Chapter 2 -
Future Water Quality Initiatives

2.1 Overall DWQ Goals for the Future

The long-term goal of basinwide management is to protect the water quality standards and uses of the surface waters in the state while accommodating reasonable economic growth. Attainment of these goals and objectives will require determined, widespread public support; the combined cooperation of state, local and federal agencies, agriculture, forestry, industry and development interests; and considerable financial expenditure on the part of all involved. With this needed support and cooperation, DWQ believes that these goals are attainable through the basinwide water quality management approach.

In addition to these efforts, DWQ will continue to pursue several programmatic initiatives intended to protect or restore water quality across the state. These include NPDES Program Initiatives, better coordination of basinwide planning, use restoration waters program for nonpoint source pollution, and improving database management and use of GIS capabilities. Summaries of these initiatives are outlined below.

NPDES Program Initiatives

In the next five years, DWQ will continue to:

- improve compliance with permitted limits;
- improve pretreatment of industrial wastes discharged to municipal wastewater treatment plants so as to reduce effluent toxicity;
- encourage pollution prevention at industrial facilities in order to reduce the need for pollution control;
- require dechlorination of chlorinated effluents or use of alternative disinfection methods for new or expanding facilities;
- require multiple treatment trains at wastewater facilities; and
- require plants to begin plans for enlargement well before they reach capacity.

Long-term point source control efforts will stress reduction of wastes entering wastewater treatment plants, seeking more efficient and creative ways of recycling by-products of the treatment process (including reuse of nonpotable treated wastewater), and keeping abreast of and recommending the most advanced wastewater treatment technologies.

DWQ requires all new and expanding dischargers to submit an alternatives analysis as part of its NPDES permit application. Non-discharge alternatives, including connection to an existing WWTP or land-applying wastes, are preferred from an environmental standpoint. If the Division determines that there is an economically reasonable alternative to a discharge, DWQ may deny the NPDES permit.

DWQ will continue to make greater use of discharger self-monitoring data to augment the data it collects. Quality assurance, timing and consistency of data from plant to plant are issues of importance. Also, a system will need to be developed to enter the data into a computerized database for later analysis.

2.2 Coordination with Other Agencies

The basinwide planning process can be used by other programs as a means of identifying and prioritizing waterbodies in need of restoration or protection efforts and provides a means of disseminating this information to other water quality protection programs. For example, the plan can be used to identify and prioritize wastewater treatment plants in need of funding through DWQ's Construction Grants and Loan Program. The plans can also assist in identifying projects and waterbodies applicable to the goals of the Clean Water Management Trust Fund, Wetlands Restoration Program or Section 319 grants program. Information and finalized basin plans are provided to these offices for their use and to other state and federal agencies.

DWQ would like to work more closely with the conservation districts in each county of the Pasquotank River basin to identify nonpoint sources of pollution, develop land use and land cover data, and to develop water quality management strategies for impaired watersheds within the Pasquotank River basin.

DWQ is also working with DEH Shellfish Sanitation to develop databases and other tools to better identify impairment in shellfish harvesting waters. Refer to Section 3.4.1 for more information on this process.

Division of Soil and Water Conservation and Division of Water Quality are working together to better identify causes and sources of impairment in rural streams. The two agencies will be working together to target those streams that are impaired and where implementation of best management practices would improve water quality. Refer to Section C, Chapter 2 for more information on the Agricultural Cost Share Program.

DWQ and DCM are working to ensure that local governments consider water quality impacts in their land use plan. Refer to Section C, Chapter 2 for more information.

Use Restoration Waters (URW) Program for Nonpoint Source Impairment

DWQ has developed a conceptual strategy to manage watersheds with nonpoint source impairments as determined through the use support designations. In July 1998, the state Environmental Management Commission approved the Use Restoration Waters (URW) Program concept which will target all NPS impaired waters in the state using a two-part approach. The program will catalyze voluntary efforts by stakeholder groups in impaired watersheds to restore those waters by providing various incentives and other support. For locations where local groups choose not to take responsibility for restoring their impairments, the program will consider the option of developing a set of mandatory requirements for NPS pollution categories.

This URW concept offers local governments an opportunity to implement site-specific projects at the local level as an incentive ("the carrot"). If the EMC is not satisfied with the progress made

towards use restoration by local committees, impairment based rules will become mandatory in those watersheds ("the stick").

These mandatory requirements may not be tailored to specific watersheds but may apply more generically across the state or region. The form of the URW program will be strongly influenced by the year-long stakeholder input process.

With more than 400 impaired watersheds or stream segments in the state, it is not realistic for DWQ to attempt to develop watershed specific restoration strategies for nonpoint source pollution. By involving the stakeholders in these watersheds, we believe we can catalyze large-scale restoration of impaired waters. We anticipate that one of the major implementation challenges of this new program will be educating public officials and stakeholders at the local level as to the nature and solutions to their impairments. To address this challenge, the state plans to develop a GIS-based program to help present information at a scale that is useful to local land management officials. Other incentives that the state might provide include seed grants and technical assistance, as well as retaining the authority to mandate regulations on stakeholders who are not willing to participate.

In cases where incentives and support do not result in effective watershed restoration strategies, mandatory impairment source management requirements would be implemented in the watershed. This is not the state's preferred alternative, as it would add to state monitoring and enforcement workload. However, in areas where it is necessary, DWQ plans to implement such requirements. In the management area, DWQ would be assisted by regulatory staff from the Divisions of Environmental Health and Land Resources and to insure compliance.

