the authority to identify suitable areas by Dec. 1, 1988, to select two or three sites by Aug. 1, 1989 and to select the preferred location by Nov. 15, 1990. The facility is to be in operation by Dec. 31, 1992, and must comply with new strictures placed on low-level repositories by the 1987 legislature.[21] Those strictures include a ban on burial of low-level

Hazardous Waste Issues
— continued

public meetings, the Commission heard from representatives of government, regulatory groups, academia, and from numerous professionals, chemists, experts, and engineers. At the end of those 15 months, the report concluded, "We need a facility."

During the public hearings, a number of people suggested that the need for a hazardous waste treatment facility might be eliminated by the serious application of two other approaches:

- Prevention of the creation of hazardous waste—the Pollution Prevention Pays approach; and
- On-site treatment of the hazardous material necessarily remaining, even after the best efforts of the state's Pollution Prevention Pays program have been used.

Pollution Prevention Pays is, of course, a sensible and logical approach. But its greatest impact is on small producers, who may need both technical assistance and capital to make changes that reduce the amount of hazardous waste they generate.

No large company competing on a national or international scale can afford to let raw materials or production by-products leave the plant as waste. Therefore, most companies large enough to have technical experts who understand the processes and enough capital to install the necessary equipment already are using a broader version of Pollution Prevention Pays. It is called just plain "Cost Reduction." They've learned that minimizing waste makes sense both for the environment and the bottom line. That's part of the reason hazardous waste generation in our state dropped 73 percent between 1983 and 1986.

Still, the small producer—who may need technological help to find the best approach to recycling material and financial help to implement the change—is benefiting from the Pollution Prevention Pays program. This is worthwhile but slow going, and cannot eliminate the total problem. In fact, the amount of hazardous waste that was shipped out of state for treatment between 1983 and 1986 increased more than 13 percent, even though the total amount generated dropped 73 percent.

It is true that remaining wastes can be treated at the plant sites where they are created. The ultimate process is incineration. But even if every producer of waste wished to build an incinerator, and if the state permitted the facilities, environmental engineers have pointed out that the units would not operate efficiently because the quantity of wastes produced at most plants would be too small. Also, monitoring all of the treatment units would be too complex to be cost-effective. However, those who recommend on-site treatment of waste are right about one thing: In the proper scale, the technology exists.

The Hazardous Waste Study Commission determined that Pollution Prevention Pays cannot do the required job and that multiple incinerators are not feasible. The Commission recommended a state-mandated plant to treat hazardous wastes. In 1984, the General Assembly accepted the recommendation and created the Hazardous Waste Treatment Commission to find a site. The first appointments to the commission were made in early 1985.

Although the General Assembly hoped that private enterprise would enter the venture at an early stage, it soon became obvious to all who

— continued on next page

waste in shallow, unlined trenches; a requirement for special barriers; and a requirement that a facility must be at least seven feet above the water table.

State agencies are examining a number of models for a low-level radioactive waste storage facility. The options include—but are not limited to—above-ground storage vaults, below-ground vaults, the use of modular concrete cannisters, and sophisticated caps, liners, and water-migration detection systems. "This is not going to be an inexpensive undertaking," warns Edgar Miller, former community relations coordinator of the Governor's Waste Management Board. Cost estimates just for setting up the facility range from $20 million to $35 million; the cost for full operation and monitoring for 100 years could amount to as much as $434 million, estimates the U.S. Department of Energy.

State officials contend the public's concerns about radioactive wastes are often based on a lack of information. They say even the nation's worst

Hazardous Waste Issues

—continued

Truman L. Koehler Jr.

have followed environmental affairs in this state that this was not likely to be. Numerous companies have invested in the design of waste treatment plants, only to run into roadblocks in the permitting procedure.

The Hazardous Waste Treatment Commission saw early in its deliberations that it would have to carry the project forward through selecting a site and gaining the permit to construct and operate the facility. But this also meant that the state must pay for the engineering up to the point required by the permitting procedure. So, the Commission sensibly started to work on two issues—selecting a site and designing the plant.

Using the experience of our state regulatory people and the experience of other states—with discussions held at public meetings—a detailed set of selection criteria regarding size, location, and environmental quality standards was adopted by the Commission. In addition to setting criteria, the Commission approved design specifications to protect health, safety, and the quality of air, land, and water near the site. According to design specifications, the facility would employ the most advanced and cost-effective treatment and environmental controls. It would have less impact on the local environment than the average municipal wastewater treatment facility or solid waste incinerator. At full capacity, fewer than 10 trucks per day would drive to and from the site.

Unfortunately, the process has become stalled. The very tool which would provide a means for North Carolina citizens to take action to control our quality of life is the one tool many citizens seem to find unacceptable.

So, how should we proceed?

Political issues of public policy can override purely rational, technological considerations. But the public policy will be sensible only if those involved have a clear understanding of the problem and the proposed solution.

The Hazardous Waste Treatment Commission is charged with implementing public policy, not assessing or defining that policy. With respect to understanding the problem, it is the Governor's Waste Management Board that has responsibility for education. With respect to identifying and implementing an effective solution, it is our elected officials who carry the responsibility to set public policy.

It is only with help and guidance from these two groups that the Hazardous Waste Treatment Commission can proceed with the site selection process. We now need to get on with the mission.

nuclear accident at the Three Mile Island nuclear plant did not result in the loss of life or even severe injuries.

Dayne Brown, chief of the state's Radiation Protection Section, which oversees the regulation of all radioactive materials, says the state has been cautious in establishing regulations for a treatment or storage site. The state tries to project what would happen in the worst such cases, and develop programs to deal with that. "These regulations are designed to guarantee that the objective—protecting the public—is met even with the failure of part of a system," says Brown. "Because we are interested in erring on the side of safety, we overestimate everything."

Carolina Power & Light's Starkey believes that the public has "a phobic reaction" when such terms as hazardous and radioactive wastes are mentioned, and that a comprehensive education campaign by the state's public schools, industries, and government agencies is needed to educate the public on exactly what the risks are. "Based on what I know of the technology [on handling dangerous wastes], I don't believe there is any cause for unreasoned concern," says Starkey. "We are talking about minimal to low risk, as long as we go about handling these wastes correctly and carefully."

High-Level Waste: A Federal Task with State Implications

Gov. James G. Martin seemed to be stricken with the NIMBY Syndrome himself not long ago when North Carolina became one of seven states being seriously considered for a proposed federal high-level nuclear waste repository; this would be the final resting ground for much of the highly-radioactive, spent nuclear fuel generated in the eastern United States. The first such facility would be sited in the western United States.

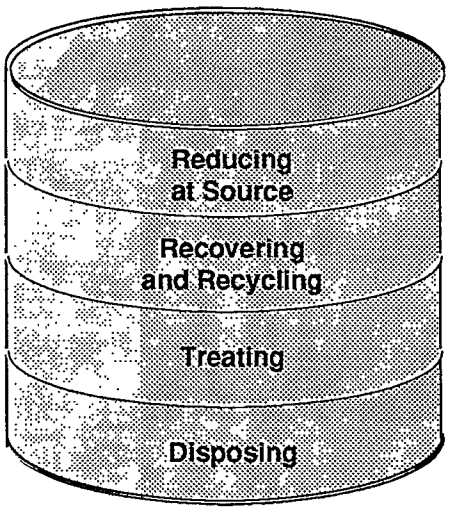
In the spring of 1986, when areas in western and eastern North Carolina appeared on the U.S. Department of Energy's tentative shopping list for the second of two planned repository sites, Governor Martin flew to Washington to register the state's protest. He argued that the sites were geologically unsuitable or too close to densely populated areas. Ironically, these were the same arguments North Carolina citizens and local officials had used to fight plans by the N.C. Hazardous Waste Treatment Commission to locate the state's first comprehensive hazardous waste treatment facility. The Governor, a former college professor of chemistry, was willing to accept a hazardous waste treatment facility and a low-level radioactive waste repository in North Carolina, based on the evident need and the

Sandoz Chemicals Corporation

Sandoz Chemicals Corporation effluent operators such as Carl Moore monitor and control the company's waste treatment facilities with the help of computer controlled equipment.

Hierarchy of Waste Management Alternatives for Pollution Prevention Pays Program

Most Desirable



Least Desirable

ability of the state to minimize risk. But he was not willing to accept a high-level site as well. A month later, U.S. Energy Secretary John Herrington indefinitely postponed the search for an eastern site, but in October 1987 the federal government resumed the hunt.

Congress changed the atmosphere enormously in December 1987 when it enacted legislation designating Nevada as the first host site for a high-level radioactive waste repository.[22] The legislation also halted the search for an eastern repository, which at least takes North Carolina out of the hunt for the foreseeable future. And the legislation also delayed plans for a Monitored Retrievable Storage (MRS) facility in eastern Tennessee, about 40 miles from the N.C. border. That temporary storage site would have meant an increase in the amount of nuclear waste shipped through North Carolina, most likely by truck on the heavily traveled I-85 and I-40 highway corridor. That route, often referred to as North Carolina's Main Street, would have been the primary corridor for high-level wastes because federal regulations declare a preference for interstate roads in the movement of these wastes[23] But if an MRS is constructed, a site in North Carolina is on the list—in Davie County.

So, for the time being, North Carolina is not likely to become the locus of treatment or storage facilities for all three types of dangerous wastes. But for many citizens, especially those who don't want wastes buried their backyards, figuratively or literally, the two other facilities—for hazardous wastes and for low-level radioactive wastes—will be quite enough.

FOOTNOTES

[1]*North Carolina Hazardous Waste (Generation, Storage, Treatment, Disposal), 1986 Annual Report,* Solid and Hazardous Waste Management Branch, Division of Health Services, Department of Human Resources, July 1987, p. 1.

[2]*Comprehensive Environmental Response and Compensation Liability Inventory System,* (otherwise known as the Superfund list), maintained by the U.S. Environmental Protection Agency pursuant to P.L. 96-510.

[3]P.L. 96-510, 94 Stat. 2767, 42 U.S.C. 9601 *et seq.*; and P.L. 99-499, 100 Stat. 1613.

[4]*North Carolina 1986 Low-Level Radioactive Waste Survey,* Radiation Protection Section, Division of Facility Services, Department of Human Resources, draft, November 1987, p. 1.

[5]Monte Basgall, "Deep pools at N.C. reactors shelter tons of nuclear waste," *The News and Observer of Raleigh,* May 11, 1987, p. A1.

[6]G.S. 143B-216.12 (authority for Governor's Waste Management Board).

[7]G.S. 143B-470.3 (authority for Hazardous Waste Treatment Commission).

[8]Chapter 850 (HB 35) of the 1987 Session Laws, now codified as G.S. 104G-5 (Low-Level Radioactive Waste Management Authority).

[9]*N.C. Hazardous Waste, 1986 Annual Report,* p. 9.

[10]*Ibid.*

[11]*Hazardous Household Products: A Guide to Safer Use and Disposal,* Triangle J Council of Governments, November 1985, p. 1.

[12]Tom Mather, "EPA enlists N.C. help in waste program," *The News and Observer* of Raleigh, Sept. 14, 1987, p. C1.

[13]Associated Press, "Caldwell board votes to keep incinerator," *The News and Observer of Raleigh,* Nov. 3, 1987, p. C3.

[14]Chapter 437 (SB 114) of the 1987 Session Laws, now codified as G.S. 130A-295.01.

[15]G.S. 95-18. See also Bill Finger, "N.C. Right-to-Know Law—New Information for the Public," *North Carolina Insight,* Vol. 9, No. 4, June 1987, p. 11.

[16]Chapter 574 (HB 134) of the 1987 Session Laws, now codified as G.S. 130A-310.

[17]*North Carolina 1986 Low-Level Radioactive Waste Survey,* p. 1.

[18]*1986 Annual Report, Governor's Waste Management Board,* p. 36.

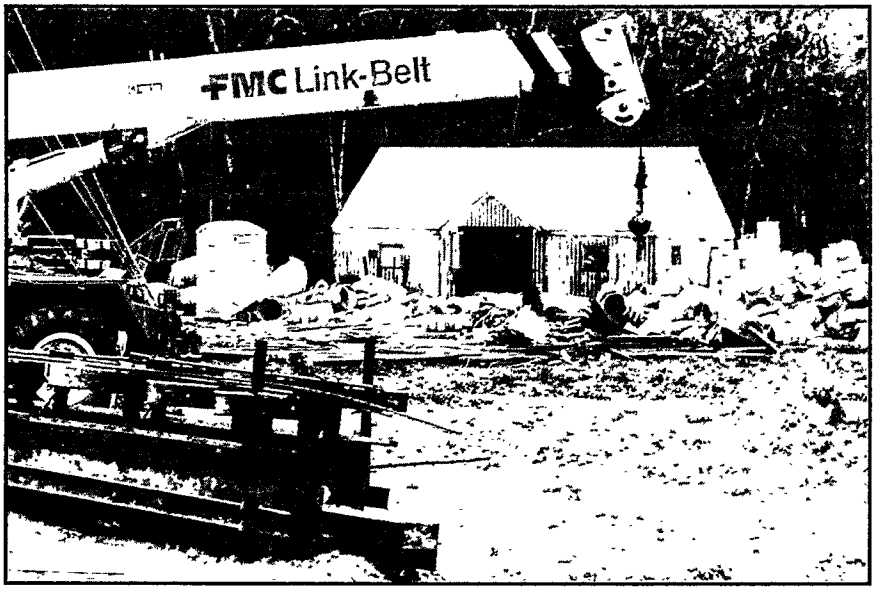
[19]P.L. 96-573, federal Low-Level Radioactive Waste Policy Act; see also N.C. G.S. 104F, Southeast Interstate Low-Level Radioactive Waste Management Compact.

[20]Marion Nichol, "N.C. Should Manage Its Own Radioactive Waste," *N.C. Forum* news release, June 1987, p. 3.

[21]Chapter 633 (SB 48) of the 1987 Session Laws, now codified as G.S. 104E-5.

[22] P.L. 100-203.

[23] 49 CFR 177.825b.

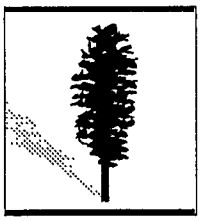


Jack Betts

Protecting the Land and Developing the Land—How Can We Do Both?

by Larry Spohn

Land-use issues in the past have been viewed geographically, as coastal, Piedmont, or mountain concerns. As growth accelerates in the urban Piedmont and in resort areas in the mountains and on the coast, ways to balance that growth with environmental protections need state-level attention. In the early 1970s, North Carolina was a national leader in state-level actions regarding land use. But ironically, as development has increased in the 1980s, the pendulum of land-use control has swung away from statewide standards to more emphasis on local control. Should state-level actions re-establish the balance between local and state control of the land, and at the same time rectify the imbalance between the development boom and environmental concerns?



For William McNeil, the choice between prosperity and preservation is anything but abstract. Standing in his High Point office, McNeil points to drawings of a 900-acre commercial development project planned for the land corridor leading to the Greensboro-High Point-Winston-Salem Regional Airport. Director of Planning and Development for the city of High Point, McNeil is encouraging such developments, even though the site lies in the watershed of High Point's primary water supply, the Deep River.

McNeil likes to show visitors sketches of the Piedmont Centre development, especially the greenways and buffers required by the city in the overall development area as well as in each individual project. Down the road from this project is the site for a proposed 112-acre planned regional shopping center. "We buffer it internally and on its edges," he says. "We require a master stormwater control plan that will ensure the runoff is gathered and treated in an environmentally sound way." This generally means channeling the stormwater into holding and settling ponds, says McNeil, who is immediate past president of the 580-member state chapter of the American Planning Association.

McNeil supports development in the city's watershed because of the tools the city has to regulate certain kinds of development. "We think we can do it and still protect the resource by weeding out poor development and working with the environmentally responsible development," he says. "People ask, 'Shouldn't there be a permanent greenbelt between High Point and Greensboro?' My answer is that the green will be built into each development project."

A morning's drive from the High Point watershed, into winding mountains, lies what may be the most extensive greenway in America. But it may not be that way for long. In September 1987, 52 years after it was begun, the Blue Ridge Parkway was finally completed and dedicated. Parkway officials and patrons have cause to worry, however, about its next half century. The clutter of mountainside development threatens the roadside overlooks and the peaceful drives bordered by split-rail fences. Few protections exist against continued encroachment of the nation's premier scenic roadway.

