Cash, Tim

From: Marilyn.Hall@athensclarkecounty.com
Sent: Monday, June 02, 2014 2:34 PM
To: Cash, Tim
Subject: Drought Rule Update Comments
Attachments: Athens-Clarke Comment on GA Drought Plan Process 2014_5_30.doc

Tim,

Athens-Clarke County respectfully submits the attached comments on the Drought Rule Update as we understand it. Please add us to your list of stakeholders. We would like to be involved in the process of developing the Drought Rule.

Thanks!

Conserve: WATER u waiting 4?

Marilyn Hall, AICP
Water Conservation Coordinator
Public Utilities Department
Unified Government of Athens-Clarke County, GA
124 East Hancock Avenue
Athens, GA 30601

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Public Utilities
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Mr. Tim Cash
Georgia Environmental Protection Division
Floyd Towers East
2 Martin Luther King Jr. Dr. SE
Atlanta, GA 30334

May 30, 2014

Mr. Cash:

The Athens-Clarke County Public Utilities Department appreciates the opportunity to comment on the Updated Drought Rules as they are being developed.

Drought Indicators and Triggers: Triggers and Indicators should be clearly defined, scientific measures of water availability. Using terms such as "agricultural drought" or "socioeconomic drought" introduces variables that are not relevant to the amount of water available and may unfairly target individual sectors.

Drought Declaration: We would like drought to be declared at the watershed or river basin level. Watershed boundaries reflect the boundaries of the shared water resource better than political boundaries

Drought Response Committee: Each basin should have a small and diverse drought response committee that represents the water users in that basin. This will facilitate communication within the basin to both the public and affected permit holders. It will also help ensure that the individual needs of each basin is represented adequately by those making drought declarations.

Applicability: All permitted water users should share responsibility for the shared resource. Solely targeting municipal water providers and excluding agricultural and industrial permitees is not fair or effective drought management. In many areas of the state agricultural and industrial withdrawals are higher than domestic. Ignoring the largest sectors of water users unfairly places the entire burden of water use reductions on utilities and their customers.

Another group of water users who is categorically excluded from drought and other rules are those who withdraw less than 100,000 gallons per day. This water use should be permitted and monitored during non-drought periods and regulated during drought. Allowing an unknown number of withdrawals that add up to millions of gallons per day is irresponsible, especially during water shortages.

Record Keeping & Reporting: There needs to be consistent and meaningful water use reporting requirements in both drought and non-drought times. GAEPD, working with a small group of technical experts, has developed 3 levels of water use and efficiency reporting documents. These are currently being piloted by systems all over the state. Using these same reports during both drought and non-drought periods is fair and consistent. Creating additional reporting creates an unnecessary burden on

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water providers and GAEPD. You can talk to Lebone Moeti at EPD for more information on the water use reporting tools.

Baseline: A statewide standardized baseline unfairly penalizes the utilities in Georgia that have very active conservation and efficiency programs. These utilities are already using comparatively less water than others in the State. The water use reporting tool mentioned previously in this letter provides a fair baseline using a standardized methodology.

Drought Response Strategies: Using Water Loss Audits as a component of water reduction requirements doesn't make any sense. Water Loss is a measure of system efficiency, not a conservation measure. This should be dropped from the discussion or explained better.

The exemptions in the Water Stewardship Act should be eliminated during extreme drought. The Act exempts water uses such as watering recreational turf, new plantings, and overseeded grass. Allowing unregulated outdoor irrigation any time of day on any day of the week jeopardizes our ability to sustain adequate supply for fire flow and drinking water during extreme drought.

Variance Procedures: Each utility has a different customer base and the effectiveness of demand management strategies will vary by utility. As we have learned in the past, mandating uniform management measures will not work. Similarly, utilities with a large percentage of industrial and commercial users should have different reduction levels than utilities serving mostly residential areas. The rules need to be flexible enough to accommodate the needs of many different utilities, and simple enough to work within neighboring jurisdictions. It may be a good idea to gather a committee of experts representing all stakeholders to draft the rule. Including stakeholders that have blocked the rules in the past may make the process work better.

Thank you for considering our comments and please keep us informed of future meetings and notices. The short turnover time for public comment and the short time allotted to GAEPD to develop a draft is worrying. I hope you are able to produce a fair, comprehensive, and meaningful rule under such constraints.

