

Georgia Department of Natural Resources

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March 31, 2010

MEMORANDUM

TO: Council Members

FROM: Kevin Farrell, GA EPD
Doug Baughman, CH2MHILL

SUBJECT: Meeting 5 Summary
Upper Oconee Water Planning Council Meeting

Georgia Comprehensive Statewide Water Management Plan Regional Water Planning

Council Meeting 5 Summary

Meeting Date: March 24, 2010

Location: James Madison Inn Conference Center, Madison (Morgan County)

1) Welcome and Introductions

Council coordinator Doug Baughman introduced Council Chair Richard Bentley who convened the meeting. Bentley complimented the facilities and then asked Pat Hardy, as the Council's representative from Morgan County, to introduce City of Madison mayor Bruce Gilbert and city manager David Nunn. He also recognized and thanked Georgia Power for their co-sponsorship of the meeting location.

Mayor Gilbert welcomed the Council to Madison and encouraged them to walk around the downtown after the meeting, ask to visit a room at the James Madison Inn, and take in the new Jefferson Park. He expressed his appreciation for the Council's work and also recognized Ann Huff with Madison Main Street for her help in coordinating the event location.

Chairman Bentley then quickly reviewed the agenda for the group and acknowledged the contributions of the various subcommittees to the Council. The subcommittees are:

Executive Subcommittee:

- Richard McSpadden
- Pat Graham
- Roger Folsom
- Richard Bentley

Municipal & Industrial Demands

Subcommittee:

- Vince Ciampa
- Charlie Armentrout

Agricultural Subcommittee:

- Larry Eley
- Terry England
- Pat Hardy
- Danny Hogan
- Bill Ross

Media Subcommittee

- Linda Gantt

2) Meeting Overview

Baughman then laid out the plans for the day and what the objectives were for the Council meeting (CM).

Objectives

- Review Water Demand Forecasts
- Discuss Resource Assessment Results
- Initiate Management Practice Selection Process

After this, he reviewed the joint Council meetings held in January where members from regions adjacent to the Upper Oconee Water Planning Region met in Macon and Augusta to review and discuss shared resources. From there, he touched on the future milestones for the rest of 2010 and into 2011.

2010 / CM6 Milestones:

- Review of Final Water Demand Forecasts and Resource Assessments
- Review draft results of applying water management practices to adjust demand and resource capacity
- Suggest refinements to Management Practices as needed
- Review comments on Initial Draft Water Development and Conservation Plan (background)

2010 / CM7 Milestones:

- Review of results of applying water management practices to adjust demand and resource capacity
- Suggest refinements to Management Practices as needed
- Review annotated Draft Water Development and Conservation Plan outline

2010 / CM8 Milestones:

- Review of complete Draft Water Development and Conservation Plan

2011 Milestones:

- Adopt Final Water Development and Conservation Plan after public and GA EPD review

Baughman said at this point, the Council would begin the process of writing the plan and could meet more often if they liked as the idea was to start developing the management practices. Most Council members agreed that it would be difficult to convene the full Council for additional meetings but that they could continue to work through the subcommittees and rely on email and conference calls.

3) Review of Water Demand Forecasts

Planning contractor Brian Skeens presented the group with the water demand forecasts and their completion status. Demand was broken into four categories for water and wastewater:

- Municipal – Includes residential, commercial, and light industrial water use
- Industrial – Major water using industries
- Agricultural – Major forecasts complete; evaluating if/how to incorporate smaller use/unpermitted sectors
- Energy – Forecasts under development with assistance from power/energy companies

He noted that the methodology for developing the forecast had been shared at previous Council meetings. The forecasts are based on the following premises:

- Continuation of current trends and practices
- No demand altering management practices
- Water use efficiency unchanged
- Forecasts for use in regional water planning only

Municipal Forecasts

Skeens told the group that the numbers for the municipal forecasts were still preliminary based on current per capita use rates (both public and self supplied) at the county level; these rates are being refined based on input from the ad hoc meetings and Council input. The population forecasts from the State Office of Budget and Planning (OPB) are then applied to develop the water and wastewater forecasts. This creates the refined municipal per capita water use rate. The population for the Upper Oconee Water Planning Region is approximately 600,000 for 2010 and is expected to grow to 1.3 million by 2050. Next Skeens showed the per capita rates for each county and for the region as whole, which averages 149 gpcd (gallons per capita per day).

Skeens then explained the calculation used for figuring wastewater forecasts. Total wastewater generation was determined by multiplying the projected municipal water used by the percentage of water used indoors and multiplying that product times the estimated fraction of infiltration and inflow. This methodology ensures that water used outdoors is not incorporated in projections of future returns to surface waters. Outdoor water use is assumed to be 100% consumptive.

The subcommittee offered its feedback on the municipal forecasts which led to overall group discussion.

Council Comment: There seem to be higher numbers for Barrow and Washington. Is that because Washington is using more water?

Planning Contractor: That's a good question. Even though the number for Washington County is high, the water demand projections are relatively low. Wilkinson shows low numbers too due to the replacement of fixtures and small growth.

Public Comment: They are closing down the kaolin plants.

Council Comment: What about Barrow?

Council Comment: Morgan County is high too.

