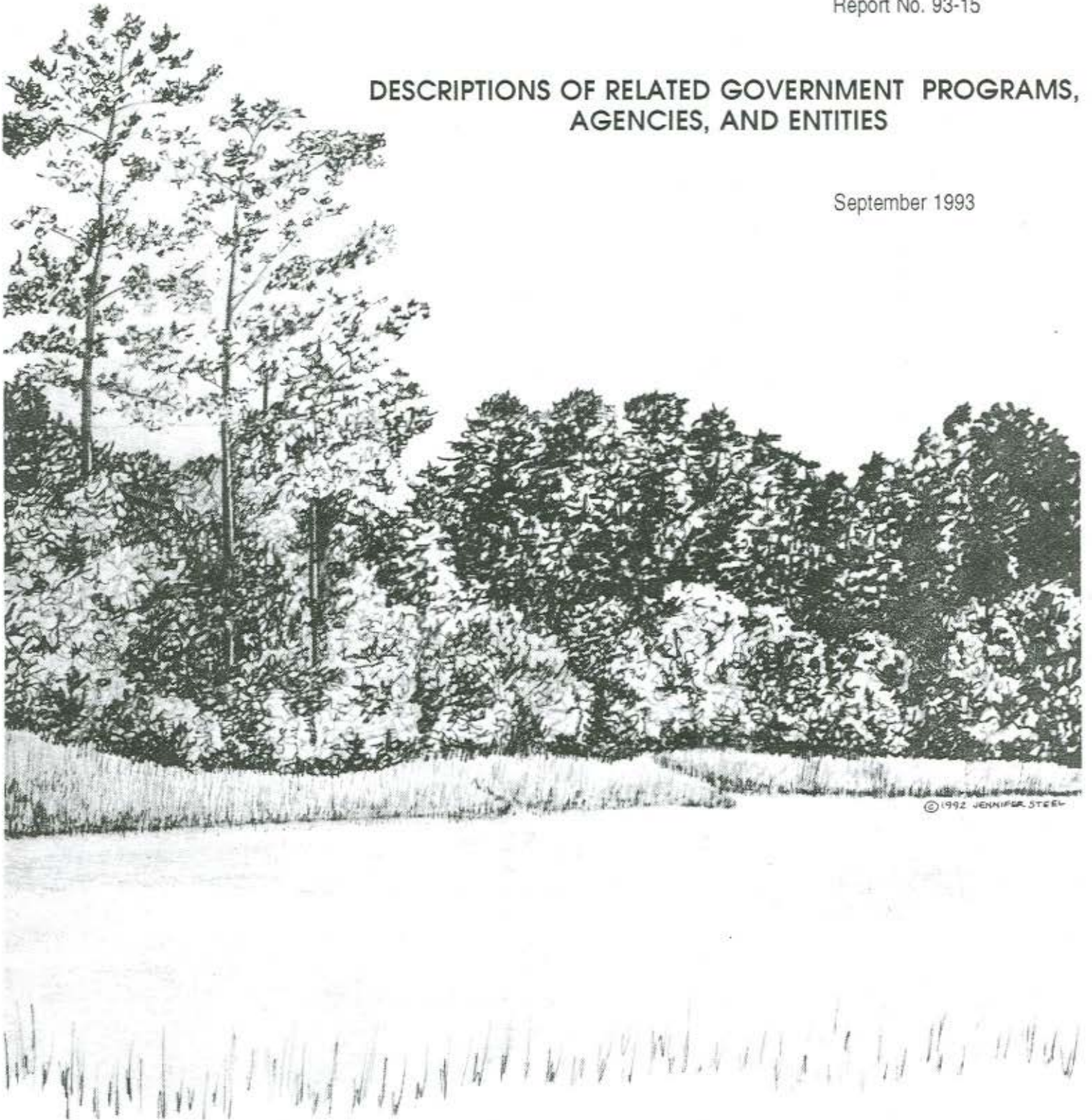


DESCRIPTIONS OF RELATED GOVERNMENT PROGRAMS,
AGENCIES, AND ENTITIES

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ALBEMARLE-PAMLICO ESTUARINE STUDY

NC Department of
Environment, Health,
and Natural Resources



Environmental
Protection Agency
National Estuary Program



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PREFACE

The Albemarle-Pamlico estuary sustains many natural resources. These resources provide significant contributions to the region's environment and overall quality of life. They also support numerous vital economic enterprises including commercial fishing, tourism, recreation, resort development, mining, forestry and agriculture.

For the past five years, the North Carolina Department of Environment, Health, and Natural Resources and the United States Environmental Protection Agency have jointly sponsored the Albemarle-Pamlico Estuarine Study (APES). This study is part of the National Estuary Program (NEP), which promotes long-term planning and management to sustain the ecological integrity of the estuarine system. The culmination of the A-P Estuarine Study is the *Comprehensive Conservation and Management Plan* (currently in third draft form) which promotes integrated watershed management.

The Environmental Protection Agency (EPA) and the Albemarle-Pamlico Estuarine Study play prominent roles in studying, funding and providing for management of the A-P estuarine system. Several other organizations and programs are involved in managing and protecting natural resources. This document provides a comprehensive description of existing programs and organizations associated with management and stewardship of the Albemarle-Pamlico estuarine system.

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INTRODUCTION

The Environmental Protection Agency (EPA) and the Albemarle-Pamlico Estuarine Study (APES) play prominent roles in studying, funding and providing for management of the A-P estuarine system. In addition to these two organizations, numerous government and private organizations and programs manage and support North Carolina's natural resources. Individual goals and procedures vary among programs.

This document describes the existing federal, state and local management structure governing the Albemarle-Pamlico estuarine region. It includes those organizations and programs that have the most direct bearing on management and stewardship of the natural resources in the A-P region. Many of these programs and agencies directly regulate environmentally sensitive areas and activities. Others influence environmental stewardship through resource-based economic development, planning or education.

This document provides a comprehensive description of the region's existing management activities, for use by APES committees and staff in designing and refining the *Comprehensive Conservation and Management Program (CCMP)*. Although it is designed as a reference for individuals and agencies involved in the Albemarle-Pamlico Study, this publication is also intended for use by policy makers, affected parties, researchers and interested citizens. It is meant to assist those parties in directing program resources toward environmental and economic stewardship of the A-P environment. (Drafts of this publication were included as appendices in the first and second drafts of the *CCMP*, and have been extensively employed in developing all *CCMP* drafts.)

There are many groups and organizations that address environmental education and outreach. This document is limited to *government* agencies and programs. The document classifies programs and organizations according to level of government.

Federal agencies are described in the first section of the document. These agencies often collaborate with one another and with corresponding state agencies, frequently delegating responsibilities from the federal level to appropriate state agencies.

State agencies are described in the second section of the manuscript. Several North Carolina agencies serve as staff to policy setting commissions. Other state organizations operate independently of commissions. Some commissions operate without supporting agencies.

Most of the Albemarle-Pamlico estuarine system lies within the state of North Carolina. However, the northern portion of the A-P region stretches into the state of Virginia, which is a cooperating neighbor in the study. Relevant Virginia organizations are described in the third section of this document.

Local governments administer several programs that affect the Albemarle-Pamlico estuarine system. These programs address land use planning, protection of water supply watersheds, water supply planning, septic tank regulation, and sedimentation and pollution control. Relevant local programs and the organizations that manage them are described in the fourth chapter.

Education about the Albemarle-Pamlico region occurs through the mass media, public schools, universities, state agencies, and private initiatives. Descriptions of pertinent education programs are included throughout the document and in Appendix A.

This manuscript demonstrates the existence of a wide variety of governing agencies within the A-P region. The *Comprehensive Conservation and Management Plan (CCMP)* strives to coordinate efforts of these programs and agencies into a unified, integrated approach. The primary intent of the *CCMP* is to enhance, preserve and restore the environmental integrity of the A-P region and its resource-dependent economies.

ACRONYMS

"404"	- Wetland, as defined by Section 404 of the federal Clean Water Act
ACP	- Agricultural Conservation Program (USDA)
AEC	- Area of Environmental Concern (CAMA)
ACSP	- Agricultural Cost-Share Program (N.C. SCS)
A-P	- Albemarle-Pamlico
APES	- Albemarle-Pamlico Estuarine Study
ASCS	- Agricultural Stabilization and Conservation Service (USDA)
BFP	- Best Fisheries Practice
BMP	- Best Management Practice
CAA	- Clean Air Act (EPA)
CAMA	- NC Coastal Area Management Act
CAMEO	- Computer-Aided Management of Emergency Operations (EPA and NOAA)
CAP	- Coastal America Program
CBPA	- Chesapeake Bay Preservation Act of 1988
CCMP	- Comprehensive Conservation Management Plan (EPA, NEP, APES)
CERCLA	- 1990 Comprehensive Environmental Response, Compensation and Liability Act
CES	- Cooperative Extension Service
CGIA	- N.C. Center for Geographic Information and Analysis
CNPC	- Coastal Nonpoint Pollution Control program (EPA)
COG	- Council of Government
CRAC	- NC Coastal Resources Advisory Council
CRC	- NC Coastal Resources Commission
CRP	- Conservation Reserve Program
CSRS	- Cooperative State Research Service
CWA	- Federal Clean Water Act of 1972, amended 1987 (EPA)
CZMA	- Coastal Zone Management Act
DCA	- N.C. Division of Community Assistance
DCM	- Division of Coastal Management
DCR	- Virginia Department of Conservation and Recreation

DDE	- D. D. Eisenhower National Program for Mathematics & Science Education
DEH	- NC Division of Environmental Health (DEHNR)
DEHNR	- N.C. Department of Environment, Health, and Natural Resources
DEM	- N.C. Division of Environmental Management (DEHNR)
DEM	- N.C. Division of Emergency Management (NC Crime Control/Public Safety)
DEQ	- Virginia Department of Environmental Quality
DFR	- N.C. Division of Forest Resources
DLR	- N.C. Division of Land Resources
DMF	- N.C. Division of Marine Fisheries
DOE	- N.C. Department of Education
DOD	- U.S. Department of Defense
DOT	- Department of Transportation (U.S. or N.C.)
DPI	- N.C. Department of Public Instruction
DPR	- N.C. Division of Parks and Recreation
DSWC	- Division of Soil and Water Conservation (NC DEHNR/Virginia DCR)
EDC	- Economic Development Commission (regional)
EHNR	- Environment, Health and Natural Resources (NC Department)
EMAP	- Environmental Monitoring and Assessment Program
EPA	- Environmental Protection Agency
EPCRA	- Emergency Planning and Community Right-to-Know Act (Superfund, Title III)
ERR	- Coastal Zone Management Estuarine Research Reserves
ESC	- Endangered Species Conservation Fund
FIFRA	- Federal Insecticide, Fungicide, and Rodenticide Act of 1984 (EPA)
FIP	- Forestry Incentives Program (USDA)
FmHA	- Farmers Home Administration
FSF	- Federal Ship Financing Fund
GIS	- Geographic Information System
HSWA	- Federal Hazardous and Solid Waste Amendments of 1984 (EPA)
IFA	- Interjurisdictional Fisheries Act
ISTEA	- Intermodal Surface Transportation Efficiency Act
LEPC	- Local Emergency Planning Committee
LWC	- Land and Water Conservation Fund
LRO	- Lead Regional Organization
MCAS	- Marine Corps Air Station
MS4	- Municipal Separate Storm Sewer Systems (NPDES Storm water Program)
MSD	- Marine Sanitation Devices (U.S. Coast Guard and EPA)
NAW	- North American Wetland Grant
NCCES	- NC Cooperative Extension Service
NCDA	- North Carolina Department of Agriculture
NCRI	- National Coastal Resources Research and Development Institute
NCW	- Near Coastal Waters (EPA)
NCW	- National Coastal Wetland Grant (USF&WS)
NEEG	- National Environmental Education Grants
NEP	- National Estuarine Program

NEP	- National Estuarine Program (EPA)
NEPA	- National Environmental Policy Act of 1970 (EPA)
NESHAP	- National Emission Standards for Hazardous Air Pollutants (EPA)
NFWF	- National Fish and Wildlife Foundation
NHP	- Natural Heritage Program
NOAA	- National Oceanic and Atmospheric Administration
NOS	- National Ocean Service (NOAA)
NOV	- Notice of Violation (see NC DEM)
NPDES	- National Pollutant Discharge Elimination System
NPS	- Nonpoint Source Pollution
NRI	- National Research Initiative
NSF	- National Science Foundation
OAR	- Office of Atmospheric Research (NOAA)
OCRM	- Office of Coastal Resource Management (NOAA)
OEE	- Office of Environmental Education
ORCA	- Ocean Resources Conservation and Assessment (NOAA)
P-R	- Pitman-Robinson (Wildlife Restoration Fund)
RCRA	- Federal Resource Conservation and Recovery Act (EPA)
RNHTF	- Recreation and Natural Heritage Trust Fund
SARA	- 1986 Federal "Superfund" Amendments and Reauthorization Act
SAV	- Submerged Aquatic Vegetation
SCS	- Soil Conservation Service
SDWA	- Federal Safe Drinking Water Act
SEAMAP	- Southeast Area Monitoring and Assessment Program
SEPA	- State Environmental Policy Act
SEPC	- State Emergency Planning Committee
SRF	- State Revolving Fund
SSB	- NC Shellfish Sanitation Branch (DEH)
SUPERFUND-	Superfund Amendments and Reauthorization Act (EPA)
SWCC	- Soil and Water Conservation Commission
TAR-PAM	- Tar-Pamlico Basin Association
TNC	- The Nature Conservancy
TRIS	- Toxic Release Inventory Systems (EPA database)
TSI	- Timber Stand Improvement (USDA and NC Dept. of Forestry)
UNC	- University of North Carolina
USDA	- United States Department of Agriculture
USF&WS	- United States Fish and Wildlife Service
USGS	- United States Geological Survey
UST	- Underground Storage Tank
VPA	- Virginia Abatement Program
W-B	- Wallop-Breaux (Sport Fish Restoration Fund)
WP-SDF	- Wetlands Protection - State Development Fund
WQA	- Federal Water Quality Act of 1987
WQIP	- Water Quality Initiative Project

- WRP - Wetlands Reserve Program (USDA, ASCS)
- WRI - Water Resources Research Institute
- WSA - Water and Sewer Authority (regional)

PART ONE

Federal Government

U.S. ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) was created in 1970 to facilitate effective governmental coordination of actions that occur on behalf of the environment. The Agency's mission is to safeguard the health and welfare of the American people by protecting the environment and improving environmental quality.

EPA seeks to protect public health and safety and to improve the quality of the environment through the development and implementation of discovery, investigation, containment, and control programs. The Agency integrates research, monitoring, and standard-setting activities to control pollution of water and air.

Program Descriptions

EPA conducts regulatory and planning programs in accordance with a wide range of environmental legislation. The Agency's role is generally one of partnership with the states and other federal agencies on actions impacting surface and groundwaters, air quality and waste management. EPA's major enabling legislation is listed below:

- Clean Water Act of 1987, or CWA (amendments to 1972 Federal Water Pollution Control Act of 1972);
- Safe Drinking Water Act of 1986 (and 1987 amendments);
- Marine Protection, Research and Sanctuaries Act of 1972, or MPRSA (most recently amended by the Water Resources' Development Act of 1992);
- National Environmental Policy Act (NEPA);
- Resource Conservation and Recovery Act of 1986 (RCRA);
- 1986 "Superfund" Amendments and Reauthorization Act (SARA);
- Toxic Substances Control Act;
- Coastal Zone Act Reauthorization Amendments of 1990;
- Clean Air Act; and
- Federal Insecticide, Fungicide and Rodenticide Act.

The EPA administers several programs in the Albemarle-Pamlico estuarine region. Brief descriptions of these programs follow.

National Estuary Program (NEP)

The Albemarle-Pamlico Estuarine Study (APES) is one of 21 studies (referred to as "management conferences") convened by the EPA Administrator and funded under the National Estuary Program (NEP). The NEP seeks to restore the physical, chemical and biological integrity of the nation's estuaries by protecting and enhancing the water quality and living resources of the nation's estuarine systems. Program goals are accomplished through a coordinated effort of government, industry and the public. The NEP also promotes coordination between EPA's programs.

Near Coastal Waters

EPA (Region III) uses nautical and aerial surveillance to monitor current conditions and assess long-term trends in the near coastal waters of the Mid-Atlantic Bight (extending from New Jersey to North Carolina). This program is carried out through provision of the *Clean Water Act*.

During the summer months, EPA's "Ocean Survey Vessel" collects monthly samples of water from one to ten miles off the coast. EPA evaluates the chemical and biological parameters of these samples. The Agency also collects bottom sediment samples from selected sites, and records sightings of dolphins, whales, and sea turtles (to add to the National Marine Fisheries Service database).

EPA's Environmental Services Division's weekly, aerial surveillance of the coastal region provides a visual assessment of changing coastal conditions. During these aerial observations, the Division monitors the presence of several marine animals, and looks for water discoloration (possibly indicating algal blooms), floating plastics and garbage, and unusual occurrences (such as oil slicks and illegal dumping). The Division reports unusual findings to the appropriate state or federal agency for investigation and action. Aerial survey information is used to guide the Agency's nautical sampling activities.

EPA Region IV Near Coastal Waters funds have been utilized to conduct projects related to A-P Management issues. Those projects have dealt with boat waste management and fisheries enhancement. Near Coastal Waters funds (under the sponsorship of a Coastal America initiative) are also being used to reestablish anadromous fish habitat.

Water Quality Monitoring

EPA works with state, local and other federal agencies to assess the state's water quality trends and to identify problems. The State of North Carolina maintains a network of stations at fixed locations where water quality data are generated for trend analysis.

EPA also provides to the state assistance in assessing water quality, managing water quality data (using EPA's STORET database), and preparing the state biennial water quality assessment reports required under Section 305(b) of the federal *Clean Water Act*.

Water Quality Standards Program

EPA uses the state's water quality standards to measure surface water protection. These standards assign protected uses for the state's waters and establish acceptable water quality criteria for their intended uses. EPA reviews the state's standards every three years. The standards serve as the regulatory basis for water pollution control by the state and the EPA.

Wetlands (Section 404, "Dredge and Fill")

Section 404 of the federal *Clean Water Act* (CWA) directs EPA and the U.S. Army Corps of Engineers (COE) to regulate activities resulting in deposition of dredged or fill material in U.S. waters. COE issues permits for these activities, based on EPA guidelines. (See also "U.S. Department of Defense, Corps of Engineers," elsewhere in this chapter.)

The EPA Region IV Wetlands Regulatory Section staff reviews and comments on all dredge and fill permit applications. EPA considers the impact of proposed dredge and fill activities on municipal water supplies, shellfish beds, fishery areas, wildlife, and recreation areas. Section 309 of the CWA gives the Agency the power to take enforcement actions on permitted discharges. EPA can veto unacceptable reviews (pursuant to Section 404(c) of the CWA).

EPA manages disposal of dredge materials by designating and monitoring disposal sites. EPA has developed disposal guidelines pursuant to Section 404(b)(1). These guidelines are subject to occasional revision.

Region IV also has the authority to fund Advance Identification of Wetland studies.

Staff costs for the Wetlands Program are funded from the general Region IV EPA operating budget.

Nonpoint Source Pollution Control

In the late 1980s, EPA assisted the State of North Carolina in completing a statewide assessment of nonpoint source problems and a management plan to address those problems (in accordance with the requirements of the federal *Water Quality Act* amendments of 1987).

The federal nonpoint program uses a nonregulatory approach to direct states to develop nonpoint source management programs. EPA's nonpoint source (NPS) staff provides administrative oversight on state management plans to ensure that the requirements of Section 319 of the *Clean Water Act* (CWA) are met. NPS staff members also administer the EPA's nonpoint grant program and provide technical assistance to each state, upon request.

The State of North Carolina will receive between \$800,000 and \$1,000,000 in management assistance funds for 1993.

Section 6217 of the federal *Coastal Zone Management Act* (CZMA) amendments of 1990 requires all states with federally-approved Coastal Zone Management Programs to develop and submit Coastal Nonpoint Pollution Control (CNPC) programs to EPA and the National Oceanic and Atmospheric Administration (NOAA) for approval. These CNPC programs must contain a set of economically achievable and enforceable "management measures" that (to the greatest degree possible) lead to a contaminant reduction in nonpoint

sources of pollution. Failure of a state to comply with the federal mandate may jeopardize up to 30 percent of their funding under Section 306 of CZMA and Section 319 of CWA. The state and EPA's bioassessment efforts should lead to water quality standards as well as standards for marine habitats.

Section 6217 also requires **local governments** to identify, develop, and implement pollution control measures.

EPA's Watershed Unit in the Wetlands, Oceans and Watersheds Branch of Region IV administers the Nonpoint Source Program. The three primary duties of EPA's nonpoint staff are to (1) oversee all state NPS programs in Region IV, (2) administer the Section 319(h) grants program (to implement individual state nonpoint programs), and (3) assist states in the development and implementation of nonpoint source management programs.

National Pollutant Discharge Elimination System (NPDES)

The federal *Clean Water Act* authorizes EPA to regulate the wastewater discharges from **municipal and industrial facilities** through the National Pollutant Discharge Elimination System (NPDES) program. The Act requires all facilities discharging into U.S. surface waters to obtain NPDES permits. These permits determine the levels of contaminant allowed in each facility's effluent. Contaminant levels are established by either industry-wide, "technology-based" criteria or stream-specific "water quality based" standards (established by the states to protect the uses that they have designated for their streams). In North Carolina, the primacy for administering this permits program has been delegated to the N.C. Division of Environmental Management (within DEHNR).

EPA's Water Permits and Enforcement Branch has responsibility for permitting **domestic and industrial facilities** that discharge wastewater into the oceans, territorial seas, or marine waters of the U.S. and enforcing all of these permits. Domestic and industrial NPDES permits are required of all surface water dischargers. This Branch of EPA is also responsible for permitting and enforcing **stormwater discharges from large and medium municipal storm sewer systems**.

The Water Permits and Enforcement Branch is separated into two sections: The Permitting Section and the Enforcement Section. There are six people in the Storm Water and Municipal Unit dedicated to permitting. The NPDES permitting and enforcement staffs are funded from the Region IV EPA operating budget.

Drinking and Ground Water Protection

Safe Drinking Water Act The 1986 Amendments to the *Safe Drinking Water Act* (SDWA) increased EPA and the state's roles in protecting the public's drinking water. The

Act required development of drinking water standards and established new treatment requirements for water systems.

Underground Injection Control EPA Underground Injection Control (UIC) staff regulate and assist states in managing the injection of fluids into wells in order to prevent endangering drinking water sources. The *Safe Drinking Water Act*, Part C provides legislative authority for these controls.

Underground Storage Tanks The Underground Storage Tanks program regulates underground storage tanks (USTs) to prevent contamination of current and potential future drinking water sources. Subtitle I of the *Resource Conservation and Recovery Act* (RCRA) provides the legislative authority for these regulations.

The State of North Carolina's ground water protection policies and action plans establish the framework for the development of classification systems, monitoring programs, improved data management systems, and other elements needed to form a comprehensive ground water protection strategy.

The Region IV EPA operating budget funds UIC program administration costs. The Region UIC Section has 20 staff members. Region IV UST receives funding from two sources: the National Leaking Underground Storage Tank Trust Fund and the general EPA Region IV operating budget.

Resource Conservation and Recovery Act (RCRA)

The *Resource Conservation and Recovery Act* of 1976 Act focuses on hazardous waste management (Subtitle C) and underground storage tank control (Subtitle I). All of EPA's RCRA staff activities are funded from the general EPA Region IV operating budget.

Subtitle C The intent of Subtitle C is to ensure that hazardous waste is managed to protect human health and the environment. It provides for management of hazardous waste from its initial generation to final disposal. Subtitle C "cradle to grave" regulations cover the generation, transportation, treatment, storage, and disposal of hazardous waste.

The Hazardous and Solid Waste Amendments (HSWA) of 1984 authorize EPA to require corrective action for past releases of hazardous substances from waste management facilities. The State of North Carolina administers the base RCRA program, while EPA is responsible for implementation of the corrective action provisions of HSWA.

Subtitle I Subtitle I is meant to ensure that underground storage tanks (USTs) are designed, installed, and operated in a manner to prevent releases from occurring. It sets out cleaning requirements to be instituted in case of a release. The State of North Carolina is responsible for administering the majority of this program within the state. (See, also, "Drinking and Ground Water Protection," described in the previous section.)

National Environmental Policy Act

The *National Environmental Policy Act (NEPA)* of 1970 was enacted to ensure that federal agencies consider the environmental impacts of their activities and achieve a balance between society's needs and environmental protection. EPA's NEPA role has traditionally been to develop environmental documentation and mitigation plans for EPA projects that could adversely affect the environment. Historically, these projects have centered around the wastewater treatment construction grants program. An additional EPA function under NEPA and Section 309 of the Clean Air Act is to review and provide comment on the environmental assessments and environmental impact statements for projects developed by other federal agencies (such as construction projects for dams, highways, and power plants, dredging projects, resource extraction projects, and federal land use projects).

Federal Facilities

Federal environmental laws affecting federal facilities are contained in NEPA and RCRA (described above). EPA administers both of these programs for civilian and military installations. Much of EPA's administration of these programs involves NPDES permitting (described previously in this section). EPA's federal facilities program provides the coordination and scrutiny necessary to ensure federal facility compliance with EPA statutes.

Region IV's Federal Activities Branch permits and enforces federal wastewater facilities that discharge to surface waters. In addition, the branch is responsible for permitting RCRA activities at federal facilities. However, enforcement of RCRA permits is the responsibility of the RCRA Permitting and Compliance Branch located in the Waste Management Division of EPA.

All federal wastewater facilities submit monthly Discharge Monitoring Reports to the NPDES coordinator within the Branch. The RCRA coordinator in the Federal Activities Branch submits monthly federal facility compliance reports to the RCRA permitting and Compliance Branch. In addition, the Federal Activities Branch staff makes annual, on-site inspections.

Federal facilities staff members are located in the Federal Activities Branch of the Office of Policy Management (a separate branch of the EPA), and **not** in the Water Management Division or the Waste Management Division. The Federal Activities Branch receives funding from the Region IV EPA operating budget.

Permit writers in the Federal Activities Branch prepare permits for RCRA projects and wastewater (following review by NPDES Permits Section or RCRA Permits Section). A permit becomes final upon receipt of these comments and those from the federal installation seeking the permit. Once permits are issued, the Federal Activities Branch enforces wastewater regulations. RCRA staff monitor for violations only. All enforcement actions are taken by the RCRA Compliance Section located in the Waste Management Division.

Ocean Discharge Program

The Ocean Discharge Program is housed within the Wetlands, Oceans and Watersheds Branch of EPA. This program establishes bioassessment criteria for the discharge of point source pollutants into the marine environment (including oceans, territorial sea, or contiguous zone). The program evaluates marine communities to ensure against environmental degradation. These discharge criteria are established to ensure that no unreasonable impacts occur to the marine environment.

The NPDES permitting program implements the Ocean Discharge Program by requiring applicants to develop monitoring programs to measure degradation of the marine environment (pursuant to Section 403(c) of CWA.) Within the State of North Carolina, ocean discharges are permitted by the Division of Environmental Management (within the Department of Environment, Health, and Natural Resources).

EPA's Coastal Planning Section staff support the Permits Section by reviewing NPDES monitoring programs (to assess impacts on biological communities) insuring that the discharge criteria are adhered to. Funding for ocean discharge coordination and research activities comes from EPA headquarters, Section 104(B)(3) of the CWA. Staff costs are funded out of the general Region IV EPA operating budget.

Ocean Disposal (Dumping) Program

EPA regulates ocean dredged material disposal sites (primarily harbor channel dredge material) under the Ocean Disposal Program. The purpose of this program is to regulate the dumping of all types of materials into ocean water (in order to minimize dumping of any material that would adversely affect human or marine environments.) The program manages site designation and issues of ocean disposal permits. Legislative authority for the program is derived from Title I of the Marine Protection, Research, and Sanctuaries Act (MPRSA).

EPA's Coastal program section administers the Ocean Disposal Program. Staff members coordinate and interact with other EPA technical field personnel (Environmental Services Division) involved in the site designation process.

Marine Sanitation Devices

States may prohibit discharge of sewage from all vessels for the purpose of preventing the discharge of untreated or inadequately treated sewage into or upon navigable waters. EPA establishes performance criteria for Marine Sanitation Devices (pursuant to Section 312 of CWA). Prior to enacting marine sanitation regulations or programs, each state must submit an application to EPA for approval. The U.S. Coast Guard is responsible for enforcing these criteria. (See U.S. Department of Transportation, Coast Guard, elsewhere in this chapter).

This program receives no specifically earmarked funding. Staff time spent administering the program is absorbed into EPA's general operating budget. Congress annually appropriates funding for the program. One staff member of EPA's Ocean Discharge Program serves as an information coordinator for marine sanitation devices.

State Revolving Fund

The federal Water Pollution Control Act of 1956 provided **Construction Grants Program** funds for municipal water pollution control. Those funds were applied toward construction of municipal wastewater treatment works, pumping stations and several types of sewer systems. In 1987, the *Water Quality Act* supplanted the grants program with the **State Revolving Fund** loan program (capitalized with federal funds). The Construction Grants Program was an EPA focused grant program, while SRF is a state operated loan program.

State Revolving Funds (SRFs) provide seed monies to a state for water pollution control activities in perpetuity. Funding authority for this program is contained in Title VI of the *Clean Water Act* of 1987, Public Law 100-4. Municipalities, intermunicipal, interstate, and state agencies are eligible for SRF loans to conduct any of the following activities:

- construct publicly owned wastewater treatment works as defined in Section 212 of the CWA (activity must appear on the state's priority list);
- implement a nonpoint source pollution control management program under Section 319 of CWA; and
- Implement an estuary conservation and management plan under Section 320 of CWA.

States must provide a 20 percent cash match. Up to 4 percent of the SRF can be used for administration. Interest rates for SRF loan payback can be no higher than current market rates, and can be zero interest loans. The payback period is usually 20 years after construction is completed.

States have discretion as to how SRF funds are to be used. Typically, SRF funds have been used solely for wastewater treatment plant construction.

Nationally, this program received approximately two billion dollars in 1992 and 1993. North Carolina received almost 35 million dollars in 1993. The level of funding for the State Revolving Fund (SRF) within the A-P region has varied over the past several years. The SRF is scheduled to expire in Fiscal Year 1994, but will probably be extended to 1996 and beyond with the reauthorization of the CWA.

Pretreatment

EPA's pretreatment program assists Publicly Owned Treatment Works (POTWs) in controlling industrial discharges to their system. The program protects the treatment plants and their sludge, and prevents untreated pollutants from passing through a POTW. EPA regulations prescribe pretreatment standards for industrial wastes (including effluent criteria for identified pollutants), in accordance with the *Clean Water Act* of 1997 (which amended the federal *Water Pollution Control Act* of 1972).

Superfund (CERCLA)

The *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) of 1980 is also known as the "Superfund". This Act authorized EPA to clean up those sites where hazardous substances have been disposed without proper regard for the consequence to the environment or public health. Congress has allocated \$8.5 billion to fund the program. Most of this money goes to funding government directed cleanup through emergency removal actions in actual emergencies, or long term remedial actions for sites posing risks to public health or the environment. The "Superfund" Amendments and Reauthorization Act (SARA) of 1986 provided a five year extension to CERCLA.

Program responsibilities include (1) identifying sites where hazardous substances have been or might have been released into the environment, (2) ensuring that the sites are cleaned by responsible parties or the government, (3) evaluating damages to natural resources, and (4) developing claim procedures for parties who have cleaned up sites or spent money to restore natural resources. The program focuses on remediation of inactive sites.

Preliminary site assessments determine if sites qualify for inclusion on the National Priority List (NPL) and cleanup under Superfund. Sites on this list are those determined to have (1) the greatest hazard based on the type, quantities, and toxicity of waste present; (2) the number of people potentially exposed, (3) the likely pathways for exposure, (4) the importance and vulnerability of the underlying aquifers, and (5) other factors.

Community-Right-to-Know Legislation In 1986, Congress passed the *Emergency Planning and Community Right-to-Know Act* (EPCRA), also known as Title III of the 1986 "Superfund" Amendments and Reauthorization Act (SARA). Section 313 of Title III required certain manufacturers to submit annual reports on July 1, 1988, documenting amounts of toxic chemical their facility releases into the environment either routinely or as a result of accidents. EPA supplies this toxic inventory data to government officials and the public (to assist them in planning for toxic emergencies).

Every community in the United States must be part of a comprehensive emergency plan. EPA has collaborated with NOAA to develop the "Computer-Aided Management of Emergency Operations" (CAMEO) program to assist emergency planners. This data and software provides to local and state governments a way to store information submitted by facilities, conduct hazards analyses, map hazards in their community as part of the planning

process, and store information on the properties and health risks posed by chemicals in their area.

EPA and the U.S. Federal Emergency Management Agency (FEMA) provide technical assistance to local and state government emergency planning commissions in the form of guidance manuals, chemical profiles, workshops, and other technical assistance.

EPA provides on-site emergency response to large toxic spills (such as train derailments involving hazardous materials, major tank truck accidents involving toxic chemicals, large industrial accidents involving hazardous chemicals, and so forth). EPA officials coordinate on site with local officials and other entities, but have authority to take charge where local officials are unable or unwilling to handle the problem. The U.S. Coast Guard is responsible for reacting to hazardous chemical spills in coastal waters.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

The *Federal Insecticide, Fungicide and Rodenticide Act* charges EPA with regulating the manufacture, distribution and use of pesticides in the US. EPA provides North Carolina with support and oversight in enforcement and pesticide applicator certification and training programs.

Toxic Substances Control Act of 1976

The *Toxic Substances Control Act* of 1976 protects human health and the environment by developing data on chemical substances and mixtures and regulating those substances that present an unreasonable risk.

Environmental Monitoring and Assessment Program (EMAP)

EPA's Office of Research and Development administers the Environmental Monitoring and Assessment Program. EMAP is a nationwide, interagency environmental research, monitoring, and assessment program that focuses on seven major ecological resource categories (including estuaries and wetlands) to determine environmental health. This program generates large-scale, regional information designed for comparative studies.

Hazardous Air Pollutants

Section 112 of the federal *Clean Air Act* requires EPA to regulate hazardous air pollutants by publishing National Emission standards for Hazardous Air Pollutants (NESHAPs). EPA has promulgated NESHAPs for arsenic, asbestos, benzene, beryllium,

mercury, radionuclides, and vinyl chloride. EPA regulations address stationary and mobile air emissions.

Air Monitoring

EPA's air monitoring efforts are based on National Ambient Air Quality Standards for six pollutants: carbon monoxide, elemental lead, nitrogen dioxide, sulfur dioxide, suspended particulate, and ozone. The overall air pollutant measurement program is a cooperative effort between the respective state, each county agency and the EPA regional office. The program is administered by the state.

Funding and Staff

There are six coastal states within EPA's eight state South Eastern Region. Most of Region IV's coastal program funding is available for expenditures outside of EPA. EPA Region IV Coastal Program funding for Fiscal Year 1993 is listed below:

403(c) Program	\$175,000
Ocean Dumping	247,312
Near Coastal Waters	307,900
National Estuary Program	3,554,400
Florida Keys	500,000

Sixteen technical persons staff the Region IV Coastal Programs.

Public Involvement

The *National Environmental Policy Act* (NEPA) prescribes public involvement for all EPA programs. In addition to public involvement required by NEPA, the Environmental Protection Agency administers funds pursuant to the *Environmental Education Act of 1990*. EPA supports environmental educational programs by providing grant funds to institutions of higher learning and directly funding county schools.

Congress authorized EPA to spend up to 12 million dollars the first year, with annual subsequent appropriations (of an undetermined amount) for environmental education programs, through 1993. These funds are to go to the newly established EPA Office of Environmental Education and the National Environmental Education and Training Foundation, and to support environmental education grants and awards.

U.S. DEPARTMENT OF AGRICULTURE

Agricultural Stabilization and Conservation Service North Carolina State Office

Program Objective

The mission of the Agricultural Stabilization and Conservation Service (ASCS) is to promote the wise use of agricultural land and water resources in partnership with farmers and ranchers. ASCS works in cooperation with other federal and state agencies and organizations to implement voluntary, conservation programs. Local ASCS offices administer the programs.

Objectives of the conservation programs are:

- (1) to control erosion and sedimentation, and reduce water, air, or land pollution from agricultural or silvicultural non-point sources; and
- (2) to encourage voluntary compliance with federal and state requirements to solve point and nonpoint source pollution.

The Service is presently emphasizing improvement of water quality.

Program Description

The Agricultural Conservation Program (ACP) is ASCS's principle conservation and environmental protection program. Other ASCS programs include the Conservation Reserve Program (CRP); the Forestry Incentives Program (FIP); the Wetlands Reserve Program (WRP); and the Conservation Compliance, Swampbuster, and Sodbuster programs of the 1985 Farm Bill.

Agriculture Conservation Program (ACP)

The Soil Conservation and Domestic Allotment Act of 1936 established the Agricultural Conservation Program. The program uses cost-sharing to address soil, water, and related resource problems. ACP provides technical and financial assistance for farmers to install a variety of soil-saving practices (including vegetative cover, sod waterways, no-till, and other measures to control erosion). Soil- and water-saving practices also help reduce the amount of sediment, chemicals, and animal waste in streams and lakes.

Farmers who implement soil-saving practices are eligible for cost-shares ranging from 25 to 75 percent of the cost of the practice. The ASCS establishes practice costs based on the average cost of implementation in the region. Local ASC committees decide which practices are acceptable within their jurisdiction.

The Program works in conjunction with the SCS Soil and Water Conservation Service, and involves the following steps:

- (1) The County ASCS Committee prioritizes conservation needs.
- (2) Farmers and ranchers (individually or in concert with SCS or ASCS staff) identify conservation problems and select desired practices.
- (3) The local Soil and Water Conservation District identifies appropriate conservation practices.
- (4) SCS field office personnel provide technical assistance (including engineering and construction supervision).
- (5) SCS certifies that a practice has been installed.
- (6) ASCS provides financial assistance.

Conservation Reserve Program (CRP)

The Food Security Act of 1985 authorized the Conservation Reserve Program to retire 45 million acres of highly erodible cropland from production by 1995. Under the program, soil conservationists identify highly erodible land. Farmers are encouraged to stop growing crops on this highly erodible land, and to plant trees or grass instead.

Farmers who enter a contract to convert their land in this manner receive annual rental payments for any converted acreage. Payments continue throughout the ten-year contract. In addition, cost share funds (up to 50 percent) are available from ASCS to farmers who employ such practices as vegetative cover, windbreaks, and vegetative filter strips.

A landowner is eligible for the CRP if the landowner has:

- (1) cropped the land to be retired for at least two years between 1981 and 1985; and
- (2) acquired the land before January 1, 1985 or owned the land for at least three years before entering it in the program.

Highly erodible land that meets cropping requirements is eligible for the CRP. The Program accepted 6,059 farms (totaling 140,144 acres) before March 15, 1991.

ASCS accepts CRP bids from landowners during sign ups that are scheduled once or twice each year. ASCS personnel prioritize these bids to identify land for acceptance into the program. In the past, they have applied heavier weights to bids involving highly erodible soils. However, in recent years, this emphasis has apparently shifted. Bids involving highly productive land have apparently been given more weight than bids involving highly erodible land. To better promote environmental protection through the CRP, preference must be given to poor soil lands, not highly productive lands.

The CRP will likely meet the original goal of retiring 45 million acres of highly erodible cropland from production. However, this program is scheduled for termination in 1995 unless the 1995 Farm Bill extends the existing program or establishes a new program.

An extension of the bill would promote environmental protection and conservation, provided that emphasis was given to retiring highly erodible land as opposed to highly productive land.

Forestry Incentives Program (FIP)

In 1973, Congress authorized the Forestry Incentives Program (FIP) to encourage private, nonindustrial landowners to develop and properly manage their woodlands for timber production.

Under the Forestry Incentives Program, the State of North Carolina plants more trees (and at less cost per acre) than any other state in the U.S. The following groups of landowners are eligible for cost-share assistance under FIP:

- (1) landowners who own no more than 1,000 acres (exceptions of up to 5,000 acres may be granted);
- (2) private forest landowners;
- (3) landowners who have land suitable for forestation, reforestation, or improved forest management; and
- (4) owners of productive timber lands of at least ten acres.

ASCS develops state FIP plans and, with the assistance of other agencies (including the State Forester), conducts annual reviews of the program. The N.C. Division of Forest Resources offers technical assistance for the program. The maximum, annual, individual cost share payment for implementing FIP forestry is \$10,000.

It should be noted that under the State of North Carolina Forest Development Program, federal and state agencies share the costs of tree planting and timber stand improvement with private forest landowners. These agencies offer funds to eligible landowners for planting, site preparation, and timber stand improvement (TSI). Examples of TSIs are controlled burns, thinning of tree rows and natural regeneration. (See Part Two of this document for more information regarding this program.)

Wetlands Reserve Program

The federal Food Agriculture, Conservation, and Trade Act of 1990 established the Wetlands Reserve Program (WRP) to restore and protect farmed wetlands or converted wetlands and eligible adjacent lands. The Act provides for restoration of one million acres (nationally) of former wetlands by 1995.

The Program works with landowners who have eligible land on which they agree to enter into a permanent or long-term easement with ASCS. Through the program, landowners receive financial assistance from ASCS and technical assistance from SCS and the U.S. Fish and Wildlife Service (FWC) to plan and install necessary restoration practices on the land under the easement. SCS and FWC develop a "Conservation Plan of Operations" with the

landowner. The goal of the WRP is to have 1,000,000 acres of land enrolled by 1995. For 1993, Congress allocated fifty million dollars for this program for the purchase of 50,000 acres. For 1994, Congress allocated sixty-six million dollars for purchase of 75,000 acres (which amounts to significantly less money per acre). Unless Congress increases these allocations, WRP is not likely to meet its goal of 1,000,000 acres.

The federal government will compensate owners of previously converted cropland, rangeland, and pastureland who voluntarily transfer their property rights to ASCS (in the form of permanent conservation easements). Conditions of the conservation easements should prohibit landowners from further development or alteration of the transferred land. The federal government will pay much of the cost of improving these lands to enhance their wetland functions.

North Carolina was one of nine pilot states chosen to participate in this program. Congress appropriated funding for more than 50,000 acres of wetlands across the U.S. North Carolina's share of this acreage is currently undetermined.

Other ASCS Programs

ASCS administers the Conservation Compliance, Swampbuster, and Sodbuster provisions of the Food Security Act of 1985. The USDA Soil Conservation Service conducts most technical services and field inspections (see USDA/SCS program description for further information). ASCS makes final decisions on whether to withdraw USDA benefits from noncompliant farmers (based on recommendations from SCS).

Funding and Staff

ASCS employs approximately two staff members in each field office and a small administrative staff in the Raleigh headquarters. Generally, there is a field office in each county of the state. During Fiscal Year 1991-1992, North Carolina received Congressional appropriations of slightly less than five million dollars for the Agriculture Conservation Program, and \$627,000 for the Forestry Incentives Program.

Financial assistance to individuals implementing conservation practices is available in all U.S. counties.

Generally, ASCS field staff members receive training only when a new program is implemented. Because field staff members are the primary contacts for farmers and foresters, they offer the best opportunity for education of landowners on conservation practices. It may be beneficial to regularly educate field staff on the importance and degree of environmental protection offered by various practices. In turn, well-trained staff members could educate landowners and promote the use of practices that benefit production as well as environmental protection.

Opportunities for Public Involvement

ASCS programs are administered through local offices. A locally-elected Agriculture and Stabilization Conservation Committee works with local communities to assess conservation problems and to determine which measures to offer to landowners within their jurisdiction. Local communities determine cost-share levels and allowable practices for their areas.

A popular practice of farmers in the A-P region is use of a "cover crop". Unfortunately, this common practice probably offers the least water quality and soil erosion protection. ASCS personnel are working to reeducate both field personnel and farmers to employ practices that offer greater protection. December 31, 1993 is the last date that ASCS can approve applications for cover crop (in accordance with federal mandate).

**Forest Service
Croatan National Forest**

Program Objectives

The U.S. Forest Service is a part of the U.S. Department of Agriculture. The Service has nine regions.

National Forest System lands are managed to provide a multitude of goods and services for national, state, and local publics. These goods and services include outdoor recreation, timber, water, wildlife and fish, wilderness, and minerals. Land and resource management planning for National Forests is designed to "provide for multiple use and sustained yield of goods and services" from the forests "in a way that maximizes long term net public benefits in an environmentally sound manner" (36 CFR 219.1(a)).

The Organic Administration Act of 1897 created the National Forests and the Weeks Law of 1911 authorized purchase of the National Forest System lands in the eastern U.S. Both laws guide management of National Forests to:

- (1) improve and protect the forests,
- (2) preserve and encourage watershed protection and best conditions for water flows, and
- (3) furnish a continuous supply of timber.

The Multiple Use Sustained Yield Act of 1960 added four purposes for establishing and managing National Forests: outdoor recreation, range, wildlife, and fish. This Act also allowed for the use of mineral resources on National Forest lands.

The Forest and Rangeland Renewable Resources Planning Act of 1974 (as amended by the National Forest Management Act of 1976) requires land and resource management planning for National Forest land.

Within national forests, the Forest Service must follow the National Environmental Policy Act (NEPA) process for any ground-disturbing activities except for regular maintenance work.

Program Description

Croatan National Forest

In 1922, the North Carolina General Assembly authorized the establishment of national forests in the state and reserved the right to maintain state and local laws in National Forest regions. The Croatan National Forest was established in 1936. It covers 159,000 acres in the Neuse and White Oak watersheds in Craven, Carteret, and Jones counties. It is headquartered in Asheville and is one of North Carolina's four national forests. The Croatan falls within the Southeast Region of the U.S. Forest Service.

The Croatan National Forest works closely with the Wildlife Resources Commission on game laws and habitat improvement, and with the Division of Forest Resources on fire protection. It also works with universities to coordinate research within the forest. With a variety of types of ecosystems represented, the Croatan National Forest provides an excellent space for research that can be applied in the rest of the coastal plain.

The research division of the Forest Service is considering how best to monitor the health of the Croatan forest. Much information on has been collected on the Croatan. The Forest Service is working to get this data into a Geographic Information System (GIS) database.

Funding and Staff

The Croatan Forest budget is approximately \$1 million. The forest has a permanent staff of twenty-two. An additional twenty-two senior citizens provide part-time assistance in forest activities.

Opportunities for Public Involvement

Any major activities on forest land must comply with the NEPA process, which includes public notification and public hearings. The Forest Service has a variety of public educational materials.

Soil Conservation Service (SCS)

Program Objective

The Soil Conservation Act of 1935 established the Soil Conservation Service (SCS). The mission of SCS is to provide national leadership in the conservation and wise use of soil, water, and related resources through a balanced cooperative program that protects, restores, and improves those resources.

The following SCS programs are significant to the Albemarle-Pamlico region and are described in the following section:

- Conservation Operations
- Resource Conservation and Development Program
- Small Watersheds Program
- River Basin Investigations and Surveys
- Emergency Watershed Protection
- Soil Survey Program

Program Description

Conservation Operations Technical Assistance (CTA)

Conservation Operations Technical Assistance (CTA) (P.L.14-46) activities implement the 1985 Food Security Act and the Food, Agriculture, Conservation and Trade Act of 1990, including the Conservation Compliance, Sodbuster and Swampbuster provisions.

Conservation Compliance The Conservation Compliance component pertains to farms with highly erodible soils that were in crop production before passage of the 1985 Farm Bill. Farmers of such farms must operate under an approved conservation plan or lose eligibility for USDA benefits.

Sodbuster and Swampbuster Provisions The **Sodbuster** provision is designed to discourage conversion of highly erodible land to cropland use. The **Swampbuster** provision discourages conversion of wetlands for agricultural purposes. Conversion of wetlands or highly erodible soils to croplands after passage of the 1985 Farm Bill may result in a farmer's loss of eligibility for certain USDA program benefits.

Federal Assistance Farmers were required to file Food Security Plans (including implementation dates) with the SCS by January 1, 1990. Plans may be amended if crops are changed. Members of the SCS field staff annually inspect 5 percent of the farms with Food Security Act Plans to determine if approved conservation measures are in place. If plan requirements have not been met, SCS alerts the USDA Agriculture Stabilization and Conservation Service (ASCS) which may then deny the farmer certain USDA benefits.