"Naturally, the federal government can't be expected to buy all the land within view of the parkway," says Parkway Superintendent Gary Everhardt. Only some kind of land-use regulations can help stem the tide, he says. Historically, mountain residents have resisted such restrictions, especially when imposed by politicians way down in Raleigh. But in 1983, a 10-story condominium appeared like a bolt of lightning atop Sugar Top Mountain in Avery County. Nothing like it had ever been done. With that, even mountain folks softened their opposition. Responding to the statewide cry for action, the legislature passed the Mountain Ridge Protection Act, which restricts the height of buildings on mountain ridges.[1] The act passed, say many observers, only because the authority to enforce it remained with the individual mountain counties.[2]

"I hope the Ridge Act is a signal of softening mountain opposition to land-use regulation," says Everhardt. "Innovative proposals are needed to establish a corridor of controlled, quality development along the 470-mile parkway in North Carolina and Virginia. The Ridge Act indicates that potential support exists for such innovative action."

The 1983 Ridge Act came nine years after mountain officials successfully opposed the creation of a state law which would have mandated region-wide land-use regulations. Called the Mountain Area Management Act, it was to be the sister legislation to the Coastal Area Management Act (CAMA for short), adopted by the legislature in 1974.[3] With its requirements for land-use plans and development permits in a 20-county coastal area, CAMA has in its 14-year life received praise from outside the state but been controversial in eastern North Carolina. Under CAMA, the 20 counties must develop a land-use plan every five years, but they do *not* have to pass zoning or other regulations to enforce the plan.

"The process of developing land-use plans has been very helpful on the coast, in terms of forcing people to think about environmental issues," says Karen Gottovi, who has chaired the New Hanover County Commissioners and currently is on the Coastal Resources Commission. "But we need the next step, to make it mandatory for the counties to pass the ordinances that would enforce their plans."

Even on the coast, development of fragile coastal lands continues to slip through the regulatory cracks. Many governmental observers and local residents fear that CAMA is not enough to protect the entire coastal environment. Take wetlands, for example. "Even though CAMA and the federal Clean Water Act have done a tremendous job in terms of protecting regularly flooded wetlands, they

---

Larry Spohn, a freelance writer living in Kernersville, has covered environmental issues for the Greensboro News & Record.

haven't been able to adequately protect the freshwater, forested wetland system," says Linda K. "Mike" Gantt, field supervisor for the U.S. Fish and Wildlife Service. Under the Clean Water Act, the U.S. Army Corps of Engineers administers the permit application system for altering wetlands. Federal regulations, working in conjunction with CAMA, explain which activities on a wetland require a permit.[4]

In the case of the Beau Rivage development near Wilmington, says Gantt, "the developer removed peat from the wetland and put it on high ground. Basically, they drained and dredged it without needing a permit. Where's the opportunity even to make a comment?" Normally, when a permit is filed to modify wetlands, the U.S. Fish and Wildlife Service provides a legal report to the Corps of Engineers on how the proposed work would affect fish and wildlife. Gantt's efforts to get state agencies to intervene in the Beau Rivage situation under mining and water pollution permit regulations were unsuccessful.

The public on the coast is only now coming to appreciate the critical importance of wetlands, she continues. "But what about the inland wetlands, those riparian strips along the rivers and streams? They are not being preserved, but they are very important wildlife corridors, useful in filtering pollutants coming off the land, for stormwater retention and for recharging groundwater" (for more on wetlands, see page 73).

As a member of the policy committee for the federally funded, five-year National Albemarle-Pamlico Estuarine Study, Gantt has the responsibility for looking at the big picture. "North Carolina has one of the most excellent coastal management laws on the books," she says, "but what we really need is a *state law* that protects freshwater wetlands, on the coast and inland. People still don't get it: *What happens on the land upstream affects these sounds.*"

Traditionally, to discuss land use issues in North Carolina, analysts, reporters, legislators, and others turn to the traditional coastal, Piedmont, and mountain regions.[5] Certainly, the unique features of the Albemarle-Pamlico Estuary differ significantly from Sugar Top Mountain and Piedmont watersheds. Hence, the purposes of land-use regulations vary, from protecting fertile shellfish waters to retaining scenic mountain views to maintaining water quality in the Piedmont. But an increasing number of people are arriving at the same conclusion that Mike Gantt has reached. Despite these differences within the state, *land use is a statewide issue, and tools are needed to treat it that way.*

◆

"We abuse land because we regard it as a commodity belonging to us. When we begin to see land as a community to which we belong, we may begin to use it with love and respect."

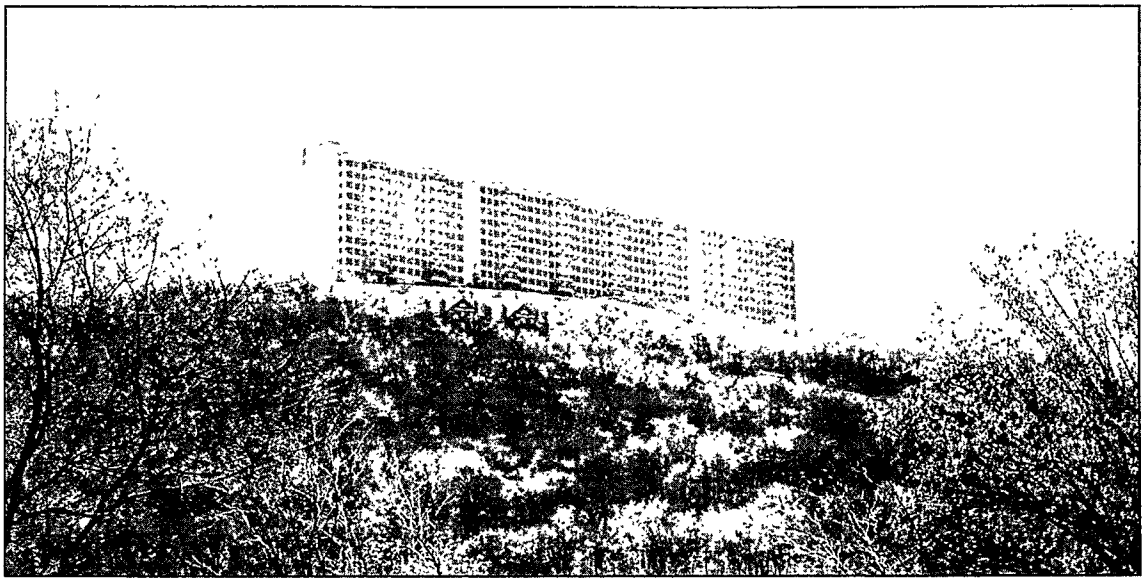
—Aldo Leopold

◆

In designing development permits, only a few cities with the most environmentally sensitive planners, places like High Point, have added such stipulations as greenways and buffers. In the mountains, separate groups of county commissioners have the power to decide how much development can be located a stone's throw from the Blue Ridge Parkway and other scenic areas. And under CAMA, reconciling the coastal development boom with the fragile ecosystem is at best a joint effort between state and local officials, through county land-use plans and state-mandated regulations.

The boomtown conditions in the state's cities and resort areas dramatize the dilemmas of development and the environment, of growth and conservation. "Checks and balances and consistent land-use regulations are needed," says Anne Taylor, of the Department of Natural Resources and Community Development's Office of Planning and Assessment. "In spite of the state's raw natural beauty and rural tradition, even the most basic conservation ethic appears to be lacking on a widespread basis."

Typically, citizens want to protect the environment against unrestrained development only when the threat is "in my own backyard," says Taylor.



Greensboro News & Record

Mountain-top condo project sparked the debate which led to the 1983 Mountain Ridge Protection Act.

There will be a backlash against such development, she adds, when "enough people have had it hit *their* backyard." The theme even has spawned an acronym, NIMBY (Not In My Backyard). Without state leadership setting reasonable, achievable objectives and minimum land-use standards, says Taylor, "North Carolina cannot avoid the environmental degradation and the deterioration of quality of life so associated with unbridled development in other boom states."

Balancing a Backyard Land-Use Ethic

In the mid-1970s, North Carolina was on the cutting edge of land-use issues in the country. In 1974, the General Assembly passed CAMA after field hearings and legislative compromise overcame much local opposition to mandatory land-use planning. "The rising tide of environmentalism at the time and prompting from the scientific community" helped boost the CAMA legislation, says Dr. Arthur Cooper, a strong advocate of resource management during the Scott (1969-73) and Holshouser (1973-77) administrations and now a professor at N.C. State University. Through the leadership of then-Rep. Willis Whichard (now a N.C. Supreme Court justice) and Sen. William Staton (who left the Senate but has returned), the CAMA legislation incorporated the deeply rooted instincts for local control of the land into a state-level administrative and regulatory structure (for more on CAMA and coastal issues in general, see page 70). The upbeat environmental mood of 1973-74 legislative session also produced a Land Policy Act[6] and a Sedimentation Pollution Control Act.[7]

The impetus for state-level regulatory authority was shortlived, however. In the 1983 *N.C. 2000* report, the land-use recommendations emphasized expanding the capacity of *local governments* regarding control of development, not of state-level regulations. "Most decision-making powers affecting land use in North Carolina have traditionally been exercised at the local level, and this should continue to be the case," explained the report. This is difficult, it said, as fast-paced development requires complex technical decisions and a deliberate decision process at the local level. "The coastal counties now have this capacity within the framework of the Coastal Area Management Act," the report concluded.[8] It described CAMA as a way to assist local governments rather than emphasizing its state-level regulatory authority, as many advocates of CAMA do.

What is remarkable is how quickly the direction of state-level leadership moved from the bipartisan effort towards greater state-level involvement in land-use regulations (which peaked in 1973-74 with CAMA and other legislation) to an emphasis on enhancing local control. By the mid-1980s, legisla-

◆

"I hear an awful lot of talk about controlled development, but I don't really see anybody doing anything about it."

—Bill Holman
Sierra Club and Conservation Council of North Carolina

◆

tive and administrative efforts generally emphasized enabling statutes and incentives for local governments to take over such regulatory programs as sedimentation permits, watershed ordinances, county-wide zoning, and other regulatory mechanisms.

Mary Joan Pugh, assistant secretary at the Department of Natural Resources and Community Development, believes the current governmental approach to land-use issues is proper. "Traditionally, North Carolina has given the authority for land-use regulation to local governments," she says. "Only when the problem becomes multi-jurisdictional such as coastal management or ridge protection does the state step in. When the state does step in, it has defined its role as providing leadership and general guidelines to be implemented at the local level. I don't think this partnership is evidence of poor land-use management. But we're often reactive instead of pro-active. We often wait until we're in a quagmire before acting."

Bill Holman, the leading environmental lobbyist in the state, says that land-use protections increasingly stem from local—not state—actions. "All the watershed protection that's happening is due to the initiative of *local* governments," says Holman. "The state should have a role in that. The state is not providing leadership in land-use planning, so many local governments are taking the initiative to regulate land and plan for themselves."

Whether viewed as a proper state-local partnership or a lack of state leadership, the shift from the state level to local leadership has evolved during a period when major national investors were moving into North Carolina, building industrial parks, condominiums, multi-purpose residential and commercial parks, and other developments. From 1967 to 1977, the cropland and forest land in the state shrunk by 1.9 million acres; one study estimates that by the year 2000, another 2.5 million acres could shift to non-agricultural uses.[9] On the coast, the figures are more dramatic. Of the state's original 2.2 million acres of pocosin wetlands, only about 695,000 remain unaltered. Since the early 1970s, an estimated 4,300 acres of coastal marshes alone have been altered.[10]

Holman and other environmentalists, many with a decade of experience by the late 1980s, have begun to speak out more strongly than ever about such trends. Last year, for example, the North Carolina Wildlife Federation and Trout Unlimited released an analysis of the state's Sediment and Erosion Control Program, begun in 1973 under the Sedimentation Pollution Control Act. The program regulates developments of projects of more than one acre, exempting agricultural and forest lands. The report concluded that the law provides insufficient authority, fines, bonding requirements, and legal staff to deal with non-complying developers.[11] "This report confirms our belief that the current law is not taken seriously by development interests and needs major improvements," says Michael F. Corcoran, executive vice president of the North Carolina Wildlife Federation.

Holman puts it in stronger terms. "I hear an awful lot of talk about controlled development, but I don't really see anybody doing anything about it," says Holman, who lobbies for the Conservation Council of North Carolina, the Sierra Club, and the N.C. Chapter of the American Planning Association. "The attraction of the state and the failure to conserve and protect the land means North Carolina is dying the death of a thousand cuts."

Many of the pro-environmental efforts, both from outside advocacy groups and from officials working within governmental systems, have focused on the impact of land uses on other parts of the environment—water quality, wildlife, and beachfront development. One of the sad facts about the environmental consciousness of the last two decades is that the land itself has had no clear advocate, says Lawrence S. Earley, associate editor of *Wildlife in North Carolina*, a monthly magazine

published by the N.C. Wildlife Resources Commission. Moreover, developers have found ways of exploiting loopholes in land-use controls that do exist, says Earley.

"In the wetlands, they clear them and drain them, since the law only prohibits filling," says Earley. "In the mountains, developers use the timber exemption to get around the sedimentation control act. Once they've got the trees out, then they go in with their condos."

Picture the prosperity vs. preservation equation as a scale of balance. Currently, because of the development boom *and* the structure of land-use regulations, the scale is tilted towards development—leaving the environmental side dangling in the air. To bring balance to the scale, five changes in the current system of land-use regulation could be considered: 1) statewide land-use standards; 2) watershed protection districts; 3) statewide enabling legislation for development impact fees; 4) restricted zoning districts to protect unique land resources or features; and 5) improved land-use information and analysis.

Statewide Land-Use Standards

Current state law regarding land use emphasizes enabling legislation to allow local governments to adopt zoning and subdivision ordinances, establish planning boards and local erosion control ordinances, and even to utilize such powers in an extra-territorial jurisdiction along their borders. The joint Winston-Salem/ Forsyth County planning department, for example, has a "Comprehensive Plan" for the year 2005, emphasizing growth management concepts. The same department has a plan to protect the Salem Lake Watershed, including shoreline acquisition, and helped develop a unique Agricultural Preservation Plan, considered a model for the Southeast.[12]

The enabling laws in North Carolina "provide most of the tools to accommodate growth and plan for the future," concedes Holman. "What's been missing is the political will to adopt the zoning and other ordinances necessary to protect the resources." Local control should prevail, says Holman, but the state can no longer abdicate its primary responsibility for land stewardship. "We need some form of basic, minimum standard requirements for every county or local government in the state. A good example of a statewide standard that affects what local governments can do is the statewide building code."

Local planners, county commissioners, and city councils determine the requirements for the items listed below. No statewide standards exist for:

- zoning ordinances and citizen planning and zoning commissions;
- comprehensive transportation plans as a part of land use;
- master plans for orderly installation of water and sewer services;
- watershed protection ordinances, if applicable;
- capital facilities plans (which might include drainage, water and sewer, and roads);
- wetlands protection;
- stormwater regulations; and
- surveys of historical, cultural, and natural resources needing protection.

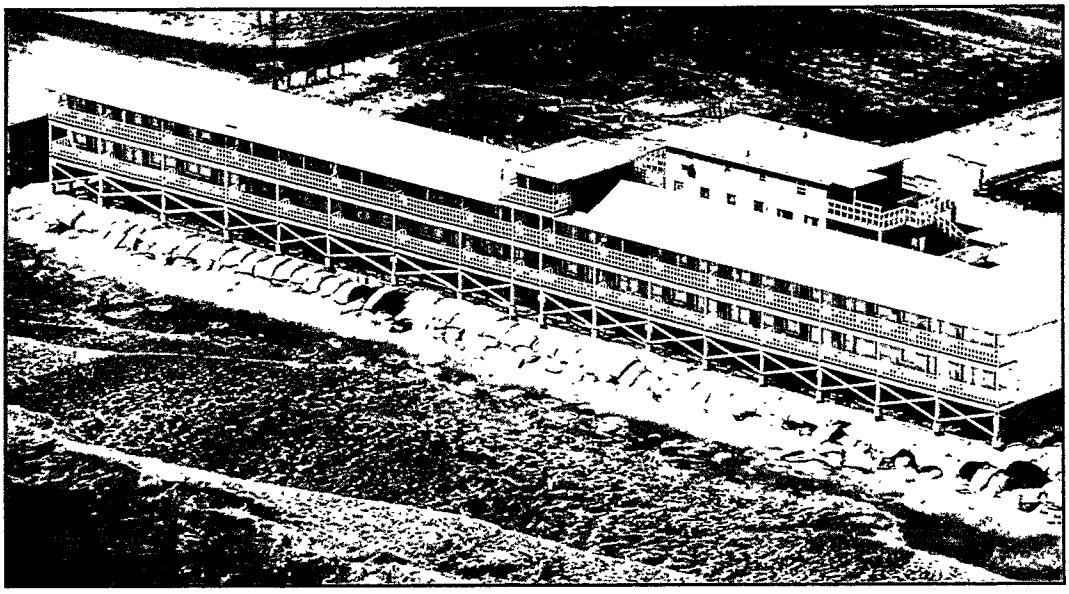
Currently, 93 of the state's 100 counties have planning or zoning boards, but only 50 have county-wide zoning. Similarly, 80 have land-use plans but only 55 have any subdivision regulations, and only 23 have a capital facility plan.[13] The Division of Community Assistance in NRCD, with 30 field staff working out of seven regional offices, advises local governments on zoning, land-use plans, and other such regulations. "Over the past few years, the emphasis of land-use controls has shifted more to the local level in terms of local officials recognizing the importance of regulations for management purposes," says Bob Chandler, director of the Division of Community Assistance. "That's because of the development that's occurring across the state—the spillover effect from the urban areas."