Council Comment: Morgan County sells water to other areas

Council Comment: Jackson and Walton County numbers seem low too.

Council Comment: Walton County is a bedroom community and Jackson and Walton have lots of unaccounted water.

Council Comment: The Jackson County Water Authority is a relatively new utility with new infrastructure.

Council Comment: What about privately-owned systems?

Planning Contractor: We have a list of private systems provided by EPD, but they are too small and would not be accounted for.

Planning Contractor: We've also put together a list of all permits for the counties, but now we need help from Council members to get accurate numbers

Council Comment: Some smaller municipalities have a large amount of unaccounted for water. It's easier for them to let it run than fix meters

Council Comment: How were private owned systems incorporated?

Planning Contractor: We've tried to contact them and get information. Some of them are included but smaller ones may not be. For example, we have talked to Piedmont Water and they have been helpful in getting us information.

Council Comment: I did notice in Putnam County that Cuscowilla is a large supplier.

Council Comment: Someone mentioned Barrow's number as high, but I think that it is right. We have some industry, such as food processing, and businesses that may use water and bring those numbers up, so I think that's a good number.

Council Comment: We need to get numbers pinned down pretty quickly. You're making comments here. Write down the numbers and get them to Brian [planning contractor] or call or email. We need to get these nailed down to start working on the plan.

Council Comment: Hancock has a large correctional population and they tend to use more water than homeowners. Most buy water because it's cheaper than supplying it themselves. They do use some water for limited irrigation.

Planning Contractor: We need to understand why a number is high. We may need to make an adjustment if the number is artificially raised because of transient population not counted in forecast numbers

Council Comment: You're saying the amount of water usage for non-publicly owned systems is going to grow significantly. Won't most people in Barrow go on public system as county grows?

Council Coordinator: This is a management practice. If it's the Council's opinion, we can make the recommendation for a centralized municipal supply.

Council Coordinator: We have applied the same ratio to water and wastewater. This is also a management practice. For instance, do we want to apply higher levels of treatment and return for downstream users? Or keep septic tanks?

Council Comment: Some of that's out of our control. As some counties become more developed that's going to happen naturally, such as Clarke County. I question the validity of keeping the same ratio.

Council Comment: The landscaping industry may use lots of water and we should recognize the reason why the per capita is high but those numbers might not be driven by population.

Planning Contractor: The breakdown was based on the type of industry, such as poultry and food that was subtracted from the per capita numbers. If there is an adjustment needed to the population growth statistics, Council members can email the governor's office.

Council Comment: People in Penfield want the [Athens] discharge changed because of stormwater and discharges affecting flooding. They want it leveled out.

Council Coordinator: Downstream flooding, as well as water quality issues are going to be a consideration. That brings up the issue of stormwater.

Council Comment: Athens is already set up for more houses so it's going to grow and contribute to that.

Council Comment: Has reuse for wastewater not been considered in that?

Planning Contractor: There's a little bit in Barrow

Council Comment: Oconee has some plans for it.

Council Coordinator: That's a management practice we're going to look at.

Council Comment: Some of that reuse is going to be graywater.

Planning Contractor: If it reduces potable demand we're going to see that. If it reduces discharge to streams that's going to have an impact.

Council Comment: Some observations from the data. We have five counties in the headwater that are projected to use most of the water; it's where most of the population is. Growth in the northern part where there is less water will affect management practices.

Council Comment: Smaller municipalities want natural gas and DSL. They're very resistant to putting in a centralized wastewater system; the return on investment is not there. Whatever the water bill is, the sewer bill is 2.5 times that. It's not cost effective for these communities.

Council Coordinator: In less populated areas, people want water lines. But I expect the trend of not wanting centralized sewer is going to stay put. The cost of treatment is too much.

Industrial Forecasts

From this discussion, Skeens moved on to the industrial forecasts. He noted that industrial water withdrawal represents approximately 11% of the total water withdrawal in Georgia and that the following industries represent over 90% of industrial water withdrawal in Georgia.

Major Water-Using Industries in Georgia

- Chemicals
- Electrical Equipment
- Transportation Equipment
- Fabricated Metal Products
- Apparel
- Food
- Beverage and Tobacco
- Mining
- Automobile
- Petroleum and Coal Products
- Paper
- Plastic and Rubber
- Primary Metals
- Nonmetallic Mineral Products (includes Kaolin)
- Textile Mills
- Textile Product Mills (includes Carpet)

Information on usage has been gathered and continues to be gathered from industry to input into the industrial forecasting methodology.

Skeens explained that for the model, water withdrawals (needs) are expected to increase as an industry grows and brings on more employees. He offered some caveats as to how this information is incorporated:

- Without production data, water need is a function of employment
- Except for efficiency improvements, water need will remain constant if employment does not grow (i.e., water need will not decrease)
- The projection of future water need may be adjusted for industry production if adequate, credible data are publicly available

He also talked about how future growth is projected:

- Water use by NAICS (North American Industrial Classification System) category increases at the same rate as NAICS employment (growth estimates completed by Carl Vinson Institute of

Government - CVIOG)

- If NAICS employment decreases, then NAICS water use remains the same
- Other industries: if not NAICS identified, increases with total employment
- Percent of category water by source remains the same

He noted that for industry the total water includes water from all sources, which would mean that the ratio between industry wastewater and water withdrawal could be greater than 1.0 if for example, they used ponds to collect stormwater. Where the information was available, the planning contractors also forecasted the amount of industrial wastewater expected to be treated by municipal wastewater facilities. Industry growth was shown by region and not county because of proprietary concerns. For the Upper Oconee Water Planning Region, the largest growth was projected in the stone and clay industries; these are distinguished from each other by their processes and products.

