

Georgia Department of Natural Resources

Environmental Protection Division, Watershed Protection Branch
4220 International Parkway, Suite 101, Atlanta, Georgia 30354
Linda MacGregor, P. E., Branch Chief 404/675-6232
FAX: 404/675-6247

MEMORANDUM

TO: Council Members

FROM: Becky Champion
Assistant Branch Chief
Coosa, Tallapoosa and Tennessee River Basins

SUBJECT: Joint Water Planning Council Meeting
January 26, 2010
Dawsonville, Georgia

DATE: March 3, 2010

On January 26, 2010, representatives of three Regional Water Planning Councils and the Metro North Georgia Water Planning District met in Dawsonville, Georgia to review the draft groundwater and surface water availability and draft surface water quality resource assessments developed by the Environmental Protection Division (EPD). The following is a summary of the meeting.

1) Introduction

Local Welcome and Meeting Overview: Dr. Champion began the meeting by asking Mike Berg, Chairman of the Dawson County Board of Commissioners, to welcome the group. Chairman Berg welcomed all attendees on behalf of the Dawson County Board of Commissioners and the City of Dawsonville and talked about on-going activities in Dawson County.

Dr. Champion reviewed the meeting agenda and logistics and asked Dr. Jerry Jennings to give an invocation.

After the invocation, Dr. Champion reminded everyone that four Councils are represented today (i.e., Coosa-North Georgia Water Planning Council (WPC), MNGWPD, Savannah-Upper Ogeechee WPC and the Middle Chattahoochee WPC), but that the focus of this meeting is the Coosa-North Georgia WPC study area and the resources shared with the other WPCs.

Dr. Champion emphasized the resource assessments to be presented and discussed today have been completed on a watershed basin and aquifer basis and that these resources don't correspond with the WPC boundaries. Further, in their present state, the resource assessments are based on current conditions and utilization (i.e., baseline of current conditions only). Technical meetings are planned for February and March to discuss the technical nuances of each assessment.

Council Meeting #5 is planned for March so that each WPC can discuss and evaluate the resource assessments in detail.

Dr. Champion introduced AECOM to give an overview and demonstration of the Turning Point software to be utilized throughout the meeting.

Turning Point Demonstration: Ms. Barbara Faga and Ms. Sarah Simms introduced the Turning Point polling software (audience response software). The following four questions were given to the council members present and the immediate responses to these questions were presented as follows:

Question 1: Which group do you represent?

1. Local Government (38%)
2. Utilities (22%)
3. Business/Industry (9%)
4. Agriculture (22%)
5. Academic/Education (0%)
6. Non-profit (6%)
7. Environment (3%)
8. State/Federal Government (0%)

Question 2: After the resource assessment presentations, I would prefer to break out into discussion groups to focus on:

1. Resources by geography (watersheds and aquifers) (52%)
2. Assessment topic (water quality, groundwater availability, surface water availability) (48%)

Question 3: GEOGRAPHY: In the afternoon breakout sessions, I would prefer to join a discussion group focusing on:

1. Groundwater (10%)
2. Coosa/Tallapoosa River Basins (59%)
3. Tennessee River Basin (31%)

Question 4: ASSESSMENT TOPIC: In the afternoon breakout sessions, I would prefer to join a discussion group focusing on:

1. Water quality (6%)
2. Groundwater availability (19%)
3. Surface water availability (75%)

Introduction of Legislators and other Elected Officials:

Dr. Champion asked the legislators and elected officials in attendance to introduce themselves and to state why they are attending and interested in the water planning process and today's meeting. The following comments were received:

- Why can't we get water out of Lake Lanier?
- Stream buffers and water quality are important issues.
- The planning process needs to prepare Georgia for future water use.
- We need to have enough water for future generations.
- The planning process must leave a healthy Georgia for future generations.
- We can't over regulate industry and force jobs overseas.

Introduction of Partnering Agencies: The following partnering agencies introduced themselves:

- Georgia DNR
- Department of Community Affairs
- Soil and Water Commission
- Georgia EPD
- Georgia Forestry Commission

Introductions of Councils: Representatives of each WPC were given an opportunity to introduce themselves and to make comments.

Mr. John Bennett introduced the **Coosa-North Georgia WPC**. The Coosa-North Georgia WPC has had 4 meetings and is eager to get to work. Forecasted projections have been evaluated and the council has had a significant amount of debate about the projections, especially the agricultural and population projections. The council feels more stream and water quality monitoring is needed on a continuous basis. TVA made a good presentation to the council,

including a discussion of how much of water comes from Georgia and the potential use of that water. The council has discussed reservoirs, underground storage, interbasin transfers (IBTs), and the conditions under which IBTs will be accepted. The council doesn't want to damage downstream users.

