

Chapter 21

State and Local Government Planning

21.1 The Role of State Government

Several commissions, agencies and programs handle state policies governing actions and activities in coastal areas. The *Environmental Management Commission* (EMC) is a 19-member panel that is appointed by the governor and legislative officials and is responsible for adopting rules for the protection, preservation and enhancement of the state's water and air. Water related rules include stormwater management, basinwide planning, nutrient management strategies and discharge permits.

The North Carolina Coastal Area Management Act (CAMA) established a cooperative program of coastal area management between local and state governments. The Act states that local governments shall have the initiative for planning, while the state government establishes areas of environmental concern. With regard to planning, the state government is directed to act primarily in a supportive, standard-setting, and review capacity, except in situations where local governments do not elect to exercise their initiative. In addition, the CAMA established the *Coastal Resource Commission* (CRC) within the Department of Environment and Natural Resources, whose duties include approval of Coastal Habitat Protection Plans and designation of Areas of Environmental Concern (AEC). After designation of these areas, the Commission is responsible for issuing all permits and establishes regulations to control development. The CRC is a 15-member board appointed by the governor to adopt rules and policies for coastal development and certify local land use plans for the 20 coastal counties and their communities. These regulations are implemented and permitted by the Division of Coastal Management (DCM) (see website <http://dcm2.ehnr.state.nc.us/>). An example of these rules is the establishment of a 30-foot buffer zone for building along estuarine waters.

The Division of Marine Fisheries is responsible for the stewardship of the state's marine and estuarine resources, which encompasses all coastal waters and extends to 3 miles offshore. Agency policies are established by the 9-member *Marine Fisheries Commission* and the Secretary of the Department of Environment and Natural Resources.

The N.C. Divisions of Water Quality, Coastal Management, Land Resources, Marine Fisheries, Soil and Water Conservation, Parks and Recreation and Environmental Health are responsible for activities and policies including stormwater management, development permits, erosion control programs, agriculture and land preservation, shellfish protection and recreation monitoring, just to name a few.

21.2 Coastal Habitat Protection Plan (CHPP)

North Carolina has approximately 2.9 million acres of estuarine and marine waters, comprising the largest estuarine system of any state along the Atlantic coast. North Carolina has a billion-dollar commercial and recreational fishing industry and ranks among the nation's highest seafood-producing states. Fish and shellfish species important to these industries depend on the

quality and quantity of habitats found along our rivers, sounds and ocean waters. Pressures from development, loss of habitat, pollution and degraded water quality threaten fish habitats. Shellfish beds, mud flats, marshes, sea grass beds, freshwater streams and swamps are in jeopardy. The loss of these vital fish habitats threatens fishing industry central to North Carolina's history and economic growth.

Recognizing these threats, the N.C. General Assembly passed the Fisheries Reform Act of 1997. Included within this law is a requirement for three of the state's regulatory commissions (Marine Fisheries, Environmental Management, and Coastal Resources commissions) to adopt a plan to manage and restore aquatic habitats critical to North Carolina's commercial and recreational fisheries resources. DENR developed the Coastal Habitat Protection Plan (CHPP) through a cooperative, multi-agency effort with public input. The CHPP was adopted by the three commissions in December 2004 and sets the stage for unprecedented improvements in fish habitat protection and restoration in North Carolina.

The CHPP is a detailed document that describes the six major fish habitats (water column, shell bottom, submerged aquatic vegetation, wetlands, soft bottom and hard bottoms) and provides scientific information on their ecological functions and importance to the species that inhabit them. It identifies threats and management needs for each habitat and recommends administrative, regulatory and non-regulatory steps necessary to protect, restore and enhance each habitat. These recommendations are a result of scientific studies, deliberations of the three commissions, and input from citizens who attended 20 public meetings held during the development of the CHPP.

