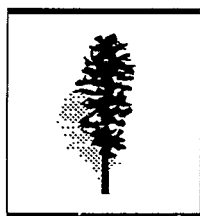




Carol Majors

## 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

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*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."<sup>1</sup>

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

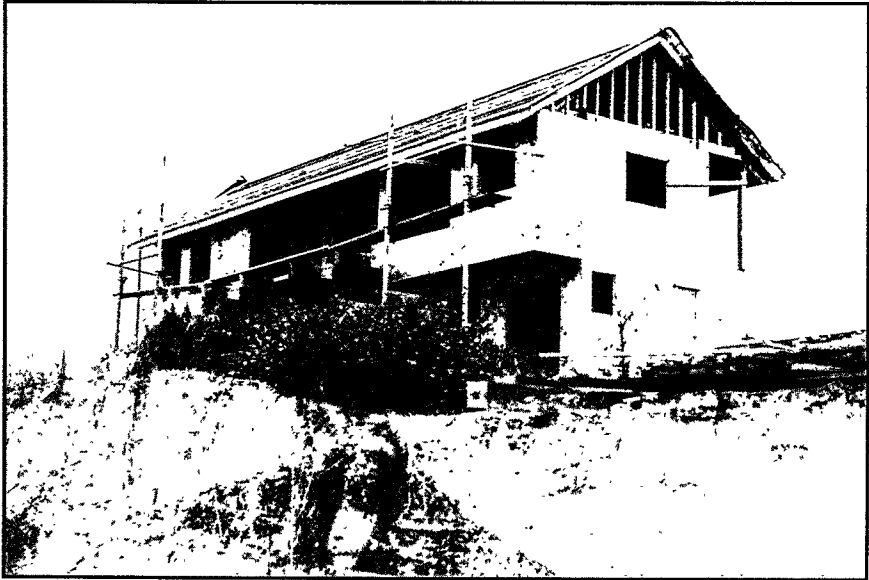
Pugh, assistant secretary of the Department of Natural Resources and Community Development (NRCD), says, "I do not agree with the doom and gloom projection. I think that these changes in fisheries indicate a change in the environment that needs to be carefully evaluated. The Albemarle-Pamlico Estuarine 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.

"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*

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



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-county coastal area.<sup>2</sup> 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.<sup>3</sup>

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

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.<sup>4</sup> By 1980, only 695,000 acres of pocosins remained in their natural state and without some proposal for development.<sup>5</sup> 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.<sup>6</sup>

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.<sup>7</sup> "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

<sup>1</sup>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).

<sup>2</sup>*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.

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

<sup>4</sup>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).

<sup>5</sup>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.

<sup>6</sup>Tiner, *op. cit.*, p. 35.

<sup>7</sup>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 NRC 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."<sup>4</sup> 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.

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



Todd Miller

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

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



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**T**he 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.<sup>5</sup> 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.<sup>6</sup>

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.<sup>7</sup> 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

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

<sup>2</sup>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.

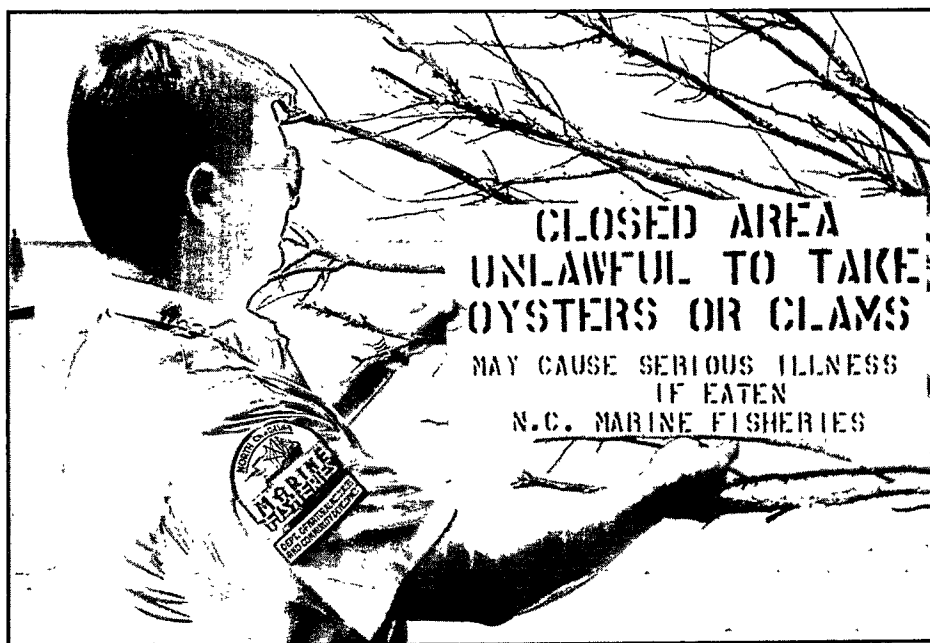
<sup>3</sup>*North Carolina—State of the Environment Report, 1987*, N.C. Department of Natural Resources and Community Development, April 1987, p. 26.

<sup>4</sup>*Ibid.*

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

<sup>6</sup>*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-CIV.5.

<sup>7</sup>See 15 N.C.A.C. 7H.0506.



Department of Natural Resources and Community Development