Mr. David Kubala introduced the **MNGWPD**. The MNGWPD includes 15 metro counties and has a 26 member governing board. The MNGWPD is fully engaged in the Metro District water planning. Original water plans were created in 2003 and updated in 2008. The 2008 plan updates were approved by EPD in May 2009. Existing plans will be amended as needed as the state water planning process is completed. The MNGWPD plans are implemented and enforced by EPD, with EPD inspections and audits on a regular basis. Mr. Kubala reviewed a listing of the various water related programs implemented by the MNGWPD. The MNGWPD has also engaged in many water conservation activities, including conservation pricing, low flow plumbing, multi-family submeters, leak audits, public education, etc. The MNGWPD is looking forward to working with their neighboring councils.

Mr. Ron Cross introduced the **Savannah-Upper Ogeechee WPC**. Mr. Cross indicated that the Savannah-Upper Ogeechee WPC is unique since the South Carolina state line runs along their entire planning basin. EPD is talking with SCDHEC regarding water planning issues and water withdrawals, but SCDHEC doesn't currently issue water withdrawal permits like Georgia EPD. To date, South Carolina has been cooperative and eager to talk about water related issues. Basin planning will be a challenge since South Carolina's water rights need to be considered. The Savannah-Upper Ogeechee WPC has developed a position against interbasin transfers (IBT). The council is looking forward to working with other councils but must first coordinate with South Carolina.

Mr. Matt Windom introduced the **Middle Chattahoochee WPC**. The Middle Chattahoochee WPC is eager to get started with planning activities. The planning area is comprised of 11 counties and borders Alabama. The area is faced with the same challenges as the Savannah-Upper Ogeechee WPC. The council is looking into the best ways to use their resources and is especially interested in reservoir storage and management of reservoirs. 95% of the time the area has adequate water supply, but the other 5% of the time is a major concern.

Introduction of Other Attendees: No introductions.

Dr. Champion introduced Ms. Linda MacGregor, Chief of EPD's Watershed Protection Branch. Ms. MacGregor welcomed everyone and thanked them for their service since the kick-off meeting at the Georgia Aquarium. She passed along greetings from Allen Barnes, Director of EPD. She indicated that the resource assessments that will be presented have been completed along resource boundaries, not council boundaries.

Summarized remarks below: The first purpose of the meeting today is to present the resource assessment results and that the second purpose is for the councils to interact with each other. The purpose of the resource assessment tools is to assist with planning and EPD encourages questions.

Only the current situation will be presented in the resource assessments today. These assessments and the corresponding models created will be used as tools at a later date to evaluate future needs.

Per Georgia's State Water Plan, sound management must be based on solid science. The presentations today are the sound science to assist with planning. These resource assessments are only drafts. The best experts available have been used to create and calibrate the models.

The resource assessments and models will be modified and improved based on input from interested parties. EPD encourages input on these assessments. The presentations today are snapshots of what is contained in the larger models. It is EPD's desire that everyone understand the models.

These models have been completed on a regional scale (i.e., not as detail as local models) and are complex. Because of the regional scale, these models were not developed for individual permit decisions but for planning purposes.

The following comments and questions were fielded from the audience:

Comment from Audience – I have distrusted previous computer models from EPD. These models have contained many errors.

Response – We think we have good models, but want input to make them better.

2) Draft Surface Water Availability Assessment

Dr. Champion introduced Mr. Nap Caldwell. Mr. Caldwell made the Surface Water Availability Resource Assessment presentation. The following comments and questions were fielded from the audience:

Q – What is the 7Q10?

A – 7Q10 is the 7-day average flow with a 10% recurrence interval.

Q- Why did you pick 7 days?

A- This is a 7 day moving/rolling average over the period of record (i.e., 69-70 years of data used in models). The DNR Board passed a rule requiring permits to be based on 7Q10 or inflow, whichever is less. Inflow often controls during drought periods.

Q – Historically the goal has been to manage flows so they don't go below the 7Q10?

A – The goal - in setting conditions in water withdrawal permits - has been to prevent permitted water withdrawals from being responsible for stream flows dropping below 7Q10 during dry periods.

Q- What is the difference between the daily and annual 7Q10?

