



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

October 29, 2007

TO: Senator Charles W. Albertson, Co-chair Environmental Review Commission
Senator Daniel G. Clodfelter, Co-chair Environmental Review Commission
Representative Lucy T. Allen, Co-chair Environmental Review Commission
Representative Pryor Gibson, Co-chair Environmental Review Commission

FROM: William G. Ross, Secretary

RE: Annual State Water Supply Plan Report

G.S. 143-355(n) requires the Department of Environment and Natural Resources to report to the Environmental Review Commission each year on the development of the state water supply plan. Attached is this year's report. If you have any questions, please contact John Morris at 919-733-4064.

Department of Environment and Natural Resources
Division of Water Resources
STATUS REPORT TO THE GENERAL ASSEMBLY
ON
WATER SUPPLY PLANNING
SEPTEMBER 1, 2006 THROUGH AUGUST 31, 2007

Assuring a sustainable future water supply for North Carolina is the primary mission of the Division of Water Resources (DWR or the Division). To carry out this responsibility, the Division administers several monitoring, planning and regulatory programs.

DWR, in partnership with the US Geological Survey, monitors the availability of water across the state by means of a network of monitoring wells and stream gages. DWR receives and maintains water use data from the mandatory registration of large water withdrawals.

DWR assists community water systems with the preparation of Local Water Supply Plans and prepares the North Carolina Water Supply Plan. In partnership with local governments and other water users, the Division is in the process of preparing long term water supply plans for each river basin to assure the sustainability of future water supplies.

DWR issues permits for water withdrawals in designated capacity use areas, manages applications for certification of interbasin transfers of surface water, and is the lead agency for the Department of Environment and Natural Resources in the relicensing of hydropower projects.

This status report provides an update on these water supply programs and on other related Division activities.

Water Availability Monitoring

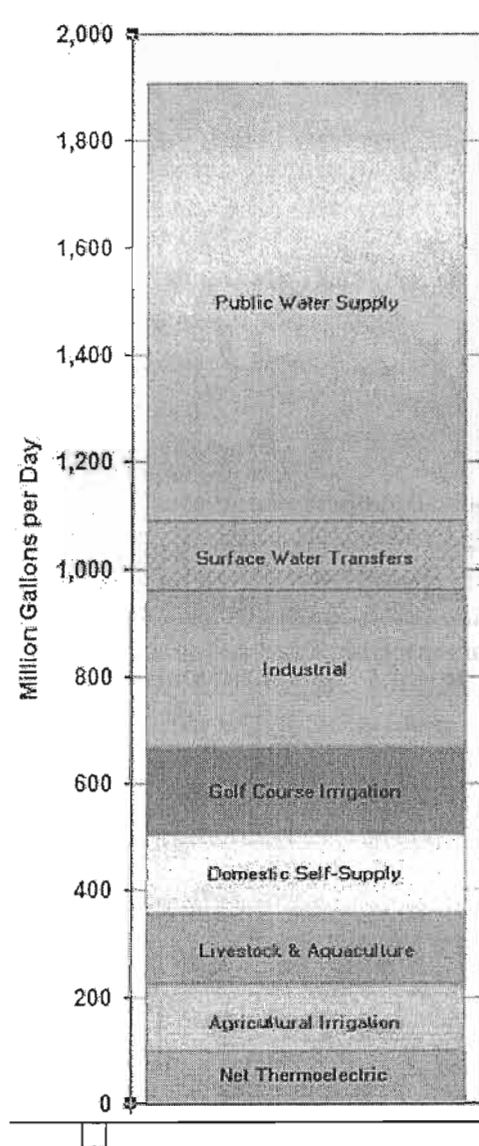
The Division maintains ground water and surface water monitoring networks both directly and in partnership with federal agencies. The data from these networks provide essential information on the condition of water resources throughout the state. North Carolina cooperates with the United States Geological Survey to maintain stream gage sites with real time data collection capabilities. Also, the Division maintains a large network of ground water monitoring wells. Data from these wells are collected quarterly. About fifty percent of these wells have data recorders that collect daily water level data. To improve the accessibility and usefulness of this data for water resource management, the Division has recently joined with the State Climate Office at NC State University, the US Army Corps of Engineers, the United States Geological Survey and others to develop a uniform database to store and disseminate water resources data.

In recent years, with the support of the General Assembly, the Division has expanded the monitoring well network in the Coastal Plain region, an area where ground water resources are being stressed by over-pumping. Twelve new wells at three monitoring stations were added over the last year to aid in management of the regional aquifer systems. The Division will expand the monitoring well network as funds permit to improve data for ground water management.

Changes to the funding formula for the monitoring stations operated cooperatively with the United States Geological Survey have resulted in the discontinuance of data

collection at some monitoring sites. Maintenance of near-real time data reporting in the monitoring system will require additional funds in the near future to upgrade existing equipment.