Despite the growing interest among local officials, the effort remains uneven. And the state role is strictly advisory. An out-of-state developer recently learned that he could purchase a vast tract in

◆

Currently, 93 of the state's 100 counties have planning or zoning boards, but only 50 have county-wide zoning.

◆



Greensboro News & Record

Even with the Coastal Area Management Act, beach erosion problems plague many beach structures, such as the Sea Vista Motel on Topsail Island.

Moore County, and because there is no statewide or local zoning requirements, could "do pretty much whatever he pleased," says Anne Taylor. "He was shocked. His concern was about over-regulation, but the lack of any regulation is what shocked him."

Planning experts in Florida and Maryland, which have new state laws to manage growth, say North Carolina should take heed. "Nobody's got the growth rates of Florida," says David R. Godschalk, professor of City and Regional Planning at the University of North Carolina at Chapel Hill. "It's off the chart. But that's not to say we don't need to do something here." As a consultant to the Southern Growth Policies Board's recent study, "Guiding Growth in the South: A Decade Later," Godschalk has reviewed growth patterns and legislative tools throughout the South.[14]

Godschalk praises CAMA and the Ridge Law as partial approaches, "but they're going to have to do other things." In North Carolina, a Mountain Area Management Act (MAMA) and a Piedmont Area Planning Act (PAPA) have been proposed as compliments to CAMA at times, but Godschalk says Florida's statewide approach offers more equity and uniformity.

John DeGrove, director of the Joint Center for Environmental and Urban Problems at Florida Atlantic University, says North Carolina's time may not be far off. "Your coastal legislation has worked reasonably well and has been a model," he says. "But what about the rest of the state? Comprehensive, required, statewide planning for localities would be a giant step forward for North Carolina, and the time is now. Take it from us, there is no sense messing around."

In Florida, where growth rates are nearly three times the national average, the negative effects of growth began to outweigh the positive ones. "First, there was the concern over environmental problems, but later, it was just so clear to everyone that the quality of life had vanished," says DeGrove. "Growth didn't pay for itself; we had 460 cities and counties each going their own way." After a series of stop-gap measures since the mid-1960s, the Florida legislature "got serious," says DeGrove, and passed in 1985 the State Comprehensive Plan and the Growth Management Act.[15] This act contains, for example, a triggering mechanism where developments beyond a certain size would require state assessment and approval.

Mel Levin, director of the Community Planning Department at the University of Maryland and president of the American Institute of Certified Planners, believes there are many similarities between Maryland and North Carolina as well. Like North Carolina, "Counties are very strong in this state,"

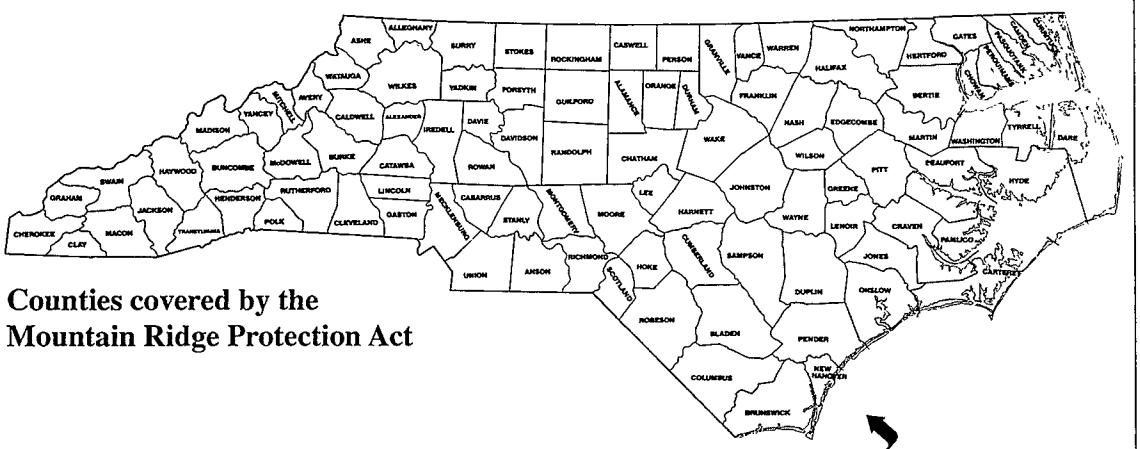
says Levin. Yet such local controls were not enough to protect the ecologically distressed Chesapeake Bay from Baltimore residents. "It was close enough to combine as a recreation-spot and a home-spot" for people working in Baltimore, explains Levin. "The development pressure has been enormous, and the ills of the Bay are the result," he adds.

Maryland has recently passed stringent regulations on coastal shore development. It mandated, for example, low-density development in undeveloped areas adjacent to fragile shellfish waters. (In North Carolina, regulators are trying to affect the density of such developments *indirectly* through water-quality regulations; for more, see section on stormwater regulations on page 61.) "The jury is still out on the impact," says Levin. "The question here is whether the barn door has been slammed after the horse was long gone. What about up river? I would think people in your state might be asking some of the same questions."

Land owners and developers initially resist such regulations, says Levin, "but once they see the benefits, there tends to be genuine enthusiasm for statewide standards. They provide stable rules of the game for everyone, and they are very important in resolving boundary problems that surround a resource, such as this bay area. You have the same resources in North Carolina, the sounds, rivers, and watersheds which are affected by what you do on the land."[16]

Even where statewide standards do exist, additional actions by local officials are often necessary to make these standards work to their best use. The Mining Act of 1971, for example, established a permit program for all mining operators who disturb more than one acre.[17] While North Carolina is not a major mining state, like West Virginia or Louisiana, there are significant numbers of rock quarries, sand pits, and peat mines, all of which fall under this act. The permit system covers land reclamation as well. A permit alone, however, may not be enough to ensure that the potential mining site is used in a way that is compatible with the surrounding area. Local zoning supercedes the mining permit, but not all counties are zoned. "Local officials have a tool available for appropriate ways to develop mineral resources, and they need to use it," explains Charles Gardner, chief of the Land Quality Section, Division of Land Resources in NRCD.

In the absence of a statewide system of minimum standards, one way to address growth issues is through a state performance standard for developers which would supercede the requirements of local ordinances. Developers could be required to certify that they have adhered to a basic checklist of standards, such as road construction, drainage, and erosion control, as well as any applicable local building and zoning ordinances. Such an instrument could be required and enforced through local building permits or procedures for house sales and closings.



Counties covered by the Mountain Ridge Protection Act

Counties covered by the Coastal Area Management Act

Watershed Protection Districts

Creeks, streams, and rivers do not respect political boundaries. In a rural state with abundant water supplies, drinking-water-supply watersheds rarely overlapped political districts. But now all that has changed. Suburban sprawl, population growth, and pressures on water supplies have forced planners and some local government officials to join environmentalists in calling for some form of state-mandated and monitored watershed protection.

The most obvious need for such a district—and perhaps the most difficult situation in which to begin—is the Falls of the Neuse watershed area, covering parts of Durham, Wake, and other counties. A dramatic 5,300-acre "new town" development, called Treyburn, is planned in northern Durham county, in the Falls watershed. Under the Florida comprehensive growth management law, a development the size of Treyburn would require state approval. In North Carolina, state officials have only minimal and indirect ways of addressing the watershed protection issue.

During the Hunt administration (1977-85), NRCD established the Falls-Jordan Steering Committee to function in an advisory capacity on such questions. This committee has essentially quit operating. "We felt we had gotten as far as we could with this kind of voluntary approach," says NRCD Assistant Secretary Pugh. "We shifted gears and decided to use our water supply classification system as a way to move towards a more comprehensive approach to protecting the watersheds."

During Gov. James G. Martin's administration, NRCD began offering a higher water supply classification to those local governments that institute watershed protection programs using state guidelines. If the local government adopts certain land-use controls, NRCD says it will adopt a tougher standard in issuing the permits required for wastewater dischargers in the area. In addition, NRCD has continued to advise local governments in regulating watershed developments and has offered local planning departments technical assistance on engineering and other questions. But still, all of this is voluntary.

"We have made a lot of progress," says George Chapman, director of planning for the city of Raleigh, "but if there's a conflict between a local development objective and the water supply protection issue, there needs to be a way to resolve that conflict. Currently, there's no way to do that. Each local government can decide for itself. There have to be some minimum standards and the state is the proper body to establish them."

During the 1987 legislative session, Raleigh Mayor Avery Upchurch asked Wake County legislators to push a proposal for mandatory regional land management in nutrient sensitive watersheds, such as the Falls of the Neuse. "It was torpedoed by Durham officials," says Upchurch. "They feared such regulations would stifle growth in their jurisdiction. Common sense dictates to me that we must put in standards that are adhered to by all. The marketplace can change, and public officials change office every two to four years. We can't have these resources protected by chance."

While the 1987 bill didn't pass, it did prompt a Legislative Study Committee on Watershed Protection.[18] The nutrient sensitive watershed protection statute, says Upchurch, "is a front-runner for a program that eventually will be implemented statewide." In watershed protection districts, special guidelines and rules could be established for commercial and subdivision developments, wastewater discharges, soil erosion, sedimentation, and other issues, says Upchurch. The N.C. Division of Environmental Management is the likely agency to administer this, he adds.

Watershed protection districts, perhaps more than any other land-use regulation, show the close connection between land-use controls and water quality. After researching the issue for the Water Resources Research Institute, Raymond J. Burby recommends that the state adopt mandatory standards to protect watershed areas in the future and at the same time assume primary leadership for "water supply planning, reservoir site preservation, control of point sources of pollution, and control of nonpoint sources of pollution."[19]

Statewide Enabling Legislation for Development Impact Fees

While statewide standards can impose some uniform order on the growth spurts around the state, some types of local actions still need to be authorized by legislative action. One of these is state enabling legislation for development impact fees assessed by local governments. Such fees, a widely accepted growth financing strategy, require developers to pay up front for the impact that their projects will have on local capital expenditures and services. Currently, each N.C. municipality or county has to ask for special legislation allowing such fees in its jurisdiction.

Raleigh passed the first such ordinance in North Carolina, after getting special authorization from the

General Assembly. The Raleigh ordinance, which uses the softer terminology of "facility fees," assesses developers on a unit basis for road and open space (greenway) costs. The objective is a five-year fund of $2.2 million for thoroughfare construction and $1.2 million for parks and greenways. For each single-family home, a developer is assessed $292 when the building permit is issued. The impact-fee schedule covers everything from hotel/motels ($307 per room) to golf courses (assessed per parking space) to hospitals (charged on square foot basis).[20]

Jim Duncan, an independent land development consultant in Austin, Texas, and an expert on impact fees, strongly recommends them in growth states like North Carolina, and enabling legislation if necessary. "It's a hassle for each community to have to go to the legislature," he says.

Initially, developers fear impact fees, explains Duncan. But such fees represent "certainty, predictability, equity, and accountability," he says. "Essentially, they let the developer off the hook for a fee and put every developer in the same boat. Texas was the first state to pass comprehensive impact fee legislation, and homebuilders drafted it." These fees are an ideal "local option, growth management tool" for states like North Carolina where growth occurs in spurts, says Duncan.

Restricted Zoning Districts to Protect Unique Land Resources or Features

Local governments currently have the authority to adopt measures to protect cultural, historical, and natural features of the land, but often they do not. Sometimes no comprehensive assessment of such features has been made. At other times, local jurisdictions may fear that a restrictive zoning regulation may not be enforceable across governmental boundaries or even in court. When a regulation has the effect of keeping a property from being used for its highest and best use in economic terms, the impact of that regulation is sometimes described as a "taking" of some value from the land.

In 1987, two U.S. Supreme Court decisions addressed the taking issue, *Nollan v. California Coastal Commission* and *First English Evangelical Lutheran Church of Glendale v. Los Angeles County.*[21] "The news media gave the impression that in both cases, the rulings were in favor of private property rights and against public regulatory action limiting the use of property," explains N.C. Special Deputy Attorney General Daniel F. McLawhorn. "But that was an incorrect impression. The issues in both cases were much more narrow than that."

The "taking" issue has been debated in North Carolina, specifically under the Coastal Area Management Act. "Marshland was regarded as worthless unless converted. That's where its economic value lay," says McLawhorn. "But the new CAMA program forbade altering those properties."

The "taking" issue arose in the 1987 legislative session when Rep. George Miller (D-Durham) introduced a bill (HB 1238) called "Cash Compensation for Downzoning." The bill took the view that a regulation—in this case downzoning—"took" some land without compensation by reducing the potential value of the property (i.e., by preventing it from being subdivided). The bill did not pass.

Ironically, the bill illustrates an effort to put the state back into the business of land-use regulation, but protecting the income of property owners instead of the land itself. "Vesting property rights in the current zoning structure is foreign to the public health and safety concept," says McLawhorn. "We must restrict the ability of people to use their property if we're going to protect the greater public good—the environment as a whole."

Bill Holman adds, "It's one of the most dangerous bills I've seen in my eight years as a lobbyist." Holman believes, instead, that restrictive ordinances should be expanded. "There is a critical need for a statute establishing the identification, listing, and

◆

They paved paradise and put up a parking lot; with a pink hotel, a boutique and a swinging hot spot. Don't it always seem to go — that you don't know what you've got till it's gone? They paved paradise and put up a parking lot.

—from "Big Yellow Taxi" by Joni Mitchell

◆

Charlie Buchanan, Winston-Salem Journal

Vacation homes are being developed along the New River, a national Wild and Scenic River.

protection of Areas of Environmental Concern throughout the state, not just in CAMA's 20 coastal counties," says Bill Holman. The Area of Environmental Concern, or AEC designation, is one of the central mechanisms in CAMA for regulating coastal development. "Development would be tightly regulated or in some cases prohibited in such AECs," says Holman. "Among areas prime for inclusion are lands bordering the Blue Ridge Parkway, as well as other federal and state parks; wetlands, including inland bottomlands; and lands bordering scenic rivers such as the New River."

In 1976, a 26.5 mile stretch of the New River's South Fork was designated as a national Wild and Scenic River after a fierce and successful nationwide effort to save the river from being dammed for a massive 42,000-acre reservoir project for a power company. But the 1976 action said nothing about the lands that border the stretch of river, running through Ashe and Alleghany counties, near the community of Jefferson. In a recent report from Jefferson, *The News and Observer* of Raleigh said that real estate agents were turning 400-acre farms into subdivisions with waterfront lots as narrow as 100 feet across. "We have to face reality," Paul T. Reeves, a real estate agent, told the reporter. "That land's going to be developed. If people didn't like it, we wouldn't be able to sell it."[22]

Such development on the New River and at other scenic sites is occurring, says Holman, because the state has not sought protective conservation easements nor funded land purchases for bank-site activities such as camping and picnicking under existing state legislation, called the "Natural and Scenic Rivers System."[23] A new statewide AEC designation would be particularly useful as an interim measure in protecting potential park lands or scenic riverway banks which ought to be purchased for the state park system but have not because of scarce state funds.[24]

While the state parks system may need new funds, so is there a need for a general system of acquiring special types of endangered lands—gamelands, beach access, river access, and natural areas. Currently, the state has no systematic way of deciding how to purchase such endangered lands. Such actions often depend upon the initiatives of individual legislators. "Environmentalists are grate-

ful for legislators who think that buying natural areas in their districts merits their attention, but lots of areas fall through the cracks," says Holman. In addition to needing a way of establishing priorities for acquisition, the state needs the cash. In recent years, South Carolina, Florida, and Tennessee, among other states, have increased land transfer taxes; the new funds have to be used for acquiring parklands, gamelands, and other such purposes.