In addition, SCS provides Conservation Operations Technical Assistance (CTA) in all counties to help land users with problems of erosion, sedimentation, total water management, water quality and related issues.

Generally, farmers who rely heavily upon price supports and other USDA benefits are more likely to participate in the voluntary Farm Bill programs. Farmers who do not rely on benefits may choose against participating in programs that promote environmental protection.

Resource Conservation and Development (RC&D)

The Resource Conservation and Development (RC&D) Program was initiated in 1962 (P.L. 97-98, Sec.1528). It provides technical and financial assistance to locally sponsored areas designated by the Secretary of Agriculture. The mission of the RC&D Program is to enhance conservation capabilities of state and local units of government and local nonprofit organizations in rural areas. The Program assists these organizations in planning, developing, and implementing programs for resource conservation and development. Specific goals of the Program are to:

- (1) accelerate conservation, development, and utilization of natural resources;
- (2) improve the general level of economic activity; and
- (3) enhance the environment and standard of living in authorized areas.

Each RC&D area is managed by a volunteer council of local citizens, with coordinating assistance from the SCS. The volunteer council develops and implements a plan for social, economic, and environmental improvement of its community.

Through the Program, SCS offers project grants, advisory services and counseling for installation of approved measures specified in RC&D area plans. Technical and financial assistance is available for water management.

Proposed measures are judged on relevance of the measure to the RC&D area plan's goals and objectives. Criteria for setting priorities are usually published in the RC&D area plan or are available from the local sponsors of the RC&D area. Eligible applicants are limited to state and local government and nonprofit organizations. Applicants must be in RC&D areas authorized for assistance for planning and installation of approved measures specified in RC&D area plans.

North Carolina has seven RC&D areas, two of which are in the Albemarle-Pamlico region. The Mid-East RC&D contains Beaufort, Bertie, Hertford, Martin, and Pitt counties. The Albemarle RC&D consists of Camden, Chowan, Currituck, Dare, Gates, Hyde, Pasquotank, Perquimans, Tyrrell, and Washington counties.

Examples of RC&D programs in the Albemarle and Mid-East areas include an integrated aqua-vegeticulture system, irrigation water management, dead hog disposal, and boat and piling removal.

Small Watersheds Program

The Watershed Protection and Flood Prevention Act of 1954 enacted the Small Watersheds Program in North Carolina (P.L. 83-566). The program is a cooperative effort among federal, state, and local governments to plan and implement water resource projects in watersheds of less than 250,000 acres.

The Small Watersheds Program offers project grants, advisory services, and counseling. Program objectives are:

- (1) to provide technical and financial assistance to state agencies and units of local government in planning and carrying out works or improvements; and
- (2) to protect, develop, and utilize the land and water resources in small watersheds (e.g., using "total resource management and planning" to improve water quality and address problems caused by flooding, erosion, sedimentation, and water use and disposal).

Soil and water conservation districts initiate projects, which must be approved by the N.C. Soil and Water Conservation Commission before any federal action is taken. Once project proposals are endorsed locally and by the Soil and Water Conservation Commission, several agencies (including SCS and other federal, state, and local agencies) provide technical and financial assistance to develop and implement the watershed plan. Local governments, sponsors, and the federal government provide most project funding.

All projects must meet requirements of the National and State Environmental Policy Acts (NEPA, SEPA) and other environmental laws and regulations. Examples of project activities include the installation of flood prevention and multipurpose dams, channel improvements, and dikes.

Post-assistance annual operation and maintenance inspections and reports are required.

River Basin Investigations and Surveys Program

The Watershed Protection and Flood Prevention Act of 1984 (as amended) authorized the River Basin Investigations and Surveys Program (P.L. 83-566).

SCS provides planning assistance to federal, state, and local agencies for development of coordinated water and related land resources programs. SCS gives priority to the following objectives:

- solving problems of upstream rural community flooding.

- water quality improvement of waters coming from agricultural nonpoint sources,
- wetland preservation, and
- drought management for agriculture and rural communities.

In North Carolina, the River Basin Program is a cooperative effort among federal, state, and local governments. The program seeks to: (1) identify water and resource related problems, (2) evaluate alternatives, and (3) provide local communities with technically sound water resource data for use in their local plans. To date, eight river basin studies and 29 flood plain management studies have been completed in the state, including a study of the soil erosion and sediment delivery in a limited watershed in Guilford County.

Emergency Watershed Protection Program

The Emergency Watershed Protection program is an immediate response program designed to relieve imminent hazards to life and property caused by floods and products of erosion that have been created by natural disasters. The program facilitates the deployment of SCS technical and financial assistance to local communities to restore blocked stream channels and remove other hazards that threaten life and property.

Soil Survey Program

The purpose of the Soil Survey Program is to maintain and publish up-to-date soil surveys and similar databases of counties (or other areas of comparable size). The Program also provides assistance in using this information.

In the Soil Survey Program, SCS develops and maintains soil maps and soil information. The Service disseminates technical soil information and assistance to interested agencies, organizations, and individuals.

In North Carolina, the Soil Survey Program is a cooperative effort between federal, state, and local governments. Its objectives are to:

- (1) obtain an inventory of the state's soil resources,
- (2) record the location of soils,
- (3) predict soil performance under defined use and management,
- (4) ease the transfer of soil information from one location of the state to another, and
- (5) contribute to the knowledge, understanding, and proper use of our land resources.

SCS Soil Survey information is useful for decision making affecting land use. Local governments use soil surveys for many activities, including environmental impact assessments and tax valuation.

The Soil Survey Program hopes to complete a soil survey for every N.C. county by the year 2000. However, budget constraints may delay completion of some county surveys.

Association with North Carolina Agricultural Cost-Share Program

SCS activities overlap significantly with the N.C. Agricultural Cost-Share Program (ACSP). ACSP helps those farmers in nutrient sensitive watersheds to install best management practices (BMPs) and protect water quality. The N.C. Division of Soil and Water Conservation provides funding, local Soil Conservation Districts administer cost-sharing, and SCS provides training, technical assistance, and vehicles. In addition, the ACSP has adopted Soil Conservation Service BMP standards and procedures.

Funding and Staff

The 1992 Fiscal Year Budget for the Conservation Operations Program is \$8,020,000. The program has a staff of 167 persons, including one to three persons in each of the county offices and the headquarters staff in Raleigh.

The Resource Conservation and Development Program in North Carolina received \$720,000 in Fiscal Year 1992. RC&D projects are financed through cooperative agreements, grants, and cost-sharing assistance from federal, state and local funding. The Albemarle and Mid-East RC&D each have one and one-half SCS employees.

There are 34 staff members for the Small Watersheds Program and River Basin Studies Program. This figure includes an environmental specialist, economist, hydrologist, planning engineer, GIS technician, as well as field and administrative personnel. These programs typically receive approximately three million dollars per year.

The total budget for the Soil Survey Program for Fiscal Year 1992 is approximately \$1,900,000. SCS and the N.C. Division of Soil and Water Conservation will contribute \$1,378,000 and \$300,000, respectively, for in-kind services. Local governments will contribute approximately \$160,000 and the U.S. Forest Service will pay \$36,000 to \$37,000 for contract work to SCS. Statewide, SCS employs thirty staff members, including twenty-three soil scientists in the field (conducting soils mapping and providing support services) and seven soil scientists and support personnel in the central state office (providing quality control and manuscript and material development).

Opportunities for Public Involvement

Pursuant to the 1990 Farm Bill, local district boards, speaking for local residents, work with the SCS to determine local feasibility of suggested farming practices. Three members of the local boards are elected into office by local residents during regular election cycles. The N.C. Soil and Water Conservation Commission appoints two board members. SCS employees serve as staff to the local board.

Resource Conservation and Development Councils are made up of local citizens who volunteer their time to improve their communities.

Public involvement with the Small Watersheds Program and River Basin Investigations and Surveys Program includes: (1) work sessions with the local governments/sponsors and steering committees, (2) informational public meetings to educate the local citizens on the details of the project or study, and (3) public hearings as required by the NEPA and SEPA processes.

Before the 1985 and 1990 Farm Bills were enacted, the SCS engaged in more public education activities. Implementation of the Farm Bills has limited the number of staff members free to participate in such programs.

U.S. DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Program Objectives

Fundamental objectives of The National Oceanic and Atmospheric Administration's (NOAA) are to (1) observe, describe, and predict the natural variability of the global earth system, and (2) identify any changes in the earth system caused by human activity.

Program Description

NOAA has five major branches and several programs. The five branches are: the National Weather Service (NWS), the National Environmental Satellite, Data, and Information Service (NESDIS), Oceanic and Atmospheric Research (OAR), the National Ocean Service (NOS), and the National Marine Fisheries Service (NMFS).

BRANCHES

National Weather Service (NWS)

The National Weather Service provides weather warnings and forecasts through a system of field offices supported by national centers. National weather centers provide warnings of dangerous storms. Weather data is stored at the National Meteorological Center in Maryland. A list of National Weather Service Centers follows:

- National Hurricane Center in Miami
- Pacific Hurricane Office in Honolulu
- National Severe Storms Forecast Center in Kansas City, Missouri
- Thirteen River Forecast Centers
- Tsunami Warning Systems in Alaska and Hawaii

National Environmental Satellite, Data, and Information Service (NESDIS)

The NESDIS manages the nation's civil earth-observing satellite systems and global data centers for meteorology, land sciences, oceanography, sun-earth geophysics, and solar-terrestrial sciences. Data are distributed continuously to the National Weather Service and other domestic and foreign users. Satellites provide early warnings of hurricanes, solar activity monitoring, snow and ice cover measurements, and information on the health of forests and agricultural resources. They also play an important role in monitoring global changes in climate and the marine environment. The NESDIS electronic information facilities are the largest data storage and retrieval system in the world. Data is shared internationally through the World Data Center.

The NESDIS system includes: the **National Climatic Data Center** in Asheville, North Carolina, the **National Oceanographic Data Center** in Washington, D.C., and the **National Geophysical Data Center** in Boulder, Colorado.

Oceanic and Atmospheric Research (OAR)

The Oceanic and Atmospheric Research (OAR) branch conducts environmental research at numerous laboratories and supports university research on national and global problems associated with the oceans and atmosphere. OAR research aims to improve weather warnings and forecasts, improve understanding and prediction of seasonal and longer-term variability of global climate, and provide basic understanding of air pollution as support for government regulatory agencies.

The OAR conducts solar-terrestrial research at its Space Environment Laboratory. The OAR Ocean and Great Lakes Program strives to improve prediction of the effects of oceanic processes and to assess the ecological impacts of human activities on the oceans and the Great Lakes. The Marine Resource Research Program aims to enhance environmental and economical decision-making which affects living and mineral resources in the oceans. Fisheries-oceanography research, conducted jointly with the National Marine Fisheries Service (NMFS), seeks to improve understanding of atmospheric and oceanic variations on fish and shellfish. The OAR also includes the National Sea Grant College Program and the National Undersea Research Program.

Sea Grant College OAR administers the National Sea Grant College. There are 29 Sea grant programs (one in each of the coastal states and commonwealths of the U.S. and in each of the states bordering one of the Great Lakes) Together they tackle issues of regional or national concern. Each Sea Grant program operates in three capacities: marine and coastal research, outreach and education, and communications. Sea Grant assembles teams of scientists from the state's top universities to tackle coastal problems. For a detailed description of the North Carolina Sea Grant College, see Part two, North Carolina Agencies, UNC System (of this document).

National Ocean Service (NOS)

The National Ocean Service (NOS) produces nautical and aeronautical charts and related publications for safe and efficient passage in coastal waterways and the National Airspace System. NOS maintains the **National Geodetic Reference System** that provides the geographic framework for all mapping and charting.

NOS is the principal agency for the collection of statistical information on coastal areas. The Service collects information about physical characteristics of the U.S. coastal waters, the Great Lakes, and the global ocean for scientific and engineering applications. NOS information is used to contain oil spills, assess the effects of coastal pollution, and manage

coastal resources. Through a NOAA fleet of research and survey ships, NOS collects global and national environmental data. NOS publishes atlases of this data.

NOS also manages the national system of marine sanctuaries and estuarine research reserves. There are currently ten marine sanctuaries in the U.S. (one is sixteen miles off Cape Hatteras at the site of the historic wreck of the U.S.S. Monitor). Most estuarine research reserves are joint state and federal reserves (the Rachel Carson Estuarine Research Reserve is located in Carteret County).

Coastal Zone Management Program Through its Office of Ocean and Coastal Resource Management (OCRM), NOS provides matching funds for and oversees state implementation of the Coastal Zone Management Act. NOAA administers the Coastal Zone Management Program in accordance with the *Coastal Zones Management Act (CZMA)* of 1972, as amended. The objective of this program is to assist federally approved coastal states in promoting the effective management of the Nation's coastal zone. In managing coastal areas, states are expected to balance competing demands of resource protection, protection of public health and safety, provision for public access, and economic development.

To comply with changes made in the 1990 reauthorization of the CZMA, states are currently developing coastal nonpoint pollution control programs. These new programs will focus on coastal watersheds. The purpose of these programs is to develop and implement management measures for nonpoint source (NPS) pollution. In addition, these funds can be used to investigate and apply public trust doctrine and to work on management issues that are regional in scope (including interstate projects, demonstration projects with a high potential for improving coastal zone management, emergency grants to state coastal zone management agencies to address unforeseen related circumstances, recognition of excellence in coastal zone management and program development grants).

Funds must go toward implementing state *Coastal Zone Management Programs* or toward development of management plans.

Marine Sanctuary Program The NOAA National Ocean Service (NOS) Office of Coastal Resources Management (OCRM) also administers the National Marine Sanctuary Program. The EPA is responsible for the water quality planning aspects of the program. The purposes of the Marine Sanctuary Program are:

- (1) to identify areas of the marine environment of special national significance due to their resource or human-use values;
- (2) to provide authority for comprehensive and coordinated conservation and management of these marine areas that will complement existing regulatory authorities;
- (3) to support, promote, and coordinate scientific research on, and monitoring of, the resources of these marine areas;

- (4) to enhance public awareness, understanding, appreciation, and wise use of the marine environment; and
- (5) to facilitate all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities.

National Estuarine Research Reserve System (NERRS) NOAA's National Ocean Service (NOS) Office of Coastal Resources Management (OCRM) also administers the National Estuarine Research Reserve System. The purpose of the National Estuarine Research Reserve System is to establish and manage, through federal/state cooperation, a national system of reserves. The reserves serve as field laboratories where studies are conducted on natural and human processes occurring within estuaries.

North Carolina's Reserve encompasses four estuarine sites in North Carolina: Currituck Banks, Rachel Carson, Masonboro Island and Zeke's Island. The Reserve is part of the National Estuarine Research Reserve Systems. Established by the state of North Carolina in 1982 with matching funds from NOAA, the Reserve encompasses more than 12,000 acres of barrier beaches, marshes, maritime forests, and estuarine waters.

The Division of Coastal Management (DCM) administers the program in North Carolina.

"Project Estuary" is a multidisciplinary curriculum guide appropriate for grades five through ten. The guide includes a variety of activities and materials designed to fit into the existing science curriculum. This project was developed by the N.C. National Estuarine Research Reserve System, written by Gail Jones, and published by the N.C. Division of Coastal Management.

Damage Assessment and Restoration Program (DARP) Acting on the public's behalf, NOAA uses its Damage Assessment and Restoration Program (DARP) to assess and claim damages for injuries (from oil discharges and hazardous substance releases) to those natural resources under its jurisdiction. DARP activities are performed in accordance with the Superfund Act, the Clean Water Act, the Marine Protection, Research, and Sanctuaries Act, and the Oil Pollution Act.

Through DARP, the NOS **Damage Assessment Center (DAC)** assesses natural resource damage. Recovered damages are used to restore, replace, or acquire the equivalent of the injured resources.

Also through DARP, the **Restoration Center (RC)** in the National Marine Fisheries Service develops and directs the expertise for restoration activities.

Estuarine Living Marine Resources (ELMR) The Estuarine Living Marine Resources program conducts large-scale collection to assist in making species and estuary comparisons in an effort to better understand biological coupling of estuarine and marine system. The goal of this program is to develop a consistent database on the spatial and temporal distribution relative abundance, and life history characteristics of fish and invertebrates to enable comparisons among species and estuaries and gain understanding on the biological coupling of estuarine and marine habitat.

Strategic Environmental Assessment (SEA) Division The NOS administers the Strategic Environmental Assessment (SEA) Division. The goal of this division is to create comprehensive compilations and analyses of information on characteristics of large coastal areas, usually from the head of tide in estuaries through the 200 mile U.S. Exclusive Economic Zone in an effort to describe and quantitatively analyze spatial, temporal, and ecological relations.

National Marine Fisheries Service (NMFS)

The National Marine Fisheries Service (NMFS) is assigned responsibility for the stewardship of living marine resources. The goals of the NMFS are to:

- 1) Rebuild overfished marine fisheries;
- 2) Maintain currently productive fisheries;
- 3) Advance fishery forecasts and ecosystem models;
- 4) Integrate conservation of protected species and fisheries management;
- 5) Improve seafood safety;
- 6) Protect living marine resource habitat;
- 7) Improve the effectiveness of international fisheries relationships; and
- 8) Reduce impediments to U.S. aquaculture.

NMFS Authorization NMFS receives most of its responsibilities from the following statutes: The Magnuson Fishery Conservation and Management Act of 1976 regulates fisheries in the Exclusive Economic Zone (EEZ); the Endangered Species Act protects species determined to be threatened or endangered; the Marine Mammal Protection Act regulates taking or importing marine mammals; the Lacey Act prohibits fishery transactions that violate state, federal, native American, or foreign laws; the Fish and Wildlife Coordination Act authorizes the NMFS to collect fisheries data and advise other agencies on environmental decisions which affect living marine resources; and the Agricultural Marketing Act authorizes a voluntary seafood inspection program. In addition, more than one hundred other statutes and international conventions and treaties authorize the NMFS' mission.

Magnuson Fishery Conservation and Management Act of 1976 The National Marine Fisheries Service (NMFS) manages fishing for the ecological and economic benefit of the nation within a conservation zone stretching from three to two hundred nautical miles off U.S. coasts. NMFS administers the Magnuson Act to assure that fishing stays within sound biological limits and that U.S. recreational and commercial fishermen have the opportunity to harvest all the available fish within those limits. Management planning under the Magnuson Act is carried out by eight regional fishery management councils which consist of representatives from government, commercial and recreational fishing groups, consumers, and other interests. The Councils prepare for consideration by the Secretary of Commerce Fishery Management Plans (FMPs). These plans define appropriate management objectives and measures with respect to biological, social, and economic factors. NMFS ensures that plans comply with legal and policy requirements. The Service implements plans in cooperation with state governments and the Coast Guard. NMFS also cooperates with the interstate Marine Fisheries Commissions (such as the Atlantic States Marine Fisheries Commission (ASMFC)) in managing inter-jurisdictional fisheries.

Marine Mammal Protection Act and Endangered Species Act The NMFS is responsible for protecting marine mammals and endangered species which inhabit marine waters under the Marine Mammal Protection Act and the Endangered Species Act.

Programs NMFS administers the voluntary National Seafood Inspection Program. Within the NMFS, the **Habitat Conservation Program** helps to minimize losses and degradation of fish and shellfish habitat by reviewing 404 federal permit applications relating to impacts on marine fisheries and habitats.

Research NMFS has a nationwide system of fisheries laboratories. These laboratories are involved in the following activities:

- resource assessments,
- ecosystems analyses,
- experimental biology,
- pathobiology,
- seafood technology development,
- food quality research,
- fishery science,
- conservation engineering, and
- aquaculture research.

NMFS also conducts research on the safety, quality, identity, and nutritional value of seafood.

NMFS administers research and management through its headquarters in Silver Spring, Maryland and through five geographic regions (Northeast, Southeast, Northwest, Southwest, and Alaska). The Regional Director of each regional office directs resource management.

Research to support management and other NMFS objectives is conducted by each NMFS regional Science and Research Center under the direction of its Science Director. The A-P Study region is located in the Southeast Region of the NMFS which extends from North Carolina to Texas. Within this region, six research laboratories comprise the Southeast Fisheries Science Center. One of these, the Beaufort Laboratory, is located in Beaufort, North Carolina.

Beaufort Laboratory The NMFS Beaufort Laboratory consists primarily of two research divisions: the Division of Ecology and Division of Fisheries.

The Beaufort Laboratory **Division of Ecology** conducts research to:

- (1) determine which environmental and habitat interactions that production of estuarine dependent and coastal fishes,
- (2) determine effects of habitat modification and changes in water quality on fishery resources,
- (3) assess the adequacy of, and improve habitat mitigation and restoration techniques relative to the production of fishery resources,
- (4) determine the effects of trace metal contaminants on selected fishery organisms and their prey,
- (5) monitor the level of chemical contamination and incidence of disease in fish from selected estuaries from Maine to Texas, and
- (6) coordinate the marine mammal and sea turtle stranding networks along the North Carolina coast.

In addition, staff of the Division provide scientific support to the Southeast Regional Office, the Washington Office, Fishery Management Councils, state agencies, and the private sector on fishery habitat management issues.

The Beaufort Laboratory **Division of Fisheries** conducts research to:

- (1) assess the effects of fishing on Atlantic and Gulf of Mexico menhaden populations and on reef fish communities from Cape Hatteras to Key West;
- (2) obtain information on the species composition and size of the catch by headboats in the South Atlantic and Gulf of Mexico;
- (3) develop fishery assessments of menhaden, reef fishes, and selected sciaenids including red drum and weakfish populations along the Atlantic coast;
- (4) obtain information on the life history of dominant reef fishes, cobia, and greater amberjack;
- (5) understand the dynamics of reef fish communities along the Atlantic coast; and
- (6) determine the species composition, distribution, and movements of sea turtles in North Carolina estuarine waters.

Division staff members work closely with the South Atlantic and Gulf Fishery Management Councils in performing resource assessments and management under the Fisheries Conservation and Management Act. The Atlantic and Gulf States Marine Fisheries Commissions and individual states are also assisted in the development of management plans

and regulations. Fishery management assistance has included reef fish, red drum, menhaden, weakfish, Spanish mackerel, Atlantic sturgeon, striped bass, and other important resources of the Atlantic and Gulf coasts.

The **Habitat Conservation Division of the Southeast Regional Office** also maintains a field office at the Beaufort facility. This Field Office is responsible for providing Agency comments to the Army Corps of Engineers on permit applications for North Carolina, South Carolina, and Georgia. The comments address the potential effects of proposed habitat alterations on fishery resources.

Total staff for the Beaufort Facility (Research Laboratory and Habitat Conservation Division) is 120. The facility budget exceeds four million dollars.

Financial Assistance for Ocean Resources Conservation and Assessment Program

NOAA provides financial assistance for the Ocean Resources Conservation and Assessment Program in accordance with the Marine Protection, Research and Sanctuaries Act of 1972, and the National Ocean Pollution Planning Act of 1978.

Objectives of this program are:

- (1) to determine the long-term consequences of human activities that affect the coastal and marine environment,
- (2) to assess the consequences of these activities in terms of ecological, economic, and social impacts on human, physical, and biotic environments, and
- (3) to define and evaluate management alternatives that minimize adverse consequences of human use of coastal and marine environments and resources.

Other Programs

NOAA also administers the Coastal Ocean Program (OCP). The goal of this program is to strengthen NOAA's stewardship of coastal waters through a science-oriented program. This program addresses coastal fisheries ecosystems, estuarine habitat, toxic ecology, and other concerns.

U.S. DEPARTMENT OF DEFENSE

U.S. Army Corps of Engineers Section 404 Program

Program Objective

In 1972, Congress enacted the Federal Water Pollution Control Act Amendments, currently known as the Clean Water Act (CWA). Section 404 of the Act regulates discharge of dredged and fill materials into waters of the United States including wetlands. The goal of the 404 program is to ensure that projects requiring dredge or fill activities minimize environmental impacts and meet federal water quality standards and requirements. While Section 404 is predicated on the maintenance of water quality standards, not the preservation of habitat, it has come to be used as one of the primary federal measures for protecting wetlands.

Program Description

In the Albemarle-Pamlico study area, the Regulatory Branches of the Wilmington and Norfolk Districts, U.S. Army Corps of Engineers (COE) are charged with implementing the policies and programs adopted pursuant to Section 404 of the Clean Water Act. The U.S. Environmental Protection Agency (EPA) provides technical guidance, reviews permit applications, conducts certain enforcement actions, and has authority to prevent the issuance of (e.g., veto power) 404 permits. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service provide review and consultation on 404 permits as do various state agencies within the North Carolina Department of Environment, Health, and Natural Resources.

Section 401 Certification

All applicants to the U.S. Army Corps of Engineers (COE) for 404 permits (for dredge or fill activities within waters of COE jurisdiction) must also apply for State 401 certification. Section 401 of the Clean Water Act requires that any party applying for a federal permit to conduct an activity that may result in the discharge of a pollutant into U.S. waters must obtain certification from the state in which the discharge originates. This "401" certification must declare that any discharge will comply with applicable effluent limitations and water quality standards. In North Carolina, 401 Water Quality Certificates are issued by the Division of Environmental Management (NCDDEM). In Virginia, the Department of Environmental Quality issues 401 certificates. COE has the opportunity to review each permit application and to grant or deny 404 dredge and fill authority. Any permit issued by the COE must comply with Section 7 of the Endangered Species Act.

Individual and General Permits COE issues two types of Section 404 permits: individual and general. The Corps requires individual permits for all projects involving wetlands. An application for an individual permit triggers a detailed review of the specific project.

Smaller projects may qualify for a general permit. General permits are issued for certain types of projects on a regional or national level, and in many cases do not have reporting requirements. In North Carolina, general permits have been issued by the COE for such activities as constructing and repairing boat ramps, docks, piers, and jetties; emergency construction of primary dunes; construction and repair of bridges; and installation of utility lines.

A "nationwide permit" is a type of general permit that covers common or standard types of activity such as fishing with pound nets and crab pots, installation of tide gages and buoys, bank stabilization, or construction of minor road crossings. In regard to wetlands protection, the most important nationwide permit is **Nationwide Permit 26**. This permit allows the COE to authorize any project involving less than ten acres of wetlands in areas above the headwaters point on a stream or in isolated wetlands. Under Nationwide 26, the COE requires that applicants provide pre-discharge notification. In general, no notification or permit is required from the COE for projects of less than one acre. However, in areas above the headwaters point on a stream or in isolated wetlands, any activity above 1/3 of an acre must 401 certification concurrence from the certifying state agency (e.g., NCDDEM), stating that the activity meets state Water Quality standards.

Certification and Permitting Generally, the COE is authorized to issue a permit for an activity if the discharge will not have significant adverse environmental impacts, if there is no practicable upland alternative for the proposed activity, and if the activity is water-dependent. Non-water dependent activities may be permitted if there are no practicable alternatives.

In North Carolina, during the 1980s the COE issued individual permits for approximately 200 acres of wetland development per year; however, in 1991 just under fifteen acres were permitted. From 1986 to 1989, roughly 300 acres per year were permitted under Nationwide 26; by 1991 this number was reduced by approximately one half. No figures are available for losses due to exempt activities.

Exempt Activities Several activities are exempt from 404 requirements, including normal ongoing farming, silviculture, or ranching activities; maintenance of currently serviceable structures such as dikes, dams, or levees; construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance of drainage ditches; construction of temporary sedimentation basins on construction sites; and farm and forest roads.

Compliance COE representatives conduct compliance checks to reveal violations. Violations are also reported by concerned citizens. If violations are discovered, the COE can initiate enforcement actions including civil and criminal penalties. Violators of 404 permit conditions can be assessed civil penalties of up to \$25,000 per day. Such penalties and the

high visibility of the 404 program are believed to have greatly reduced the number of significant projects attempted without a permit. During Fiscal Year 1988 the COE took action against 151 unpermitted projects representing 93 acres of damaged wetlands; much of this acreage has been or will be restored to wetlands through permit conditions and enforcement actions. During Fiscal Year 1991 the COE took action against 157 unpermitted projects representing 100 acres of damaged wetlands.

Resource Loss and Degradation Some of the loss and/or degradation of the nation's wetlands is not covered by Section 404 for various reasons. Several activities are exempt from 404 requirements including normal ongoing farming and silviculture. In addition, limited authorized filling may occur under Nationwide Permit 26 in wetlands that are considered above the headwaters or isolated. Furthermore, wetlands may be drained by constructing off-wetland ditches. Finally, although Section 404 authorizes the issuance of permits for the discharge of dredged or fill material from point sources. Non-point sources such as agricultural erosion and urban runoff are excluded from these permit requirements.

Funding and Staff

The Wilmington District of the COE currently allocates roughly \$25 million per year and has approximately twenty-nine positions for Section 404 implementation.

Opportunities for Public Involvement

All applications for Section 404 individual permits are open for public review and comment. Any citizen or group may request to be included on the COE mailing list to receive public notices and if public interest in a particular case is strong, the COE may hold public hearings. Although Section 404 decisions may not be appealed, there is an opportunity to file a citizen suit.

Section 10 of the Rivers and Harbors Act

Program Objective

The Rivers and Harbors Act was enacted in 1899. Section 10 of this Act forbids any excavation or construction in "navigable waters" of the United States without a permit from the Army Corps of Engineers. In 1970, the Rivers and Harbors Act was first legally interpreted to include "wetlands" as "navigable waters". The Rivers and Harbors Act authorizes the COE's three major Civil Works programs to receive appropriations from Congress. These three programs include the General Investigations Study Program, the Construction Program, and the Operations and Maintenance Program.

Program Description

The **General Investigations Study Program** allows for the evaluation of water resource problems and develops feasibility reports that are introduced to Congress to provide funding for civil works projects.

The **Construction Program** provides the funding, design and physical construction of COE civil works projects.

The **Operations and Maintenance Program** oversees the operation and maintenance of dams and reservoirs in the Albemarle-Pamlico region, including Falls Lake. In addition, it provides funding for the maintenance dredging of the Atlantic Intracoastal Waterway as well as other harbors and rivers.

Funding and Staff

The General Investigations Study Program generally receives 3 to 4 million dollars per year from Congressional appropriations. Congress appropriates between 20 and 25 million dollars per year to the Construction Program. The Operations and Maintenance Program receives annual Congressional appropriations of \$35 to \$40 million.

**Department of the Navy
Marine Corps Air Station at Cherry Point**

Program Description

The Marine Corps Air Station (MCAS) at Cherry Point is the largest inhabited federal facility in the Albemarle-Pamlico estuarine region. The base and associated support operations encompass 27,697 acres. The base supports approximately 10,000 military personnel and approximately 12,000 of their dependents, and employs between 5,300 and 5,500 civilians.

Environmental concerns associated with MCAS Cherry Point facilities include the wastewater treatment plant, the Naval Aviation Depot (NADEP) and associated hazardous waste disposal sites, bombing range activities, and noise pollution.

There has been a recent initiative at MCAS Cherry Point to improve the environmental record of the facility and to improve interactions with local communities. MCAS Cherry Point should be strongly encouraged to participate in implementing the APES *Comprehensive Conservation and Management Plan*.

Wastewater Treatment Plant

The wastewater treatment plant has been in operation for 50 years and is permitted to discharge up to 3.5 million gallons per day (MGD) by the state-issued National Pollutant Discharge Elimination System (NPDES) permit. The plant receives household sewage and pretreated wastewater from industrial operations located on the base. In 1988, the NPDES permit was revised with more restrictive limits; at that time, the plant was unable to meet permit conditions. A Special Order of Consent (SOC) was issued requiring the wastewater treatment plant to meet or exceed discharge standards no later than May 1994.

In February of 1992, the North Carolina Division of Environmental Management issued MCAS Cherry Point a permit for an upgraded treatment plant. MCAS-CP is in the process of improving the technology at the plant and relocating the plant outfall from Slocum Creek to the Neuse River. These renovations should bring the plant into compliance with the new permit requirements. Plant construction improvements are scheduled for completion by October 1993, thereby allowing time for testing and compliance by May 1994 (SOC requirement).

Naval Aviation Depot (NADEP)

The 49-year-old Naval Aviation Depot (NADEP) facility is the major industrial complex and source of toxic pollutants on the base. NADEP includes an aircraft reconstruction shop (engaging in aircraft stripping, renovating, painting and electroplating). Recent changes in the waste treatment program have reduced the negative impacts from NADEP.

Since August of 1987, the discharge of electroplating waste into the wastewater treatment system has been discontinued. These wastes are now collected, condensed and ultimately disposed of as hazardous waste at an EPA-approved facility.

NADEP is currently in compliance with its Air Permit and has not received any air emission violations since the Air Permit was issued in 1984. The base is attempting to reduce the quantity of wastes generated on base by pursuing waste minimization and substitution strategies. In addition, a training program has been implemented to educate personnel on hazard waste generation.

Hazardous Waste Sites

Thirty-three old hazardous waste sites have been identified at MCAS Cherry Point. These are currently being monitored in accordance with EPA regulations under the Navy's Installation Restoration Program. Since these sites are a potential source of contamination for surface and subsurface waters, over 500 monitoring wells have been installed to monitor the concentration and migration of pollutants. Although no adverse health effects have been detected to date, monitoring of Slocum Creek and groundwater is continuing.

Bombing Range Activities

MCAS Cherry Point is the major training center for aircraft from several branches of the Service. Pilot training includes target practice over electronic bombing ranges which operate through a series of microwave towers. The impacts of associated radiation on nearby flora and fauna is unknown.

Other public concerns (in addition to potential radiation) include the impact of noise on waterfowl, water quality concerns (regarding discharge of potential contaminants from aircraft), safety concerns regarding undetonated bombs, and concerns about obstacles to public access to public waters.

Noise Pollution

Aircraft are a source of noise pollution at MCAS Cherry Point. The base coordinates flight schedules, paths, and practices to minimize noise disturbances in the surrounding communities. However, the impacts of the noise on local wildlife is unknown.

MCAS Cherry Point is sponsoring a study on the impact of aircraft noise on waterfowl at its Piney Island Bombing Range. The study is being performed by the North Carolina Cooperative Fish and Wildlife research Unit at N.C. State University.

MCAS-CP has made recent attempts to minimize use conflicts with neighboring communities. The facility is in the process of preparing an Air Installation Compatible Use Zone Plan to inform local residents of potential impacts (e.g., noise, accident potential, etc.) from MCAS-CP activities.

The Marine Corps also monitors noise complaints on a toll-free hot-line. The MCAS Cherry Point receives approximately 350 call per year from a four-state region.

Environmental Assessments and Environmental Impact Statements (EA and EIS)

The *National Environmental Policy Act (NEPA)* requires federal agencies to carefully consider all significant environmental impacts and to seek public/private involvement prior to initiation of any action which may adversely affect the environment. For this reason, Marine Corps Air Station Cherry Point must follow these guidelines as part of its decision making process regarding environmentally sensitive projects. All NEPA documentation thus generated is examined by an Environmental Impact Review Board both at MCAS Cherry Point and at U.S. Marine Corps Headquarters in Washington, D.C prior to initiating of the proposed actions. In this way, the purpose of NEPA is fulfilled by infusing policies and goals of the Act into the ongoing programs and actions of MCAS Cherry Point.

Possible Impacts of Proposed Realignment and Increased Activity

As a result of planned closings of a Naval Air Station and Depot in Florida, MCAS Cherry Point is expected to experience significant growth over the next several years. Approximately 1500 new positions are expected at the Naval Aviation Depot. This growth will impact the region in several ways. While environmental concerns associated with bombing range activities are likely to increase, the region's economy will probably experience positive impacts.

Opportunities for Public Involvement

The base has begun to consider the possibility of a regional planning effort with Craven, Carteret, and Beaufort counties. Public hearings are held for environmental assessments conducted through NEPA requirements.

U.S. DEPARTMENT OF THE INTERIOR

U.S. Fish and Wildlife Service

Program Objectives

The mission of the U.S. Fish and Wildlife Service (USFWS) is to conserve, protect, and enhance the nation's fish and wildlife and their habitats for the continuing benefit of the American people.

Program Description

Nationally the USFWS has seven geographic regions and a headquarters in Washington, D.C. Within the Service are Fish and Wildlife Ecological Services (Ecological Services); Fisheries and Federal Aid; Refuges and Wildlife; Research and Development; Law Enforcement; and Policy, Budget, and Administration. The Service has field units including National Wildlife Refuges, National Fish Hatcheries, Fisheries and Wildlife Assistance Offices, Fish and Wildlife Enhancement Offices, Research Centers, and a Law Enforcement network.

The USFWS is the lead agency for implementing the North American Waterfowl Management Plan, an agreement signed by the U.S., Canada, and Mexico. Goals of the plan are: (1) to return duck populations to the higher levels of the 1970's and (2) to target for protection critical waterfowl breeding, staging, and wintering areas (through acquisition and incentives for conservation measures taken by private landowners).

Fish and Wildlife Ecological Services

Ecological Services has several responsibilities within the Albemarle-Pamlico region. Under the Fish and Wildlife Coordination Act (FWCA), as amended, authorizes USFWS to review the water and related land resource development projects of federal agencies, or those of states, local governments, and private entities which are regulated by federal permits or licenses. The major provisions of the FWCA include: (1) a statement of Congressional purpose that fish and wildlife conservation shall receive equal consideration with other project features; (2) mandatory consultation with other wildlife agencies with a view toward achieving fish and wildlife conservation; (3) full consideration of the fish and wildlife recommendations by the federal action agencies; and (4) authority for federal action agencies to implement the recommendations that they find acceptable. Examples of projects reviewed by Ecological Services include:

- publicly-funded water resource development projects under the Corps of Engineers and Soil Conservation Service;
- Clean Water Act permits or certifications under section 201, 401, 402, and 404;
- permits applied for under Section 10 of the River and Harbors Act;

- hydropower licensing under the *Federal Power Act*, the *Public Utility Regulatory Policies Act of 1978*, and the *Electric Consumers Protection Act of 1986*; and
- highways involving expenditures of federal monies or requiring federal permits.

Ecological Services also (1) assesses the impacts of contaminants on fish, wildlife, and their habitats (particularly on National Wildlife Refuges and Superfund sites), (2) conducts the National Wetlands Inventory, (3) participates in the EPA National Estuary Program (NEP), (4) assists states in developing grant applications under the *Coastal Wetlands Planning, Protection, and Restoration Act*, and (5) provides information and carries out consultations under the Coastal Barrier Resources Act of 1982, as amended by the Coastal Barrier Improvement Act of 1990.

Ecological Services is responsible for implementation of the *Endangered Species Act of 1973*, as amended. First, the U.S. Fish and Wildlife Service (USFWS) determines whether a species is endangered or threatened, or no longer needs to be listed. Next, the Service develops plans for the recovery of federally listed endangered and threatened species (and in certain cases designates critical habitat for these species).

The USFWS assists other Federal agencies in meeting their responsibilities under Section 7 of the *Endangered Species Act* (including conservation of listed species on Federal lands and assessment of impacts to listed species from Federal activities). USFWS reviews Federal activities to ensure compliance with the Act (also to recommend measures to avoid and minimize impacts to other fish and wildlife resources). There are twenty-three, federally-listed or proposed, endangered or threatened species in the Albemarle-Pamlico study area.

Ecological Services has two Offices in North Carolina. The Asheville Office is responsible for listing and recovery activities for federally-listed threatened and endangered species in North Carolina, South Carolina, Tennessee, and Kentucky, for Section 7 endangered species consultations and wetland permit review in the western third of the state. The Raleigh Office is responsible for Section 7 endangered species consultations and wetland permit review in the eastern two-thirds of the state, hydropower project review, and all Corps of Engineers Water Resource Development projects in the state.

The Raleigh Office has a **Bay / Estuary Program** that undertakes activities to compliment the EPA State/Federal Albemarle-Pamlico Estuarine Study. The goal of the Bay / Estuary Program is to demonstrate the vital link between water quality and living resources. Activities of the Bay / Estuary Program fall into four major categories: living resources, contaminants, enhancing public awareness and involvement, and information management. Ecological Services' Bay / Estuary Program has the lead within the USFWS in coordinating with the State/Federal Albemarle-Pamlico Estuarine Study.

Section 301 (Emergency Wetlands Resources Act of 1986) The Emergency Wetlands Resources Act of 1986 was enacted to promote the conservation of our Nation's wetlands. Its objective is to intensify cooperative efforts among private interests and local, state, and federal governments. The Act requires the Secretary of the Interior (acting through the

USFWS Director) to produce updated reports on the status and trends of wetlands and deepwater habitats of the conterminous United States on a ten year cycle. Section 301 of this Act requires the Secretary of the Interior to establish a National Wetlands Priority Conservation Plan. This plan is meant to assist decision makers in identifying the types and locations of wetlands and interests in wetlands warranting consideration for federal and state acquisition. Ecological Services is responsible for implementing this Act. In the North Carolina portion of the Albemarle-Pamlico Study area, thirteen wetland sites were identified in the Regional Wetlands Concept Plan for the Southeast Region (August 1992) as deserving priority consideration for acquisition.

Wetlands Reserve Program

The federal Food Agriculture, Conservation, and Trade Act of 1990 established the Wetlands Reserve Program (WRP) to restore and protect farmed wetlands or converted wetlands and eligible adjacent lands. The Act provides for restoration of one million acres (nationally) of former wetlands by 1995.

Through the program, landowners receive financial assistance from ASCS and technical assistance from FWC and SCS to plan and install necessary restoration practices on the land under the easement. SCS and FWC develop a "Conservation Plan of Operations" with the landowner. The goal of the WRP is to have 1,000,000 acres of land enrolled by 1995. For 1993, Congress allocated fifty million dollars for this program for the purchase of 50,000 acres. For 1994, Congress allocated sixty-six million dollars for purchase of 75,000 acres (which amounts to significantly less money per acre). Unless Congress increases these allocations, WRP is not likely to meet its goal of 1,000,000 acres.

North Carolina was one of nine pilot states chosen to participate in this program. Congress appropriated funding for more than 50,000 acres of wetlands across the U.S. North Carolina's share of this acreage is currently undetermined.

Fisheries and Federal Aid

The USFWS's Fisheries program operates through a Fishery Resources component and through National Fish Hatcheries. The South Atlantic Fisheries Coordination Office in Morehead City focuses on restoration, management and conservation of inter-jurisdictional fish species, including anadromous species in North Carolina, South Carolina, Georgia, and along Florida's Atlantic Coast. In the Albemarle-Pamlico Estuarine Study area, Fisheries Resources personnel are working with state fishery management agencies in preparing a management plan for North Carolina's coastal stocks of striped bass. The only National Fish Hatchery located in the Albemarle-Pamlico region is in Edenton. Its present focus is on producing several strains of striped bass for restoration efforts in the Chesapeake Bay and North Carolina estuaries; 2 to 4 million striped bass are produced annually.

Federal Aid administers funds, collected through Federal excise taxes on hunting and fishing equipment and motorboat fuels, which are provided to the states for conducting needed research on fish and wildlife resources. State agencies which receive these funds are the N.C. Wildlife Resources Commission and the N. C. Division of Marine Fisheries.

Refuges and Wildlife

Refuges and Wildlife oversees eleven National Wildlife Refuges in the Albemarle-Pamlico region: Roanoke River, Pocosin Lakes, Mackay Island, Back Bay, Currituck, Pea Island, Mattamuskeet, Swanquarter, Cedar Island, Alligator River, and Great Dismal Swamp. In addition, there is a Wildlife Assistance Office in Washington, N.C. These refuges provide excellent examples of the region's wetlands resources, including bottomland hardwood forest, swamp, pocosin, estuarine regularly flooded and irregularly flooded marsh, and freshwater marsh, and they provide habitat for federally-listed endangered and threatened species, migratory waterfowl and songbirds, and numerous species of resident fish and wildlife.

Research and Development

In Research and Development, the Cooperative Fish and Wildlife Research Unit in Raleigh operates in conjunction with the N.C. Wildlife Resources Commission, North Carolina State University, and USFWS. The Unit focuses on identification, assessment, interpretation, and alleviation of the effects of current or potential environmental changes or perturbations on fish and wildlife resources. Current research includes studying the response of waterfowl to military aircraft noise in eastern North Carolina, assessing the effects of dioxin on herons, conducting creel studies of spotted seatrout, investigating the response of submerged aquatic plants to environmental pollutants, conducting studies of wintering and neotropical migrant breeding bird use of Roanoke River forested wetlands, and conducting telemetry studies of striped bass in the Albemarle Sound and Roanoke River.

Enforcement

The Law Enforcement Division of the Service is responsible for enforcement of all federal statutes which pertain to fish and wildlife. Enforcement personnel work cooperatively with other federal and state agencies. There are two enforcement units in the Albemarle-Pamlico region: the Raleigh and Washington offices.

Opportunities for Public Involvement

The USFWS Bay Estuary Program develops public outreach materials such as displays, fact sheets, and educational kits for school children. A program representative provides education and outreach to public gatherings and schools.

**U.S. Geological Survey
Water Resources Programs
North Carolina District**

The U.S. Geological Survey (USGS) operates statewide hydrologic data networks and conducts a variety of water-resources studies in North Carolina to support resource assessment, evaluation, planning, conservation, and protection programs of federal, state, and local agencies.

Water-resource activities of the USGS are funded through three sources:

1. Federal funds: Department of the Interior,
2. "Other" federal agencies' funds, and
3. Federal-State Cooperative Program funds.

Federal water resource funds generally support components of national assessment efforts. Other federal agency funds support studies regarding specialized data or interpretive needs. Cooperative Program funds constitute roughly one-third of the North Carolina District's annual budget. These funds typically support state and federal initiatives that are of mutual interest.

Funding Sources for Water Resources Programs

Funding Source	Program Supported through Funding Source
Federal	National Water-Quality Assessment (NAWQA) Program, Appalachian regional Aquifer Systems Analyses (AP RASA), National Hydrologic Benchmark Network (NHBN), National Stream Quality Analysis Network (NASQAN), and National water Summary.
Other Federal Agencies	Statewide hydrologic data networks and special projects such as: Toxic or hazardous waste disposal, and Aberdeen Groundwater Contamination Study.
Federal-State Cooperative	Statewide hydrologic data networks and interpretive studies, National water-use program, and Water-quality monitoring for APES.

Descriptions of the National Water-Quality Assessment Program, the statewide hydrologic data networks and interpretive studies, national water-use program, and water-quality monitoring for the Albemarle-Pamlico Estuarine Study follow.

Funding for specific water resources programs is described at the end of each subsection.

Statewide Hydrologic Data Networks and Interpretive Water Resources Studies

Program Objectives

The Federal-State Cooperative Water Resources Program began in 1895 and was first Congressionally funded in 1905. The U.S. Geological Survey (USGS) was established to:

- (1) "collect, on a systematic basis, data needed for the continuing determination and evaluation of the quantity, quality, and use of water resources in the Nation," and
- (2) "appraise the availability and the physical, chemical, and biological characteristics of surface and groundwater through analytical and interpretive investigations."

Program Description

The Federal-State Cooperative Program allows for the pooling of federal, state, and local resources to support statewide and regional data collection for planning, management, and development needs. The program has provided water data for the Nation since 1897. Today, the USGS maintains a nationwide system of stream-gaging stations, groundwater observation wells, and surface and groundwater quality sampling sites. This system forms an invaluable foundation for evaluation, development, and management of the nation's vital water resources. Information is cooperatively collected and analyzed, and used by many federal, state, and local agencies (such as the U.S. Soil Conservation Service, U.S. Fish and Wildlife Service, National Weather Service, U.S. Army Corps of Engineers, Federal Energy Regulatory Commission, N.C. Division of Environmental Management, N.C. Division of Soil and Water Conservation, N.C. Division of Land Resources, and Tennessee Valley Authority). The USGS publishes hydrologic data in a series of annual reports for each state. Other reports, maps, and computer databases also are published and made available upon request.

The program delves into issues of water supply, waste disposal, energy development, and environmental protection. The interpretive program delves into such issues as water supply, waste disposal, energy development, and environmental protection. Recent cooperative projects in North Carolina have focused on the following issues:

- surface-water quality,
- agricultural water quality,
- state-wide water use,
- groundwater flow,
- estuarine flow, and
- long-term water-quality trends.