DENR and the three commissions developed and adopted specific plans to implement the CHPP recommendations, with a focus on actions that could be taken based on existing resources. The implementation actions are organized according to four habitat management goals:

- GOAL 1. Improve effectiveness of existing rules and programs protecting coastal fish habitats
- GOAL 2. Identify, designate and protect strategic habitat areas
- GOAL 3. Enhance habitat and protect it from physical impacts
- GOAL 4. Enhance and Protect Water Quality

Visit <http://www.ncdmf.net/habitat/index.html> to learn more about the CHPP recommendations. Refer questions and comments to chpps@ncmail.net or call (252) 726-7021 or (800) 682-2632.

21.3 Oyster Action Plan

Over the past several years efforts to restore North Carolina's native oyster populations have increased significantly and annual oyster harvests have also increased. However, since the early 1900s, the oyster population has declined an estimated 90 percent due to a variety of factors such as habitat loss, pollution, diseases, and harvest pressure. Recognizing the need for concerted action to reverse this trend and the value of a healthy oyster population, an Oyster Forum was sponsored by the North Carolina Coastal Federation in 2003 and is supported by CHPP. The forum participants, including scientists, fishermen, policymakers and educators, drafted the *Oyster Restoration and Protection Plan for North Carolina: A Blueprint for Action*. Goals of this plan include:

- To restore and protect North Carolina’s native oyster populations and habitat so that estuaries are again robust, diverse, & resilient ecosystems,
- To build broad public awareness & support for the value of estuarine conservation & sustainable fisheries, and
- To work with a strong coalition to make significant, demonstrable & meaningful progress towards oyster restoration in the next 3 - 5 years.

To achieve the goals of oyster protection and restoration there needs to be an increase in funding and resources allocated to oyster research, public education, regulation enforcement and land acquisition. The Blueprint identifies a need to increase resources available to the Division of Marine Fisheries’ Shellfish Rehabilitation Program, planning oyster hatcheries at the NC Aquariums, and designating more oyster sanctuaries. Public education activities could focus on individual actions to include oyster shell recycling and oyster gardening. To promote a sustainable oyster industry opportunities for increasing mariculture are sought. Cleaning up existing sources of point and nonpoint source pollution in shellfish waters and watersheds is essential along with improving inspections and enforcement of permitted regulated activities. Communities not under stormwater regulations should voluntarily implement effective stormwater rules and include them in their CAMA Land Use Plans. DEH Shellfish Sanitation surveys are a valuable source for identifying water quality concerns and areas that threaten oyster health; supporting these surveys with resources and expanding their mapping capabilities is important for oyster restoration and protection. The Oyster Restoration and Protection Plan includes land acquisitions, resource enhancements, stormwater projects, and watershed restoration activities as potential projects.

21.4 NC Coastal Nonpoint Source Program

Section 6217 of the Federal 1990 Coastal Zone Act Reauthorization Amendments (CZARA) requires every state participating in the Coastal Zone Management Act Program to develop a Coastal Nonpoint Source Program (CNPSP). The purpose of this requirement, as stated in the Act, is to "strengthen the links between Federal and State coastal zone management and water quality management programs and to enhance State and local efforts to manage land use activities that degrade coastal waters and coastal habitats." To accomplish these goals, the federal agencies established 56 Management Measures that are to be used by each state to address the following nonpoint source pollution categories (first five items) and that provide tools to address the various sources of nonpoint pollution (last item):

- Agricultural Sources
- Forestry
- Urban Areas (*urban runoff; construction activities; existing development; on-site disposal systems; pollution prevention; and roads, highways and bridges*)
- Marinas and Recreational Boating (*siting and design; and marina and boat operation/maintenance*)
- Hydrologic Modification (*channelization and channel modification; dams; and streambank and shoreline erosion*)
- Wetlands, Riparian Areas and Vegetated Treatment Systems

The Management Measures are defined in Section 6217(g)(5) of CZARA as: "economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint sources of pollution, which reflect the greatest degree of pollutant reduction achievable through application of the best available nonpoint pollution control practices technologies, processes, siting criteria, operating methods or other alternatives." Detailed descriptions of the management measures, where they are intended to be applied, their effectiveness, and their costs can be found in EPA's /Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters/ at the following website: <http://www.epa.gov/owow/nps/MMGI/>.

