

North Carolina

Drought Management Advisory Council

Annual Report - 2006

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North Carolina Division of Water Resources
Department of Environment and Natural Resources
www.ncwater.org

Table of Contents

Introduction	3
Drought Management Advisory Council	3
Monitoring Drought Conditions	4
Council Meeting	4
Press Releases	5
Drought Advisories Issued.....	5
Water System Conservation Status	7
Improving Coordination and Drought Depiction	7
DMAC Web Site	7
Drought Indicator Wells	8
River Basin Drought Management Plans	8
Water Resources Information	8

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Introduction

This is the second report of the North Carolina Drought Management Advisory Council on the implementation of North Carolina General Statute 143-355.1, which created the council in 2003. The General Assembly amended this statute in 2004, adding a new section requiring an annual report: “(g) The Council shall report on the implementation of this section to the Secretary, the Governor, and the Environmental Review Commission no later than 1 October of each year. The report shall include a review of drought advisories issued by the Council and any recommendations to improve coordination among local, State, and federal agencies; public water systems; and water users to improve the management and mitigation of the harmful effects of drought. (2003-387, s. 2; 2004 195, s. 2.5.)”

Drought Management Advisory Council

The Drought Monitoring Council was an interagency coordination and information exchange body created in 1992. The council did a creditable job of monitoring and coordinating drought responses in 2002 and increased public awareness of its functions and its effectiveness. The General Assembly recognized the Drought Monitoring Council’s leadership and performance by giving it an official statutory base and by changing its name to Drought Management Advisory Council (DMAC), reflecting the broader role of the council, which goes beyond monitoring of drought conditions.

North Carolina General Statute 143.355.1., ratified July 17, 2003, assigns the DMAC an important new role, the need for which became evident in 2002. A number of local governments indicated that it would be helpful to have official, objective drought status advisories, to give them a reliable basis for their management responses. The new statute assigns this role to the DMAC and specifies that the drought advisories are to be based on technical data and are to be crafted to fit varying conditions in different parts of the state. This system will avoid the problems that some states have experienced in declaring drought warnings statewide, when conditions did not warrant it in all parts of the state.

Section 1 of this Act also makes drought response provisions mandatory in local government water supply plans and extends this planning responsibility to all community water systems that serve 1,000 or more connections or 3,000 or more individuals.

The intent of the new statute is for the DMAC to continue with essentially the same membership and functions that the Drought Monitoring Council previously exercised, but with new statutory authority and a new responsibility for providing a system of drought advisories when needed. Most importantly, the operations of the DMAC will carry on the same role as the Drought Monitoring Council did in support of the North Carolina Emergency Operations Plan.

Monitoring Drought Conditions

The U.S. Drought Monitor of North Carolina (www.ncdrought.org) is the reference for drought classifications and response actions in the state. The drought monitor is a map identifying general drought areas, labeling droughts by intensity, with D1 being the least intense and D4 being the most intense. D0 signifies drought watch areas either drying out and possibly heading for drought, or recovering from drought but not yet back to normal, suffering long-term impacts such as low reservoir levels or minimum streamflow for the time of year.

The Drought Advisory Study Team participates each Tuesday in a conference call to gather and feed information to the National Drought Monitor author about local drought conditions in North Carolina. The team includes DMAC representatives and National Weather Service offices located in Tennessee, South Carolina, and Virginia. The Drought Monitor is published on Thursday morning of each week.

While drought does not currently affect much of North Carolina, local drought problems were present in 2005 and 2006. Indeed, much of the state was under drought advisories during the spring of 2006, a time when reservoirs are normally full and crops are being planted. In April 2006, all counties had some level of drought classification.

Council Meetings

Due to the impact of drought conditions on some water supply systems and reservoirs in the state, the DMAC chairman called for meetings of the council on Oct. 5 and Nov. 15, 2005 and on Mar.28 and May 4, 2006, at the Archdale Building in Raleigh. Average attendance was about 33 representatives.

Items on the meeting agenda included assessment and forecast reports about the seasonal drought outlook; streamflow and ground water levels; lake and reservoir levels; and agriculture, forestry and public water system conditions.

Press Releases

Press releases were sent out after each DMAC meeting. A total of nine press releases were sent out concerning drought conditions and drought advisories issued by the DMAC, encouraging all citizens to conserve water and adhere to water restrictions in their local communities.

Drought Advisories Issued

The DMAC issued official drought advisories based on data adjusted for varying conditions in different parts of the state to provide local governments with a reliable basis for managing drought response in their region.

Local drought problems were present in the fall and winter of 2005 and 2006. The first North Carolina Drought Advisory, #1-05, was issued by the DMAC in October 2005. The advisory was updated each week (**www.ncdrought.org**) to reflect drought classifications on the weekly U.S. Drought Monitor of North Carolina.