Council Comment: I thought someone said the kaolin industry was not growing at previous meetings.

Council Comment: You're right. It's not growing; it may be shrinking

Council Comment: So those numbers come directly from industry?

Planning Contractor: They believe their use has been declining, but they expect that use to go up to their current permit levels

Council Comment: They're going to do value added to kaolin. To keep the industry from dying, they're going to do further processing and will need to use more water.

Council Comment: There are new product developments that are going to fill some of the void and other applications that are growing rapidly. As far as ceramics they're putting in whole new lines. So there is growth, but it may be different growth.

Council Comment: We need incentive programs that the water gets recycled by industries. If the water is good enough to put back in the streams, its good enough to use for their processes.

Council Coordinator: That's a management practice.

Council Comment: They're going to leave an environmental issue that we cannot absorb.

Council Comment: A comment was made concerning Commissioner Creek and industrial discharges. It is on the 303(d) list due for not meeting the pH standard.

Council Comment: There's a lot of effort to preserve and grow the industry. If it is successful then doesn't it make sense for the Georgia mining industry to say we're not going to need what our permits allow?

Council Comment: We're also going to have more biofuel crops that use big water, such as growing grass.

Council Comment: Georgia Power is already starting that.

Council Comment: There is already talk about putting biofuel sites near the kaolin sites to reuse the water. It's not going to be built in the north end, it's going to be built in south end.

Council Comment: The southern end has the lion's share of water, but the growth is in the northern part. Kaolin is in the southern part where water is plentiful. We have to keep that in perspective.

Council Comment: It looks like a lot of water, but it's not a big impact.

Council Comment: If kaolin goes to recycling that would have a huge impact on these forecasts.

Council Coordinator: That depends on how much they recycle.

Council Comment: Some of that is already going on now. The industry has made strides in that [recycling water].

Council Comment: If you put the water back into your process, you help clean up the stream.

Skeens wrapped up the discussion by noting that industry believes it returns about 65% of water it withdraws.

Agricultural Forecasts

The next topic under forecasting was agricultural usage. The numbers presented covered a 40-year forecast for agricultural irrigation demand for major row crops (cotton, corn, peanuts, soybeans, pecans) and some specialty crops (including turf). Skeens also touched on the status of other areas under agricultural demand, including:

- Livestock water use – these numbers are a snapshot of current uses for beef and dairy cattle, goats, horses, swine, and poultry and are currently available
- Nursery/Horticulture – these numbers are also for a 40-year forecast and are expected to be ready in April 2010
- Golf course water use – these numbers are not yet available but will provide a snapshot of water needs under average to dry conditions; should be ready by April 2010.

The entire Council had not seen the information on livestock usage prior to CM5, but the Ag Subcommittee had reviewed the numbers and offered its recommendations.

Council Comment: The numbers I've seen for nursery usage are getting close.

Council Coordinator: We've been working closely with the Ag subcommittee with about 2-3 conference calls, which included some of the folks from UGA. I'm going to let Danny [Hogan] give an overview.

Ag Subcommittee: We decided since the figures had to be verified – some are high, some are low – but that overall these are good numbers to start with. They can be updated later. We would like to put this statement in: *We believe this to be a reasonable amount of water to be consumed by agriculture and it does not need to be permitted.* It is used by thousands of different entities, but we do feel that the numbers are significant enough to be included in the water plan.

Council Comment: This is primarily in livestock. As Bill [Ross] mentioned the green industry isn't quite there.

Council Coordinator: We know there are issues with the "0s." [0 is shown in demand chart where actual number is not available]

Council Comment: We should foot note that we know these numbers are not correct.

Council Comment: We know some of these numbers are low, but some are high. And we know they have to be verified. Farm Gate numbers are what we used. We felt like overall the usage number is very close.

Council Comment: I feel the same way. We've got to start somewhere – we feel like these are good numbers to start with. We feel like the livestock industry is going to decline in our part of the country. You ain't in the cow business to make a living, you're in it because you love it.

EPD Comment: We need to put the livestock number in the perspective of the big picture.

Council Coordinator: That's a good point. Livestock only makes up about 3-5% of ag use.

Council Chair: Is anyone on council opposed to not keeping the numbers?

Council Comment: Some of those numbers are hard to believe.

Council Coordinator: We talked about it and will caveat the accuracy of the numbers in the text.

Council Comment: Jackson is a big ag county but it's going to have a lot of pressure on it over 30-40 years and those numbers will drop. Beef and poultry are tied together. As Danny [Hogan] mentioned, it's hard to make a living with cattle today. I think we're safe using those numbers, but they'll be high in the future.

Council Comment: In Putnam County, two major dairies have shut down. The land is being taken out of dairy use and put to residential use around the lakes.