Improved Land-Use Information and Analysis

The Division of Land Resources includes a section called the Land Resources Information Service. The people operating that service are the first to identify the limits of its information. "There is no land use inventory for the state of North Carolina," says Karen Siderelis, chief of the section. "We've been trying to convince the state to do that for years." Her section, created in 1974 as part of the Land Policy Act, was to develop comprehensive data, information, and analysis on land use trends. However, it has been forced to focus only on selected areas of the state which are of interest to some agency or individual willing to foot the bill.

The state pays for only three full-time positions. The section sustains its 15-person staff and $500,000 budget because "there is a need, and people are willing to pay for this service," says Tom Tribble, who directs the section's computerized Geographic Information System. There is a steady flow of contracts from local governments, federal government agencies, and private developers. The section does not have basic land information for even a fraction of the state's 100 counties.

"The basic problem is we have to input the information each time, whether it's land use, soil type, property boundaries or watershed boundaries, before we can produce the output somebody's after," Tribble explains. Currently, he says, getting the data for each project is about 85 to 90 percent of the cost of each job because there is no central data source.

"It would take about $3 million and two years to input the basic information, plus the cost of doing periodic updates," Siderelis estimates.

◆

"...Cause there's nothing
like the feeling
of knowing that I'm seeing
those Appalachian mountains
'neath the Carolina sky..."

—from "Carolina Sky"
by Mike Cross

◆

"They're Not Making Any More of It"

A 1987 report on the state of the environment, issued by NRCD, does not contain a section on land use, though it does speak to parts of the puzzle in various sections.[25] NRCD does have a Division of Land Resources, but its functions do not address assessing, monitoring, or regulating the complex array of land-use issues discussed here. Moreover, the Environmental Management Commission, viewed as the state's premier environmental regulatory body, concentrates almost exclusively on water and air quality issues. Land-use regulatory matters are spread about among the Mining Commission, the Coastal Resources Commission, the Soil and Water Conservation Commission, and the Sedimentation Control Commission (see table on page 36).

"You know, it's true what the farmers say about the land," says Barry Jacobs, chairman of the Orange County Planning Board. "'They're not making any more of it.' What we have to realize is that there are limits even in a largely rural state like this one, with its lingering sense of unlimited frontier. The ability to do whatever you want on the land is ending as the pressures of growth increase."

In the 1980s, the pendulum of land-use regulations has swung to the local government side. Viewed against the flurry of *state-level tools* added to land-use regulations in the early 1970s, political leaders can ponder whether the pendulum needs to swing back toward the center. Some valuable legacies have survived from the early 1970s, including CAMA and the skeleton of a Land Policy Act. But the momentum has shifted to local-control advocates.

Meanwhile, the scale of balance between development and the environment seems to be weighted on the development side. The prosperity and preservation equation poses special problems in the rural coastal and mountain counties where jobs are scarce and unemployment is high. In those areas particularly, the attitude of NIMBY ("Not In My Backyard") takes on a double meaning—referring to keeping *dangers to the environment away* but also to keeping *environmental regulations away* for fear of losing valuable development, and hence

jobs.

To balance the scale, the pendulum may have to swing back toward more state-level regulations of the land. Five ways that this might be done are: 1) statewide land-use standards; 2) watershed protection districts; 3) statewide enabling legislation for development impact fees; 4) restricted zoning districts to protect unique land resources or features; and 5) improved land-use information and analysis.

"People are starting to ask those basic questions about what makes this place where we live so unique," says Jacobs. "What is it that keeps me here or attracted me here? They like North Carolina. And they want this to still feel like home. But the truth is we're losing it."

FOOTNOTES

[1]N.C.G.S. 113A, Article 14.

[2]The act gave counties three options: 1) come under the provisions of the state law, 2) adopt a local ordinance, or 3) hold a county referendum to let local voters decide whether or not to come under the act at all. Despite the third option, which in effect could have voided the act, only Cherokee County chose to hold a referendum; the voters there chose overwhelmingly to come under the act. For a good summary of the choices, written at the time when they were being made, see "Message from Mountaintops," editorial from the *Winston-Salem Journal* reprinted in *The News and Observer of Raleigh,* Jan. 1, 1984, p. 5D.

[3]N.C.G.S. 113A, Article 7.

[4]For the pertinent regulations, see 33 C.F.R. 320 et seq. and guidelines published by the Environmental Protection Agency at 40 C.F.R. Part 230. For more on this complex legal issue, see Derb S. Carter Jr., "Developments in Federal Wetlands Regulation," *1987 Environmental Law Update,* North Carolina Bar Foundation, Continuing Legal Education Program, 1987, pp. DSC1-DSC8.

[5]On three successive Sundays in May 1987, the *Greensboro News & Record* featured an excellent series of articles on land use issues, divided by coastal, Piedmont, and mountains. See May 17, 1987 (coastal), May 24 (Piedmont), and May 31 (mountains) issues, p. 1A ff.

[6]N.C.G.S. 113A, Article 9.

[7]N.C.G.S. 113A, Article 4.

[8]*The Future of North Carolina—Goals and Recommendations for the Year 2000,* Report of the Commission on the Future of North Carolina, 1983, p. 195.

[9]The data on cropland and forestland acreage was gathered by the Soil Conservation Service, U.S. Department of Agriculture, through its Conservation Needs Inventory (1967 data) and National Resource Inventory (1977 data). Similar data was reported in 1982, but comparisons are not possible because of substantial changes in definitions. For more, see "Land Use and Soil Loss: A 1982 Update" by Linda K. Lee, *Journal of Soil and Water Conservation,* Vol. 9, No. 4, 1984, pp. 226-228. The projection data to the year 2000 comes from *Report of the Forsyth County Agricultural Land Preservation Study Committee,* Forsyth County Soil and Water Conservation District, Dec. 20, 1983.

[10]*Wetlands Trends and Factors Influencing Wetland Use in North and South Carolina,* U.S. Office of Technology Assessment, July 1983 (2.5 million to 695,000 figures); Margie B. Stockton and Curtis J. Richardson, "Wetland Development Trends in Coastal North Carolina from 1970 to 1984," *Environmental Management,* Vol. 11, No. 4 (in press).

[11]Robert B. Smythe, "The North Carolina Sediment and Erosion Control Program: An Analysis by Carolina Resource Consultants for Trout Unlimited and the North Carolina Wildlife Federation," May 1987.

[12]Begun in 1983, the Agricultural Preservation Plan allows the county to purchase development rights from willing farmers as a means of preserving prime agricultural land. The rights are held in trust, and farming continues on the land. Between 1969 and 1978, farmland in Forsyth County decreased by nearly one-third.

[13]"Status of North Carolina Local Planning and Management, 1987," a summary chart prepared by Division of Community Assistance, Department of Natural Resources and Community Development, October 1987.

[14]See "Guiding Growth in the South: A Decade Later," Growth and Environmental Management series, Southern Growth Policies Board, Spring/Summer, 1987; this 39-page report summarizes growth policies in 12 southern states, with a state-by-state table of growth management priorities.

[15]Laws of Florida, Chapter 85-57.

[16]For a discussion of how local and statewide standards used in California and Oregon might apply to North Carolina, see Todd Oppenheimer, "Solutions to Sprawl," *The Independent,* Oct. 22-Nov. 4, 1987, pp. 6ff.

[17]N.C.G.S. 74-46 through 74-68. For a good summary of the mining act and land reclamation issues, see Charles H. Gardner and James D. Simons, "Mining and Reclamation of Land in North Carolina," *Popular Government,* Winter 1984, pp. 12ff.

[18]Chapter 873 of the 1987 Session Laws (HB 1, Sec. 2.1(47D), which refers to the original bill addressing the watershed protection issue, HB 1203.

[19]Raymond J. Burby, "Future Drinking Water: State and Local Policies for Protecting Future Drinking Water Reservoir Sites and Watersheds in North Carolina," Water Resources Research Institute, University of North Carolina, December 1985, p. xv.

[20]City of Raleigh Facility Fee Ordinance and Facility Fee Schedule, Aug. 4, 1987. Ordinance No. 1987-29TC294. That ordinance makes a number of changes to Part 10 of the Raleigh City Code.

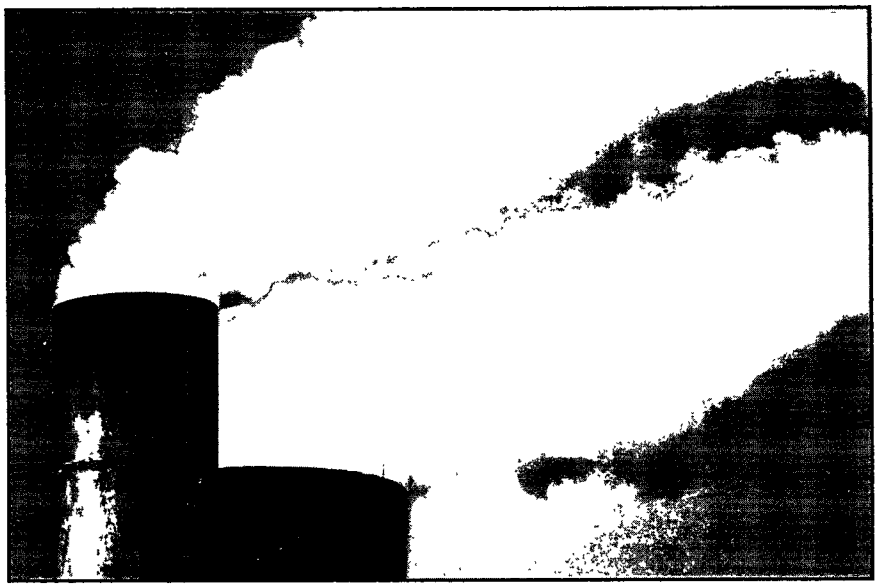
[21]*Nollan v. California Coastal Commission,* 107 S.Ct. 3141 (1987) and *First English Evangelical Lutheran Church of Glendale v. Los Angeles County,* 107 S.Ct. 2378 (1987).

[22]Martha Quillin, "Developers Home in on Scenic New River," *The News and Observer* of Raleigh, Oct. 4, 1987, pp. 1Aff.

[23]N.C.G.S. 113A, Article 3.

[24]For good background on state parks, see "Picking state parks up off the bottom" by Bill Krueger, *The News and Observer* of Raleigh, Oct. 4, 1987, pp. 10ff.

[25]*North Carolina—State of the Environment Report,* 1987, N.C. Department of Natural Resources and Community Development, April 1987. The table of contents reflects the diffuse nature of land-use issues; the separate chapters cover water resources, hazardous and radioactive waste management, natural resource management and environmental protection, coastal and marine resources, air resources, forest resources, agricultural lands, mineral resources, parks, natural areas, and wildlife. This is the first such report required by statute (N.C.G.S. 143B-278.1). NRCD has previously published two such overview reports: *North Carolina's Environment, 1981 Report* (1981); and *Planning for Environmental Quality—Phase II,* which includes a section called "North Carolina Environmental Indicators" (1973).

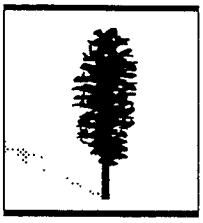


Robert Llewellyn

The Hardison Amendments: Time For A Reappraisal?

by Jack Betts

Fifteen years ago, North Carolina began tying its environmental regulations to those set forth by the federal government. In water quality, air quality, and hazardous wastes, the N.C. General Assembly said state regulations should be no more stringent than federal regulations. The theory was that the federal regulations were sufficiently tough, and that the state should not adopt tougher standards because it might deter potential new industries from locating here. But increasingly, experts say these so-called Hardison Amendments—after their sponsor, Sen. Harold Hardison—do not enhance sound environmental policy. In some past cases, the amendments have kept the state from considering or adopting strict standards, and in other cases, may have delayed the state's adoption of environmental regulations. Worse, they fear, the Hardison Amendments may hamper the state's future ability to deal with upcoming environmental problems unique to North Carolina—problems the federal regulations are not designed to address. For these reasons, it may be time to reappraise the Hardison Amendments.



It was 1973, during the U.S. Environmental Protection Agency's halcyon days of big budgets and aggressive environmental protection, and some legislative leaders were worried that a big federal government would go too far, too fast in its zeal to clean up our air and water supplies. In the closing days of the 1973 General Assembly, state Sen. Harold Hardison (D-Lenoir) saw to it that a special provision was written into the omnibus state budget bill.[1]

It seemed to make perfect sense. In plain language, Hardison's amendment to the state's water quality regulations forbade the adoption of water pollution rules that were "more restrictive than the most nearly applicable federal effluent standards." At the time, few noticed the amendment, and fewer still complained about it. After all, wasn't the EPA doing a good job already? And wouldn't tougher standards possibly harm North Carolina's quest for economic development? Who'd want to jeopardize the creation of new jobs, the expansion of industry, the building of the state's tax base?

Then came the 1975 General Assembly, and another Hardison amendment.[2] This one amended the state's air quality laws, declaring that air quality rules "shall be no more restrictive and no more stringent than required to comply with federal ambient air quality standards." That amendment also stipulated that "no air quality rules, regulations, procedures, plans, practices, air quality standards or emission control standards shall be adopted" unless the EPA had already adopted or proposed regulations, and unless the state first made a detailed economic impact statement and considered other effects of the rules.

By that time, many environmentalists were alarmed at the potential impact of the Hardison amendments on the state's environmental programs. But then-Gov. Jim Holshouser's emphasis on industrial expansion—followed by Gov. Jim Hunt's continued strong efforts to bring new jobs to the state—were main concerns of the legislature. Neither governor objected to the amendments, which drew support from a majority of legislators. There were some questions about the amendments, but those questions weren't enough to promote a legislative rebellion.

Another Hardison-type amendment—developed by a conference committee—was adopted in 1979, this time on hazardous wastes.[3] That amendment, similar to the previous pair, mandated that the state's hazardous waste management program shall be no more comprehensive "than the hazardous waste program prescribed under the federal act," with one main exception: hazardous waste rules dealing with water tables, location near water supplies, and proximity to population centers "may be more comprehensive than the hazardous waste program prescribed under the federal act." Hardison says this clause, adopted in 1981, specifically allows certain rules to be tougher than federal rules and thus mitigates any damage. But it applies only to hazardous waste.

Shortly after the third Hardison amendment was adopted, President Reagan took office. The President implemented cuts in the growth of the EPA budget in an effort to relieve businesses from what he called excessive government regulation. Those cuts, environmentalists say, have meant a reduced federal role in environmental regulation and diminished enforcement efforts.

Now, seven years later, the declining federal role has prompted increasing opposition to the Hardison amendments in North Carolina. If the federal environmental agency has more constraints on its budget and relaxed environmental controls on pollution, environmentalists reason, there might be a corresponding relaxation of environmental protection efforts in North Carolina. And with the Hardison amendments in place, North Carolina wouldn't be able to deal effectively with environmental problems that might be unique to the state.

In fact, a number of leading state policymakers are saying it's time for a review of the Hardison amendments, and some are saying they should be scrapped outright. Among the former are Senator Hardison himself, who has said publicly that he doesn't want to obstruct environmental regulation, and former state Rep. Sam Johnson, a leading lobbyist for the state's business and industry groups. Among the latter is Gov. James G. Martin, who argues that the amendments may be hampering economic development, and that repealing the amendments would stimulate the economy and encourage development (see p. 116 of this article for more). And Lt. Gov. Robert B. Jordan III, who supported the Hardison amendments in the Senate in 1979 and 1981, now favors repeal of the Hardison amendments "because he believes North Carolina is equipped to make its own decisions on the environment," says aide Brenda Summers.

Jack Betts is Associate Editor of North Carolina Insight.

Repeal Efforts

Editorial opposition to the Hardison amendments spread rapidly as public confidence in EPA's enforcement efforts—particularly on the cleanup of waste dumps—plummeted. The state's major newspapers uniformly and regularly criticized the amendments, and in his 1984 campaign for the governorship, then-U.S. Rep. James G. Martin of Charlotte promised environmentalists that he would work for repeal of all three Hardison amendments (see graphic, p. 115, for more). When Martin took office in 1985, environmentalists thought they had the votes lined up to approve legislation[4] by Rep. Joe Hackney (D-Orange) to delete the Hardison amendments.

