



**W o r l d**  

---

**C l a s s**  

---

**R e g i o n**

# TRIANGLE J COUNCIL OF GOVERNMENTS

4307 Emperor Boulevard, Suite 110  
Durham, NC 27703

Mailing Address: PO Box 12276  
Research Triangle Park, NC 27709

919.549.0551 FAX: 919.549.9390  
www.tjcog.dst.nc.us

## **Future Water Supplies for Durham and its Neighbors**

Sydney Paul Miller  
Water Resources Program Manager  
January 8, 2008

### **“Will the water run out?” Maybe.**

Water supply begins with precipitation.

- As of yesterday, the annual rainfall at the Raleigh-Durham Weather Service Field Office was -13.3 inches, or 69 percent of normal.
- In December 2006, we began a trend of cumulative monthly rainfall deficits when compared with normal monthly totals; at the end of December 2007 that cumulative deficit was -5.6 inches.
- In October 2007 we had 0.0 inches of rainfall. The last time we had a month with 0.0 inches of rainfall at this gauge was October 2000.
- The National Weather Service’s Climate Prediction Center continues to forecast lower-than-normal precipitation through May.

The City of Durham and its neighbors are doing all they can to increase their available water supplies in the short term.

- Durham is working to make bulk reclaimed wastewater available for non-potable uses.
- Durham has brought Teer Quarry online as a temporary, additional supply.
- Durham is working to increase the capacity of its interconnection with Cary, thereby increasing Durham’s access to its Jordan Lake allocation.

We should maintain conservation until the drought ends.

- Durham’s reservoir levels are likely to rise, but may not refill. Reservoir levels are likely to fall more quickly during 2008 than they did during 2007, assuming levels of demand similar to 2007.
- We are in what may be an unprecedented drought and we do not know when this drought will end. We cannot assume that our storage is sufficient to continue using water as we have been accustomed to throughout this drought.
- There will be a lot of pressure to allow lawn irrigation this spring and summer, but once we have poured our water onto the ground, we cannot put it back into our taps.

### MISSION STATEMENT

*To serve as an intergovernmental organization for local elected officials  
that works proactively on regional issues in order to sustain and improve the quality of life for our citizens.*

## **Concerns**

- Water supply is no longer just a function of individual communities. Recent severe droughts underscore the need to consider the resource regionally. The water supply optimization study currently being conducted at UNC for Durham, OWASA and Cary seems to point to some of the benefits of managing the resource regionally.
- We may need to reconsider our previous assumptions of appropriate risk in reservoir management. Public concerns about unusually low reservoir levels indicate a lack of comfort with their frequency of occurrence. This has implications for available supply and reliability.
- Our analyses of risk and reliability are based on an 80+ year period of record of stream flows. There are studies that indicate droughts may have occurred hundreds of years ago that make our “droughts of record” seem like periods of mild dryness by comparison.
- The way we manage water shortages during a drought is based upon planning conducted over previous years, the kind of planning we do on an ongoing basis that few people seem to care about until there comes a point when. This drought will end, but will the public be willing to commit the funding over the next few years necessary for us to do the work that will allow us to manage our water systems better during the next drought?

## **Future Water Supply**

### **Water Conservation**

- Foster a culture of water conservation in which water is treated as a precious resource.
- Encourage water conservative landscaping.
- Encourage high-efficiency fixtures and appliances.
- Implement reclaimed wastewater distribution systems for non-potable uses.

### **Regionalization**

- Local drought response – Develop better triggers for initiating drought responses and better ordinances for defining those drought responses.
- Regional optimization – Manage the supplies regionally through interconnections with sufficient capacity to move water between the Triangle systems and thereby reduce the risks of failure for every community.
- Jordan Lake – Develop a regional partnership to build an intake facility on the western shore.

## **Actions**

### **Immediate Water Supply Management (yesterday)**

- Reclaimed wastewater – Make available for bulk purchase.
- Teer Quarry – Develop as an available temporary source.

### **Short Term Water Supply Management (2008)**

- Rain barrels – Make available at a discount to residents, to offset impact of banning irrigation.
- Interconnection with Cary – Expand existing interconnection.

#### Short Term Water Supply Planning (2008)

- Neuse River Basin Hydrologic Model (NHM) – Begin developing the model.
- Regional optimization study – Complete initial study. Begin second phase of study considering additional systems (e.g., Chatham County and Raleigh).
- Western Jordan Lake intake partnership – Durham, OWASA, and Chatham County begin working together to examine organizational and infrastructure alternatives.

#### Mid Term to Long Range Water Supply Planning (2009+)

- Reclaimed wastewater distribution system – Develop a permanent distribution system for reclaimed wastewater and a CIP for expanding the system (e.g., Duke University and Hospitals cooling towers).
- Teer Quarry – Complete necessary permitting and install permanent infrastructure.
- Regional optimization implementation – Increase interconnection capacities as indicated by study. Complete transfer agreements and implement protocols.
- Western Jordan Lake intake partnership – Durham, OWASA, and Chatham County implement partnership and develop CIP for infrastructure.
- Cape Fear River Basin Hydrologic Model (CFHM) – Update to include October 2004-2009 period of record.
- Triangle Region long range water supply plan – Triangle J Council of Governments conducts a study based on Cape Fear and Neuse River Basins hydrologic models, with a 50-year planning horizon.
- Analyze water supply reliability and triggers – Use inflows developed from CFHM and NHM to examine reliability of all Triangle water supplies and set management triggers appropriately. Consider changing intake levels for existing withdrawals.
- Infrastructure rehabilitation – Increase utility rates sufficiently to replace aging infrastructure at a rate comparable to its decay.