A- The annual 7Q10 statistic is based upon grouping consecutive seven-day average flows over an entire year, and determining - from that array of data - the flow that has a 10 percent change of recurring in any single year. Monthly 7Q10's are determined in a similar fashion, but the data are arrayed over each month (rather than an entire year). The annual 7Q10 is a single number for a given year; the monthly 7Q10 is a single number for each month of the year (hence 12 distinct monthly 7Q10s for each year). EPD has transitioned from annual 7Q10 flows to monthly 7Q10 flows.

Q – When you calculate the monthly 7Q10, is this the natural or regulated 7Q10? Lake Lanier for example.

A – In the Resource Assessments presented today, we used the 'natural' 7Q10. In setting withdrawal permit conditions on regulated streams, DNR Board's interim flow policy doesn't require 7Q10 to be used as the low flow barometer.

Q- Does the model take into account return flows?

A- Yes.

Q – Are gaps based on permits or actual usage?

A – The 'gaps' - where they occur in the Resource Assessments presented today - are based on 'actual' usage (field) data rather than permit limits.

Q- What happens when demands increase in the future?

A- Gaps (if they exist) will likely increase with increases in consumption, if the additional consumption is not accompanied by management practices intended to offset this consumption. Modeling for future conditions will be completed after the forecasts are complete.

Q – Will handouts be posted on the website?

A – Yes. www.georgiawaterplanning.org

Q- Why are you using 2007 data in some of the analysis?

A- 2007 was selected as a snapshot year for illustration purposes only. We could as well use any single year over the period of record for illustration. 2007 was a fairly dry year, so we thought it would be useful to use for illustration purposes.

Q – Has Tennessee (TN) completed similar analysis on the TN River?

A – EPD is not sure of TN’s activities.

Comment from Audience – TVA has evaluated flow and completed studies in the TN River.

Q – Does the Allatoona storage include the new Hickory Log Reservoir?

A – Yes.

Q- How is sedimentation taken into account in the reservoirs and lakes?

A- EPD is evaluating the conservation pool only and not the dead pool storage.

Q – What is a conservation pool?

A – The conservation pool is the volume of storage in reservoirs used for releases to meet a set of purposes for which the reservoir is built (e.g., recreation, hydropower, withdrawals, etc.). The flood pool is above the conservation pool, while the dead pool is below the conservation pool.

Comment from Audience - In conservation pools, we need to know how far the reservoirs will be drawn down due to recreational impacts, economic impacts, etc. Councils may not want to draw down the conservation pool as far as modeled. Councils need the conservation pool data from EPD and the modeling assumptions.

Response – Councils can consider modifying the conservation pool assumptions and the amount of draw down based on their goals/visions.

Q- How was the simulated reservoir elevation determined?

A- EPD tried to replicate historical operation of the reservoirs. Daily storage levels were calculated. COE and TVA data was utilized for model calibration.

Turning Point Questions:

Question 1: Regarding regional surface water availability, do you consider yourself...

1. An expert (4%)
2. Well informed (35%)
3. Somewhat informed (42%)
4. Need to know a lot more (19%)

Question 2: How much more information do you need to move forward on regional planning for surface water use?

1. A great deal (48%)
2. Somewhat (31%)
3. A little (17%)
4. Not much (3%)

Question 3: I would like more information about...

1. Water withdrawals and returns (40%)
2. Flow regime requirements (13%)
3. Unimpaired flow (0%)
4. Calculating gaps and exceedance curve (20%)
5. Modeling process (13%)
6. Other (13%)

3) Draft Surface Water Quality Assessment

Dr. Booth made the Surface Water Quality Resource Assessment presentation. The following comments and questions were fielded from the audience:

Q – More streams seem to be on 303d list than are shown on the graphics.

A – Model doesn't take into account 303d or 305 listings. Stream modeling based on constituents that affect assimilative capacity, dissolved oxygen (DO) and nutrients.

Q- Why is Carter's Lake in red?

A- Due to high Chlorophyll-a concentrations.

Q – What about Lake Weiss?

A – Due to high Chlorophyll-a concentrations.

Q- Why are we not looking at fecal coliform and E. coli?

A- Water treatment plants can provide effective treatment of these pollutants. New standards are being considered as part of the State Water Plan process.

Q – Why do impairment colors change along stream segments?

A – Typically due to additional inflow from side streams. Impairment is common downstream of wastewater discharges; especially smaller treatment plants that may not have as high treatment levels and smaller stream flows. Backwater from reservoirs and lakes also impacts model results (i.e., stream flows slowed).