Funding and Staff

Each year, the USGS in Raleigh, North Carolina, provides about 35 staff members and \$1.4 million to the cooperative effort. That contribution is matched by \$1.4 million in contributions from state and local cooperators.

Opportunities for Public Involvement

Coordination with state, regional, and local agencies allows for some input from the public regarding water-related concerns and priorities for action. Opportunities for public involvement include possible assistance with data collection activities (such as stream watch), obtaining historical information on major floods and droughts, and focusing on special problems and issues in areas and regions of the state.

Water Quality Monitoring -- Albemarle-Pamlico Region

Program Objectives

The USGS conducts water-quality monitoring and modeling programs to facilitate the understanding of the dynamics of flow and transport mechanisms of estuarine systems.

Program Description

Between 1989 and 1993, the USGS maintained a monitoring network of 27 stations in the Albemarle-Pamlico region. In order to gain information on the spatial and temporal variability of chemical constituents in estuarine systems, measurements were taken every 15 minutes using automated sensors and external data loggers. Measurements included dissolved oxygen (near-surface, mid-depth, and near-bottom), conductivity (near-surface and near-bottom), and temperature (near-surface). Salinity, salinity-corrected dissolved oxygen, and dissolved oxygen percent saturation were calculated.

In support of modeling activities, water level was measured at 15-minute intervals at 12 locations, and wind speed and direction were recorded at 30-minute intervals at three sites. Intermittent measurements of total velocity also have been made at various locations.

Funding and Staff

Approximately eight staff members supported the USGS water quality monitoring and hydrodynamic modeling activities in Raleigh, North Carolina, including staff employed in the Washington, North Carolina, field office.

Funding was provided by the USGS and the Albemarle-Pamlico Estuarine Study.

Opportunities for Public Involvement

Reports are released to the public. Press releases announce important study findings and results. Data are useful in evaluating water quality trends and effectiveness of management programs.

National Water-Use Information Program

Program Objectives

The National Water-Use Information Program is a Federal-State Cooperative Program, designed "to collect, store, and disseminate water-use information both nationally and locally."

Program Description

Initiated in 1978, the National Water-Use Program was developed to:

- determine national water withdrawals (total and net),
- develop national and state computerized databases of water-use information,
- devise new methods for the collection, analysis and dissemination of water-use information, and
- explain and make public the values and applications of water-use information.

Through federal-state cooperative efforts, information is collected in 12 categories: irrigation, agricultural non-irrigation, commercial, domestic, industrial, mining, public supplies, sewage treatment, fossil fuel, geothermal, hydroelectric, and nuclear power generation.

Data are used for flow modeling, the determination of waste-load allocations, and general land and water-quality management.

Funding and Staff

The USGS in Raleigh, North Carolina, will dedicate one staff member and \$75,000 to the cooperative effort in Fiscal Year 1993. Information provided is useful in planning, management, and protection of water resources across the state and in increased public awareness.

Opportunities for Public Involvement

Reports are prepared and released to the public on water-use conditions in the state of North Carolina.

National Water-Summary Program

Program Objectives

The National Water-Summary Program was designed "to keep Congress, federal, state, and local officials, resource managers, and the general public informed about changes and trends in the availability, quantity, and use of water resources and to present water information in ways that will aid the analysis and development of water policies, legislation, and management actions."

Program Description

The National Water-Summary Program is a federally funded initiative to provide statewide overviews of various water issues. Examples of Program activities follow:

- publication of two-year reports (describing water conditions and an overview of specific water issues for each state in the nation),
- preparation of technical reports,
- preparation of special publications,
- identification of water issues,
- characterization of water conditions and trends,
- development of summaries of statistics in the National Water Information System, and
- studies of methods to improve our ability to characterize water resource conditions, trends, and variability.

The 1990-91 report focused on water quality and the 1992-93 report deals with wetlands.

Funding and Staff

The USGS in Raleigh, North Carolina will dedicate a staff member half time, and \$20,000 to these activities in Fiscal Year 1993.

Opportunities for Public Involvement

National Water Summary reports are general-interest documents released to the public. Increased public awareness could help focus the topic of future publications.

National Water Quality Assessment Program (NAWQA)

Program Objectives

The National Water-Quality Assessment (NAWQA) Program is a 1986 initiative of the USGS. This program was established to "describe the status and trends in the quality of a large and representative part of the Nation's surface- and groundwater resources and to provide a sound, scientific understanding of the primary natural and human factors affecting the quality of [those] resources."

Sixty study areas (units) will be evaluated as part of this perennial and cyclic program. The Albemarle-Pamlico drainage area is one of those 60 and is one of 20 areas to be studied in the first cycle of the program.

The Albemarle-Pamlico NWQA Program will focus on issues of surface-water quality, such as sediments, nutrients, and pesticides and issues of groundwater quality, such as elevated levels of nutrients and selected organic compounds.

Program Description

The NWQA Program consists of study-unit regional and national scale assessments of physical, chemical, and biological aspects of water quality. Study unit assessments provide the building blocks with which contrasts and comparisons of water quality characteristics will be made on a regional and national level. Regional assessments will describe the present water quality, trends, and influential factors and will assess changes. National assessments will focus on pesticides, sediments, and nutrients, and on nationwide trends.

Twenty study units are being investigated for the first round of study. The Albemarle-Pamlico drainage basin is one of those 20. Five to six years of planning, data collection, and intensive, standardized study of each geographical study-unit will be followed by three to four

years of less intensive study. Three sets of 20 geographical study units will be investigated in rotation on a staggered schedule. This program is designed to rotate through this cycle for decades to keep track of long-term trends and provide data for effective management of the Nation's water resources. Nationally consistent study methods will be used and national water quality trends will be determined.

The Albemarle-Pamlico NAWQA study will encompass the entire drainage basin of Albemarle and Pamlico Sounds, roughly 27,500 square miles. Open estuarine portions of all the rivers will be excluded from the study. For each study unit there will be an integrated study of the physical, chemical, and biological aspects of the quality of surface- and groundwater resources. The surface-water component of the study will include analysis of available data, fixed station sampling, and synoptic sampling of about 25 stations for a list of target water-quality constituents pertinent to the water-quality issues in the study unit. The groundwater component of the study will include analysis of available data, regional sampling of about 100 wells distributed throughout the area, and targeted sampling of 100 wells in areas reflecting the study units' most important land uses and their effects on groundwater quality.

Coordination with other agencies is an integral characteristic of the NAWQA Program. Coordination will allow for the efficient exchange of information and assurance of consensus actions. A national liaison committee has been formed to provide advice and guidance for the program. A national external scientific review committee has been formed to advise and comment upon various technical aspects of the program. Liaison committees have been formed for the first 20 study units and will be formed for each of the geographical study units in order to facilitate the input and exchange of information among NAWQA representatives, federal, state, and local agencies, universities, and the private sector.

The Albemarle-Pamlico NAWQA Program is drawing upon the expertise of local, state, federal, and university programs involved with land management and water-quality issues, such as Roanoke, Virginia; Raleigh and Durham, North Carolina; the U.S. Department of Agriculture; the U.S. Fish and Wildlife Service; the N.C. Division of Environmental Management; the Virginia Water Control Board; and many universities within the study area.

Funding and Staff

The USGS in Raleigh, North Carolina, and Richmond, Virginia, will dedicate 10 staff members and \$1.5 million per year to the NAWQA effort.

Opportunities for Public Involvement

Opportunities for volunteers to help with data collection may develop as the program gets underway. It is anticipated that all resulting data will be public domain. Public participation will be helpful in identifying specific water quality problems in the various study units.

National Park Service

Program Objectives

The National Park Service Organic Act of 1916 created the National Park Service within the Department of Interior to "promote and regulate the use of federal areas known as national parks, monuments, and reservations." The Organic Act states that the purpose of these areas is to conserve scenery, wildlife, and natural and historic objects, while leaving the areas "unimpaired for the enjoyment of future generations."

The National Park Service (NPS) administers four park system units within the Albemarle-Pamlico region: Cape Hatteras National Seashore, Cape Lookout National Seashore, Fort Raleigh National Historic Site, and Wright Brothers National Memorial.

Congressional enabling legislation authorized Cape Hatteras National Seashore (CHNS) in 1937 and Cape Lookout National Seashore (CLNS) in 1966. The general purpose of the Seashores is to provide public outdoor recreation and to preserve natural features. Fort Raleigh National Historic Site and the Wright Brothers National Memorial are administered under the Cape Hatteras portion. Fort Raleigh was designated as a National Historic Site (NHS) to preserve a portion of the colonial settlement established by Sir Walter Raleigh. The Wright Brothers National Memorial commemorates the first powered flight.

Program Description

Cape Hatteras National Seashore (CHNS)

Cape Hatteras National Seashore (CHNS) encompasses roughly 30,000 acres and seventy linear miles stretching south from Bodie Island (located south of Nags Head) to Ocracoke Inlet. The seashore includes parts of Bodie, Hatteras, and Ocracoke Islands. CHNS management is implemented through four divisions: (1) Resource Management and Visitor Protection (primarily enforcement), (2) Interpretation, (3) Maintenance, and (4) Administration.

Cultural and natural resource management specialists report through a management assistant to the Superintendent. The natural resource specialist is responsible for monitoring all park compliance with the National Park Service, and federal, state, and local regulations. Duties include production of environmental documents under the National Environmental Policy Act (NEPA), production and implementation of resource management plans, and coordination of the endangered species program. CHNS issues special use permits for certain gatherings. Special use permits are also required for dune crossing conveyances from private property across NPS land to the beach (this activity also requires a CAMA permit.) Concessions that operate out of the park (including charter fishing and piers) require a special use permit, as do persons collecting specimens and conducting research. CHNS also issues utility right-of-way permits.

Cape Lookout National Seashore (CLNS)

Cape Lookout National Seashore (CLNS) encompasses roughly 28,000 acres. The seashore extends from Ocracoke Inlet to Beaufort Inlet and includes the islands of North Core Banks, South Core Banks, and Shackleford Banks as well as 95 acres at the east end of Harker's Island. Seashore management is implemented through four divisions: (1) Administration, (2) Law Enforcement and Visitor Services, (3) Maintenance, and (4) Resource Management (includes monitoring of the natural resources within the Seashore).

CLNS issues two special use permits. Visitors leaving unattended vehicles in the Seashore overnight must obtain a special use permit (five dollars per week per vehicle). Commercial fishermen wishing to anchor houseboats for a length of time in the Seashore and participate in fishing activities must also receive a special use permit. Although CLNS recently ended a permit program for off-road vehicles, they continue to restrict off-road vehicle use: Vehicles must be street-legal and operate in authorized corridors only. Any vehicle travelling outside of authorized corridors may be issued a citation. Most enforcement citations in the park are for off-road vehicles operating in unauthorized areas.

Funding and Staff

Cape Hatteras National Seashore receives approximately 4.5 million dollars per year and employs a full time-equivalent staff of 122.

Cape Lookout National Seashore receives roughly one million dollars per year from congressional appropriations and employs a full time-equivalent staff of twenty-five.

Opportunities for Public Involvement

Public notification and hearings are required under NEPA during the development of environmental assessments and impact statements.

Public education and recreation are principal activities at these national seashores. CHNS supports a large education and interpretation program. Most educational efforts are conducted on grounds through signs, demonstrations, programs, exhibits, and visitor centers.

CLNS personnel participate in public education by conducting presentations at nearby aquaria, museums, and schools. CLNS is currently remodeling a structure on their Harker's Island site to serve as their first visitor's center. This center will include a regular education component.

Management activities within the National Park Service units have minimal adverse impacts on the A-P estuarine system. The construction of public facilities is the most common activity proposed by the NPS with potential negative effects on the environment. These activities are subject to review under the N.C *Coastal Zone Management* federal

consistency review process at which time potential impacts should be evaluated. Public use has the potential to become excessive in most of CHNS and in the Shackleford Banks area of CLNS and could potentially degrade the environmental quality of the area.

**U.S. DEPARTMENT OF TRANSPORTATION
U.S. Coast Guard**

Program Objectives

The Coast Guard enforces a variety of environmental laws and regulations. These laws affect vessel design and operation at sea, as well as those waterfront facilities that transfer oil and other hazardous materials to and from vessels.

Program Description

The Coast Guard enforces environmental regulations through vessel and facility inspections. Enforced laws include the federal Water Pollution Control Act, as amended, the Marine Protection Research and Sanctuaries Act, and the Act to Prevent Pollution from Ships. The Coast Guard regularly inspects commercial vessels in port and at sea. The inspection schedule is subject to a variety of factors. There is no dedicated inspection program specifically targeted at recreational vessels, however, they are inspected during routine operations and by state enforcement agencies.

The Coast Guard is responsible for enforcing the Marine Sanitation Device (MSD) provisions of the Clean Water Act. On any vessel with installed toilets, MSDs are required either to treat sewage prior to discharge into the water or to store sewage aboard for later disposal ashore. Inspections for compliance are conducted as a part of routine operations.

When a violation is reported, a hearing officer can assess a penalty. The maximum penalty for an MSD violation is \$2000, however, most penalties are lower. The goal of the penalties is not to be punitive, but to ensure compliance.

The Coast Guard also responds to oil and hazardous chemical spills, conducts investigations of spills, enforces regulations for the prevention of pollution from ships, and maintains contingency plans for spill response.

Funding and Staff

There are several Coast Guard units with jurisdiction in the A-P Region. However, most Coast Guard activities occur outside of the study area. Two Marine Safety Offices serve the A-P region from Norfolk and Wilmington. They are primarily responsible for safety and environmental regulation. Together these two offices have a staff of approximately 100. At least eight other stations are located within the region. Their primary responsibilities are maritime law enforcement and search and rescue.

Opportunities for Public Involvement

Through the Coast Guard Auxiliary, volunteer civilians provide information to the public on boating safety and regulations. These volunteers also perform courtesy examinations for recreational vessels to determine if they are in compliance with safety and environmental regulations. No violations are issued through these examinations; their purpose is educational.

PART TWO

NORTH CAROLINA GOVERNMENT

NORTH CAROLINA DEPARTMENT OF AGRICULTURE

Plant Industry Division Plant Protection Section

Plant Conservation Program

Objective

The N.C. Department of Agriculture Plant Conservation Program (PCP) was initiated in 1979, with the Plant Protection and Conservation Act (Chapter 106, Article 19B: 202.12-202.22 of the General Statutes of North Carolina; N.C. Administrative Code Title 2:48F .0100-0515). The purpose of the program is to protect, conserve, and enhance endangered and threatened plant species native to North Carolina. The Program is charged with listing and delisting rare species; enforcing the plant conservation laws; issuing permits for research, collection, and propagation of rare plants; and carrying out monitoring, management and habitat restoration projects for rare species on public and private lands.

Description

Permits

Applicants wishing to research, collect or propagate rare plants must obtain a Protected Plant Conservation Permit based on criteria established by the PCP Scientific Committee, a body of botanists, biologists and ecologists which meets several times a year. The N.C. Plant Conservation Program (PCP) determines whether or not to issue a permit. Permits are sometimes issued with specific restrictions. PCP cooperates with other agencies, such as the North Carolina Natural Heritage Program (for data on rare species).

Violations

Violations of the Plant Conservation Laws are misdemeanors. Enforcement may be carried out by N.C. Department of Agriculture staff or any qualified law officer. The minimum fine for first offense is \$100.00 (maximum is \$500.00); minimum fine for second offense is \$500.00 (maximum \$1,000.00), and the Plant Conservation Board may levy a civil penalty of up to \$2,000.00. When more than one plant is taken, each plant may be considered a separate offense.

Animals are considered public property because they move around; killing endangered wildlife on one's own land can result in stiff fines. By contrast, because plants are attached to the land, they are considered the property of private landowners. Thus a landowner could destroy the last population of an endangered plant growing on his/her property yet remain within legal rights. New legislation is therefore needed to protect critically endangered plant species on privately owned lands.

Staffing and Funding

The Plant Conservation Program recently secured federal funding for studies, annual monitoring, management, and habitat restoration for thirteen of the twenty rarest plant species in the state. Funds come from the *Endangered Species Act*, the U.S. Forest Service, the U.S. Fish and Wildlife Service and from the sale of personalized license plates in North Carolina.

The program is currently staffed with one plant ecologist and one botanist (funded in part by federal grants). The current state budget for the program is approximately \$75,000.00 per year.

Opportunities for Public Involvement

Public hearings are held on all changes proposed in legal status of rare plant species. PCP supplies a variety of slide programs and educational materials to the public and lends regional slide programs on rare species of the coastal plain, piedmont to mountains. The program also provides rare plant identification services. In the case of federally-listed endangered species the program uses federal funds to provide management and habitat restoration information as well as actual restoration work on the property of willing landowners.

**Plant Industry Division
Plant Protection Section**

Plant Pest Exclusion Programs

Objective

The primary objectives of Plant Pest Exclusion Program efforts are to prevent the entry, establishment and/or spread of pest organisms (such as insects, diseases, and noxious weeds) into and within North Carolina. Successful activities within this program reduce or eliminate economic losses, the need for pesticides, and the contamination of the environment by exotic organisms.

Description

Plant Pest Exclusion Programs consist of regulatory activities including quarantines, inspections, certifications and compliance agreements as well as survey, detection, and control activities.

An outstanding example of the potential for positive, environmental impact of these programs is the eradication of the cotton boll weevil. This program has eliminated the need for insecticide for boll weevil control resulting in a reduction by approximately seventy percent of the number of applications of insecticides to cotton. Approximately twenty-five percent of the cotton acreage, especially in northeastern North Carolina, received no foliar applications of pesticides.

The results of other plant pest exclusion programs, while not as dramatic as those identified for the Boll Weevil Eradication Program, do have a major positive environmental impact on North Carolina, including the area of the Albemarle-Pamlico Estuarine Study.

Other examples of current Plant Pest Exclusion Program activities include the current gypsy moth and imported fire ant exclusion and control programs.

**Plant Industry Division
Plant Protection Section**

Genetically Engineered Organisms Regulatory Program

Objective

The Genetically Engineered Organisms Regulatory Program (GEORP) was initiated in 1989 with passage of the Genetically Engineered Organisms Act (Chapter 106, Article 64, 106-765 to 106-777 of the General Statutes of North Carolina), and the associated regulations (Title 2, Chapter 48, Subchapter e of the North Carolina Administrative Code). Regulations took effect in 1990 and the first permitted activities occurred in 1991. The program regulates the release and commercial use of genetically engineered organisms in order to protect agriculture, public health, and the environment.

The program is staffed by the N.C. Department of Agriculture and is governed by the Genetic Engineering Review Board (a ten-member panel created by the law).

Description

The release of any genetically engineered organisms requires a permit from the North Carolina Department of Agriculture.

The permitting process begins with submission of a Limited Permit Application for the Release of Genetically Engineered Organisms. The N.C. Department of Agriculture evaluates the proposed release for potential adverse effects on agriculture, public health, and the environment. This evaluation is performed by the Department's biotechnologist in consultation with other staff and technical advisors from outside the Department. The Department may either issue or deny the permit. Specific conditions are frequently attached to issued permits. The N.C. Department of Agriculture staff performs periodic inspections of permitted activities. They may also request data reports. The Genetic Engineering Review Board may assess a civil penalty of not more than \$10,000.00 against any person who violates any provision of the law or its associated regulations. Each day's violation constitutes a separate offense.

Funding and Staff

Current funding for the Genetically Engineered Organisms Review Program is \$45,000.00. Current staff consists of one biotechnologist.

Opportunities for Public Involvement

This program maintains a high level of public notification. Each permit application requires public notice within fifteen days after receipt of a completed permit application. Public notification is accomplished with publication of a legal advertisement in the newspaper, a mailing to any person who has requested to be notified, and notification of the county Manager and County Extension Office in the county(ies) where the proposed release is to occur. In addition, any person may submit written comments on the proposed release or may request that a public hearing be held. Finally, any decision made by the North Carolina Department of Agriculture may be appealed to the Genetic Engineering Review Board.

**Plant Industry Division
Plant Protection Section**

Biological Control Program

Objective

The N.C. Department of Agriculture implements the Biological Control Program in order to reduce pest populations. Reduced availability of pesticides and the increased awareness of the importance of eliminating the unnecessary contamination of our environment (including pesticide pollution of ground and surface water) may require increased use of biological controls in the future. The Biological Control Program therefore has the potential to gain in importance as a means for controlling pest organisms.

Description

Currently, the N.C. Department of Agriculture Biological Control Facility has active programs for the control of noxious weeds, as well as insect pests (such as the Japanese beetle, cereal leaf beetle, and scale insects) which affect a variety of nursery and residential flowering plants.

One example of the impact of the Biological Control Program on the A-P Study area is the Cereal Leaf Beetle Program. The Cereal Leaf Beetle (CLB) Biological Control Program releases host-specific parasites of the CLB into CLB-infested, small grain regions of North Carolina. This procedure is meant to keep CLB populations below the economic threshold, and provides a financially and ecologically sound insect pest management alternative to the use of such insecticides as malathion, carbofuran, methonyl, and carbaryl (currently employed against this pest).

Funding and Staff

The Biological Control Program of the Plant Industry Division has two full time and one half-time employee. It receives approximately \$10,000 per year in state funding and \$10,000 to \$20,000 per year in federal grants.

Opportunities for Public Involvement

Biological Control Programs are implemented on an area-wide basis; therefore it is essential that involved property owners participate in allowing releases and conserving released beneficial organisms.

**Food and Drug Protection Division
Pesticide Section**

Objective

The Pesticide Section of the Food and Drug Protection Division is charged with administration and enforcement of the N.C. Pesticide Law of 1971, as well as regulations adopted by the Governor-appointed N.C. Pesticide Board. The N.C. Pesticide Law was enacted to protect public health, safety and welfare, and to promote a healthier, safer and more secure environment. It implements these goals by regulating pesticide use, application, distribution, sale, storage, handling, registration, and disposal. All Pesticide Section activities are directed toward this purpose. The Section also administers and enforces applicable provisions of the Federal Insecticide, Fungicide and Rodenticide Act, under cooperative agreements with the U.S. Environmental Protection Agency.

A primary function of the Pesticide Section is to conduct a thorough investigation of any incident involving pesticides in order to (1) to determine necessary steps to prevent immediate danger to man or the environment, and (2) determine the need for additional regulatory or disciplinary action. Regulatory actions are prepared by the staff for consideration and adoption by the Pesticide board.

Description

Under the N.C. Pesticide Law, pesticides must be annually registered prior to any distribution, sale, or offering for sale in North Carolina. Products must first be registered with the U.S. EPA. A thorough review of product labeling and other information is conducted by the Pesticide Section to insure that users will have adequate directions and precautionary information for safe and proper use. Approximately 1000 registrants register close to 12,000 pesticides per year.

The Section's marketplace pesticide inspections ensure proper labeling and registration. Samples are taken and analyzed against label guarantees to insure that they are not adulterated. Manufacturers of violative products may be required to remove such products from the state.

Pesticide Dealers, Public Operators, Commercial Applicators, and Consultants are required to be examined, licensed, certified, and recertified by the Pesticide Section to demonstrate their qualifications to do business, and to ensure that they maintain their pesticide competence. Private Pesticide Applicators are certified and recertified to ensure that they are competent to purchase, use and supervise use of restricted use pesticides.

Mandatory inspections of agricultural aircraft application equipment, bulk storage tanks, as well as random inspection of ground application equipment protect the public and environment. Field inspections are performed and samples are analyzed to ensure proper applications (in accordance with labeling or appropriate regulations). Inspections of

manufacturing establishments and commercial storage facilities help to prevent environmental contamination and threats to public safety.

The Pesticide Section actively participates in the State Emergency Reaction Network and provides technical information on proper handling, clean-up, containment, storage and disposal of pesticides involved in accidents. The Section publishes a quarterly newsletter as well as an annual report of activities under the North Carolina Pesticide Law. Public assistance is provided to farmers and homeowners in disposal of pesticides.

Advice and assistance is provided to the Board and its Pesticide Advisory committee on matters of planning and investigation into long-range needs relating to the management of pesticides. Pesticide Section staff includes the Central Project Coordinator for the board-endorsed Interagency Pesticides and Groundwater Study (to develop a state pesticide management plan for groundwater protection consistent with federal guidelines).

The Pesticide Section is currently involved in planning for state implementation of other new or expanded federal regulatory initiatives including endangered species protection, revised applicator certification and training standards and expanded applicator record keeping requirements.

Staffing and Funding

The Division's annual funding for pesticide programs is \$2,856,266.00 (\$455,294.00 of which is received through federal cooperative agreements). Fifty Division employees are assigned to pesticide program elements, including administrative, field compliance monitoring, and laboratory support.

Agronomic Division

Objective

The Agronomic Division was established in 1938 as the Soil Testing Division and in 1973 changed to the Agronomic Division to denote its increased range of agronomic and environmental services provided the citizens of the state.

The one purpose of the Agronomic Division is to increase crop production efficiency, promote sound soil management and improve environmental quality by providing soil, plant, waste, solution and nematode diagnostic and advisory services for all citizens of North Carolina.

Description

The Division conducts educational programs to better acquaint citizens and state and local agencies with the benefits of its services. In addition, the Division provides producers agronomic management advisory services through a state-wide regional agronomist program to help implement the management recommendations in the most cost effective and environmentally safe way. Finally, the Agronomic Division carries out methodology research and cooperative field calibration research across the state.

Funding and Staff

The Division's annual funding is \$2,377,204. The Division has fifty-six permanent, three permanent part-time and seven temporary part-time employees.

Opportunities for Public Participation

The Agronomic Division has substantial interaction with the public on a number of levels. The following listing indicates the levels and degree of that interaction:

WORKLOADS 1992 - 93

Service

Soil samples analyzed	215,206
Plant samples analyzed	9,044
Waste samples analyzed	1,645
Solution samples analyzed	1,443
Nematode samples analyzed	30,575
Number of analytical determinations	3,399,852
Number of advisory reports	41,679

Education

Producer consultations 11,000 + (4,851)	15,851
Public presentations 76 + (57)	133
Lab lecture/tours	123
Radio/TV presentations 16 + (28)	44
News releases 4 + (33)	37
Out-of-state scientific visitors	11

Research

Research/Demonstration projects	134
Publications	5

Aquaculture and Natural Resources Division*Objective*

The *North Carolina Aquaculture Development Act of 1989* assigned the North Carolina Department of Aquaculture as the lead agency responsible for the promotion and development of the aquaculture industry in North Carolina.

Description of Aquaculture Program

Aquaculture is simply the production of aquatic organisms (animals and plants) in a controlled environment. Within the Albemarle-Pamlico region a number of freshwater species (catfish, crawfish, striped bass and gamefish) are raised. Mariculture, (aquaculture in a saline system) ranges from the traditional bottom leases for clams and oysters to crab shedding and the leasing of the entire water column.

Aquaculture in ponds requires high quality water for production. If a warm water operation produces in excess of 100,000 pounds of fish annually and discharges for thirty or more days per year, a National Pollutant Discharge Elimination System Permit is required from the North Carolina Division of Environmental Management.

Aquaculture is declared to be a form of agriculture in the *North Carolina Aquaculture Development Act* and therefore, is eligible for pollution control assistance as needed from the North Carolina Agricultural Cost Share Program, Division of Soil and Water Conservation.

During the 1993 General Assembly, the North Carolina Department of Agriculture was assigned the responsibility for licensing aquaculture operations. This Act places several environmental protection provisions in statute including stream flow, exotic species limitations and designation of commercially raised fish. Possession of exotic species remains the decision of the North Carolina Wildlife Resources Commission.

The North Carolina Department of Agriculture will seek additional personnel to provide assistance to inquiring producers, develop a better understanding with financial institutions and to better participate in the development of policy and regulation at the state and national level regarding aquaculture.

Description of Natural Resources Program

This office provides assistance to agricultural interests in matters of environmental regulation and program development. Participation at the state and national level includes such issues as water quality, soil and water conservation, wetlands and endangered species.

Funding and Staff

The Aquaculture and Natural Resource Division employs two people. The Division's budget is approximately \$100,000. Grant funds, temporary employees and contraction work varies.

Opportunity for Public Involvement

The North Carolina Aquaculture Advisory Board tries to meet quarterly to discuss state and federal policies, programs and regulations which may affect aquaculture.

Public hearings are held in association with the adoption of rules to implement various statutes.

NORTH CAROLINA DEPARTMENT OF COMMERCE

Division of Community Assistance

Objective

The Division of Community Assistance (DCA) assists North Carolina's communities with community development, public management, housing, economic development, and land use.

DCA administers several programs, including the Community Development Block Grant (CDBG) program and the North Carolina Main Street Program. The Division provides direct technical assistance to local government in several areas. DCA has recently expanded its role to include two new activities:

(1) administering the Mountain Area Land Use Planning Program (a two-year program ending in 1993), and (2) assisting local governments on Water Supply Watershed plans (mandated by the state of North Carolina).

In July of 1993, two of DCA's former housing development programs, the HOME Investment Partnerships Program and Comprehensive Housing Affordability Strategy (CHAS), were moved to the North Carolina Housing Finance Agency.

Technical Assistance

The technical assistance program was initiated in 1959 to assist local governments with planning and management issues. Originally, the program provided a mechanism to help communities use HUD 701 technical assistance program funds. Technical assistance to local governments currently involves several activities: strategic planning for economic and community development, downtown revitalization planning, growth management plans and ordinances, capital improvement plans and budgets, watershed management assistance, and other planning.

Water Supply Watershed (WSWS) Planning DCA became involved in local Water Supply Watershed (WSWS) planning in 1992. N.C. General Statute 143-214.5 provides for a cooperative program of water supply watershed management and protection. Local governments are required to administer this program in accordance with a Model Water Supply Management and Protection Ordinance. (A Model Ordinance was approved by the Environmental Management Commission (EMC) in July of 1992.) DCA provides technical assistance to local governments in developing their management plans.

The Mountain Area Planning Program The Mountain Area Planning Program is a Governor-initiative program funded by the Appalachian Regional Commission (ARC), and administered by the Division of Community Assistance. The purpose of the program is to provide local governments in the Appalachian region with incentive to plan. In 1991, DCA developed mountain planning guidelines to ensure that participating governments

plan for growth, development and protection of the natural and economic values of the mountain area.

The Community Development Block Grant (CDBG) Program

The federally funded Small Cities Community Development Block Grant (CDBG) program has been administered by DCA since 1982. The federal government provides CDGB funds to states and eligible cities through the U.S. Department of Housing and Urban Development (HUD). Its purpose is to improve neighborhoods and create or retain jobs for low- and moderate-income people.

The North Carolina Main Street Program

The N.C. Main Street Program was initiated in 1980. It seeks to improve the economic viability of downtown areas of designated communities. The Program works to diversify a community's economic future by preserving the character and integrity of the locality's past, while encouraging appropriate downtown development.

Description

Technical Assistance

The technical assistance program provides local governments with services, free of charge, to facilitate planning and management in their communities. Communities receive assistance on a first-come first-served basis.

DCA is also involved in multi-jurisdictional regional strategic planning. For example, DCA has provided technical assistance for an economic impact study of the new I-40 highway corridor. DCA has also assisted in a study of the potential benefits of Yadkin/Pee Dee Lakes to the surrounding region, focusing on strengthening the use of the lakes as an economic development resource while protecting the natural environment.

Water Supply Watershed (WSWS) Protection DCA provides technical watershed planning expertise to the N.C. Division of Environmental Management. Using a model ordinance developed by the Division, DCA staff members provide local governments with ongoing technical support to help in complying with Water Supply Watershed planning requirements. In addition, DCA helps local governments amend existing ordinances and develop new ones, consistent with the WSWS Act.

Mountain Area Planning Program (MAPP) In 1991, DCA developed MAPP planning guidelines. Using these guidelines, DCA funnels Appalachian Regional Commission (ARC) planning grants directly to local governments. The Division receives no money or staff to administer this program. DCA serves in an advisory capacity and provides limited technical support to local governments at no charge.

Community Development Block Grant (CDBG) Program

Most local governments receive CDBG grants and loans for community revitalization and housing development. Within community revitalization, cities and counties receive financial assistance to improve, preserve or develop residential areas. Examples of CDBG projects are: housing rehabilitation; neighborhood infrastructure improvements; adaptive, re-use of older buildings; and new housing development.

CDBG funding is based on a competitive application process. (The Commerce Finance Center administers CDBGs for economic development.)

Main Street Program

Participation in the North Carolina Main Street Program is based on a competitive selection process. The program is designed for communities with populations of 50,000 or less. Thirty-four communities are currently involved in this program.

Funding and Staff

The technical assistance program receives roughly 1.2 million dollars per year from state appropriations. Funds are distributed among the Division's seven regional offices. Three of DCA's regional offices (Wilmington, Washington and Raleigh) lie within the Albemarle-Pamlico region. The Wilmington office has two technical assistants. Washington and Raleigh offices each employ five technical assistants.

The CDBG program receives approximately 46 million dollars per year from the federal government. This money comes from the U.S. Department of Housing and Urban Development (HUD).

The HOME program received 22 million dollars in the spring of 1992. In July of 1993, this program was moved to the N.C. Housing Finance Agency.

DCA receives no additional funding for assisting with Water Supply Watershed planning or administering the Mountain Area Planning Program. Both of these programs are conducted by existing DCA staff members.

Expansion of DCA staff would be necessary for the Division to administer APES planning. In addition, local "APES" plans should receive direct funding (as in the Mountain Area Planning Program) to avoid overextending existing staff.



Opportunities for Public Involvement

DCA urges maximum public involvement and participation in their technical assistance program. Public meetings are held to identify community needs and solutions to economic development and environmental issues. In addition, state laws require public hearings for

certain activities, such as annexation, ordinance development, and Water Supply Watershed planning. The Division attempts to include the public in these efforts beyond the requirements of law.

DEPARTMENT OF CRIME CONTROL AND PUBLIC SAFETY

Division of Emergency Management

Objectives

The N.C. Department of Crime Control and Public Safety houses the Division of Emergency Management, which is responsible for the state's emergency response planning.

Description

Community-Right-to-Know Legislation

In 1986, Congress passed the *Emergency Planning and Community Right-to-Know Act* (EPCRA), also known as Title III of the 1986 "Superfund" Amendments and Reauthorization Act (SARA). Section 313 of Title III required certain manufacturers to submit annual reports on July 1, 1988, documenting amounts of toxic chemical their facility releases into the environment either routinely or as a result of accidents.

EPA input chemical release data into a database and analyzed it through the National Library of Medicine. The Agency developed the Toxic Release Inventory System Database (TRIS) to summarize this information. EPA supplies this data to government officials and the public.

The emergency planning section of EPCRA is designed to guide communities in preparing for and responding to emergencies involving hazardous substances. Every community in the United States must be part of a comprehensive emergency plan. This section of EPCRA requires facilities to submit to their local and state governments inventories of toxic chemicals stored on site. Facilities must report the amount, location and potential effects of hazardous chemicals present in each community. This information provides a tool that can be used to lower chemical hazards in each community by reducing chemical inventories. These reports are essential for local emergency response workers in preparing emergency plans. Fire departments and public health officials use this information to plan for and respond to emergencies.

EPA provides chemical data bases to states, as well as public and private sector computer firms. EPA has also collaborated with NOAA to develop the "Computer-Aided Management of Emergency Operations" (CAMEO) program to assist emergency planners. This data and software provides to local and state governments a way to store information submitted by facilities, conduct hazards analyses, map hazards in their community as part of the planning process, and store information on the properties and health risks posed by chemicals in their area. EPA and the U.S. Federal Emergency Management Agency (FEMA) provide technical assistance to local and state government emergency planning commissions in the form of guidance manuals, chemical profiles, workshops, and other technical assistance.

NORTH CAROLINA DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT

Travel and Tourism Division

Agency Objective

The mission of the North Carolina Travel and Tourism Division is to direct North Carolina's travel industry toward the common goal of developing the state as a major destination for leisure travel, tours and conventions. The Division develops and executes marketing programs to accomplish this goal.

Division objectives revolve around maximizing the state's benefits of travel and tourism through marketing and interagency coordination. The Division also works to develop opportunities for professional education, technical assistance, training, and product development for the travel and tourism industry.

Division objectives related to the A-P study are:

- (1) to enhance the state's image as both a desirable destination and as a leader in the travel industry, and
- (2) to encourage the optimal use and protection of the state's natural and human resources.

Agency Description

The Travel and Tourism Division works with regional and local destination marketing organizations (DMOs), government agencies, private sector and non-profit suppliers and distributors to accomplish its goals.

The Division provides free workshops to communities on a variety of subjects, including rural tourism development and marketing strategies based on responsible tourism.

The Division distributes tourism statistics, including a list of the state's top twenty attractions. (This list is prepared by the North Carolina State University (NCSU) Office of Park and Tourism Research.) Several coastal area attractions are listed among the state's top twenty attractions: Cape Hatteras National Seashore (second), State aquariums (third), Fort Macon (fourth), the Wright Brothers' Memorial (fourteenth) and the U.S.S. North Carolina Battleship (nineteenth).

The Division also distributes profiles of state tourists. Much of the information contained in these profiles reflects the vital role of environmental stewardship in the tourism industry. For example, over 60% of the state's 1989 non-resident visitors visited a scenic area, close to 60% visited an historic site, and over 95% did not own a vacation cottage, condominium or time share in the state.

Eight welcome centers are located at various points along the state border. These centers provide information about the state to people crossing the border from other states.

The Division also has a toll-free telephone number to provide callers with information about the state's tourist attractions.

Funding and Staff

The Division has a Raleigh staff of over twenty people. An additional forty people work at the Welcome Centers. The Division's toll-free telephone is answered by inmates supervised by the N.C. Department of Correction.

The Division's 1992-93 projected budget was \$6,043,809, which is close to average for state travel offices throughout the country.

Opportunity for Public Involvement

The Division markets the state's tourism resources to the public through national cable stations, national magazines, welcome centers and toll-free phone calls. All of these strategies are free to the public.

The Division offers workshops to communities to enhance tourism development. These workshops are generally coordinated and organized by community leaders.

N.C. DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES**Division of Coastal Management -- Coastal Resources Commission***Objective*

The North Carolina Coastal Area Management Act (CAMA) of 1974 (G.S. 113A-100) provided for the coordinated management of coastal resources and sought to insure orderly and balanced use and preservation of coastal resources.

The Coastal Resources Commission (CRC) was created to administer CAMA. The Governor appoints fifteen members to the Commission to four-year terms. Members may serve multiple terms.

The Division of Coastal Management (DCM) administers the state's coastal program. The Division assists the CRC in identifying future issues and formulating policies to address them.

*Description***Coastal Resources Commission (CRC) and Advisory Council (CRAC)**

The Coastal Resources Commission (CRC) has three primary functions:

- (1) it designates Areas of Environmental Concern (AECs);
- (2) it adopts policies and guidelines for coastal development, resource protection, and land use planning; and
- (3) it certifies local land use plans.

The Commission's rules and policies apply to development activities in North Carolina's coastal counties. The 20 "CAMA" counties are Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hertford, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, and Washington counties. Of those 20, all but New Hanover, Brunswick, Onslow, and Pender counties are in the A-P study area.

A 47 member Coastal Resources Advisory Council (CRAC) links local governments to the Coastal Resources Commission and provides the Commission with technical advice.

Areas of Environmental Concern (AECs)

Areas of Environmental Concern (AECs) are areas where uncontrolled or unsuitable development could permanently damage the environment. The Coastal Resources Commission (CRC) has designated four broad categories of AECs: (1) the estuarine system (including sound waters and shorelines, coastal wetlands and public trust waters), (2) the ocean hazard system (erosion- and flood-prone areas), (3) public water supplies, and (4) unique natural and cultural resources. (See *North Carolina Administrative Code, Title 15A*).

Permits are needed for any development activity within an area of environmental concern. All types of construction, associated land clearing and land alteration (such as excavation and fill), and placement of a floating structure in an AEC are considered development. There are two types of CAMA permits: major and minor..

Major Permits Major permits are required for (1) activities that require other state or federal permits, (2) projects that cover more than 20 acres, or (3) the construction of any structure larger than 60,000 square feet. This application may also serve as an application for other state and federal permits including a Dredge and Fill permit, an Easement in Lands Covered by Water, a Water Quality Certification, and a U.S. Army Corps of Engineers Section 404/Section 10 permit.

After an application is accepted as complete, the **Division of Coastal Management** staff publishes a notice in the local newspaper, visits the site, and reviews the proposal for consistency with CRC rules and policies as well as the local land use plan. The application and the field report are then distributed to ten state and four federal agencies for review. After reviewing all comments, DCM will either issue or deny the permit.

General permits are an expedited form of major permits that authorize routine development projects, such as bulkheads and private piers. Emergency work is also authorized under a general permit (including sandbagging or beach bulldozing after a storm). General permits can usually be issued the same day the permit is requested. Notification and approval of adjacent property owners is required.

Minor Permits Minor permits are needed for smaller projects such as the building of a single-family residence. Minor permits are issued by a representative of the county or municipality. These Local Permit Officers (LPOs) are trained by the Division of Coastal Management permit staff.

The number of permits issued in recent years in the 20 CAMA counties are listed below.

Major permits: 1988 (260), 1989 (252), 1990 (180), 1991 (150);
General Permits: 1988 (1004), 1989 (1047), 1990 (1147), 1991 (1011);
Minor Permits - 1988 (559), 1989 (699), 1990 (691), 1991 (601).

Both the permit applicant and the Secretary of the Department of Environment, Health and Natural Resources have an automatic right to appeal a permit decision. Third-party requests for appeals are granted at the discretion of the Chairman of the CRC. An applicant may request a variance to CRC rules, but only after a permit decision has been made; the variance procedure allows the CRC to grant exceptions to their rules and policies. Declaratory rulings are issued by the Commission to establish an official interpretation of a rule(s).

Division of Coastal Management Enforcement Program

The DCM enforcement program is designed to ensure that no unpermitted development occurs in an AEC and that permitted projects comply with all the permit conditions. Enforcement procedures are similar for all permits, however, penalties are lower for **minor permit** violations. Violators are issued a Notice of Violation (NOV) followed by the assessment of a civil penalty. Penalty amounts are prescribed in CRC rules. Violators are required to pay the fine and remove or modify those structures or activities in found to be in violation of the local land use plan or CAMA rule. Restoration of damaged resources may also be required.

Unauthorized development accounts for approximately 90 percent of detected violations. Coastwide, the most common violations are for unpermitted filling of wetlands and for illegal bulkhead and pier construction. The most common violation occurring in the estuarine shoreline AEC is unauthorized clearing and grading.

Enforcement personnel have issued the following number of Notices of Violation (NOVs), per year:

1988	(127)
1989	(167)
1990	(158)
1991	(190)

North Carolina Coastal Management Program (NCCMP)

Any project in the coastal area that requires a federal permit or uses federal funds must be consistent with all the rules and policies of the North Carolina Coastal Management Program (NCCMP). The Division of Coastal Management (DCM) coordinates a state agency review of the project before issuing a consistency determination.

The NCCMP includes all the rules and policies of the CRC plus the local land use plans. It also includes the rules and policies of other state resource agencies. The **Federal Office of Ocean and Coastal Resource Management (OCRM)**, must approve all changes to the NCCMP before a new rule, policy or land use plan can be used in a consistency determination.

CAMA Land Use Planning Land use planning allows a community to establish long-range goals to direct future growth. CAMA land use planning consists of a framework of policies and a land classification map. A well-designed plan can conserve valuable resources and guide growth toward the most suitable areas. CAMA requires the 20 coastal counties to participate in the planning process and to update their land use plan every five years. About 65 municipalities also participate in the land use planning process.

DCM provides grants and technical assistance to help local governments develop and implement the land use plans.

After a land use plan is certified by the CRC, it is used in making CAMA permit decisions. Once incorporated into the N.C. Coastal Management Program, it is used in making federal consistency determinations. Projects must be consistent with the land use plan before a permit or consistency certification is issued.

A major accomplishment of the Coastal Management Program in North Carolina is that the land use planning requirements of CAMA have spurred coastal counties and towns to adopt policies for natural resource protection.

Public Access Program

DCM acquires coastal land for research, education, and public enjoyment. More than 12,000 acres are preserved at seven coastal reserve sites (described in the next section).

The Division administers the **North Carolina Public Beach and Water Access Program** which provides residents and visitors access to the state's beaches. The Division awards grants to local governments for access projects. Local government contribute matching funds and are responsible for operating and maintaining public access facilities.

Since its creation in 1981 this program has awarded over three million dollars in state and federal funds for more than 200 sites. (As of May 1993, the program had funded over 80 public access sites in the **A-P Study area**.) Local governments have contributed more than two million dollars to the program. The program provides funding for three kinds of

public facilities: Minor Access Points, Neighborhood Sites, and Regional Sites. Minor Sites consist of walkways (such as boardwalks) to the beach between homes or across dunes; Neighborhood Access Sites provide walkways, trash cans and parking for approximately ten cars; Regional Access Sites provide walkways, trash cans, picnic areas, outdoor showers, and numerous parking spaces (sometimes several hundred).

DCM has developed a system for prioritizing funding for public access points, and is currently working with the Division of Environmental Management (DEM) to develop a federally-funded, wetlands conservation plan for the coastal counties.

Natural Estuarine Research Reserve System

DCM administers the National Estuarine Research Reserve program in North Carolina. The purpose of the Reserve is to establish and manage, through federal/state cooperation, a national system of reserves. Established by the state of North Carolina in 1982 with matching funds from NOAA, the Reserve encompasses more than 12,000 acres of barrier beaches, marshes, maritime forests, and estuarine waters. The reserves serve as field laboratories where studies are conducted on natural and human processes occurring within estuaries.

The **N.C. National Estuarine Research Reserve** includes Currituck Banks near Corolla, Rachel Carson across from Beaufort, and Masonboro and Zeke's Islands near Wilmington. The **N.C. Coastal Reserve** includes the four estuarine reserve sites plus Buxton Woods on Hatteras Island, Permuda Island in Onslow County, and Bald Head Woods in Brunswick County.

Section 6217 of the Federal Coastal Zone Management Act CZMA

Section 6217 of CZMA is intended to protect waterways from non-point source pollution by enhancing State and local efforts to manage land use activities. In order to avoid cutbacks in federal funding, each state must develop a management program (i.e., identify land uses that threaten water quality and develop management measures to control sources of nonpoint pollution.) Should Section 6217 be expanded beyond the CAMA counties into a portion of the A-P region, it will directly affect land use planning requirements in portions of the A-P region.

Public Education

"Project Estuary" is a multidisciplinary curriculum guide appropriate for grades five through ten. The guide includes a variety of activities and materials designed to fit into the existing science curriculum. "Sound Ideas" is a multidisciplinary guide for elementary

educators. These projects were developed by the N.C. National Estuarine Research Reserve System, written by Gail Jones, and published by the N.C. Division of Coastal Management.

Coastal Futures Committee on Coastal Area Management (The Year of the Coast)

Governor Martin's 1993 *Executive Order 20* designated 1994 as "The Year of the Coast" and created a Coastal Futures Committee on Coastal Area Management. The Governor will appoint 15 people to serve on the Committee. The Committee will study the North Carolina coastal management program and similar programs in other states to:

- identify major coastal management issues to analyze in depth;
- develop a set of recommendations;
- submit a final report to the Governor, Coastal Resources Commission and Coastal Resources Advisory Council by September 1, 1994 which will include an assessment of appropriate future directions or options for the coastal management program, including recommendations for administrative and legislative action.
- arrange for celebrations of the 20th anniversary of CAMA;
- focus media and public attention on the results of CAMA and the value of citizen involvement in coastal planning; and
- coordinate its efforts with local officials and events to help promote coastal events.

Staffing and Funding

DCM currently employs a 46-member staff. Staff members are located in the central office in Raleigh and four regional offices (Elizabeth City, Washington, Morehead City, and Wilmington). Staff responsibilities are broken down as follows:

Permitting and Enforcement: 21
Land Use Planning: 4
Policy and Program Planning: 7
Coastal Reserve: 3
Federal Consistency: 2
Administrative/Support: 9.

The DCM is awarded an annual federal grant of approximately \$1.5 million and an annual state appropriation of approximately \$1.4 million. As of 1991, CAMA permit application fees were cycled back to DCM's budget for permit processing, monitoring and enforcement activities. These fees amount to approximately \$100,000 to \$120,000 per year.