Council Comment: Population growth is going to squeeze out ag.

Council Coordinator: The subcommittee could make individual calls [to get better numbers], but we have to ask is it worth it to spend more time on it.

Council Comment: It seems to be the consensus that the numbers will be high going forward. They seem to be generally high overall.

Council Coordinator: We've got to move forward with something. The subcommittee's recommendation is that these are reasonable for going forward.

Council Comment: There is a lag on Farm Gate numbers.

Council Comment: Our [Ag sub] recommendation is to go forward as is. We do have an opportunity to update this plan in five years or so. We feel like these are good numbers to start with and we have to start somewhere.

Council Chair: Is it the consensus of the Council to use these numbers going forward?

A motion was made and seconded to accept the numbers as presented. The motion passed unanimously.

Energy Forecasts

The last part of the forecasting discussion focused on the energy sector's water demands. Skeens reviewed the inputs that are being used to make these forecasts, including:

- Future energy needs, which are based on historical energy consumption and population projections.
- Water needed to meet these future needs, which is based on the future mix of energy fuel sources (each source has unique water needs) and the location of new and expanded production.
- Industry supplied energy water forecasts, which are expected to be ready by Summer 2010. It is expected to cover current energy water uses and short term forecasts (approximately 10 years).

A brief discussion followed.

Council Comment: Plant Branch [Georgia Power] withdraws a lot of water, but returns most of it. That comes straight from EPD.

Public Comment: We use more water during peak times, seasonality. But during less energy usage times, we may shut down some processes. [Georgia Power representative]

Planning Contractor: We can take into account seasonal peak demands.

Council Coordinator: That will be taken into account in the modeling.

Council Comment: How much significance will there be in summer months?

Council Coordinator: Georgia Power has been involved in figuring that out. Usage is going to be very different depending on the energy source, whether it's coal or nuclear, etc. We're waiting on longer term forecasts from the task force working on those projections

At this point, Baughman capped the discussion with how the planning contractor would proceed. He stated that the next steps in forecasting water demands would be:

- Receive and incorporate any additional feedback on assumptions for municipal and industrial water and wastewater forecasts
- Finalize agriculture water demands and forecasts
- Finalize energy water use and consumption forecasts
- Release next draft of water and wastewater forecasts for Councils to use in selecting management practices and comparing to resource assessments

Council Comment: Assuming we have some management practice changes, then the forecasts will have to be changed.

Council Coordinator: Yes, but at this stage we want to keep the forecasts clean. We'll talk more about that this afternoon.

There was no additional comment from elected officials or the public on the forecasting discussion.

4) Review of Resource Assessments

After a break, the resource assessments were the next item on the agenda. First, Baughman explained that there were briefings on the assessments at the joint council meetings; then he gave the Council background on the objectives of the assessments and the methods used to achieve them.

The objectives were to:

- Assess current availability of surface water resource for
 - Consumptive water use (off-stream use)
 - Flow regime (in-stream use)
- Identify and quantify gaps between currently available resource and combined current needs

The assessments looked at six study basins and a multitude of study nodes.

- ACF: Apalachicola-Chattahoochee Flint
- ACT: Alabama-Coosa-Tallapoosa
- OOA: Oconee-Ocmulgee-Altamaha
- OSSS: Ochlocknee-Suwannee-Satilla-St. Marys
- SO: Savannah-Ogeechee
- TN: Tennessee
- 70+ basic nodes
- 40+ planning nodes

Baughman explained that there were both advantages and limitations to this modeling approach.

Modeling Advantages	Modeling Limitations
<ul style="list-style-type: none"> • Uses available existing data • Consistent with and improves upon earlier studies by the Corps of Engineers and the States of Georgia, Alabama, and Florida • Allows us to evaluate current and future water use scenarios and management practices • Strong foundation for further detailed regional analyses, if needed 	<ul style="list-style-type: none"> • Regional planning level resolution <ul style="list-style-type: none"> ○ Results at 70+ basic nodes and 40+ planning nodes • Models used for broad scale regional planning, not for individual permitting decisions

He then outlined the inputs that went into the current conditions assessment:

- Unimpaired or “natural” flow data representing natural hydrologic conditions over a period of nearly 70 years
- Water use data representing current, instead of permitted level of withdrawals, discharges, and consumptive water use
- Flow regime:
 - US Army Corps of Engineers’ Water Control Plan and Georgia Power’s existing operation
 - State Interim Instream Flow Protection Policy: protecting monthly 7Q10 or natural inflow, whichever is lower

Baughman explained how the model was used to identify resource gaps and what the results were for the OOA River Basin (Oconee, Ocmulgee, Altamaha).

- Water demand (off stream needs) and flow regime (instream needs) can be fully met by available water
- There is reserve storage in the Georgia Power reservoirs’ conservation pool through the most critical drought

He specifically touched on the Penfield node and Milledgeville node noting that there were no existing conditions at the former and plenty of storage at the latter. He reiterated that the assessments look at current use and not permitted conditions.

EPD Comment: The resource assessments are on the state water planning website and the 60-day comment period is underway. There is an online tool for comments, so you can make them there if you want to.

Council Comment: What about water restrictions? We really started taking stringent actions in July and August [during the drought].

