

Department of Environment and Natural Resources
Division of Water Resources
STATUS REPORT TO THE GENERAL ASSEMBLY
ON
WATER SUPPLY PLANNING
SEPTEMBER 1, 2008 THROUGH AUGUST 31, 2009

Assuring a sustainable water supply for the citizens of 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.

In partnership with the US Geological Survey, the Division monitors the availability of water across the state through a network of monitoring wells and stream gages. DWR monitors water withdrawals using data reported by water users under programs that require the mandatory registration of large water withdrawals, the development of Local Water Supply Plans and the adherence to management rules in designated capacity use areas. Additional information is received from annual water use reporting by withdrawers required to register and systems required to submit a Local Water Supply Plan and special data requests during drought conditions. Beginning in 2009 DWR also receives summaries of an annual survey of agricultural water users conducted by the Department of Agriculture and Consumer Services.

The Division administers the local water supply planning program, which was established after serious droughts in the 1980s disrupted local communities' water supplies. DWR assists community water systems with the preparation of Local Water Supply Plans. The information contained in these local plans, combined with data from other sources, was used to prepare the North Carolina Water Supply Plan. The Division is in the process of preparing long-term water supply plans for each of our seventeen major river basins in partnership with local governments, water users and other stakeholders.

The Division regulates water withdrawals associated with the transfer of surface water between designated river basins and in designated capacity use areas. As staff to the Environmental Management Commission, DWR processes applications for interbasin transfers of surface water and makes recommendations to the Commission. DWR conducts evaluations of resource conditions, oversees rule development and issues water withdrawal permits in designated capacity use areas. In addition, DWR chairs the Drought Management Advisory Council, manages drought response activities and is the lead for the Department of Environment and Natural Resources for the relicensing of hydroelectric projects. All of these activities affect and are affected by water supply planning issues.

This status report provides an update on these water supply programs and on other related Division activities for the period from September 1, 2008 to August 31, 2009.

Monitoring Water Resources

The Division maintains ground water and surface water monitoring networks directly and in partnership with federal agencies. The data from these networks provide essential information on the conditions of water resources throughout the state. North Carolina

cooperates with the United States Geological Survey to maintain stream gage sites with near-real time data collection capabilities. The Division also maintains an extensive network of ground water monitoring wells. Data from these wells are collected by DWR personnel quarterly. Sixty-seven percent of these wells have data recorders that collect daily water level data. Much of the ground water monitoring and data collection focuses on improving the understanding of the complex aquifer structures in the Coastal Plain.

The Division has joined with the State Climate Office at NC State University, the US Army Corps of Engineers, the United States Geological Survey and other data collection agencies to develop a uniform database to store and disseminate water resources data. The product of this effort, the “Water Resources Information, Storage, Analysis, and Retrieval System” (WRISARS), is available on the Division’s website at www.ncwater.org.

The ongoing support of the General Assembly has allowed the Division to improve the data on aquifer conditions in the Coastal Plain by expanding the monitoring well network. Since 1998, DWR has added 144 wells at 38 monitoring stations in the Coastal Plain. The Division will continue to expand the monitoring well network to improve data for ground water management as funds permit. Data on ground water conditions are available on the Division’s web site under the link for “Ground Water Data”

Monitoring Water Use

Since 1991 North Carolina has required registration of large surface water or ground water withdrawals. Owners of agricultural operations must register their water use if the sum of their withdrawals is 1,000,000 or more gallons on any day. Non-agricultural users must register their use if the sum of their withdrawals is 100,000 or more gallons on any day. The authorizing legislation requires that registrations be updated every five years. In addition, the recently established drought rules require annual reporting of water use by owners that are required to register their withdrawals. Beginning in 2009, the Division will receive summaries of agricultural water use data that are reported by operations that use 10,000 gallons per day or more through an annual survey conducted by the Department of Agriculture and Consumer Services. Many community water systems meet their registration requirement by preparing a Local Water Supply Plan.

Local Water Supply Planning

In the aftermath of serious droughts in the 1980s, 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 large 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 identify the water system’s expected future sources of water. This data provides valuable information on how much water communities are using and how much they anticipate needing in the future. The plans must be adopted by the water system’s local governing board and be updated at least every five years. DWR is responsible for reviewing and

approving Local Water Supply Plans. DENR developed approval criteria for these plans in consultation with representatives of local government water systems. Explanations of the criteria are being incorporated into the instructions for developing a Local Water Supply Plan and will be available on the Division's web site. The local plans provide a valuable source of data for local and regional water supply planning. Information from the local plans is available on the Division's web site at www.ncwater.org.