By April 1985, the stage was set. "If this state wants to preserve its beauty and livability, it must not continue to be hamstrung by federal regulations that may be too weak to ensure that result," declared an editorial in *The News & Observer* of Raleigh in support of the Hackney bill.[5] *The Charlotte Observer* declared, "By approving [the bill], House members can begin to repair many North Carolinians' waning confidence in the state's willingness to protect the environment."[6] And the *Winston-Salem Journal* said, "Tar Heels tend to think they can manage their affairs quite well without outside guidance. That should be as true in protecting the natural environment as in other matters. Legislators should affirm the principle and repeal the needless limits imposed by the Hardison amendments."[7]

But Hackney's bill was defeated in the House on April 16, 1985 on a close vote, 51-62. Despite Governor Martin's support, Republicans in the House voted nearly 4-1 against the bill. (Of the 38 Republicans, eight voted yes, 29 voted no, and one abstained, while of the 81 Democrats, 43 voted for repeal, 33 against, and five abstained or were absent.) Repeal of the Hardison amendments was dead for two years. Efforts to repeal the amendments surfaced again in 1987, when Representative Hackney filed separate bills to delete the restrictions on hazardous waste and water quality rules.[8] But the bills got nowhere, and were lying inert in the House Judiciary III Committee when the legislature adjourned. Under the adjournment resolution, the bills cannot be considered in the 1988 short session without a suspension of the rules—always difficult to achieve.

So the Hardison amendments remain on the books, even as state officials and environmentalists continue to debate what effect they have had and whether they should be repealed. Environmentalists advocate repeal. On the other hand, state environmental officials say that the amendments have not been insurmountable impediments to environmental regulation in North Carolina.

That's because the wording of the Hardison amendments—each significantly different from the others—*seems* at first glance to allow the state to adopt regulations tougher than federal standards if the state first goes through a hearing process and makes an economic assessment of the proposed rule.

◆

The Hardison Amendment on Water:

"It is the intent of the General Assembly that the effluent standards and limitations and management practices adopted hereunder shall be no more restrictive than the most nearly applicable federal effluent standards and limitations and management practices."

— G.S. 143-215(c)

◆

◆

The Hardison Amendment on Air:

". . . air quality rules, regulations, procedures, plans, practices, air quality standards, and emission control standards adopted by the [Environmental Management] Commission . . . shall be no more restrictive and no more stringent than required to comply with federal ambient air quality standards or other applicable federal requirements ... except that no air quality rules, procedures, plans, practices, air quality standards or emission control standards shall be adopted ... unless the [Environmental Management] Commission first considers, among other things, an assessment of the economic impact of the proposed standards."

—G.S. 143-215.107(f)

◆

But that is not really the case. *The economic impact statement clause appears in the language of only one amendment—the Hardison amendment on air quality.* There is no corresponding clause for the water quality Hardison amendment, through the hazardous waste amendment does allow tougher rules, but only in cases involving questions of water supply and proximity to population centers.

The actual latitude given the state is the subject of considerable debate even among the state officials most conversant with the Hardison amendments. If there is no federal standard for a water effluent or an air pollutant, then the state may adopt its own standard—but only after going through the economic assessment process. That's the state's operating procedure, based on a series of interpretations by the office of the Attorney General from 1975-1979.[9] But as Paul Wilms, director of the state's Division of Environmental Management, points out, if the EPA has already adopted a standard for an air pollutant or a water effluent, then under the Hardison amendments, the state *cannot* adopt a more restrictive standard even if the state does hold hearings and makes an economic assessment. Yet Hardison himself is of the opinion that the state *can* adopt any standard it wants to, if it will first go through the hearings process.

"The fact of the matter is," says Professor Richard Andrews of UNC-Chapel Hill's Institute for Environmental Studies, "that while the law does appear to allow you to adopt stricter standards, in most cases the state won't do so because of the difficulty, the time, and the expense involved. So the Hardison amendments have this chilling effect on environmental regulation."

Adds Lark Hayes, a lawyer and director of the N.C. office of the Southern Environmental Law Center in Chapel Hill, "The different wording of each Hardison amendment has sparked a legal debate about what each one really means. The precise nature of the handcuff, and the confusion about them, has created a big problem. It's perplexing from a legal point of view."

So perplexing and confusing are the Hardison amendments that they sometimes get blamed for delays that are due to similar-sounding statutes. Consider the case of the leaking underground storage tanks, for example.

Currently, the state is drafting new regulations that are designed to identify, clean up, and control

leaking underground storage tanks, often described as one of the state's more pressing environmental problems. In the Piedmont near the town of Kernersville and the community of Colfax, leaking oil and gasoline tanks have polluted well water, and have been linked to a variety of environmental and health problems. But the state has been delayed in issuing its tank criteria because the law authorizing the state to regulate such tanks also ties the state's regulations to forthcoming federal standards—which haven't been issued.

As DEM's Wilms says, "While we have had tank criteria ready in rule form, and ready for hearings, because of this Hardison-type provision, we can't even go to public hearings because the feds haven't adopted their regulations. It may be March or April of 1988 [before the federal government acts], so we have to wait. And without that authority, we have no way of regulating underground tanks in North Carolina—and 64 percent of the groundwater problems we have today are related to underground tanks." The state thus is put in the position of waiting for the federal regulations, so the state won't have to redo its work and lower its standards *if* the federal standards are less restrictive. This amounts to a frustrating Catch-22 for environmentalists, developers, and state officials. The state has the authority to develop tank criteria, but it also has to be sure they don't exceed federal regulations—which haven't yet been issued.

Because of this confusion and division over the Hardison amendments, Bill Holman, who represents the Conservation Council of North Carolina and the N.C. Chapter of the Sierra Club before the legislature, makes a strong case for eliminating the laws. "I have no doubts that we'd be further along in environmental regulation than we are because the main concern is a philosophical one—that in North Carolina we are too dumb to solve our own environmental problems, and we've got to rely on big brother to take care of us. This whole notion of accepting only the minimum national standard on a pollutant, or having no standard at all, is just plain wrong."

But Ernie Carl, deputy secretary of natural resources and community development, sees it differently. "They [the amendments] probably made more of a difference in the past, back when the EPA was handing down edicts left and right, declaring standards frequently. But in recent years, the EPA has become more cagey, telling states, 'You come up with the regulations.' So the Hardison amendments have become something of a fifth wheel, and I think in five years they'll have become irrelevant."

But state officials also concede there is no guarantee of that. And state officials and environmentalists can point to several cases where the Hardison amendments have had an *impact* on state policy—sometimes adversely—and to instances where the Hardison amendment may do real harm.

The Effects of the Hardison Amendments

Consider these examples:

■ In 1975, North Carolina had one of the nation's stronger air pollution programs. But after the 1975 General Assembly adopted the Hardison amendment on air quality, the state's standards were changed to allow slightly higher overall levels of industrial ambient air emissions, called Total Suspended Particulates. The standards had been more stringent than the EPA's, but after the Hardison amendment was adopted, North Carolina's air emission standard was lowered to match the federal level. Lewis Martin, at the time the director of the Division of Environmental Management, was caught unaware by the 1975 Hardison amendment. "I didn't even realize what was going on until the thing was almost law," Martin told *The Charlotte Observer*. "If we had had more time, we'd have fought it." Martin said the big problem was North Carolina's flexibility in regulating the environment. "We've lost our maneuverability in this area," he said. "We're in a box—our standards will now be set by people in Washington, and if they lower their standards, we'll have to lower ours."[10]

■ Former Secretary of Natural Resources and Community Development Joe Grimsley says the Hardison amendments played a role in preventing the state from adopting a ban on biocides. In 1984, state regulators began noticing organic chemicals called biocides in the state's surface waters and effluents. Also known as organotins, biocides are chemical compounds designed to kill certain organisms. They are used in socks to kill odor-producing bacteria, for example, and in air-conditioning towers as disinfectants. The Division of Environmental Management staff, concerned about their effect on water quality and animal life, proposed to prohibit biocides in the state's waters, Grimsley said in an interview. But DEM ultimately decided not to push for a ban, and part of the reason was the Hardison amendment.

Bill Kreutzberger, a staff member in the Division of Environmental Management, said that DEM concluded that the state didn't have the authority to

Carol Majors

"In all things of nature ... there is something of the marvelous."

—*Aristotle*

ban biocides. "A zero standard was considered to be an effluent standard," says Kreutzberger—and effluent standards where there are no federal standards are difficult to set. The state must go through a complex and time-consuming procedure, and DEM and the EMC didn't want to wait that long to act. So instead of instituting that ban, the EMC approached it a different way, and set a water classification standard that had the effect of strictly controlling biocides—but still high enough to allow biocides to continue to be used.[11] Since that standard was adopted, state officials say they have found no evidence that biocides have been a problem. But the point is that the Hardison amendments did affect the way state policy was made. "The Hardison amendments dictated the method, the option we chose to deal with biocides," notes Wilms.

■ The Hardison amendment on air quality also has been one of several factors in delaying the state in its attempts to clean up the air. Dr. Robert Harris of the UNC School of Public Health in Chapel Hill, himself a former member of the Environmental Management Commission, notes that the DEM staff is developing a proposal to control toxic air pollutants in North Carolina, but has been slowed partly because of the economic assessment that is required if the state seeks to adopt an environmental standard where the federal government has no standard. The state cannot adopt standards the federal government has not issued, according to G.S. 143-215.107(f)(ii), "unless the Environmental Management Commission first considers, among other things, an assessment of the economic impact of the proposed standards."

Yet those assessments are expensive, and NRCD has not had the money to finish the work, according to the department. And so far, the EPA has not adopted its own toxic air standards. So North Carolina is at least temporarily handcuffed, limited to controlling only the four pollutants that EPA already regulates, such as carbon monoxide and nitrogen oxide, while it waits for the money to finish its assessment and adopt its own. "My guess is that we'll suffer the effects of these harmful pollutants [toxic emissions] because of the Hardison amendments," says Harris.

Business and industry officials don't agree with this interpretation. Charles Case, a Raleigh environmental lawyer who has represented industry on environmental cases before the EMC and the courts system, observes, "The Hardison amendments do not appear to require any delay in their promulgation. The primary source of delay is the fact that the state has undertaken the complex and lengthy task of trying to develop defensible toxic limits. Such determination may well exceed the resources of any state, and it may well be that only the federal EPA has the resources to undertake such a comprehensive and difficult initiative. The department sought outside technical assistance from the N.C. Academy of Science in developing toxic regulations, which required time. If the primary concern is inconsistency with a federal program, that concern would exist regardless of the Hardison amendments because the state program would have to be consistent with the federal program in order to be approved."

■ Those emissions also hold the threat of damaging important crops to North Carolina, notes Wilms. "The state has to have the ability to be more stringent than the federal government because the EPA sets standards for nationwide applicability, not local situations. For example, the federal ozone standard is four times the level that adversely affects tobacco and corn [ranked as the second and ninth

largest cash crops in this state, which also are leading crops in Senator Hardison's home county of Lenoir] yet North Carolina cannot have a [tougher] standard because of the Hardison amendment. Now, we don't need a standard more restrictive than the EPA's for, say, cactus. But we may well need more restrictive standards for these others," says Wilms.

If toxic pollutants harmed tobacco and corn, the example used, then the Hardison amendments will have had the reverse of the intended effect—economic damage rather than economic improvement. Studies already have shown how acid rain damages corn, wheat, and soybeans in the Piedmont region of the state. Still, the N.C. Farm Bureau opposes repeal of the Hardison amendments. The Bureau supports the Hardison amendments because, says Farm Bureau President W. B. Jenkins, "We feel that decisions on standards are best left in the hands of elected officials who are more responsive to the needs of agriculture than appointed bureaucrats and employees of state agencies who are not familiar or knowledgeable concerning agricultural practices. Many individuals who want the power to change standards in North Carolina have no idea of the necessary changes in cultural practices and the cost of these changes to farmers. These production costs must be weighed against any potential threat to damaging crops in North Carolina."

■ And there are other coming issues that the Hardison amendments could affect adversely. For instance, more county and municipal governments—including the counties of Durham, Orange, and Alamance, as well as the city of Greensboro—are considering incinerators to reduce their solid waste problems (see p. 40 for more), yet so far the EPA has issued no regulatory standards for air emissions from these incinerators—despite evidence that these emissions can be toxic. "Federal regulations are expected in 1990," says Holman, but that may be "too late." It's difficult, time-consuming, and expensive for North Carolina to adopt its own standards in the absence of federal ones. And the same goes for emissions that may be linked to the problem of acid rain or acid deposition. Acid rain is thought to be part of the reason that trees are dying not only on Mt. Mitchell and other parts of western North Carolina, but in eastern and Piedmont North Carolina as well, according to controlled experiments at N.C. State University in Raleigh. Some policymakers contend there's little that North Carolina could do about acid rain, but with the Hardison amendments in place, it's difficult even for the state to consider doing something about it.

■ Several North Carolina cities—particularly Raleigh and Charlotte—have major problems with air quality because of automobile emissions. Carbon monoxide from auto exhausts can cause blood

◆

The Hardison Amendment on Hazardous Wastes:

"The rules and standards concerning hazardous waste promulgated ... shall be no more stringent than those rules, regulations and standards promulgated under the federal act; provided, that in establishing acceptable water table levels, location in relation to water supplies and population centers and appropriate buffer zones, the rules and standards promulgated . . . shall be at least as comprehensive and may be more comprehensive than the hazardous waste program prescribed under the federal act."

—G.S. 130-166.21D(b)

◆

Robert Llewellyn

poisoning, and the air in these cities was listed by the EPA in August, 1987 as among the 10th worst among 65 areas nationwide that did not meet the federal carbon monoxide standard from 1984-86. And ozone, the principal pollutant in smog, is created from hydrocarbon emissions, which come from vehicle exhausts and other sources, including industrial emissions. Studies also have shown that ozone created in North Carolina has limited visibility in the western part of the state. Yet even if the state wanted to clamp down on automotive emissions, says Conservation Council of N.C. Executive Director Russell Norburn, "It would be virtually impossible to do that under the Hardison amendments."

Adds UNC's Harris, "If the people of North Carolina want their air to be cleaner than federal regulations permit for the *dirtiest* cities in America, we should be allowed to do it. I very much wish that we did not have the constraints of the Hardison amendments imposed upon us."

Arguments for the Amendments

Like the Farm Bureau, industry officials remain supportive of the Hardison amendments. For instance, Raymond H. Cates, manufacturing manager at the PPG Industries Inc. plant in Lexington, says the amendments make sense. "PPG is a good corporate citizen, and we always want to work with legislators to pass beneficial environmental laws that are not unduly restrictive," Cates told *North Carolina* magazine in 1986.[12] "But considering some of the proposals we've seen in Raleigh, I have to say thank God for the Hardison amendments. If they had been repealed, we might be saddled with some laws that would be very hard to live with."

Cates no doubt was referring to administrative rules and regulations when he referred to "laws," because the fact is that the amendments do not preclude the legislature from adopting any law it chooses. The General Assembly has, of course, passed some *laws* that are more restrictive than federal regulations, such as the ban on shallow burial of radioactive wastes or the anti-GSX hazardous waste facility bill adopted in the 1987 session (see p. 78 for more). As Marc Finlayson, a spokesman for the N.C. Textile Manufacturers Association, puts it, "The amendments simply give the General Assembly scrutiny over promulgation of environmental rules by the administrative agencies. I would argue that the vast majority of lawmakers appreciate this kind of oversight."

North Carolina Citizens for Business and Industry (NCCBI), which functions as a statewide chamber of commerce, remains strongly behind the Hardison amendments. Joe Harwood, a Duke Power Company executive and chairman of NCCBI's Environmental Concerns Committee, says the Hardison amendments have not hampered the state and have made good business sense. "Our basic environmental policy at NCCBI is to promote environmental legislation that is scientifically sound and economically feasible. We believe that a consideration of the costs of a program is good public policy and does not serve as a deterrent to environmental protection. In the absence of a consideration of costs, environmental statutes and regulations can be imposed at great cost to business and the public without

substantial benefit to the environment," Harwood says.

"Industry recognizes and agrees with the need for reasonable environmental controls," adds Harwood, but those controls should stem from uniform standards based on scientific studies—studies he says the EPA is best equipped to do. "Also, federally promulgated standards allow industries located in more than one state of being assured of equitable standards based on scientific data compiled in a uniform manner. For these and the other reasons stated above, we believe that the Hardison amendments have benefited the state of North Carolina."