Council Coordinator: This looked at the aggregate of net water use from 2002-2007 so the drought is not in there.

Council Comment: At Penfield we’re meeting demand, but we’re not showing any extra going forward.

Council Coordinator: He is pointing out that the red line [on the graph] is what we’re trying to meet and we’re really close to the blue line [on the graph]. The blue line used 70 years of data, while the red line is the 2002-2007 data. Under existing uses we’re pretty much there, so from the perspective of management practices, we have to think about reducing demand and increasing the return flow.

Council Comment: Landowners in that area want to capture some of the water [during rainy months] and then release it uniformly in winter months. Recent flooding is inconsistent with the historical record.

Groundwater Availability Resource Assessment

The next part of the resource assessment discussion focused on groundwater availability and covered the following topics:

- Overview of sustainable yield modeling results
- Process for modeling sustainable yields
- Sustainable yield results for aquifers in the regions

Baughman defined sustainable yield as the amount of groundwater that can be withdrawn without causing

unwanted results. He noted that sustainable and different yield metrics were chosen for different aquifers with different results for each one. An overview of these results showed that for Georgia's major aquifers the sustainable yield was higher than current baseline withdrawals. There was the caveat that developing the full sustainable yield in the crystalline rock aquifer in the Piedmont and Blue Ridge basins might be difficult because of fractures in the rock. Part of the aquifer in the Piedmont basin is in the Upper Oconee Water Planning Region.

Other key points Baughman touched on were:

- Models represented growing season withdrawals during a dry year
- Water budgets were developed for the crystalline rock aquifer in the Piedmont and Blue Ridge basins
- Data collection for the model inputs
- The specifics of sustainable yield metrics
- How the model was calibrated to real world data

Baughman also provided the Council with information specific to the crystalline rock aquifer, which is – based on the model, its sustainable yield is related to stream flow. Since September is usually the month of lowest stream flow, Baughman said the sustainable yield metric as determined by the model was linked to a calculation based on the September stream flow. A brief discussion followed.

Council Comment: Have they put the South Carolina data in this [from aquifer in Augusta area]?

EPD Comment: We have used some South Carolina data but don't plan on using it all.

Council Comment: How is the excess [water] proportioned out?

Council Coordinator: That's a good question. It did come up at the joint council meetings. Jim's [Kennedy, with EPD] response at those meetings was: it depends on how you site and design your well field. The best they could come up with was withdrawals for the entire aquifer. And the aquifer may cover 50-60 counties and they may all be withdrawing.

Council Comment: How do we claim what's ours?

EPD Comment: The model shows current use and not what's permitted, so there may not be an excess.

Surface Water Quality Resource Assessments

From groundwater, the group moved on to the surface water quality resource assessments. Baughman explained that the goal of these assessments was essentially to look at assimilative capacity. The model focuses on the Ocmulgee, Oconee, and Altamaha River basins, which are entirely contained within the state's borders and ultimately flow into the Atlantic Ocean.

Baughman defined assimilative capacity as the ability of a body of water to receive pollutants without violating water quality standards. Several factors contribute to that ability, including:

- Streamflow
- Current wastewater discharges
- Current water withdrawals
- Stormwater runoff
- Stream temperature

The two parameters used in this model were: dissolved oxygen (DO) and nutrients. Both can impact assimilative capacity.

Baughman pointed out that the model included bodies of water with current discharges on them; there are also watershed models for the Upper Oconee River (above Wallace Dam) and lakes models for Lakes Oconee, Sinclair, and Jackson (Upper Ocmulgee). He noted that this meant there were no models for the southern part of the basin and that there could be impacted stream segments that didn't get modeled because there is no discharge on them. The key points for the models are:

- Models are run at “critical conditions” (low flow, high temperatures) with the dischargers at their current discharge levels
- Watershed models account for both wastewater discharges and storm water runoff from various land uses
- Lake models look at the impacts of nutrients
- Models identify “unacceptable impacts”
 - not meeting state standards for dissolved oxygen and/or nutrients
- Not directly tied to impaired waters or total maximum daily loads (TMDLs)

Baughman told the group that most of the streams in the Oconee River Basin are designated as warm water fishing streams and that many of the modeled stream segments in the upper part of the basin appear to have good to very good available assimilative capacity under critical conditions. He briefly touched on some areas of concern above and below Athens where the watersheds have exceeded their available assimilative capacity. He added that Athens-Clarke County is in the midst of upgrading three of its treatment facilities, which is expected to improve the instream water quality.

Council Comment: What year was the discharge data from? In 2008, we were still in a drought.

EPD Comment: The figures do not show water quality problems but assimilative capacity of the stream so even the streams in red might be okay with the numbers but just have low assimilative capacity.

Council Coordinator: We asked modelers for point sources. We want to determine where the discharge points are so we can correlate the water quality data with the highlighted streams.

Council Comment: They're trying to build a regional landfill north of an impacted stream. The City of Madison may have a discharge on that stream

The discussion then turned to nutrients. First, Baughman talked about total nitrogen and phosphorous in the lakes. He cautioned that there were no lake standards for Lake Oconee or Lake Sinclair, so the modelers used the standards for Lake Jackson. The limit on chlorophyll-a (a key component in algae) for Lake Jackson is 20 ug/L. Based on this standard Lake Oconee exceeded that limit in 2007.

