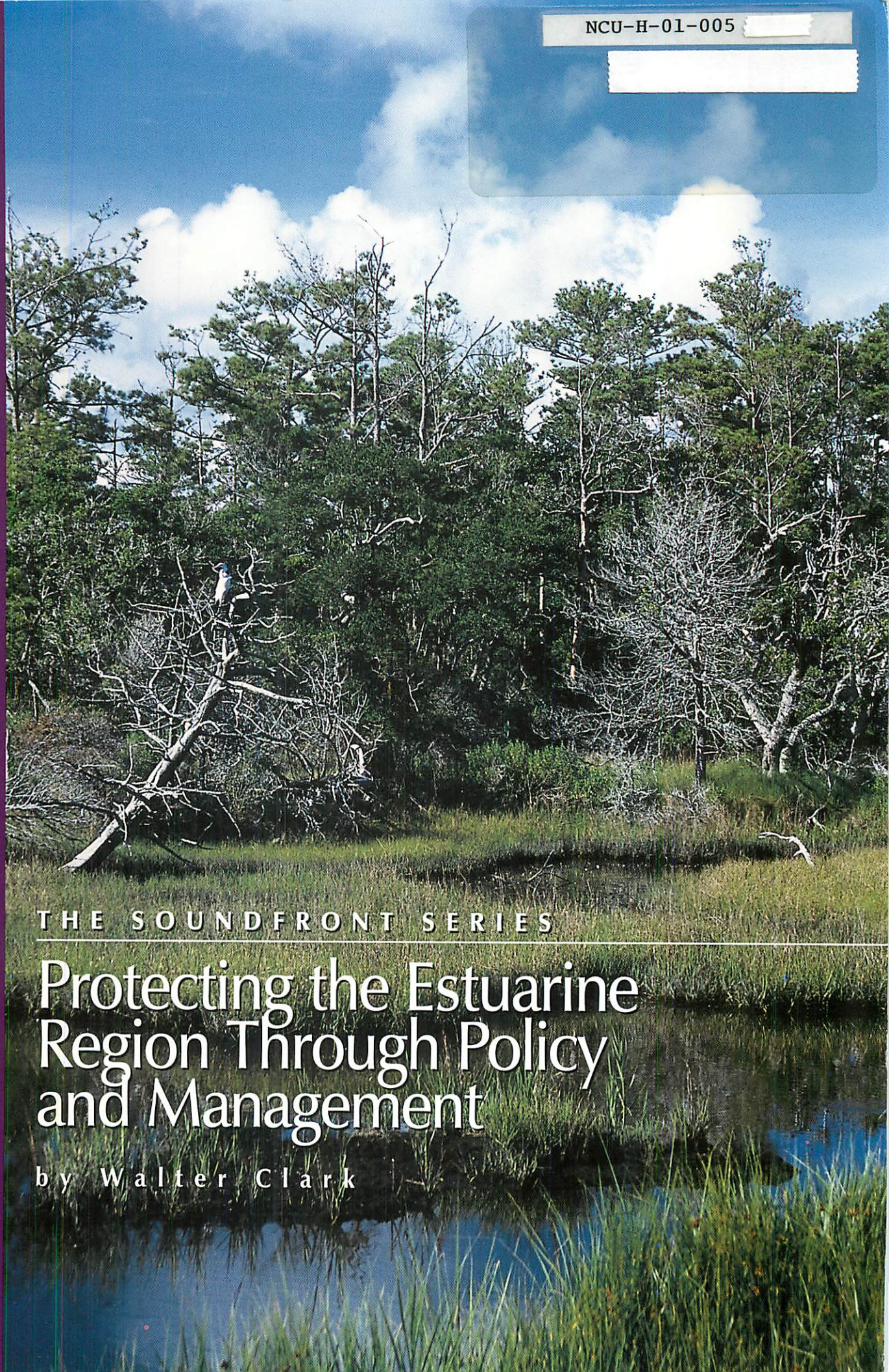

THE SOUNDFRONT SERIES

Protecting the Estuarine Region Through Policy and Management

by Walter Clark

PREFACE

The estuarine areas of North Carolina are seeing increased residential and commercial development, with more proposals on the horizon. Sustainable use of these areas requires awareness, understanding and implementation of sound design and management options. The long-term environmental health of the land, water and natural resources will benefit the growing economy and quality of life.

The N.C. Division of Coastal Management with North Carolina Sea Grant and the North Carolina State University College of Design developed *The Soundfront Series*, informational guides to assist property owners and community planners and managers. The guides are available in print and on the Web.

The series includes:

- *Shoreline Erosion in North Carolina Estuaries*, by Stanley R. Riggs. UNC-SG-01-11.
Riggs is a distinguished professor of geology at East Carolina University.

- *Managing Erosion on Estuarine Shorelines*, by Spencer Rogers and Tracy E. Skrabal. UNC-SG-01-12.
Rogers is North Carolina Sea Grant's coastal erosion and construction specialist.
Skrabal is a senior scientist with the North Carolina Coastal Federation.

- *Protecting Estuarine Water Quality Through Design*, by Nancy White. UNC-SG-01-13.
White is an associate professor of landscape architecture in the College of Design at North Carolina State University.

- *Protecting the Estuarine Region Through Policy and Management*, by Walter Clark. UNC-SG-01-14.
Clark is North Carolina Sea Grant's coastal law and policy specialist.

Lundie Spence, marine education specialist for North Carolina Sea Grant, and Bill Crowell, senior policy analyst of the Division of Coastal Management, served as coordinators and technical editors for the series.
Katie Mosher, Ann Green and Pam Smith, all of the North Carolina Sea Grant communications team, edited the series.

For information on the Division of Coastal Management, call 919/733-2293 or 888-4RCOAST.
The division's Web site includes information on permits and regulations, as well as contacts for regional offices.
Go to *www.nccoastalmanagement.net*.

For information on North Carolina Sea Grant — and to order individual guides or the complete series — call 919/515-2454. Online, go to *www.ncsu.edu/seagrant*.

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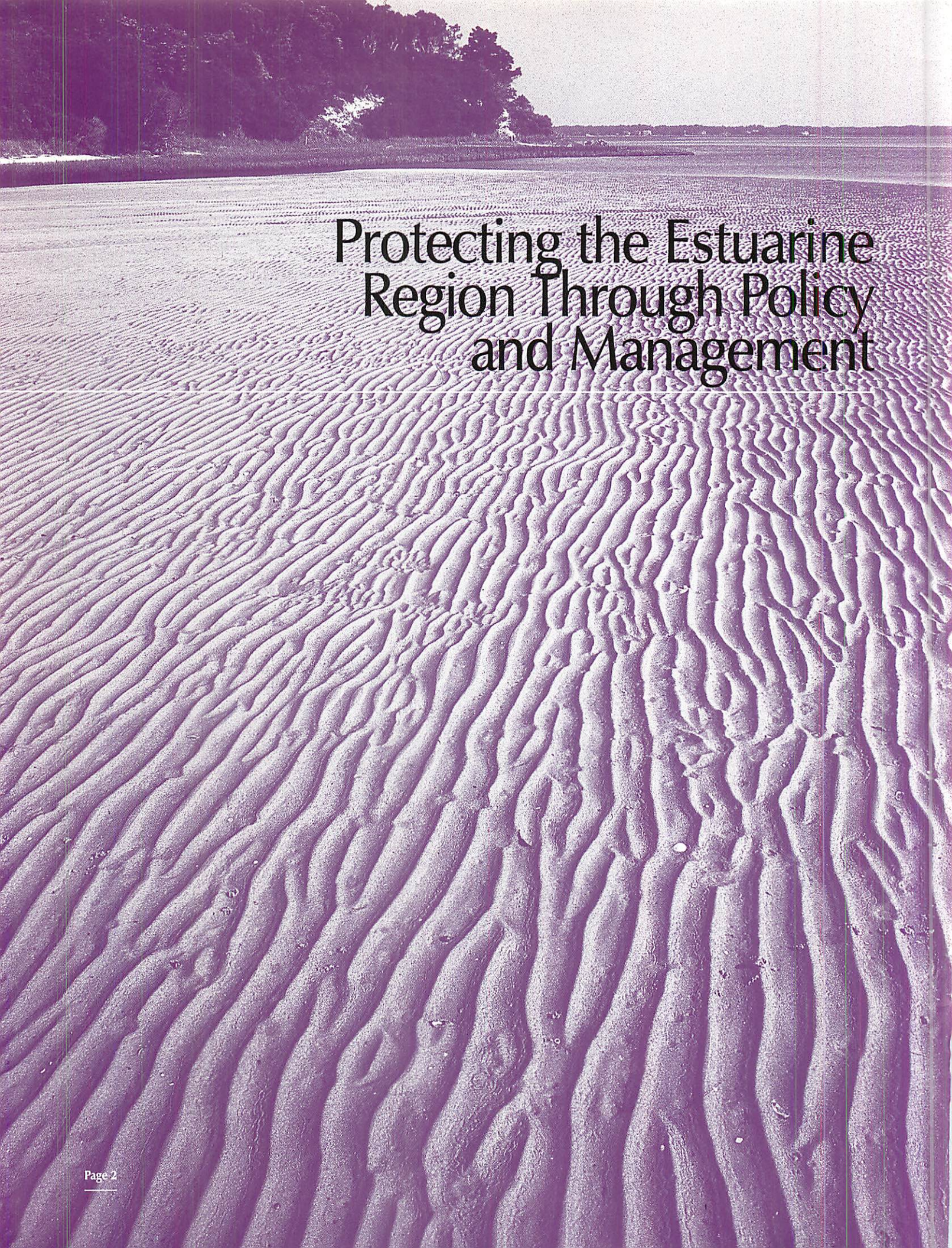