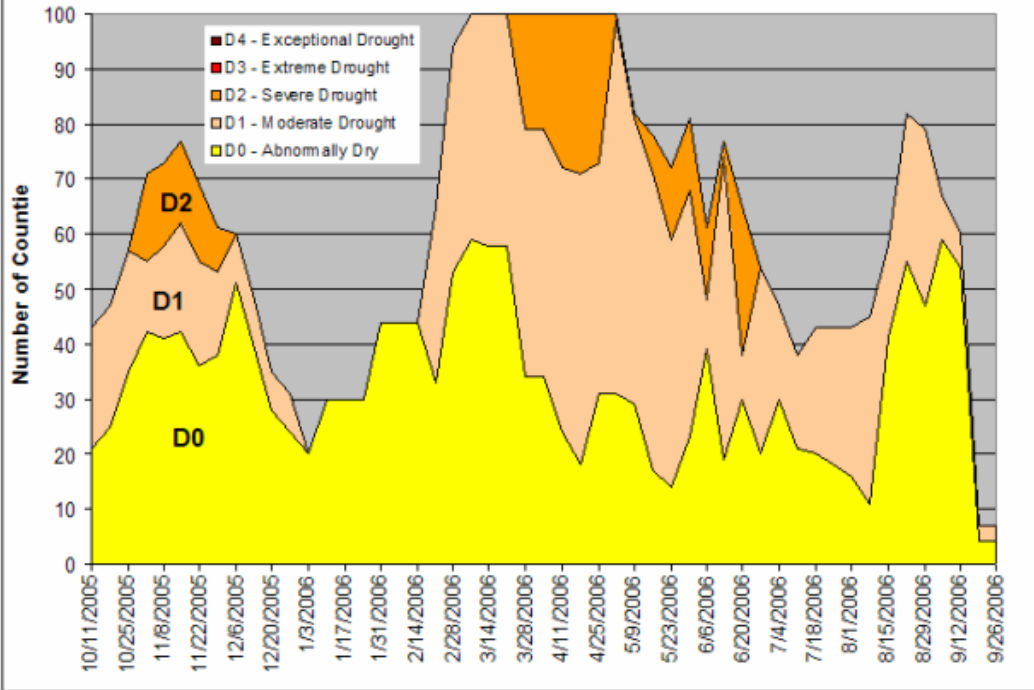
The drought advisory requests the implementation of drought response actions until further notice for all water users located in or dependent upon water resources from the areas of the state experiencing drought. The highest drought classification applies to the entire county, if any portion of the county is depicted on the U.S. Drought Monitor of North Carolina as having those conditions. Counties under the current advisory and requested drought response actions are updated each Thursday and listed (**www.ncdrought.org**) by drought classification.

During the months of March and April 2006, all 100 counties in the state had some level of drought classification. Figure 1 summarizes the number of counties each week under drought advisories as issued by the DMAC.

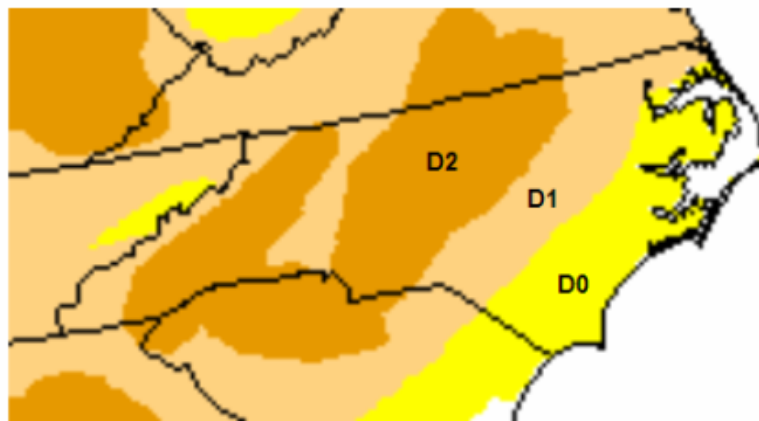
During the month of April, severe drought (D2) was ongoing in 29 counties, 42 counties had moderate drought (D1), and 31 counties were classified as having abnormally dry conditions (D0).

Figure 2 indicates the peak drought monitor conditions that occurred Oct. 2005 to Sept. 2006 in the state. For six months we had parts of the state to peak at severe drought (D2) and every county reached at least abnormally dry (D0).