Opportunities for Public Involvement

Citizens of North Carolina serve on the Coastal Resources Commission and the Coastal Resources Advisory Council, the rule making and advisory bodies of the Coastal Management Program. Local governments and citizens are involved in coastal land use planning through the public meeting and hearing process, development of local ordinances (including zoning and subdivision regulations), and implementation and enforcement of CAMA minor permits. Public notice and public hearings are required for the adoption of rules or amendments to

existing CRC rules. These procedures are mandated by the N.C. Administrative Procedures Act (G.S. 1508-9) and CAMA. Some public notice is required for all permit applications and aggrieved persons may petition the CRC through appeal and variance channels.

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES

Division of Environmental Health

On-Site Wastewater Section

Objectives

The On-Site Wastewater Section of the Division of Environmental Health serves to prevent adverse effects of on-site disposal of wastewater. The program manages the complete system of collection, treatment, disposal, operation, maintenance, and legal remedies to protect public health and to prevent environmental contamination of land, groundwater, and surface water.

Description

Statutory authority for the program is found in Article II of G.S.130A. The Commission for Health Services adopts rules for permitting wastewater systems. The Division of Environmental Health (DEH) On-Site Wastewater Program has jurisdiction over all wastewater systems designed for subsurface disposal; the Division of Environmental Management (DEM) has jurisdiction over systems that discharge waters on the land surface.

The program functions primarily through a county-level permit system. All counties are under CHS Rules with four counties operating under state approved local rules that extend beyond CHS Rules. The state Section staff authorize environmental health specialists in local health departments to enforce the laws and rules governing on-site systems. Section staff members provide technical expertise on permit application reviews to the local health departments, in several ways (including, but not limited to soil, geologic, and engineering assistance, training, education, expert testimony at hearings, enforcement action and program reviews).

Permits

Currently, two types of permits are issued for on-site systems. An **improvement permit** must be issued before any building or system construction may begin. The local health department issues the permit after having evaluated the site. The permit may include conditions for modification of the site or the use of modified, alternative, or innovative systems. After construction, an **operation permit** must be issued prior to placing the system in use, occupancy, use of the facility, and permanent electrical power. (For single family homes with four or fewer bedrooms utilizing only conventional septic tank systems, a certificate of completion is issued in lieu of an operation permit.)

For larger systems (capacities greater than 3000 gallons) designed by an engineer, and industrial process wastewater systems, Section staff will review the permit application. The state reviews approximately 100 of these permit applications per year. State approval is required prior to the CHD issues on improvement permits and includes both site and engineering reviews.

Enforcement

Routine performance reviews of all systems 1.2 million systems in the state are not conducted. However 12,000 to 15,000 permits are issued annually for repairs to existing systems. Violations are generally reported as complaints (10,000 to 12,000 per year) to local Health Department personnel. Local Health departments in the coastal areas work closely with the Shellfish Sanitation Branch (SSB) to address on-site wastewater problems discovered in SSB Shoreline Surveys.

Some larger systems have requirements for monitoring of sludge and equipment. Groundwater monitoring can be required on a site specific basis and is very limited at this time. An inspection and maintenance program for all alternative systems permitted after July 1, 1992 and many existing large wastewater systems is in place. This program requires a certified system operator.

Violators may receive any of four types of penalties: criminal misdemeanor, administrative/civil penalties, injunctive relief, and revocation or suspension of permits.

There is no state database of permits for small waste flow systems; counties maintain data on permits and report general information on permits to the state.

Staffing and Funding

The state program has a professional staff of five in the Raleigh headquarters and seven in regional offices. The program budget is \$1-1.5 million. Major funding and staffing for this program is through the local health departments employ approximately 500 local sanitarians in the state's 100 counties.

Opportunities for Public Involvement

Adoption or modification of on-site wastewater rules requires a public hearing to collect public comment. The On-Site Wastewater section provides many opportunities for public education through pamphlets, rule books, and meetings with affected parties such as system installers, realtors, developers, and bankers. The Cooperative Extension Service and local health departments make additional public education efforts.

**NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH, AND
NATURAL RESOURCES****Division of Environmental Health****Shellfish Sanitation Branch***Objective*

The Shellfish Sanitation Branch (SSB) monitors, evaluates and classifies the coastal waters of North Carolina to ensure protection of public health in the consumption of shellfish harvested from those waters. The program also inspects shellfish, scallop and crab processing plants to ensure protection of public health.

*Description***Incentives for State Compliance With Voluntary Guidelines**

At the national level, the National Shellfish Sanitation Program (NSSP) is administered by the federal Food and Drug Administration (FDA). It is a voluntary, cooperative program involving the FDA, state shellfish sanitation programs, and the shellfish industry. Guidelines for shellfish sanitation are established at the national level and administered voluntarily by state shellfish sanitation programs. The FDA reviews state level programs for compliance with the guidelines once a year. Although the program is voluntary, states have an incentive to comply with the guidelines so that their shellfish products are acceptable for interstate shipment.

In North Carolina, rules concerning shellfish sanitation are made by the Commission for Health Services in the Department of Environment, Health, and Natural Resources. The SSB implements these rules and provides technical support to the commission. The Branch has its headquarters in Morehead City, and field offices in Manteo and Wilmington.

Shellfish Closures

The SSB monitors fecal coliform levels in North Carolina waters to identify public health threats. The Branch recommends closures to shellfish harvesting, when necessary to protect public health. Both permanent and temporary closures are made. Permanent closures are made after long-term evaluations of an area. Temporary closures are made in areas that become temporarily contaminated after an event such as a rainstorm.

The SSB makes recommendations for closures to the Division of Marine Fisheries (DMF). The DMF implements and enforces the closures.

Shellfish Processing Houses

The Commission for Health Services also makes rules concerning sanitation of shellfish processing houses. These facilities are inspected on a quarterly basis, in accordance with national guidelines. Shellfish dealers must pass inspection to receive FDA certification for interstate shellfish commerce.

The FDA reviews the SSB program annually. FDA inspects SSB files, laboratory procedures, and processing plants and reviews enforcement measures and survey reports to determine that the SSB is in compliance with the national guidelines.

The SSB conducts permit reviews for applications for the U.S. Army Corps of Engineers, CAMA, and NPDES permits in coastal waters.

Many scientists believe that the fecal coliform indicator is not an adequate indicator to protect public health from potential viral infections. At the national level, a research program is underway to explore alternatives to the fecal coliform indicator. At this time, the fecal coliform indicator is the best available indicator for quick, inexpensive, and reasonably reliable results.

The SSB is currently working toward having closure data in a GIS database.

Staffing and Funding

The SSB is funded through state appropriations of \$910,903. The SSB staff of nineteen is distributed throughout three 3 offices and three labs, located in labs in Morehead City, Manteo, and Wilmington.

Opportunities for Public Involvement

The SSB provides information to the public on the agency's activities in a variety of forms. Pamphlets and survey reports are distributed to government officials and citizens. The SSB makes presentations for civic organizations, training programs for sanitarians, and teaches a Food Sanitation short course at North Carolina State University (NCSU).

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES

Division of Environmental Management - Environmental Management Commission

The Division of Environmental Management is responsible for comprehensive planning and management of the state's air, surface, water, and groundwater resources. The division is divided into five sections: Air Quality, Water Quality, Groundwater, Construction Grants, and Laboratory.

The Air Quality, Water Quality, and Groundwater Quality sections are discussed on the following pages.

Air Quality Section

Objectives

The Air Quality Section of the N.C. Division of Environmental Management implements air pollution prevention and control at the state level under state law and the federal Clean Air Act (CAA). Programs under the CAA are intended to protect and enhance the quality of the nation's air resources to promote public health and welfare and the productive capacity of its population.

Description

Responsibilities and authorities of the Air Quality Section of the DEM are established by state law. In North Carolina, a Clean Air Act Advisory Council has recommended to the EMC implementation strategies for the 1990 Amendments to the CAA .

Ambient Air Quality Standards

EPA sets primary and secondary ambient air quality standards. The primary standards are human health based, and the secondary standards are welfare based. Ambient standards have been established for particulate matter, sulfur dioxide, ozone, lead, nitrogen dioxide, and carbon monoxide. States establish state implementation programs to meet the ambient standards. The state has a "state implementation plan" in which it adopts regulations that must be approved by EPA. These regulations are implemented through a permitting process. Both existing and new sources must be permitted. In North Carolina, the regulations are adopted by the EMC.

To address other pollutants, EPA's New Source Performance Standards establish regulations for new and modified plants. These standards address emissions by category of

plant or industry. NC adopts these standards by reference and is delegated authority to administer them.

Maximum Achievable Control Technology (MACT)

New and existing plants must meet National Emission Standards for Hazardous Air Pollutants which concern toxic emissions. These standards were made considerably more strict by the 1990 Amendments to the Clean Air Act. They require Maximum Achievable Control Technology (MACT). EPA is following a timeline to begin the regulation of these emissions. All regulations for source categories emitting the 189 pollutants listed by the Act must be in place by 2002. When a state permits a new source with emissions that are listed under this category but for which EPA has not yet developed regulations, the state must decide what MACT to require.

Prevention of Significant Deterioration Classification System and Non-Attainment Areas

The Clean Air Act also regulates air pollutants through the Prevention of Significant Deterioration classification system. All areas in the U.S. are classified as Class I, II, or III depending upon the amount of additional pollution that could be added without significant deterioration. Class III areas, the most polluted areas, must still meet ambient air quality standards. In non-attainment counties, plans for coming into compliance are developed, including stricter emission regulations for new and existing sources of the pollutants responsible for the violations.

Other Regulations Based on 1990 Amendments to the Clean Air Act

Acid rain regulations are currently in their first phase of requiring reductions in SO₂ and NO_x by 1995. Phase I does not affect North Carolina plants. Phase II, which will require reductions to be met by 2000, will affect North Carolina plants since they emit at lower rates than some plants in other states. These regulations will create a national system of tradeable emission allowances.

The 1990 Amendments to the CAA require the development of an expanded permit system. Currently 3600 facilities are permitted. The new regulations will require that about 1000 - 2000 facilities obtain new permits which will be more comprehensive and require more self-monitoring.

Implementing the 1990 Amendments will be very expensive, and air emissions sources will pay considerably more for permits to cover the costs of administration of the air quality program. The CAA Advisory Council has given recommendations to the EMC regarding structuring the permit fees. A proposal is now going to public hearing. EPA must approve the permit fee structure as adequate to cover costs of implementation.

Four counties in North Carolina (Forsythe, Mecklenburg, Buncombe, and Haywood) all outside of the A-P region, have full authority to administer local air quality programs. These local programs are funded by the local governments and federal grants.

Funding and Staff

The Air Quality Section had a 1990 staff of just under one hundred. An eventual total about 100 additional staff will be needed to implement the 1990 Amendments to the Clean Air Act. Currently, the Air Quality Section's budget is approximately \$5 million which is funded by federal EPA grants, state appropriations, auto inspection fees, and permit fees. Implementation of new permitting under the 1990 CAA Amendments will require a significant expansion of the Air Quality Section budget. This expansion will be funded by increased permit fees.

Opportunities for Public Involvement

In accordance with the 1990 Amendments to the Clean Air Act, all Clean Air Act permits must go to public notice.

**Division of Environmental Management - Environmental Management Commission
Water Quality Section**

The Water Quality Section of DEM consists of four branches: **Planning Branch**, **Technical Support Branch**, **Environmental Sciences Branch**, and **Operations Branch**. These branches are described on the following pages.

Planning Branch

The Planning Branch houses the **Program Planning Unit** and the **Classifications and Storm water Unit**, described in the following pages of this document. The Program Planning Unit consists of the **Implementation and Planning Group** and the **Wetlands and Technical Review Group**, described in the following two sections.

DEM Planning Branch**Program Planning Unit
Implementation and Planning Group****Basinwide Water Quality Management***Objectives*

Basinwide management was initiated in an effort to increase the efficiency, effectiveness and consistency of the DEM's Water Quality Program. Water Quality Program activities include permitting, water quality monitoring, wasteload modeling, nonpoint source assessments, and planning. Basinwide management coordinates and integrates these activities by major basin (including five major river basins within the A-P region). This approach is designed to improve understanding of the interactive and cumulative effects of multiple discharges and nonpoint source pollution, thus enhancing water quality management and protection.

The overall goal of basinwide management is to preserve and/or restore the full use of waters in each basin while accommodating reasonable growth and economic development. An important metric, therefore, will be progress towards improving the quality and uses of impaired surface waters that do not fully support their designated uses. For most or all of the A-P region's estuarine and lake waters, this will include reducing nutrient loadings and the occurrence of algal blooms. Other metrics will include the implementation of best management practices on agricultural land, and the percentage of waters (including Primary Nursery Areas, High Quality, Outstanding Resource, and class SA Waters) fully supporting their designated uses. As the Neuse Basinwide plan and others are developed, the number

and specificity of metrics will be increased. As more data is gathered, water quality will be the ultimate metric of success.

Description

Basinwide management involves several steps: (1) characterizing water quality through monitoring, (2) identifying causes and sources of water quality problems, (3) prioritizing management needs, (4) establishing management goals and Total Maximum Daily Loads (TMDLs), (5) implementing management strategies, (6) providing public participation, and (7) monitoring program performance. In the late 1980s, the Water Quality Section of DEM began to consider the idea of basinwide management. A schedule was established by 1990, specifying those discharge permits within each river basin that were set to expire and be renewed in the same year. With the permit schedule in place, monitoring efforts have begun to amass basin-specific databases. Modeling efforts have been focused on basinwide processes and interactions. The basinwide management program will result in an array of cooperative and complementary management initiatives.

The intent of basinwide management is to focus DEM staff time and resources on a few basins at a time and so allow for detailed studies to be conducted, basin models to be created, and careful analyses of data to be performed. This procedure should create a clearer picture of the state of water resources in each major basin. The resulting information can then be used to develop appropriate waste load allocations for all dischargers in the basin. Each basin will be revisited every five years. Water quality monitoring, to be specified in each basin plan, will be used to determine progress towards achieving goals presented in the plan. Thus greater efficiency and equity should be achieved.

BASIN	PLAN COMPLETION DATE
Neuse	Completed February 1993
Tar-Pamlico	August 1994
Roanoke	July 1996
White Oak	January 1997
Chowan-Pasquotank	August 1997

In support of these processes, intra- and inter-agency communication has been bolstered.

Funding and Staff

DEM currently funds one coordinator for the basinwide management effort. However, the entire Division is involved in some capacity with efforts designed to support the new

basinwide initiative. The staff should be increased by one or more people to better: (1) identify user groups and potential conflicts; (2) develop appropriate metrics for the determination of efficacy; and (3) solicit and incorporate public, local, and professional input.

Opportunities for Public Involvement

All basin plans incorporate public input through the public hearing process and public meetings.

DEM Water Quality Section, Planning Branch

Program Planning Unit

Section 319 -- Nonpoint Source Management Program

Objectives

Section 319 of the Clean Water Act required states to establish nonpoint source (NPS) pollution management programs. A major goal of the Section 319 program is to address each category of nonpoint pollution sources by employing existing programs or creating new programs to reduce water quality impacts. This program also encourages inter-agency cooperation among the state's many nonpoint source-related programs and initiatives. DEM serves as the overall lead NPS agency and awards grants to agencies for various NPS-related activities such as demonstration projects and education and training programs for nonpoint reduction.

Description

The 319 program was established in 1987 and is administered by the Water Quality Section of the Division of Environmental Management (DEM). The program involves many cooperating agencies including: the Division of Forest Resources, the Division of Land Resources, the Department of Human Resources, the N.C. Department of Transportation, and agricultural agencies such as the Division of Soil and Water Conservation and the Agricultural Cost Share Program.

As part of the N.C. Nonpoint Source Management Program, the 319 program has identified (and attempted to integrate) numerous on-going voluntary and regulatory activities, as well as planning and management initiatives. Examples of programs include non-discharge permit reviews (i.e., following septic tank siting and regulation), the 401 certification process,

mining regulations, Nutrient Sensitive Waters designation and management, water quality monitoring to document best management practice effectiveness, and water quality classification and standards.

Using input from other cooperating agencies, DEM developed a four-year action plan for nonpoint source control which was submitted to and approved by the U.S. Environmental Protection Agency (EPA). Funding is supplied through the EPA in the form of grants to conduct nonpoint source implementation projects.

Funding and Staff

Numerous staff members and resources are dedicated to various aspects of nonpoint source pollution reduction. The non-discharge permit program, the supplemental Outstanding Resource Waters/High Quality Waters/Water Supply Watershed classifications and regulation schemes, animal operation regulations and initiatives, and components of the water quality monitoring program all contribute to the state's Nonpoint Source Management Program. However, DEM currently has only two staff members officially responsible for the administration of the 319 program. Increasing the number of regional staff involved with 319 activities would help coordinate and implement nonpoint source-related activities.

Opportunities for Public Involvement

When the 319 program was initiated in 1987, eighteen public meetings were held regarding the development of the four-year action plan. Public involvement in the 319 process is incorporated in specific cases, such as rule changes, DEM's triennial review of water quality standards, and the creation of agency management plans. Annual reports provide the opportunity for milestones to be changed, deleted, or added to reflect agency and public priorities.

DEM Water Quality Section, Planning Branch, Program Planning Unit
Wetlands and Technical Review

Wetlands Group - 401 Certification

Objectives

Section 404 of the *Clean Water Act* (CWA) delegates the responsibility to regulate the discharge of dredged or fill material into navigable waters to the U.S. Army Corps of Engineers (COE). Section 401 of the CWA requires that the state in which the discharge occurs issue a certification that the proposed activity will not violate the state's water quality standards. This certification is referred to as a 401 Water Quality Certification (WQC). The WQC is the primary mechanism for regulating activities that impact wetlands in North Carolina outside of the Division of Coastal Management's Areas of Environmental Concern.

Description

All applicants to the COE for 404 permits to discharge dredge or fill material into the waters (and wetlands) of COE jurisdiction must apply to the Water Quality Section for a 401 water quality certification. DEM staff review all WQC applications for the potential to cause degradation of the existing quality and uses of wetland areas. This review process allows state water quality standards (such as turbidity and antidegradation) to be applied. The COE then has the opportunity to review the associated 404 permit application and grant or deny dredge and fill authority.

As the 404 is a federal permit and the COE has the authority and responsibility for compliance, state involvement with compliance reviews is minimal. When violations are found (usually as a result of citizen complaints), the Corps has authority to initiate enforcement actions (including civil and criminal penalties). While the penalties themselves are adequate, their application is less stringent. For example, the Corps may not press violations of less than one acre and may issue after-the-fact permits (where illegally performed construction otherwise meets permitting criteria). The DEM does feel that it can take a more aggressive enforcement position relative to the 401 certifications, if resources are made available. Recently, plans have been initiated to enable more involvement in this area of water quality protection.

The EPA *1990 Agency Operating Guidance* required states to develop water quality classifications, standards, and review criteria applicable to the State's wetlands by 1993. Proposed standards will codify the existing 401 certification process, designate uses of wetlands and establish criteria to protect those uses.

DEM has initiated this process in North Carolina. Conceptual wetland rules were presented to the Water Quality Committee of the Environmental Management Commission in December, 1992. These rules are being reviewed by a committee composed of public and state and federal agency representatives. An EPA grant and internal support have advanced this process by providing for:

- addition of one staff member;
- development of draft classifications, standards, and rules; and
- aggressive application of existing regulations.

Funding and Staff

DEM has five and 1/2 positions for 401 implementation. Approximately 12 technical staff and three clerical staff are needed to increase the effectiveness of the program.

Opportunities for Public Involvement

All certifications must go to public notice. The DEM maintains a wetlands mailing list that is used to notify the public of wetlands related issues.

The DEM is developing a training program for DEM staff and a manual on the identification and function of wetlands. Training will be offered to regional office staff members first to ensure a base level of understanding. Staff will be available for educational outreach to the general public.

DEM Water Quality Section, Planning Branch

Classifications and Storm water Unit

The Classifications and Storm water Unit of DEM's Planning Branch consists of two groups: Classifications and Standards Group, and Storm water Group. These groups are described in the following two sections.

Classifications and Standards Group

Objectives

The Division of Environmental Management's (DEM's) Water Quality Classifications and Standards Group is responsible for defining acceptable water quality for the surface waters of the state and developing classifications of types of surface waters which include appropriate, protective water quality standards.

Description

There are three functions for which the Classifications and Standards Group has primary responsibility. These include the development and implementation of the state's:

- (1) surface water quality standards (numeric and narrative);
- (2) water body classifications such as High Quality Waters, Outstanding Resource Waters, Wetlands, Water Supplies, and others; and
- (3) databases for surface water characteristics, including the Schedules of Classifications.

These functions are briefly described below.

Surface Water Quality Standards

One function of this Group is to act on federal regulations and state laws to develop and revise in-stream water quality standards and rules for the protection of aquatic life, wildlife, and human health. Based on the evaluation of scientific literature and other technical references, technical assessments of the actual and potential water quality impacts of specific chemicals and technical resource management practices are conducted. This information is then synthesized within a basic framework established by the U.S. Environmental Protection Agency (EPA) and the DEM. Specific recommendations are then developed for either establishing new rules or amending existing rules in order to ensure a safe level of potentially toxic substances that may be present in the surface waters.

Water Body Classifications

This Group also develops new water body classifications, and administers and amends the requirements of the existing classifications, established to recognize and protect the best uses of the state's surface waters. A brief description of North Carolina's surface water quality classifications and standards system follows.

Best Use Classification All of the surface waters of North Carolina (creeks, rivers, estuaries, sounds, oceans, etc.) are classified according to their "Best Use," the most basic of which is aquatic life propagation and recreation. The state's surface waters were initially classified in the late nineteen-fifties based on general surveys of water quality and purposes for which waters were being used. As various surface waters are identified as being inappropriately classified (through reclassification requests from the public or studies conducted by DEM) reclassification is pursued. On the following page is a list of basic surface water uses recognized in North Carolina's surface water quality classifications and standards rules, and the primary surface water classifications with which those uses are associated.

Primary Water Classifications for Basic Surface Water Uses

<u>Use</u>	<u>Primary Classification</u>
Maintenance and Propagation of Aquatic Life; Secondary Recreation (incidental or infrequent swimming)	Freshwater - C Saltwater - SC
Primary Recreation (organized or frequent swimming)	Freshwater - B Saltwater - SB
Water Supply	WS-I, WS-II, WS-III, WS-IV, WS-V
Shellfishing	SA

In addition to primary classifications, there are a variety of supplemental classifications which are applied, as appropriate, in conjunction with primary classifications to provide additional protection to waters as required to maintain and protect their existing uses. The following is a list of North Carolina's supplemental classifications and the resources or uses that they are intended to protect.

**Supplemental Water Classifications and Intended Function
(Protected Resource/Use or Condition Addressed)**

Supplemental Classification	<u>Resource/Condition</u>
Trout Waters (TR)	trout populations
Swamp Waters (SW)	natural swamp conditions
Nutrient Sensitive Waters (NSW)	nutrient over-enrichment
High Quality Waters (HQW)	streams with excellent water quality or special designation
Outstanding Resource Waters (ORW)	streams with excellent water quality and an outstanding resource

A set of numerical and/or narrative water quality standards associated with each of these classifications are intended to provide protection for the various uses described above. The complete regulation on this subject, which includes narrative standards, can be obtained by contacting DEM's Water Quality Section, and asking for a copy of 15A NCAC 2B. 0100 and .0200, the *Water Quality Standards* regulations.

The Classifications and Standards Group is also responsible for ensuring that the appropriate water quality classification is applied to each surface water body. As new classifications are developed, or as circumstances change, the Classifications and Storm waters Unit requests that appropriate water quality assessments be conducted. Group staff then review the assessments, conduct public hearings for the proposed classification changes, write final technical reports with recommendations to the Environmental Management Commission for changes, and file the amendments adopted by the Commission through the appropriate state administrative rules procedures office and the EPA. All classifications and standards must be approved by EPA.

High Quality Waters (HQW) Some of North Carolina's surface waters are relatively unaffected by pollution sources and have water quality higher than the standards that are applied to the majority of the waters of the state. In addition, some waters provide habitat for sensitive biota such as trout, juvenile fish, or rare and endangered aquatic species. Two supplemental classifications are specifically designed to protect high water quality and the resources that high water quality supports. These supplemental classifications, High Quality Waters (HQW) and Outstanding Resource Waters (ORW), are implemented as part of North Carolina's surface waters quality Antidegradation Policy.

In an effort to protect waters that possess characteristics such as those just described, surface waters in the following categories can be considered for classification as HQW: 1) waters rated as Excellent based on chemical and biological sampling (DEM assigns water quality ratings to North Carolina's surface waters based on biological and chemical data); 2) streams designated as native and special native trout waters or primary nursery areas by the N.C. Wildlife Resources Commission (WRC); 3) waters designated as primary nursery areas by the N.C. Division of Marine Fisheries; 4) critical habitat areas designated by the WRC or the Department of Agriculture; and 5) waters classified by DEM as WS-I, WS-II, and SA.

In waters classified as HQW, new or expanded wastewater discharges must provide advanced treatment. Only those dischargers which expand beyond their existing permitted pollutant load must provide advanced treatment. In addition, new development activities which require Sediment and Erosion Control Plans from the Division of Land Resources and that are within one mile of waters classified as HQW need to either develop at low density or incorporate storm water control systems to manage storm water runoff in higher density developments.

Outstanding Resource Waters (ORW) A small percentage of North Carolina surface waters have excellent water quality (based on biological and chemical sampling, as with HQW) **and** an outstanding resource associated with them. The ORW rule defines outstanding resource values as being: 1) an outstanding fishery resource, 2) a high level of water-based recreation, 3) a special designation such as National Wild and Scenic River or a National Wildlife Refuge, 4) within a state or national park or forest, and 5) of special ecological or scientific significance.

In waters designated as ORW, new or expanded wastewater discharges are not allowed. As in HQW, within the watershed of ORWs, new development activities must limit density or utilize storm water control systems to manage storm water runoff.

Databases for Surface Water Characteristics

Another function of this Group is to update and maintain the Schedules of Classifications rules, update and maintain all water quality standards rules, and develop databases concerning water characteristics. The development and implementation of surface water databases includes interfacing with the Center of Geographic Information and Analysis' Geographic Information System as part of the Water Quality Section's information management efforts, primarily for instream water quality standards, water body classifications, and surface water characteristics.

Water Supply Watersheds

The Classifications and Standards Group is also responsible for protecting the state's raw surface drinking water supply watersheds. Since 1986, the Environmental Management Commission and the Division of Environmental Management have administered a Water Supply Protection Program. Initially, the program was administered as a voluntary program where counties and municipalities could pursue protective measures for their water supply watersheds. The protective measures included limitations on the type of wastewater discharges that were allowed to discharge into the water supply watersheds. These were administered by the Division of Environmental Management and, in turn, local governments would adopt and enforce density or built-upon surface area limitations through land use control ordinances to protect surface waters from nonpoint pollution sources, namely storm water runoff.

In 1989, the General Assembly ratified the *Water Supply Watershed Protection Act*, codified as General Statutes 143-214.5 and 143-214.6. The *Act* and a subsequent amendment in 1991 mandated the Environmental Management Commission to adopt minimum statewide water supply protection standards by January 1, 1991 and to reclassify all existing surface water supply watersheds to the appropriate classification by July 1, 1992. The current version of the *Water Supply Watershed Protection Rules* was adopted on February 13, 1992. The Environmental Management Commission reclassified all of the surface water supplies on May 14, 1992 and the classifications and *Rules* became effective on August 3, 1992.

The current *Rules* require that all local governments having land use jurisdiction within water supply watershed adopt and implement water supply watershed protection ordinances in compliance with the statewide minimum standards. The *Act* requires all municipalities with more than 5000 population to submit their ordinances by October 1, 1993; and all affected counties to submit their ordinances by January 1, 1994. In order to assist local governments a model ordinance was approved by the Commission on July 9, 1992 and distributed to local governments. This document suggests appropriate language for adopting an ordinance under the general ordinance adoption powers. The language is also useful for local governments adopting their ordinances as zoning overlay districts and for local governments implementing the *Rules* by amending their subdivision regulations. A copy of the model ordinance and related water quality requirements is available from the Classifications and Standards Group.

Funding and Staff

Currently, five people work full-time in the Classifications and Standards Group. One full-time staff person is devoted specifically to standards development, another full time person works with the watershed protection program and a third person works specifically with the classification program.

Eight people are employed within the Classifications and Storm water Unit.

Opportunities for Public Involvement

Public input to the classification and standard rule making process is accepted at any time. Formal opportunities for comment are provided prior to finalizing the rule. During the rule-making process, public hearing announcements are published in newspapers at least 60 days prior to the hearing date. Press releases are made available through DEM's Public Information Office and, as required by the Administrative Procedures Act, the entire proposed rule is published in the North Carolina Register. Information packages are available to anyone who requests further information.

Announcements which summarize the proposed rule changes and identify hearing times and locations are mailed to the following groups:

- Concerned citizens who have requested inclusion on the mailing list.
- Environmental groups,
- Industrial representatives,
- Environmental consulting firms.
- Municipal and county government officials,
- Environmental Management Commission members,
- State legislators,
- County health officials,
- NPDES permitted wastewater discharges,
- Councils of government,
- N.C. League of Municipalities, and
- N.C. Association of County Commissioners.

Anyone can request inclusion on this mailing list. Mailings and newspaper announcements are targeted to the areas the rule change would specifically affect.

Written and verbal comments are accepted at the public hearings and for 30 days after the hearing date.

For particularly controversial or far reaching standards development, the Environmental Management Commission may direct the Water Quality staff to convene study committees

which may consist of environmental experts, industrial representatives and interested private citizens. This process provides public input prior to formal rule making.

**DEM Water Quality Section, Planning Branch
Classifications and Storm water Unit**

Storm water Group

State Storm water Program

Objectives

The State Coastal Storm water Program was designed to protect sensitive waters from the impacts of storm water runoff associated with development activities.

Description

The Division of Environmental Management's (DEM's) Water Quality Section implements the State Storm water Program. This program applies to development activities in North Carolina's twenty coastal counties, areas draining to Outstanding Resource Waters (ORW) and areas within one mile of and draining to High Quality Waters (HQW). Any development project requiring a Coastal Area Management Act (CAMA) major development permit or a Sedimentation Erosion Control permit must obtain approval from DEM in the form of Storm water Certification. In addition, DEM has established rules for the protection of surface water supply watersheds which include storm water management provisions. These rules represent minimum criteria for water supply protection. The water supply provisions are administered by local governments that have jurisdiction in a water supply watershed. These local governments are required to develop and administer ordinances and programs that are at least as stringent as the state criteria.

While the specific requirements (i.e., allowable built-upon percentage, lot sizes, etc.) may vary within the different state storm water programs, they are all based on similar principals and strategies for storm water control.

- **Low Density Development:** Projects subject to storm water provisions may meet these requirements of the storm water programs by meeting density restrictions in the form of lot size or built-upon area limits placed on new development. Low density projects must be approved by DEM¹ and meet the specific low density criteria established for the waters receiving storm water runoff from the project area.
- **High Density Development:** Higher density projects, at density levels beyond the low density option, may comply with storm water requirements by using appropriately

¹ In the case of activities in water supply watersheds, the applicable storm water provisions are to be implemented and administered by the local government having jurisdiction in the project area.

designed, constructed and maintained engineered structural control devices (infiltration structures, wet detention ponds and limited allowance for innovative systems in coastal areas, and wet detention ponds in HQW, ORW and Water Supply areas). High density projects must be approved by DEM² and must meet the design criteria established in 15A NCAC 2H .1003(f) - (l). (For a description of water quality classifications, see preceding section on "Classifications and Standards Group".)

Provisions of the DEM approval include submittal of a professional engineer's (PE) certification that the project was developed in accordance with the approved plans. In a number of cases, these certifications are not received by the DEM offices. More rigorous enforcement of the PE certification may ensure greater construction compliance. At the present time, resources available to provide in-depth enforcement are limited. Replacement of the certification system with a permit system may enhance the regulatory provisions of the storm water program.

Funding and Staff

Currently three and one-half full-time positions within the regional offices of DEM support the State Storm water Program. These staff positions are also responsible for other activities including federal NPDES permitting issues. The remaining five regional offices also have a staff member responsible for storm water reviews, but these activities are a smaller part of the overall requirements of these positions. The central office of DEM in Raleigh develops regulations and provides guidance for complex issues. More staffing is needed for plan reviews, certifications, site visits during and after construction and monitoring for compliance. With additional resources, time and effort may also be utilized to educate and train builders, engineers and local governments on the objectives of the program and the means available to achieve these results. The institution of a permit fee would assist in defraying the costs of the program and would support program staff.

Opportunities for Public Involvement

Storm water Certifications are not taken to public notice prior to issuance. However, development and modifications to storm water rules which establish the requirements for these certifications allow public notice and comment periods in accordance with the General Statutes.

² *ibid*

**N.C. DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
Division of Environmental Management - Environmental Management Commission**

Water Quality Section

Technical Support Branch

The Technical Support Branch of DEM's Water Quality Section consists of two units: **Permits and Engineering Unit** and **Instream Assessment Unit**. These units are described below.

Permits and Engineering Unit

Federal (NPDES) Storm water Program

Objectives

The federal storm water permit application regulations, developed under the National Pollution Discharge Elimination System (NPDES) were designed with the goal of controlling "to the maximum extent practicable" urban and industrial storm water runoff by developing site-specific storm water programs. The permit applications are, therefore, designed to : (1) identify sources of pollutants to the storm sewer system, (2) identify discharges of the system that are appropriate for NPDES permits, and (3) formulate a strategy for characterizing the discharges. This program emphasizes in-depth and broad pollution prevention programs for municipal and industrial sources..

Description

Suits by environmentalists claimed that the NPDES permit process, delineated in the *Clean Water Act of 1972*, required that storm water discharges be issued NPDES permits. The 1987 amendments to the *Clean Water Act* spelled out a two phase program for stormwater NPDES, the first phase of which became effective in December of 1990.

The amendment requires point source dischargers to apply for an "industrial" or "municipal" permit. "Industries" are defined primarily as manufacturers according to the Standard Industrial Classification (SIC) Codes, with some additions, such as landfills, land disturbances of five acres or more, and hazardous waste sites. Because most industrial facilities involve some point sources of storm water (such as a pipe, a gully, a ditch, or a curb), a large number (between 6,000 and 10,000) of industrial activities are subject to apply for permits.

Individual applications, group applications, or applications for general permit coverage (if a general permit has been issued for the specific type of industrial activity) are available.

Application deadlines originally were short given the information necessary to apply and the lack of general permits by the EPA and delegated states.

Municipal Storm water Sewer Systems (MS4)

Under the NPDES Storm water Program, municipal separate storm sewer systems (MS4) serving a population of 100,000 or more must apply for an NPDES permit for storm water discharge from their system. The municipalities currently covered are Charlotte, Winston-Salem, Greensboro, Durham, Raleigh, and Fayetteville/Cumberland County. (Durham and Raleigh are located in the A-P Region.)

MS4 applications were submitted in a two part process to facilitate the development of information to characterize storm water discharges, pollutant sources, legal authorizes and management alternatives. The application process culminated in the development, by each MS4, of a comprehensive Stormwater Quality Management Program to control the discharge of pollutants from their storm sewer systems. The complexity associated with storm water control in municipal systems makes it necessary to provide flexibility in the development of system-specific programs for stormwater management.

Industrial Systems

Regulations provide industrial activities three potential avenues for application to be filed:

- (1) Individual applications (including sampling and analysis of the stormwater);
- (2) Group application where similar activities form groups and submit data from a representative portion of the group; or
- (3) Request coverage under a general permit if a general permit has been issued for their type of industrial activity.

Potential enforcement for violators is the same as that for the rest of the NPDES program, with fines up to \$10,000 or \$25,000 per day and possible imprisonment.

Funding and Staff

Four full-time DEM positions support the federal storm water program. As the program gets underway, more staff will be needed in the regional offices and more support staff will be needed in the central office in Raleigh to conduct the technical aspects of plan review, as well as public education and involvement.

Opportunities for Public Involvement

Federal storm water permits are a part of the NPDES permit structure. For industrial permits the standard procedures for public notice that apply to NPDES applications apply to federal storm water applications: an application is put out for public notice, and if concerns are great enough, a public meeting may be held. With General Permits, the General Permit is drafted and put out for public notice and possible public meeting prior to issuance.

DEM Water Quality Section, Technical Support Branch**Permits and Engineering Unit****National Pollutant Discharge Elimination System (NPDES) - Permits
NPDES Group***Objectives*

The National Pollutant Discharge Elimination System (NPDES) program was officially delegated by the U.S. Environmental Protection Agency (EPA) to the state of North Carolina in 1974. The permit program is designed to regulate and minimize the effects of point source discharges on the surface waters of the state utilizing water quality standards and use classifications. NPDES is a tool for administering technology-based effluent guidelines, wasteload allocations (WLAs), or water quality standards to regulate pollutants from point source dischargers.

Description

The program relies upon a permit application review and renewal process to educate and regulate the dischargers of wastewater. There are roughly 3200 active NPDES permits. Each year, roughly 1400 permits pass through the office for issuance, renewal, or modification. Applicants are required to conduct engineering and economic analyses on all alternative disposal methods in an effort to reduce the numbers of direct discharges. The NPDES program is funded by receipts from NPDES permit fees, federal grants, and state appropriations.

"Major" or "minor" NPDES permits are issued based upon a ranking system developed by the EPA. "Major" generally refers to very large discharges or discharges of complex composition. "Minor" generally refers to relatively small discharges or discharges of simple composition. Applications received by the Permits and Engineering Unit of the Water Quality Section of DEM are sent to the appropriate regional offices for site specific evaluations, to the Instream Assessment Unit staff to determine allowable waste load allocations, and to other relevant sections, divisions, or agencies for technical review. Potential dischargers are encouraged to utilize non-discharge techniques, but if discharge is deemed necessary, if all applicable technical information has been submitted, and if a suitable management plan has been devised, a five-year NPDES permit with specific Best Available Technology effluent limitations may be granted.

Modeling efforts are associated with the NPDES program and based on applicant estimations of waste stream characteristics through the Instream Assessment Unit. These efforts focus on equitable distribution of local assimilative capacities through WLAs and the associated effluent limits for individual constituents. When the expected effluent

concentration is more than ten percent of the allowable in-stream concentration, an effluent limit is assigned and monitoring (usually one time per week) is required.

It is through the application of the WLA modeling that cumulative impacts can be accounted for and antidegradation is addressed. Once the alternatives evaluation has determined that a discharge is necessary and once the WLA modeling has been completed, the permit issuance is fairly straight forward.

After reviewing their permit a facility may accept it or they can request review of specific parameters or requirements. Public notice of intent to issue or deny a permit is also made.

All domestic wastewater must be treated to secondary levels in all waters. All complex wastewater dischargers and all major dischargers must monitor their discharges and conduct whole effluent toxicity tests, the results of which must be filed with DEM's Compliance Review and Enforcement Section. Enforcement is conducted by DEM's Facility Assessment Unit.

As part of the whole basin planning initiative, all NPDES permitted dischargers within a basin will be on the same 5-year schedule for permit renewal. This will allow changes in wasteload allocations to be made across the board on the basis of sound basinwide information. The NPDES permits granted within each basin will be revisited and focused upon every five years. Thus greater efficiency and equity will be achieved.

Databases established include the NPDES Permit Tracking System and the NPDES Compliance Tracking System. Data are also input to EPA's Permit Compliance System (PCS).

Funding and Staff

The NPDES program employs 17 full-time staff members. Other DEM staff members facilitate the modeling efforts and permit review process. Most of the funding for NPDES staff come from permit fees.

Opportunities for Public Involvement

The Clean Water Act requires public notice. DEM adheres to the guidelines by sending a notice of their intent to issue or deny a permit to the county clerk, the members of the NPDES mailing list, and the local and county paper 30 days prior to the anticipated date of issuance or denial. The notice contains information about water quality limited constituents, if known, and, if applicable, about the utilization of assimilative capacity. After an additional 15-day grace period, if no significant public concerns have been raised, the permit must be issued or denied by the Director within sixty days. If concerns are significant, a public hearing may be held with thirty days notice. The public hearing officer would then have 60

days to give his recommendations to the Director who, in turn, would have ninety days from the close of the hearing to issue a decision.

DEM Water Quality Section, Technical Support Branch**Permits and Engineering Unit****Non-Discharge Permit Program
State Group***Objectives*

The Division of Environmental Management's (DEM's) Non-Discharge Program is designed to regulate and minimize the effects of land-based application or subsurface disposal of wastewater in the state.

Description

The Permits and Engineering Unit of the Water Section of the Division of Environmental Management administers the Non-Discharge Program. All public and commercial land-based, sub-surface, and miscellaneous applications of wastewater as well as all sewer systems and extensions must be permitted. The Division of Environmental Health (DEH) issues permits for all sub-surface disposal.

Non-Discharge regulations have been expanded to include all new or expanding confined animal operations in excess of 50 animal units and all existing confined animal operations in excess of 100 animal units. All such facilities would have to conform with the control practices required by the non-discharge regulations or be subject to the National Pollutant Discharge Elimination System permit program for point source dischargers.

Funding and Staff

There are currently ten staff positions allocated for the Non-Discharge Program in Raleigh.

Opportunities for Public Involvement

No public notice is given prior to the issuance of a non-discharge permit, but DEM may conduct a public meeting in response to letters or phone calls of concern.

DEM Water Quality Section**Technical Support Branch
Instream Assessment Unit***Objectives*

The Technical Support Branch of the Division of Environmental Management's (DEM's) Water Quality Section is made up of two units, the Permit and Engineering Unit and the Instream Assessment Unit. The Instream Assessment Unit is composed of two groups, the Complex Issues Group, responsible for the more complex hydrodynamic and water quality modelling for basins and special projects, and Rapid Assessment Group, responsible for the modelling associated with NPDES permit limits.

Description

The Instream Assessment Unit models the impacts of pollutants on the surface water quality of North Carolina and predicts the outcome of different management scenarios. This unit identifies and prioritizes areas in need of modelling and conducts studies and analyses for other sections within the Division. Potential application of the Unit's work include: performance of Waste Load Allocations (WLAs) to determining National Pollution Discharge Elimination System (NPDES) permit limits, determining Total Maximum Daily Loads (TMDLs) for basin-wide planning, to modelling municipal and industrial plans and special projects' impacts. Parameters of concern include oxygen consuming wastes, toxicants, and nutrients.

The Technical Support Branch is now closely tied to the NPDES program and the Section 319 Nonpoint Source Program. Enforcement of all of these programs is achieved through the regional offices and the Facility Assessment Unit in Raleigh.

Funding and Staff

There are currently 10 staff in Raleigh. It is estimated that one more staff proficient in estuarine modelling would be required to fully and adequately implement the program.

Opportunities for Public Involvement

All new POTW programs are put out for public notice according to the Administrative Procedures Act.

N.C. DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
Division of Environmental Management - Environmental Management Commission

Water Quality Section

Environmental Sciences Branch - Ecosystems Analysis Unit and Aquatic Toxicology Unit

Objectives

The Environmental Sciences Branch consists of two units, the Ecosystems Analysis Unit and the Aquatic Toxicology Unit. The goal of the Ecosystems Analysis Unit is to collect, interpret, and provide review of scientific information as it pertains to the ecological integrity of surface waters in North Carolina for incorporation into management decisions. The goal of the Aquatic Toxicology Unit is to conduct toxicant related studies for compliance monitoring and permit and data reporting reviews for the National Pollutant Discharge Elimination System (NPDES) program and special studies, and to administer the Biological Laboratory Certification Program, and to provide the state with a broad based source of information on aquatic toxicity.

Description

The Environmental Sciences Branch provides the laboratory and technical support required by DEM for its water quality programs. Using well-defined methods and quality standards, this branch conducts studies and analyses for other branches within the Water Quality Section and supports regional offices in their management efforts. The Branch's work has numerous and varied applications, including NPDES program studies, whole basin plans, ambient monitoring network and special research projects.

Aquatic Toxicology Unit ...

Under current NPDES permit regulations, whole effluent toxicity self-monitoring (or monitoring "as discharged") is required of all major and complex minor dischargers. The Aquatic Toxicology Unit reviews all reports from the approximately 570 facilities that monitor whole effluent toxicity.

The Unit administers the Biological Laboratory Certification Program under which approximately 2,000 tests per year are reported. The Unit itself performs several hundred toxicity tests annually for compliance, quality assurance and evaluation purposes. Extensive literature resources on aquatic toxicity are maintained by the Unit which provides frequent evaluations of potential chemical impacts on aquatic organisms. Another responsibility of the Unit is the review of individual permit applications for appropriate use of biocidal compounds in cooling and air wash water systems.

Ecosystems Analysis Unit

The Ecosystems Analysis Unit uses a variety of techniques to conduct water quality monitoring, as needed.

The Ecosystems Analysis Unit consists of two groups: the Biological Assessment Group and the Intensive Survey Group. The Biological Assessment Group utilizes the ecology of benthic macroinvertebrates for wadeable streams and phytoplankton for large rivers and lakes to assess water quality, appropriate use classifications, biological integrity and the source and degree of impairments. Primary responsibility for ambient lakes and lake studies are the Intensive Survey group; however, there is strong interactive effort in interpretation and reporting of results between the two groups.

The Intensive Survey Group is also responsible for planning and conducting intensive surveys including physical and chemical sampling, time of travel studies, long term BOD, and in situ Sediment Oxygen Demand work. These surveys are used extensively in wasteload model development. Collection, preparation, analysis, and review of fish tissue analyses and fish community structure are coordinated and/or conducted within this group. A significant effort in collecting, assembling and providing information used in regulations and siting of coastal marinas is ongoing in these groups.

The Ambient Water Quality Monitoring Network is staffed from the Ecosystems Analysis Unit and is discussed separately.

Enforcement

All enforcement of the water quality regulatory programs is achieved through the regional offices or through the Facility Assessment Unit in Raleigh. North Carolina is one of the leaders in effluent toxicity testing and tracking. Currently, North Carolina permittees are at approximately 90% compliance with chronic or acute toxicity limits.

Funding and Staff

The Environmental Sciences Branch office employs thirty-nine people.

Opportunities for Public Involvement

Localities participate indirectly in the Environmental Sciences Program through their involvement in public hearings, pre-treatment programs and toxicant reduction efforts. Both the Aquatic Toxicology Unit and the Ecosystem Assessment Unit participate actively in public presentations and other educational activities.

**DEM Water Quality Section
Environmental Sciences Branch**

Ecosystems Analysis Unit - Ambient Water Quality Monitoring Network

Objectives

The Division of Environmental Management (DEM) conducts the baseline water quality monitoring network across the state. The Division has focused one portion of its program and analytical initiatives on the A-P region to facilitate understanding of the dynamic nature of the water quality of the estuarine system. Specific A-P region monitoring program objectives include:

- (1) construction of a comprehensive baseline data set to characterize water quality, sediment quality, and biological resources;
- (2) evaluation of the differences in parameters over time and between sampling locations for the determination of historical and spacial trends;
- (3) collection of data for use with satellite imagery for the "Synoptic Survey" (25 July 1989);
- (4) evaluation of the long-term effectiveness of management strategies; and
- (5) assessments of fish and macroinvertebrate populations, aquatic habitats, and fish tissue.

Description

The APES portion of the Ambient Water Quality Monitoring program collects water quality samples from 94 ambient stations in the major tributaries, small streams, open sounds, and each of the major rivers of the A-P region. Data are all computerized in EPA's STORET system and are available upon request.

In addition to regular monitoring, special intensive surveys are conducted to determine flow regime, long-term biochemical oxygen demand, water chemistry trends, and other special sampling needs to support modelling, planning, and enforcement needs.

Funding and Staff

The Ambient Water Quality Monitoring program employs two staff members in Raleigh and eight staff members in regional offices. An additional staff member is needed in order to ensure that each regional office can fully implement the monitoring program and present reports in a timely fashion. One centrally-located coordinator, a qualified chemist or biologist, is needed to assess the data as it is received and to conduct regular analyses of the data to ensure its quality and utility. One staff is needed to conduct training sessions for regional office technicians and to maintain and improve quality assurance of the data.

N.C. DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
Division of Environmental Management - Environmental Management Commission

Water Quality Section
Operations Branch

The Operations Branch of DEM's Water Quality Section consists of two units: **Facility Assessment** and **Operator Training and Certification**, described in the following two sections.