Q- Are Tennessee's (TN) DO standards different than ours? Is Lookout Creek listed in Tennessee?

A- EPD will investigate stream designations in TN for comparison.

Q – Will recent improvements in treatment facilities be reflected in the model?

A – Data used in the model is from 2007. Modeling will need to be updated to reflect recent facility improvements.

Q- How was the 0.06 mg/L total phosphorus (TP) limit determined for the Coosa River at the Alabama (AL) state line?

A- This level was based on data and previous modeling of Lake Weiss.

Q – Do the AL and GA model results coincide?

A – The models have similar results. GA contributes a significant TP load at the AL state line.

Q- What % of TP load is due to permitted versus non-point source discharges?

A- Can't answer that question. However, modeling tools can be used to evaluate storm water load. Modeling has been completed for both wet and dry years.

Q – Will models take into account stream sediment loads?

A – DO model does not take sediment into account.

Comment from Audience - Previous studies have shown that there are significant stream loadings from residential development versus agricultural loadings. Residents want green lawns, while farmers are watching operational costs.

Response - Load typically goes up when it rains. Load is comprised of flow and concentration. In urban areas, load goes up when it rains.

Q – When you look at nutrients, what controls? TP or total nitrogen (TN)?

A – This requires more consideration. Need to make sure that GA doesn't cause a nitrogen loading problem in AL and the Gulf. EPD plans to look at AL's Lake Weiss model.

Q- Significant loads also come from natural undeveloped land. How do we define/differentiate natural loads versus man made loads?

A- In the Coosa-North Georgia planning area, the model can be run with an “all forested run” (i.e., natural undeveloped loading) to assist with planning.

Q – If load is increased instead of increased concentration, why does this create a problem?

A – Increased load causes a problem with algae growth and other issues and impairs the health of the lakes. Increased loads can also cause increased concentrations in the lakes.

Q- Is decay taken into account in the lake models?

A- Yes. Also decay, growth rates and losses from plants.

Comment by Dr. Booth – EPD will run future model scenarios for the planning councils.

Q- Are most of the problems with lakes? Will future reservoirs also be problematic?

A- Lakes are impacted by nutrient loadings. As such, we need to make sure nutrient loadings are controlled into streams.

Q – What about water quality in the Chattahoochee basin?

A – This will be discussed at the meeting next week in Columbus. All of the resource presentations will be made available on-line. www.georgiawaterplanning.org

Q- What do you consider an acceptable level of algae growth? Without algae, there will be no fish.

A- Existing lake standards for pollutants of interest were utilized to model the lakes.

Comment from Audience – Chlorophyll-a levels have been the standard in the past. However, EPA has recently imposed stream nutrient concentrations in Florida (FL) to control pollutant loadings.

A – EPD will be investigating this situation.

Turning Point Questions:

Question 1: Regarding regional surface water quality, do you consider yourself...

1. An expert (7%)
2. Well informed (25%)
3. Somewhat informed (36%)
4. Need to know a lot more (32%)

Question 2: How much more information do you need to move forward on regional planning for surface water use?

5. A great deal (32%)
6. Somewhat (55%)
7. A little (13%)
8. Not much (0%)

Question 3: I would primarily like more information about...

1. Assimilative capacity (19%)
2. Water quality standards (16%)
3. Dissolved oxygen levels (6%)
4. Nutrient sources (16%)
5. Algae in lakes (9%)
6. Modeling process (19%)
7. Other (16%)

Question 4: Second, I would like more information about...

1. Assimilative capacity (33%)
2. Water quality standards (0%)
3. Dissolved oxygen levels (0%)
4. Nutrient sources (0%)
5. Algae in lakes (0%)
6. Modeling process (0%)
7. Other (67%)

4) Draft Groundwater Resource Assessment

Dr. Kennedy made the Groundwater Availability Resource Assessment presentation.

The following comments and questions were fielded from the audience:

Q – Paleozoic Rock and Crystalline Rock Aquifers? Why were these particular aquifers selected?

A – We used two basins in the Piedmont and Blue Ridge physiographic provinces, and one basin in the valley and Ridge province of northwestern Georgia, where we had good data to extrapolate to other areas of the Piedmont, Blue Ridge, and Valley and Ridge provinces.

Q- Using permitted capacity gives you a higher usage than actual, how was this dealt with?

A- We used reported actual withdrawals in the Piedmont and Blue Ridge water budgets and the Valley and Ridge model, and where reported withdrawals were not available actual withdrawals were estimated. Agricultural withdrawals were estimated from permitted capacities.