**Figure 1. County Summary with Drought Advisories issued
October 2005 to September 2006**



**Figure 2. Peak Drought Monitor Classification
October 2005 to September 2006**



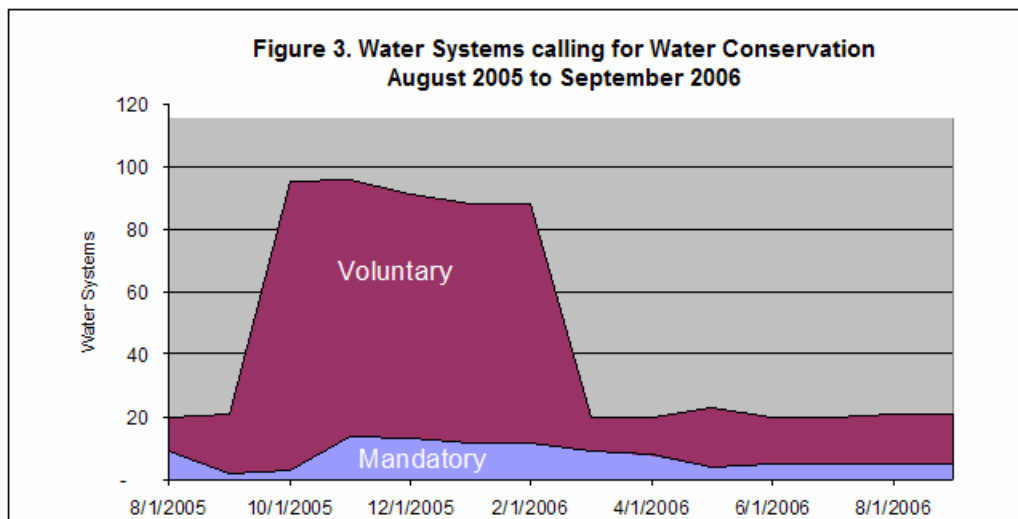
- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)



Water System Water Conservation Status

The Division of Water Resources and Public Water Supply Section (PWSS) regional offices are working together to make possible this reporting and data available on the Web. This on-line database provides a consistent way to document and track impacts to public water supply systems. The system is operational and in use, and tracks the more than 584 water systems throughout the state provided by PWSS. This information can be accessed at: (www.ncwater.org/Drought_Monitoring/reporting/displaystate.php).

The number of water systems that called for water use restrictions is displayed in Figure 3. During the months of October 2005 to February 2006, the maximum number of water systems calling for mandatory water use restrictions were 14, providing water services to 600,000 people. During the same time, 92 systems, serving about 1.9 million people, were requesting voluntary water use restrictions.



Improving Coordination and Drought Depiction

DMAC Web Site

The DMAC Web site (www.ncdrought.org) depicts the U.S. Drought Monitor for North Carolina that is updated and released on Thursday 8:30 a.m. EST each week. The data cutoff for each week is Tuesday 7:30 a.m. EST. The weekly release can include drought advisories issued by the DMAC for all water users located in or dependent on water resources from the areas of the state experiencing drought conditions. Advisories are color-coded and range from Abnormally Dry (D0) to Exceptional Drought (D4).

The U.S. Drought Monitor establishes a baseline for hydrological and agricultural drought conditions; North Carolina is fortunate in that it has the

DMAC to work closely with the U.S. Drought Monitor to adjust designations to better reflect North Carolina's local conditions.

The DMAC Web site also has a number of tabs that link to available resources of information, some with real-time data about current conditions, news, information about the DMAC, contact information and education about drought, archives (N.C. monitor) and water conservation tips.

Drought Indicator Wells

Drought indicator wells are a network of wells that monitor the effects of droughts and other climate variability on ground water levels in the surficial aquifers (water table). The Division of Water Resources has a goal of increasing the number and geographic distribution of drought indicator wells. DWR currently has 43 actively monitored wells in the network and has a short-term goal of adding two wells to that network this fiscal year. The long-term goal is to have a minimum of 60 drought indicator wells. This will allow a much more complete assessment of impending or actual drought conditions in each of the major river basins of the state.

River Basin Drought Management Plans

As part of the relicensing of hydropower projects in the Catawba-Wateree and Yadkin-Pee Dee river basins, procedures will be established for adjusting operations during periods of low inflow to conserve the limited water supply. The Low-Inflow Protocol (LIP) provides trigger points and procedures for how the projects will be operated as well as water withdrawal reduction measures and goals for other water users during periods of low inflow. A trial run of the LIP that has been developed for the Catawba-Wateree Projects by Duke Energy was underway this year. The LIP for the Yadkin-Pee River Basin is still under development.

Efforts are currently underway with stakeholders in the Neuse River Basin to work together with the Division of Water Resources to fund and develop a drought management model for the basin.

Water Resources Information

The Division of Water Resources is working together with the N.C. State Climate Office, the U.S. Army Corps of Engineers, and the U.S. Geological Survey to develop a water resources information, storage, analysis, and retrieval system (WRISARS). This program will provide a single archive of historical and current data about hydrology (including stream flow, groundwater and reservoir data), weather and climate, and water use in North Carolina. Continued funding will be necessary in order to maintain this program. Preliminary products are now available for public use at: (<http://www.ncwater.org/wrisars/index.php>).