Baughman noted that the lake model is often used in conjunction with the watershed model in the overall modeling method. The watershed model can be used to help to identify “hot spots” of nutrients as well as results of different management scenarios. He referenced maps showing loadings of nitrogen and phosphorus and how a dry year versus a wet year can impact loading, i.e. there is a greater load when it rains because nutrients from nonpoint sources can be carried by stormwater. Baughman said this was a key point for Council members to keep in mind because it would factor in to their selection of management practices since the model offered a good visual way to pinpoint loadings. It would also show

them any existing issues.

There was no comment from elected officials or the public.

5) Review of Management Practice Selection Process

After reviewing the resources assessment, Baughman and Skeens presented the Council with different types of management practices (MP) for water quantity and water quality they might consider for the plan. They told the group that selecting MPs begins with two questions:

- Are the regional goals met?
- Do any gaps need to be filled?

Water Quantity MPs

Skeens kicked off the discussion with a review of water quantity MPs. Considerations were broken into different categories with specific MPs that apply to that category.

Demand

- Water conservation
- Water reuse

Return

- Centralized wastewater treatment facilities
- On-site sewage management systems
- Land application systems

Supply

- Reservoirs
- Interbasin and intrabasin transfers/interconnections
- Aquifer storage and recovery

He then went through the step-by-step selection process the Council could use:

- Review state-wide menu of potential management practices
- Screen for region-specific management practices
- Develop alternative portfolios that group practices
- Select and weight decision criteria
- Score alternative portfolios
- Select top scoring portfolios
- Provide inputs for additional modeling based on top scoring portfolios
- Determine if portfolio is adequate using model results

Skeens explained there would be some basic “no regrets” MPs such as metering, leak detection, and education incorporated into the 2050 forecasted demand. He also referenced conservation as being a priority MP in the State Water Plan.

He showed the group several graphs that correlated existing and forecasted demand with current permitting and future projects. He used the Penfield node as an example, pointing out that the idea is for the Council to think about how to manage water resources beyond the 2050 forecasted demand. Some things they will need to look at include:

- Baseline – projected overall water demand with no MPs
- Basic practices – demand reduction strategies such as leak detection, conservation rates, rain sensors, submetering
- Permitted capacity – EPD approved permits for withdrawals
- Planned projects – projects water users are planning for, such as a reservoir
- Conceptual projects – input on potential projects; additional modeling for resource management may be needed here if there is a gap between the resource and the demand

Baughman told the group that the “conceptual projects” area might be the time for the Council to reach out to local leaders with their ideas.

EPD Comment: Are you planning on checking with utilities on any of their plans [master plans, permit requests]?

Council Coordinator: That is one thing for the Council to deal with – just because it’s planned, does it meet the Council’s goals?

EPD Comment: Carl Vinson [Institute of Government] will be working with smaller communities to get that information.

Council Coordinator: We’ll know more about what’s permitted and what the utilities are planning. A lot of the decision making for the Council will be on planned and conceptual projects.

Skeens then shared an example of a water quantity objective – return management, with specific, supporting MPs. The objectives of return management are to:

- Increase return to river/streams
- Minimize consumptive loss

This can be accomplished by:

- Decreasing outdoor water use (higher return ratio)
- Increasing flow treated in centralized treatment facilities
- Decreasing flow treated in septic tanks (on-site sewage management systems)
- Decreasing flow disposed in land application system

Specific MPs to meet the return management objectives are:

- Land application systems and onsite sewage management system
- Centralized wastewater treatment

Finally, Skeens touched on the “instream” and “offstream” uses that may apply to a water source. Instream would be uses that occur within the body of water, such as recreation, ecological, hydropower, or waste assimilation. Offstream would be uses that include water withdrawal, such as agricultural irrigation, public supply, industrial uses, or thermoelectric power generation. The offstream uses must be managed in such a way so as to preserve the instream uses both for the water planning region and downstream users.

Water Quality MPs

The presentation then turned to water quality, which Baughman noted used a different modeling approach from water quantity. For instance, it is not based on planning nodes and includes specific modeling for dissolved oxygen (DO) which relates to a water body's assimilative capacity, and for nutrients, such as phosphorous and nitrogen. So the process for developing water quality MPs will be slightly different.

Baughman explained that the modeling begins by evaluating the sub-watershed/reach to determine:

- Where are there existing or potential future water quality concerns?
- What are the primary sources of pollutant loadings in these areas (point source or non-point source)?
- What kinds management practices are most appropriate for the pollutant and source (point source or NPS)?

Baughman walked the Council through some heat maps of sub-watersheds in the Upper Oconee Water Planning Region to show the impact of nutrients. He told the Council that this would help them identify the existing areas of water quality concern and specific areas for application of MPs. Information on point source vs. non-point sources loadings could also be used to identify appropriate MPs.

Next, he detailed some water quality management practices:

Point Sources

- Reuse
- Centralized wastewater treatment systems
- Direct discharges
- Land application systems

Non-point Sources

- Improving compliance
- Best management practices
- Environmental planning/low impact development
- On-site sewage system management

Integrated Management Strategies

- Watershed based permitting
- Water quality credit trading

During this part of the presentation, there was a brief discussion on the MPs.