Protecting the Estuarine Region Through Policy and Management

Chapter 1: The Basic Tenets

"Smart growth" is a buzzword of the day. It is a relatively new term for a concept that has been around for a while under other names — carrying capacity, sustainable development, "environmentally friendly" development. It is a noble concept that attempts to provide a blueprint for economic prosperity and growth without unreasonable environmental degradation. Of course, one of the big difficulties in implementing concepts like "smart growth" is understanding and defining unreasonable environmental degradation and reasonable prosperity.

This guidebook is part of a series designed to help understand the estuarine environment and to assist property owners and local communities in developing a blueprint for smart growth. The estuarine environment includes the coastal sounds, bays, rivers and the lands that surround them. And, although much of our focus is on the estuarine shoreline, we do examine "smart growth" strategies applicable to the broader watershed.

In particular, this guidebook examines some of the legal, planning and policy tenets that guide growth in the coastal area. We begin with an identification of some of the basic tenets and conclude with tools that can be used to balance growth with protection of the estuarine environment.

THE PUBLIC TRUST DOCTRINE

Public trust is a legal doctrine with deep roots in North Carolina's estuarine area. Our state has more than 2.2 million acres of coastal sounds, salt marshes and rivers. Under the common law Public Trust Doctrine, almost all of these areas are owned or held in trust by the state for the public's use and enjoyment.

There is a long history of commercial and recreational use of these waters, the submerged lands that underlie them and the shorelines that form their boundaries. Because of the commercial and recreational attributes of public lands and waters, individuals and commercial establishments pursue private ownership of property adjacent to these areas. As our coastal population increases and more people crowd into the narrow coastal shoreline margins, conflicts are growing and intensifying.

The public trust is an ancient property law principle, which arose out of our English common law heritage. In England and in her American colonies, the sovereign maintained control over tidal and navigable waters primarily as a tool to protect and promote commerce. At the time of independence, the public trust doctrine was adopted in the United States on the theory that the rights held by the English Crown accrued to the states. The original states, therefore, acquired sovereign ownership in trust of all the tidelands previously held by the King. For an excellent discussion of the public trust doctrine, see* The Public Trust Doctrine and the Management of America's Coast, *University of Massachusetts Press, Amherst 1994.

Of the many public trust issues raised by growth-related conflicts, two are particularly applicable to the management of estuarine shorelines: (1) the boundary between upland private property and public trust lands and waters; and (2) the obligations of the state, as trustee of its lands and waters, to protect public uses and environ-

Balancing growth with protection of the estuarine environment is an imperative in the face of increasing coastal populations.

mental integrity. The following discussion of these two issues centers on coastal, non-ocean shorelines — the estuarine area.

Trust Boundaries

Lands under North Carolina's *navigable* coastal waters are owned by the state. Although not definitively established in law, North Carolina supports the application of the term navigable waters to mean that if a portion of a water body is navigable, then its "full breadth" is navigable.[1] In other words, navigable waters are not just those that lie within the navigable channels, but include waters over adjacent tidal mudflats and salt marshes. Under this definition, the dividing line between private and public lands is the normal high water line, or in nontidal areas, the normal water level.

North Carolina supports this position in its regulations managing coastal development. The state's Coastal Resources Commission (CRC)[2] defines the public trust as "all natural bodies of water subject to measurable lunar tides and lands thereunder to the mean high water mark…and…all navigable natural bodies of water and lands thereunder to the normal high water level or normal water level."[3] Consequently, regulations that manage construction activities along coastal shorelines recognize the public trust and guide development so as to respect the boundary between private and public property.

Trust Stewardship

North Carolina has stewardship responsibility for all land, water, living and nonliving resources within public trust boundaries. This responsibility has roots in the public trust doctrine and has been incorporated in the North Carolina Constitution, state law and regulations. The

constitution directs both state *and* local government to assume a stewardship role over public lands and waters. The constitution states in Article XIV, Section 5 that:

It shall be the policy of this state to conserve and protect its lands and waters for the benefit of all its citizenry and to this end it shall be a proper function of the State of North Carolina and its political subdivisions to acquire and preserve park, recreational, and scenic areas, to control and limit the pollution of our air and water, to control excessive noise, and in every other appropriate way to preserve as a part of the common heritage of this State its forests, wetlands, estuaries, beaches, historical sites, open lands, and places of beauty.

Although the public trust doctrine provides support for public resource stewardship, it is seldom used as the central basis for resource protection and management. Instead, North Carolina's stewardship responsibility is primarily based on requirements from the federal government and from the state's general responsibility to protect the health, safety and welfare of its citizenry. The state can share or pass along this responsibility to local government. This responsibility is embedded in federal laws, state statutes and regulations, and local zoning and planning initiatives.

The Bulkhead Example

Bulkheads are vertical walls, usually made from wood or vinyl, often constructed to stabilize eroding shorelines. They are prohibited along the state's ocean shoreline, but the CRC allows their construction along estuarine sounds and coastal rivers.

Because of the public ownership of submerged lands, state regulations limit bulkheads beyond (waterward of) the normal high water line. They are allowed below the high water line when:

- the property to be bulkheaded has an identifiable erosion problem or an unusual geographic or geologic feature that presents the owner with hardship;
- the bulkhead alignment will extend no further below the high water line than is necessary to recover land lost to erosion within the prior year; will align with adjacent bulkheads, or the structure is needed to mitigate unreasonable hardship resulting from unusual geographic or geologic hardship; and
- the bulkhead will not result in significant adverse impacts to public trust rights or to the property of adjacent shoreline owners.[4]

Allowing bulkheads below high water is divergent from some principles of property law. In North Carolina, private property that gradually erodes due to natural processes becomes the property of the state when the state owns the adjacent submerged land. Conversely, when land is gradually built-up (or accreted) from state-owned submerged lands, title is transferred from the state to the adjoining private riparian owner. In other words, the dividing line between private and public property is dynamic, moving with erosion and accretion.[5]

By allowing property owners to recover and protect land recently lost to erosion, the CRC is providing flexibility in light of the dynamic, moving shoreline.

Of course, a property owner has the option of choosing other erosion control techniques in appropriate situations. *(See other guidebooks in this series.)*

Chapter 2: The Government Role

Federal, state and local governments manage activities that can affect the estuarine environment. Federal laws and regulations, developed by Congress and federal agencies, provide a management foundation. State laws and regulations — developed by our state legislature, commissions and agencies — often are built on this foundation and must be at least as strong as the underlying federal requirements. In most states, including North Carolina, the legislature gives city and county governments the power to pass ordinances that control many land uses affecting the estuarine environment.

THE FEDERAL GOVERNMENT ROLE

Congress passes laws, also called statutes or acts, that lay broad strategies for protecting and enhancing the estuarine environment — particularly water quality. These laws give federal agencies the responsibility to refine and implement the strategies.