Q – What is recharge and why is it a concern?

A – Recharge occurs from rainfall and from streams. Recharge from streams was constrained in the models in order to maintain opportunities for surface water use.

Q- How did you get the aquifer volume?

A- The volume of groundwater in an aquifer was not considered directly. Instead, aquifer hydraulic heads (i.e., water levels) were considered.

Q – A 40% recharge limit was used to model the Crystalline Rock Aquifer? Why 40%?

A – The 40% number is a literature number from the Tennant method. The method states that a reduction of 40% of average annual flows or less would maintain outstanding aquatic ecosystem health. The Tennant method has been used elsewhere in the United States and is a readily available and easily used metric. Percentage can be changed in the model.

Q- How can you find the water and know where to design the wells?

A- Professional geologists and engineers with expertise in groundwater can provide assistance to those wanting to study where to find groundwater in the crystalline and Paleozoic rock aquifers and to help determine preferred locations to construct wells.

Q – How do we know where the current groundwater withdrawals are in the state?

A – Locations of individual wells with permitted withdrawals exceeding 100,000 gallons per day (gpd) are cataloged in Georgia EPD files. Local governing authorities may have information on wells withdrawing less than 100,000 gpd that are not permitted by Georgia EPD.

Q- How were springs modeled?

A- Springs were included in the model as baseflow discharges to streams.

Q – Do you feel it is reasonable to get water out of these aquifers?

A – Yes.

Comment from Dr. Kennedy – The models give theoretical results of the ranges of sustainable yields of entire aquifers and shouldn't be used by themselves to locate specific well sites.

Q – The model is for two specific aquifers. How can we use the model throughout the planning area?

A – The results of the two aquifers modeled can be fit to other areas based on common characteristics. More specific study would likely be needed for areas outside the model study areas.

Q- What are the Blue Ridge Basin sustainable yields?

A- The range of sustainable yield for the 315 square-mile Blue Ridge study basin was 7.8 to 48.6 million gallons per day (mgd), which normalizes to 0.032 to 0.162 mgd per square-mile of the study basin. Because it might be difficult to find sufficient water-bearing fractures planning for use of groundwater should focus on the lower-end of the sustainable yield range.

Q – How can storage be dealt with in the modeling?

A – The model of the Paleozoic rock aquifer in northwestern Georgia was a transient model that considered seasonal storage of groundwater in the aquifer. The water budgets developed for the Piedmont and Blue Ridge basins did not consider seasonal changes in storage.

Q-How much more water in the crystalline rock can we realistically withdraw?

A- You might be able to triple the current usage assuming you could find sufficient appropriate fractures in the crystalline rock aquifer from which to withdraw the groundwater. Although it's a tripling of current usage, it's still a relatively small number compared to surface water use.

Q – What about treatment of these waters? Is it difficult?

A – Groundwater can be treated for natural pollutants and other pollutants in the groundwater.

Q- Is groundwater treatment more costly?

A- Quality issues need to be evaluated. The model only considers quantity, not quality.

Turning Point Questions:

Question 1: Regarding regional groundwater availability, do you consider yourself...

1. An expert (0%)
2. Well informed (34%)
3. Somewhat informed (48%)
4. Need to know a lot more (17%)

Question 2: How much more information do you need to move forward on regional planning for surface water use?

1. A great deal (32%)
2. Somewhat (36%)
3. A little (25%)
4. Not much (7%)

Question 3: I would primarily like more information about...

1. Sustainable yield ranges (28%)
2. Benchmarks of unacceptable impacts (10%)
3. Surface water/groundwater interactions (31%)
4. Groundwater modeling process (3%)
5. Other (28%)

Q – Why haven't we looked at groundwater quality?

Response from Chief Linda MacGregor – Because groundwater quality in GA (on a statewide scale) is generally good, treatable and acceptable for potable water use. If quality is a concern, the WPCs will need to talk and coordinate with EPD.

Audience Comment – Turning Point is a great tool that should be used at all meetings.

Comment from Dr. Champion – This modeling is for current use and current situations and one of many critical items that must be utilized in the water planning process.

5) Breakout Discussion Groups

The meeting divided into three breakout discussion groups (Surface Water Availability, Surface Water Quality and Groundwater Availability).

6) Public Comment

Mr. Don Cope (Dalton Utilities) – We need to look at the economics of this water planning process and what we can afford to do to stay competitive.