Facility Assessment Unit - Compliance Group

Objectives

Authority for the Division of Environmental Management's Facility Assessment Unit is delegated under N.C. General Statute 143.215 et seq. The intent of the Unit is to ensure compliance with state and federal water quality regulations. The Unit consists of two groups, Compliance and Pretreatment.

The Compliance Group is responsible for central tracking and enforcement of permits, permit renewals, and other compliance requirements related to DEM's water quality management programs.

Description

DEM's Compliance Group works directly with DEM staff and with other state agencies to enforce all NPDES permits, permit renewals, and permit compliance. Efforts are focused on effluent, specifically from point sources. Non-discharge permits and stormwater regulations enforcement are dealt with at the regional staff of DEM.

Compliance staff members track permits and distribute, collect, quality check, and analyze monitoring reports required by DEM. The staff mainly considers effluent requirements; in-stream requirements are reviewed upon permit issuance or renewal.

The Compliance Program is partially driven by citizen complaints, partially driven by analysis of self-monitoring compliance data, and partially driven by the results of inspections performed by regional or county staff.

This group also coordinates DEM's response to environmental emergencies such as chemical spills and fish kills.

Enforcement

When a permit process violation is discovered, a series of actions can be taken to bring the violator into compliance. Actions include notices of violation (NOVs), civil penalties, criminal penalties, judicial orders, special orders, sewer moratoria, and other mechanisms. Level and type of action taken will depend on the effort needed to achieve compliance as quickly as feasible.

Violations of administrative requirements usually involve late filing of monitoring reports or permit renewal applications. In response to this type of violation, NOVs can be issued for failure to properly complete monitoring reports, or fines can be assessed (\$250-300).

For violations of permitted discharges, an NOV is issued. If non-compliance continues, fines can be assessed, in theory, of ever increasing magnitude, but in reality, of "reasonable" scale. An enforcement conference is held to consider the circumstances, discuss the options for remediation, and determine the penalties to be levied. Eight criteria for fine assessment are established by statute. The maximum fine allowed to be levied per violation is \$10,000. This could be raised to \$25,000 to allow greater flexibility in assessment proceedings. The EPA may levy additional penalties if it is deemed necessary.

If the Director of DEM feels that fines are not appropriate (if, for example, the violations are a result of old plant design), and if the Director feels that cooperative efforts between DEM and the violator and good faith efforts for rectification would be more beneficial in the long-term, a Special Order by Consent (SOC) can be issued with modified effluent limitations, deadlines for milestones of progress, and stipulated penalties for failure to meet those deadlines as remedial actions are being arranged.

Through the use of "fast track" cases, with "shell" enforcement documents and computer generated assessment letters, many types of violations can be assessed in a more timely manner. This approach is utilized by Division staff in approximately 60% of the Water Quality Section cases. Compliance is more readily and cheaply achieved and fines are usually smaller, since fewer violations are involved.

Administrative compliance has improved and there have been improvements in effluent compliance since 1989. Three hundred and sixty-four enforcement cases were recorded in 1991 (down from 525 cases in 1990). The majority (nearly 75%) of those cases were either renewal violations or late reporting violations.

Funding and Staff

The Compliance Group's Raleigh staff consists of nine people. Raleigh staff engage in compliance operations and consultations with attorneys in the Attorney General's office. Regional offices provide field investigations and generate enforcement reports (often based on data provided by compliance staff). Compliance staff members provide case review and tracking of all cases with complete handling of the "fast track" cases. The size of the

enforcement and compliance staff should be increased by two to allow for more frequent inspections and better tracking of compliance data and subsequent enforcement actions.

Opportunities for Public Involvement

All new and amended Special Orders by Consent (SOCs) are posted for public notice in local newspapers.

DEM Water Quality Section, Operations Branch**Facility Assessment Unit - Pretreatment Group***Objectives*

Authority for the Division of Environmental Management's (DEM's) Facility Assessment Unit is delegated under N.C. General Statute 143.215 et seq. The intent of the Unit is to ensure compliance with DEM water quality regulations. The Unit consists of two groups: Compliance and Pretreatment.

The Pretreatment Group works to prevent pollutants from entering Publicly Owned Treatment Works (POTWs) and strives to increase communication between state and local programs.

Description

The National Pretreatment Program was created to protect municipal or publicly owned wastewater treatment works (POTWs) and their receiving environments from the detrimental impacts from nondomestic users of POTWs, commonly called industrial users or indirect dischargers. While the term "pretreatment" often refers to the treatment of industrial wastewater at the industrial facility prior to discharge to a local sewer collection system, the term is also used to refer to the administrative activities involved in regulating discharges from industries into sewer systems, as in "a pretreatment program".

At the heart of pretreatment programs are local limits designed to accomplish the four objectives of the National Pretreatment Program (Prevention of Interference, Pass-through, Sludge Contaminations, and Worker Exposure). Local limits are developed in addition to any applicable national categorical pretreatment standards (40 CFR 405-472) or state pretreatment requirements. Federal regulations (40 CFR 122.21(j)) require that local limits be technically based. The process for developing technically based local limits involves determining the maximum amount of each pollutant that can be accepted at the influent or headworks of the WWTP and still protect the WWTP itself (Interference), the receiving stream (Pass-Through), the POTW's sludge disposal options, and worker health and safety. Allowable influent or headworks loads based on pass-through, interference and sludge handling considerations are calculated by performing headworks analysis monitoring (LTMP). The most restrictive of these allowable influent loads calculated through the HWA is the POTW's Maximum Allowable Headworks Loading (MAHL). From these loadings, industrial-specific effluent limits may be derived.

The Pretreatment Group and the Regional Offices of the Water Quality Section of DEM oversee the activities of local pretreatment programs. Training and technical assistance are also important functions of the group. Pretreatment reviews the major elements of each

pretreatment program for compliance with minimum requirements and for technical validity. The Regions and members of the Pretreatment Group review semi-annual reports and conduct inspections and audits to ensure effective implementation of the 135 local pretreatment programs in North Carolina.

Enforcement

When deficiencies in a local program are identified, technical assistance or enforcement action may be taken. Enforcement actions may include NOVs (Notices of Violation), Notice of Continuing Penalties (usually involving compliance schedules), and civil penalties.

Funding and Staff

The Pretreatment Group in the Raleigh central offices consists of five professionals. Each Regional Office names a staff member as a Pretreatment Contact to coordinate regional pretreatment activities with the central office staff.

Opportunities for Public Involvement

Opportunity for public comment is provided by DEM when pretreatment programs are initially developed. Public involvement at the local level is encouraged. Local Pretreatment Programs are required to give annual public notice in a local newspaper when significant industrial users are found to be in significant non-compliance with local limits.

DEM Water Quality Section, Operations Branch**Water Pollution Control System Operators Certification Commission
Training and Certification Unit***Objectives*

Authority for the Division of Environmental Management's (DEM's) Training and Certification Unit is delegated under N.C. General Statute 90A and 143B. The Unit serves as the staff to the Water Pollution Control System Operators Certification Commission. The intent of the unit is to provide training and certification for water pollution control system operators. The Unit is responsible for facilitating various training schools for operators of wastewater treatment facilities, collections systems and land treatment systems and for providing certification examinations for operators of different types and grade levels to ensure appropriately trained and certified operator at all classified facilities. In addition, the Unit provides ongoing training in the form of technical assistance for operators, permittees and public officials.

Description

The Unit is responsible for: (1) the training of operators in the categories of wastewater treatment (grades I-IV), collection system operation (grades I-IV), subsurface system operation, spray irrigation (under development) and land application/residuals (under development); (2) the administration of the certification program, including the testing and annual renewal of certificates in the categories and grade levels mentioned above; (3) classification of the facilities permitted by DEM to require the appropriate operator in responsible charge (ORC); (4) enforcement activities consisting of revocation, suspension or reprimand of unethical operators; (5) technical assistance provided to operators, permittees, public officials and other water quality staff regarding facility operations.

Funding and Staff

The Unit's Raleigh staff consists of nine people including the supervisor, five wastewater treatment consultants and three administrative positions. The supervisor and three of the consultants hold N.C. Grade IV Wastewater Certifications and one is a registered Soil Scientist and Registered Sanitarian. The regional office staff consists of four wastewater treatment consultants, all of whom hold N.C. Grade IV Wastewater Certifications. Funding for the program is from receipts. Training activities are coordinated from the Central Office in cooperation with the University System and the Community College System and the Professional Associations who assist in training. Certification activities are coordinated from the central office with assistance from the regional office staff, and include test administration, enforcement investigations and facility classification. Technical assistance is provided both by the central office staff and the regional offices staff.

Opportunities for Public Involvement

All proposed amendments to the Certification Commission's Rules follow the public notice and hearing procedure. Public involvement in the training of operators is available through the professional organizations who cooperate and participate in the training of these professionals, such as the American Water Works Association, the Water Pollution Control Association and the Wastewater Operators Association.

**N.C. DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
Division of Environmental Management - Environmental Management Commission**

Groundwater Section

Objectives

A state groundwater program was officially initiated in 1959, but lost its identity as a program as a result of the reorganization of the Division of Environmental Management in 1978. In 1981, the program was established as the Groundwater Section of the Division of Environmental Management. Its primary goal is groundwater quality protection through the implementation of the classifications and standards.

Description

The groundwater program develops and implements water quality classifications based on human health based standards. All groundwaters are now officially class GA (drinking water quality) or GSA (drinking water quality except for elevated salinity).

The Groundwater Section collects data, conducts modeling efforts, cooperates with other state and federal agencies on regional assessments and initiatives (such as the well-head protection plan and the statewide pesticide survey) and reviews all DEM-issued permits for compliance with groundwater standards.

The majority of the Section's staff hours are spent regulating underground storage tanks. There are over 80,000 underground storage tanks in the state; of these, over 4,000 are leaking. Any leaking tank site must be cleaned to "existing groundwater standards".

Underground storage tank fees cover some of the clean-up costs. The Groundwater Section will apply for primacy for implementation of the federal Resource Conservation and Recovery Act, Subtitle I for dealing with the problem of underground storage tanks.

Funding and Staff

Sixty-two staff members are employed under the Groundwater Program in Raleigh and 64 staff members are distributed among the regional offices and a field office. More staff is required to fully and adequately implement the groundwater program. This need, as it pertains to the underground storage tank (UST) portion of the program, is currently being reviewed by the State Auditor's Office.

Underground storage tank fees support a fund for site clean up. The original fund is scheduled to expire in December, 1998. 1993 legislation has provided some additional funding beyond 1998.

Opportunities for Public Involvement

The public has an opportunity for involvement in the rule making process and in the approval of groundwater quality remediation plans. The public is also invited to attend public meetings held for the purpose of explaining new groundwater protection programs and concepts.

Division of Forest Resources

Program Objective

The North Carolina Division of Forest Resources (DFR) plans and implements activities associated with maintaining, protecting, and improving the State's forest resources. Its purpose is to ensure sufficient and quality forest resources to meet the needs of the State. DFR programs are authorized by G.S. 113, Articles 1-5 and are primarily non-regulatory in nature. The Division was developed in 1921 in order to protect against forest fires.

Program Description

DFR has two general programs relating to the A-P study. These programs, Forest Protection and Forest Management, are implemented through a cooperative agreement with each county. Each county pays a percentage of the cost of the local program. The percentage ranges from twenty-five to forty percent, depending on the wealth of the county.

Forest Protection

Forest protection activities include forest fire prevention and suppression, and insect and disease control programs. Fire management occurs through written plans and a permit system implemented for fire prevention purposes. Written plans vary by fire hazard and include procedural information on fire line plowing, retardant application, and flooding. Few fire plans are written for wildfires; those that are written are primarily district, regional, and state plans.

DFR implements two permit programs including a mandatory burning permit program and a voluntary smoke management program.

Burning Permits In high-hazard counties, a burning permit is required (from DFR or a designated agent) for open burning between midnight and 4:00 pm, within 500 feet of protected woodland. In high hazard counties (Beaufort, Bladen, Camden, Carteret, Chowan, Craven, Currituck, Dare, Duplin, Gates, Hyde, Jones, Onslow, Pamlico, Pasquotank, Perquimans, Tyrrell and Washington) burning permits are required 24 hours a day, and piled debris requires a special permit issued by DFR. There is no charge for the permit. This program is authorized under G.S. 113-60.21 et seq. Its intent is to decrease the likelihood of wildfires and to control air pollution. Permits may be cancelled during high fire danger or air pollution events. Escaped fires are a violation of the permit and considered a misdemeanor. Violations are punishable with thirty days in jail or an up to fifty dollar fine, usually the latter.

Voluntary Smoke Management Program The voluntary smoke management program helps to control the amount of smoke (from Forestry-prescribed burning) in the air. The smoke management system is based on the amount of smoke the atmosphere can dissipate on a given day. This is expressed as the amount (in tons) of fuel that can be consumed on a particular day. No permits are issued for the Smoke Management Program, which operates on a telephone call basis. Most large forest land owners are involved in the program; most small landowners are not.

Other Fire Protection Programs DFR provides intensified fire prevention, presuppression, and suppression services at the Dare County Bomb Range to assure adequate protection in this critical forest fire hazard area. The U.S. Air Force first contracted with DFR for forest fire protection of the Bomb Range complex in 1963. DFR works with the military in evaluating the potential of various activities to start forest fires. Restrictions on certain activities are imposed as fire danger dictates.

Insect and Disease Control In 1939, the N.C. General Assembly gave the N.C. Forest Service the responsibility for investigating and controlling forest insects and diseases in the state. DFR focuses on maintenance of a healthy forest as means of controlling insects and preventing disease. The Division routinely monitors insect and disease outbreaks. There is little broadscale use of pesticides other than for gypsy moths which is administered under the State Department of Agriculture. Insect control, when undertaken, is usually administered during planting through use of treated seedlings.

Forest Management

The forest management program provides professional and technical assistance in the management of the state's forest lands. This program first received funding in 1948. It is meant to (1) protect and improve the state's woodland resources by encouraging owners to practice good forest management, and (2) promote total forest stewardship emphasizing water quality, aesthetics, wildlife, recreation and products.

Forest Management activities include operation of forest tree nurseries and programs for urban and community forestry, technology development and transfer, and technical assistance. Through the technical assistance program, DFR staff offer advice and develop management plans to help landowners properly manage their land and timber. Cost-share programs are developed to financially support landowners in certain forestry activities.

Cost-Share Programs The **Forest Development Program (FDP)** was established in 1977 to increase cost-share funds available to landowners for reforestation purposes. Landowners with an approved forest management plan are awarded money on a first-come, first-served basis; funds may be denied if suitable Best Management Practices are not followed. FDP authorization is found in G.S. 113A-176 and rules are found in 15A NCAC 9C .0900.

In 1974, the federal government established the **Forest Incentives Program (FIP)** to increase reforestation efforts and improve management practices across the country. This cost-share program is administered by the ASCS office; technical needs and compliance are determined by DFR.

Forest Practice Guidelines Related to Water Quality - Forestry Best Management Practices (BMPs) *The Sedimentation Pollution Control Act* governs all land disturbing activities for timber harvest or forest management practices, unless they are carried out in accordance with "Forest Practice Guidelines Related to Water Quality" (i.e., forestry best management practices (BMPs) (G.S. 113A-52.1)). DFR is responsible for developing these guidelines. DFR also monitors and determines guideline compliance for exemption of forestry practices from sedimentation control regulation. Guidelines are found in 15A NCAC 1J.

DFR personnel inspect BMPs to determine if they are in compliance with statutes. However, there is no routine inspection of the BMP operations. DFR personnel often perform inspections in response to notification of problem sites.

North Carolina Forest Stewardship Program

The Forest Stewardship Program is a voluntary, cooperative effort administered by the N.C. Division of Forest Resources. It recognizes Program participants for their achievements in promoting total forest resource management. The Program is open to any nonindustrial, private forest landowner with a minimum of ten acres of forestland.

The North Carolina Forest Stewardship Program uses a multi-agency approach to promote the wise use and conservation of all forest resources (including wildlife, timber, soil, water, recreational opportunities and aesthetics). Objectives of the Program are:

- to protect water quality,
- to improve fish and wildlife habitat,
- to enhance soil productivity and minimizes erosion,
- to keep forests productive and healthy,
- to enhance natural beauty, and
- to support recreational activities.

The Program provides technical assistance to landowners to develop Forest Stewardship Management Plans. Plans are based on landowners' objectives. Each plan must encompass the entire tract, but on farmland, recommendations focus on woodlands, forest edges, and associated clearings. Each plan includes a schedule of activities aimed at least three of the following resource areas:

- enhancing the forest for wildlife,
- promoting soil and water quality,
- timber production,

- promoting recreational opportunities, and
- preserving natural beauty.

Forest Stewardship Management Plans are action oriented. Each plan is based on a schedule that is compatible with the landowner's resources and ability to conduct the work. Agency and resource professionals make recommendations to land owners regarding their plans.

Through the Forest Stewardship Program, public agencies help landowners who want to improve their forests. Resource professionals provide educational, technical, and financial assistance to landowners to help them realize the benefits of being good forest stewards. Landowners who actively participate in the program are entitled to assistance in updating plans at five-year intervals.

Approved stewardship plans may entitle landowners to financial assistance from the Stewardship Incentives Program (for eligible practices specified in the plans). In addition, land owners who practice recommended techniques may receive increased financial return.

The Forest Stewardship Program is administered locally by a county Stewardship Committee, including members of the following agencies:

- N.C. Cooperative Extension Service
- N.C. Division of Forest Resources
- Soil Conservation Service, U.S. Department of Agriculture
- N.C. Wildlife Resources Commission
- Agricultural Stabilization and Conservation Service
- Forest Service, U.S. Department of Agriculture
- N.C. Division of Soil and Water Conservation

Funding and Staff

DFR has a staff of 660 persons. Staff activities are integrated across both protection and management programs. Staff members carry out management program activities much of the year. During fire season, or insect or disease outbreaks these people serve as the protection program staff. The state is divided into thirteen management districts, five of which are in the Albemarle-Pamlico region. Typically, each district office has from two to ten staff members, while each county office has from two to five members. The annual DFR budget for Division activities in the Albemarle-Pamlico region is \$5,319,118. The Forest Development Program receives between 1.2 and 1.5 million dollars per year. Funding for the program varies because it is a combination of appropriations and funds from an assessment of primary wood products produced in the region.

Opportunities for Public Involvement

Public involvement in Division activities is essential to the objective of DFR. Non-industrial, private woodland owners control roughly two-thirds of the state's forest resources. The forest management program aims to establish and maintain the management of the forest resources through these owners.

**Division of Land Resources - Sedimentation Control Commission
Land Quality Section
Sedimentation and Erosion Control**

Program Objectives

The N.C. Sedimentation Pollution Control Act of 1973 (as amended) officially initiated the Sedimentation and Erosion Control Program. This performance-oriented, land resource program is designed to: (1) identify critical areas for sedimentation control; (2) limit exposed areas and time of exposure; and (3) control surface water and sedimentation. It strives to protect the state's streams and lands from degradation caused by land disturbances that erode sediments.

Program Description

Program Administration

The Sedimentation and Erosion Control Program is administered by the Division of Land Resources' Land Quality Section, and involves a high level of local implementation. The program regulates construction and other land disturbing activities that may cause excessive sedimentation. This program involves a process of plan submission and approval. All agricultural and mining activities are officially exempt from these regulations (although mining activities are covered under the *Mining Act*). Forestry activities must utilize accepted Best Management Practices (BMPs) to qualify for an exempt status.

There are forty-one local (county and city) programs approved by the Sedimentation Control Commission. The Commission can become involved at any time to enforce the program or revoke a locality's delegated authority.

Sedimentation and Erosion Control Plan

Prior to any land disturbance of more than one acre of land, a Sedimentation and Erosion control plan must be submitted and approved. In addition, control measures must be installed in accordance with Program requirements. Plans must be adequately implemented on-site, and measures must be effective. The program requires maintenance of measures during construction and establishment of permanent ground cover following completion of development.

Mandatory Sedimentation and Erosion Control plans must meet four performance standards:

- (1) Each plan must be submitted thirty days prior to the commencement of land disturbing activities, be approved by the agency with jurisdiction, and include descriptions of short- and long-term intentions;
- (2) Plans must include sufficient buffer zones along adjacent waters (trout streams require a minimum 25 foot undisturbed buffer);
- (3) Measures must be sufficient to retain the sediment generated by the activity (on site), and permanent ground cover must be established within thirty working days or 120 calendar days after the completion of development or construction, whichever is shorter (in High Quality Water zones, the requirement changes to fifteen working days or 60 calendar days); and
- (4) Stabilization of graded slopes must be achieved within thirty working days after completing each grading phase.

Site managers and engineers determine the most economically effective method to control sedimentation and erosion. In most cases, some standardized design requirements, such as mandatory installation of sediment basins, would increase the average effectiveness of these systems.

Enforcement

Failure to comply with any of these requirements can result in civil penalties of up to \$500 per day (or up to \$1000 for operation without a plan), a court ordered injunction, a stop-work order, or criminal penalties. All assessments, except those for starting without an approved plan, are directed to the educational fund. The Sedimentation Control Commission distributes these assessments to training manuals, school curricula, pamphlets, workshops, research, and studies.

Funding and Staff

The Sedimentation and Erosion Control Program employs thirty-three state staff members (in Raleigh and regional offices). More staff members are needed to better educate the construction and industry engineers (through, for example, pre-construction conferences), to better review plans, and to increase the number of inspections of construction sites.

Local programs collectively employ more personnel, but also lack sufficient resources to adequately implement this program.

Permit fees (\$30 for the first acre and \$20/acre thereafter) go directly to the General Fund.

Division of Land Resources - Mining Commission
Land Quality Section
Mining Program

Program Objectives

The *North Carolina Mining Act of 1971* (as amended in 1981 and 1987) initiated the Mining Program. This permit-based program is designed to ensure environmental protection from mining operations and adequate reclamation of completed mining operations. Control of sedimentation and erosion is a primary consideration.

Program Description

The Permit Process

In June 1972, all mines with over one acre of disturbance came under the jurisdiction of the Mining Program and were required to be permitted. The Program staff has sixty days to review each permit application and grant it, deny it, or request further information.

The Mining Program uses the permit application review process to educate the mining industry and regulate mining activities. The permit application process requires buffers (visual and water quality), erosion control measures, stabilization measures, and reclamation plans.

Review of the permit application includes seven criteria. Classification of the receiving waters also dictates, to some extent, the level of protection demanded. Permit applications are sent to the appropriate regional office for site specific evaluations and to other relevant sections, divisions, or agencies for technical review. The final application serves as the foundation of the mining permit. Current permits are more comprehensive and detailed than in the past, rendering them more explanatory and binding.

Each plan is reviewed on a site-by-site basis for the topography and hydrology of the area. This process allows for flexibility and makes surveillance and monitoring more comprehensive, but increases the amount of permit review time.

Reclamation Bonds

Reclamation bonds are posted according to a bond schedule approved by the Mining Commission. Bond amounts are not, however, considered sufficient to cover today's costs of reclamation activities (grading, stabilizing, and vegetating). The size of reclamation bonds should be increased from their current limits in the bonding schedule to a per acre amount to

more accurately reflect current costs of grading and seeding activities for each type of mining operation conducted in the state. An annual reclamation fee based on the number of acres disturbed could also be created. The resulting fund could be used to cover reclamation costs of projects in default and in need of reclamation that are not covered fully by individual reclamation bonds.

Enforcement

The Land Quality Section staff can inspect a mining operation that is in violation to engage in enforcement actions. However, severe staff limitations prevent attendance to all but the most blatant of violations. Staff may initiate enforcement for mining without a permit (including injunction or potential fines of up to \$5,000 for every day a mine is found to be operating without a permit). Mining in violation of a permit may result in issuance of a Notice of Violation (NOV) which grants a time frame for achieving compliance. Continued non-compliance after the deadline may result in a penalty of up to \$100 per day of violation, beginning with the date the permittee received the NOV. Injunctions may be issued for severe violations or in situations requiring immediate action.

The civil penalties currently charged for violations of mining permits are insufficient. They should be increased from the current standard of up to \$100/day to a flat fee of \$1,000 and up to and \$1,000/day for each violation committed after the permittee's receipt of the NOV (if the compliance deadline is not met). This strategy would bring about greater compliance, replenish the education fund, and provide greater leverage with potential violators.

If the operator fails to complete reclamation, a court order may be issued requiring the operator to reclaim the mine sites. The reclamation bond can be seized and used by the state to complete the reclamation.

The Land Quality Section directs all civil penalty assessments collected for violations of the Mining Act to the educational fund. These funds are distributed for mining-related educational efforts approved by the Mining Commission. Such efforts include training manuals, school curricula, work kits, videos and pamphlets.

In 1991, the Section held 765 mining permits (633 active and 127 inactive) totalling 87,141 acres in permitted acreage. A total of 26,682 acres were disturbed and unreclaimed, and 447 net acres of new disturbances occurred in 1991. Approximately 63 percent of these permits were for sand and gravel mining operations and 17 percent were for crushed stone mining operations. These figures reflect a relatively steady level of mining activity in North Carolina over the past several years.

Funding and Staff

Currently, four full-time staff in Raleigh and three full-time regional staff (spread across seven offices) implement the mining program across the entire state of North Carolina. Staff time is currently almost exclusively dedicated to permit reviews, specifically renewals and modifications. The staff conducts infrequent inspections. An estimated tripling of current staff would be required to fully implement the mining program as the law requires (including plan review, surveillance, annual inspections, and enforcement). The state should create a position for an education representative and technical trainer to help educate the mining industry and the interested public about the requirements of the Mining Act and the protective measures and planning that is needed to protect the public and the environment.

Permit fees instituted in November of 1990 have been used to support one additional staff member and computer facilities.

Opportunities for Public Involvement

A permit applicant must submit to all adjoining land owners and the county manager (chief administrative officer) notice of his intentions to apply for a mining permit. Those parties or the general public have ten days to respond to the notice to request a public hearing on the application. Written concerns or comments are accepted and considered by the Section throughout the permit review process. Significant public interest may warrant a public hearing to be held between twenty and sixty days of the date of the Section's receipt of the application. When a hearing is held, public comments may be submitted for ten days after the hearing to be included in the hearing record. If a permit is issued, notice of the decision by the Director of the Division of Land Resources to issue the permit must then be sent to the applicant, all adjoining property owners, and all interested parties.

Division of Marine Fisheries: Marine Fisheries Commission***Program Objectives***

The Division of Marine Fisheries (DMF) is charged with the stewardship of the marine and estuarine resources of the state of North Carolina. It is responsible for managing all of the state's marine and estuarine resources.

Program Description

DMF is headquartered in Morehead City. It has field offices in Elizabeth City, Manteo, Washington, and Wilmington. The Division of Marine Fisheries has four sections: Operations, Development, Administration, and Research.

Operations Section

The Operations Section of the DMF:

- (1) enforces all statutes and rules governing commercial and recreational fishing in coastal waters;
- (2) manages the fisheries resources of the state through research and preparation of proclamations for the Director and of rules for the Marine Fisheries Commission (MFC), and through the collection and analysis of biological data; and
- (3) protects coastal habitat through permit reviews.

The Operations Section has four management/enforcement districts with offices located in Elizabeth City (with a Manteo satellite office), Washington, Morehead City, and Wilmington. Each district is responsible for biological sampling and law enforcement. In addition, districts resolve conflicts and complaints among local fisheries and provide public services and information. District offices are responsible for resource management in approximately 2.2 million acres of estuarine waters, one-half million acres of ocean waters, and 4,000 miles of coastline. (GS 113-131, GS 113-136, and GS 113-181, and 15A NCAC 3H .0002 define the scope and purpose of the Division of Marine Fisheries, including Operations Section activities.)

Operations Section biologists comment on permit applications (NPDES, CAMA major, environmental statements, and USCOE consistency determinations) for activities that may impact the state's marine and estuarine resources or public trust rights. The Section receives about 350 permit applications each year. Biologist supervisors in the vicinity of each proposed project investigate the site and make recommendations for approval or disapproval, through the Research Section, to the Fisheries Director. The Section forwards comments to the respective permitting agencies for their consideration in issuing the permit.

Sampling

Two main components of the Operation Section's resource management are biological sampling and developing management strategies. The district biological staff conduct fishery **independent** sampling, such as: Pamlico Sound Survey, Juvenile Monitoring Program, Shrimp Sampling, Oyster Shoal Survey, Bay Scallop monitoring, Striped Bass Gill Net Survey, and Albemarle Sound anadromous species. Fishery **dependent** sampling involves sampling fishermen catches; samples are seasonally collected from the following fisheries: pound net, long haul seine, winter trawl, ocean sink net, reef fish, flounder gill net, and Albemarle Sound anadromous fish.

The DMF biological database stores all biological sampling data (primarily since 1978). This database currently contains about four million records; approximately 300,000 are added annually. Portions of this database are regularly transferred to the National Marine Fisheries Service for stock assessments. The database also provides biological attributes for point locations in the Division's (as well as the state's) Geographic Information System (GIS). District biologists analyze this long-term database to develop management alternatives.

Proclamations

Following the guidelines of the Administrative Procedures Act (APA), DMF staff members research, prepare, amend, and administer rules of the Marine Fisheries Commission (MFC). The MFC delegate to the Fisheries Director authority to implement rules for fisheries "which may be affected by variable conditions". The Fisheries Director thereby issues legal public notices, or "proclamations". The Director issues approximately 175 to 225 proclamations annually (prepared by staff members). Proclamations regulate such activities as minimum size limits, catch limits, closure and reopening of polluted shellfish waters, oyster season, and shrimping areas.

Designated Joint Waters and Exclusive Economic Zone

The DMF and the MFC share authority with the N.C. Wildlife Resources Commission (WRC) for designated Joint Waters and for species which migrate between waters under the jurisdiction of the two authorities. The two commissions have jointly-enacted rules that determine boundary lines between their jurisdictions. The Exclusive Economic Zone (EEZ) is three to two hundred nautical miles offshore, and falls under federal jurisdiction authorized by the Magnuson Fishery Conservation and Management Act of 1976. State rules can apply for fisheries in the EEZ for which there are no federal management plans or specific federal rules.

Enforcement

Law enforcement officers patrol their areas by foot, car, and boat. GS 113-135 authorizes general penalties for violations, and increased penalties for prior convictions; GS 113-136 authorizes enforcement authority of officers; GS 113-137 authorizes search on arrest, seizure of property and disposition. Fisheries Rules adopted by the Marine Fisheries Commission (such as 15A NCAC 3K.0202) specify other rules.

GS 113-135, GS 133-187, and GS 113-209 also authorize penalties for violations of fisheries rules. Fines for convicted violators range from \$25 to \$2500, with potential for imprisonment ranging from ninety days to three years. Severity of the penalty is based on the type of violation and the conviction history of the individual. Violations can vary greatly in penalties due to officer discretion. For example, when charged under GS 113-135, non-commercial harvest of polluted shellfish can result in a \$25 fine plus court cost (payable to a magistrate). When charged under GS 113-187, court appearance is required and penalties are increased to not less than \$250 plus court cost. GS 113-209 applies to removal of shellfish from polluted areas between sunset and sunrise, or to repeat offenders; for such violations, the penalty escalates to a minimum of \$2,500 plus court cost.

While some penalties serve as an adequate deterrent, the overall penalty structure needs review, and some penalties should probably be increased. In some cases, the laws and rules are not deterrents, because of loop-holes that effectively decrease the possibility of convictions.

Law enforcement related databases include on-line systems for checking commercial vessel licenses, pound net permits, and warning ticket/arrest convictions. The DMF Communication Center operates round-the-clock, and relays requested information from databases to officers in the field.

The Development Section

General Statutes 113-201, 113-212, 113-203, 113-204, and 143B-289.4 provide authority for the Marine Fisheries Commission to develop and improve the cultivation, harvesting and marketing of shellfish in North Carolina. The Development Section of the Department of Marine Fisheries implements this authority. Specific authority for Development Section programs follows: Shellfish Leases (113-202), Shellfish Transplanting Program (113-203), and the Oyster Rehabilitation Program (113-204).

Shellfish Lease Program The shellfish lease program has existed in some form since 1909. The program considers leasing areas of public bottom that are suitable for shellfish production but which do not contain a natural shellfish bed. These areas must not conflict with other public trust uses, rights of riparian owners, and the Department's designated shellfish areas. Once granted, leaseholders must meet specified production requirements and pay a modest rent on the area they control. Shellfish bottom leases allow for exclusive

shellfish rights only; all other compatible forms of public use of these areas are allowed. Shellfish leases are granted for ten year periods and are renewable indefinitely. The intent of this program is to increase production in marginal areas through private cultivation. Leases for water columns above bottom leases are now authorized.

The Marine Fisheries Commission uses its authority to grant shellfish leases. When specific criteria for site selection are met, the Fisheries Director conducts a public hearing in the county where the proposed leasehold lies. The Director considers the results of any investigations and public comment in making his recommendation on the application. The Marine Fisheries Commission may lease or decline to lease areas based on its determination (from any factors) that the lease will be in the best interest of shellfish aquaculture in the state. Lease holders must file annual reports specifying the amount of materials planted and harvested for the commercial production of shellfish. Report records are available from 1979. When lease holders fail to meet established standards, the Commission initiates action to terminate the lease. The lessee has thirty days to correct any deficiencies.

Oyster Rehabilitation Program The Oyster Rehabilitation Program seeks to enhance production on public bottom lands by planting cultch materials and relaying seed and polluted stocks. Materials are stockpiled at various locations in the coastal area and transported to planting locations aboard one of the five Division Oyster Rehabilitation vessels. Cultch is planted during the summers months when oysters and clams are in spawning condition. Cultch plantings are monitored for three years after planting to assess oyster spat settlement and growth. Records are available back to 1978. After they have grown to harvestable size (in two to three years), oysters and clams are harvested from these areas. Clam and oyster larvae are free swimming and are able to locate, within limits, suitable sites to attach and grow. They are widely dispersed in many of the coastal waters suitable for growth. By providing more suitable areas for growth, natural production is increased.

Shellfish Transplanting Program This program moves shellfish stocks from polluted and slow growth areas to traditional harvest areas for "depuration and grow out". The transplanting process increases the amount of available stocks for harvest and alleviates Law Enforcement problems in closed areas. These operations are carried out by Division equipment and local fishermen.

Other Programs Oyster disease monitoring was initiated in 1988 after the oyster parasite *Perkinsus marinus* was identified as the cause of an outbreak of oyster mortalities. The shellfish mapping program began in 1987. It is designed to categorize North Carolina's shellfish habitats, identify productive areas, and quantify existing populations. The Development Section administers these programs.

The Development Section also conducts an Artificial Reef Program. In order to enhance fishing opportunities, the Section oversees construction of reefs in both inshore and offshore waters, using a variety of materials.

Administration Section

The Administration Section of the DMF is responsible for budget, federal aid program management, purchasing, personnel matters, commercial fishing licenses, public information, resolution of submerged lands claims, and other specialized services to the DMF.

Research Section

The Research Section of the DMF is responsible for coordinating habitat alteration permit reviews, collecting and managing data for the commercial and recreational fisheries statistics program, publishing DMF reports, maintaining the DMF library, and managing data (including the GIS system). Section employees collect data for commercial and recreational fisheries databases, and data management employees are responsible for maintaining all DMF databases.

Funding and Staff

The Operations Section has forty-seven law enforcement positions, fifty biological positions and eleven administrative, clerical and support positions. Section funding is approximately \$4.8 million. Revenue from the sale of commercial licenses accounts for approximately 15 percent of Section funding, and federal aid covers approximately 18 percent; the remainder comes from state appropriations.

Development Section programs are administered by a staff of twenty-two permanent employees and one temporary employee. Annual funding is approximately \$1.5 million. The Administration Section has twenty-three positions and annual funding of approximately \$1.0 million. The Research Section has nineteen permanent and nine temporary positions. Annual funding is approximately \$0.9 million of which federal aid accounts for over 75%.

Opportunities for Public Involvement

The free exchange of ideas and information through public meetings and regional citizens advisory groups is vital to the public rule making process. The public decision-making process involves public hearings, letters, petitions, and personal communications. Throughout the year, DMF receives suggestions for rule changes. DMF and MFC try to channel all changes into a single annual regulatory cycle (the entire process takes about nine months under North Carolina's Administrative Procedures Act).

During the winter, DMF staff members meet to evaluate suggested rule changes, as obtained from the public, the MFC, the DMF staff. They also address compliance with recommendations of cooperative interstate and federal fishery management plans. In late winter, the DMF staff members present group recommendations and draft language to MFC committees. The MFC meets between February and June to formally determine which rules it will take to the public. Proposed rules must be advertised for sixty days, with public hearings held during that period, usually from mid-May to July. The Commission holds from four to six public hearings to receive public comment. These meetings involve at least one inland hearing. Attendance at hearings varies from a handful to hundreds of people, depending on the nature of the proposals. During the mid 1980s, the MFC and the DMF established regional Citizens Advisory Committees to improve communications, especially concerning regulatory needs. The MFC meets in June or July to vote on proposed rules, with approved rules taking effect some time between September to January, depending on need. Rule books are distributed to individuals who purchase a commercial license and to others upon request.

Proclamations by statute must be distributed at least forty-eight hours prior to their effective date, except for closing of polluted shellfish waters which takes effect immediately. Proclamations are distributed by mail or fax to the news media and local fish houses. District offices also post all proclamations. News releases on important activities are distributed to the general public and news media. Approximately 100 news releases are issued annually.

Division employees give numerous presentations to local civic clubs, participate in county environmental field days, and attend MFC public hearings and meetings. Project reports, though usually technical in nature, are available to the public at no charge.

The Oyster Rehabilitation Program annually seeks input from concerned citizens on site selection and cultch planting methods through public meetings or questionnaires.

Division of Parks and Recreation*Program Objective*

The State Parks Act of 1916 (G.S. 113-44.7 et.seq.) established the State Parks System to plan for a statewide system of park and recreation resources. The system's objective is to:

- (1) conserve and protect representative examples of the natural beauty, ecological features and recreation resources of statewide significance;
- (2) to provide outdoor recreation opportunities in a safe and healthy environment; and
- (3) to provide environmental education opportunities that promote stewardship of the state's natural heritage.

Program Description

The Division of Parks and Recreation (DPR) manages the State Parks System which includes state parks, state trails, state rivers and lakes, state natural areas, and state recreation areas.

State Parks

Currently, there are ten state parks, encompassing roughly 17,162 acres, in the Albemarle-Pamlico region. In addition, the A-P region contains five state natural areas (totaling 20,860 acres) and two state recreation areas (totaling 8,534 acres).

State Trails

The North Carolina Trails System Act (G.S. 113-A 83 et.seq.) established a state system of trails in natural scenic areas and in or near urban areas. The A-P region has four such trails, with a total length approximating 120 miles. These trails are part of the state "Mountains-to-Sea Trail".

State Rivers and Lakes

The Natural and Scenic Rivers Act (G.S. 113-A-30 et.seq.) established a system of free-flowing rivers in which water quality and adjacent lands are to be protected to retain the natural and scenic character of streams. There are no natural, scenic or recreational rivers in the Albemarle-Pamlico region.

G.S. 113-35 authorized the Department of Environment, Health, and Natural Resources (DEHNR) to regulate and manage state-owned lakes. Lake Phelps, a 16,600 acre lake located in Pettigrew State Park, is in the Albemarle-Pamlico region.

Sections of the Division of Parks and Recreation

The Division of Parks and Recreation includes three sections: Operations, Natural Resources, and Planning and Development.

Operations Section The Operations Section includes field staff, park superintendents, rangers, interpretation and education specialists, and maintenance personnel.

Planning and Development Section The Planning and Development Section is responsible for facility construction and the development of a statewide system plan (as required by the State Parks Act), and for individual park master plans and designs.

Natural Resources Section The Natural Resources Section was developed in January 1992 to address resource management issues, such as internal and external threats to park resources. This Section also oversees land acquisition for park system units, and the Division's Natural Heritage Program.

DPR conducts minimal monitoring of park resources. The Division receives monitoring support from other appropriate state agencies including the Division of Environmental Management (for water monitoring), and the Division of Soil and Water Conservation (for erosion and sedimentation monitoring). An increase in DPR personnel could provide for regular monitoring and better protection of the park system's natural resources.

Internal Park Threats include DPR construction projects and visitor activities. Natural resource problems associated with these activities are addressed, corrected, and monitored by park personnel.

External Threats (problems that develop from outside park boundaries) are more difficult to address. DPR personnel work with local governments and other adjacent landowners to minimize impacts to the park.

Federal Land and Water Conservation Fund Program

The Division of Parks and Recreation administers the Federal Land and Water Conservation Fund program (authorized by the Federal Land and Water Conservation Fund Act (P.L. 88-578)). This program is a state and federal cooperative initiative to support outdoor recreation, conservation, and recreation planning. The program provides funds to the states and local governments to plan, acquire, and develop recreation areas.

DPR also acquires new parklands through funding from appropriations, state grants (including the Recreation and Natural Heritage Trust Fund), donations, and gifts.

Natural Heritage Program

The Natural Heritage Program serves to identify, inventory, and provide protection for rare and endangered plant and animal species, special wildlife habitats, sensitive wetlands, and geologic landforms. The NHP is discussed in the next section.

Funding and Staff

The total Division budget for Fiscal Year 1992 is \$11 million, of which \$6.6 million is for Operations. DPR employs a staff of 247 persons: over two hundred in Operations, thirteen in Administration, nine in the Natural Resources Section, and twenty in Planning and Development.

Opportunities for Public Involvement

There are several channels for public involvement in DPR activities. The State Parks Act requires revision of the systemwide state parks plan every five years. Plan revision involves statewide public meetings. Public meetings are also conducted to receive public opinion during individual park master plan development.

Public education is a major activity of the Division. Every park that is open to the public has interpretation and education programs. At the district and statewide level, interpretation and education coordinators oversee these programs; the public information office responds to public requests for information.

Division of Parks and Recreation

Natural Heritage Program

Program Objectives

The Natural Heritage Program (NHP) was established in 1976 as a unit of the North Carolina Division of Parks and Recreation. The program's principal purpose is preservation of the state's natural diversity. The N.C. Nature Preserves Act of 1985 requires NHP to submit biannual reports on program activities and progress of toward protecting the state's natural areas and biological resources (NCGS 113A-164.3(4)). Administrative Code (15NCAC 12H.0301 et. seq.) directs procedural activities within NHP.

Program Description

The Natural Heritage Program has primary functions: resource inventory, data services, and protection.

Inventory

Program personnel inventory natural areas and rare species occurrences throughout the state.

Data Services

The Program maintains inventoried information in a computer and map database. Database information is available to other public and private agencies and interested persons, free of charge. The N.C. Wildlife Resources Commission, Plant Conservation Program (within the N.C. Department of Agriculture), and U.S. Fish and Wildlife Service use NHP information on the location and status of endangered and threatened species to administer their rare species-listing and permit review programs. In addition, the NHP participates in the State Clearinghouse process to further provide information on potential habitat impacts for permit programs.

Protection

NHP's protection element enables staff members to work with landowners and public and private groups, to promote natural area and rare species protection. Protection of an area occurs through dedication or registration with the NHP. (Dedication is legally binding and permanent; registration is voluntary). Both forms of protection constitute agreements to manage and maintain important land features. NHP also recommends natural areas for acquisition and protection by public and private conservation organizations.

Funding and Staff

Since 1984, NHP has received \$150,000 per year in appropriated funding. There are currently four full-time and one half-time appropriated staff positions within NHP.

Opportunities for Public Involvement

NHP staff members encourage and assist counties in conducting natural area surveys of local areas. Funds (through the Recreation and Natural Heritage Trust Fund matching grants) and technical assistance are offered for these surveys. These funds are consistently available. (Approximately one grant is awarded each year.)

NHP does not have formal public involvement or education programs. However, staff members routinely offer education materials and presentations. The public makes approximately 7,000 information requests per year.

Division of Soil and Water Conservation
Agricultural Cost Share Program for Nonpoint Source Pollution Control

Program Objectives

The Agricultural Cost Share Program for Nonpoint Source Pollution Control was officially initiated in 1984, under Gubernatorial mandate. It is designed to accelerate the implementation of water quality protection best management practices (BMPs) on agricultural operations "to reduce the input of agricultural nonpoint source pollution into the waters of the State." The Agricultural Cost Share Program focuses its efforts on the control of nutrients, sediments, pesticides, and freshwater adjacent to Primary Nursery Areas.

Program Description

The Agricultural Cost Share Program for Nonpoint Source Pollution Control is a decentralized, voluntary program which reimburses farmers up to 75 percent of the cost of installing any of the 28 accepted Best Management Practices, up to \$15,000. (BMP costs are standardized annually.) The Agricultural Cost Share Program Nonpoint Source Pollution also provides incentive payments for management changes that improve water quality.

In the summertime, farmers apply for technical assistance and BMP cost-share money through any of 100, local, five-member Soil and Water Conservation District Board offices. Local boards then distribute funding, based on budget and pollution control priorities. 100% of the appropriated implementation funds (roughly \$8 million annually) goes to implementation of BMPs.

Soil and Water Conservation Districts receive state appropriations to implement the program directly from the Soil and Water Conservation Commission. Division of Soil and Water Conservation staff members serve as technical support by:

- reviewing and approving management plans (roughly 5,000 per year),
- supplying field staff,
- offering educational outreach, and
- training technicians.

General farm management and conservation efforts are shared with Agricultural Extension agents and with Soil Conservation Service (SCS) district representatives.

Once the Board approves proposed management projects, individual plans are developed with Division of Soil and Water Conservation, Soil and Water Conservation District, or SCS staff assistance, and contracts between the landowner and the Soil and Water Conservation District are signed. Each contract stipulates the requirements of a ten-year implementation agreement and describes cost-sharing details. All plan details are entered into a computerized (Paradox) database maintained by the Division of Soil and Water Conservation in Raleigh.

When the job coordinator certifies each planned control measure (as complete and in compliance with all technical specifications), cost-share money is paid to the farmer.

All waste management BMPs are reviewed annually for the first five years after installation. The Soil and Water Conservation District performs a 5 percent spotcheck of installed BMPs. An additional 5 percent spotcheck may be performed by the Soil Conservation Service.

If a violation of a contract agreement is discovered, through voluntary disclosure or site inspection, and recalcitrance regarding remediation is encountered, the return of all cost-share monies can be demanded.

Participation rates are high and the demands for additional technical and BMP assistance continue to exceed program availability. From 1984 through 1991, Soil and Water Conservation Districts in the North Carolina portion of the A-P region requested almost \$34 million of BMP assistance funds; however, less than \$16 million has been available through the Agricultural Cost Share Program. To date, the Agricultural Cost Share Program for Water Quality Control has covered roughly 35% of all land in need of treatment.

Funding and Staff

The 94 Soil and Water Conservation District Boards are made up of 495 elected (2/3) and appointed (1/3) citizens. Board members donate their time to administer the many programs under District operations. The Division's Nonpoint Source Section supports a staff of six people; two additional "project monitors" are provided through local and federal funds.

Three more regional coordinators should be hired to ensure adequate coverage of all regions of the state. Three more staff should be hired for the Raleigh office: (1) one mid-level staff with technical expertise to assist with plan creation, field support, monitoring, and general education, (2) one grants coordinator, and (3) one clerical staff to increase the efficiency of operations.

The Soil and Water Conservation Commission provides \$1.3 million to the Districts to support some staff and over 100 technical assistants. Local governments provide \$5.4 million for additional administrative and technical support. Funds for technical assistance and BMP cost share should be increased by 25% and 50% respectively to further accelerate the efforts of Districts in the A-P region. The increasingly intense agricultural production (confined animal production and truck crops) calls for immediate action to retrofit old operations and or design new BMPs that will protect water quality.

Opportunities for Public Involvement

Public involvement is an important component of District activities in all their programs, including the Agricultural Cost Share Program for Nonpoint Source Pollution Control. Districts usually hold monthly, open meetings, often with media coverage. Most District field offices also have programs in which they produce articles for local field days for schools; teacher re-certification workshops; speech, essay, and poster contests for local, state, and national competitions; and many other public information activities. In many counties, the Districts and the USDA Soil Conservation Service use local volunteers for a vast array of activities (ranging from general office work to public information activities). The Division of Soil and Water Conservation provides regional coordinators, in part to assist Districts in establishing and maintaining public involvement and education programs.