Time for a Reappraisal

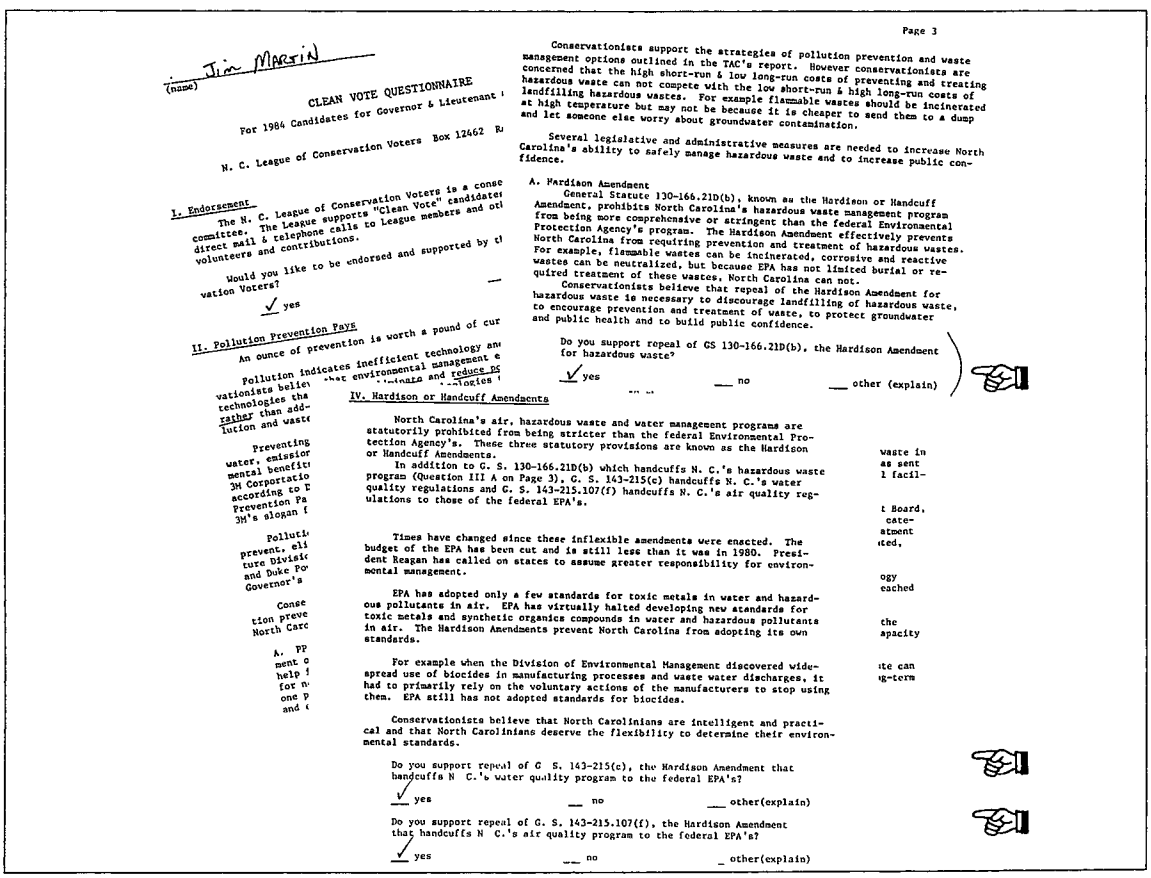
Though many business groups still support the amendments, one top business lobbyist says it may be time for a reappraisal. Former state Rep. Sam Johnson of Raleigh, perennially rated one of the legislature's top lobbyists,[13] says that legislators "felt they were a reasonable ceiling on environmental regulations" when they were first adopted. One reason, he says, is that "Multi-state industries have always argued that environmental legislation should generally be uniform throughout the nation and that it can be supplemented in local states by such matters as the Coastal Area Management Act or other regulations that would not be appropriate on a nationwide basis."

But, says Johnson, "Since these regulations have been on the books for 10 to 15 years, I would not object to a review of all of them, including an effort to see to what extent circumstances have changed."

Such a reappraisal is the recommendation of the 1983 report by the N.C. 2000 Commission, called *The Future of North Carolina.* That report observes:

> "During the 1970s, when federal environmental regulation was expanding and the federal government developed substantial expertise on which to base such regulations, the state chose to link its own regulations directly to those of the federal government by enacting laws providing that they could be neither more restrictive nor more comprehensive than those of the federal government. As the federal government now reduces its role, and deliberately leaves more and more of these responsibilities

Governor Martin filled out this environmental questionnaire during his 1984 campaign.



Page 3

(name) Jim MARTIN

CLEAN VOTE QUESTIONNAIRE

For 1984 Candidates for Governor & Lieutenant

N. C. League of Conservation Voters Box 12462 R

I. Endorsement

The N. C. League of Conservation Voters is a conse committee. The League supports "Clean Vote" candidates direct mail & telephone calls to League members and oth volunteers and contributions.

Would you like to be endorsed and supported by th vation Voters?

✓ yes

II. Pollution Prevention Pays

An ounce of prevention is worth a pound of cur

Pollution indicates inefficient technology and vationists believ technologies tha environmental management e and reduce po wastes rather than add- lution and waste

Preventing water, emissior mental benefit 3M Corporatio according to P Prevention Pa 3M's slogan f

Polluti prevent, eli ture Divisic and Duke Fo Governor's

Conse tion preve North Carc

A. PP ment o help f for n one p and

Conservationists support the strategies of pollution prevention and waste management options outlined in the TAC's report. However conservationists are concerned that the high short-run & low long-run costs of preventing and treating hazardous waste can not compete with the low short-run & high long-run costs of landfilling hazardous wastes. For example flammable wastes should be incinerated at high temperature but may not be because it is cheaper to send them to a dump and let someone else worry about groundwater contamination.

Several legislative and administrative measures are needed to increase North Carolina's ability to safely manage hazardous waste and to increase public confidence.

A. Hardison Amendment

General Statute 130-166.21D(b), known as the Hardison or Handcuff Amendment, prohibits North Carolina's hazardous waste management program from being more comprehensive or stringent than the federal Environmental Protection Agency's program. The Hardison Amendment effectively prevents North Carolina from requiring prevention and treatment of hazardous wastes. For example, flammable wastes can be incinerated, corrosive and reactive wastes can be neutralized, but because EPA has not limited burial or required treatment of these wastes, North Carolina can not.

Conservationists believe that repeal of the Hardison Amendment for hazardous waste is necessary to discourage landfilling of hazardous waste, to encourage prevention and treatment of waste, to protect groundwater and public health and to build public confidence.

Do you support repeal of GS 130-166.21D(b), the Hardison Amendment for hazardous waste?

✓ yes ___ no ___ other (explain)

IV. Hardison or Handcuff Amendments

North Carolina's air, hazardous waste and water management programs are statutorily prohibited from being stricter than the federal Environmental Protection Agency's. These three statutory provisions are known as the Hardison or Handcuff Amendments.

In addition to G. S. 130-166.21D(b) which handcuffs N. C.'s hazardous waste program (Question III A on Page 3), G. S. 143-215(c) handcuffs N. C.'s water quality regulations and G. S. 143-215.107(f) handcuffs N. C.'s air quality regulations to those of the federal EPA's.

waste in as sent l facil-

t Board, cate- atment ited,

ogy eached

the apacity

ite can ng-term

Times have changed since these inflexible amendments were enacted. The budget of the EPA has been cut and is still less than it was in 1980. President Reagan has called on states to assume greater responsibility for environmental management.

EPA has adopted only a few standards for toxic metals in water and hazardous pollutants in air. EPA has virtually halted developing new standards for toxic metals and synthetic organics compounds in water and hazardous pollutants in air. The Hardison Amendments prevent North Carolina from adopting its own standards.

For example when the Division of Environmental Management discovered widespread use of biocides in manufacturing processes and waste water discharges, it had to primarily rely on the voluntary actions of the manufacturers to stop using them. EPA still has not adopted standards for biocides.

Conservationists believe that North Carolinians are intelligent and practical and that North Carolinians deserve the flexibility to determine their environmental standards.

Do you support repeal of G. S. 143-215(c), the Hardison Amendment that handcuffs N. C.'s water quality program to the federal EPA's?

✓ yes ___ no ___ other(explain)

Do you support repeal of G. S. 143-215.107(f), the Hardison Amendment that handcuffs N. C.'s air quality program to the federal EPA's?

✓ yes ___ no ___ other(explain)

◆

The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea. ... This pollution is for the most part irrecoverable.

—*Rachel Carson*

◆

to the states, it is increasingly evident that North Carolina *must reassess* its own policies and priorities, including in some cases the possibility of formulating regulations that are tougher or broader than Washington's. It is also likely that, in addressing this issue, the state will identify approaches that are more innovative, more cost-effective, and better suited to its own environmental protection needs and its own businesses than those promulgated on a uniform nationwide basis" [emphasis added].[14]

The DEM's Wilms, who serves as the state's top environmental enforcer and whose staff is credited by environmentalists for improved enforcement efforts in recent years, agrees that the state would be better served without the Hardison strictures. "My concern is that the Hardison amendments—existing ones or new ones—might restrict the state's ability to move forward with a new concern," says Wilms. "For that reason, I would modify or eliminate those amendments. On the other hand, the state does need to be accountable and to determine what the impacts of a rule are. Once having done an economic impact, we find that it makes our case stronger."

Hardison himself concedes that it may be time for a reassessment—though he still views the amendments as useful. "In summary, I consider the Hardison amendments to have been practical solutions to some pretty difficult problems," says Hardison. "On the one hand, we must always demand strict environmental standards. On the other hand, we have an obligation to work with all of our citizens to insure that our environmental regulations are uniform and workable."

But, Hardison continues, "The Hardison amendments were passed at a time when we had a very aggressive Environmental Protection Agency in Washington. That situation has changed considerably in the past several years and the time may be right to review the Hardison amendments to determine if they are in fact obstructing the wise management of our natural resources. However, before I would support relaxing the amendments, I would have to be assured that such action would not cause a renewal of the duplicating and overlapping local, state, and federal regulations which created unacceptable confusion and burdens on the public prior to the Hardison amendments."

Gov. Jim Martin is firm in his approach, however—he wants to repeal the amendments. "I believe the state must be able to develop and maintain regulations that protect the myriad environmental conditions unique to North Carolina. The state should not depend on the federal government, but should be the decision-maker in all matters relating to our environment."

And rather than hampering economic development, says Martin, repealing the Hardison amendments would enhance the state's efforts. "In the long run," says the Governor, "tougher environmental protection stimulates the economy and encourages development. By getting tougher on individual industries, we provide more room (in the finite world of natural resources) for newer and better industries with better technologies."

Recommendation

On balance, the N.C. Center for Public Policy Research concludes that the three Hardison amendments—G.S. 143-215(c), G.S. 143-215.107(f), and G.S. 130-166.21—have disrupted North Carolina's ability to protect its environment and to safeguard its future. They have had a negative impact upon the quality of the state's air and upon its waters by delaying and hampering rulemaking, and have had a chilling effect on effective environmental regulation.

For these reasons, the Hardison amendments should be repealed:

- Because of the 1975 Hardison amendment on air quality, ambient air standards for total suspended particulates were lowered to match those of the federal government.
- The Hardison amendment on water effluent had an effect on environmental policymaking in 1984 when the Division of Environmental Management concluded it did not have the authority to seek a ban on a certain chemical compound. The environ-

mental threat was resolved without the ban that first had been proposed, but in future cases where a ban might be necessary, the Hardison amendment could be an impediment to necessary regulations.

■ Partly because of delays in federal regulations and the Hardison amendment's strictures, the state has not yet adopted standards dealing with toxic air pollutants, since the federal government has not adopted its own toxic air regulations.

■ Evidence has shown that air pollutants can damage major cash crops in North Carolina, and environmentalists fear that the Hardison amendments could delay the state in properly protecting agricultural products like tobacco and corn if air pollutants begin to damage them on a widespread basis.

■ And because of the Hardison amendments, the state may be delayed in adopting standards for municipal solid waste incinerator emissions, since federal standards are not expected for several years.

State officials, environmentalists, and industry officials have debated the merits of the Hardison amendments for years. But the record clearly shows that they have affected policy and they have affected policymaking, and in the future they could become significant impediments to environmental protection and to economic development.

For these reasons, the N.C. Center for Public Policy Research recommends that the 1988 General Assembly carefully consider the record, revive the legislation introduced in 1987, and repeal the Hardison amendments.

FOOTNOTES

[1]Chapter 821, Section 6 of the 1973 Session Laws, now codified as G.S. 143-215(c). For more on how special provisions have affected the legislative process, see also Ran Coble, *Special Provisions in Budget Bills, A Pandora's Box for N.C. Citizens,* June 1986, and March 4, 1987 follow-up report, N.C. Center for Public Policy Research.

[2]Chapter 784 of the 1975 Session Laws, now codified as G.S. 143-215.107(f), and amended by Chapter 545 of the 1979 Session Laws.

[3]Chapter 464 of the 1979 Session Laws, now codified as G.S. 130-166.21, and amended by Chapter 704 of the 1981 Session Laws. Senator Hardison says he did not sponsor this "Hardison amendment," but supported it in the Senate when it was proposed as part of a Senate committee substitute creating Chapter 704.

[4]House Bill 196, "Flexibility in Environmental Regulations," sponsored by Rep. Joe Hackney (D-Orange), 1985 General Assembly.

[5]"Unshackling the state," *The News and Observer* of Raleigh, April 15, 1985, Editorial Page.

[6]"Repeal 'Handcuff' Amendments," *The Charlotte Observer,* April 15, 1985, Editorial Page.

[7]"Affirming a Principle," *Winston-Salem Journal,* April 13, 1985, Editorial Page.

[8]House Bill 1104, "State to Regulate Hazardous Waste," and House Bill 1105, "Water Quality Rules Flexible," sponsored by Rep. Joe Hackney (D-Orange), 1987 General Assembly.

[9]These interpretations include the following memoranda and opinion: Memorandum from the Assistant Attorney General John R.B. Matthis, Feb. 17, 1975; Memorandum from Assistant Attorney General Dan Oakley, July 14, 1975; Memorandum from Assistant Attorney General Dan Oakley, July 24, 1975; Opinion of the Attorney General, Rufus L. Edmisten, Dec. 11, 1975; and Memorandum from Assistant Attorney General Dan Oakley, Aug. 1, 1975;

[10]Paul Bernish, "N.C. Eases Rules On Air Pollution," *The Charlotte Observer,* Sept. 25, 1975, p. C1.

[11]15 N.C. Administrative Code 2B, effective Jan. 15, 1985.

[12]"Businessman In The News," *North Carolina* magazine, N.C. Citizens for Business and Industry, December 1986, p. 51.

[13]Johnson was ranked first among the list of "Most Influential Lobbyists" for the 1985 legislative session in the biennial survey of legislators, lobbyists, and capital news correspondents conducted by the N.C. Center for Public Policy Research, and reported in *Article II: A Guide to the 1987-88 N.C. Legislature,* April 1987, p. 209.

[14]*The Future of North Carolina: Goals and Recommendations for the Year 2000,* Report of the Commission on the Future of North Carolina, published 1983, N.C. Department of Administration, pp. 156-157.

Carol Majors

North Carolina's Constitution Comes of Age

by Katherine White

This regular Insight *feature focuses on how the judicial system affects public policymaking. This column examines how the N.C. Supreme Court is beginning to rely more on the state Constitution than the U.S. Constitution in defining individual rights.*

Throughout last year's fireworks celebrating the Bicentennial of the *United States* Constitution, another equally important document quietly gained attention from the North Carolina Supreme Court — the *North Carolina* Constitution. It became the constitution relied on, at least in part, in several cases involving civil rights, replacing the state Supreme Court's traditional focus on the federal Constitution.

The Court's shift is hardly revolutionary. Rather, it brings North Carolina in step with a trend that began more than 15 years ago when other states' appellate courts started looking to their own constitutions when defining the rights of individuals.[1] Syracuse University legal scholar Ronald K.L. Collins has found nearly 400 state supreme court cases since 1970 where the courts relied on state constitutions in cases involving individual rights.

This national trend has been spurred in reaction to the judicial conservatism of the present U.S. Supreme Court, which began with former Chief Justice Warren Burger's term in 1969 and which continues to carve exceptions into earlier U.S. Supreme Court decisions that expanded the protections of the U.S. Constitution. Since the Burger Court began, for example, the U.S. Supreme Court has limited earlier rules designed to protect individuals against unreasonable searches prohibited by the Fourth Amendment of the U.S. Constitution.[2] The U.S. Supreme Court also has limited the extent to which the Constitution will protect obscene materials under the the freedom of speech guarantee of the First Amendment.[3]

In North Carolina, some top judges have begun encouraging the bar to rely more on the N.C. Constitution when those lawyers make their judicial arguments. Among them is N.C. Supreme Court Chief Justice James G. Exum, Jr., who has urged North Carolina lawyers to raise state constitutional issues in their cases. "It is time, I think, that we dust off the old document, learn what we can about it, and use it where appropriate," he says.[4] That view receives approval from U.S. Supreme Court Justice William J. Brennan, who says "[E]very believer in our concept of federalism... must salute this development in our state courts." [5]

N.C. Associate Justice Harry Martin, who teaches a course on state constitutional law at UNC-CH Law School, believes that using state constitutions instead of the federal Constitution gives "the people of the individual states greater protection of their individual rights because of the way people live in the different states."