The most comprehensive water quality law is the federal Water Pollution Control Act of 1972. Commonly called the Clean Water Act (CWA), this law establishes national standards to protect and preserve water quality. To accomplish this goal, the U.S. Environmental Protection Agency (EPA) developed a permit program for point source pollution. These are discharges that enter the water through a pipe, ditch or other discrete, well-defined location. Permits issued for point source discharges are called National Pollutant Discharge Elimination System (NPDES) permits.

Since its passage, the CWA has been interpreted and amended to protect the nation's waters from other pollution sources. In 1987, the act was amended to address nonpoint sources. Nonpoint source pollution (NPS) is runoff that enters the water through stormwater, snowmelt or atmospheric deposition. The majority of today's water quality problems in North Carolina result from NPS. Contributing sources of NPS include land development, agriculture, roads and parking lots, and failing septic systems. The CWA also has been interpreted and used as a tool to protect the nation's wetlands from dredge-and-fill activities.

The CWA gives the EPA the power to implement and enforce water quality directives. The CWA gives the U.S. Army Corps of Engineers a role in protecting wetlands through a dredge-and-fill permit program (often called the 404 Program after the applicable section in the CWA). Finally, the CWA allows individual states to establish their own water quality and wetland protection programs as long as they follow federal guidelines.

In 1974, the EPA gave North Carolina the authority to implement its own water quality program. Since then, the state legislature has adopted laws that outline a water quality strategy consistent with federal guidelines. To fulfill this responsibility, North Carolina issues a Section 401 Water Quality Certification for all projects that require a federal permit under the CWA. The certification is an assurance that a project will not degrade the "waters of the state" or otherwise violate water quality standards.

Another federal law with implications for the estuarine environment is the Coastal Zone Management Act (CZMA), also passed by Congress in 1972. The goal of this act is to "preserve, protect, develop and, where possible, to restore or enhance the

Government bodies manage activities that can affect the estuarine environment.

resources of the nation's coastal zone." To achieve this goal, the CZM encourages states to develop their own coastal management programs.

THE STATE GOVERNMENT ROLE

Over the past 30 years, much of the regulatory authority for protecting the estuarine environment has moved from federal to state government. The North Carolina General Assembly has participated in this trend by adopting laws and regulations modeled after federal legislation. Since North Carolina's law-making body is in session only part of the year, it often lacks time to refine the laws it passes. It creates and relies on several state commissions to more fully develop broad objectives established by statute. These directives are in the form of specific administrative rules that accommodate the complex nature of estuarine public trust waters.

Rules are established according to procedures found in the state's Administrative Procedure Act, which encourages strong public input in regulation development.[6]

The Coastal Area Management Act[7]

In 1974, North Carolina established a coastal management program that meets the guidelines of the federal Coastal Zone Management Act. The statute creating the program, the Coastal Area Management Act (CAMA), established the Coastal Resources Commission (CRC) and gave it authority to manage development activities in 20 of the state's easternmost counties.[8] This jurisdictional area, often referred to as the *coastal area*, or CAMA counties, is defined as "the counties that (in whole or in part) are adjacent to, adjoining, intersected by or bounded by the Atlantic Ocean or any coastal sound."[9] Within the 20-county region, CAMA charges the CRC with establishing *Areas of Environmental Concern* (AECs). These are areas that need special protection because of their resource values and environmental sensitivity. To provide this protection, the CRC adopts administrative rules or regulations for each area.[10] The regulations are applied through a permit program administered by the N.C. Division of Coastal Management (DCM). DCM is a division of the state's Department of Environment and Natural Resources (DENR).[11] For more information on the DENR, CRC and DCM, visit their Web sites respectively at *www.enr.state.nc.us* and *www.nccoastalmanagement.net.*

Since the passage of CAMA and the subsequent creation of the CRC, much of the management focus in the coastal area has been directed toward the ocean shoreline. Until recently, it was the ocean shoreline that generated most of the "high-profile" conflicts.

In recent years, conflicts along the nonocean shoreline within CAMA's 20-county jurisdictional area have increased. Concerns about water quality have generated increased interest in managing runoff from development along the estuarine shoreline. And, fears about the future loss of wetlands have caused an examination of the methods we use to stabilize nonocean shorelines. *(See other guidebooks in this series.)*

Development within the *Coastal Shorelines AEC* has generated the most water quality concerns. Administrative rules for this area limit impervious surfaces and establish buffers to help protect coastal waters.[12] The CRC also has developed rules to protect coastal wetlands.[13] The rules, limited primarily to salt marshes, have eliminated most dredge-and-fill activities in coastal wetlands. For example, anyone wishing to stabilize an estuarine shoreline (by bulkhead, riprap, etc.) must site the structure landward of wetland areas.[14]

In addition to the regulatory component of North Carolina's coastal management program, there is a directive within CAMA for coastal area planning. Each of the 20 coastal counties must have a land-use plan that conforms to CRC guidelines — called the "7B Rules," referring to the section of the North Carolina Administrative Code where the rules are located.[15]

The plans are intended to provide a mechanism for local governments to establish their own development priorities within the framework of state guidelines.

The planning guidelines require local governments to identify constraints to development and formulate policies to respond to these conditions. For example, the plans must list areas likely to have conditions making development costly or that would cause undesirable consequences if developed. These include areas adjacent to coastal shorelines.

Grants are available to local governments in the coastal area to assist with the planning effort. *(For more information on grants, see Chapter 7, Other Incentive Programs.)*

North Carolina's Water Quality Program

Since North Carolina assumed authority from EPA to implement a water quality program, the General Assembly has adopted laws that outline the state's water quality strategy. These laws established the Environmental Management Commission (EMC) and authorized the commission to adopt and establish standards for state water quality classifications.

The commission works closely with the N.C. Division of Water Quality (DWQ) to develop and implement rules. Like the N.C. Division of Coastal Management, DWQ is a division of the state's Department of Environment and Natural Resources (DENR).

For an in-depth discussion of water quality management in North Carolina, see *A Citizen's Guide To Water Quality Management In North Carolina*, N.C. Department of Environment and Natural Resources, Division of Planning, first edition, Sept. 2000. Also see, *Coastal Water Quality Handbook*, North Carolina Sea Grant, UNC-SG-97-04, 1997. Or, go to the DWQ Web Site at *http://h2o.enr.state.nc.us.*

The EMC has developed classifications and standards for both fresh and tidal waters, including a special classification for "Nutrient Sensitive Waters." In line with the federal CWA, discharges are allowed only if they do not violate water quality standards. To protect water quality, limitations are placed on point source discharges and NPS pollution. These limitations are enforced through a permit program administered by DWQ. Again, it should be noted that Section 401 of the CWA requires all applicants for federal licenses or permits to obtain a state water quality certification for any activity that may discharge into state waters.

The DWQ has developed several holistic management programs to protect the quality of the state's waters. Perhaps the most notable is the division's Basinwide Management Program. The program manages North Carolina's river basins as a whole rather than as segments of rivers, parts of estuaries or fragments of creeks.

The program's goals are to identify and restore degraded waters, identify and protect important waters, and regulate pollutants. Basinwide management offers a way to learn more about how river systems work — from headwaters to estuarine and coastal waters.

For additional information, contact the Basinwide Program Coordinator, Water Quality Section, North Carolina Division of Water Quality, 1617 Mail Service Center, Raleigh, NC 27699-1617 (Phone 919/733-5083) or visit the Basinwide Planning Web Site at *http://h2o.enr.state.nc.us/basinwide/.*

Historically, federal and state programs that manage coastal development and programs that manage water quality have operated independently. More recently, new laws have been adopted and old laws amended or reauthorized to require cooperative management.

For example, in 1990 the Federal Coastal Zone Management Act was reauthorized requiring every state participating in the CZMA program to develop a Coastal Nonpoint Pollution Control Program (CNPCP). The purpose of the requirement is to strengthen the links between federal and state coastal zone management and water quality management programs, and to enhance state and local efforts to manage land-use activities that degrade coastal waters and coastal habitats. Following this mandate, North Carolina is developing a CNPCP program with the goal of increasing communication and coordination among DWQ and key state agencies that have regulatory responsibilities for controlling nonpoint sources to coastal waters.