The number of water systems that are required to prepare a Local Water Supply Plan changes over time. Some community water systems grow large enough that they exceed the legislative size thresholds and then have to prepare a local plan. Also, some community water systems find it in their best interest to merge with one or more neighboring systems reducing the number of plans submitted to DWR. Currently, DWR expects to receive 534 Local Water Supply Plans. Of the water systems expected to submit a local plan, 527 submitted plans in 2008 based on water use and system conditions in 2007. Almost all were submitted using DWR's online plan submission program. This program has simplified the process, has aided database development and has provided the opportunity for real time technical assistance from Division staff during plan preparation and review. Water systems required to prepare a Local Water Supply Plan must annually report water use to DWR. Annual water use data can be reported using the online program and many water systems took the opportunity to update their local plan when reporting 2008 water use. As of the end of August, 513 water systems have reported 2008 water use.

North Carolina Water Supply Planning

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. Sections of the NCWSP will be updated to reflect information in the River Basin Water Supply Plans discussed in the next section.

Planning for Future Water Needs

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.

Data submitted to DWR through the water supply planning program, the water withdrawal registration program, capacity use area reporting requirements and annual water use reporting provide critical information for the river basin planning program.

The river basin water supply plans provide a basin analysis of estimated future water supply withdrawals using a computer-based hydrologic model that characterizes water flow in a basin. The hydrologic model provides 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 over the last 75 years. By projecting water needs to 2050 and evaluating these future demands with a hydrologic model, DWR is able to identify areas where supplies may not be adequate to meet projected demands as well as when and where water use conflicts may develop. The river basin water supply plans and the hydrologic models will provide 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 as a tool for the analysis of allocations of water supply storage in B. Everett Jordan Lake. This prototype model has been updated with the technical and financial support of water users in the basin that recognized the value of the model as a water supply planning tool. The Division is in the process of revising the Cape Fear River Basin Water Supply Plan based on the updated model and water demand information for the water systems that depend on water from the basin. A summary of the modeling results is available on the Division's web site under the link for "Cape Fear River Basin Model".

The Division has contracted for the development of a hydrologic model for the Neuse River Basin to support the development of the Neuse River Basin Water Supply Plan. This project got underway in early summer 2008 and is expected to produce a usable model by late 2009. Division staff members worked in close coordination with the contractor and water withdrawers in the basin to compile a seventy-six year record of hydrologic and water use data and to characterize accurately the complex public water systems found in this basin.

A reservoir operations model for the Roanoke River Basin was developed in the late 1990s. This model has been upgraded to take advantage of improved computing capabilities. Currently, the model is being updated to add more detail for water withdrawals and wastewater discharges by users in North Carolina and Virginia.

Work will begin in the near future on hydrologic models for the Broad and Tar-Pamlico River Basins. Contracts for these two models are under development.

As noted in previous status reports, 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 the utility companies and other interested parties in these basins to estimate long-term water supply needs that were then included in the modeling of proposed management options for the future. These analyses formed the basis of settlement agreements included with the license applications submitted to the Federal Energy Regulatory Commission (FERC). The Catawba River Basin Water Supply Plan based on this work is available on the Division's web site. When FERC issues the new licenses for the hydropower projects, finalizing the management schemes that will apply for the duration of the licenses, the water supply components of the modeling will be reviewed.

DWR is working with the Division of Water Quality to share data from the river basin hydrologic models and water supply plans for use in the development of their Basinwide Water Quality Plans.

Planning for Water Shortages

After the 1998-2002 drought, the General Assembly added a provision to the local water supply planning statute requiring water systems to include a description of how they "will respond to drought and other water shortage emergencies and continue to meet essential public water supply needs during the emergency". Rules adopted in 2007 by the Environmental Management Commission governing water use during droughts provided guidance on what should be included in these plans to respond to water shortages. Session Law 2008-143 made Water Shortage Response Plans mandatory and gave the Department authority to approve or disapprove them. Session Law 2008-143 created the presumption of approval upon submission of a Water Shortage Response Plan. Upon review by DENR if a plan fails to include the required components and is disapproved then the submitting water system is required to comply with the default rules in 15A NCAC 02E .0600 during extreme and exceptional drought conditions, until a revised Water Shortage Response Plan is submitted.