Martin points out that the Florida Constitution gives its residents greater freedom from unreasonable searches and seizures on boats, an important part of the state's tourist industry, than does the U.S. Constitution. And, he notes, the Alaska Constitution offers similar protections to passengers on

Katherine White, a lawyer with the Attorney General's office, is a frequent contributor to North Carolina Insight.

airplanes, the main mode of travel in that state—protection that the U.S. Constitution does not extend. North Carolina's Constitution also offers some rights not mentioned in the U.S. Constitution, such as the right to an education, the right to a system of inexpensive higher education, and access to a system of open courts (see box, p. 120).

But this new focus on the N.C. Constitution lacks the wholehearted support of all North Carolina's Supreme Court justices. Justice Louis Meyer says, "We have significant legal precedent to the effect that some of our state Constitutional provisions are co-extensive with rights under the federal Constitution. With regard to these particular provisions, individual rights under the state Constitution begin at the same place and end at the same place as the comparable federal constitutional provisions. I will continue to follow this Court's prior decisions with regard to these particular comparable provisions. A thorough analysis needs to be made before the judiciary relies upon a particular provision of the state Constitution as providing rights different than those guaranteed by a comparable provision of the federal Constitution. As to whether other provisions of our state Constitution, to which this Court has not spoken, provide greater or different rights than the federal Constitution provides, my mind is open. Reliance upon provisions of our state constitutions must not become simply a method of evading federal review of our decisions."

But Justice Martin contends, "The problem in following that view is that, to me, it may demonstrate a lack of understanding—and I'm not trying to be critical of my brothers—of the federal Constitution and the state Constitution." The distinction is that state constitutions were designed to respond to the needs of individual states, Martin adds, while the U.S. Constitution responds to the needs of all 50 states.

The N.C. justices recently demonstrated their divided views in *State v. Cofield.*[6] There, the defendant challenged his conviction on second-degree rape and breaking and entering charges because of what he claimed was racial discrimination in the selection of the grand jury foreman. The defendant, who was black, raised both state and federal constitutional questions. Only three justices in the 6-1 decision wholly accepted the majority opinion written by Chief Justice Exum,[7] although five agreed on the state constitutional question.

That opinion held that both state and federal constitutional rights may have been violated when the defendant showed that blacks had been excluded from serving as foreman on the grand jury that indicted him. The case was returned to the trial court for additional hearings to determine whether there were violations of Article 1, Sections 19 and 26 of the N.C. Constitution, which guarantee equal protection under the law and prohibit discrimination on the basis of race.

Justice Meyer argued that the Court should limit its decision to the U.S. Constitution. "I find it unnecessary and unwise to proceed to any analysis of rights under the state Constitution," he wrote.[8] Conversely, Justice Mitchell disagreed with the majority discussion of any federal constitutional questions. Limiting the decision to the state Constitution, he wrote, "is final and binding, even upon the Supreme Court of the United States.... Having decided this case on an adequate and independent State ground, the Court is most unwise from any standpoint—practicality, judicial restraint or disciplined legal scholarship—to address questions concerning the Constitution of the United States."[9] Thus, five justices agreed that racial discrimination in choosing a grand jury foreman would violate the state Constitution, four justices said it would violate the U.S. Constitution, and three held that it would violate both.

Despite the internal Court debate on whether to use the state or federal constitution, a recent case raised no debate because the lawyers brought only state constitutional questions to the Supreme Court and, therefore, the Court did not look to the federal document. "The courts are not self-starters," Justice Martin explains. "We have to be cranked, and unless the lawyers raise state constitutional grounds, they're not before us. And, until the lawyers become aware that their clients may have strong rights under the state Constitution, we're limited as to what we can do about it."

In that case, a company challenged an Onslow County ordinance that regulated businesses "providing male or female companionship."[10] The idea behind the law was to regulate establishments offering "movie mates," where male customers could enjoy a movie in a private room with a hired female companion. Movie mate establishments are the latest wrinkle for providing sex at a price. They popped up after Onslow County regulated massage parlors out of business in 1978. To ensure that the operators didn't invent another way to disguise their

Provisions in the N.C. Constitution Not Found in the U.S. Constitution

Article 1, Section 15. *Education.* The People have a right to the privilege of education, and it is the duty of the State to guard and maintain that right.

Article 1, Section 18. *Courts shall be open.* All courts shall be open; every person for an injury done him in his lands, goods, person, or reputation shall have remedy by due course of law; and right and justice shall be administered without favor, denial, or delay.

Article 9, Section 9. *Benefits of public institutions of higher education.* The General Assembly shall provide that the benefits of The University of North Carolina and other public institutions of higher education, as far as practicable, be extended to the people of the State free of expense.

activities as yet another unregulated business, the county commissioners simply decided to regulate all companionship enterprises and outlawed "companionship" services.

But the N.C. Supreme Court, in an opinion written by Justice Martin, decided that the term "companionship" is "broad enough to encompass both the salubrious and the salatious" and therefore might "regulate nursing homes and companions for the elderly along with movie mates, 'private room' bars, and 'dial-an-escort' services." [11] The overbroad approach of the Onslow County officials, Martin said, violated Article I, Sections 1 and 19, of the North Carolina Constitution,[12] which require that a regulation cover its objective and no more.

Where the North Carolina Constitution will take the state Supreme Court when it addresses civil rights and public policy questions is yet unclear. Simply because an argument is made under the Constitution's provisions does not mean that the Court will address the issue or decide the issue in a way that expands an individual's rights beyond those rights granted under the present U.S. Supreme Court's interpretation of the U.S. Constitution. Still, the state Constitution is available as a tool for the Court, and more lawyers are taking advantage of it.

For years, lawyers routinely turned to the federal courts because they appeared to be the best forum for constitutional questions, based on the performance of the federal and the state judiciary. But based on a series of decisions from the U.S. Supreme Court during the administrations of Presidents Nixon, Ford, and Reagan, the state courts have become much more attractive to lawyers seeking a moderate interpretation of state constitutional provisions. And with state courts like the N.C. Supreme Court actually welcoming such cases, attorneys are bringing more constitutional questions before the state judiciary — and getting results. After more than 200 years, the North Carolina Constitution has come of age.

FOOTNOTES

[1] *See* "State Courts and Civil Liberties," *State Legislatures* magazine, September 1987, pp. 28-29. *See also, The National Law Journal,* Special Section on State Constitutional Law, September 29, 1986; "The Interpretation of State Constitutional Rights," 95 *Harvard Law Review* 1324 (1982); "Judicial Federalism and Equality Guarantees in State Supreme Courts," *Publius, The Journal of Federalism,* Winter 1987, p. 51-67; and "American Constitutions: 200 Years of Federalism," *Intergovernmental Perspective* magazine, Spring 1987, pp. 3-30.

[2] In *United States v. Leon,* 468 U.S. 897, 82 L. Ed. 2d 677, 104 S.Ct. 35405 (1984), the U.S. Supreme Court allowed the introduction of evidence seized in a search where officers made a mistake in their application for a search warrant. The Court created a "good faith" exception to compliance with the Fourth Amendment guarantee. Several state courts, including New Jersey, New York, Michigan, Mississippi and Wisconsin, have

— *continued on page 126*

The Legislative Rule Reforms of 1987—Of Paper Tigers and Will-Power

by Art Eisenstadt

This regular Insight *feature focuses on the makeup and process of the N.C. General Assembly and how they affect public policy. This column examines whether the legislature's attempted reforms in the appropriations process succeeded in the 1987 regular session.*

An hour or so before the 1987 General Assembly was expected to adjourn, freshman Sen. Franklin L. Block (D-New Hanover) spied what he considered to be an improper special provision in a House-passed state budget bill. The provision had to do with what language the state driver's test had to be given in, and Block knew that under Senate rules, special provisions were supposed to give only specific budget instructions. The Senate overwhelmingly approved Block's motion to remove the House-passed clause.

Within minutes, Block found himself summoned before House Speaker Liston B. Ramsey (D-Madison), who looked neither pleased nor amused. As Block desperately sought a compromise, Lt. Gov. Robert B. Jordan III sat impassively at the front of the Senate chamber, waiting for Block to return while the number of remaining senators dwindled perilously close to the minimum needed for a quorum.

It wasn't supposed to end that way. For one thing, a series of rules changes were supposed to have made the work flow smoother and quicker, pared non-germane special provisions from budget bills, made the pork barrel process fairer, and the appropriations process more open. But what happened that day in the Senate was a prime example of how one reform can get in the way of another.

The legislature had expected to be long gone from Raleigh by August 14, the day the 1987 session finally ended. The art of forecasting when the General Assembly will adjourn is anything but an exact science, of course. But legislative leaders had hoped that an expanded and firmly enforced series of deadlines for introducing and handling different types of legislation would shorten the session's length.[1] Many had hoped to be home around July 4.

The 1987 session convened February 9, and adjourning by Independence Day would have shaved about two weeks off the corresponding length of the 1985 session. Instead, the 1987 legislature lurched, staggered, and stumbled to its latest adjournment date ever, shattering the old record (July 22, set in 1983) by more than three weeks. The 1987 session was also the third-longest in terms of legislative days—actual work days spent in session.[2]

And then there was the matter of special provisions. Budget bills since the early 1970s have included dozens of clauses ostensibly containing instructions to state agencies on how to spend (or, sometimes, not to spend) the monies appropriated to

Art Eisenstadt is the capital correspondent for the Winston-Salem Journal.

them. But influential legislators had become adept in recent years at slipping substantive changes in other state laws into the spending bills, where they would rarely receive much scrutiny and occasionally not even be noticed until months after the session ended.[3]

In response to criticism of this practice, the Senate adopted a rule in 1986 forbidding non-fiscal special provisions.[4] The rule was readopted—in the form of a bill—by the Senate in 1987, but the House never passed similar rules or legislation either year.

As a result, adjournment was delayed on August 12 after the House and Senate squared off over a House-sponsored provision that would have extended an exemption from the State Personnel Act for certain employees of the Office of Administrative Hearings.[5] That dispute was settled overnight following a telephone conversation between Jordan and Rep. William T. Watkins (D-Granville), chairman of the House Appropriations Expansion Budget Committee and the sponsor of the provision (as well as a potential rival in the 1988 gubernatorial primary). Watkins later decided not to run.

That was the setting when Block found the provision—sponsored by Rep. H.M. "Mickey" Michaux (D-Durham)—that would have required the state Division of Motor Vehicles to continue offering driver's tests in Spanish and Korean, despite a new law passed earlier in the session making English the official language of North Carolina. That dispute was also solved when Ramsey drew up a fuzzily worded resolution allowing both sides to vote aye, declare victory, and bolt for home upon adjournment.[6]

The Best Laid Plans . . .

*O*n the surface, at least, the appearance was that the rules changes and procedural reforms designed to make the session shorter, make the work flow smoother, and iron out kinks in the budget process didn't work out as planned.

Bill deadlines that were intended to smooth out the normal backlog of legislation at the end of the session instead transferred the crunch to an earlier point in the session—the last week of May, when bills had to pass the chamber where they were introduced in order to remain eligible for consideration in 1987. Then, when high-level budget deliberations dragged on into late July and early August, rank-and-file legislators complained that they had too little to do while the money moguls were sorting out spending priorities.

Legislative leaders had also sought to have the 1987-89 budget passed before the start of the new fiscal biennium on July 1, in contrast with the practice of recent sessions. But that deadline came and went, and state government had to be funded for more than six weeks under a pair of continuing resolutions extending the previous budget's spending authority until a new budget could be adopted.[7] Shades of the U.S. Congress.

Perhaps the most dramatic shortfall between intent and reality came over Jordan's and Ramsey's vows last January to reform the "Supersub" committee, an unofficial but all-powerful panel of eight top legislative leaders (including Jordan and Ramsey) that traditionally has assembled behind closed doors at the end of every legislative session to draft the budget bills to be presented to the rest of the membership. Not only did the Supersub traditionally meet in secret, but its members customarily put strong pressure on other legislators to avoid debate over its bills.

Jordan and Ramsey said shortly before the 1987 session started that they would expand the Supersub to as many as 12 members apiece from both the House and Senate—a total of 24—and open its meetings to the public. They also pledged to see that budget bills received adequate debate starting at least through the subcommittee level.

Many legislators agree that the budget bills did receive better scrutiny in 1987, although the final bills differed little from the Democratic leadership's proposals. But the bills were once again drafted by the compact Supersub, not the larger one. Ramsey never appointed the expanded House panel, and the larger Senate Supersub disappeared after meeting three times on its own.

Early meetings of the traditional Supersub went unannounced. After reporters and even a few legislators complained, Jordan ordered the Senate members to announce their meetings. But some of those supposedly open sessions were conducted in code—members referred to budget figures by page and line numbers on documents they refused to make available to anyone else. And at one point, a reporter who learned of a Supersub meeting being held on a Sunday afternoon was barred from entering the Legislative Office Building on the orders of a committee member whom the security guard would not identify.

Despite these hitches and jolts in the reform process, the leadership—and even some legislators in what Sen. Charles W. Hipps (D-Haywood) calls "the followership"— say the rules could work better with a little fine-tuning.

Fine-Tuning Would Help

"The rules definitely gave us more time to debate the majority of bills by having deadlines," says Jordan, a Democrat who invested considerable personal and political prestige in their success. "The session itself was considerably longer than we wanted it to be, but there were a lot of reasons for that."

One reason is that with the state budget close to $10 billion annually, and state government operations becoming more complex, a six-month "long" session in odd-numbered years may well be the norm. But Jordan has also hinted on occasion that foot-dragging by the House leadership undercut reform efforts in 1987. Watkins and Jordan have a little-disguised personal distaste for each other, and relations between Ramsey and Jordan are polite but restrained.

Jordan concedes that the budget reforms didn't work out as well as he hoped, but compared the Supersub process to preliminary internal deliberations among the governor's budget advisers. "I think at some point, there's always a balancing act that you have to do between [informal] advisory and open meetings," Jordan says. "Whatever is decided, the purpose is to try to get the right recommendation out in the open."

Nevertheless, Jordan says he hopes to discuss suggestions for reforming the reform rules with Ramsey before this summer's "short" session. "I'm satisfied we have ways to improve them," he says.

Ramsey, for his part, contends that the rules changes "have had some benefit. They haven't worked as smooth and as effectively as some members thought they would. . . . But that doesn't bother me."

The Speaker denied that the House leadership deliberately undercut reform efforts, although he did note that most major rules changes must be adopted and enforced by both chambers to be effective. And while he says he would welcome further suggestions from Jordan, he adds, "The system is working already. I don't hear complaints from the members. The Republicans are going to bellyache, because they're in the minority, and they don't run the show."

House minority leader Betsy L. Cochrane (R-Davie) has been a prominent critic, but Cochrane believes the reforms, while far from perfect, were an improvement from past sessions. "The jury's still out," Cochrane said. "I think the process was improved. The problem was the politics."

Dwane Powell, The News and Observer of Raleigh

This News and Observer *cartoon mocked the "code" spoken in a Budget Supersub meeting.*

Table 1. Assessment of Reforms in the 1987 Legislative Budget Process

1987 Budget Process Reforms Announced	Actions Taken	
	Failures	Successes
1. To impose a series of deadlines for introduction and processing of bills to shorten the length of the legislative session.	1987 was the third longest legislative session in history (137 legislative days) and the adjournment date (August 14) was the latest ever.	
2. To prohibit insertion of special provisions into budget bills which amend state laws but which are unrelated to the budget.	The Senate passed a bill banning special provisions, but the House didn't. There still were more than 50 special provisions in three budget bills.	1987 budget bills contained the least number of special provisions in a regular session since 1981, and fewer special provisions contained major policy decisions unrelated to the budget.
3. To expand the "Supersub" budget committee in order to get more legislators involved in passage of the state budget.	However, the final budget bills were drafted by the small group of legislators that usually drafts the budget.	The Senate added 12 members to the "Supersub," the House none.

—table continued

Modest Success Stories

*H*ipps may have summed up the ambivalent review best: "I think the rules changes made for a significant change in the atmosphere. But I'm not sure we ultimately accomplished what we meant to change."

One set of rules that did provide a modest success involved the pork barrel process—the custom of distributing small appropriations for pet projects in the districts of legislators in good standing with the leadership. The barrel was anything but sealed forever, as some critics would prefer. But its contents were ladled out more openly and fairly than in the past, many observers agree. The chief reform was a requirement, tested in 1986 and adopted permanently last year, that all pork barrel requests be submitted in separate bills, rather than in private memos to appropriations committee chairmen.[8] As a result, there was more time for the public and the media to scrutinize what legislators asked for, and what they got.