For more information on the CNPCP, see the Web sites at *http://www.epa.gov/owow/nps/cznact.html* or *http://h2o.enr.state.nc.us/nps/czara.htm.*

Other Related State Programs

Fish and Shellfish Management

North Carolina's marine fishery resources are managed by the Marine Fisheries Commission (MFC) and the Division of Marine Fisheries (DMF). Inland fishing waters are managed by the Wildlife Resources Commission (WRC). In some instances, the MFC jurisdiction overlaps the jurisdiction of the WRC. These areas are called joint fishing waters and their management is shared by the two commissions. For more information on the DMF and MFC, visit their Web site at *www.ncfisheries.net.*

Among many other things, the MFC and DMF are responsible for the opening and closing of coastal fishing waters and for regulating activities that could affect fisheries habitat.

The division and commission have the authority to close coastal fishing waters for the taking of shellfish if sampling of the aquatic environment indicates an elevated level of fecal coliform. Fecal coliform is an "indicator organism" that lives in the intestines of warm-blooded animals and thus indicates that waste may be in the water. It comes from a variety of sources, ranging from birds and other animals that inhabit the shoreline to human waste seeping from inappropriately sited septic systems. Human sources are of most concern since human waste can carry viruses and other pathogens. The Shellfish Sanitation Section of the Division of Environmental Health conducts tests, and if a certain threshold limit is detected, recommends that the area be closed to shellfish harvest. The director of the DMF has the authority (termed "proclamation authority") to close areas identified by shellfish sanitation officials. For more information about the Shellfish Sanitation Section, visit its Web site at *http://www.deh.enr.state.nc.us/shellfish/index.html.*

In addition to closure authority, the MFC and DMF are charged with developing "Coastal Habitat Protection Plans," or

CHPPs. These plans are being developed for the long-term enhancement of coastal fisheries through the protection of fish habitat. In an attempt to coordinate the authority of North Carolina's several commissions, the General Assembly mandated that CRC, EMC and MFC work together to develop CHPPs. Although still in the initial stages of development, these plans are likely to be very important in future efforts to manage the estuarine environment. For more information on CHPPs, visit *http://www.ncfisheries.net/habitat/chpp1.htm.*

Sedimentation and Erosion Control

In 1973, the state legislature enacted the Sedimentation Pollution Control Act. The law established a sediment control program to regulate erosion and off-site sedimentation caused by land-disturbing activities other than agriculture, forestry and mining. The Land Quality Section of the Division of Land Resources is responsible for administration and enforcement of the requirements of the act under the authority of the N.C. Sedimentation Control Commission.

The program requires the submission and approval of erosion control plans for all development projects that disturb one or more acres. For more information on the Sedimentation Pollution Control Program, visit the Division of Land Resources online at *http://www.dlr.enr.state.nc.us.*

An area is closed to shellfishing when sampling of the aquatic environment indicates elevated levels of fecal coliform.

THE LOCAL GOVERNMENT ROLE

City and county governments can play an important role in protecting the estuarine environment. Local governments — through land-use planning, zoning ordinances and building codes — can manage activities that impact water quality and wetland health.

The management authority for local governments comes from the state legislature through "enabling legislation."[16] North Carolina has given both county and municipal governments broad powers. The "enabling legislation" states:

A county (city) may by ordinance define, regulate, prohibit or abate acts, omissions or conditions detrimental to the health, safety or welfare of its citizens and the peace and dignity of the county (city); and may define and abate nuisances. . . .[17]

In exercising this authority, local government is restrained from passing ordinances that are inconsistent with state or federal law. For example, a city cannot regulate a subject "for which a state or federal statute clearly shows a legislative intent to provide a complete and integrated regulatory scheme to the exclusion of local legislation."[18] That being said, it is not uncommon for local governments — through their planning requirements and zoning ordinances — to be more restrictive than state requirements. To determine if this is a proper exercise of local authority, one should look closely at the General Assembly's legislative intent.

Chapter 3: Regulatory Tools for Managing Estuaries

Protecting the estuarine environment involves choosing appropriate tools. For North Carolina, the toolbox includes regulatory and nonregulatory (voluntary or incentive-based) measures. Regulatory measures center on state regulation and local planning and zoning ordinances. Nonregulatory measures include land acquisition and economic incentives. Both measures must be based on solid efforts to educate the public. This chapter looks at some regulatory tools for managing the esturine environment.

Public Involvement

Developing effective management strategies for the estuarine environment will require cooperation and collaboration among all levels of government — particularly state and local. But for governments to be effective, they will need the guidance and support of the people — the constituents. Citizen participation is important.

North Carolina has a tradition of allowing public participation in the policy process. Most meetings (state and local) of public bodies that administer the legislative, policy-making, quasi-judicial, administrative, and advisory functions of North Carolina are open to the public, and the public must be given adequate notice of meetings.[19]

In addition to open meetings and adequate notice, North Carolinians have a right to participate in the policy-making process. State regulations are developed according to procedures found in the North Carolina Administrative Procedure Act.[20] The act requires that the public be given notice of commission hearings and an opportunity to present data, opinions and arguments at hearings held to discuss the adoption, amendment or repeal of a proposed regulation. The act also allows any member of the public (including local government) to petition a commission or state agency to adopt, amend or repeal a regulation.[21]

Consequently, if a member of the public or local government sees a need for more effective state regulation, there is an opportunity to request change. This may be particularly important in situations where local government sees a need, but finds its hands tied because the state has "a complete and integrated regulatory scheme (in place) to the exclusion of local legislation."

These are important, but often overlooked, avenues for public and local government involvement in the regulatory process.

Of course, local governments can go directly to the General Assembly and request legislation detailing specific rights when there is uncertainty regarding the ability to regulate through broad general powers. With regard to the relationship between local and state government, a useful contact is the Institute of Government at the University of North Carolina at Chapel Hill. For information about the Institute, go to its Web site at *http://ncinfo.iog.unc.edu/iogindex.html.*

State and Local Permits

At the conclusion of the public participation process, proposed state regulations or local ordinances are adopted, amended or rejected. Adopted rules and ordinances usually are accompanied by permit programs that manage human activities as a way of implementing the

Waterways are channels for commerce and recreation.

goals and objectives of governing bodies such as the General Assembly, state commissions, county commissions and city councils.

Some important permit programs in North Carolina include:

CAMA Major and Minor Permits

The DCM administers a permit program to ensure that development within AECs is consistent with CRC standards and CRC-certified land-use plans. The definition of development is broad and includes most land disturbing activities. Permits are divided into major and minor categories. Major permits are processed by the DCM and are needed for activities that involve approval from another state or federal agency or could have a significant impact on land and water resources. Minor permits are processed by local government offices where the activity is planned. For information on CAMA's permit programs, go online to *www.nccoastalmanagement.net.*

Erosion Control Plans

Erosion control plans are required of all development projects that disturb one or more acres. The staff of the Erosion and Sedimentation Control Program in the Division of Land Resources are responsible for the enforcement, technical assistance and education. However, the N.C. Sedimentation Control Commission may delegate authority for program implementation to cities and counties that adopt qualifying local erosion and sediment control ordi-

nances. For more information on erosion control plans, visit Web site *http://www.dlr.enr.state.nc.us/eros.html.*

Permits and Certifications from North Carolina's DWQ

For information on permits and certifications for point, nonpoint source and wetland disturbances, see DWQ's Web site at *http://h2o.enr.state.nc.us.*

Planning and Zoning

Again, it must be remembered that the General Assembly usually forbids local government from passing ordinances that are inconsistent with state law. Beyond that, local governments are given broad latitude under existing enabling legislation. Under this latitude, local government *may* (at times) be able to regulate activities addressed by state or federal statute *if* the ordinance is clearly based on the local government's land-use plan.

Land-use planning is an important prerequisite to the development of effective ordinances. And implementing ordinances that are based on sound land-use plans can lead to smarter growth. CAMA requires North Carolina's 20 coastal counties to have land-use plans.

To view CRC planning rules, go online to *www.nccoastalmanagement.net.*

The tables that follow describe various methods to effectively manage growth in the coastal/estuarine area.

Table I describes specific planning and zoning tools that can be used to more effectively manage growth in the coastal/estuarine area. These strategies can be combined with nonregulatory measures discussed in **Tables II** (Chapter 4) **and III** (Chapter 5)**.** In addition, **Table IV** (Chapter 6) describes financial strategies to help implement measures.

