

North Carolina

Drought Management Advisory Council

Activities Report - 2007

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North Carolina Division of Water Resources
Department of Environment and Natural Resources

North Carolina Drought Management Advisory Council

Annual Report-2007

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Introduction

This is the third 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

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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.ncwater.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 Technical Drought Advisory Team a sub group of the Council, participates each Tuesday in a telecom 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.

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Council Meetings

The DMAC chairman called for meetings of the council on Mar. 7, June 7, Aug. 21, and Sept. 27, 2007 at the Archdale Building in Raleigh. Average attendance was about 40 representatives. The total number of people in attendance at the Sept. 27, DMAC meeting was 69, including 10 representatives from the media. These included WRAL, WUNC public radio, WTVD (ABC 11), WGHP (Fox 8), NBC 17, the North Carolina News Network, Freedom Newspapers, Wake Weekly, Star News, and the Fayetteville Observer.

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

Press Releases

Press releases were sent out after each DMAC meeting. A total of 24 press releases were issued concerning drought conditions and drought advisories issued.

On-Going Drought Assessment and Drought Coordination 2007

The technical team of the Drought Management Advisory Council continued to hold a weekly conference call on Tuesdays to assess drought conditions in 2007. The information they produce goes to the weekly update of the drought status map, which comes out on Thursdays.

The Water Sources Task Force was activated in August and is now joining the DMAC technical team on the weekly conference call.

The Water Sources Task Force is part of the NC Emergency Response Plan and brings a few additional agencies to the table with capabilities for drought response and evaluation of water supply. The Public Water Supply Section and the Division of Water Resources have established a list that ranks local water systems in three tiers of drought vulnerability. At the weekly conference call, the participants update

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and review the drought vulnerability tier list and identify communities needing assistance.

Tier-1: systems are considered to be in a crisis mode (or) have less than 100 days of present supply remaining (or) are likely to be in a crisis if conditions persist because they lack interconnections for emergency water supply

Tier-2: systems are not in crisis now but could be within the next few months.

Tier-3: systems are not yet in a vulnerable position but are subject to change as the drought continues.

This ranking is a subjective assessment based on best professional judgment and experience of PWSS field staff coupled usually with recent communication with the systems.

The Water Sources Task Force is having meetings with all of the Tier-1 systems to help in identifying a near-term water supply solution and funding to obtain an emergency supply of potable water.

The Task Force is currently working with and helping Rocky Mount and Siler City, Tier-1 systems, to expedite plans/construction necessary to obtain an emergency water supply.

The DMAC is working with the NC League of Municipalities to have three Regional Drought Meetings in the state planned for Greensboro, Raleigh, and Asheville to inform all water systems on drought conditions and on responses that are needed.

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River Basin Management

The DMAC and the Water Sources Task Force is participating in weekly conference calls with managers of major reservoirs, including the Corps of Engineers private power companies, and TVA, to review specific drought conditions in each basin and to discuss changes needed in reservoir management to conserve stored water. These conference calls have resulted in significant adjustments in reservoir release policies, with a resulting increase in the conservation of stored water and a reduction in our risk of depleting reservoirs. These changes are made with the participation of the Division of Water Quality, the U.S. Army Corps of Engineers, and the Wildlife Resources Commission. River basins with on-going telecons include the Neuse, Catawba, Roanoke, Yadkin, Cape Fear, and Tennessee Valley.

In September, the Division of Water Resources sent a message to public water system managers statewide, reminding them of the necessity to monitor water supply and demand carefully and of the requirement to mandate water use restrictions as indicated by their local water supply plans. Also, letters were sent to golf courses concerning water use registration requirements. These messages followed a press release by Governor Easley asking for local water conservation actions to avoid a state government mandate for mandatory water use restrictions.

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. The advisory was updated each week (www.ncdrought.org) to reflect drought classifications on the weekly U.S. Drought Monitor of North Carolina.

In April, severe drought conditions developed in the southern mountains. Exceptional drought conditions moved eastward to central NC during the first week of October 2007 and were depicted in 55 counties; with 31, 11, and 3 counties

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having extreme, severe and moderate drought conditions respectively. Figure 1 summarizes the number of counties each week under drought advisories as issued by the DMAC.

The USGS reported record low water levels in May for North Carolina rivers in Western NC and in August 2007 reported the lowest streamflows in more than 110 years for some North Carolina rivers as drought conditions worsened.