**Division of Solid Waste Management
Hazardous Waste Section**

Program Objectives

The Hazardous Waste Section of the Division of Solid Waste Management regulates management of the generation, storage, transportation, treatment, and disposal of hazardous waste from generation to final disposal. Its objective is to protect human health and the environment from the adverse effects of hazardous waste mismanagement.

Program Description

The federal Resource Conservation and Recovery Act (RCRA) of 1976, Subtitle C, and the state Solid Waste Law govern management of hazardous waste. The federal government delegates authority to regulate hazardous waste management to the state. The North Carolina DEHNR Hazardous Waste Section has an EPA work plan which outlines the Section's agreement with the EPA, and the state program is monitored by EPA. The N.C. Commission for Health Services has adopted, by reference, federal rules concerning hazardous waste management, and additional rules more stringent than the federal rules.

A hazardous waste is any solid, semi-solid, liquid, or contained gas waste that exhibits ignitability, reactivity, toxicity, or corrosivity or is listed by EPA. The state assigns an identification number to any party involved in a hazardous waste activity, such as: generation, transport, treatment, storage, or disposal. When a waste is transported for treatment, storage, and/or disposal off-site from the point of generation, a uniform manifest must accompany the waste to its destination to provide a tracking system.

Facilities that treat, store, or dispose of hazardous waste must obtain permits (jointly issued by the state and sometimes jointly with the EPA). The permit system ensures that facilities meet RCRA standards. The Section's Raleigh office conducts permitting.

When it was enacted, the RCRA (and amendments) provided a grace period to operating facilities. Those facilities may continue to operate under interim status, but must obtain a permit or close down by a specified deadline.

Currently, the state has no ongoing disposal. Sites of previous land disposal units that have releases of hazardous constituents must obtain post closure permits. These permits define responsibilities for treating and monitoring the site.

Enforcement

Regional offices conduct enforcement in accordance with EPA enforcement guidance. EPA may also elect to directly participate in enforcement activities in the state. Facilities with an EPA identification number are inspected, as follows: (1) treatment, storage, and

disposal facilities are inspected at least two times per year; (2) large generators (approximately 600 in the state) are inspected once per year; and (3) a fraction of small generators (approximately 3000 regulated small generators total in the state) are visited each year.

In addition, there are approximately 2000 generators that are exempt because they produce less than 220 pounds per month. Although these generators have an EPA identification number, they are rarely inspected. Some treatment and disposal facilities require more frequent inspections. A proposed large, commercial facilities may require a full time, on-site inspector.

All facilities conduct self-monitoring. All spills must be reported to the Hazardous Waste Section. A spill report must be followed by a report containing plans to prevent recurrences. Penalties for violations can be as high as \$25,000 per day. When Section personnel observes a serious violation, they issue a compliance order and penalty. A settlement may be negotiated. The Section prefers to emphasize the violator's responsible clean-up in lieu of collection of the full penalty. Collected fines are deposited in the state Emergency Response Fund which pays for the clean-up of emergency hazards.

The EPA database, RCRIS stores information on regulation of hazardous waste management (e.g., identification number, permit data, compliance data, geographic data). The state program adopts new regulations as they are developed by EPA. The development of federal regulations is slow. It is difficult, however, for states to develop their own regulations.

Funding and Staff

The Hazardous Waste Section has a staff of 66. Funding comes from three sources: a federal grant provides approximately \$2 million, a fee system for hazardous waste facilities provides approximately \$700,000, and state appropriations provide approximately \$700,000 to 800,000.

Opportunities for Public Involvement

Public notice must be given when a facility is being considered for a permit and when a facility plans to close. Public hearings are held for permits for new and interim status facilities.

**Division of Solid Waste Management
Superfund Program***Program Objectives*

At the state level, the Superfund program investigates sites for the National Priority List and implements the state clean-up program.

Program Description

The Superfund program is within the Division of Solid Waste Management. The program has two sections: (1) the federally funded section contributes to the implementation of the federal CERCLA and SARA by investigating sites for the National Priority list through a cooperative agreement with EPA; and (2) the implementation section administers the state program in accordance with the Inactive Hazardous Sites Response Act of 1987.

The federally funded section investigates North Carolina sites on EPA's inventory of potentially hazardous sites. Using a hazardous ranking system, the program determines whether to add sites to the National Priority List for further investigation and action at the federal level. For each site, the program examines: (1) likelihood of release, (2) potential effects on target populations, and (3) quantity of waste for each of four potential pathways of contamination (air, surface water, groundwater, and soil contact). EPA conducts further investigation and remediation at these sites. North Carolina has twenty-two National Priority List sites.

The state has an inventory of approximately 950 sites, 850 of which are also on the federal list. The state prioritizes remedial actions. Where there is an immediate hazard, the state may conduct a removal action to address the problem on a short-term basis. The state funds remedial actions: (1) by recovering costs from responsible parties, (2) through a state clean-up fund, and (3) through voluntary actions by responsible parties. The state clean-up fund is minimal and has not received appropriations in recent years. As a result, at this time, over 90% of the state-level clean-ups are conducted through voluntary agreements with responsible parties. The state currently has thirty ongoing voluntary clean-ups.

The Commission for Health Services approves state level program rules. The state section of the program submits an annual report to the General Assembly. Both sections of the program coordinate with the Division of Environmental Management and the Division of Radiation Protection for some sites.

Enforcement

When the state determines that a site requires clean-up, the program first tries to solicit cooperation from the responsible party. If the program does not achieve voluntary cooperation, it can issue an enforcement order. However, the current state program has no additional authority to issue penalties to achieve compliance. As a result, program enforcement authority is quite restricted.

The state program will soon begin to implement a program to record hazardous waste information on property deeds.

Funding and Staff

The federally funded section has a staff of 16.55 federal work years. Currently only 13.55 work years are filled. The federal budget for the program is \$2 million. The state level program has a staff of seven. The state clean-up fund currently has approximately \$300,000.

Opportunities for Public Involvement

Public hearings are held during the planning of a remedial action at a site for both the federal and state clean-ups. For state voluntary clean-ups, public hearings are held only as they are deemed necessary. The program provides public education through phone inquiries and presentations for schools and civic groups. The program receives numerous telephone calls for information, particularly regarding property transfers and liability. Program files are open to the public.

North Carolina Aquariums

North Carolina Aquariums provide educational opportunities for the public to enhance understanding and appreciation for North Carolina's diverse natural resources. Aquaria are located at Roanoke Island, Pine Knoll Shores and Fort Fisher. The Department of Environment, Health, and Natural Resources manages the state's Aquariums.

Aquaria offer many educational activities highlighted by living displays of North Carolina's marine life. Each year, over 50,000 students from around the state and region participate in educational programs. In 1991, the Aquaria were the state's third most visited attraction, with 1.7 million visitors.

The North Carolina Aquarium on Roanoke Island was a 1988 winner of the Today's Aquarist Conservation Award for its exhibit "Secrets of the Salt Marsh" which is designed to educate the public about the value of North Carolina's marshes and estuaries. This permanent aquarium exhibit was partially funded by the A-P Study and private support.

The A-P study funded development of two exhibits, "Striped Bass" and "Precious Waters," for the aquarium at Pine Knoll Shore.

Office of Environmental Education

Objectives

The North Carolina legislature created the Office of Environmental Education in the 1993 long session. *H.B. 976* authorizes the Office of Environmental Education (OEE) to serve as a clearinghouse for environmental information, plan for the Department's future needs for environmental education materials and programs, and coordinate efforts with the state Department of Public Instruction (DPI).

Description

The Office performs several functions:

- OEE maintains a computerized database of existing programs within the Department of Environment, Health and Natural Resources.
- Office personnel work with the Department of Public Instruction to integrate environmental education into the science course curricula.
- The Office evaluates opportunities to set up environmental education centers across the state.
- OEE maintains a speakers' bureau of environmental specialists to address environmental concerns and issues.
- OEE administers the state's Project Tomorrow Awards Program to encourage school children to protect their environment.

OEE is in the process of responding to its recently legislated authority and funding. It plans to continue helping other divisions (within the Department of Environment, Health, and Natural Resources) promote environmental education materials. Future plans may include regional education across the state.

OEE's *Community Relations Unit* serves as a liaison with communities and organizations involved in environmental education programs and staffs the Department's Environmental Education Advisory Team.

The *Special Projects Unit* manages several on-going and one-time projects, including the Project Tomorrow Awards Program, Speakers Bureau and State Fair environmental education exhibit. This unit also serves as the Department's liaison to several programs with either statutory or executive functions relating to the environment.

The *Research Unit* seeks opportunities for the Office to participate in workshops, exhibits, and speaking engagements and to assist in the preparation of environmental education materials.

The *Information and Referral Unit* responds to requests for environmental information, provides materials and staffing for workshops and exhibits, and develops databases containing information on environmental education materials and programs produced both within the Department and from other sources.

OEE and the Albemarle-Pamlico Estuarine Study

The Office of Environmental Education assisted the A-P Study with an environmental education day camp for children (Camp Wanagoma). It plans to assist again with camp sessions planned for 1994. The 1994 camp will include the Sci-Link method of training of North Carolina teachers in environmental education.

The state Department of Public Instruction (DPI) is in the process of updating its statewide science curriculum requirements to include an environmental education component for all grade levels. The "Stewardship Plan" of the third draft of the APES *Comprehensive Conservation and Management Plan* includes a recommendation that the state Office of Environmental Education (OEE) work with the Department of Public Instruction to increase environmental training opportunities for the state's teachers.

Funding and Staff

In 1993, the state transferred all assets (including staff and resources) of the former Waste Management Board to OEE. OEE received funding for six positions, four of which were filled by August of 1993. The Office receives approximately \$280,000 per year in state funds. Additional funding would help the Office provide statewide, environmental education through the regional offices of the Department of Environment, Health, and Natural Resources.

Opportunities for Public Involvement

The purpose of the Office of Environmental Education is to provide the public with environmental information.

**Office of Waste Reduction
Pollution Prevention Program and Solid Waste Reduction Program**

Program Objectives

The Office of Waste Reduction works to help industries, local governments, state agencies, and citizens to reduce waste generation, as outlined in the Hazardous Waste Management Commission Act of 1989 (Senate Bill 324) and the Solid Waste Reduction Act of 1989 (Senate Bill 111).

Program Description

Technical Assistance

The Pollution Prevention Program (PPP) provides to industries free, non-regulatory, technical assistance on multi-media waste reduction. The program provides assistance addressing air and water quality, toxic chemicals, and solid and hazardous waste. PPP provides this assistance through an information clearinghouse, industry specific reports, on-site technical assistance, out-reach and training efforts, and matching grants.

PPP has a training program for state agency personnel that addresses incorporating waste reduction into permits and other regular operations. The Program responds to requests from industries for assistance, usually on a first-come first-served basis. The PPP offers challenge grants to industries to perform demonstration projects. Since 1985, almost 100 projects have been funded, totaling slightly over two million dollars. In 1991, the PPP published a handbook entitled "Using a Waste Reduction Approach to Meet Aquatic Toxicity Limits". This document is one of several free, technical publications offered to North Carolina industries.

The program has no formal procedure for evaluating the impact of its technical assistance; however, PPP is developing a follow-up survey on assistance to industry. The Office of Waste Reduction maintains a database on past PPP and SWRP assistance and a library of technical information concerning waste reduction.

The PPP was the nation's first state program of its kind. EPA considers it to be a model for other programs.

Projects

The PPP is currently working on two EPA grant projects: (1) a compilation of all environmental reporting data (such as NPDES, hazardous waste permits) into one database (the state Division of Statistics and Information is considering adding this information to the state's GIS system); and (2) an assessment of the quality of Toxics Release Inventory Data and development of improved reporting procedures.

The EPA/Tennessee Valley Authority Waste Reduction Resource Center is located in the North Carolina PPP office. This center provides assistance to waste reduction program in all EPA Region IV states.

The Solid Waste Reduction Program (SWRP) implements many of the recycling and waste reduction policy requirements of Senate Bill 111 and House Bill 1109. The SWRP provides technical assistance on solid waste reduction to local governments and state agencies to meet the 25 percent waste reduction goal and other provisions of state laws. The SWRP conducts a statewide training program for recycling coordinators. The SWRP manages the Solid Waste Management Trust Fund which is used to fund research efforts, educational projects, and technical assistance activities and to provide grants to local governments for demonstration projects. The SWRP has a grant with the Cooperative Extension Service to provide public education on backyard composting.

Funding and Staff

The Office of Waste Reduction has a staff of fourteen (six in PPP and four in SWRP). The PPP has an annual budget of \$500,000. In addition, PPP receives some EPA grant funds.

The SWRP is funded in part through the PPP budget, the Division of Solid Waste budget, and the Solid Waste Management Trust Fund. The Office of Waste Reduction has a total annual budget of just over \$600,000.

Opportunities for Public Involvement

The Office of Waste Reduction operates an 800 telephone line to provide information to the public. It also publishes a newsletter, *Focus on Waste Minimization*. Industries receive information on PPP through mailings and requests for proposals for challenge grants for demonstration projects. PPP offers outreach presentations on pollution prevention to industries, trade associations, professional organizations, and citizen groups.

SWRP publishes a directory of recycling contacts. It also publishes articles in newsletters (addressing government officials and the recycling industry) and participates with the Environmental Defense Fund and the Ad-Council in a large scale educational campaign.

Division of Water Resources

Program Objectives

The Division of Water Resources (DWR) is responsible for planning and technical assistance to meet the state's needs for river basin management, water supply, flood damage reduction, navigation, hydrological analysis, hydroelectric power, and recreational use of water.

Program Description

The Division is responsible for a variety of water resources programs. The Division provides technical assistance on water resources engineering, capacity use studies, water supply development for local governments, and water leak detection.

Registration of Large Scale Water Withdrawals and Inter-Basin Transfers

Under Senate Bill 943, the Division is responsible for the registration of large scale (greater than one million gallons per day) water withdrawals and inter-basin transfers. This registry provides the state with data needed to assess water resource conditions.

Water Supply Plans

Senate Bill 157, the "State Water Plan" amendment, requires each local government to prepare a local water supply plan. The Division provides technical assistance in the development of these plans. To assure the availability of adequate supplies of good quality water to protect public health and to support desirable economic growth, the Division will prepare a state water supply plan which includes information and projections from local plans, technical assistance needs of local governments, compatibility of local plans, and recommendations for better coordination of local water supply programs.

Drought Planning

The Division is also responsible for preparing a Drought plan outlining the actions of several agencies in the event of drought conditions. DWR operates the state's Drought Monitoring Council and prepares education materials on water conservation.

Cost-Share Grants

The Division coordinates a program for small, water development, cost-share grants in partnership with local governments and the Corps of Engineers. Grants are given for the following types of projects: navigation, flood control, drainage, stream restoration, beach protection, recreation, and aquatic weed control. The interagency, Aquatic Weed Council oversees and coordinates aquatic weed control activities implemented by the Aquatic Weed Control Program.

Permit Reviews

DWR conducts permit reviews on projects with water withdrawals. It reviews for the impacts of these projects on downstream users. It also reviews dam safety permits for water release and downstream impacts and makes recommendations for minimum flows.

Streamwatch Program

The Division conducts the Streamwatch program whereby citizen groups can adopt a stream, learn about the waterway, learn to recognize signs of waterway stress and health, and take actions to protect water quality. There are 190 Streamwatch groups statewide. A Streamwatch group can conduct a variety of activities on their waterway to monitor and protect the stream (including stream inventories, biological and chemical monitoring, stream improvement, and education). Approximately twenty groups conduct chemical water quality monitoring through this program. Streamwatch groups report any potential water quality problems to DEM regional offices.

Most Streamwatch adopted waterways are in the Piedmont, closer to the larger urban areas of the state. There are very few Streamwatch groups in the A-P region where the APES Citizen's Water Quality Monitoring Network is strong.

Funding and Staff

DWR has a staff of approximately twenty-five, all located in Raleigh.

Opportunities for Public Involvement

The state held public hearings on the rules developed for the water withdrawals registration. The Division prepares public education materials on water resources development, supply, and conservation. The Streamwatch program provides citizens with an opportunity to learn about, monitor, and protect their water resources. The Division may establish citizens' river basin advisory committees in association with a river basin study. DWR is associated with the N.C. Water Resources Congress, a citizens' group that promotes conservation and development of water resources and lobbies for the funding of water resources development projects.

**Wildlife Resources Commission
Boating and Inland Fisheries Division**

Program Objectives

The Boating and Inland Fisheries Division of the Wildlife Resources Commission (WRC) manages inland fisheries and provides for boating access.

Program Description

The Division recommends and implements rules to manage inland fisheries. WRC sells licenses to fish in inland waters. A basic annual state fishing license costs \$15.00 for a state resident. Several other types of licenses and additional privilege licenses may be obtained.

Inland Game Fish

In inland fisheries, there are designated inland game fish. Purchase and sale of these species is unlawful, except from and by licensed commercial trout ponds and fish propagators. Commercial fisheries in inland waters are minor. Inland game fish may be taken only with hook and line. There are size and creel regulations for various species of inland game fish. Spawning areas for inland game fish are designated in special situations, and fishing is restricted in them. There are specific rules for fishing mountain trout based on type of water body (e.g., hatchery supported trout waters, wild trout waters, and catch and release trout waters).

Nongame Fish

Fish not designated as inland game fish are considered nongame fish. Nongame fish may be bought and sold without restriction when caught by hook and line. In most waters, there are no size, season, or creel limits for nongame fish. In addition to hook and line fishing, nongame fish may be taken using special licensed fishing devices.

Enforcement

The Law Enforcement Division of the WRC is responsible for the enforcing these rules. The fine for violations is \$25.00 plus court costs. Replacement costs for illegal takings can be assessed.

Nursery Areas

WRC has designated primary nursery areas in inland waters that serve as nursery areas for marine species. The Boating and Inland Fisheries Division chooses not to designate specific inland nursery areas for inland fish species because these areas include most stream areas. The division prefers protection of the whole stream to the highest level of quality possible.

Project Review

The Wildlife Resources Commission has a project review program housed in the Inland Fisheries Division. The primary function of this program is to review and comment on all projects received from State Clearing house in regard to their impacts on wildlife and fish and its habitat.

Other Activities

Division activities are determined internally according to goals and objectives annually approved by the Commission.

The Division is also responsible for the construction and maintenance of boating access areas and waterway marking systems.

Funding and Staff

The Boating and Inland Fisheries Division has a staff of 96, about 76 of whom are involved with inland fisheries. The inland fisheries management efforts have an annual budget of approximately \$4 million.

Opportunities for Public Involvement

Proposals for major changes to fishing rules must be considered in nine public hearings, one in each WRC district of the state. Usually one set of major rule changes is considered per year.

Fisheries rules are published in the *North Carolina Inland Fishing, Hunting, and Trapping Regulations Digest*. Additional information is made available to the public through news releases and a weekly radio program broadcast statewide.

**Wildlife Resources Commission
Nongame and Endangered Wildlife Program**

Program Objective

The Nongame and Endangered Wildlife Program directs the conservation and management of the state's nongame and endangered species.

Program Description

This Program is a part of the Wildlife Resources Commission (WRC). It implements the state Endangered Species Act of 1987. The program lists the state's endangered, threatened, and special concern species of mammals, birds, reptiles, amphibians, mollusks, and freshwater fishes and protects them from take or collection. (Protection through listing of threatened, endangered, and special concern species of crustaceans may soon be approved by WRC.)

State Listed Species

Protection of habitat for state listed species is more limited than that provided for federally listed species. WRC has the authority to list the critical habitat of listed species but no authority to protect these areas. Critical habitats of listed aquatic species may be protected by the Environmental Management Commission.

Scientific councils prepare proposals for listing of species, one for each taxa (mammalian, avian, etc.). Councils are composed of wildlife researchers. The council makes many proposals, which are based on recent historical information. The Commission's Nongame Wildlife Advisory Committee reviews the proposals. The Nongame and Endangered Wildlife program conducts surveys on species proposed for listing and attempts to fill information gaps on listed species. Currently 200 species are state listed; the majority are listed as special concern.

WRC is considering adoption of critical habitats to protect listed aquatic species; thirty-four have been proposed. When these habitats are designated, the Environmental Management Commission must consider each for High Quality Waters designation and protection.

Data Management

The Nongame and Endangered Wildlife Program maintains information on the natural history and distribution of listed species. This information is maintained in a segment of the same software used by the Natural Heritage program to document biological and sitings information. The Nongame and Endangered Wildlife Program and the Natural Heritage Program share information on species observations.

Enforcement

The enforcement section of the WRC enforces takings restrictions for state listed species. The Nongame and Endangered Wildlife Program trains enforcement personnel concerning endangered species. Violators may be fined a minimum of \$100 for the first violation and a minimum of \$500 for any subsequent violation. Fines do not adequately deter violations, especially because listed species can become quite valuable and a fine for a taking may only be a small fraction of the market value of the animal taken.

The Nongame and Endangered Wildlife Program can issue permits for taking listed species for educational and research purposes.

Project Review

The Nongame and Endangered Wildlife Program reviews development projects that involve wetlands, highway construction, coastal development, and hydropower facilities, as well as activities requiring state or federal environmental impact statements. If a project would destroy or damage listed species or their habitat, WRC recommends measures to avoid or minimize effects. The State Clearinghouse provides opportunity to review and comment on all projects involving government funds or requiring government approval.

Enhancement

The Program has conducted several successful enhancement activities, including peregrine falcon and bald eagle reintroduction, sea turtle nesting protection, and colony nesting water bird management.

A-P Study

The N.C. Wildlife Resources Commission, 4-H, WRAL-TV, and private companies are part of an expansion strategy for a statewide aquatic program. The goal is to increase public awareness and institute a sustained, multi-age education program.

Division of Wildlife Management

The Division of Wildlife Management is responsible for WRC management, regulatory, and research program on wetlands, marshes, and swamps. This division also sets hunting seasons on waterfowl and species common to the Albemarle-Pamlico Estuarine Study area.

Funding and Staff

The Nongame and Endangered Wildlife Program has an annual budget of approximately \$400,000. Its staff of six includes three biologists, a field supervisor, a director, and a secretary. In addition, the program currently has two additional temporary biologists. Funding comes solely from federal funds under the ESA and from donations received through the state income tax refund checkoff. The 1993 N.C. General Assembly authorized the sale of Wildlife License Plates for vehicles, of which a portion of the fee would be dedicated to nongame wildlife activities of WRC.

Opportunities for Public Involvement

Public hearings will be held concerning the designation of critical habitat for listed aquatic species. Species listings appear in the *North Carolina Register* and are publicized in news releases. The Nongame and Endangered Wildlife Program provides education posters and some funding for WRC Project WILD education efforts, but the program staff have little time to prepare public education materials. The program published a "Watchable Wildlife Viewing Guide" in 1992.

NORTH CAROLINA DEPARTMENT OF INSTRUCTION
N.C. Department of Community Colleges

Objective

The purpose of the state's community college is to support economic growth and prosperity through education. All of the institutions in the North Carolina Community College System offer vocational/technical training and basic education to prepare adults for the job market. The majority of institutions also offer the first two years of a baccalaureate program.

The state statutes (115D) define the mission of the system as "the establishment, organization, and administration of a system of educational institutions throughout the state offering courses of instruction in one or more of the general areas of two-year college parallel, technical, vocational, and adult education programs".

The statutory mission statement mandates provision of basic academic education for adults through the high school level. This statement places high priority on two programs:

- Vocational and technical education
- Basic academic education for adults

Description

The North Carolina System of Community Colleges contains fifty-eight community and technical colleges, twenty-five of which are in the A-P Study area. There are close to 800,000 students enrolled in the state's community colleges. The primary emphasis of every college is on-job training, and most programs are in vocational and technical areas.

A few community colleges and technical institutes, mostly outside the A-P Study area, have programs in commercial fishing, environmental science technology, fish and wildlife management technology, marine maintenance, marine technology and soil and water conservation technology. Some colleges have individual courses for exploring marine environment and biology.

There has been no systematic review of the community colleges' outreach and extension activities relating to coastal water quality and estuarine protection. These programs could address a variety of topics, depending on the expressed needs of adults in the community.

Funding and Staff

1991-92 sources of funding for the community college system are listed below:

Local support	14%	Federal Support	3%
State support	71%	Tuition	12%

Department of Public Instruction

The Department of Public Instruction (DPI) shares educational materials with representatives of the Pamlico-Tar River Foundation, who in turn conduct lessons in the schools. Teachers are sometimes recruited to have their classes involved in Citizens Monitoring. Teachers are informed that environmental groups are an educational resource.

"North Carolina Coastal Plain: A Geologic and Environmental Perspective" is an eight-part video accompanied by scripts and a student activity guide. This package was developed by the N.C. Department of Public Instruction, East Carolina University, and Texasgulf, Incorporated. It correlates with the eighth grade Standard Course of Study in social studies and science, and is suitable for grades four through twelve. Materials may be obtained through UNC Sea Grant for thirty dollars.

Representatives of appropriate state agencies have been invited to teacher workshops in order to apprise teachers of the educational services available and of the involvement of state agencies in conservation.

DPI is in the process of updating its statewide science curriculum requirements to include an environmental education component for all grade levels. The "Stewardship Plan" of the third draft of the APES *Comprehensive Conservation and Management Plan* includes a recommendation that the state Office of Environmental Education (OEE) work with the Department of Public Instruction to increase environmental training opportunities for the state's teachers.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Division of Highways

Program Objective

The North Carolina Department of Transportation (DOT), Division of Highways, is responsible for construction and maintenance of the state highway system. This Division includes the Planning and Environment Branch and the Construction Branch which contain the Environmental Unit and the Roadside Environmental Unit, respectively.

Planning and Environment Branch

The Planning and Environment Branch is the in-house service unit that addresses environmental issues relating to highway planning projects. This Unit prepares environmental documents (as required by the National Environmental Policy Act (NEPA) for federally funded projects, the State Environmental Policy Act (SEPA) for state funded projects, and various other environmental regulations and laws).

The Roadside Environmental Unit

The Roadside Environmental Unit of the Construction Branch administers the Erosion and Sedimentation program including the High Quality Water process. The erosion and sedimentation program was initiated in 1971. The Sedimentation Pollution Control Act of 1973 regulates the Program to prevent erosion on highways and subsequent sedimentation.

Program Description

A typical DOT project for large construction work passes through four phases: thoroughfare phase, feasibility phase, document and project planning phase, and project design and construction.

During the thoroughfare phase, local city or county planning bodies determine their needs and inform DOT of their decisions.

During the feasibility phase, the State Transportation Board (with fourteen divisions statewide) determines project feasibility and cost. After the State Transportation Board approves a project, the project is placed in the State Transportation Improvement Plan and scheduled for further action. The document and project planning phase follows.

During the document and project planning phase, DOT assigns to a project engineer responsibility for all aspects of the project. The first step of this phase is to develop alternatives for the project. Next, a scoping process is initiated to receive ideas on the alternatives from state, federal, and local agencies and the public. At this time, the Environmental Unit evaluates alternatives and makes recommendations to the project engineer

who then develops the draft, environmental document. The DOT engineer circulates the draft document, brings it to public hearing, and completes it. After applying for a variety of environmental permits, DOT sends the project on to the next phase.

The final phase is the construction phase. It includes acquisition and contracts.

Environmental Unit

Many DOT projects are contracted to private engineering firms. These firms are responsible for developing the environmental documents, subject to review by the Environmental Unit. The Environmental Unit addresses natural and human environmental issues involved in the planning phase of a project.

The Environmental Unit is also responsible for advising other DOT units on environmental matters related to their activities. For example, this Unit may advise the Design Unit about sensitive environmental areas that must be avoided.

Roadside Environmental Unit

The N.C. DOT has a delegation agreement with the Sedimentation Pollution Control Commission allowing N.C.DOT to operate its own Erosion and Sediment Control Program. The Roadside Environmental Unit designs its own erosion and sediment plans, monitors its projects with in-house inspections, and receives annual review from the Sedimentation Pollution Control Commission for compliance with the delegation agreement.

Each erosion and sediment plan contains an inspection schedule. The Roadside Environmental Unit inspects a typical major contract project once a month. (In 1991, the Unit conducted 3,850 inspections of land disturbing projects.) Inspectors examine for use of proper techniques and mechanisms for erosion and sediment control, and decide whether erosion and sediment are under control. Inspectors also monitor parameters such as water color, erosion on slopes, and sediment in streams.

If DOT finds a project to be in violation of its plan, the Department takes in-house administration action to prevent off-site movement of soil and sedimentation. Such action may include issuance of an Immediate Corrective Action (ICA) notice or, in severe cases, a Stop Order (until the action is remedied). DOT does not issue monetary fines for any noncompliant project. Between August and December 31 of 1991, DOT issued thirty-five ICAs.

The N.C. Division of Land Resources conducts random inspections of DOT projects for compliance with erosion and sediment plans. Projects found to be noncompliant may be issued a notice of violation (NOV). The Sedimentation Pollution Control Commission

"delegation review" includes these inspections as well as a review of DOT administrative procedures and program effectiveness.

The Roadside Environmental Unit is also responsible for managing roadside vegetation (including species selection, planting and maintenance) and managing highway rest areas and welcome centers.

Funding and Staff

The Environmental Unit employs twenty-six people, including biologists, archaeologists, a sociologist, a community planner, noise analysts and air quality experts, architectural historians, and permit and mitigation experts. Unit funding comes from federal and state highway trust funds.

The Roadside Environmental Unit has a staff of 450 people, including field staff and central office personnel.

Opportunities for Public Involvement

The State and Federal Highway Administration requires a formal public hearing and meeting process for highway projects, in accordance with NEPA/SEPA. DOT holds a public information exchange meeting during preparation of the environmental document. The draft environmental document is made available to the public through the first public hearing (the corridor hearing). DOT then completes the project design. Following completion of the project design, DOT holds a second public hearing, the design hearing. (DOT holds combined public hearings in cases involving widening projects and urban projects. Separate hearings are held for new location projects.)

DOT is currently moving toward "open-house hearings" which are less formal one-on-one discussions, rather than the traditional hearing process.

NORTH CAROLINA OFFICE OF STATE PLANNING

The Governor's Office of State Planning was created in 1991, and includes the State Data Center, the State Demographic Center, the Center for Geographic Information and Analysis, and planning staff. The Center for Geographic Information and Analysis is described in the following pages.

North Carolina Center for Geographic Information and Analysis

Agency Objective

In 1977, the Center for Geographic Information and Analysis (CGIA) was established as "Land Resources Information Service" through provisions of the *N.C. Land Policy Act of 1974* (G.S 113A, Article 9). CGIA is located in the Office of State Planning.

In 1991, Governor James G. Martin signed *Executive Order 147*, formalizing a statewide geographic information coordination effort for the purpose of:

"furthering cooperation among State, federal, and local government agencies; academic institutions; and the private sector to improve the quality, access, cost effectiveness and utility of North Carolina's geographic information and to promote geographic information as a strategic resource for the State."

Executive Order 147 established the state's Geographic Information Coordinating Council and its advisory role to the Governor, the Legislature and the Information Technology Commission. In May of 1993, Governor Hunt signed *Executive Order 16*, expanding the composition of the Coordinating Council to include more federal and local representatives. The expanded Council has eighteen members. This executive order also changed the oversight body to the "Information Resource Management Commission" (IRMC).

The Council guides CGIA and the state's use of geographic information, GIS systems and related technologies. Stated purposes of the Council are:

- strategic planning;
- resolution of policy and technology issues;
- coordination, direction and oversight; and
- advising the Governor, Legislature and the Information Resource Management Commission regarding geographic information direction, responsibility, and funding.

The mission of the Center for Geographic Information and Analysis (CGIA) is to:

- build and maintain a statewide database of digital geographic information;
- provide Geographic Information System (GIS) services to other governmental agencies, universities and the private sector; and
- address GIS coordination within state government.

Agency Description

CGIA serves as the official repository of the state's digital geographic data. It is also the state-designated, lead coordinating agency for geographic information. CGIA has extensive experience in the application of GIS technology to natural and cultural resource management. The Center operates five units: Technical Support, Database Administration, Production Services, System Administration, and Client Services.

Clients and Services

Since its inception, CGIA has performed hundreds of GIS projects for users. In the process, the Center has assembled a "corporate database" of statewide, digital geographic information. The database consists of more than fifty-five data layers, ranging from transportation and hydrography to census boundaries and more specialized data (such as fish nursery areas and submerged aquatic vegetation).

CGIA provides the following services on a cost-recovery basis:

- Geographic database development,
- Data distribution,
- Preparation of custom maps and reports,
- Spatial analyses using GIS capabilities,
- Training on the CGIA system,
- Network access to a growing statewide database,
- Systems integration assistance, and
- Needs analyses to determine GIS requirements.

CGIA acts as the data management center for the Albemarle-Pamlico Estuarine Study. One of the Center's primary responsibilities is the development and maintenance of the A-P database.

CGIA clients include other state agencies, federal and local governments, regional organizations, academic institutions, and the private sector.

Primary CGIA clients include:

- State agencies;
- Federal agencies;
- Universities;
- County and local governments;
- Regional organizations;
- Private firms and consultants.

CGIA's involvement with the N.C. Department of Environment, Health, and Natural Resources includes the following divisions:

- Albemarle-Pamlico Estuarine Study;
- Division of Marine Fisheries (DMF);
- Division of Coastal Management;
- Division of Environmental Health;
- Division of Parks and Recreation;
- Planning and Assessment;
- Division of Environmental Management (Water Quality Section);
- Division of Environmental Management (Groundwater Section);
- Division of Environmental Management (Air Quality Section);
- Division of Land Resources;
- Division of Solid Waste Management;
- Division of Soil and Water;
- Division of Water Resources; and
- Wildlife Resources Commission.

Software Packages

The Center operates two software packages: ARC/INFO and ERDAS. ARC/INFO (produced by Environmental Systems Research Institute) is the Center's primary geographic information system. ERDAS provides an image processing capability.

Conferences

In 1993, GGIA worked with the Triangle J Council of Governments and the North Carolina Urban and Regional Information Systems Association (URISA) to sponsor and hold the fourth, biennial "North Carolina GIS Conference."

Close to a thousand people attended the conference that was aimed at government and utility company officials, GIS professionals, planners, emergency and land records managers, tax assessors, information specialists, natural resource managers, environmental scientists, educators and others. Besides North Carolina residents, attendees came from many other states. Cost for the two-day conference was fifty dollars.

The conference included GIS hardware and software demonstrations and a large variety of workshop sessions.

Videos

CGIA provides the following free videos for use by groups, agencies and schools:

- A Coastal County in 2010 A.D.: Planning with Geographic Information Systems (produced by CGIA and the Albemarle-Pamlico Estuarine Study);
- GIS: Develop the Future (produced by CGIA and the Albemarle-Pamlico Estuarine Study); and
- Planning for the Future with GIS (produced by CGIA and the N.C. Department of Transportation and the Department of Environment, Health, and Natural Resources).

Coordination Efforts

In accordance with Executive Order Number 16, statewide geographic information coordination is led by the Geographic Information Coordinating Council (GICC), its subordinate committees, and CGIA. GICC's three subordinate committees are: The State Government GIS User Committee, the State Mapping Advisory Committee (SMAC), and the Affiliated GIS User Group Committee.

CGIA also works cooperatively with many federal agencies, including the USGS National Mapping Division (NMD) and Water Resources Division (WRD), U.S. Soil Conservation Service (SCS), Census Bureau, Forest Service, National Marine Fisheries Service and the U.S. Army Corps of Engineers.

Staff and Funding

CGIA has a staff of more than thirty people. Although most staff members are located in Raleigh, the Center's Asheville field office employs five people. In the Center's Raleigh headquarters, the Client Services and System Administration units each have one employee, the Technical Services unit has three staff members, the Production Services unit employs four people, and the Database Administration unit has twenty personnel.

CGIA operates without direct state appropriations. Consequently, the Center functions as a receipt-funded agency, supporting the state's geographic information management program through cost-recovery based agreements.

Over the past four years, the Albemarle-Pamlico Estuarine Study has funded development of numerous CGIA data layers. These data layers contain useful information for local, regional and state agencies. Because it receives no State funding, CGIA is unable to provide easy and inexpensive access to this database. Direct state appropriations would increase affordability and accessibility of these data to all levels of government.

Opportunities for Public Involvement

Governor Hunt's 1993 Executive Order 16 lists CGIA's duties, including the responsibility to provide "a wide variety of GIS related training services and education programs."

Although opportunities for public involvement are not yet formalized within CGIA, the Center invites public participation in several ways:

- (1) ***Representation on the Coordinating Council (GICC):*** One seat on the Council is filled by a non-government representative. An additional seat is filled by a representative from the Affiliated User Group Committee (which is composed of non-state government representatives).
- (2) ***Conferences:*** CGIA co-sponsors biennial GIS conferences (described previously). CGIA presents demonstrations at these conferences. Center personnel also provide public demonstrations at other conferences and meetings.
- (3) ***Videos:*** The Center provides free videos to the public. (See preceding description).
- (4) ***Newsletter:*** CGIA is compiling a mailing list and developing a newsletter to extend outreach efforts to over 3,500 people in North Carolina. The newsletter will provide information about CGIA activities and local GIS system development. This newsletter should help link CGIA clients, GIS users, and interested parties.

Increased public outreach could be achieved by establishing state-funded, regional GIS work stations for government use, as well as increasing public displays and demonstrations (such as "education stations").

UNIVERSITY OF NORTH CAROLINA SYSTEM

North Carolina Cooperative Extension Service

Program Objective

The North Carolina Cooperative Extension Service is an educational organization supported by federal, state, and county governments. The mission of the Extension Service is to help people to improve the quality of their lives by providing scientifically-based information and informal educational opportunities focused on issues and needs. Programs are conducted by county, regional, and state professionals with the support of administrators from N.C. State University and N.C. A&T State University. Volunteers working with professionals play a vital role in program development and implementation.

In the early years of the Extension Service the primary focus of education was development of a productive and profitable agricultural industry. The Extension Service has now expanded its programs to address a broad range of societal needs including environmental issues, particularly water quality and waste management. The N.C. Agricultural Extension Service changed its name to the N.C. Cooperative Extension Service in 1991 to reflect its broader focus.

Program Description

Nationally, the Agricultural Extension Service was developed in 1915 with the passage of the Smith-Lever Act. Subsequently, each state established a program based at its Land Grant university(ies). The North Carolina Extension Service has a network of centers and agents in every county in North Carolina and on the Cherokee Indian Reservation. Local program needs and priorities are determined with the assistance of broad-based advisory groups. These needs are consolidated into a state long range plan. Approximately 26,000 citizens were involved in the development of the current plan.

Water Quality Programs

The N.C. Cooperative Extension Service (NCCES) sponsors an educational program committed to improving water quality. Examples of water quality programs supported by the Extension Service include:

- increasing public understanding of the nature and importance of water resources;
- developing water conservation strategies and improving water management among residential, agricultural, and industrial water users;
- minimizing pollution of surface water and groundwater supplies through the proper management, application and disposal of agricultural, municipal, and industrial wastes, pesticides, fertilizers and hazardous household chemicals; and
- developing educational programs that guide citizens, industries and local governments in establishing a consensus on public policy related to surface water and groundwater.

Through its Water Quality Initiative, Extension develops and disseminates fact sheets and more comprehensive publications, conducts meetings and workshops, hosts tours, establishes demonstrations and works with newspapers, radio and television. It teaches farmers and other land users proper management of pesticides, commercial fertilizers and animal wastes, sediment control, and water management techniques. Use of Best Management Practices (BMPs) to prevent pollution of water bodies is encouraged. Other programs focus on increasing awareness of water quality issues among public officials, young people, and the general public, and changing behavior which results in pollution.

The A-P Estuarine Study supported an Extension Service project involving a series of four leadership development workshops and development of a handbook on water quality impacts of nonpoint source pollution. This project was designed to promote public understanding of and support for the A-P Study through increased awareness and involvement of local leaders, professional agricultural workers, and concerned citizens.

Waste Management Programs

Solid waste management is another issue receiving substantial Extension emphasis. Examples of waste management programs include:

- developing alternatives to conventional septic tank systems (particularly for areas where the water table or soil type makes conventional systems impractical);
- increasing public awareness of and support for source reduction, recycling, composting and other methods to reduce disposal of solid waste in landfills;
- educating people to view and utilize treated industrial, animal and human waste as a recyclable nutrient resource for cropland, not as a hazardous waste; and
- educating citizens, industries and local governments in developing unified public policies for waste management.

Educational methods are similar to those used for water quality programs.

Environmental Education

The Cooperative Extension Service through its 4-H Youth Development Program has several curricula which are age appropriate and address environmental issues. Delivery of the curricula occurs through trained volunteers in four delivery modes. These modes include clubs, special interest, camp, and school enrichment. The curricula delivered is experiential and focuses on problem-solving as opposed to telling youth the solution. In addition, the curricula are sequential and multi-disciplinary, which creates a more holistic approach to environmental education. These factors have resulted in a statewide increase in environmental education participation from 26,000 in 1988 to 104,000 in 1992.

Examples of environmental programming include:

- increasing the awareness of 5-9 year olds regarding marine and estuarine environments and their importance to the food chain;
- one-to-three day camps for youth in grades 2-8 on issues their class selects;
- increasing fifth graders' awareness of the interrelatedness of waste management, air and water quality, forests and wildlife habitat;
- a five-day camp for 11-15 year olds which focuses on outdoor ethics; and
- increasing awareness of global environmental issues among high school aged students.

"Project Learning Tree" (PLT), co-sponsored by Extension and the North Carolina Forestry Association, provides lesson plans on forestry issues for teachers and other educators working with students in kindergarten through 12th grade.

Funding and Staff

Statewide, there are approximately 700 professional staff members in the Cooperative Extension Service (530 county and area agents and 150 specialists). Approximately 1/3 of the agents are located in the APES area, with from two to nine professional in each county center. Most of the specialists are located at NCSU. However, several are based at the Vernon G. James Research and Extension Center at Plymouth. Most of these agents work with the agriculture community and address water quality related issues as part of their programs.

In September 1993, a public policy education specialist was hired with special USDA funds to increase knowledge and understanding of the causes of water degradation in the APES area and management policies available to improve water quality. This is a three year project.

Total annual budget for the Extension Service is approximately \$60 million. Forty-five percent of this funding is from state government, 25 percent is from county government, 20 percent comes from federal government, and the remaining ten percent comes from private contracts and grants.

The Institute of Government

The Institute of Government was founded in 1931/1932 to help state and local officials improve governmental administration and policy making. It is the largest and most diversified university-based governmental training and research organization in the country.

Institute faculty members educate and advise officials at all levels of government in the state. Because the Institute is politically independent, its faculty members do not advocate changes in governmental policies.

Agency Description

The Institute of Government is housed in the Joseph Palmer Knapp Building on the UNC Chapel Hill campus. The Knapp Building consists of several offices, three classrooms, eight conference rooms, a library, and an auditorium. The Institute's residence hall accommodates sixty people. Its library contains over 15,000 volumes, more than 25,000 pamphlets, and more than 800 journals and periodicals.

Institute activities involve research and writing, teaching, consulting and legislative reporting.

Research and Writing

Institute publications for North Carolina officials include textbooks, manuals, guidebooks, monographs, reports, bulletins, and two quarterly journals. Institute projects originate from faculty initiative and outside requests.

Teaching

The Institute provides in-service training for elected and appointed officials at municipal, county and state levels. Each year the Institute offers over 200 courses to new and experienced government officials. These courses address relevant laws, programs, and administrative procedures. Over 12,000 people attend Institute courses each year. Institute courses are attended by mayors, city council members, city managers and department heads, city and county attorneys, county commissioners, county managers, public school administrators, public health officials, planners, finance officers, school board members, judges, district attorneys, and others.

The Institute does not offer courses for degree credit. However, several of the Institute's faculty members teach courses elsewhere in the University.

Consulting

Institute faculty consult with state and local officials and agencies and with legislative committees. Consulting activities range from telephone responses to legal or administrative questions to working with groups of citizens to incorporate new municipalities. The Institute occasionally drafts legislative bills.

Legislative Reporting

The Institute has maintained a reporting service for every state legislative session since 1935. It publishes summaries and analyses of legislative proceedings in its *Daily Bulletin*, *Weekly Status Report*, and sessional summaries.

Funding and Staff

The Institute of Government has one director, one associate director, thirty-five faculty members and forty-three support personnel.

Twenty-six of the Institute's faculty members hold law degrees; other specialize in public administration, public finance, psychology, organizational management, accounting, planning, property tax assessment and collection, library science, and economics.

Sixty percent of the Institute's financial support comes from state appropriations to the University of North Carolina. The remaining revenue comes from city and county membership dues, sales of publications, course registration fees, and reimbursements for direct costs incurred in serving particular governments.

Opportunities for Public Involvement

The Institute conducts research and provides consultation at the request of governmental agencies or governmental clients. It provides courses for governmental officials. Several Institute publications are available to the public through public libraries.

North Carolina Sea Grant
(see also, U.S. Department of Commerce, National Oceanic and Atmospheric Administration)

Objectives

The mission of North Carolina Sea Grant is to bring the best in applicable research, innovative education, and sound advice to coastal North Carolina in an effort to maintain a high quality of life and balance competing needs for resources.

Description

The National Sea Grant Office is housed in the National Oceanic and Atmospheric Administration in the office of Oceanic Research. There are 29 Sea Grant programs (one in each of the coastal states and commonwealths of the U.S. and in each of the states bordering one of the Great Lakes). Together they tackle issues of regional or national concern. The UNC system administers the N.C. Sea Grant College.

Each Sea Grant program operates in four capacities: marine and coastal research, extension, education, and communications.

Sea Grant assembles teams of scientists from the state's top universities to tackle coastal problems such as diminishing water quality, declines in fish stocks, habitat degradation, coastal erosion, and the economic impacts of coastal regulations. Other Sea Grant research teams look to the future as they discover new ways to process seafood, develop aquaculture techniques, and explore the continental shelf for the keys to ocean productivity. Projects are selected on their scientific and applicability merits.

The Marine Advisory Service (extension agents and legal specialists) work out in the field helping fishermen, teachers, and concerned citizens better understand their coastal environment. Sea Grant's advisors bridge the gap between the scientists and the coastal community, altering researchers to problems and needs, and transferring research results to the public, local officials, and resource managers. Printed materials, workshops, and technical assistance are made available to a wide variety of user groups. Curricula and materials guiding educational activities are produced and distributed by and with the support of the Sea Grant office and the expertise of the Sea Grant Education Specialist.

A staff of professional communicators are responsible for distributing information about Sea Grant research and advisory service activities. The communicators produce printed materials such as fact sheets, scientific booklets, newsletters, news magazines, and news releases (designed to meet the needs of various audiences) about current coastal issues and marine and coastal scientific discoveries.

Research

Results of Sea Grant research have benefitted the Albemarle-Pamlico Estuarine Study, numerous other state agencies, and several private entrepreneurs. Several examples of Sea Grant-funded research can be found in the APES *Status and Trends* report.

Publications

The college publishes results of Sea Grant-funded research in reports and scientific journals. Sea Grant distributes a subscription magazine, *Coastwatch*, to 4,000 subscribers. The newsletter provides overviews of funded research projects. Sea Grant agents and specialists initiate and support education workshops. The workshops provide techniques and information for employing research results in industry, agriculture, and fisheries.

Sea Grant regularly publishes five newsletters.

Educational Materials

Sea Grant helped the N.C. Coastal Federation in producing *The Citizen's Guide to Coastal Water Resource Management* (currently out of print). This guide provided information for public involvement in management policies.

A Sea Grant education specialist assisted in teacher in-service programs that provided techniques and information concerning watersheds, plastics in the marine environment, and ecological activities.

A set of marine education curriculum materials is available for teachers and 4-H staff. A primary curriculum guide, *Coastal Capers*, is available for kindergarten through third grade students. Other Sea Grant publications support field trip activities.

Special Projects

"The Big Sweep" is a multi-agency, public and private program initiated by UNC Sea Grant, the Division of Coastal Management and the Division of Parks and Recreation. It focuses on litter as a visible symbol of habitat degradation and public responsibility, and on citizens' ability to take corrective action.

Staff and Funding

Sea Grant has a staff of 12 full-time equivalent and two administrators. The Program's total annual budget is approximately \$2 million per year (including salaries, research, and all other expenses.)