Pristine waters provide nurseries for the state's shellfish and finfish "crops"— and inspiration for artists.

The following table identifies some specific planning and zoning tools and discusses the benefits and drawbacks of each. The information presented is modified from the Open Space and Historical Resources Plan (OSHRP), Town of Cary, N.C. To see the complete plan, visit the Town of Cary online at www.townofcary.org, and click on the OSHRP.

TABLE I. SPECIFIC PLANNING AND ZONING TOOLS

TOOL	BENEFITS	DRAWBACKS
• **Land-Use Planning Rules.** The CRC has developed rules for North Carolina's 20 coastal counties. (See 15A NCAC 07B.0101)	- Provide coordinated direction for growth management in coastal counties.	- No requirement for consistency between land-use plan (based on the rules) and implementing ordinances (except for ordinances that affect AECs).
• **Large Lot Zoning.** Provides for large minimum lot sizes, such as 5 or 10 acres per dwelling unit.	- Maintains low density and can reduce impact on certain resources, such as water quality.	- Can result in suburban sprawl. - Infrastructure more expensive to install and maintain. - Resource areas may be scattered and noncontiguous, fragmenting forest cover and habitat. - Can contribute to high real estate values.
• **Mandatory Dedication Of Open Space.** Developers are required to dedicate a portion of subdivided property or pay for open space, greenway or parkland.	- Open space can be protected at little direct cost to the public.	- Applies only to residential subdivisions and "planned unit developments."
• **Urban Growth Boundary.** Demarcation of the limit of urban infrastructure (water and sewer extensions). Usually identifies a 10- to 20-year land supply of buildable land.	- Limits sprawl and encourages more compact development. - Allows integration with a "Transfer of Development Rights" program (see below) to preserve open space.	- May require enabling legislation from the General Assembly. - Requires strong regional cooperation. - Controversial. Downzoning may be required outside the boundary.

TOOL	BENEFITS	DRAWBACKS
• **Transfer of Development Rights (TDR).** The rights to develop one parcel of land are sold or transferred to another parcel to protect resources on the first, in exchange for increasing development density on the second.	- Resources can be protected without large capital expenditures. - Large tracts of land can be protected.	- Likely requires enabling legislation. - Can be controversial when downzoning is involved. - Complicated to establish and administer with high administrative overhead.
• **Conservation Overlay Zoning.** Additional or stricter development standards and criteria are established to protect particular features of an existing zone, such as historic districts, landscape features, scenic views, agricultural areas or watersheds.	- Effective in protecting specific resources from development pressures.	- Zoning regulations can be changed. - Does not address resource preservation outside the zoning district. - Standards must be clearly defined.
• **Performance Zoning.** Zoning categories are based on permissible impacts to natural or historic resources, instead of a list of permitted uses.	- The local land-use plan directs the location of development to resource-compatible areas. - Provides flexibility in types and designs of projects – many uses may be permitted in a single zone.	- Requires impact assessment of proposed development projects. - Effectiveness is based on knowledge of resources and the effects of impacts. - Requires a detailed Land-use plan and staff to administer the program.
• **Bonus/Incentive Zoning (Density Trading).** Provides density bonuses; i.e., developers can build additional units in exchange for preserving designated resource lands.	- Encourages sensitive site design to protect resources. - Can help maintain local conservation goals, such as vegetated buffers, open space.	- Requires careful infrastructure planning.

Chapter 4: A Nonregulatory Tool, Land Acquisition

Although regulatory tools are crucial, successful protection of the estuarine environment depends on the incorporation of nonregulatory measures. These range from land title transfer strategies — where property is purchased as a means of protecting environmentally sensitive qualities — to tools where ownership is retained but certain rights may be transferred as part of a management strategy.

LAND ACQUISITION

Land acquisition is a powerful nonregulatory tool for managing the estuarine environment. It can be used independently or combined with regulatory strategies to manage the immediate estuarine shoreline or the broader estuarine environment to help protect water quality.

Acquisition can be accomplished in several ways, ranging from purchase at full market value to the donation of land by individuals, nonprofit organizations or corporations.

Within this range are a variety of tools aimed at accomplishing management through ownership. Nonprofit organizations, including North Carolina's many land trusts, play an important role in the protection of sensitive coastal lands. For valuable information on the state's land trusts, visit the Conservation Trust For North Carolina's Web site at *http://ctnc.org*.

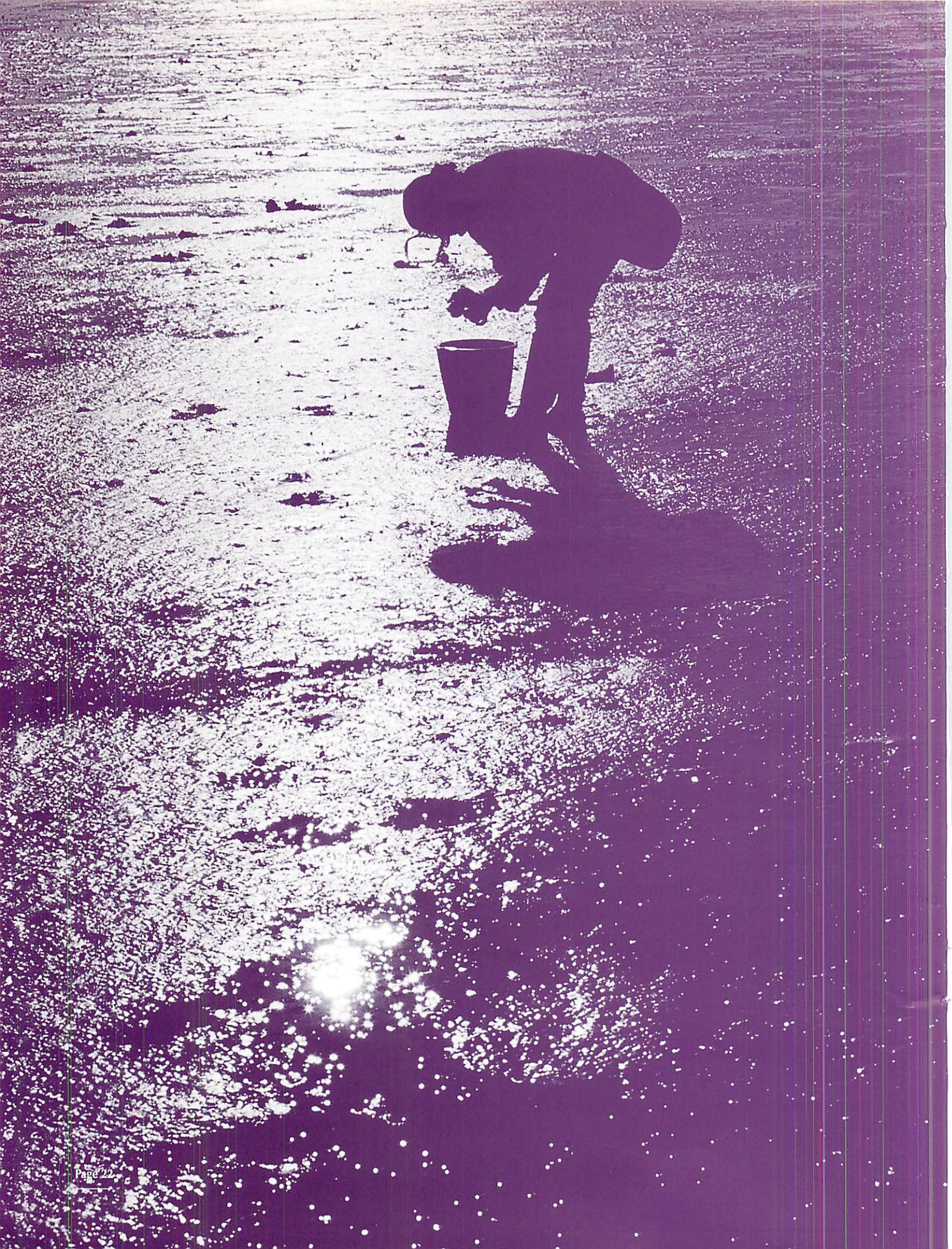
Table II identifies nonregulatory land acquisition tools and briefly discusses their benefits and drawbacks. Likely users include state government, counties and cities and nonprofit organizations. The table is divided into three options — sale, donations and special agreements.