At the federal level, the program is called the Coastal Nonpoint Pollution Control Program and is administered jointly by the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA). Within North Carolina, the state program is administered by the Division of Water Quality (DWQ) and the Division of Coastal Management (DCM) and is referred to as the Coastal Nonpoint Source Program.

North Carolina received approval from NOAA and EPA for its state program in August 2003. As part of the approval process, North Carolina had to demonstrate it has enforceable policies and mechanisms for the 56 Management Measures, and establish its program boundary. The State is required to develop a strategy to ensure all applicable Management Measures to protect and restore water quality are implemented within 15 years. In addition, the State must develop 5-year implementation plans to ensure adequate progress in achieving the 15-year program strategy.

North Carolina is relying on existing authorities and programs and proposed projects to meet federal requirements, but it may become apparent in the future that additional Management Measures and new regulations are needed to address significant sources of nonpoint sources. If a need arises for new or modified regulations, they would be proposed under existing agency frameworks.

The core of the state's CNPSP is increased communication and coordination between DWQ and key state agencies that have regulatory responsibilities for controlling nonpoint sources of pollution. This increased dialogue is facilitated in part by the state's CNPSP Coordinator and promotes identification of gaps, duplications, inadequacies and/or inefficiencies of existing programs and policies. Responsibilities of the state program coordinator also include developing the 15-year Strategy and successive 5-year implementation plans, serving as a liaison between DWQ and DCM, and participating in the development of nonpoint source outreach and educational activities. For information on the Program's activities, including final reports on projects funded, go to: <http://h2o.enr.state.nc.us/nps/CNPSCP/cnpep.htm> or contact Rich Gannon, DWQ Nonpoint Source Unit Supervisor at 919-807-6440.

21.5 The Role of Local Government in Land Use Planning

As residential and commercial development expands inward from the coast, many local governments are now faced with making land use decisions to limit the extent and areas of land development. Several coastal counties still have no zoning ordinances, or have large areas of the county that are not under zoning ordinances. In addition, property owners are being faced with

the decision to continue historical uses of their land or sell their property for development. Local governments and planning units within the Neuse River basin are listed in Table 64.

Table 64 Local Governments and Planning Units within the Neuse River Basin

County	Region	Municipality
Beaufort	Q	None
Carteret	P	None
Craven	P	Bridgeton, Cove City, Dover, Havelock, New Bern, River Bend, Trent Woods, Vanceboro
Durham	J	Durham, Butner
Franklin	K	Wake Forest, Youngsville
Granville	K	Butner, Creedmoor, Stem
Greene	P	Hookerton, Snow Hill, Walstonburg
Johnston	J	Benson, Clayton, Four Oaks, Kenly, Micro, Pine Level, Princeton, Selma, Smithfield, Wilson's Mills
Jones	P	Pollocksville, Trenton
Lenoir	P	Grifton, Kinston, La Grange, Pink Hill
Nash	L	Bailey, Middlesex
Orange	J	Hillsborough
Pamlico	P	Alliance, Arapahoe, Bayboro, Grantsboro, Mesic, Minnesott Beach, Oriental, Stonewall, Vandemere
Pitt	Q	Ayden, Farmville, Greenville, Grifton, Winterville
Wake	J	Apex, Cary, Fuquay-Varina, Garner, Holly Springs, Knightdale, Morrisville, Raleigh, Rolesville, Wake Forest, Wendell, Zebulon
Wayne	P	Eureka, Fremont, Goldsboro, Mount Olive, Pikeville, Seven Springs, Walnut Creek
Wilson	L	Black Creek, Kenly, Lucama, Saratoga, Sims, Stantonsburg, Wilson

Region	Name	Website
J	Triangle J Council of Governments	http://www.tjcog.dst.nc.us/
K	Kerr-Tar Regional Council of Governments	http://www.kerrtarcog.org/
L	Upper Coastal Plain Council of Governments	http://www.ucpcog.org/
P	Eastern Carolina Council	http://www.eccog.org/
Q	Mid-East Commission	http://www.mideastcom.org/

21.5.1 Land Use Plans

The Coastal Area Management Act (CAMA) requires each of the 20 coastal counties to have a local land use plan in accordance with guidelines established by the Coastal Resources Commission (CRC). A land use plan is a collection of policies, maps, and implementation actions that serves as a community's blueprint for growth. Each land use plan includes an inventory and assessment of existing environmental conditions along with local policies and a future land use map that address growth issues related to designated Management Topics: land use compatibility, infrastructure carrying capacity, natural hazards, public access, areas of local concern, and water quality.