Council Coordinator: Reuse is a great way for managing point source pollution, but the costs associated with the level of treatment are high. So land application may be more appropriate in some areas

Council Coordinator: In talking about non-point sources, one thing that always comes up is compliance, particularly with erosion.

Council Comment: What would be example on a non-point source management practice?

Council Comment: Row crops, a stream buffer.

Baughman also elaborated on some of the integrated management strategies, citing a pilot program in EPA Region 4 where North Carolina and Tennessee were encouraged to set up a trading program. Baughman highlighted the soil testing program under the Metropolitan North Georgia Water Planning District (MNGWPD) that looks to local property owners to do soil testing before they can purchase fertilizer. This lets people test the soil so they can buy what the land needs and not something that could contribute to increased nutrient levels.

He told the group that the steps for selecting MPs would involve:

- Understanding existing conditions
- Reviewing permit limits
- Reading future forecasts
- Selecting and evaluation MPs
- Making a final selection of MPs

Some key considerations in making MP selections would be:

- Upper Oconee's vision and goals
- Scale
- Timing /immediacy of need
- Level of detail

Baughman explained that the MP selection process is complicated. The Council will have to establish screening criteria linked to the vision and goals. Once these criteria are defined, there are different processes for evaluating the MPs ranging from:

- **Qualitative ranking** of how MPs meet regional goals based on a scoring process e.g.: 1) fully meets goal; 2) partially meets goal; 3) does not meet goal; 4) conflicts with goal
- Scoring methods such as "**force weight comparisons**" to identify preferences, development of performance measures associated with regional goals, and then scoring of management practices based on weighted preferences and ability to attain goals based on more objective performance measures
- **Simple voting** and documentation of basis of decision

Baughman stated that the Council could use a mix of these methods and that they needed to keep in mind that they wouldn't just be looking at one practice, but a "portfolio" of practices that worked together.

6) Approach for Development of Management Practices

After the presentation on management practices, Baughman opened it up to the group as to how they wanted to approach developing the preliminary MP portfolio and he would also need their feedback on setting up the practices. He offered options of additional Council meetings, letting the planning contractor come up with the first cut of practices, establishing additional subcommittees, or a combination of the options.

Council Comment: The subcommittee approach is good.

Council Chair: Are there any volunteers?

At this point, Council members began to volunteer. During this time there was discussion of establishing four two-person subcommittees, but then the group decided having three people per subcommittee would work better. A motion to create the subcommittees was offered and passed unanimously. The subcommittees are tasked with looking at quality and quantity management practices. Additionally, the Council decided that the contractor will coordinate who serves on what committee and will also provide a first cut of management practices for the subcommittees to react to.

Volunteers for the management practice subcommittees are:

- Larry Eley
- Pat Hardy
- Stuart Cofer
- Charlie Armentrout
- Alan Foster
- Jennifer Davis
- Benjie Tarbutton
- Pat Graham
- Hunter Bicknell
- Vince Ciampa
- Charles Jordan
- Kevin Little

There were no comments from elected officials or the public.

7) Review Outline of Water Conservation and Development Plan

After the discussion on management practices, Baughman moved on to developing the actual Water Conservation and Development Plan for the Upper Oconee Water Planning Region. He reviewed the table of contents and told the Council that the planning contractors had actually completed some background information that had been reviewed and approved by EPD.

EPD Comment: Some basics from the statewide plan must be included in the regional plans, but the Council can use elements the contractor has already put together, such as maps, charts, etc.

Council Comment: It would be helpful to see the background information.

Baughman then reminded the group that they will need to look at near-term and long-term management practices. He also noted that there had been no discussion about the fiscal implications, i.e. the Council will need to know the costs associated with the portfolios of management practices to help it make good decisions for the region. The planning contractors are also looking for feedback from the Council on the outline that they can take back to EPD and the other contractors.

EPD Comment: As you move forward in writing the plan, it will go to the Council first for review and not EPD as was the case with the background information.

Council Coordinator: We work on the plan with you and then it goes to EPD.

EPD Comment: The template document for the plan will be going to the contractors soon so they can provide it the Council.

Council Coordinator: It's not meant to be prescriptive but to provide consistency across the councils.

Council Comment: Is that why there are page numbers?

Council Coordinator: That's just to give a frame work for the level of detail to be included by section.

EPD Comment: We had some thoughts on how big the sections might be and in our minds we thought it might be between 75-125 pages. But it's up to the Council.

Council Coordinator: These really need to be graphic-rich and readable documents. We do want feedback on what we've done so far. But we see it as being graphic heavy with text tying together the tables, figures, etc. We are open to other ideas.

Baughman agreed to send out the background information to the Council members electronically to get their input and again encouraged feedback on the outline.

There were no comments from elected officials or the public.

8) Elected Official and Public Comment

Comments from elected officials and the public were solicited throughout the meeting and then also at the end. However there were no comments.