DENR developed protocols for the review of Water Shortage Response Plans in consultation with representatives of the affected parties. As of the end of August, 478 plans have been submitted to DWR. To date DWR has reviewed 232 of these plans and staff members are working with water systems to remedy deficiencies.

Drought Management

Drought was a significant issue during the time covered by this report. September 2008 saw much of North Carolina experiencing moderate to exceptional drought conditions, especially in the mountains. Serious drought conditions improved over the rest of 2008 and we began 2009 with no areas in the state experiencing extreme or exceptional drought conditions. Drought conditions continued to improve throughout 2009. As of August 31, about 60 percent of the state experienced abnormally dry conditions indicating slightly drier than usual conditions, but not drought conditions. Information on drought conditions throughout the past year as well as current conditions is available at the NC Drought Management Advisory Council link on the Division's web site.

The Division of Water Resources provides the chair for the NC Drought Management Advisory Council. The technical committee of the council regularly monitors drought conditions and consults weekly with the authors of the US Drought Monitor so the weekly drought status accurately portrays conditions in North Carolina.

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 management of hydroelectric projects. Prior to the expiration of an existing license, the licensee has to apply for a new license in order to continue operating the project.

Timely applications were submitted by the current licensees for projects on the Nantahala, Tuckasegee, Catawba and Yadkin-Pee Dee Rivers. The environmental studies have been completed for these projects, although there are several appeals of the water quality certifications that were issued by the Division of Water Quality. The FERC has not issued new licenses for these projects, due in part to various legal challenges, and is still reviewing the applications. Because the old licenses have expired these projects are operating under annual licenses that extend the conditions in the old licenses. When, and if, the new licenses are issued the ecological flows and recreational opportunities included in the negotiated settlement agreements will be implemented.

DWR worked closely with the licensees to ensure that water supply issues were given due consideration in the relicensing process. Development of the Division's river basin water supply plans for the Catawba-Wataree and Yadkin-Pee Dee river basins has been greatly facilitated by the river basin hydrologic computer models developed in conjunction with the relicensing process. In the Catawba-Wataree 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. DWR prepared a Catawba River Basin Water Resources Plan based in large part on the water use projections and hydrologic modeling done for relicensing. A copy of the plan is available on the Division's web site at: <http://www.ncwater.org/basins/Catawba/>.

Regulation

Central Coastal Plain Capacity Use Area

The Water Use Act of 1967 provides a mechanism for the regulation of water withdrawals in areas where water use requires coordination to protect the public interest or the interests and rights of residents or property owners. Monitoring data collected over the last several decades and an investigative study conducted by DWR indicated that the water levels in the confined aquifers in the Coastal Plain were declining. In some areas the decline threatened the integrity of the aquifer system and ground water quality. After several years of work with interested parties in the affected areas, the Environmental Management Commission designated fifteen counties in the Coastal Plain as a 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 designed to regulate and gradually reduce ground water withdrawals from the endangered Black Creek and Upper Cape Fear aquifers in the fifteen designated counties. Three stages of reductions in withdrawals from the endangered aquifers are required over a sixteen-year transition period. The rules 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. There are 218 active permits for ground water withdrawals in the Central Coastal Plain Capacity Use Area. In addition to the users with active permits there are 72 registered water withdrawers that withdraw 10,000 gallons or more in a day. The registered users include surface water withdrawers that use over 10,000 gallons per day and ground water users that withdraw over 10,000 but less than 100,000 gallons per day. The Division continually monitors conditions in the affected aquifers and regularly updates the Environmental Management

Commission. The Black Creek and Upper Cape Fear aquifers are still being overdrawn and the water level decline trends documented in 1998 are still prevalent.

The period covered by this report marks the beginning of the second stage in the withdrawal reduction process when regulated water systems are expected to withdraw less water from the endangered aquifers. Public water supply systems have made significant progress toward meeting these goals through development of regional water authorities and other water sharing arrangements.