For more information on the Use Restoration Waters Program, contact the DWQ Planning Branch's Nonpoint Source Unit at (919) 733-5083.

Improved Data Management and Expanded Use of Geographic Information System (GIS) Computer Capabilities

DWQ is in the process of centralizing and improving its computer data management systems. Most of its water quality program data (including permitted dischargers, waste limits, compliance information, water quality data, stream classifications, etc.) will be put in a central data center which will then be made accessible to most staff at desktop computer stations. Some of this information is also being submitted into the NC Geographic Data Clearinghouse (Center for Geographic Information and Analysis or CGIA). As this and other information (including land use data from satellite or air photo interpretation) are made available to the GIS system, the potential to graphically display the results of water quality data analysis will be tremendous.

Additional Research and Monitoring Needs

DWQ staff have identified some additional research needs that would be useful for assessing, protecting and restoring the water quality of the Pasquotank River basin. The following list is not inclusive. Rather, it is meant to stimulate ideas for obtaining more information to better address water quality problems in the basin. With the newly available funding programs (Clean Water Management Trust Fund and Wetlands Restoration Program) and the existing Section 319

grant program, it may be desirable for grant applicants to focus proposals on the following issues:

- *Nonpoint sources of pollution*. Identifying nonpoint sources of pollution and developing management strategies for impaired waters, given the current limited resources available, are an overwhelming task. Therefore, only limited progress towards restoring NPS impaired waters can be expected unless substantial resources are put towards solving NPS problems.
- *Swamp Waters Study*. Increasing population in these areas will demand more water and generate more wastewater. In addition, conversion of land from forests and farms will increase impervious surfaces producing higher than natural streamflows and cause erosion. Streams in these areas will likely remain (or become) impaired unless this growth is planned for and managed properly.
- *Cost Effective BMPs*. The state has provided a great deal of funding to the Pasquotank agriculture sector to share information on best management practices that protect and restore water quality while at the same time ensuring appropriate harvest yields.
- *Urban planning*. Increasing population in these areas will demand more water and generate more wastewater. In addition, conversion of land from forests and farms will increase impervious surfaces producing higher than natural streamflows and cause erosion. Streams and estuarine waters in these areas will likely remain (or become) impaired unless this growth is planned for and managed properly.

2.3 DWQ Compliance and Enforcement Policy Revisions

NCDENR began implementing a new two-stage compliance and enforcement policy in 1997. Both stages of the revised policy are in effect as of July 1, 1999. The five major elements of the policy are intended to provide a comprehensive route to strengthen enforcement and heighten compliance for all dischargers and nonpoint sources of water pollution in North Carolina. The five major components of the policy are to:

1. Foster compliance through pollution prevention, technical assistance and training, reevaluate existing grant and loan funding priority criteria, and develop recognition and incentive programs.
2. Enhance enforcement through increased penalties, penalties for sewer collection systems, reduced thresholds for noncompliance, and delegation of civil penalty assessment authority to the DWQ regional office supervisors.
3. Focus on chronic and willful violators through increased use of moratoriums on expanding and additional connections, expansion of notification to the public of violators, clarification of process of determining "noncompliance", and initiation of discussion with stakeholders on possible legislative actions.
4. Assure improvement in compliance and enforcement through development of accountability measures.
5. Find and use all available resources for compliance needs with local, state and nonprofit groups.

NCDENR is also in the process of conducting an assessment of its enforcement programs. The goal of the assessment is to identify potential areas for improvement in NCDENR's efforts to

enforce environmental laws and ultimately improve compliance. This effort got underway in July 1999 with two focus group meetings. If you would like to see the Scope of Work for the enforcement assessment, see NCDENR's web page at http://www.enr.state.nc.us/novs/scope.htm/.

2.4 Non-Discharge Permits

Non-discharge (land application) has the potential to affect adjacent surface waters if not properly designed and maintained. There are currently no protocols regarding water balance calculations to attach to permit applications. Therefore, there is a need for DWQ to look into the issue, hence the Water Balance Group. Per recent regulations, DWQ needs to decide what parameters need to be addressed in hydrologic evaluations as a means of ascertaining impacts to local surface waters.

Hydrological studies will need to look at nutrient load by conducting a nutrient impacts study for surrounding surface waters. There is no comparable analysis required for BOD since there are no standards for BOD. There are no numeric standards for nutrients, but DWQ works with a sensitivity level. Some of the criteria that are considered in the water balance calculations include: rain, evapotranspiration, drainage (varies seasonally), spray irrigation (what you want to spray based on design capacity), spray available (soil assimilative capacity), and storage (what you cannot spray).

In order to conduct an effective analysis, DWQ may need to gather 12 months or more of data. An effective analysis will also require a great deal of field surveying. Since the effort will be field intensive, it will probably take longer for a permit application to evolve and get approved.

2.5 Coordination within DWQ

As a large governmental Division, DWQ has challenges regarding communication across its many programs. In an effort to improve facility construction, maintenance and permitting, DWQ will work towards holding periodic discussions with appropriate staff and other agency personnel during multiple stages of the facility permitting process: grant review, facility permitting, and upon notice of violation. The DWQ Basinwide Planning Program will coordinate these discussions

The DWQ Basinwide and Estuary Planning Unit has initiated periodic meetings with the DWQ Nonpoint Source Unit to ensure more efficient and timely communication exchanges as well as implementation oversight of basinwide water quality plan recommendations.