Inventory and assessment specific to water quality include the identification of existing surface water quality, current situations and trends on permanent and temporary closures of shellfish waters, areas with chronic wastewater treatment system malfunctions, areas with water quality or

public health problems related to nonpoint source pollution, and locations where land use and water quality conflicts exist. Policies to address water quality issues are prepared based on the management goal, CRC planning objective, and land use plan requirements specified for the water quality Management Topic. For water quality, the management goal is to maintain, protect, and where possible enhance water quality in all coastal wetlands, rivers, streams, and estuaries. The CRC's planning objective is for communities to adopt policies for coastal waters within the planning jurisdiction to help ensure that water quality is maintained if not impaired and improved if impaired. Local communities are required to devise policies that help prevent or control nonpoint source discharges (sewage and stormwater) through strategies such as impervious surface limits, vegetated riparian buffers, maintenance of natural areas, natural area buffers, and wetland protection. They are also required to establish policies and future land use map categories that are aimed at protecting open shellfishing waters and restoring closed or conditionally closed shellfishing waters.

The CRC's guidelines provide a common format for each plan and a set of issues that must be considered during the planning process; however, the policies included in the plan are those of the local government, not of the CRC. By law, the role of the CRC is limited to determining that plans have been prepared consistent with State Land Use Plan guidelines, do not conflict with State or federal rules, and are consistent with the State's Coastal Management program. Once a land use plan is certified by the CRC, the Division of Coastal Management (DCM) uses the plan in making CAMA permit decisions and federal consistency determinations. Proposed projects and activities must be consistent with the policies of a local land use plan or DCM cannot permit a project to go forward.

At the local level, land use plans provide guidance for both individual projects and a broad range of policy issues, such as the development of regulatory ordinances and public investment programs. Although DCM monitors use of the land use plans through an implementation status report, strict adherence to land use plan policies and implementation actions is largely up to the local government. For this reason, community and local official support of the land use plan is critical to successfully achieving the goals for each management topic, including water quality.

21.5.2 Land Use Plans for Communities in the Neuse River Basin

The Division of Coastal Management's website provides a link to current land use plans, see: <http://www.nccoastalmanagement.net/Planning/planning.htm>

After review of several CAMA Land Use Plan (LUP) drafts, DWQ recommends that all communities adopt low impact development strategies and technologies for both new development and as options in retrofitting existing infrastructure. It is important for communities to undertake stronger stormwater controls and to update old or failing wastewater systems (e.g., on-site and treatment plants) to prevent future deterioration in water quality. Communities need to address development issues in regards to water quality by implementing the best available control options and by implementing enforcement. DWQ views LUPs as a tool to improve and protect the water quality that these communities' economies depend on. Unfortunately, many of the reviewed LUPs do not adequately reflect proactive planning above and beyond state minimum criteria. DWQ also recognizes and supports the importance of low impact development and appropriate technologies education for developers and local leaders. Overall, LUP policy

framework is too general. A large number of policies address adoption of ordinances and procedures by the local government, or defer to the State and Federal agencies' rules to meet the LUP requirements. The policies should provide specific guidance to aid in the development of local ordinances and procedures, not merely state that they will be adopted.