At this point though, a Council member suggested grouping the counties as a way to form the subcommittees. After brief discussion among the group the final consensus was:

North:

- Jackson
- Barrow
- Walton
- Oconee
- Clarke

Central:

- Morgan
- Baldwin
- Putnam
- Greene
- Hancock

South:

- Washington
- Laurens
- Wilkinson

9) Wrap up/Council Meeting 5 Evaluation

As the meeting neared its close, Baughman reminded the group that the contractors would deliver the initial management practices portfolios for their review and revision. He reiterated that the 60-day review process, including public comment, was underway for the resources assessments.

Council facilitator Marci Davis encouraged the group to complete the meeting evaluations before leaving. She also told the group that a press release would be given to Linda Gantt (Media Subcommittee) who would then distribute it to those members who had signed up to be the media contact for their county. Davis supplied hard copies of the list to those members. One of the Council members noted that there had been an increase in interest from the media about the Council's work. Davis asked the group to share any media contact or stories with Linda and the planning contractors so media coverage could be documented.

Baughman asked Council member Pat Graham to touch on requests she had received from local organizations in her area to give presentations on the Council. This was an item from the Public Involvement Plan that members had expressed a great deal of interest in doing. Graham said she had several engagements set up over the next couple of months and had been waiting until there were more firm numbers. Baughman said the contractors would make a general presentation available for a Speakers' Bureau that would have placeholders for individual Council members to customize with local information.

In a final piece of business, Council members set dates for the next two meetings: Wednesday, June 16 and Wednesday, September 8. The general consensus was to try to continue meeting in the middle of the basin.

12) Written Comments Submitted to Council

In accordance with the Council's request to receive written comments, three were submitted by the end of the meeting. The comments are recorded as written. Illegible words are noted with a question mark (?). Additional clarification of acronyms, jargon, etc. is noted by brackets [].

Ben Emanuel – Oconee Projects Coordinator, Altamaha Riverkeeper, Inc.
Oconee@altamahariverkeeper.org; 706-340-8868

1. On the Resource Assessment for Surface Water Quantity, the “unregulated” nodes were described as those without reservoirs upstream that alter surface flows. However, it would seem to make sense to consider nodes involving off-stream pump-storage reservoirs upstream as “regulated”, because withdrawals for pump-storage reservoirs (e.g. Bear Creek Reservoir) can and do have major impacts on flows.
2. On the Surface Water Quantity Resource Assessment, it appears that needs simply must be met at each planning node. Attention should also be given, of course, to needs in the upper part of the next basin downstream. In other words, the interaction between planning node sub-basins should guarantee that there is some “room to work” in terms of streamflows, assimilative capacity, etc. in reach at the top end of each planning node sub-basin (as everywhere else).
3. In assessing and developing management practices, the Council should look in depth at water efficiency in infrastructure and plumbing across all sectors, with special attention to the Georgia Water Stewardship Act of 2010 and its provisions.

Meeting Attendees

Council Members Present

- James Andrews
- Charles S. Armentrout
- Richard Bentley, Chair
- Hunter Bicknell
- Vincent Ciampa
- Stuart A. Cofer (alternate)
- Jennifer Davis
- Melvin Davis
- Larry J. Eley
- Alan Foster
- Linda S. Gantt
- Pat Graham
- Pat Hardy
- Dana M. Heil
- Danny Hogan
- Dennis W. Holder, Vice Chair
- Charles H. Jordan
- Kevin Little
- Jim Luke (alternate)
- Drew Marczak
- Richard McSpadden
- Rabun Neal
- Bill Ross
- Benjamin R. Tarbutton
- Greg Thompson

Council Members Absent

- Roger L. Folsom
- Allen M. Hodges
- Rep. Terry England (ex-officio)
- Sen. Bill Cowser (ex-officio)

Staff and Planning Contractors

- Kevin Ferrell, EPD
- Ted Hendrickx, EPD
- Doug Baughman, CH2MHill
- Veronica Jarrin, CH2M HILL
- Brian Skeens, CH2M HILL
- Marci Davis, JIG

Partnering Agencies

- Harold West, Georgia Forestry Commission
- Joe Krewer, Department of Community Affairs
- T.J. O'Neal, Georgia Soil and Water Conservation Commission
- Branden Ashley, Georgia Farm Bureau
- Patti Lanford, Georgia DNR (Fisheries)
- James Johnson, Georgia Forestry Commission
- John Colberg, Georgia Forestry Commission
- Frank Green, Georgia Forestry Commission
- Harriet Bryant, EPD-WIP (Watershed Improvement Program)
- Mary Gazaway, EPD-WIP (Watershed Improvement Program)

General Public

- Herbie Johnson, Georgia Power
- Allen Waddell, Washington County Chamber of Commerce
- David Nunn, City of Madison
- Dennis Brooks, USDA Natural Resources Conservation Services (NRCS)
- Bob Rychel, Middle Georgia Regional Commission
- Gary Duck, Athens-Clarke County Public Utilities Department
- Myron Garrett, Barrow County
- Ben Emanuel, Altamaha Riverkeeper
- Chris Butts, Georgia Green Industry Association
- Ethan Armentrout, Armentrout Roebuck Matheny Consulting Group
- Jill Stachura, Brown and Caldwell
- Blake Aued, Athens Banner Herald
- Ellen Warren, Morgan County Board of Commissioners