Water Use Monitoring 2005 Estimated Water Withdrawals in North Carolina



The graph above shows estimated current water withdrawals by the major groups of water users compiled from data collected and estimated by Division of Water Resources and by the U.S. Geological Survey.

Knowing how much water is being withdrawn by water users across the state is vital information for effective water resources planning. Currently, water use data are collected through several programs. Units of local government that provide water to the public and other large community water systems submit water use information at least every five years in their Local Water Supply Plans. Large self-supplied water users report water use data every five years under the water withdrawal registration program. This program requires non-agricultural facilities that withdraw 100,000 gallons per day or more and agricultural operations that withdraw one million gallons per day or more to register their withdrawals and to periodically report withdrawal data to the Division.

Additional reporting requirements apply in the fifteen counties of the Central Coastal Plain Capacity Use Area. Permitted water users submit water use data to the Division monthly. Others that withdraw 10,000 gallons per day or more must annually report monthly water use.

The five year pattern of updates under the local water supply planning and water withdrawal registration programs leaves significant gaps in our historical water use data. Final adoption in March 2007 of new rules governing water use during droughts will help to fill some of these gaps. As part of these rules, beginning in 2008, water systems that have to prepare a Local Water Supply Plan under G.S. 143-355(l) and water withdrawers that have to register under G.S. 143-215.22H must report

water use data to the Division annually. To simplify the reporting process, DWR will have an online reporting program available so water systems can submit their data electronically.

Local Water Supply Plans

The General Assembly established a water supply planning program under General Statutes 143-355(l) and (m) to assure the availability of adequate supplies of good quality water to protect the public health and to support desirable economic growth. Local Water Supply Plans are required from units of local government that supply or plan to supply water to the public and from other community water systems that regularly serve 1,000 or more service connections or 3,000 or more individuals.

Local Water Supply Plans describe current water use and future water needs and assess the water system's ability to meet those needs. The plans must be adopted by the water system's local governing board and be updated at least every five years. The Division of Water Resources is responsible for reviewing Local Water Supply Plans for completeness and consistency.

The plans provide a valuable source of data for all local and regional water supply planning. Information from the local plans is available on the Division's web site www.ncwater.org. The 2002 Local Water Supply Plans are the most recent statewide updates. Of the 620 water systems from whom we expected to receive an updated plan we got draft plans from 526 by the end of 2006.

During the period covered by this report DWR began the process of staggering the submissions of Local Water Supply Plans. As a first step in the transition to staggering local plan submissions, the Division requested updated local plans from the 114 water systems that get their water from the Neuse and Roanoke river basins. Because of the statutory requirement for five-year updating, water systems in the other river basins are required to update their local plans in early 2008 based on conditions in 2007. Beginning in 2009 staggered updating will resume so that water systems in two to four of the major river basins will be updating their Local Water Supply Plans each year. Local Water Supply Plans are accessible from the Division's website at www.ncwater.org.

A revised online reporting program has simplified local plan submission for many water systems. Of the 106 water systems that had submitted their 2006 plans by August 14th, 100 of them did so online while only 6 submitted paper forms. Online submissions simplify the process, aid database development and provide the opportunity for realtime technical assistance from Division staff during plan preparation.

Session Law 2003-387, which expanded the scope of water systems required to prepare a Local Water Supply Plan, also added the requirement that water systems include a description of how they will respond to drought and other water shortage emergencies. Rules governing water use during droughts, which became effective on March 19, 2007, provide guidance on what should be included in these Water Shortage Response Plans. In addition, the rules include default water shortage response actions that must be taken by water systems that do not have a written Water Shortage Response Plan in place when the NC Drought Management Advisory Council designates their region as suffering from Extreme or Exceptional Drought conditions. Of the water systems that submitted a 2006 local plan, 75

percent included a Water Shortage Response Plan. Division staff members provide assistance with developing Water Shortage Response Plans.

North Carolina Water Supply Plan (NCWSP)

The Division uses the information from the LWSPs and other sources to develop the North Carolina Water Supply Plan (NCWSP), mandated by G.S. 143-355(m). The NCWSP presents a summary of water use by major river basin and identifies areas of concern where water availability or conflicts between users may limit the ability to meet water demands.

The 2001 NCWSP is available on the Division's web site at www.ncwater.org. The plan is based on information from the 1992 and 1997 LWSPs and 1999 water withdrawal registrations submitted pursuant to General Statute 143-215.22H. No changes were made to this document during the period covered by this report. The NCWSP will be updated to reflect information in the River Basin Water Supply Plans discussed in the next section.