TABLE II. SPECIFIC TOOLS FOR LAND ACQUISITION

The information presented below is modified from the Open Space and Historic Resources Plan (OSHRP), Town of Cary, N.C. To see the complete plan, visit the Town of Cary online at www.townofcary.org, *and click on the OSHRP.*

TOOL	BENEFITS	DRAWBACKS
SALE OPTIONS		
• **Fee Simple Acquisition.** Usually the sale of land at full market value. Ownership and responsibilities are transferred completely to the buyer.	- The most straight-forward acquisition method. - Provides buyer with complete control over the future of the property.	- Can be expensive. - Buyer assumes full responsibility for care and management of property. - Loss of revenue when land is removed from tax rolls.
• **Bargain Sale.** Land is purchased at less than fair market value. The difference between the bargain sale price and the land's fair market value becomes a donation.	- Reduced acquisition costs. - Seller may qualify for tax benefits for charitable donation. - May offset capital gains.	- Difficult and time-consuming to negotiate. - May still be costly to acquire land.
• **Installment Sale.** A percentage of the price is deferred and paid over successive years.	- Possible tax advantages for seller.	- Can complicate budgeting and financing of acquisitions.
• **First Right of Refusal.** Agreement giving buyer the option to match an offer and acquire the property if the landowner is approached by another buyer.	- Buyer can gain extra time to acquire funds for purchase.	- Resources may be lost if offer can't be matched by buyer.
DONATION OPTIONS		
• **Outright Donation.** Owner grants full title and ownership to conservation agency.	- Resources acquired at very low costs. - Tax benefits to donor.	- Landowner loses potential income from sale. - Receiving agency must accept responsibility and long-term costs of land management.
• **Bequest Donation.** Land is donated to a conservation agency at the owner's death through a will.	- Allows owner to retain full use and control over land while alive and ensure its protection after death.	- No income tax deduction for donation of land through a will.

TOOL	BENEFITS	DRAWBACKS
• **Donation with Reserved Life Estate.** Owner retains rights to use all or part of the donated land for his or her remaining lifetime and the lifetimes of designated family.	- Allows owner to continue living on and using the property during his or her lifetime while ensuring the land's protection.	- May involve long delays in transfer of property.
SPECIAL AGREEMENTS AND OTHER OPTIONS		
• **Nonprofit Acquisition and Conveyance to Public Agency.** Nonprofit organization (such as a land trust) buys land and conveys it to a local government or other public agency.	- Nonprofits often can move quickly to purchase and hold land until the public agency is able to buy it. - Could reduce acquisition costs to public agency.	- Local government must be willing to purchase and assume management responsibilities.
• **Intergovernmental Partnership.** Federal, state and local agencies form joint partnerships to own and manage lands.	- Sharing the responsibilities of cost and management can protect larger or more expensive properties. - Can foster regional cooperation to preserve open space.	- Partners must agree on a management strategy. - Could involve a slower response time.
• **Acquisition and Sale or Leaseback.** Agency or private, nonprofit acquires land, places restrictions or covenants on the land, then resells or leases land.	- Proceeds from sale or lease can offset acquisition costs. - Management responsibilities assumed by new owner or tenant.	- Can be complicated. - May be difficult to oversee adherence to restrictions or covenants.
• **Land Exchange.** Land may be exchanged for another parcel that is more desirable for resource.	- Lower acquisition cost. - Scattered properties can be exchanged for a single, larger parcel.	- Complicated — rarely used.
• **Eminent Domain.** Government uses authority to take private property for a public purpose, and pays the landowner fair market value. If the landowner is unwilling to sell, government can condemn the land, providing fair market value compensation.	- Can be used if other tools fail.	- An extreme measure; should be used as a last resort. - Controversial: can alienate the public and owners who are unwilling to sell. - Determining fair market value can be difficult. - Can be expensive.



Chapter 5: Nonregulatory Tools, Protecting Lands Without Acquisition

Because land acquisition can be very expensive, government and nonprofits often use tools that place restrictions on property without the cost of outright purchase. ***Table III*** *lists some nonregulatory tools that can protect the estuarine environment while keeping land in private ownership.*

TABLE III. SPECIFIC NONREGULATORY TOOLS

The information presented below is modified from the Open Space and Historic Resources Plan (OSHRP), Town of Cary, N.C. To see the complete plan, visit the Town of Cary online at www.townofcary.org, *and click on the OSHRP.*

TOOL	BENEFITS	DRAWBACKS
• **Conservation Easement.** A legal agreement between a landowner and a qualified conservation organization to voluntarily restrict the use and development of the property. An easement may be in effect for a specified period of time but is usually perpetual.	- Easement provisions are tailored to needs of landowner and site. - Landowner retains title and use of land. - Potential tax benfits of donation or bargain sale of an easement. - Easements run with the land, despite changes in ownership. - Reduces costs for protection.	- Risk of less protection than outright acquisition. - Management-intensive: easements must be monitored and enforced. - Easement restrictions may limit property resale.
• **Lease Agreement.** An agreement between agency and landowner to rent the land in order to protect and manage a sensitive resource.	- Lower cost approach to site protection. - Landowner receives income and retains property. - An alternative for preservation-minded landowners not ready to commit to a sale or easement.	- Can be management intensive; agency must work closely with landowner. - Shorter term protection.

TOOL	BENEFITS	DRAWBACKS
• **Management Agreement.** Agreement between landowner and conservation agency to manage property to achieve resource conservation goals.	- Management plan is developed based on owner's preservation goals. - Landowner may be eligible for direct compensation or cost-share assistance.	- Agreements are not permanent and may be easily terminated.
• **Mutual Covenants.** Agreement between adjoining landowners to control future land uses through mutually agreed restrictions.	- Covenants can be enforced by any of the landowners or future landowners of the involved parties. - Can reduce property taxes.	- Loss in market value from mutual covenants does not qualify as a charitable deduction for tax purposes.

Conservation easements help protect the environment and maintain traditional agricultural land use.

TOOL	BENEFITS	DRAWBACKS
• **Limited Development Techniques.** A conservation plan is developed for environmentally significant portions of individual parcels. Usually prepared by the landowner and can include a development plan for less sensitive areas.	- Presents attractive option to many landowners by providing income while meeting a preservation objective. - Encourages landowners to evaluate long-term preservation and economic goals for their property.	- Landowner relinquishes full development potential of property.

Myriad flora and fauna thrive along estuarine shorelines.

Chapter 6: Financial Strategies

Another set of tools involves financial strategies or incentives to encourage good stewardship of coastal shorelines and estuaries. It is important to remember that all tools — regulatory, nonregulatory and incentive-based — can be combined and used together. However, to be effective, there must be a clear plan and close coordination between the different tool categories.

***Table IV** summarizes some strategies that local governments can use to finance programs aimed at protecting estuarine resources. Funds may be used to support staff or to acquire lands that buffer sounds and coastal rivers.*

TABLE IV. SPECIFIC FINANCIAL STRATEGIES

The information presented below is modified from the Open Space and Historic Resources Plan (OSHRP), Town of Cary, N.C. To see the complete plan, visit the Town of Cary online at www.townofcary.org, *and click on the OSHRP.*

TOOL	BENEFITS	DRAWBACKS
• **Bond Issue.** Local government borrows money through issuance of bonds, which are repaid with interest over a certain time period.	- Large amounts of funds can become available within a relatively short timeframe. - Costs are spread over a long time period. - A commonly used financing tool.	- Requires political and public relations campaign. Bond issues must be approved by public referendum. - Uses local gov't. debt capacity; may conflict with other capital needs.
• **General Fund Appropriation.** Local government allocates funds from the annual budget.	- Eliminates the interest costs associated with bonds.	- Subject to approval of annual budget.
• **Revolving Fund.** Creation of a pool of capital reserved for preservation and acquisition. Revolving fund programs encourage use of funds on revenue-generating projects that can reimburse the fund. Highly visible tool for preserving historic resources. Could be used for acquiring lands for resale to conservation buyers.	- Fund is replenished. - May enable quick response in acquiring conservation properties.	- Revenue-generating projects may be limited.


"SEALUTION"

Chapter 7: Incentive Programs

In addition to the tools previously discussed, incentive programs exist that encourage private citizens to work with state and local government and nonprofit organizations to properly protect and manage estuarine resources. For example, preferential tax assessments provide a financial incentive to owners of preserved land by assessing property at its conservation value, rather than its development value.