In September 2008 the Neuse Regional Water and Sewer Authority, which was formed in response to the CCPCUA rules, began providing water to its member communities from a new surface water treatment plant on the Neuse River. Switching to a surface water source produced demonstrable improvements in regional water levels. The measurable improvements produced by the use of this alternative source of water reinforces the premise on which the rules depend, that reducing withdrawals will allow the aquifers to recover and water levels will rise. Additional information on the Central Coastal Plain Capacity Use Area and the associated rules are available on the Division's website at www.ncwater.org.

Interbasin Transfer of Surface Water

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 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 while protecting our natural resources.

The 2007 session of the General Assembly made significant changes to the legislation regulating surface water transfers. Session Law 2007-518 repealed G.S. 143-215.22I and replaced it with G.S. 143-215.22L which added additional requirements for notifications to the public of proposed withdrawals and specified additional criteria that must be considered by the Environmental Management Commission in deciding whether or not to grant an interbasin transfer certificate. These changes became effective on August 31, 2007 except for some proposed surface water transfers in the Central Coastal Plain Capacity Use Area for which the new regulations become effective on January 1, 2011. The river basin boundaries established by this statute are defined in G.S. 143-215.22G and an associated map. Session Law 2008-198 extended these basins into neighboring states for the purposes of the expanded notification requirements that are specified in G.S. 143-215.22L.

The statute grandfathers the ability to transfer water that was already in place on July 1, 1993, but requires anyone wishing to initiate a transfer of two million gallons or more of surface water a day and anyone wishing to increase a transfer permitted prior to July 1, 1993 to obtain permission from the Environmental Management Commission. Likewise, any system wishing to increase an existing transfer to 2 million gallons per day or more must also obtain permission from the Environmental Management Commission.

G.S. 143-215.22L specifies detailed notification and procedural requirements that must be met as well as 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 proposed transfer certificate is issued for a specific volume of water and will include provisions to mitigate the impacts of this surface water transfer. The EMC can issue a certificate for a volume other than that requested by the applicant and can attach conditions to the certificate.

While many communities move water between river basins, prior to 2007, only three Interbasin Transfer Certificates had been issued under G.S. 143-215.22I and precursor 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 has permission 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 granting them permission 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 surface water source to replace ground water withdrawals 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. As provided for in Session Law 2007-518, the decision on whether or not to issue this IBT certificate will be made under the procedures and standards set out in G.S. 143-215.22I that were in effect on July 1, 2007.

The Greenville Utility Commission has submitted its petition to transfer a total of 12.3 million gallons per day from the Tar River Basin to the Contentnea Creek and Neuse River Basins to provide drinking water for the Farmville, Winterville and Greene County water systems. A public hearing will be held on November 5, 2009 to receive comments on this petition.

The Kerr Lake Regional Water System has indicated it intends to submit a petition requesting an increase in their existing 10 million gallons per day transfer to 24 million gallons per day. KLRWS proposes to transfer water withdrawn from Kerr Lake on the Roanoke River to public water systems in the Tar, Neuse and Fishing Creek River Basins. DWR expects to receive a Draft Environmental Impact Statement for this proposed transfer increase in early 2010.

Brunswick County has submitted a notice of intent to apply for an expansion of their grandfathered interbasin transfer. They currently receive surface water from the Lower Cape Fear Water and Sewer Authority and provide treated water to customers in the Cape Fear,

Waccamaw and Shallotte River Basins. A Draft EIS is under development to support a request for an increase in their grandfathered transfer amount of 10.44 million gallons per day to 19.29 million gallons per day. DWR expects to receive the Draft EIS in early 2010.

Division staff members expect to receive applications for certification of interbasin transfers from several other communities in the near future. Information on Interbasin Transfer petitions is available on the Division's web site under the link "Interbasin Transfer".

Recent legislative actions affecting future Water Supply Planning

Public water systems in North Carolina use a wide variety of combinations of water sources and system configurations to reliably provide water to their customers. Since the beginning of the water supply planning program, the Local Water Supply Plans submitted by units of local government and large community water systems have been reviewed for completeness and consistency with the statutes. Statutory language provided water systems with a lot of flexibility as to the level of detail and documentation on which they could base their local plan and on which the Division could base its decisions on completeness and consistency. With the passage of Session Law 2008-143 the Division, acting for the Department, is now responsible for approving or disapproving these plans and the evaluation of local municipalities' calculations of future needs will be subject to disapproval based on a set of criteria that must of necessity be applicable statewide. Protocols for review and approval of Local Water Supply Plans are being added to the guidance documents available on the Division's web site.