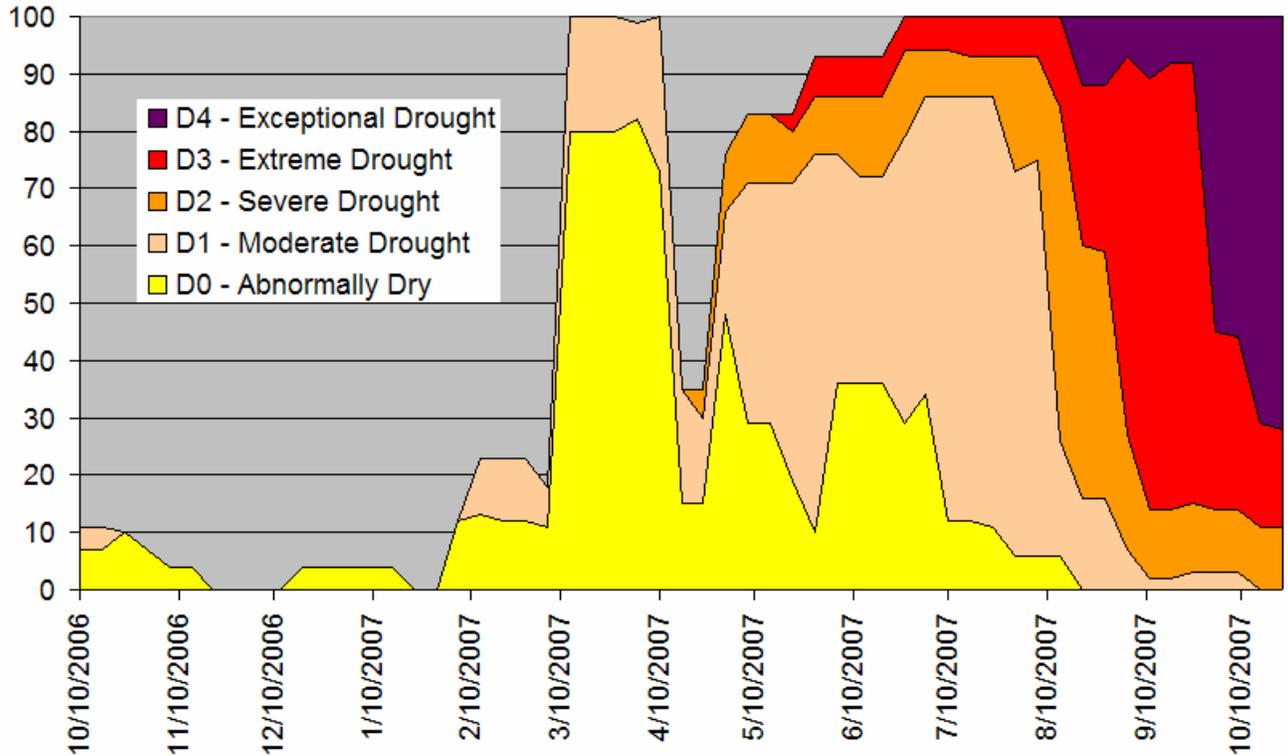
The drought advisory requests the implementation of drought response actions until further notice for all water users located in or dependent upon water resources from the areas of the state experiencing drought. The highest drought classification applies to the entire county, if any portion of the county 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.

Since mid June, 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.

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**Figure 1. County Summary with Drought Advisories issued
September 2006 -- October 2007**



Water System Water Conservation Status

The Division of Water Resources and the Public Water Supply Section (PWSS) regional offices are working together to make possible this reporting and data available on the Web on the status of water conservation requirements by public water systems. 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 600 water systems throughout the state. 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 2.

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Figure 2. Water Systems Calling for Water Conservation due to Drought --2007

Week					Week				
2007	E	M	V	Total	2007	E	M	V	Total
1-May		1	5	6	31-Jul		8	31	39
8-May		1	6	7	7-Aug		8	37	45
15-May		1	6	7	14-Aug		16	36	52
22-May		2	6	8	21-Aug		19	53	72
29-May		5	6	11	28-Aug		36	68	104
5-Jun		7	16	23	4-Sep		48	67	115
12-Jun		8	20	28	11-Sep		66	62	128
19-Jun		9	23	32	18-Sep		72	67	139
26-Jun		9	23	32	25-Sep		82	78	160
3-Jul		9	23	32	2-Oct		83	80	163
10-Jul		8	29	37	9-Oct		86	88	174
17-Jul		8	31	39	16-Oct		94	108	202
24-Jul		8	31	39	23-Oct	1	110	125	236

E = emergency M = mandatory V = Volunteer

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).

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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 45 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 have been established and tested for adjusting operations during periods of low-inflow to conserve the limited water supply during the 2007 drought. 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.

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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.

The Division of Water Resources is working with the U.S. Army Corps of Engineers and stakeholders on updating drought management plans on Falls and Jordan Reservoirs.

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, the N.C. Ground Water Management Section, and the U.S. Geological Survey and have developed a water resources information, storage, analysis, and retrieval system (WRISARS). This program will provide a single archive of historical and on-the-spot data about hydrology (including stream flow, groundwater and reservoir data), weather and climate, and water use in North Carolina. Products are now available for public use at (<http://www.ncwater.org/wrisars/index.php>).