And from a different angle, North Carolina offers a state income tax credit to individuals or corporations that donate real estate for conservation purposes. For more information on this program, contact the North Carolina Conservation Tax Credit Program at 919/715-4191 or see Web site http://ncctc.enr.state.nc.us/.

Finally, there are funding sources that may be used by government, nonprofits and private landowners to protect sensitive lands. Below is a summary of the most commonly used funding sources for estuarine environmental protection. These sources include federal and state agencies, nonprofits and other private funding sources. Funds can be in the form of loans, cost shares or grants.

In addition, the Water Quality Information Center at the National Agricultural Library has compiled an annotated list of funding sources related to water quality. The list includes federal, state and regional programs. The list can be found at http://www.nal.usda.gov/wqic/funding.html.

SECTION 319 (U.S. CLEAN WATER ACT) GRANT PROGRAM

These are funds provided by the U.S. Environmental Protection Agency to states with approved nonpoint source (NPS) management programs. North Carolina has a NPS management program. The program funds innovative NPS management strategies used as demonstrations. The lead NPS agency in North Carolina is the Division of Water Quality. Funding may be available for projects that:

- demonstrate innovative "Best Management Practices" (BMPs);
- monitor or model water quality; and/or
- provide environmental education and technology transfer opportunities.

State and local governments, interstate and intrastate agencies, public and private nonprofit organizations and institutions are eligible for Section 319 monies. For information on Section 319 funding, contact the DWQ Nonpoint Source Management Program, 1617 Mail Service Center, Raleigh, NC 27699-1617, phone 919/733-5083. Online, go to *http://h2o.enr.state.nc.us/nps.*

WETLANDS RESTORATION PROGRAM

The North Carolina Wetlands Restoration Program (WRP) is an innovative, non-regulatory program that was established by the state legislature in 1996. Administered by the Division of Water Quality, the program is intended to restore wetlands, streams and streamside (riparian) areas throughout North Carolina's 17 major river basins. The goals of the program are to:

- protect and improve water quality through restoration of wetland, stream and riparian area functions and value lost through historic, current and future impacts;
- achieve a net increase in wetland acreage, functions and values in all of

The state has a constitutional mandate to conserve and protect its lands and waters "and places of beauty" for the benefit of all citizens.

North Carolina's major river basins;

- promote a comprehensive approach for the protection of natural resources; and
- provide a consistent approach to address compensatory mitigation requirements associated with wetland, stream, and buffer regulations, and to increase the ecological effectiveness of compensatory mitigation projects.

It should be noted that WRP is not a grant program. However, it can complement grant programs, such as the 319 Program, by funding restoration projects that are identified through the 319 grant application process. Studies funded by the 319 Program to identify suitable stream or wetland restoration sites can then be implemented by the WRP. The program can perform restoration projects cooperatively with other state or federal programs or with local groups or land trusts.

For information on the WRP, contact the program at 1619 Mail Service Center, Raleigh, NC 27699-1619, 919/733-5208. Online, go to *http://h2o.enr.state.nc. us/wrp/index.htm.*

CLEAN WATER MANAGEMENT TRUST

The North Carolina Clean Water Management Trust Fund (CWMTF) is an incentive-based program that complements and extends the state's regulatory framework. Projects funded by CWMTF include those that protect pristine waters, enhance or restore degraded waters, and/or contribute to a network of riparian buffers and greenways for environmental, educational and recreational benefits. Grant proposals can be

submitted by local governments, state agencies, and nonprofit organizations. For more information on the CWMTF, contact the fund at 1651 Mail Service Center, Raleigh NC 27699-1651. Online, go to *www.cwmtf.net.*

CAMA LAND-USE PLANNING GRANTS

The Division of Coastal Management helps local governments in the 20 coastal counties fund local land-use planning and management projects through the CAMA Local Planning and Management Grants Program. Projects that are eligible for funds include local land-use plans, local land-use ordinances, beach/waterfront access plans, stormwater management plans, storm-hazard mitigation plans and capital facilities plans.

Local governments may work together on projects designed to address land- and water-use issues on a regional basis. The division accepts applications in the spring of each year.

For more information on CAMA grants, contact the N.C. Department of Environment and Natural Resources, Division of Coastal Management, 1638 Mail Service Center, Raleigh, NC 27699-1638, 919/733-2293 or 1-888/4RCOAST. Online, go to *www.nccoastalmanagement.net.*

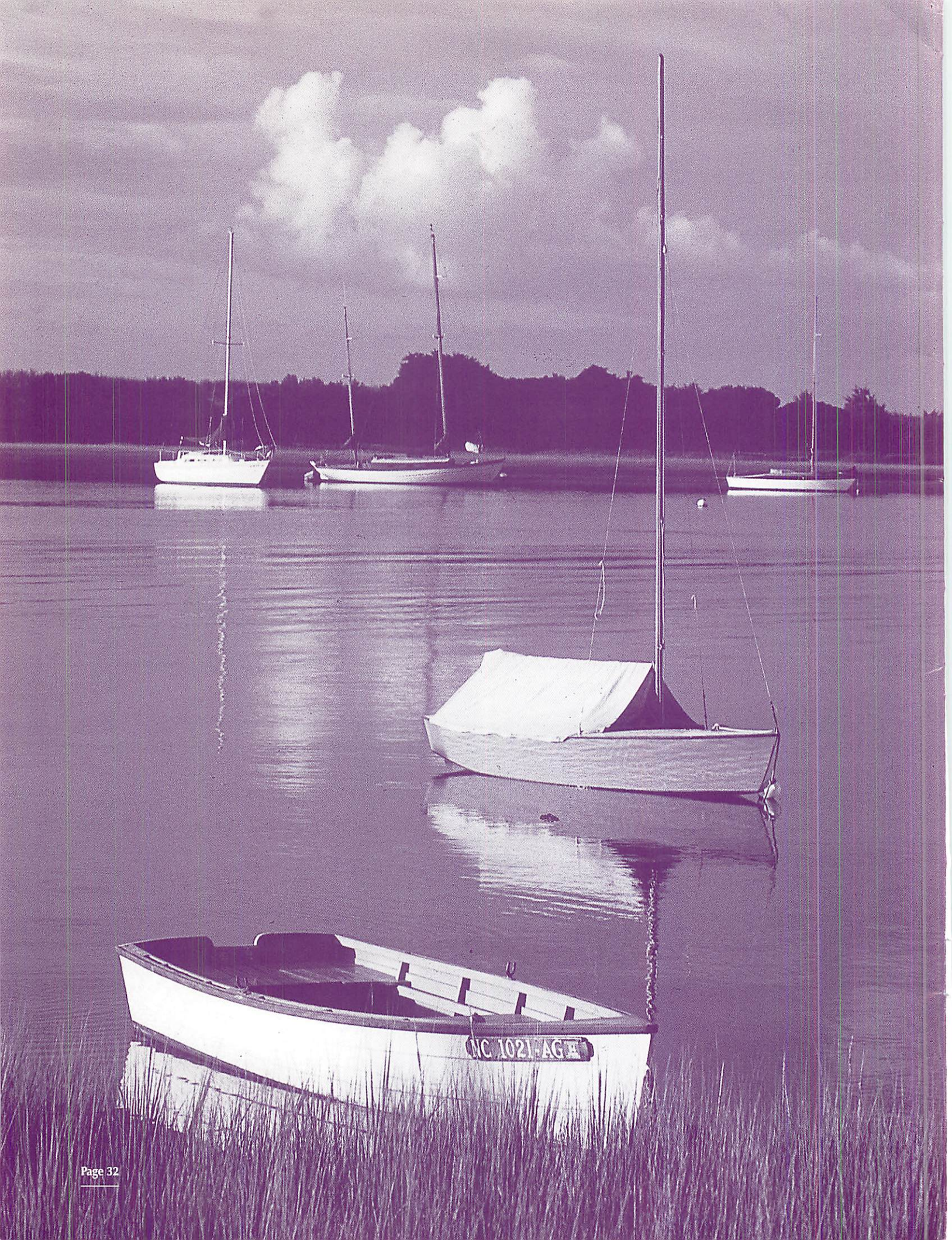
N.C. DIVISION OF WATER QUALITY'S CONSTRUCTION GRANTS AND LOANS PROGRAM

The Division of Water Quality provides grants and loans to local government agencies for the construction, upgrade and expansion of wastewater collection treatment systems. For more information, contact Construction Grants/Loan Section, Division of Water Quality, P.O. Box 29579, Raleigh, N.C. 27626-0579. Or phone 919/733-6900.