An evaluation of 40 CAMA LUPs written during the mid 1990's concluded, "local planning efforts are procedurally strong, addressing the ranges of issues they are required to cover, but analytically and substantively weak, providing little meaningful attention to regional environmental protection concerns" (Norton, 2005). This evaluation found that many LUPs completed the various required analysis in regards to identifying hazards, flood zones, soil limitations and environmentally sensitive areas, but later in the plan made future land classifications for development with no reference to these analyses (e.g., high density development on oceanfront property zoned as high hazard) (Norton, 2005). The plans did not adequately explain how land was determined suitable for future growth and development and did not adequately address potential adverse environmental impacts, beyond state compliance standards (Norton, 2005). Almost all the communities addressed the environmental impacts and thus need for improved wastewater systems, but "they uniformly failed to discuss the potential growth-inducing effects and resulting environmental impacts that come with infrastructure expansions" (Norton, 2005). In addition, stormwater management was addressed for controlling runoff and associated flooding, but the LUPs did not address the water quality related issues associated with stormwater management (Norton, 2005). In conclusion, regional environmental concerns and cumulative and secondary impacts of development were not addressed with specific management strategies in the LUPs.

DWQ and DCM should work with the local governments in implementing their water quality protection policies and other natural resource protection strategies outlined in their local land use plans.

21.6 Using Land Use Planning as a Tool to Reduce Impacts of Future Development

Proactive planning efforts at the local level are needed to assure that development is done in a manner that maintains water quality. These planning efforts can find a balance between water quality protection, natural resource management, and economic growth. Growth management requires planning for the needs of future population increases, as well as developing and enforcing environmental protection measures. These actions are critical to water quality management and the quality of life for the residents of the basin. DWQs review of draft CAMA Land Use Plans finds that the planning efforts do not adequately protect water quality. Many plans do not consider the compounded impact from development on water quality. Land Use Plans need to incorporate proactive measures to meet future growth demands to prevent water quality deterioration.

To prevent further impairment in urbanizing watersheds local governments should:

- (1) Identify waters that are threatened by development.
- (2) Protect existing riparian habitat along streams.
- (3) Implement stormwater BMPs during and after development.
- (4) Develop land use plans that minimize disturbance in sensitive areas of watersheds.
- (5) Minimize impervious surfaces including roads and parking lots.
- (6) Develop public outreach programs to educate citizens about stormwater runoff.

***Planning Recommendations
for New Development***

- Minimize number and width of residential streets.
- Minimize size of parking areas (angled parking & narrower slots).
- Place sidewalks on only one side of residential streets.
- Minimize culvert pipe and hardened stormwater conveyances.
- Vegetate road right-of-ways, parking lot islands and highway dividers to increase infiltration.
- Plant and protect natural buffer zones along streams and tributaries.

Action needs be taken at the local level to plan for new development in urban and rural areas. For more detailed information regarding recommendations for new development found in the text box (above), refer to EPA’s website at www.epa.gov/owow/watershed/wacademy/acad2000/protection, the Center for Watershed Protection website at www.cwp.org, and the Low Impact Development Center website at www.lowimpactdevelopment.org. The NC Division of Coastal Management with NC Sea Grant and NCSU College of Design developed *The Soundfront Series*, informational guides to assist property owners and community planners and managers. The guides are available in print and on the web. <http://www.ncseagrant.org/>. Additional information regarding environmental stewardship for coastal homeowners is available at <http://www.soil.ncsu.edu/assist/coastindex.html>.

21.7 Planning for Sea Level Changes

Sea level rise will adversely impact North Carolina’s coastline and specifically the northern coastline because of its underlying geologic structure (Riggs and Ames, 2003). There is a predicted acceleration in coastal erosion and an increase in estuarine shoreline erosion if oceanic processes are altered by increased barrier island elevation through natural or human modifications (Riggs and Ames, 2003). Major loss of land is predicted in Currituck, Camden, Dare, Hyde, Tyrrell, Pamlico and Carteret counties if glacial melting rates increase significantly, as projected by the Intergovernmental Panel on Climate Change (Riggs and Ames, 2003; IPCC, 2001).

Drowning the North Carolina Coast: Sea-Level Rise and Estuarine Dynamics by S. Riggs and D. Ames (2003) published by North Carolina Sea Grant provides information specifically addressing northeastern NC. This book provides images and figures explaining sea level rise and coastal erosion. This book should be used as a resource for coastal town and municipality planners as new developments, utility infrastructure and other land use decisions are made. Several universities are researching the impacts of sea level rise on North Carolina’s coastal economy, more information about their findings can be found at the website: <http://econ.appstate.edu/climate/>. Information about sea level forecasts being developed by

National Oceanic and Atmospheric Association and several universities in North Carolina can be found at: <http://www.cop.noaa.gov/stressors/climatechange/current/slr/welcome.html>.