UNC Water Resources Research Institute (WRRI)

Objectives

The UNC Water Resources Research Institute (WRRI) is a unit of The University of North Carolina with offices located at N.C. State University in Raleigh. The Institute's mission is threefold:

- to identify the state's water-related research needs.
- to motivate and support research by qualified scientists and train graduate students.
- to provide for technology transfer.

Findings from research funded by the Institute help local, state and federal agencies make better decisions in managing water resources.

Description

To formulate a research program responsive to state water resource problems, the Institute works closely with the NC Department of EHNR and other agencies. An Advisory Committee provides guidance and review. A Technical Committee of university faculty representing many disciplines also lends professional expertise to Institute programs and activities, particularly in research.

Advisory Committee

The Advisory Committee of WRRI is made up of representatives from state and federal programs, local governments, industry, environmental organizations, private consultants, water and wastewater treatment plants, the university research community and others. This Committee advises WRRI on the need for water-related research in the state, the region, and the nation. Water resources and water quality issues recently identified by the committee for priority attention are listed below:

Surface Waters

- Toxic Substances
- Low Flows
- Assimilative Capacity
- Nonpoint Source Pollution
- Climate Change

Urban water Management

- Watershed Protection
- Water and Wastewater Treatment
- Urban Storm water Management
- Management of Small Systems

Groundwater

- Climate Change (and other Surface Water issues)
- Pesticides
- Hydrocarbon Contamination
- Landfills

- Sludge Disposal

WRI and the Albemarle-Pamlico Estuarine Study

WRI has supported more than thirty-five research projects on North Carolina's estuarine and coastal water problems. The Institute has published and made available to the public reports on these projects. WRI also conducts workshops on coastal water issues and publishes a newsletter as part of its technology transfer and educational efforts.

The institute has been closely involved with individual research projects and technical transfer aspects of the Albemarle-Pamlico Estuarine Study. WRI has managed four research projects, including submerged aquatic vegetation (SAV), toxic dinoflagellate, land use changes and restoring scallop beds. The Institute conducted three workshops on water quality modeling, fish diseases and remote sensing. The Institute continues to support the A-P study in developing management strategies for the A-P estuarine system.

Recent WRI research projects for the A-P Study include the following studies:

- Burkholder, JoAnn. 1992. *Coastal Eutrophication and Disappearing Submerged Vegetation*. (50178)
- Burkholder, JoAnn. 1992. *The Role of a New Toxic Dinoflagellate in Estuarine Finfish and Shellfish Kills in the Neuse and Pamlico Estuaries*. (50179)
- Holman, Robert. 1992. *Evaluation of Land-Use Changes Within the APES Area Utilizing the GIS* (50172)

Funding and Staff

In 1990-92, support for the Institute came from USGS and individual matching grants and support from the State of North Carolina through the University of North Carolina system. This was supplemented by the Urban Water Consortium, the City of Charlotte, the Orange Water and Sewer Authority, the City of Raleigh, and contracts with the Division of Land Resources, the Albemarle-Pamlico Estuarine Study, and the Office of Waste Reduction (in the North Carolina Department of EHNR), the USDA Soil Conservation Service, and the EPA. (Many of these entities are described elsewhere in this document).

University Programs Pertaining to APES

Water Quality Training Institute for Teachers

Project Model Outdoor Science Teaching (MOST) Environmental Curriculum

Pitt County Schools is an outdoor education program designed to complement ongoing kindergarten through sixth grade science instruction. The project encourages the use of local natural resources as alternatives to distant, often expensive, field trips. Project MOST serves more than 5,000 students each year. It was developed by Pitt County Schools and funded by the Association of Science-Technology Centers in Washington, D.C. The Science Teacher Education at Museums (STEAM) program (sponsored by the General Electric Foundation) procured funding for the project. Pitt County Schools and the East Carolina University Science/Math Education Center match teacher training funds for the project.

Teacher Training Workshops

With the support of the A-P Study, Elizabeth City State University conducted a series of three teacher workshops in 1989 on aquatic environmental management. These workshops stressed integration of aquatic management into classroom environment, development of class projects, and development of lesson plans.

UNC-CH conducted a two-week workshop to give middle, junior high, and high school public school teachers the opportunity to learn about the state's major water quality issues. The Institute was conducted by the Environmental Resource Project of UNC-CH's Institute for Environmental Studies and the UNC-CH Department of Environmental Sciences and Engineering with support from the N.C. Center for Math-Science Education. The Institute paid teachers a stipend of thirty-five dollars per day. Teachers earned two graduate credits from UNC-CH for attending the Institute.

PART THREE

VIRGINIA GOVERNMENT (SELECTED PROGRAMS)

Virginia Board of Health

Objective

The primary goal of the Virginia Board of Health is to promote optimal health for all citizens. The Board provides leadership in planning, developing, and implementing a coordinated, prevention-oriented program. The intent of the program is to promote and protect the health of all Virginians.

Description

The Department of Health serves as administrative arm to the eleven-member Board of Health. Responsibilities of these two bodies follow:

- Regulation of sewage disposal (including septic tanks),
- Joint approval of sewage treatment works with the Division of Environmental Quality,
- Assurance of safe and adequate supplies of pure drinking water for public consumption,
- Regulation of public and community water supply,
- Groundwater protection through well construction standards and regulations,
- Approval of boat sewage pump-out facilities for marinas,
- Insurance of Virginia's shellfish quality, and
- Study and maintenance of a database of toxic substances.

The Department works with local governments to operate community health departments in cases where local departments frequently extend services across political jurisdictions. Local health departments approve the design and installation of sewage treatment and disposal systems for single family homes.

Funding and Staff

The Department of Health employs over 4,000 people. Most of these staff members work in local health departments.

Virginia Government

Virginia Department of Conservation and Recreation

Objectives

The mission of the Virginia Department of Conservation and Recreation (DCR) is to conserve, protect, enrich, and promote wise use of Virginia's natural, recreational, and scenic resources. The Department works to maintain and improve the quality of life for present and future generations.

Description

The Department of Conservation and Recreation serves as Virginia's primary land management agency. Besides its programmatic divisions, DCR provides staff support to the Board of Conservation and Recreation, Soil and Water Conservation Board, and the Public Beach Board.

Division of Soil and Water Conservation

Through its Division of Soil and Water Conservation (DSWC), the Department coordinates activities of soil and water conservation districts (such as addressing nonpoint source pollution, promoting effective land use, and coordinating the state's Shore Erosion and Public Beach programs and the Shoreline Erosion Advisory Service). See the next section of this document for a discussion of the Nonpoint Source Management Program (Section 319).

All localities in Virginia have erosion and sedimentation control ordinances that meet or exceed minimum standards set by the Division of Soil and Water Conservation. Ordinances are designed to protect state waters from construction-related degradation caused by erosion from storm water runoff during and after construction.

DSW programs also include farm plans, technical assistance and agricultural cost-share.

Division of Planning and Recreation Resources and the Division of State Parks

The DCR's Division of Planning and Recreation Resources and Division of State Parks administer the state's Public Access Program, and provide technical and financial assistance to localities.

Virginia Government

Section 6217 of the Coastal Zone Management Act

Section 6217 of the federal *Coastal Zone Management Act* (CZMA) is intended to protect waterways from non-point source pollution by enhancing state and local efforts to manage land use activities. In order to avoid cutbacks in federal funding, each state must develop a management program (i.e., identify land uses that threaten water quality and develop management measures to control sources of nonpoint pollution.) Should Section 6217 be expanded beyond the CAMA counties into a portion of the A-P region, it will directly affect land use planning requirements in portions of the A-P region.

State Storm water Management

The DCR implements Virginia's State Storm water Program. Strategies for storm water control include density restrictions and engineered structural control devices (infiltration structures, wet detention ponds and limited allowance for innovative systems in coastal areas, and wet detention ponds).

Natural Heritage Division

DCR's Natural Heritage Division employs professional botanists, ecologists, and zoologists to conduct resource surveys and maintain a data bank for private, local, state, and federal agencies. The purpose of this process is to document rare, threatened/endangered animal and plant species and exemplary communities (natural heritage resources). The Division maintains a current inventory of Virginia's biological and ecological features and biodiversity preservation sites.

Natural Area Protection Program

DCR's Natural Area Protection Program protects and manages Virginia's Natural Area Preserve System. The program also provides guidance to public and private landowners for protecting and managing rare species and natural communities. Land protection techniques include natural area registration, conservation easement, acquisition, and dedication of sites as natural area preserves.

The Department acquires land for public educational and recreational use. It values lands for scenic beauty, recreational value, or other remarkable features.

DCR also manages and operates state parks to protect Virginia's living resources. It establishes open space classifications according to the Virginia Land Use Assessment Law.

Virginia Government

Other Programs

In addition to the programs described above, the Department of Conservation and Recreation administers the Dam Safety Program, the Stream Restoration Assistance Program, and the Flood Plain Management Program.

Funding and Staff

The Department of Conservation and Recreation employs over 320 people.

Virginia Government

Virginia Department of Conservation and Recreation

Division of Soil and Water Conservation Section 319 -- Nonpoint Source Management Program

Objectives

Section 319 of the federal Clean Water Act requires state governments to establish nonpoint source management programs. Virginia's Nonpoint Source Management Program is designed on a watershed-by-watershed basis. The Virginia Program seeks to quantify, control, and limit the effects of nonpoint source pollution on water quality standards and goals (as identified by the DEQ Water Division, the *Clean Water Act*, and the DCR Nonpoint Source Assessment Program).

Description

DCR's Division of Soil and Water Conservation is the lead agency for development, coordination, and implementation of Virginia's Nonpoint Source Management Program. EPA approved the Virginia Program in 1989.

The Virginia Program contains a mix of voluntary and regulatory approaches for nonpoint source control. It uses financial incentives, education, and technical assistance to accomplish program objectives.

DCR's Nonpoint Source Advisory Committee coordinates application of the NPS program. Advisory Committee members represent nonpoint source implementing agencies. The Division of Soil and Water Conservation (DSWC) chairs the committee, which normally meets quarterly.

DSWC prepares an annual report, summarizing implementation of nonpoint source pollution efforts.

Virginia Government

Funding and Staff

Three full-time, DSWC staff members have primary responsibility for overall coordination of the Nonpoint Source Management Program. Support staff consists of other DSWC employees, as well as personnel from other agencies.

EPA Section 319 funds provide some program support. However, the state of Virginia provides most of the program's funding.

Opportunities for Public Involvement

The public had several opportunities for comment during the Program's initial development. The Program maintains public involvement through education and technical assistance programs.

Virginia Government

Virginia Department of Environmental Quality

In April of 1993, the state of Virginia established the Department of Environmental Quality (DEQ) by consolidating four existing agencies: the Department of Air Pollution Control, the State Water Control Board, the Department of Waste Management, and the Council on the Environment.

Within the Department of Environmental Quality, the **Division of Public Affairs** promotes public and citizen involvement in the state's environmental quality and supports DEQ's public outreach efforts. The **Division of Intergovernmental Coordination** is responsible for the liaison between the Commonwealth of Virginia and the Albemarle-Pamlico Estuarine Study.

The **Water Division** is of primary programmatic interest to the Albemarle-Pamlico Estuarine Study. It is described in more detail below.¹

Virginia Water Division (formerly Virginia Water Control Board)

Objectives

The goal of the Virginia Water Division is to prepare and implement policies, regulations, and programs to assure protection, proper use, and management of the Commonwealth's water resources as determined by the State Water Control Board (a body of appointed citizens). The Board implements the *State Water Control Law* by establishing regulations to: (1) prevent or abate water pollution, (2) restore water quality, and (3) plan for the use of water resources, to protect human health and aquatic life.

¹Also of interest to the A-P Study are the Virginia Division of Water, Coastal Resources Management, and the Chesapeake Bay Programs. The Coastal Resources Management Program conducts Environmental Impact Reviews. Chesapeake Bay programs are described in the first Chapter of this document (under EPA). The Virginia Water Division is described below.

Virginia Government

Description

The *State Water Control Law* gives the Board authority over management of all of the state's water quality and water resources. The Division oversees the following programs (described below):

- (1) The National Pollution Discharge Elimination System Permit program (VPDES),
- (2) The Virginia Pollution Abatement Program (VPA),
- (3) Pretreatment,
- (4) The "401" Review and Certification Program,
- (5) Virginia Water Protection Permit Process,
- (6) The Federal Underground Storage Tank Program,
- (7) Above Ground Storage Tank Program,
- (8) Groundwater Management Programs, and
- (9) Surface Water Management Programs.

The Virginia Pollution Discharge Elimination System (VPDES) Program

The Virginia Pollution Discharge Elimination System (VPDES) Program is the state program authorized under National Pollution Discharge Elimination System (NPDES) requirements. This program requires permits for all potential point sources of water pollution (including storm water systems).

The Program strives to maintain water quality standards through the use of permits and discharge limits. The Water Quality Division must approve installation of all industrial and municipal treatment facilities to ensure adequate treatment of discharges.

Of approximately 3,500 permits issued statewide, about 140 are for major discharges. The Virginia portion of the Chowan River includes nine of these major discharges.

The Virginia Pollution Abatement (VPA) Program

The Virginia Pollution Abatement (VPA) Program requires permits for all potential discharges and all discharges not covered under the VPDES program. The Program frequently requires permits for control of wastes from animal feeding operations.

Virginia Government

Pretreatment

The Virginia Water Division requires certain industries to pretreat wastewater discharged into publicly owned treatment facilities. The Board or the EPA set pretreatment standards. Within the A-P study area, several cities (such as Franklin and Emporia) conduct industrial use surveys or monitor their effluent to determine the impacts of industrial waste.

"401" Certification Program

The "401" Certification Program addresses activities that may result in discharge to navigable waters. Under the program, no federally licensed or permitted activity is allowed until the state has certified that the discharge will not violate applicable water quality standards.

Federal Underground Storage Tank Regulations

The Water Division also administers Federal Underground Storage Tank regulations. These regulations control installation of new tanks and maintenance or removal of existing tanks.

Groundwater Management Programs

The Board has authority to declare certain areas as "groundwater management areas." The Division establishes these areas in cases where groundwater levels appear to be declining or polluted. The "Eastern Virginia Groundwater Management Area" includes portions or all of the following communities in the Chowan River basin: Isle of Wight County, Prince George County, Southampton County, Surry County, Sussex County, and Cities of Franklin and Suffolk. It also includes the cities of the Chesapeake and Virginia Beach in Currituck Basin..

Any person wishing to withdraw groundwater in these designated areas must apply for a groundwater permit from the Virginia Water Control Board.

Virginia Government

Funding and Staff

The Department of Environmental Quality employs over 360 full-time staff members in its water programs. About half of the Division's personnel work in the Division's Richmond headquarters. Remaining employees are distributed among six regional offices.

The Division's Piedmont and Tidewater Regional Offices cover portions of the Chowan Basin and Currituck.

Virginia Government

Opportunities for Public Involvement

The State Water Control Board, staffed by the DEQ Water Division, consists of seven citizens appointed by the Governor and subject to confirmation by the General Assembly. The SWCB strives to ensure that Virginia's water quality laws are enforced evenhandedly, objectively, and without bias toward any portion of the state or toward any population group.

The Board encourages and appreciates public awareness of and involvement in their decisions.

The state actively seeks public participation in permit programs, in the promulgation of regulations, and in quarterly meetings of the Board. The state invites public comment for all permits proposed for issuance. When significant comment is received on a proposed permit, the Division holds a public hearing.

The Division provides the public with two invitations to comment on all regulatory actions. The first invitation is through the "Notice of Intended Regulatory Actions," and the second is through the "Notice of Comment Period."

Virginia Government

Virginia Department of Forestry

Objectives

The Virginia Department of Forestry's mission is "to provide a forest resource to meet the needs of the Commonwealth." The Department's primary objectives are listed below, in order of priority:

- (1) forest fire control;
- (2) water quality;
- (3) assistance to landowners in managing timberland (to provide forest products, wildlife habitat, water quality, and recreation).

The Department of Forestry (DOF) encourages tree planting, forest fire prevention, and forest stewardship. The Department is regulated under the authorities of the Secretary of Economic Development.

Description

The Department conducts several resource management activities, including:

- development of forest management plans for private landowners;
- assistance to private landowners in carrying out forest management plan recommendations;
- control of wildfires;
- promotion of voluntary Best Management Practices (BMPs);
- promotion of forestry education; and
- provision of advice and technical assistance regarding hydrology, pathology, entomology, and stewardship.

The Department of Forestry is responsible for water quality in forest land. DOF inspects most timber harvesting sites for compliance with the *Virginia Seed Tree Law* and compliance with voluntary BMPs. The Department inspects sites during and after completion of harvest. DOF personnel identify necessary corrective actions. They report evaluation results to the logger, timber buyer, landowner, and consultant forester. From October 1, 1989 to August 29, 1990, the Department conducted over a thousand inspections.

The Department of Forestry enters information from inspections into a data base (according to logger and category of BMPs in non-compliance). The base line study of July 1988 showed that the volunteer effort had achieved more than a 10 percent reduction in sediment from timber harvest operations.

Virginia Government

Since 1989, DOF has conducted several series of BMP training programs for loggers, landowners, timber buyers, consultant foresters, and DOF personnel. One of the Department's greatest educational successes is its personal contact with each timber harvest inspection.

In the fall of 1989, the Department installed three water quality monitoring stations. In 1991, DOF supported establishment of three monitoring stations in the Nomini Creek watershed. Four additional monitoring stations will be installed in the near future.

The Department encourages development of timber markets and improvement of the utilization of timber products. In addition, DOF coordinates the rental of specialized forestry equipment.

The Department of Forestry acquires property through gifts, purchases, and easements. The intent of property acquisition is to protect forest land, demonstrate forest management, conduct long-term research, and protect valuable environmental or historical sites.

Funding and Staff

The Department has over 360 full-time positions. Field personnel spend approximately 10 percent of their time involved with the water quality program. DOF hired an hydrologist in 1988, a forest engineer in January 1992, and a second forest engineer in June 1992. These specialists provide technical assistance and expertise in setting up BMPs. They assist loggers, landowners, private sector foresters, and Department field personnel.

Opportunities for Public Involvement

The Department is advised by an eleven-member citizen Board. A Water Quality Task Force advises the Department on the direction of the water quality program. When the state revised the forestry BMPs in 1988, the Department distributed four separate drafts, and held ten public hearings.

Virginia Government

Virginia Department of Game and Inland Fisheries

Objectives

The mission of the Department of Game and Inland Fisheries is to:

- (1) manage Virginia's wildlife and inland fish (to maintain optimum populations of all species to serve the needs of the Commonwealth);
- (2) provide opportunity for all to enjoy wildlife, inland fish, boating, and related outdoor recreation; and
- (3) promote the safety of persons and property associated with boating, hunting, and fishing.

Description

The Department of Game and Inland Fish strives to provide for optimum populations and diversity of wildlife species and habitats. To accomplish this goal, the Department is developing a comprehensive wildlife management plan for Virginia's wildlife populations and habitats. It will inventory and manage wildlife populations and habitats through June 30, 1996. The Department will also establish an agency-wide, proactive, environmental protection and monitoring program. It will promote public understanding of and compliance with wildlife and environmental laws and regulations. Finally, the Department will promote judicial awareness of the importance of wildlife, boating, and environmental regulations.

The Department works to enhance public enjoyment of wildlife, boating, and related outdoor recreation. It seeks to increase public awareness and opportunities for enjoyment of available wildlife, boating, and related outdoor recreation resources.

The Department plans to improve understanding and appreciation of the importance of wildlife and habitat by:

- involving the public in programs that benefit wildlife,
- identifying and using available resources within the Department and other agencies to promote wildlife education,
- increasing wildlife education efforts for youth, and
- expanding access to and a wider variety of wildlife related information.

The Department plans to promote safe and ethical conduct in the enjoyment of boating, wildlife, and related outdoor recreation by increasing education about such conduct and related laws and regulations. It also manages waterfowl management areas.

Virginia Government

Funding and Staff

The Department of Game and Inland Fish has approximately 370 employees. The sale of hunting and fishing licenses accounts for the majority (65 percent) of the Department's budget. Federal aid funds (through the Pittman-Robertson and Dingill-Johnson Acts) contribute another 25 percent of the budget. Boat titling, registration, and miscellaneous (non-game tax checkoff, *Virginia Wildlife* subscriptions, etc.) each account for an additional 5 percent.

Opportunities for Public Involvement

The Board invites the public to its monthly meetings. The Board holds additional meetings to secure public input on specific issues, as needed. Proposed hunting and fishing regulations are advertised for thirty days before action by the Board of Directors. After Board action, regulations are published in the *Virginia Register*. The Department maintains several offices across the state, which are open during normal business hours. Home telephone numbers of all Department game wardens and biologists are listed for public access.

Virginia Government

Virginia Marine Resources Commission

Objectives

Established in 1875 as the Commission of Fisheries, the Virginia Marine Resources Commission (VMRC) is one of the oldest agencies of Virginia State Government. Because of the importance of the oyster industry, most of the Commission's original activities revolved around shellfish.

In 1962, the commonwealth of Virginia authorized the Commission to grant permits for encroachments in or over state owned submerged lands in 1962. This new authority gave the agency its two current functions: fisheries management and habitat management. The agency was renamed to the Marine Resources Commission in 1968.

The Virginia Marine Resources Commission implements the 1972 Virginia (tidal) Wetlands Act (as modified in 1982 and 1984) and the 1980 Primary Coastal Sand Dune Protection Act.

The Virginia Marine Resources Commission manages, regulates, and develops marine fishery resources. It protects and preserves marine habitat through a project review and permit system and a variety of regulatory programs.

The Department's nine-member citizen body (the "Commission") functions as a board for case decisions and for promulgating regulations. The agency head serves as Chair of the "commission", but has separate, distinct management authority over agency operations.

Description

The Commission is organized into four major divisions: Marine Law Enforcement, Fisheries Management, Habitat Management, and Administration and Finance.

Marine Law Enforcement Division

The Marine Law Enforcement Division is the Commission's largest division. This Division stations uniformed enforcement personnel throughout coastal Virginia. The Division enforces the Commission's marine conservation, health, and boating laws.

Virginia Government

Fisheries Management Division

The Fisheries Management Division was organized during the 1984-1986 Biennium. It has responsibility for developing fishery management policy and implementing regulatory actions and conservation measures for marine finfish and shellfish.

Habitat Management Division

The Habitat Management Division administers permits for projects that encroach into marine areas (including subaqueous bottomlands, tidal wetlands, and coastal primary sand dunes). The Commission also serves as an oversight agency and appellate body for Virginia's local (tidal) wetland boards. It also manages sand dunes.

Administration and Finance Division

The Administrative and Finance Division is responsible for financial, personnel, legislative, and other business matters.

Virginia Government

Funding and Staff

The Virginia Marine Resources Commission has over 150 full-time positions. Virginia State General Funds support most of these positions. Several positions, however, are funded by various federal grants. Its nine-member "Commission" functions as a board for case decisions and for promulgating regulations. The agency head serves as Chair of the nine-member body, but has separate, distinct management authority over agency operations.

Opportunity for Public Involvement

All Fisheries Management and Habitat proposals and regulations are subject to public review and comment, and public hearings before the Marine Resources Commission. In addition, the full Commission must consider all appealed Habitat projects requiring permits at a regularly scheduled monthly hearing.

Virginia Government

Chesapeake Bay Program

There are several environmental management analysis bridges between the Chesapeake Bay Program and recommendations of the Albemarle-Pamlico Estuarine Study, and the committees of the A-P study have Virginia representatives. Because of these connections, the Chesapeake Bay Program is briefly described below.

In 1983, the *Chesapeake Bay Agreement* was signed by Virginia, Maryland, Pennsylvania, the District of Columbia, EPA and the Chesapeake Bay Commission. The signing entities pledged to cooperatively confront pollution of the Chesapeake Bay. In 1987, these same entities signed a new, more comprehensive Agreement committing them to specific implementation actions to be carried out through the 1990s.

In 1983, EPA established a liaison office in Annapolis to help coordinate Bay restoration activities. The 1987 amendments to the federal *Clean Water Act* directed EPA to coordinate federal and state efforts to improve the Chesapeake Bay's water quality and authorized federal funding of state pollution reduction programs.

In 1987, EPA worked with Chesapeake watershed jurisdictions and other federal agencies to develop several strategy documents (as required by the 1987 Agreement). These strategies included plans for reducing the flow of nutrients into the Bay by the year 2000. Steps to achieve reduction in nutrient levels ranged from improving sewage treatment technology to implementing "best management practices" (BMPs) to control agricultural and urban runoff. Also included were strategies to:

- (1) control conventional and toxic pollutants,
- (2) conduct research,
- (3) monitor the Bay's living resources,
- (4) reduce pollution from federal facilities,
- (5) protect wetlands, and
- (6) address the impact of population growth and development on the health of the Bay.

Virginia Government

Local Government in the State of Virginia

Local Comprehensive Planning Requirements

The Commonwealth of Virginia requires comprehensive planning for each local government in the State of Virginia in accordance with Virginia Code, Title 15.1, Chapter 11, as amended.

Virginia local governments are permitted to address water quality in the land use planning and regulatory process in accordance with recently enacted Virginia enabling legislation. Several local governments have used this new power to enact ordinances related to water quality concerns. Hampton Roads Planning District Commission (*Environmental Management Program for the Hampton Roads Virginia Portion of the Albemarle-Pamlico Estuarine Watershed*, Feb, 1993, APES Report #92-19).

Virginia Code requires/permits local governments to employ a wide range of land use regulation tools:

- Subdivision Regulations (All communities must have)
- Erosion and Sedimentation Control (mandatory if locality is not Soil and Water Conservation District)
- Zoning (optional)
- Storm water Management (optional).
- Site Planning Regulations (optional)

Chesapeake Bay Preservation Act (CBPA) (see, also, Chapter One, "EPA", of this document)

The Chesapeake Bay Preservation Act (CBPA) of 1988 (Title 10.1-2100, *Code of Virginia*, 1950, as amended) established a cooperative federal, state and local government program to protect water quality in the Chesapeake Bay and its tributaries through improved land use management. The CBPA affects Tidewater Virginia counties and independent cities, seven of which lie within the A-P region. All CBPA-regulated communities must incorporate environmental standards into local comprehensive plans and development regulations. Application of these standards to A-P portions of these "communities" (as well as to all other non-CBPA communities) is optional.

Requirements of the CBPA do not apply to the southern portion of the A-P region. However, non-CBPA counties have the option of adopting the planning aspects of the Act. The Act is described in this document because it serves as a model to other counties in the A-P region (due to similarity of objectives and programs).

Of the 19 communities (counties and independent cities) within the Virginia portion of the

Virginia Government

A-P region, seven must incorporate environmental concerns in their comprehensive plans (within the Chesapeake Bay portion of their watershed), in accordance with the *Chesapeake Bay Preservation Act of 1988*. In addition, at least two other communities have recently revised their comprehensive plans to reflect environmental concerns (Hamptons Roads Planning District Commission, *Environmental Management Program for the Hampton Roads Virginia Portion of the Albemarle-Pamlico Estuarine Watershed*, Feb, 1993, APES Report #92-19). All of the remaining Virginia counties in the A-P region have comprehensive plans and subdivision regulations.

The Chesapeake Bay Program is a multi-governmental, interstate partnership that includes the four states (Pennsylvania, Maryland, and Virginia, Washington, D.C.), the Chesapeake Bay Commission (a tri-state legislative body), and the EPA. Representatives from each of the jurisdictions meet regularly with officials from other federal agencies, local governments, and citizen representatives to carry out policies set by the Chesapeake Executive Council.

Planning District Commissions

Virginia's enabling legislation (Code 15.1) allows for local governments to create Planning District Commissions. These commissions are funded by local and state governments as well as grants. They serve as regional, cooperative problem-solving entities through technical studies and assistance, consensus building and comprehensive planning. They do not engage in implementation.

There are 21 Planning District Commissions in Virginia. Four of these Districts lie within the Albemarle-Pamlico watershed.

PART FOUR
LOCAL GOVERNMENT IN NORTH CAROLINA

LOCAL GOVERNMENT IN NORTH CAROLINA¹

County and Municipal Government

The State of North Carolina authorizes municipal and county governments to perform most local governmental functions. Certain activities (such as water, sewer, gas, and transportation systems) are typically reserved for municipal governments. Other functions (such as health, education, and welfare) are generally performed by counties. However, municipal and county governments engage in several overlapping functions.

This chapter is limited to descriptions of local agencies and organizations pertinent to the Albemarle-Pamlico Estuarine Study. The first portion of the chapter provides a general overview of municipal and county governments and their governing boards. This overview is followed by descriptions of those organizations responsible for carrying out municipal and county functions. Next, locally administered programs relevant to APES objectives are discussed. The chapter ends with descriptions of substate, regional agencies.

State governments have primary responsibility for all governmental functions not delegated to the federal government by the U.S. Constitution. The State of North Carolina distributes those responsibilities between state and local governments.

North Carolina's counties were formed to serve state purposes and functions in specified areas, whereas **municipalities** are generally formed at the request of people within those jurisdictions and in order to serve the needs of local inhabitants.

North Carolina's General Assembly has the power to grant, alter or remove local governmental powers. The state can delegate any responsibility to local governments (unless prohibited by the state's Constitution). The state legislature assigns these duties as (1) mandates or (2) discretionary powers. For example, all of the state's counties are **required** to provide adequate housing for public schools, while most are given discretionary authority to exercise planning and zoning powers. (The statewide role in local planning is described in greater detail in the "Local Planning Boards" section of this chapter.)

All public bodies are subject to the state's *Open Meetings Law* (G.S. 143-318.9 et seq.) Local "public bodies" include governing boards and their committees, as well as groups established by these governing boards (such as planning boards, boards of adjustment, recreation commissions, etc.) Except for executive sessions, all official meetings of local public bodies must be open to the public.

Local governing boards take formal actions in any of four forms: (1) resolutions, (2) motions, (3) orders, or (4) ordinances.

Resolutions, Motions, and Orders

A **resolution** generally declares the board's opinion on a question before it. **Motions** and **orders** are actions of the board (often taken in response to resolutions). Orders or motions sometimes direct local administrators to take (or refrain from taking) a specified action. They may also be formal declarations of facts. Boards must have a quorum present in order to adopt **orders, motions, or resolutions**.

Ordinances

The local governing board acts as a legislative body, and can therefore dispense legal actions in the form of ordinances. The board may adopt ordinances relating to a variety of public actions, including land use activities. For example, boards typically issue ordinances controlling subdivision of private property, street naming and numbering, and waste disposal.

Several laws govern adoption of **ordinances**. For example, many types of ordinances (such as zoning ordinances) require a public hearing before adoption. Once adopted, the county or municipality must keep each ordinance (or code of ordinances) on file for public inspection.

North Carolina Local Government

Counties

The State of North Carolina has one hundred counties. Counties are legally defined geographic subdivisions of the state. A county is a political unit and a legal entity with a public function. As such, it can buy and hold property, sue and be sued, and enter into contracts.

Counties carry out many essential governmental operations (including education, elections, lower courts, property ownership records, criminal law enforcement, public health, welfare, and several other functions). Some functions are implemented by county boards of commissioners, while others are assigned to other local boards. State law requires local election of county sheriffs and register of deeds. The state also dictates the structure of local boards of education, health, social services and election.

The county is the basic, local unit in the state's judicial and law enforcement system. Counties house lower courts, courthouses, sheriffs, jails, clerks and court records. However, the court is **not** a county court, but a unit of the state's judicial system. Local judges, district attorneys, clerks and magistrates are **state** officials who administer **state** law (not county law).

Board of Commissioners

Each county exercises its powers and responsibilities through its board of commissioners, according to G.S. 153A. County commissioners are locally elected and meet at least once per month.

G.S. 153A-76 authorizes the board of commissioners to appoint county administrative officers, and to organize county government. The board must appoint a county attorney and a clerk. The attorney serves as the board's legal advisor. The Clerk keeps records (such as minutes and ordinance books). In addition, G.S.153A authorizes counties to appoint a county manager.

Municipalities

North Carolina has close to 500 active cities and towns, ranging in size from under 50 residents to over 400,000. In North Carolina, there is no legal distinction between cities and towns; both are referred to as municipal corporations. Municipal corporations (municipalities) are part of the governmental structure of the state. A municipality is organized to provide public services and regulate activities in a specific community.

The major function of a city or town is to protect local citizens and the public. For example, municipal government generally provides police and fire services. Municipal ordinances protect local citizens and property.

A second function of a municipality is to provide services (such as local streets, water and sewer systems, solid waste disposal, and facilities). The city or town often promotes cultural and leisure activities through such facilities as libraries and parks.

Most municipalities promote local economic development by building and maintaining the infrastructure needed for urban development. Many cities provide civic facilities (such as parking, auditoriums and airports) that contribute to economic growth. In addition, municipal urban renewal programs rebuild dilapidated areas of communities. All North Carolina municipalities operate within the same general legal framework.

Municipal Governing Board

North Carolina's municipalities are governed by **city councils, boards of commissioners or boards of aldermen**. These **governing boards** decide which municipal services to provide and establish fiscal policy. Governing boards also levy taxes, adopt municipal ordinances, and oversee numerous administrative matters.

The state requires municipal governing boards to hold regular, public meetings.

Because each board's organization is dictated by individual municipal charter, the structure of municipal governing boards varies across the state. North Carolina's municipal governing boards have anywhere from three to thirteen members and are typically elected for terms of two to four years.

Most mayors are elected by the public. Mayors preside over board meetings, vote to break ties, and sign documents on behalf of their city or town. The office of the mayor is generally viewed as the highest political office of a municipality. Although most North Carolina mayors have very few formal powers, many greatly influence the operation of their cities. In small towns without a manager, mayors often function as the chief administrators.

Local Health Departments

Objectives

North Carolina's local public health laws are compiled in G.S. Chapter 130, Article 2, Part 1. Although the state permits municipalities to tax and spend money to provide for the public health, local governing of public health generally occurs at county or district levels.

The state authorizes each board of county commissioners to establish a **county health department**. The policy-making body for the county health department is the local **board of health**. County boards of health are composed of eleven members (appointed by the county commissioners), consisting of:

- one county commissioner,
- one physician,
- one dentist,
- one pharmacist,
- one optometrist,
- one nurse,
- one veterinarian, and
- four members of the public.

The county board of health appoints the county health director to serve as its secretary.

Counties are not obligated to form single-county health departments. They may instead elect to form a **district health department**. The district process may occur by agreement of the boards of health and county commissioners of the counties involved. It may also occur at the state's request. Although a district may have several health departments, it will have only one board of health. Each board of commissioners (for participating counties) appoints one of their members to the District Board of Health. These "commissioner-members" appoint the other members, consisting of:

- one physician,
- one dentist,
- one pharmacist, and
- enough members of the public to bring total membership to fifteen.

The district board of health appoints a district health director to serve as its secretary.

In certain situations, and with the approval of the commissioners, the county board of health may contract for the state to provide local health services.

Local health departments administer two programs (septic tank regulation and water supply protection) pertinent to objectives of the A-P Study. These programs are described in the next section.

Description

Functions

Local health directors are required to distribute public health information and to promote the public health.

Local boards of health perform five functions affecting local health departments:

- (1) the board makes policy decisions governing the department;
- (2) the board makes rules and regulations necessary to protect and advance the public health (such as regulation of swimming pools);
- (3) the board has the power to set fees for service performed by the department (such as fees for water analyses and septic tank inspections);
- (4) the board appoints the health director; and
- (5) the board of health conducts hearings to resolve controversies involving permit denials, public health nuisances, etc.

Regulations

State law requires that local health regulations be reasonable and that their purposes and provisions bear a substantial relationship to legitimate public health goals. In certain cases (such as emergencies or peculiar local circumstances), local regulations may be more stringent than state regulations. Otherwise, state regulations prevail.

Water Quality in the A-P Region

Local health departments administer two programs pertinent to objectives of the A-P Study: Septic Tank Regulation and Water Supply Protection.

Local Septic Tank Regulation North Carolina state law (G.S. 130-17, -160- 166) requires county health departments to inspect and supervise the installation of septic tank units with a capacity smaller than 3,000 gallons. (The state Environmental Management Commission inspects larger units). Under state law, an "*improvements*" permit must be obtained from the local health department before residential construction begins. This law applies to dwellings and mobile homes that are moved onto a particular site. (Mobile homes in mobile home parks are exempt from this law as they are otherwise regulated.) The local health department must perform field inspections and tests before issuing an improvements permit.

North Carolina Local Government

After the local health department issues the improvements permit, the dwelling may not be occupied until the health department examines the sewage disposal system to assure that it is properly installed. Upon approval of an installation, the local health department issues a *certificate of completion*. State law requires that no other construction permit be issued for a conventional dwelling until the improvements permit has been issued; and no electrical or construction permit for a mobile home may be issued until a certificate of completion has been issued.

Water Supply Protection North Carolina G.S.143-214.5 requires those counties and municipalities occupying "water supply watersheds" to develop ordinances to manage and protect their water supplies.

Enforcement

Local health regulations (such as the permitting of septic tank systems) have the force and effect of law. Penalty for violations can be in the form of fines or imprisonment. In addition, the local health director may bring action in Superior Court to obtain an injunction against any person who violates (or threatens to violate) health laws.

The state requires local health department to enforce the statewide *Public Health Nuisance Law*, along with several other state regulations (such as those governing sanitation of restaurants and lodging facilities). Local health boards may also adopt national or state codes or standards as part of their local regulations. Local rules must be equivalent to state rules and adequate to public health. Local septic tank regulations are subject to state approval.

Funding and Staff

Local health boards have no power to tax. The state authorizes county boards of commissioners to appropriate funds from property tax levies and to allocate other revenues (unless otherwise restricted). In addition, commissioners may establish a reserve fund to buy, construct, repair or modify public health facilities.

Health departments generally receive financial assistance from state and federal governments. These funds are usually tied to particular programs. State funds for public health programs are allocated to counties on the basis of population, county contribution, and other factors.

Local health departments may charge for services, except when a charge is specifically prohibited by statute, regulation, or ordinance. Fees must be based on a plan recommended by the local health director and approved by the local health boards and the county commissioners.

Opportunities for Public Involvement

Before any local regulation can become effective, it must be posted at the courthouse for two weeks and advertised in a local newspaper.

The board of health must provide adequate advance notice for all board hearings. Parties can appeal board rulings to the appropriate court.

Local Planning Boards

Objectives

Planning involves a coordinated effort between governmental officials and the public. The intent of this effort is to reach an informed consensus regarding a community's needs, develop appropriate goals and objectives, and establish means for attaining objectives. Local land use planning provides to local governments the opportunity to direct their own growth. It also enables private investors and local citizens to make informed decisions.

Planning affects the operation of local government. Counties and municipalities must plan for acquisition, construction and location of facilities (such as county courthouses, county schools, county health centers, municipal and county fire stations, and water and sewer systems).

Local planning strategies vary, based on the wide differences between localities. For example, communities that are experiencing explosive growth will probably seek strategies to guide that growth into desirable patterns. Communities that have sensitive resources may develop plans to minimize impacts of future human activities on those resources. Some communities face losses in population and tax valuations. Those areas are more likely to develop plans that emphasize economic development. Local planning generally seeks to accommodate future growth and change while preserving local quality of life.

Local Resources and Quality of Life in the A-P Region

The APES *Comprehensive Conservation and Management Plan* promotes local and regional planning that seeks to achieve economic growth and environmental quality.

Local planning boards can enhance local economic development by identifying resources that attract particular industries. Advance planning enables localities to manage the impact of industrial growth. Resource planning enhances local quality of life, thereby attracting development and growth. Careful planning can help communities to secure economic benefits from preservation of local resources. (For examples of such strategies see UNC, *Eco-Tourism in Tyrrell County*, Chapel Hill, N.C., 1993; or Coastal Initiative Committee, *A Guide for the Development and Revitalization of the Waterfront*, Columbia, N.C., 1992.)

Although planning is optional for most of North Carolina municipalities and counties, several communities have opted to develop land use plans. Local plans range from simple statements of goals and objectives to sophisticated, GIS-enhanced documents.

The State of North Carolina directs designated communities to engage in the specific types of planning (described later in this section). In responding to these mandates, many localities have found that the planning process contributes to the local quality of life.

Description

Land use planning is a formal and organized local government effort directed at all (public and private) activities that affect the use or development of land. Land use planning considers the effects of such activities on the growth and character of a community. Land use planning employs policies, programs, incentives or regulatory tools to influence local development.

The planning process generally involves the following six steps:

- (1) Summarize relevant information (including population and economic figures and trends, as well as an inventory of existing physical characteristics).
- (2) Identify present and foreseeable future needs and constraints.
- (3) Develop goals and objectives regarding the community's physical and economic development.
- (4) Prepare alternative plans and programs for reaching these goals and objectives.
- (5) Choose the combination of plans and programs that will most efficiently achieve goals and objectives.
- (6) Develop and employ legal and administrative tools to carry out these plans and programs in a systematic manner.

The statutory responsibility of all planning boards (local, joint and regional) is to perform studies and develop land use plans. Planning boards are typically composed of citizens who may lack time or expertise to collect and analyze data and make plans. G.S. 153A-322, and G.S. A-361 authorize county commissioners and municipal boards to appropriate funds to their planning board. Planning boards may use such appropriations to hire full-time professional staff (such as a planning department) and/or professional planning consultants.

The local planning board is primarily an advisory body. Most planning boards advise local governing bodies on locating new public facilities, and other planning matters. State law requires that the planning board base its advice on adopted local plans.

County Planning Boards

G.S. 153A-321 authorizes county commissioners to "create or designate one or more agencies" to perform listed planning functions. The state does not require that counties create any planning board. They may, instead, designate themselves (or any of their committees) to perform planning functions. However, G.S. 153A-344 requires county governments to appoint planning agencies in order to adopt zoning ordinances.

County commissioners may choose to establish a **county planning board** (in accordance with G.S. 153A-321), or a **joint planning board** (established in conjunction with any other locality), in accordance with G.S. Chapter 160A, Article 20, Part 1.

The state requires county planning boards to have at least three members. County commissioners establish the planning board's organization, powers, and duties.

Municipal Planning Boards

Municipal governing boards influence the planning process in several ways. For example, the governing board makes funding decisions regarding municipal infrastructure (including capital improvements and location of public buildings and facilities). The board also funds and staffs planning boards and boards of adjustment. Finally, the local governing board adopts and amends municipal land-use ordinances, and has ultimate authority for their enforcement.

Most large municipal governments establish **municipal planning boards (or commissions)** according to North Carolina G.S. A-361. The municipal planning boards (or its staff) generally prepare land use studies, plans and policies. The planning board may also draft and recommend ordinances to the governing board for adoption. The governing board has the authority to direct the planning board to perform any function (in administering and enforcing planning regulations). Except where authorized to act as boards of adjustment or approve subdivision plats, most planning boards serve in advisory capacity. G.S. A-387 requires municipal governments to appoint planning agencies in order to adopt zoning ordinances.

A municipal governing board has several options for carrying out the planning process. The board may:

- (1) establish a joint planning board or commission together with another local government;
- (2) hire a planning director and/or planning staff;
- (3) contract for technical planning services from another local government;
- (4) contract with private planning consultants;
- (5) request technical assistance from a substate regional organization such as a Council of Government (described elsewhere in this chapter); or

- (6) request technical assistance from the state Division of Community Assistance (described in Chapter Two of this document).

Regional Representation

A community may have its own planning board and also have representation on a **regional planning organization** (such as a regional planning commission, a regional planning and economic development commission, or a council of governments).

Planning Implementation

There are several tools for guiding development in accordance with a community's adopted plans. Communities can guide development away from unsuitable areas through the purchase of land, preservation of open space, or exercise of regulatory powers.

A local government also influences the pattern and density of development by its own actions. For example, when selecting sites for new schools, acquiring and maintaining parks and recreation areas, or providing water and sewer service, counties and municipalities affect the pace and direction of urban growth.

N.C. General Statutes 160-381 and G.S.153-340 grant to municipalities and counties, respectively, the power to zone (for the purpose of promoting health, safety, morals, or the general welfare of the community). This power includes the authority to regulate and restrict:

- the height, number of stories and size of buildings and other structures;
- the percentage of lots that may be occupied;
- the size of yards, courts and other open spaces.
- the density of population; and
- the location and use of buildings, structures and land for trade, industry, residence or other uses.

North Carolina zoning regulations also allow counties and municipalities to provide density credits or severable development rights for dedicated rights-of-way (pursuant to G.S. 136-66.10).

For both counties and municipalities, zoning regulations must be made in accordance with a comprehensive plan. Zoning regulations must be designed to:

- lessen congestion in the streets;
- secure safety from fire, panic or other dangers;
- to promote health and the general welfare;
- to provide adequate light and air;
- to prevent the overcrowding of land;
- to avoid undue concentration of population;

- and to facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.

The regulations must consider conserving the character of the district and the value of buildings. They should encourage the most appropriate use of land throughout the community. In the case of **county** zoning, regulations must be made with reasonable consideration to orderly growth and development of cities within the county.

G.S.153A-340 prohibits counties from zoning *bona fide farms*. The statutes include as bona fide farms the "production and activities relating or incidental to the production of crops, fruits, vegetables, ornamental and flowering plants, dairy, livestock, poultry, and all other forms of agricultural products having a domestic or foreign market."

G.S.146-12 permits counties to regulate development over **estuarine waters** and **public trust areas** (lands covered by navigable waters owned by the state).

For detailed discussion of local land management options, see A-P Project No. 86-01(1), Finch and Brower, *Management Programs and Options for the Albemarle-Pamlico Estuarine Study*, 1986; and Owens, David. W., *Planning Legislation in North Carolina*, Institute of Government, 1991.

Coordination With Other Agencies

Because of the comprehensive nature of local planning, the planning board is frequently involved with a variety of government agencies and officials. Some of these agencies provide major public facilities. Examples of these agencies are the state Department of Transportation, and local school board, recreation commission, public housing authority, urban redevelopment commission, and community development department.

Local regulation of private development generally involves the local inspection department, zoning board of adjustment, appearance commission, and historic/cultural heritage commission.

The local agency most concerned with developing and implementing economic development programs is the economic development commission (described elsewhere in this document).

Local governments often use information provided by the state and federal agencies in developing local land use plans. For example, the USDA *Soil Survey Program* publishes soil surveys and similar databases of counties (or other areas of comparable size). This program is a cooperative effort between federal, state, and local governments. SCS provides assistance in using this information. In the Soil Survey Program, SCS develops and maintains soil maps and soil information. The Service distributes technical soil information and assistance to interested agencies, organizations, and individuals. SCS Soil Survey information

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is useful for decision making affecting land use. Local governments use soil surveys for many activities, including environmental impact assessments and tax valuation.

The Soil Survey Program hopes to complete a soil survey for every N.C. county by the year 2000. However, budget constraints may delay completion of some county surveys.

Planning in the Albemarle-Pamlico Region

Within the North Carolina portion of the A-P region, sixteen counties and numerous municipalities have prepared land use plans according to CAMA regulations. Of the remaining twenty counties in the A-P region, most have some type of land use plan in place. In order to protect the entire A-P estuarine region from the negative impacts of unplanned development, all local governments within the A-P region should be encouraged to supplement existing plans to promote sound environmental planning.

Funding and Staff

Local governing boards appropriate planning agency funds in accordance with state law. Planning boards may use authorized moneys to staff planning departments and/or to hire planning consultants. A county or municipality may also contract with any city, county, regional council, or planning agency for planning services. Regional planning commissions or councils of government sometimes help local planning boards in their area.

While most of the A-P counties and municipalities have planning boards, some communities have no planning department or planning staff. Communities without sufficient planning staff depend on outside assistance in preparing plans. They are frequently assisted by the N.C. Division of Community Assistance, local councils of governments and private consultants. Coastal counties and municipalities often rely on the assistance of the N.C. Division of Coastal Management. (These organizations are described elsewhere in this document).

Opportunities for Public Involvement

The planning process provides many opportunities for citizen participation. The state requires that all, non-executive meetings of local governing bodies and planning boards be open to the public. Local planning boards are composed of local citizen representatives. All local governments must hold advertised public hearings before adopting zoning and subdivision ordinances.