Sincerely,

Marilyn P. Hall
Water Conservation Coordinator
Athens-Clarke County Public Utilities Department

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Cash, Tim

From: Matt Windom <mwindom@ccwageorgia.com>
Sent: Tuesday, June 03, 2014 10:42 AM
To: Cash, Tim
Subject: Drought Management Rule - Stakeholder Meeting #1

Tim,

On behalf of the Carroll County Water Authority, I commend Georgia EPD for reviewing the existing Drought Management Rule and exploring possible modifications to better serve our broad spectrum of stakeholders. I would like to provide the following comments to assist EPD in their continued review and consideration of modifications to this rule.

1. Climatic and drought indicators should be monitored by EPD and provided to local governments, authorities and water users for awareness, educational and decision making purposes.
2. EPD should make drought declaration areas as specific as possible. However, a drought declaration should not necessarily initiate water reduction programs for all local governments and authorities within the declared area.
3. Increased reporting to EPD by local governments and authorities within a drought declaration area or an area being considered for declaration is appropriate.
4. Drought response and water reduction programs should be determined by local governments and authorities, with oversight from EPD, based on individual situations including but not limited to specific drought conditions, water supply availability and water users' needs.
5. Drought response and water reduction programs should be determined well in advance of any drought condition and not be a last minute decision.

I appreciate the opportunity to provide these comments, and do not hesitate to contact me if I can provide any additional assistance.

Best regards,

Matt Windom, P.E.
Executive Director

Carroll County Water Authority
P.O. Box 739
Carrollton, Georgia 30112
Phone (770) 832-1277, ext. 117
Fax (770) 830-8853
mwindom@ccwageorgia.com

Cash, Tim

From: Brant D. Keller PhD <BKeller@cityofgriffin.com>
Sent: Sunday, May 18, 2014 10:42 AM
To: Capp, James; Cash, Tim
Cc: Joseph Johnson, P.E.
Subject: Comments Drought Management Plan
Attachments: DROUGHT MANAGEMENT RULE.docx; Cover Letter Drought Management Plan Comments 05.18.14.docx

Copies will be mailed according to instructions also.

Thanks for including us in the process and look forward in working with you in the future.

Brant D. Keller PhD
Public Works | Director

Griffin

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May 18, 2014

James A. Capp
Chief, Waterhsed Protection Branch, EPD
2 Martin Luther King Jr. Drive
Suite 1152 East
Atlanta, GA 30334

RE: Drought Management Rule – Stakeholder Meeting #1

Dear Mr. Capp,

Enclose you will find the City of Griffin's comments on the proposed changes to the state's Drought Management Plan.

I have taken the freedom add some additional editorials to explain our comments. I would personally like to thank you and the GAEPD for giving us the opportunity to comment.

Sincerely,

Brant D. Keller PhD
Director Public Works and Utilities
City of Griffin

Cc: Tim Cash

DROUGHT MANAGEMENT RULE

12-5-8 Rules and Regulations Relating to Drought Management

1. Drought indicators and triggers should be developed by the "River Basins' as laid out in the State Water Plan or maybe by "climatic regions."
2. The drought declaration process should be **published and made available to providers as well as users of the resource.** I believe this would take the subjective guessing out of who, what, how, why and where. The public will know exactly what to expect and when it will happen. By having this written action plan, I believe that most will understand and the objective to conserve will be achieved.

12-5-7 Local variances from state restrictions on outdoor watering; limitation on outdoor irrigation; exceptions

1. Local providers are required to have a "Drought Management Plan" approved with their withdrawal permits. I believe their variance should be spelled out in the "Drought Management Plan" then once approved the provider will know what the provisions are and when they can implement the actions. **The provider will only have to notify GAEPD when each step is taken.**
2. In my opinion, the "Water Stewardship Act 2010" should be amended to reflect extreme drought conditions and change the limitations of outdoor use for " A-M" exemptions if times are critical enough to issue them. **Everyone is down stream of someone.**

Pre-Drought Mitigation Strategies

If one assumes the state reviews droughts by river basins as depicted in the State Water Plan, or even climatic regions, there could be a set well-defined **written procedures** with an **action plan** that could be utilized throughout the defined area for public awareness and systematic control during drought periods.

Drought Indicators & Triggers

The Director and/or Designees should monitor climatic indicators and water supply conditions using precipitation, stream flow, groundwater, reservoir levels, soil moisture, and evapotranspiration and publish information accordingly in order **not to lose public confidence as was done in the winter storms of 2013**. Credibility is crucial to success. Weather prediction is 50/50 chance at best so waiting too late to initiate the drought management process could present long lasting negative implications on the state and local providers. "The State should error on side of conservation."