21.8 Management Recommendations for Local Governments

Below is a summary of management actions recommended for local authorities, followed by discussions on large, watershed management issues. These actions are necessary to address current sources of impairment and to prevent future degradation in all streams. The intent of these recommendations is to describe the types of actions necessary to improve stream conditions, not to specify particular administrative or institutional mechanisms for implementing remedial practices. Those types of decisions must be made at the local level.

Because of uncertainties regarding how individual remedial actions cumulatively impact stream conditions and in how aquatic organisms will respond to improvements, the intensity of management effort necessary to bring about a particular degree of biological improvement cannot be established in advance. The types of actions needed to improve biological conditions can be identified, but the mix of activities that will be necessary – and the extent of improvement that will be attainable – will only become apparent over time as an adaptive management approach is implemented. Management actions are suggested below to address individual problems, but many of these actions are interrelated (NCDENR-DWQ, 2003).

- (1) Feasible and cost-effective stormwater retrofit projects should be implemented throughout the watershed to mitigate the hydrologic effects of development (e.g., increased stormwater volumes and increased frequency and duration). This should be viewed as a long-term process.
 - (a) Over the short-term, current feasible retrofit projects should be identified and implemented.
 - (b) In the long-term, additional retrofit opportunities should be implemented in conjunction with infrastructure improvements and redevelopment of existing developed areas.
 - (c) Grant funds for these retrofit projects may be available from EPA initiatives, such as EPA Section 319 funds, or the North Carolina Clean Water Management Trust Fund.
- (2) A watershed scale strategy to address inputs should be developed and implemented, including a variety of source reduction and stormwater treatment methods. As an initial framework for planning input reduction efforts, the following general approach is proposed:
 - (a) Implementation of available best management practice (BMP) opportunities for control of stormwater volume and velocities. These BMPs will help remove pollutants from stormwater and improve aquatic habitat potential.
 - (b) Development of a stormwater and dry weather sampling strategy in order to facilitate the targeting of pollutant removal and source reduction practices.
 - (c) Implementation of stormwater treatment BMPs, aimed primarily at pollutant removal, at appropriate locations.

- (d) Development and implementation of a broad set of source reduction activities focused on: reducing non-storm inputs of toxics; reducing pollutants available for runoff during storms; and managing water to reduce storm runoff.
- (3) Actions recommended above (e.g., stormwater quantity and quality retrofit BMPs) are likely to reduce nutrient/organic/bacterial loading, and to some extent, its impacts. Activities recommended to address this loading include the identification and elimination of illicit discharges; education of homeowners, commercial applicators, and others regarding proper fertilizer use, street sweeping, catch basin clean-out practices, animal and human waste management, and the installation of additional BMPs targeting biological oxygen demand (BOD) and nutrient removal at appropriate sites.
- (4) Prevention of further degradation will require effective post-construction stormwater management for all new development in the study area.
- (5) Effective enforcement of sediment and erosion control regulations will be essential to the prevention of additional sediment inputs from construction activities. Development of improved erosion and sediment control practices may also be beneficial.
- (6) Watershed education programs should be implemented and continued by local governments with the goal of reducing current stream damage and preventing future degradation. At a minimum, the program should include elements to address the following issues:
 - (a) Redirecting downspouts to pervious areas rather than routing these flows to driveways or gutters,
 - (b) Protecting existing woody riparian areas on all streams,
 - (c) Replanting native riparian vegetation,
 - (d) Reducing and properly managing pesticide and fertilizer use,
 - (e) Reducing and properly managing animal waste, and
 - (f) Reducing and properly managing septic systems.

Planning for sustainable growth in the Neuse Basin requires awareness, understanding and implementation of sound design and management options. Natural resources contribute to our quality of life while supporting and promoting economic growth. Communities should anticipate growth while incorporating Low Impact Development technologies in their planning to promote long-term sustainability of our natural resources.