River Basin Water Supply Plans

To further the legislative goal of assuring the availability of adequate supplies of water, the Division of Water Resources is developing a River Basin Water Supply Plan for each of the major river basins in the state. River basin water supply planning is a tool to support sustainable management of our river basins. This program will provide reliable, quantitative methods to plan for sustainable water use and an objective basis for management and regulatory decisions.

The River Basin Water Supply Plans provide a basin analysis of estimated future water supply demands, using a computer-based hydrologic model that characterizes water flow in a basin. The hydrologic models provide a tool to analyze the effects of future water withdrawals and wastewater discharges over the range of high and low river flows that have occurred in the basin. By projecting water needs to 2050 and evaluating these future demands with a hydrologic model, we will be able to identify areas where supplies may not be adequate to meet projected demands and where potential water use conflicts may occur. The River Basin Water Supply Plans and associated hydrologic models will give the Division, local governments and other water users a reliable, quantitative framework within which to plan for sustainable and cost-effective water sources to meet future needs.

The Division developed a Cape Fear River Basin Water Supply Plan in 2002 in conjunction with analysis of allocations of water supply storage in B. Everett Jordan Lake. This model has been updated with the technical and financial support of water users in the basin that have recognized the value of the model as a water supply planning tool. The Division has begun work to update the plan and will be meeting with basin stakeholders in October to solicit their input and support.

Hydrologic models were constructed for the Catawba and Yadkin river basins in conjunction with the relicensing of the hydropower projects on these rivers. The Division worked closely with stakeholders and with the utility companies in these basins to estimate long-term water supply needs that were then included in the modeling of management options for the future. These analyses formed the basis of settlement agreements and license applications submitted to the Federal Energy Regulatory Commission. Hydrologic models for the Neuse, Roanoke and Tar-Pamlico river basins are in the initial stages of development.

Data from the River Basin Water Supply Plans will be available to the Division of Water Quality for use in the development of their Basinwide Water Quality Plans.

Water Use During Droughts

Session Law 2002-167 (House Bill 1215) required the Environmental Management Commission (EMC) to develop administrative rules establishing minimum standards and practices for water use during drought and water emergencies. The Division coordinated the effort to develop these rules that became effective in March 2007. The rules establish minimum criteria for how a wide variety of water users are expected to prepare for and manage water use during droughts and other water shortage emergencies. To provide important drought management data, the rules require municipal and large community water systems to annually report water use data to the Division. Other large water withdrawers such as industries, power plants and agricultural operations also have to report annual water use data. This reporting requirement will provide the Division and the NC Drought Management Advisory Council with crucial information to assist drought response activities.

Central Coastal Plain Capacity Use Area

Rules creating the Central Coastal Plain Capacity Use Area (CCPCUA) and establishing a water withdrawal permitting system became effective August 1, 2002. The rules were fashioned to gradually reduce withdrawals from the endangered Black Creek and Upper Cape Fear aquifers in the fifteen designated counties. The rules require stepped reductions in withdrawals from the endangered aquifers over a sixteen-year transition period and encourage the development of alternative sustainable sources of water. Anyone wishing to withdraw more than 100,000 gallons a day of ground water must apply for and receive a permit from the Division of Water Resources. As of August 27, 2007, there were a total of 205 permitted users in the Central Coastal Plain Capacity Use Area. At that time there were ten applications for new permits and renewals under review.

The CCPCUA rules provide an initial six-year period for systems to develop plans to adjust water withdrawals and develop alternative sources. Affected water withdrawers are required to make reductions in water use from the impacted aquifers by August 2008 to meet the first of three reduction thresholds. Public water supply systems have made significant progress toward meeting these goals through development of regional water authorities and other water sharing arrangements. In addition, a new surface water intake is under development on the Neuse River in Lenoir County. Additional information on the Central Coastal Plain Capacity Use Area and the associated rules can be found on the Division's website at www.ncwater.org.

Southern Coastal Plain Capacity Use Investigation

In December 2002, the Water Allocation Committee of the EMC asked the Division to conduct a capacity use investigation of the Southern Coastal Plain area surrounding Bladen County. The study determined that there are areas in the region where ground water levels are declining due to overpumping.

The monitoring well network in this region is sparse and new wells need to be added to effectively monitor the area. Water users in Scotland, Robeson, Hoke, Bladen and Sampson counties are cooperating on studies to identify long-term water supply solutions for the region. One study shows that water users in Scotland, Hoke and western Robeson counties

can likely meet predictable demand from existing sources without causing significant reductions in ground water levels. More monitoring is needed in this area to understand how much water could be available to provide for unexpected demands such as a new industrial facility or increased agricultural irrigation.