There are thirty-six counties and numerous municipalities in the North Carolina portion of the A-P Study area. Sixteen of those counties and several of the municipalities have adopted land use plans in accordance with the North Carolina *Coastal Area Management Act*

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(CAMA). Coastal communities must hold public hearings before adopting or amending CAMA land-use plans.

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Local Recreation Departments

Objectives

Recreational services can be administered by municipalities or counties. The structure of local recreational services varies among the state's communities. For example, several recreation areas are solely owned and maintained by individual, local units of government, while others are jointly owned and operated.

North Carolina's recreation enabling legislation applies to cities, counties, and towns (G.S. A, Articles 10 and 18). The statutes define *recreation* as "activities that are diversionary in character, and aid in promoting entertainment, pleasure, relaxation, instruction, and other physical, mental, and cultural development and leisure time experiences." State statutes empower local governments to:

- (1) establish and conduct a system of supervised recreation;
- (2) set apart land or buildings for use as parks, playgrounds, recreational centers or facilities;
- (3) acquire lands or buildings by gift, purchase, lease, loan, or condemnation;
- (4) accept any gift, grant, or bequest of money (or other personal property), or any donation for recreational use;
- (5) provide parks, playgrounds, recreation centers, and recreation facilities; and
- (6) appropriate funds for public recreation programs.

Public Recreation in the A-P Region

Local governments can use their public recreation powers to facilitate application of the goals and strategies of the APES *Comprehensive Conservation and Management Plan*. Municipal and county governments can set aside, acquire, and/or plan for resource based recreation areas (including natural resource preservation, public education and public access areas). G.S. 160-401 permits any county or municipality to acquire land (for the purpose of limiting its future use) in order to preserve open spaces and areas for public use and enjoyment. Acquisition may occur in many forms. A local government may acquire land (or certain rights involving the use of the land) through purchase, gift, lease, or other legal device.

Description

State enabling legislation authorizes county commissions and city council to directly administer community recreation programs. Or a community may establish a local **recreation departments** and/or an official **recreation commission**.

County commissioners or city council members may wish to directly operate new or modest recreation programs, especially when recreation services and facilities are provided by contract with another locality.

For larger recreational programs, local governments generally establish recreation departments. These departments employ professional staff members to operate recreation programs, subject to policies set forth by the board of county commissioners or the city council.

As local recreation programs grow and diversify, local governing bodies generally establish recreation commissions, and vesting them with authority to plan, operate, and develop program policies.

In order to operate efficiently and provide adequate public service, local governments should carefully plan for recreation services and facilities. Therefore, close cooperation between planning and recreation departments is essential. Public recreation planning should address acquisition, construction and location of facilities. Plans should insure that sites and buildings are appropriately sized and designed (with respect to their long-term intended use). Major facilities may need protection from potential, incomparable uses (through zoning or other regulations). Subdivision regulations should be employed to plan for efficient acquisition of public park and recreation. Advance planning can lead to the joint use of some sites for both school and recreation purposes.

Funding and Staff

Regardless of the form of organization chosen by the governing board, the department's organization is generally the same. The director organizes the program, trains and supervises staff, selects appropriate program activities, and reports to the overseeing board or commission. Depending on local program requirements, the department may also employ a recreation supervisor. Some departments enrich programs with volunteers.

In certain cases, local governments may not wish to hire and maintain their own staff. In these cases, local governments can contract with other communities for professional services or use of recreation facilities (in accordance with G.S. A-356).

The Division of Parks and Recreation (DPR) within the N.C. Department of Environment, Health, and Natural Resources, provides technical assistance to local recreation departments through a contractual arrangement with a state university. Through this contractual

arrangement, DPR is able to provide to communities (free of charge) advice, planning, consulting and assistance regarding:

- department organization
- budgeting assistance
- staff training
- personnel
- programming
- management
- maintenance
- administration
- legislative and legal referral
- professional position placement
- special studies and surveys
- grant-in-aid matters
- problem evaluation
- other park and recreation - related topics

State enabling legislation allows cities and counties to levy property taxes (without a vote) for public recreation, subject to established rate limitations. Unless otherwise restricted by law, local governments may spend any other local revenue on public recreation programs.

Many local communities pursue alternative sources for their recreation funds. For example, some communities receive funding from local foundation and trust funds; others use occupancy-tax revenues for recreational facilities as part of tourism development programs; some localities publish "gift catalogs" identifying to potential donors particular needed items for recreation programs.

Funds for acquisition and development are available through a variety of federal, state, and private funding sources. For example, *Federal Land and Water Conservation* grant monies are available on a competitive basis for land acquisition and development. In addition, large corporate sponsors such as Carolina Power and Light and Weyerhaeuser frequently support community development projects.

Local governing boards can enhance recreation systems (including open space) in several ways:

- (1) Communities can employ the state's enabling statutes for subdivision regulations to require that developers reserve, dedicate, or provide funding for recreational areas in new subdivisions (G.S. 153A-331 and A-372).
- (2) G.S. A-274 authorizes counties to exchange, lease, sell, purchase, or enter into agreements regarding joint use of property with other governmental units. Using this authority, counties work school boards to transfer surplus school lands and structures to park and recreational uses. (Article IX, Section 67 of the state Constitution requires that the school system receive value in return for this transfer.)

- (3) The 1977 *Community Schools Act* (G.S. Chapter 115C, Article 13) opens schools for several community uses, including recreation. School facilities are becoming increasingly available to the public for recreation purposes. The charge for use of these facilities is generally very low (sometimes free).

Opportunities for Public Involvement

Local recreation programs are sometimes administered directly by local governing boards; many programs are administered by an established local recreation commission. Both types of board are composed of members of the public. Their meetings are open to the public.

Recreation programs are provided to the public. Most recreation services are free (such as open space and parks).

Local School Districts

Objectives

In North Carolina, public education is a function and responsibility of state government. Several state statutes and policies regulate local school operation. In general, the state board of education has full authority to maintain and operate the state's public schools.

Environmental Education in the A-P Region

The state Department of Public Instruction (DPI) is in the process of updating its statewide science curriculum requirements to include an environmental education component for all grade levels. The "Stewardship Plan" of the third draft of the APES *Comprehensive Conservation and Management Plan* includes a recommendation that the state Office of Environmental Education (OEE) work with the Department of Public Instruction to increase environmental training opportunities for the state's teachers. (Refer to Part Two of this document for a description of these two state agencies.)

Environmental education promotes awareness and understanding of the state's natural resources and encourages environmental stewardship. APES has inspired a variety of recent proposals and initiatives involving estuarine education.

Description

Local School Districts

The state's **school districts** (at both city and county levels) are the local administrative units of the state Board of Education. Local districts operate directly under the state Department of Public Instruction.

North Carolina general statutes classify each **county** as a school administrative unit. County-based schools are generally supervised and controlled by **county boards of education**. **City** school districts are areas within certain counties (or adjacent parts of two or more counties) that receive special State approval to operate on separate school units. Schools of a city unit are controlled by **city boards of education**.

Local School Boards

School boards (local boards of education) are elected locally. Each school board consists of at least five members (elected at large). Most school boards are instituted at the county level. City boards of education are created by special state legislative acts.

G.S. 115 guides the organization of local school boards. School boards are responsible for directing, supervising, and planning for the public schools of their districts. Local boards of education are corporate bodies with power to sue and be sued. G.S. 115-27 provides these boards with "all powers and duties conferred and imposed by law respecting public schools" (unless otherwise expressly given).

State statutes impose on these boards the following specific duties:

- (1) appointment of superintendent, teachers, principals and other professional staff;
- (2) preparation of the school budget; and
- (3) development of all rules and regulations necessary to govern enrollment of pupils.

Local School Superintendent

The district superintendent of schools is the school administrator at the local level. As the system's chief executive officer, the district superintendent serves as secretary to the local board of education. Duties of the district superintendent include: (1) recommending personnel to the district board of education, and (2) approving and signing state and local documents. The local board of education appoints the district superintendent for a term of two to four years. This appointment is subject to approval by the state superintendent and the state Board of Education, according to G.S. 115-39.

Role of County Commissioners in the Public Education Process

Each board of county commissioners is a central component of public education. County commissioners influence school policy primarily through the budget process. Because the county commissions hold local taxing power, their budgeting decisions influence priorities of basic educational issues. Local boards of education have no fiscal authority, and thus depend on their county commissioners for the school tax levy.

Funding and Staff

The basic financial support for the state's public school system comes from state rather than local revenues. However, capital improvements and plant maintenance are primarily paid for at the local level. The state pays for most other maintenance of the statewide system. All school funds and assets belong to the state. Local school officials and teachers are employees of the State of North Carolina.

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State income and sales taxes are the school system's primary sources of revenue. State support of schools generally occurs in the form of a flat grant to each school system (based on student enrollment figures and general operating costs).

State G.S. 115 (129-188) requires local school districts (and therefore, county commissions) to finance such items as school furniture, bus maintenance, insurance, plant maintenance, buildings and grounds, school and office supplies (such as books and other instructional supplies), and water and sewer facilities.

Most federal financial support occurs through categorical funds (appropriated to the state by Congress for specific educational purposes, such as lunchrooms, instruction and guidance services, school library resources, textbooks and other instructional materials, and special programs). Federal money is channeled through the state board of education for distribution to local districts. Federal revenue-sharing funds are appropriated directly to local governments, and may be used for any purpose.

Local school boards do not have authority to levy taxes to support the schools they administer. Such tax levying authority belongs to county boards of commissioners. Cities may also levy supplemental taxes.

Opportunities for Public Involvement

Local school boards are publicly elected, and their meetings are open to the public. Meetings of county commissioners are also open to the public. Occasionally, the public is asked to vote on local school bond referendums.

COUNTY AND MUNICIPAL PROGRAMS

Several county and municipal programs correspond with the goals of the Albemarle-Pamlico Estuarine Study (as stated in the draft *Comprehensive Conservation and Management Plan*). Administration of these programs vary throughout the state. For example, the same program may be administered by one community's planning department and another community's engineering department.

Relevant programs are described in the following sections. Descriptions of the administering agencies are contained elsewhere in this document.

Emergency Planning

Objectives

In the last few years, local governments have increased their involvement in risk reduction for their communities. In 1986, Congress passed the *Emergency Planning and Community Right-to-Know Act (EPCRA)*. This Act is also known as Title III of the 1986 Superfund Amendments and Reauthorization Act (SARAH). The EPCRA contains four major provisions:

- (1) planning for chemical emergencies;
- (2) emergency notification of chemical accidents and releases;
- (3) reporting of hazardous chemical inventories; and
- (4) toxic chemical release reporting.

The emergency planning section of the Act is designed to guide communities in preparing for and responding to emergencies involving hazardous substances. Every community in the United States must be part of a comprehensive emergency plan.

In North Carolina, the Division of Emergency Management (within the Department of Crime Control and Public Safety) serves as the state emergency response commission (SERC). The Division oversees local coordination of emergency management and response programs, divides the state into local emergency planning districts, and appoints a local emergency planning committee (LEPC) for each district. LEPC members represent different fields of expertise to ensure that all the necessary elements of the emergency planning process are represented.

The LEPC is the focal point for EPCRA (Title III) activities in each North Carolina community. The Act requires LEPCs to perform the following tasks:

- Develop and update a comprehensive emergency plan for its community. (Plans were to be completed before October 1988).
- Receive information about accidental chemical releases.
- Collect, manage, and provide public access to information on hazardous chemicals in the local area.

Most LEPCs also educate the public about risks from accidental and routine releases of chemicals and work with facilities to minimize those risks.

Description

State Emergency Response Commission

As the state emergency response commission (SERC), the Division of Emergency Management supervises and coordinates the activities of local environmental planning committees (LEPCs).

Local Emergency Planning Committees

Local emergency planning committees (LEPCs) must include the following representatives:

- Representatives of elected state and local officials;
- Law enforcement officials, civil defense workers and fire fighters;
- First aid, health, hospital, environmental and transportation workers;
- Representatives of community groups and the media;
- Owners and operators of facilities subject to the emergency requirements (industrial plants and other users of chemicals, such as hospitals, farms, small businesses, etc.);

Local Emergency Plans

Local emergency plans must meet several specifications. They must:

- (1) use the information provided by industry to identify the facilities and transportation routes where hazardous substances are present;
- (2) establish emergency response procedures, including evacuation plans, for dealing with accidental chemical releases;
- (3) set up notification procedures for those parties who will respond to an emergency;
- (4) establish methods for determining the occurrence and severity of a release and the areas and populations likely to be affected;
- (5) establish ways to notify the public of a release;
- (6) identify the emergency equipment available in the community, including equipment at facilities;

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- (7) contain a program and schedules for training local emergency response and medical workers to respond to chemical emergencies;
- (8) establish methods and schedules for conducting exercises (simulations) to test elements of the emergency response plan; and
- (9) designate a community coordinator and facility coordinators to carry out the plan.

LEPC Software

Available software can provide LEPCs with a way to store information submitted by facilities, conduct hazards analyses, map hazards in their community as part of the planning process, and store information on the properties and health risks posed by chemicals in their area. EPA provides chemical data bases to states, as well as public and private sector computer firms. EPA has also collaborated with NOAA to develop the "Computer-Aided Management of Emergency Operations" (CAMEO) program to assist emergency planners.

Funding and Staff

When Title III was passed, Congress did not provide funding for most of the required activities. Some LEPCs work with little additional money (for example, LEPC members may donate their time).

The Environmental Protection Agency (EPA) and the U.S. Federal Emergency Management Agency (FEMA) provide technical assistance to LEPCs and the N.C. Division of Emergency Management in the form of guidance manuals, chemical profiles, workshops, and other technical assistance.

Opportunity for Public Involvement

Facilities must report (to the LEPC, state Division of Emergency Management, and local fire departments) the amount, location and potential effects of hazardous chemicals present in each community. This information provides a tool which can be used to lower chemical hazards in each community by reducing chemical inventories. These reports are essential for LEPCs and emergency response workers in preparing emergency plans. Fire departments and public health officials use this information to plan for and respond to emergencies.

The public can gain access to reports of hazardous chemical inventories by contacting their local environmental planning committee or the state Division of Emergency Management (within the Department of Crime Control and Public Safety).

Local emergency planning committees must notify the public about their emergency plans (and plan updates) by publishing notices and scheduling public hearings. The LEPC must also conduct emergency drills to make sure the plan will work if an accident occurs.

Water Supply Watershed Protection

Local Water Supply Management and Protection Ordinances

Since 1986, the N.C. Environmental Management Commission and the Division of Environmental Management (DEHNR) have administered a Water Supply Protection Program. Initially, the program was administered as a voluntary program where counties and municipalities could pursue protective measures for their water supply watersheds. The protective measures included limitations on the type of wastewater discharges that were allowed to discharge into the water supply watersheds. These were administered by the Division of Environmental Management and, in turn, local governments would adopt and enforce density or built-upon surface area limitations through land use control ordinances to protect surface waters from non point pollution sources, namely storm water runoff.

In 1989, the General Assembly ratified the *Water Supply Watershed Protection Act*, codified as General Statutes 143-214.5 and 143-214.6. The *Act* and a subsequent amendment in 1991 mandated the Environmental Management Commission to adopt minimum statewide water supply protection standards by January 1, 1991 and to reclassify all existing surface water supply watersheds to the appropriate classification by July 1, 1992. The current version of the *Water Supply Watershed Protection Rules* was adopted on February 13, 1992. The Environmental Management Commission reclassified all of the surface water supplies on May 14, 1992 and the classifications and *Rules* became effective on August 3, 1992.

The current *Rules* require that all local governments having land use jurisdiction within water supply watershed adopt and implement water supply watershed protection ordinances in compliance with the statewide minimum standards. The *Act* requires all municipalities with more than 5000 population to submit their ordinances by October 1, 1993; and all affected counties to submit their ordinances by January 1, 1994. In order to assist local governments a model ordinance was approved by the Commission on July 9, 1992 and distributed to local governments. This document suggests appropriate language for adopting an ordinance under the general ordinance adoption powers. The language is also useful for local governments adopting their ordinances as zoning overlay districts and for local governments implementing the *Rules* by amending their subdivision regulations. A copy of the model ordinance and related water quality requirements is available from the Classifications and Standards Group.

Small Watersheds Program

The *Watershed Protection and Flood Prevention Act of 1954* enacted the Small Watersheds Program in North Carolina (P.L. 83-566). The program is a cooperative effort among federal, state, and local governments to plan and implement water resource projects in watersheds of less than 250,000 acres.

Soil and water conservation districts initiate projects, which must be approved by the N.C. Soil and Water Conservation Commission before any federal action is taken. Once project proposals are endorsed locally and by the Soil and Water Conservation Commission, several agencies (including SCS and other federal, state, and local agencies) provide technical and financial assistance to develop and implement the watershed plan. Local governments, sponsors, and the federal government provide most project funding.

All projects must meet requirements of the National and State Environmental Policy Acts (NEPA, SEPA) and other environmental laws and regulations. Examples of project activities include the installation of flood prevention and multipurpose dams, channel improvements, and dikes.

Public involvement with the Small Watersheds Program and River Basin Investigations and Surveys Program includes: (1) work sessions with the local governments/sponsors and steering committees, (2) informational public meetings to educate the local citizens on the details of the project or study, and (3) public hearings as required by the NEPA and SEPA processes.

Emergency Watershed Protection Program

The Emergency Watershed Protection program is an immediate response program designed to relieve imminent hazards to life and property caused by floods and products of erosion that have been created by natural disasters. The program facilitates the deployment of SCS technical and financial assistance to local communities to restore blocked stream channels and remove other hazards that threaten life and property.

Municipal Storm water Sewer Systems (MS4)

Under the NPDES Storm water Program, municipal separate storm sewer systems (MS4) serving a population of 100,000 or more must apply to N.C.DEM for an NPDES permit for storm water discharge from their system. The municipalities currently covered are Charlotte, Winston-Salem, Greensboro, Durham, Raleigh, and Fayetteville/Cumberland County. (Durham and Raleigh are located in the A-P Region.)

MS4 applications were submitted in a two part process to facilitate the development of information to characterize storm water discharges, pollutant sources, legal authorizes and management alternatives. The application process culminated in the development, by each MS4, of a comprehensive storm water Quality Management Program to control the discharge of pollutants from their storm sewer systems. The complexity associated with storm water control in municipal systems makes it necessary to provide flexibility in the development of system-specific programs for stormwater management.

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Water Supply Planning

The "State Water Plan" amendment (Carolina House Bill 157 (G.S. 143-355(l)&(m)) requires "Water Supply Plans" from local governments who provide (or plan to provide) public water services. The purpose of these plans is to assure adequate future water supply and avoid or resolve shortages or conflicts among users.

At a minimum, local Water Supply Plans must include present and projected population and water use within the service area, present and future water supplies, and projected water needs. The N.C. Division of Water Resources (a division of DEHNR) will prepare a State Water Supply Plan using the information provided in the local plans. The target for completing local Water Supply Plans is 1994. Plans must be revised every five years to reflect changes in data and projections.

Coastal Area Land Use Planning

In 1974, the *Coastal Area Management Act* established a cooperative program of coastal area management between local governments and the state. The Act requires the state's twenty, coastal communities to develop land use plans. N.C. Administrative Code Title 15A, Subchapter 7B contains guidelines for these plans, which are intended to give local leaders the "opportunity and responsibility to establish and enforce policies to guide the development of their community."

The purpose of the state guidelines is to assist local governments in each coastal county with the preparation of their own individual plans. Each county and the municipality within the coastal counties is "encouraged to develop a plan that reflects the desires, needs and best judgment of its citizens." The state's Coastal Resources Commission must approve all local plans. After approval, the plans become part of the "North Carolina Coastal Management Plan" (which is intended to provide protection, preservation, and orderly development and management of the state's coastal area).

Governor Martin's 1993 *Executive Order 20* designated 1994 as "The Year of the Coast" and created a Coastal Futures Committee on Coastal Area Management. The Committee will study the North Carolina coastal management program and similar programs in other states to:

- develop a set of recommendations and submit a final report to the Governor, Coastal Resources Commission and Coastal Resources Advisory Council by September 1, 1994 which will include an assessment of appropriate future directions or options for the coastal management program, including recommendations for administrative and legislative action.

- arrange for celebrations of the 20th anniversary of CAMA;

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- focus media and public attention on the results of CAMA and the value of citizen involvement in coastal planning; and
 - coordinate its efforts with local officials and events to help promote coastal events.
-

Partnership for Quality Growth

North Carolina established a "Statewide Comprehensive Planning Committee" in 1991. In early 1993 the Committee submitted its final report to the General Assembly, recommending that the state create a thirty-member "Partnership for Quality Growth."

The Partnership would promote planning strategies to:

- (1) guide growth and land use,
- (2) foster economic development,
- (3) protect and preserve natural and cultural resources,
- (4) promote efficient infrastructure development, transportation systems, and affordable housing, and
- (5) enhance the quality of life for the citizens of North Carolina.

The Partnership would have an "Environmental Protection and Preservation" subcommittee and several other subcommittees (addressing economic development, quality of life, and other concerns).

In April 1993, the General Assembly referred the "Partnership for Quality Growth" Bill (Senate Bill 736) to the Senate's Rules and Operation Committee for consideration. The Senate did not reconsider the bill during the legislative session which ended August 1993. It may become part of the package of bills to be considered in the next legislative session.

Septic Tank Regulation

State statutes regulate septic tank installation and inspection under Chapter 130A, Article 11.

State and local agencies are responsible for inspecting and supervising installation of septic tanks and other on-site sewage treatment facilities. Jurisdiction over sewage treatment is divided among two state agencies (DEM and DEH, within the Department of EHNR) and local health departments. DEH has jurisdiction over privately-owned, subsurface disposal systems. DEM has jurisdiction over other on-site systems.

Most counties have adopted state rules; a few counties have adopted their own, state-approved rules. DEH staff members authorize local sanitarians in county health departments

to permit on-site systems. DEH provides counties with technical expertise on permit reviews, as needed.

Sedimentation Pollution Control

The purpose of sedimentation pollution control is to prevent silting of streams with uncontrolled storm water runoff.

The *N.C. Sedimentation Pollution Control Act of 1973* (as amended) officially initiated the Sedimentation and Erosion Control Program. The state's Land Quality Section (DEHNR, Division of Land Resources) administers the program. The program regulates construction and other land disturbing activities that may cause excessive sedimentation, and involves a high level of local implementation.

The Sedimentation and Erosion Control Program involves a process of plan submission and approval. All agricultural and mining activities are officially exempt from these regulations. However, forestry activities must use accepted Best Management Practices (BMPs) to qualify for an exempt status. Agricultural runoff is addressed by the state's agricultural cost-share program (described in under USDA and in the next section of this chapter).

Prior to any land disturbance, a *Sedimentation and Erosion Control Plan* must be submitted and approved. In addition, control measures must be installed in accordance with program requirements. Plans must be adequately implemented on-site, and measures must be effective. The program requires maintenance of measures during construction, and establishment of permanent ground cover following completion of development.

Mandatory Sedimentation and Erosion Control plans must meet four performance standards:

- (1) Each plan must be submitted thirty days before the commencement of land disturbing activities, be approved by the agency with jurisdiction, and include descriptions of short- and long-term intentions;
- (2) Plans must include sufficient buffer zones along adjacent waters (trout streams require a minimum 25 foot undisturbed buffer);
- (3) All sediment must be retained on site, and permanent ground cover must be established within thirty working days or 120 calendar days after the completion of development or construction, whichever is shorter (in High Quality Water zones, the requirement changes to fifteen working days or 60 calendar days); and
- (4) Stabilization of graded slopes must be achieved within thirty working days after completing each grading phase.

Site managers and engineers determine the most economically effective method to control sedimentation and erosion. Failure to comply with any of these requirements can result in civil penalties of up to \$500 per day (or up to \$1000 for operation without a plan), a court ordered injunction, a stop-work order, or criminal penalties. All assessments, except those for starting without an approved plan, are directed to the educational fund. The Sedimentation Control Commission distributes these assessments to training manuals, school curricula, pamphlets, workshops, research, and studies.

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Permit fees (\$30 for the first acre and \$20/acre thereafter) go directly to the General Fund. In turn, roughly \$220,000 to \$300,000 are appropriated annually to the program office of the state.

There are 41 local (county and city) programs approved by the state's Sedimentation Control Commission. The Commission can become involved at any time to enforce the program or revoke a locality's delegated authority.

Some counties and cities employ zoning and other land-use ordinances to control non-point source pollution. Examples of local ordinances are buffer zones around lakes and streams, structural requirements (such as silt basins), and impervious surface regulations.

Agricultural Controls

The federal Soil Conservation Service (SCS) Cost-Share program (administered by USDA) provides 75 percent matching grants to encourage farmers to apply Best Management Practices (BMPs) to control soil erosion and runoff from pesticides and fertilizers.

Local soil and water conservation districts work closely with farmers in applying BMPs. Local districts review and approve soil conservation practices for individual farms under the "sodbuster," and "swampbuster" provision of the 1985 Federal Farm Bill (see USDA, SCS in Part One of this document). In order to maintain their federal commodity price supports, farmers must apply approved BMPs or stop farming highly erodible lands and drained wetlands.

G.S. 153A-440 authorizes counties to support SCS's soil and water conservation efforts. Several of the state's counties fund or otherwise support SCS projects and activities.

SCS activities overlap significantly with the N.C. Agricultural Cost-Share Program (ACSP). ACSP helps those farmers in nutrient sensitive watersheds to install best management practices (BMPs) and protect water quality. The N.C. Division of Soil and Water Conservation provides funding, local Soil Conservation Districts administer cost-sharing, and SCS provides training, technical assistance, and vehicles. In addition, the ACSP has adopted Soil Conservation Service BMP standards and procedures.

Pursuant to the 1990 Farm Bill, local district boards, speaking for local residents, work with the SCS to determine local feasibility of suggested farming practices. Three members of the local boards are elected into office by local residents during regular election cycles. The N.C. Soil and Water Conservation Commission appoints two board members. SCS employees serve as staff to the local board.

REGIONAL ORGANIZATIONS

North Carolina's general statutes permit two or more local governments to form regional organizations to serve citizens of each of those governments. Governments can join together to form such organizations as water and sewer authorities or districts, airport authorities, regional housing authorities, regional planning commissions, or councils of government. Cities and counties may agree to consolidate in accordance with G.S. Chapter 153A, Article 20. Communities may form joint planning boards according to G.S. Chapter 153A, Article 20, Part 1.

Membership, powers and duties of a **joint planning board** are detailed in the agreement creating it. **Regional planning commissions** can involve any number of counties and cities, in accordance with G.S. Chapter 153A.319-400. Membership and support of this commission are established in the agreement creating it.

Local governments can create **economic development commissions** pursuant to G.S. 158.8-15. General Statutes 153A-398 provide authority for **regional planning and economic development commissions**. (Such commissions combine the functions of regional planning commissions and economic development commissions, or EDCs. EDCs are described on the next page.)

State statutes 160.470-484 allow local governments to exercise joint powers. By agreement with any number of counties and cities, a county may establish a regional **council of governments**, in accordance with G.S. Chapter 160A, 470-484.

Lead Regional Organizations

Objectives

In 1969, the North Carolina legislature charged the Department of Administration with cooperating with counties, municipalities, federal agencies, multistate commissions and private agencies and organizations to develop "a system of multicounty regional planning districts to cover the state." (G.S. 143-341)

In 1970, Governor Robert W. Scott issued Executive Order Number 3, dividing the state into 17 districts. The Secretary of the state Department of Administration designated a Lead Regional Organizations (LRO) for each district. LROs became the single, comprehensive organizations for each region. The objective of each LRO was to provide technical assistance and long range planning to local governments on a variety of regional issues. Organizational structure was left up to each region. However, the state charged LROs with certain duties, including, but not limited to, the following:

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- To provide necessary leadership for effective regional planning and program implementation.
- To undertake the federal A-95 Clearinghouse function for the region.
- To develop an "Overall Program Design," "Regional Development Plan" (consistent with the statewide plan), and "Annual Work Program" (to implement those plans).
- To develop a minimum budget and staff capability to execute their duties.
- To perform planning activities for the entire region (regardless of membership).
- To perform planning and administration of intergovernmental human service programs.

Description

The State of North Carolina currently has 18 regional organizations (or "regional councils"). Of those eighteen, 13 are "Councils of Government" and five are Planning and Economic Development Districts or Commissions, or PDCs. (Although the state's regional councils are often called "Councils of Government," this reference is not technically correct.) Membership on a COG's board is generally limited to local elected officials. Regardless of an LRO's structure or name, it has no authority to levy taxes or assessments of the public and can undertake only those activities approved by its members.

Regional councils within the A-P Study region are listed below:

- J ("Triangle J COG") - Orange, Durham, Wake and Johnston counties;
- K ("Kerr-Tar Regional COG") - Person, Granville, Vance, Warren, and Franklin counties;
- L ("Region L COG") - Northampton, Halifax, Nash, Edgecombe, and Wilson counties;
- P ("Neuse River COG") - Wayne, Greene, Lenoir, Jones, Craven, Pamlico, and Carteret counties;
- Q ("Mid-East PDC") - Hertford, Bertie, Martin, Pitt, and Beaufort Counties;
- R ("Albemarle PDC") - Currituck, Camden, Pasquotank, Perquimans, Chowan, Gates, Washington, Tyrrell, Dare, and Hyde Counties.

All of North Carolina's LROs are organized by cooperative agreements between local governments. Although regional councils often administer state and federal programs for their members, they are not federal or state entities.

The state considers the following criteria in determining LRO boundaries:

- economic and social interrelationships between urban centers and surrounding areas;
- existing cooperative programs among the communities in the region;
- minimum of three counties per region;
- minimum population base of 100,000 per region; and
- physical features (mountain ranges, rivers, etc.) that might separate regions.

Regional councils provide to local governments a large array of programs and services. Programs vary, depending on the priorities of each board. Each LRO maintains a nucleus

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staff to serve local governments. All of the state's LROs provide technical assistance to their members, including the provision of current information on state and federal programs.

In 1989, the state Department of Administration conducted a survey of regional councils to determine program and service offerings. This survey found that LROs within the A-P region offer the following services and programs pertinent to the A-P Study:

- Serve as clearinghouses and data centers (J, K, L, P, Q, R)
- Receive/administer Community and Economic Development Technical Assistance funds (J, K, L, P, Q, R)
- Assist members with solid waste management issues (J, K, L, Q, R)
- Provide grantsmanship assistance (K, L, Q, R)
- Provide Community Development Block Grant assistance (K, L, Q, R)
- Provide Community Revitalization assistance (K, L, Q, R)
- Provide Historic Preservation assistance (K, L)
- Provide Environmental program assistance (J, K, L, P, Q, R)
- Involved in water quality issues (J, K, L, P, Q, R)
- Involved in land use or growth management efforts (J, K, L, Q, R)
- Provide CAMA assistance (Q, R)
- Revolving loan fund involvement (K, P, R)

Special Services

Local governments sometimes contract with their LROs for additional technical assistance in specific areas. They may also contract for ongoing, part-time, technical assistance.

The state's LROs offer specialized local technical assistance to local governments in a variety of areas (for example, they may offer legal services, personnel services, training, industrial engineering services, and/or computer services). Some regional commissions also provide planning, annexation studies, consolidation studies, surveys, needs assessments, computer mapping services, and fiscal management services. A few assist local governments in drafting zoning ordinances and subdivision regulations.

Several regional councils are involved in regional development programs and strategies, such as tourism development, strategic economic planning and strategic planning for transportation corridors.

Funding and Staff

Regional councils are "creatures of local government," responsible to local elected officials. The state provides LROs with regional data and analysis. Most LRO funding comes from federal and local revenues (including revenue from local government membership dues and service contracts). However, since 1986, the state has provided regional councils with

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appropriations. The 1986, 1987, and 1989 sessions of the General Assembly appropriated to LROs a total of \$990,000 per fiscal year (\$55,000 per region).

Economic Development Commissions

Objectives

In order to promote local economic development, any North Carolina municipality, county, or group of cities and counties may create an economic development commission or EDC (pursuant to G.S. Chapter 158, Article 2). State law allows local governments to staff and finance EDCs.

State statutes require that local (municipal, county, joint, or regional) planning boards or commissions provide to their economic development commission an "Economic Development Program" for all or part of their area. The role of the EDC is to develop projects to carry out the Economic Development Program. The intent of these projects is to: (1) attract new industries, (2) encourage existing industries and agricultural development, (3) encourage new business and industrial ventures by local as well as foreign capital, and (4) perform related activities.

Factors that attract ordinary citizens generally attract commercial development. Recognizing this tendency, some local economic development programs have recently increased their focus on resource planning to promote local "quality of life."

Economic Development in the A-P Region

A few communities in the A-P region are seeking to promote moderate growth through "sustainable development." Recent efforts have involved cooperative ventures among state, regional and local officials. Local planning boards and economic development commissions can greatly assist in these efforts.

One example of this type of development is "eco-tourism" (also called "environmentally oriented tourism" or "nature-based tourism"). Eco-tourism provides a means of promoting local, economic development while conserving natural resources. This type of industry attracts tourists by providing opportunities to study and enjoy a region's natural resources. By promoting sustainable development, economic development commissions and planning boards can encourage environmentally compatible growth in the A-P region.

Description

The function of an EDC is to:

- (1) conduct industrial surveys as needed;
- (2) advertise in periodicals or other communications media;
- (3) furnish advice and assistance to business and industrial prospects that may locate in its area;
- (4) furnish advice and assistance to existing businesses and industries;
- (5) furnish advice and assistance to persons seeking to establish new businesses and industries; and
- (6) engage in related activities.

EDCs encourage formation of private business development corporations or associations to carry out such projects as securing and preparing sites for industrial development, constructing industrial buildings, or rendering assistance to businesses and industries. EDCs advise and assist these corporations or associations.

Other local government agencies can promote positive economic development. For example, planning boards can identify resources for attracting particular industries. They can also plan for the impacts of industrial growth. Local governing bodies can develop public facilities plans to guide and accommodate growth.

G.S. 153A-398 provides authority for **regional planning and economic development commissions**. Such commissions combine the functions of regional planning commissions and economic development commissions (EDCs). (Planning boards are described elsewhere in this chapter.)

Funding and Staff

EDC activities may be financed from local surplus funds or from proceeds of taxes levied from this purpose.

Opportunities for Public Involvement

Numerous federal, state, and private agencies provide funding or other assistance for economic development programs. One role of the EDC is to direct interested local groups toward this assistance.

Water and Sewer Authorities

Objectives

The state allows two or more local governments to cooperatively create a new political subdivision to provide a service to citizens of each of the creating governments. Examples of this type of cooperation are airport authorities, regional housing authorities and several types of water and sewer organizations.

Water and sewer may be directly provided by a city or county. Or these services may be provided by interlocal contract, joint management agencies, sanitary districts, metropolitan water or sewer districts, or water and sewer authorities. Water and sewer authorities are described in this section.

Chapter 162A, Article I of the state's General Statutes authorize the creation of water and sewer authorities. These authorities can be formed for several reasons. Small towns may find that joining a water and sewer authority is more efficient and less expensive than trying to provide these services on their own. Cooperation can also provide benefits such as economies of scale and flexibility.

Jurisdiction (or area of service) is not set by statute, but may be set by participating government units. The organizing units also establish composition of their governing body (based on such factors as population, assessed value, anticipated use of services, etc.) Each organizing unit appoints an agreed upon number of members who serve three-year terms.

Water and sewer authorities are subject to the conditions set by their organizing units. All organizing units must agree on the conditions of the organization (such as future areas of service, procedures for review of plant expansion, reserve of water supply or sewage treatment capacity, etc.)

Description

Like municipalities and counties, water and sewer authorities have general corporate powers. As such, they can sue and be sued, and engage in contractual agreements. They are eligible for state and federal grants, and have the following **powers**:

- To own, extend and operate water and sewer systems.
- To acquire water and sewage systems by purchase, lease, gift or other method.
- To construct water and sewage systems.
- To contract with local governments.
- To issue revenue bonds.
- To establish rates and charges.
- To condemn property (This procedure is the same as used by cities and towns except that EMC approval is necessary if water or land with water rights is acquired.)

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In contrast to the state's counties and municipalities, water and sewer districts **do not** have the authority to perform the following functions:

- Land Use Planning
- Floodway Regulation
- Open Space Acquisition
- Economic Development
- Building Code Regulation
- Septic Tank Regulation
- Solid Waste Management
- Soil and Water Conservation (County function, only)
- Sedimentation Control
- Beach Erosion Control
- Regulate Mining Practices
- Regulate Forestry Practices
- Oil Pollution Control
- Pesticides Regulation
- Animal Waste Regulation
- Air Pollution Control
- Regulation of Storm water Facilities
- Require Installation of Water and Sewer in New Subdivisions
- Levy Property Taxes
- Issue General Obligation Bonds
- Impose Special Assessments for Extension of Lines
- Regulate Land Subdivision
- Zoning
- Exercise General Police Powers
- Provide Other Public Services

Funding and Staff

Organizational expenses may be contributed or advanced by the organizing units. A proportion shared by each unit is determined by mutual agreement. Employees are appointed by or at the direction of the authority board.

1. In writing this chapter, the author borrowed heavily from the following sources:

Ferrell, Joseph. 1979. *County Government in North Carolina*. Institute of Government, UNC, Chapel Hill, NC.

Lawrence, David M. and Warren, Wicker J. 1982. *Municipal Government in North Carolina*. Institute of Government, UNC, Chapel Hill, NC.

Stuckey, Sarah. 1989. *Regional Councils in North Carolina*. North Carolina Department of Administration.

North Carolina Local Government

Warren, Jake Wicker. 1975. *Outline of Alternative Organizational Arrangements for Providing Water and Sewerage Services in North Carolina*. N.C. Institute of Government, UNC, Chapel Hill, NC.

Whitaker, Gordon P. 1993. *Local Government in North Carolina*. Gordon P. Whitaker and the North Carolina City and County Managers' Association, Raleigh, NC.

APPENDIX

APPENDIX A:
**ALBEMARLE-PAMLICO DEMONSTRATION, EDUCATION, AND
OUTREACH PROGRAMS**

A-P Education Projects

The A-P Study has supported several projects that are designed to increase public awareness and aid in distributing relevant knowledge about the estuaries to the public.

A-P educational projects include:

- Development of a citizen water quality (estuarine) monitoring network;
- A state-of-the-estuaries booklet;
- Radio and television Public Service Announcements (PSAs);
- Media tours;
- Workshops on management issues and a management guidebook;
- Videotapes and slide shows;
- A program newsletter;
- Public meetings;
- *A Guide to the Estuaries* booklet;
- "Journey of the Striped Bass" and "Precious Waters" aquarium exhibits;
- Community educational outreach;
- Educational calendars;
- Teacher environmental education programs and workshops, sometimes in conjunction with other government agencies, including Soil and Water Conservation Districts, Department of Public Instruction, the Office of Environmental Education (DEHNR), and the US Fish and Wildlife Service;
- Participation in Public School Environmental Field Days;
- Development of an environmental curriculum guide (in conjunction with the NC Department of Public Instruction);
- Participation in a variety of outreach programs, including a sustainable development workshop sponsored by the Environment Resource Project of Chapel Hill in June 1993, the 1993 Coastal Celebration held in Raleigh, and exhibits at the Association of County Commissioners' Annual Meeting in August 1993, and the NC League of Municipalities Annual Meeting to be held in October of 1993;
- Participation in an environmental education day camp for children and teachers (the EPA-funded "Camp Wannagoma" at Goose Creek State Park in Beaufort County);
- Development and distribution of an APES bookmark; and
- Development and distribution of A-P Study fact sheets, ranging from individual selected studies to a wide variety of informational topics. (This effort is supplemented with US Fish and Wildlife environmental education activity kits.)

Video productions include two tapes produced with the NC CGIA about GIS systems, a tape of APES Director, Randall Waite discussing the A-P Study on a regional television program "Newsleader Sunday," and coverage of the April 1993 coastal conference, "Insight 20-20 View: Your Community, the Economy, and the Future" held in Dare County.

A-P Study: Program Involvement and Demonstration Projects

The A-P Study helped fund several programs mentioned in the preceding section. The Study has also provided for public involvement in the study process and through numerous demonstration projects, listed below.

A-P Program Involvement:

- Albemarle Citizens Advisory Committees and Meetings;
- Pamlico Citizens Advisory Committees and Meetings;
- A-P Study Annual Meetings;
- Public Workshops and Meetings on the Comprehensive Conservation and Management Plan (CCMP);
- Implementation Summit for the CCMP.
- User-Group (Consensus Building) Workshops
- Public Hearings on CCMP

A-P Demonstration Projects:

- Animal Waste Management;
- Merchants Mill Pond - BMP Implementation;
- Storm Water Detention Basin: Greenville, N.C.;
- Marsh Grass Protection Through the Installation of Low-Cost Breakwaters;
- Solid-Set Waste Management Installation;
- Composting Farm Animal and Seafood Processing Residues, and Recycling Waste Management Systems.

Opportunities for coastal and estuarine education have recently increased for youths and adults. This increase is largely due to the initiative of individuals in the public school system, as well as state agencies, the media, and environmental groups. The A-P Study stimulated public education and supported several projects. Many of these projects have involved teacher training and public awareness. The A-P Study maintains a very active public awareness and participation program.

While there has been a significant increase in educational programs, many of these efforts are sporadic, dependent upon one-time funding, and sustained by the voluntary efforts of a few leaders. These efforts have reached many people. Increased coastal and estuarine knowledge among the state's population would stimulate more citizens to participate in protecting and enhancing the coastal environment.

Education Curriculum Materials

Educational Projects

"North Carolina Coastal Plain: A Geologic and Environmental Perspective" is an eight-part video accompanied by scripts and a student activity guide. This package was developed by the N.C. Department of Public Instruction, East Carolina University, and Texasgulf, Incorporated. It correlates with the eighth grade Standard Course of Study in social studies and science, and is suitable for grades four through twelve. Materials may be obtained through UNC Sea Grant for thirty dollars.

"Project Estuary" is a multidisciplinary curriculum guide appropriate for grades five through ten. The guide includes a variety of activities and materials designed to fit into the existing science curriculum. This project was developed by the N.C. National Estuarine Research Reserve System, written by Gail Jones, and published by the N.C. Division of Coastal Management.

"Project Model Outdoor Science Teaching (MOST) Environmental Curriculum: Pitt County Schools" is an outdoor education program designed to complement ongoing kindergarten through sixth grade science instruction. The project encourages the use of local natural resources as alternatives to distant, often expensive, field trips. Project MOST serves more than 5,000 students each year. It was developed by Pitt County Schools and funded by the Association of Science-Technology Centers in Washington, D.C. The Science Teacher Education at Museums (STEAM) program (sponsored by the General Electric Foundation). Pitt County Schools and the East Carolina University Science/Math Education Center match teacher training funds for the project.

"Project Wild/Aquatic WILD" is an educational and teacher training packet. The project includes activity guides for kindergarten through high school teachers. Aquatic WILD material is designed to develop students' awareness, knowledge, skills, and commitment. This approach leads to informed decision making, responsible behavior, and constructive actions concerning wildlife and the aquatic environment. The Western Association of Fish and Wildlife Agencies and the Western Regional Environmental Education Council (WREEC) initiated Project WILD. The N.C. Wildlife Resources Commission is the project's North Carolina sponsor. The project provides educational guides to teachers participating in training workshops.

"Project Learning Tree (PLT)" is an award-winning environmental education program designed for teachers and other educators working with students in kindergarten through twelfth grades. PLT provides interdisciplinary instructional activities, workshops, and in-service programs for teachers and youth group leaders. The American Forest Foundation (AFF) and the WREEC jointly developed this project. Classroom teachers and other educators, resource agency personnel, representatives of private conservation groups and forest company representatives develop the project's materials. PLT has a significant water resources component, and is growing

in popularity among North Carolina teachers. (For example, in 1988, 876 teachers were trained in thirty-three PLT workshops.) In North Carolina, the N.C. Agricultural Extension Service and the N.C. Forestry Association sponsor and coordinate the program.

"WOW! : The Wonders of Wetlands" - an educator's guide. Written to meet the needs for comprehensive classroom and outdoor wetlands activities, this guide contains materials for grades K - 12. WOW! is divided into chapters on introductory activities; the wetland community - plants and animals; water; soil and issues. Individual activities can be used to enhance lessons in math, social studies, language, etc. Also included is a restoration and action guide which lets teachers and students go beyond simple awareness of the environment and its problems. WOW! is a product of Environmental Concerns, Inc., St. Micheal's Maryland.

"CATCH" - an interdisciplinary conservation education program that focuses on aquatic environments through the study of fish, outdoor ethics, water safety, and fishing skills. CATCH is sponsored by the N. C. Wildlife Resources Commission - Conservation Education Division, and the activities are formatted for use by youngsters 8 - 15 years old. CATCH has three phases: 1) Aquatic Resources Instruction, 2) Fishing Skills Practice, and 3) Fishing Clinic or Aquatic Field Trip.

"The CLASS Project" - targeted at junior high or middle school curriculum, the CLASS Project employs a "hands on" approach to learning. Published by the National Wildlife Federation, the CLASS Project contains conservation learning activities for science and social studies. Chapters include energy use; environmental issues; forest/watershed management; hazardous substances; wetlands; wildlife habitat management; you can make it happen; and digging deeper. The investigations and projects covering the first six context areas are designed as supplementary materials for existing curricula. Participation in the CLASS Project enables students to: 1) acquire knowledge about environmental concepts; 2) learn to observe, measure, collect data, classify, hypothesize, predict, make value judgements, communicate and solve problems concerning environmental issues; 3) develop an environmental ethic; and 4) use acquired skills and concepts in taking thoughtful, positive action that will protect and enhance the natural environment.

Teacher Workshops

"Elizabeth City State University Teacher Training Workshops":

With the support of the A-P Study, Elizabeth City State University conducted a series of three teacher workshops in 1989 on aquatic environmental management. These workshops stressed integration of aquatic management into classroom environment, development of class projects, and development of lesson plans.

"Water Quality Training Institute for Teachers": In 1989, UNC-CH conducted a two-week workshop to give middle, junior high, and high school public school teachers the opportunity to learn about the state's major water quality issues. The Institute was conducted

by the Environmental Resource Project of UNC-CH's Institute for Environmental Studies and the UNC-CH Department of Environmental Sciences and Engineering with support from the N.C. Center for Math-Science Education. The Institute paid teachers a stipend of thirty-five dollars per day. Teachers earned two graduate credits from UNC-CH for attending the Institute.

"Camp Wannagoma" was held in August of 1993, in conjunction with the Albemarle-Pamlico Study, the NC Office of Environmental Education (DEHNR), the Beaufort County 4-H, the city of Washington Police Department, and the Pamlico-Tar River Foundation. The 1994 camp will be partially funded by the EPA. The 1994 camp sessions will include a teacher workshop training (in conjunction with NC State University Sci-Link Program) Teachers will be acquainted with topics pertinent to wetlands and coastal issues. They will then observe and participate with young campers in the camp environment. Based on those two experiences, teachers will develop curriculum materials to be used in their classrooms.

National Estuarine Research Reserves

North Carolina's Reserve encompasses four estuarine sites: Curricuck Banks, Rachel Carson, Masonboro Island and Zeke's Island. Established by the state in 1982 with matching funds from NOAA, the program is administered by the Division of Coastal Management.

North Carolina's estuarine reserve sites serve as natural, outdoor laboratories to educate scientists, students, and the public about coastal ecosystems. Most offer educational programs, guided tours, and workshops.

The Regional Technical Assistance Centers of the Department of Public Instruction provide a fifteen-minute video entitled "It's a Beautiful Day: A Visit to the N.C. National Estuarine Research Reserve." This video was designed for middle school students.

The Division of Coastal Management provides to the public an educational manual entitled "A Field Guide to Exploring the N.C. National Estuarine Research Reserve."

APPENDIX B

**CONTACTS FOR APES AND RELATED GOVERNMENT
PROGRAMS, AGENCIES, AND ENTITIES**

The descriptions contained in this document were initiated by an APES survey conducted in 1992. Since that initial survey, descriptions have been refined, reviewed, and altered to reflect recent changes in programs and organizations. Contacts from each entity were given the opportunity to review the description of their program or organization. All responses from these reviews that were received on or before September 10, 1993 are incorporated into this draft.

A-P Study

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National Park Service

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NORTH CAROLINA GOVERNMENT

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