N.C. AGRICULTURE COST-SHARE PROGRAM FOR NPS POLLUTION CONTROL

This program provides up to 75 percent cost share, as well as technical assistance, for "best management practices" that protect water quality in agricultural areas. For more information, contact N.C. Division of Soil and Water Conservation at 919/715-6107.

Water fowl are among the benefactors of good land- and water-use planning.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Chapter 8: Conclusion

We hope this guidebook has provided some basic tools for protecting the estuarine environment. Understanding the legal and policy framework is a crucial component for effectively using management tools. Knowledge of basic common law concepts and local, state and federal law, will provide the foundation for achieving sustainable development.

In addition to knowledge, effective management of the estuarine environment demands collaboration. Local governments will need to work together in regional partnerships. There also will be a strong need for communication and cooperation among local, state and federal governmental bodies.

The Albemarle-Pamlico National Estuary Program is a good model of collaborative management. It was among the first National Estuary Programs (NEP) established by the U.S. Environmental Protection Agency (EPA) in 1987. The mission of the APNEP is to identify, restore, and protect the significant resources of the Albemarle-Pamlico estuarine system.

The program is a cooperative effort of the North Carolina Department of Environment and Natural Resources (DENR) and the EPA. The APNEP encourages local communities to take responsibility for managing the resources in their respective jurisdictions. It is made up of representatives from federal, state and local government agencies responsible for managing the region's resources, as well as members of the community — citizens, business leaders, educators, and researchers.

For more information on APNEP or NEP see the Web sites at *http://h2o.enr.state.nc.us/nep/* or *http://www.epa.gov/owow/estuaries/*.

Finally, effective management will require creativity. Gone are the days of a singular focus on top-down, demand-and-control regulation. Creative management involves environmental education incentives and opportunities for public participation. It will require nonregulatory measures, such as tax inducements for conservation donors and funding strategies to purchase buffer lands. Regulation will remain a tool, but only one of many that will need to be creatively combined with other tools to preserve our estuarine environment.

Endnotes

[1] In an important 1995 NC Supreme Court decision, Gwathmey v. State of North Carolina, 342 N.C. 287, 464 S.E. 2d 674 , the court recognized "navigability" as the test for determining state ownership of submerged lands. The case was silent on the applicability of the "full breadth test" for determining the navigability of state waters. This test embodies the notion that if a portion of a waterbody is navigable in fact, then the full breadth of the waterbody is navigable as a matter of law. For an interesting discussion of the *Gwathmey* decision, see *Redefining Ownership of Estuarine Marshlands: Gwathmey v. State of North Carolina*, Legal Tides, North Carolina Sea Grant, Fall/Winter Edition, 1996.

[2] The Coastal Resources Commission was created by the NC Coastal Area Management Act (CAMA). CAMA was passed in 1974 with the goal of providing a management system that would guide development in a manner consistent with the "capability" of the land and water for development.

[3] North Carolina Administrative Code at 15A NCAC 07H.0207(a).

[4] North Carolina Administrative Code at 15A NCAC 07H.0208(b)(7)(D).

[5] As with the Public Trust Doctrine, the common law regarding erosion and accretion has been codified into our statutes and regulations. For example, the General Statutes of North Carolina state that any land, which by process of nature or as a result of pier, jetty, or breakwater, is raised above the high-water mark of any navigable water, belongs to the riparian owner. But land created artificially, from soil or other fill material being placed below the high water mark, becomes the property of the state. See North Carolina General Statutes 146-6(a) and (b).

[6] North Carolina General Statutes 150B.

[7] North Carolina General Statutes 113A-100 et seq.

[8] Included are the counties of Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hertford, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell and Washington.

[9] North Carolina General Statutes 113A-103(2).

[10] Commission and state agency power is limited. In 1991, the General Assembly passed a law requiring that all permanent rules be reviewed to determine whether they are reasonably necessary to fulfill a duty delegated to the commission or agency. This review can include an assessment of whether a rule has a substantial economic impact. The body that conducts the review is called the Rules Review Commission. North Carolina General Statutes 150B-21-8.

[11] The N.C. Department of Environment and Natural Resources (DENR) is the primary stewardship agency for the preservation and protection of North Carolina's natural resources. Through its divisions, DENR plays a substantial role in protecting and managing estuarine areas including coastal shorelines.

[12] North Carolina Administrative Code at 15A NCAC 07H.0209.

[13] North Carolina Administrative Code at 15A NCAC 07H.0205.

[14] North Carolina Administrative Code at 15A NCAC 07H.0208(b)(7)(B).

[15] 15A North Carolina Administrative Code at 15A 07B.0101, et. seq.

[16] North Carolina is considered a "Dillon Rule" state, meaning that local governments can do just what state enabling legislation allows and no more. Named for John F. Dillon, an Iowa Judge, the rule contrasts with the Home Rule that allows local governments to govern as they please as long as they don't violate state law. In North Carolina, counties are creatures of statute. That is, the legislation not only creates counties in state law, but also grants them limited powers, through which local decisions are implemented. Counties that want to exceed the basic grant of authority must get permission from the General Assembly.

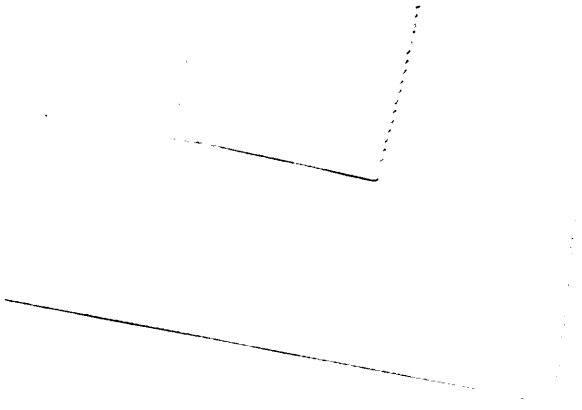
[17] North Carolina General Statutes 160A-174 (for municipalities) and 153A-121(a) for counties.

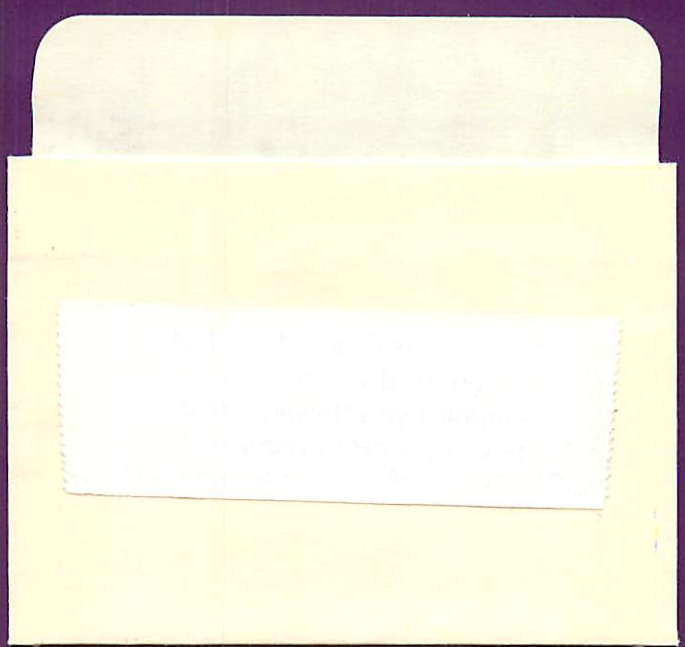
[18] See opinion of Attorney General to the Director, Division of Marine Fisheries, 1998 N.C.A.G. 31 (7/22/98). A town municipal ordinance prohibiting the location of gill nets where they are expressly permitted by State law violates North Carolina General Statute 160A-174(b)(2) and is therefore invalid.

[19] North Carolina General Statutes 143-318.9.

[20] North Carolina General Statutes 150B-1, et. seq.

[21] North Carolina General Statutes 150B-20.





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