Water users in Sampson, Bladen and eastern Robeson counties are investigating the development of a surface water treatment plant using water from the Cape Fear River to reduce ground water withdrawals from the underlying confined aquifers. The proposed intake and water treatment plant will supply water to Smithfield Foods and to some of the surrounding water systems that currently use the same impacted aquifer. The number of communities that will be connected to the new surface water supply has not been finalized.

The Lumber River Council of Governments (LRCOG) is coordinating these water supply planning activities as required by an agreement signed by the EMC, DWR and LRCOG to improve management of regional water sources. The Southern Coastal Plain Capacity Use Investigation report is available on the Division's website at www.ncwater.org.

Interbasin Transfer Certifications

Many communities in North Carolina are located on or near the high ground that creates the divides between river basins. Other communities are located in the headwaters of river basins where the limited water supply availability has proven to be inadequate as the economy and population of the state has grown. In these situations, municipal water systems may need to move water between river basins. Carefully regulated interbasin transfers can be the most practical, economical and environmentally sound way to provide water and sewer service to the residents of some communities and to support the growth of the State's economy. However, the Surface Water Transfer Act must be applied in a way that will assure that the economy and resources of the source river basin are protected.

Initiating new transfers or increasing existing transfers of surface water between legislatively defined river basins is regulated by General Statute 143-215.22I. The river basin boundaries established by this statute are defined in G.S. 143-215.22G and its associated map that has been filed with the Secretary of State.

Anyone wishing to initiate a transfer of two million gallons of water a day, to increase a transfer permitted under relevant statutes prior to July 1, 1993, or to increase a transfer above their system's capacity to transfer water on July 1, 1993, such that the new transfer would be more than two million gallons a day, must obtain permission from the Environmental Management Commission.

G.S. 143-215.22G provides a list of potential impacts in the source and receiving basins that must be considered by the EMC in determining whether or not to grant a certificate. The process requires an environmental analysis and provides opportunities for public comment. If the EMC concludes, based on the findings of fact, that the benefits outweigh the detriments a certificate is issued for a specific volume of water and will include provisions to mitigate detriments. The EMC can issue a certificate for a volume other than that requested and can attach conditions to the certificate.

While many communities move water between river basins, prior to 2007 there have only been three Interbasin Transfer Certificates issued under the current legislation. Charlotte Mecklenburg Utilities has a certificate to transfer up to 33 million gallons per day from the Catawba River to the Rocky River basin. Cary, Apex, Morrisville, and Wake County jointly hold a certificate to transfer up to 24 million gallons per day from the Haw River basin to the Neuse River basin. The Piedmont Triad Regional Water Authority was issued a certificate to transfer up to 30.5 million gallons per day from the Deep River to the Haw River and Yadkin River basins.

In March 2007 the Environmental Management Commission issued an Interbasin Transfer Certificate to the Cities of Concord and Kannapolis to transfer up to 10 million gallons per day from the Catawba River Basin and 10 million gallons per day from the Yadkin River Basin to the Rocky River Basin. This decision is being challenged under the Administrative Procedures Act.

Interbasin Transfer Requests

The Greenville Utilities Commission is working with several neighboring communities to develop a regional solution to replace ground water currently being pumped from the regulated aquifers in the Central Coastal Plain Capacity Use Area. Sharing surface water to reduce ground water withdrawals will require an IBT certificate. Water systems pumping water from the regulated aquifers face an August 2008 deadline to reduce their ground water withdrawals from those aquifers.

Hydropower Facility Relicensing

The Federal Energy Regulatory Commission (FERC) licenses non-federal hydroelectric generation projects on navigable waterways. The licenses, issued for 30 to 50 years, govern how the hydroelectric projects are managed and therefore how the rivers on which they are located are affected. Upon expiration of an existing license, the licensee has to apply for a new license in order to continue operating the project. Five years prior to the expiration date of an existing license, the licensee has to file a Notice of Intent to apply for a new license. The license application is filed 24 months before the expiration of the existing license. The three years between filing the Notice of Intent and the filing of the license

application are used to compile the data needed to evaluate the impacts of a project on regional resources and to draft the application and requested provisions of the new license.

Three major projects in the Nantahala and Tuckasegee river basins have license applications that are under review by FERC. Also, three projects that include most of the major reservoirs on the Catawba and Yadkin-Pee Dee Rivers in North Carolina have licenses that expire in 2008. The licensee's applications for new licenses are currently under review and environmental analysis by FERC. DWR has worked closely with the licensees to ensure that water supply issues are given due consideration in the relicensing process. Development of river basin water supply plans for the Catawba-Wateree and Yadkin-Pee Dee river basins has been greatly facilitated by the computer models developed in conjunction with the relicensing process. In the Catawba-Wateree River Basin, the licensee funded an independent study of future water use in North Carolina and South Carolina through 2058. The results of this study were used in the analysis of alternative operating scenarios.