Mostly as a result of the pork barrel bill requirement, the House and Senate processed an unprece-

Table 1. Assessment of Reforms in the 1987 Legislative Budget Process *continued*

1987 Budget Process Reforms Announced	Actions Taken	
	Failures	Successes
4. To open the meetings of the "Supersub" budget committee to the public.	Early meetings of the "Supersub" were closed, with one meeting conducted in code so that only legislators knew what was going on.	Later in the process, full public access was granted.
5. To make the pork barrel process more open and fairer.		A. The process was more open because all pork barrel requests had to be introduced early and in separate bills. B. The process was fairer in that nearly all 170 legislators—Democrats and Republicans—got a share. C. There were fewer constitutionally questionable projects. D. Allocations among the 100 counties became fairer.

—Table prepared by Ran Coble

dented volume of legislation in 1987. Legislators dunked into the hopper 2,166 House bills and 1,557 Senate bills, compared with 1985's record totals of 1,424 and 854, respectively.

Despite the 63 percent increase in the number of bills filed, the number of ratified session laws rose only from 793 in 1985 to 879 in 1987, an 11 percent rise. But that statistic is somewhat misleading. Joseph S. Ferrell, who researches legislative issues at UNC's Institute of Government, has identified at least 673 House bills and 461 Senate bills that were incorporated into omnibus bills.[9] If those were counted as separate bills, the number of ratified laws would soar through the assembly's copper-topped roof.

And while the bill deadlines shifted the legislative staff's crunch period to an earlier date—from July to May—they also allowed time to do more careful work on the budget bills, according to Gerry F. Cohen, director of the legislature's Bill Drafting Division. "It was harder for us to give as much individual attention to each bill," Cohen says. "But the most important thing I found that having the bill introduction deadline did was to allow the legal staff

to spend more time on the budget process as a whole."

The legislature also appears to have begun to come to grips with the special provisions abuse problem. Although the General Assembly has not eliminated non-germane special budget provisions, it has limited them—to about 50 in the three main budget bills in the 1987 session. That is the fewest number of special provisions in a regular session of the legislature since 1981, and indicates that the leadership has made progress in limiting the number of special provisions unrelated to the budget. Hipps, who has carved a niche for himself as the scourge of special provisions, thinks the reforms have worked. "Before, I had to convince people not only that I had found these awful things but also that we shouldn't have them. Now, maybe we're keeping them from happening in the first place."

The challenge for the future seems to lie in how willing the legislative leadership is to enforce the rules already on the books, particularly in discretionary areas such as the operations of the Supersub. No formal rules apply to that body, because it technically does not exist, at least on paper.

But, then, paper is the only place any effort at legislative reform exists—unless the leadership of both houses has the political will-power to back it up.

FOOTNOTES

[1] Rule 41, Permanent Rules of the 1987 Senate; and Rule 31.1, Rules of the 1987 House of Representatives.

[2] The 1971 regular session, which convened January 13 and adjourned July 21, had 160 legislative days, including 22 Saturday sessions where little or no legislation was handled. The 1983 regular session, which convened January 12 and adjourned July 22, had 137 legislative dates. The 1987 session had 135 legislative days.

[3] For more, see Ran Coble, "Special Provisions in Budget Bills: A Pandora's Box for North Carolina Citizens," N.C. Center for Public Policy Research, June 1986; "N.C. Center Says 1986 Legislature Continued Abuse of Special Provisions in Budget Bills," press release, N.C. Center for Public Policy Research, March 2, 1987; and Paul T. O'Connor, "Reforming Pork Barrel, Special Provisions, and the Appropriations Process—Is There Less Than Meets the Eye?", *North Carolina Insight*, Vol. 9, No. 3, March 1987, pp. 96-99.

[4] Rule 42.4, Permanent Rules of the 1987 Senate.

[5] Chapter 830 (HB 1515) of the 1987 Session Laws.

[6] Chapter 480 (SB 115) of the 1987 Session Laws; and House Resolution 2166, adopted August 14, 1987.

[7] Chapter 524 (HB 1628) of the 1987 Session Laws continued general budget spending at constant levels; Chapter 703 (SB 1556) continued certain special provisions related to the budget.

[8] Rule 40.1, Permanent Rules of the 1987 Senate. See also Seth Effron, "Eating High on the Hog: How the Pork Barrel Spending Process Has Changed in the Last 10 Years," *North Carolina Insight*, Vol. 10, No. 1, October 1987, pp. 19-26.

[9] Chapter 830 (HB 1515) and Chapter 873 (HB 1) of the 1987 Session Laws.

IN THE COURTS

—continued from page 120

refused to follow the *Leon* case and relied on their state constitutions to exclude evidence in criminal trials that was seized as the result of an invalid search warrant.

[3] *Miller v. California*, 413 U.S. 15, 37 L. Ed. 2d 419, 93 S.Ct. 2706 (1972). The Oregon Supreme Court rejected the *Miller* rule, reasoning that its state Constitution — written by "rugged and robust individuals dedicated to founding a free society unfettered by governmental imposition of some people's views of morality on the free expression of others" — allowed consenting adults to buy or see whatever they wanted. *Oregon v. Henry*, 302 Or. 510, 732 P2d 9 (1987).

[4] James G. Exum, "Dusting Off Our State Constitution," *The North Carolina State Bar Quarterly*, Spring 1986, pp. 6-9.

[5] William J. Brennan, "State Constitutions and the Protection of Individual Rights," 90 *Harvard Law Review* 503 (1977).

[6] 320 N.C. 297, 357 S.E.2d 622 (1987).

[7] Justice Martin and Justice Henry Frye voted to support the opinion. Justices Meyer, Burley Mitchell and Willis Whichard concurred in the result but set forth different reasons. Justice John Webb dissented.

[8] 320 N.C. at page 310.

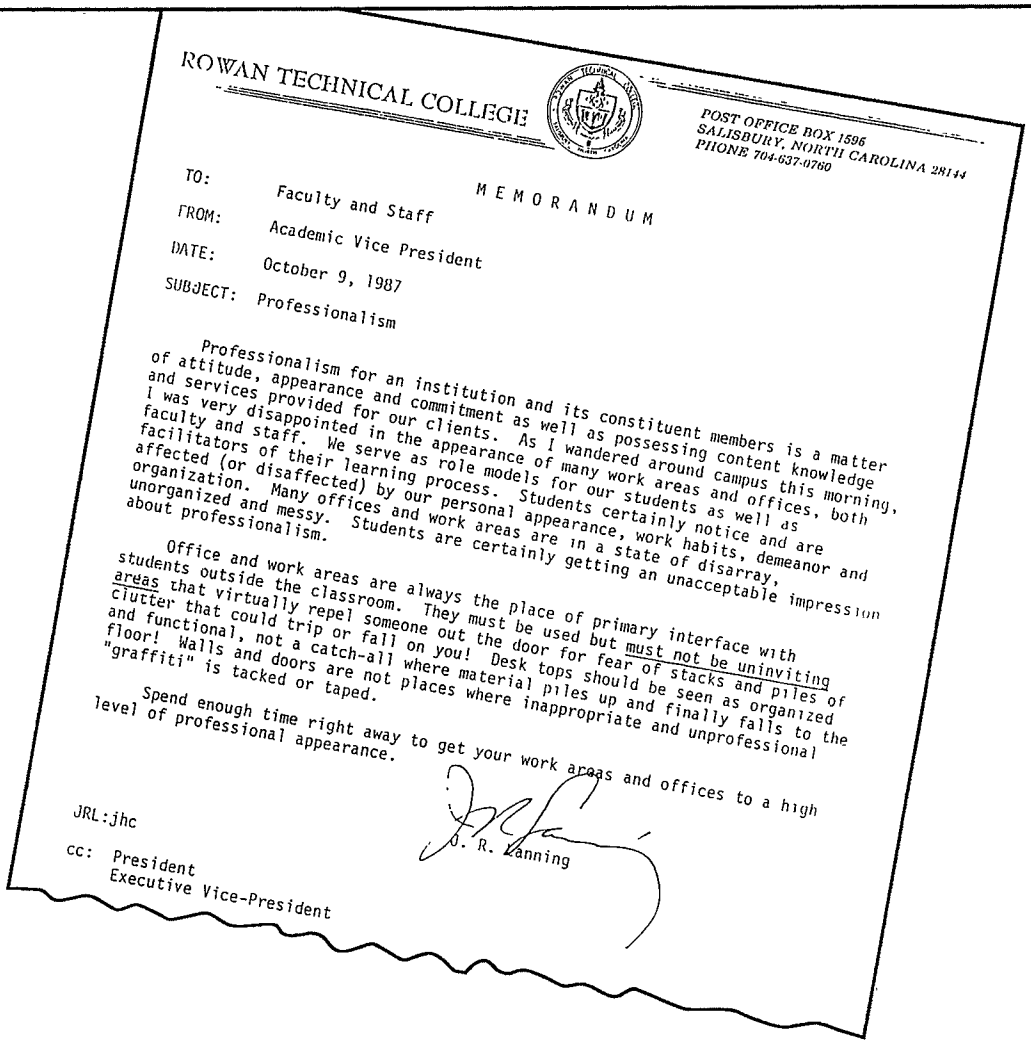
[9] 320 N.C. at page 311.

[10] "An Ordinance Regulating Businesses Providing Male or Female Companionship," enacted June 19, 1985, and amended July 1, 1985.

[11] *Treants Enterprises, Inc. v. Onslow County*, 320 N.C. 776, 779 (1987), affirming 83 N.C App. 345, 350 S.E.2d 365 (1986). Justice Webb did not participate in the decision.

[12] Article I, Section 1 gives the people the right to "life, liberty, the enjoyment of the fruits of their own labor, and the pursuit of happiness." Section 19 provides that no person shall be "deprived of his life, liberty, or property, but by the law of the land." To pass these requirements, a regulatory law must be rationally related to a substantial government purpose and cannot be overly broad.

MEMORABLE MEMO



ROWAN TECHNICAL COLLEGE

POST OFFICE BOX 1595
SALISBURY, NORTH CAROLINA 28144
PHONE 704-637-0760

MEMORANDUM

TO: Faculty and Staff

FROM: Academic Vice President

DATE: October 9, 1987

SUBJECT: Professionalism

Professionalism for an institution and its constituent members is a matter of attitude, appearance and commitment as well as possessing content knowledge and services provided for our clients. As I wandered around campus this morning, I was very disappointed in the appearance of many work areas and offices, both faculty and staff. We serve as role models for our students as well as facilitators of their learning process. Students certainly notice and are affected (or disaffected) by our personal appearance, work habits, demeanor and organization. Many offices and work areas are in a state of disarray, unorganized and messy. Students are certainly getting an unacceptable impression about professionalism.

Office and work areas are always the place of primary interface with students outside the classroom. They must be used but must not be uninviting areas that virtually repel someone out the door for fear of stacks and piles of clutter that could trip or fall on you! Desk tops should be seen as organized and functional, not a catch-all where material piles up and finally falls to the floor! Walls and doors are not places where inappropriate and unprofessional "graffiti" is tacked or taped.

Spend enough time right away to get your work areas and offices to a high level of professional appearance.

O. R. Canning

JRL:jhc

cc: President
Executive Vice-President

Attention All Role Models and Facilitators of the Learning Process:

We agree with the writer of the attached, our latest offering in a notable series of Memorable Memoranda. When we were students, we often were affected (and — dare we admit it? — disaffected) by offices that not only were in disarray, but also unorganized and messy. The triple whammy in any setting, we've always thought. Simply horrid.

And in places of primary interface! We have no idea what that means, but it certainly sounds important — especially when you dangle a clause that could virtually repel someone out the door of a place of primary interface! Egad, enough is enough!

From now on, no more inappropriate and unprofessional graffiti. Only appropriate and professional graffiti will be permitted. So stand up straight, go clean your room, and send any candidates for Memorable Memo to Insight. *Right Now. Go on. Hup, toop, threep, forp ....*

Current Contributors to the N.C. Center for Public Policy Research

Major funding for the North Carolina Center is provided by:
THE MARY REYNOLDS BABCOCK FOUNDATION
THE Z. SMITH REYNOLDS FOUNDATION
THE FORD FOUNDATION
THE A. J. FLETCHER FOUNDATION
and
THE JOHN WILLIAM POPE FOUNDATION

Corporate and Individual support for the Center is provided by:

BENEFACTORS

Alcoa Foundation
The Charlotte Observer
Josephus Daniels Charitable Foundation
Glaxo, Inc.
Philip Morris, USA
R.J. Reynolds Tobacco Company
HKB Associates
AEtna Life and Casualty Foundation
Angell Care Inc.
AT&T
Branch Banking and Trust Company
Burlington Industries Foundation
Carolina Power & Light Company
Carolina Telephone & Telegraph Company
Consolidated Diesel Company
Ecusta
First Union National Bank
General Electric
Golden Corral Corporation
IBM Corporation
Jefferson-Pilot Corporation
Lorillard Inc.
Lowe's Charitable and Educational Foundation
Macfield, Inc.
Public Service Company of North Carolina
Royal Insurance
Southern Bell
Stedman Foundation
Texfi Industries, Inc.
Unifi, Inc.
Universal Leaf Tobacco Co.
Winston-Salem Journal

PATRONS

North Carolina Power Company
Arthur Andersen & Company
Bank of Granite
Brendle's, Inc.
Burroughs Wellcome Company
Cooper Group
DeVries and Associates, Inc.
Greensboro News & Record
GTE Corporation
Hardee's Food Systems
Kaiser Foundation Health Plan of North Carolina
The Kroger Co.
N.C. Farm Bureau Mutual Insurance Company
NCNB Corporation
N.C. Retail Merchants Association
Nucor Corporation
Occidental Chemical Corporation
Olson Management Group, Inc.
Parkdale Mills, Inc.
Peoples Bank Foundation
Piedmont Airlines
Piedmont Natural Gas Company
Planters National Bank
Raleigh Federal Savings Bank
Grace Jones Richardson Trust
Southern National Bank
Spanco Industries, Inc.
Wachovia Bank and Trust Company
West Point Pepperell
Weyerhaeuser Company
Wilmington Star-News, Inc.
Alphanumeric Systems, Inc.
Ernst & Whinney

SUPPORTING CORPORATIONS

American Television & Communications Corporation
Astro, Inc.
Champion International Corporation
Ciba-Geigy Corporation
Coastal Lumber Company
Epley Associates, Inc.
Fayetteville Publishing Company
Georgia-Pacific Corporation
N.C. Mutual Life Insurance Company
N.C. Natural Gas Corporation
TRW, Inc.
United Guaranty Corporation

CORPORATE MEMBERS

Adams Outdoor Advertising
Atlantic States Bankcard Association
BarclaysAmericanCorporation
Brady Trane Service, Inc.
Carocon Corporation
Carolina Asphalt Pavement Association
Celanese Fibers Inc.
Central Carolina Bank
The Chapel Hill Newspaper
Cone Mills Corporation
The Daily Reflector of Greenville
Datis Corporation
E.I. duPont de Nemours & Company
Durham Herald Company
Firstcorp, Inc.
First National Bank of Randolph County
Florida Atlantic University Foundation
Glen Raven Mills
Harper Companies International
Integon Foundation
McDaniel Lewis & Co.
Northern Telecom
J. Lee Peeler & Company, Inc.
Pines of Carolina Girl Scout Council
Sara Lee Corporation
Spectator Publications
Texasgulf, Inc.
Village Companies

SPECIAL DONORS

Wade Barber
Maureen Clark
Ran Coble
Joel Fleishman
Karen Gottovi
William M. Hodges
V. B. "Hawk" Johnson
Robert Lane
Helen Laughery
Thelma Lennon
Tom Massengale
Mr. and Mrs. Kenneth F. Mountcastle
N.C. Health Care Facilities Association
N.C. School Boards Association
Virginia Oliver
Edward H. O'Neil
Smith Richardson, Jr.
Lanty L. Smith
McNeill Smith
Zachary Smith
Geraldine Sumter
Margaret Tennille
G. Smedes York

SPECIAL THANKS

The Center gives special thanks to the Grace Jones Richardson Trust for its grant in support of this issue and to Robert Llewellyn for the use of many of his fine photographs.

North Carolina Center for Public Policy Research
P.O. Box 430
Raleigh, North Carolina 27602

Nonprofit Org.
U.S. Postage
PAID
Raleigh, N.C.
Permit No. 1121