Process should be hierarchal first by basin, then region and finally state.

Drought Declaration

Declaration should remain by Levels I, II, III, and IV and apply to specific regions affected by the drought. Each basin/region should have **predetermined teams** with utilities, authorities, others for the Director to convene so that he can provide direction and information so that the message is unified and specific to the affected area. These teams do not have to legislative approval and can be selected by the Director.

Drought Response Committee

The committee approach appears to be the best format to get critical information disseminated. **Proactive measures to the drought areas affected will insure public confidence in the state's decision making process.** The drought committee should be defined by membership then region committees would receive their direction and instructions from their appropriate drought committee representative and GAEPD Staff.

Applicability

The Water Stewardship Act 2010 was a good start. **What it does not address is extreme circumstances.** In cases of extreme drought **all players in the designated area should have to contribute to conserving** thus this act would have to be amended unless addressed elsewhere by rule.

"I still am convinced that all wells and surface water withdrawals 99,999 gallons and below should be permitted. When collectively accounted for the volume is significant to stream flow and the information would be extremely useful not only in drought conditions but the overall contribution to sustainable flows to the resource. Whether farm exemptions stay or not water is water and should be accounted for in the big picture."

Who does applicability apply to? In extreme drought conditions the entire community in the basin/region should be at the table. Everyone is downstream from someone.

Record Keeping

Record keeping and data is critical. Larger systems already have data to assimilate and provide to the state. Smaller systems need some assistance in order to provide more detailed record keeping. This assistance might come from GAEPD, DCA or whomever but at the end of the process the more accurate information supplied the better the decision making gets.

Baseline

Personally, I believe it should be the highest average of the last 120 months due to the numerous extremely dry periods Georgia has experienced. Some consideration also should be given now that the economic turn down has changed in some regions and volume will increase with growth. This must be demonstrated in data supplied by the system.

Drought Response Strategies

Numeric water use reduction levels based on drought severity depends on good baseline data which must be statically provided by the providers. In my opinion **water loss audits are not the conduit to decision making only a tool.** More over the decisions need to be made on the size of the system and their average daily demand.

Older systems have many challenges with aging infrastructure and the water loss audits of the AWWA used by the state do not allow for variables their limited scope of information impute, especially if a system is a wholesaler of finished water but that is for another time.

If a numeric target at Levels I, II, III, IV are established, the system should have the **flexibility** to choose how they are to achieve the reduction targets, even if it means they have to amend their system drought management plan.

Consideration should be given to those systems who have taken proactive measures to build and construct additional storage supply whether reservoirs, augmentation or other measures and credits should be applied for their financial investments to secure adequate supply. Those systems have to answer to the residential, commercial and industrial rate payers who have supported these efforts through higher rates in order to keep their operations level and predictable on a day to day basis.

The example provided in the proposal presented at the first meeting should be amended to address those systems efforts to supply adequate supply to their customers.

Variance Procedures

There is a significant amount of effort in the Water Stewardship Act 2010 to cover variances. As stated earlier the act should be amended to address written approved by GAEPD targets and levels at which to act. This would take the guess work out of variances and given providers and the state the tools to implement during drought conditions. This would assist in forecasting demand and reduction during these periods.

Cash, Tim

From: Guy Pihera <guy.pihera@ccwa.us>
Sent: Monday, June 02, 2014 4:05 PM
To: Cash, Tim
Cc: Mike Thomas; James Poff
Subject: Proposed drought management rule

Mr. Cash,

CCWA believes that the following should be considered in developing a Drought Management Rule;

1. Consideration should be given to systems such as ours with water supply reservoirs that were developed specifically for that purpose and for the use of the developing system. CCWA has 4.2 billion gallons of reservoir capacity developed specifically for water supply.
2. Consideration should be given to system reservoir levels and % supply capacity as recorded during 06-09 drought. CCWA reservoirs lowest capacity was recorded at 63% and recovered within 4 months back to 100%.
3. Consideration should be given to systems in MNGWPD that are meeting conservation requirements.
4. If a reduction from normal winter baseline is required, the reduction required should be reduced taking into consideration system NPDES permitted return flows.
5. If a reduction from normal winter baseline is required, that baseline should not be calculated based on 2010 – 2014 data. During that period most systems including ours experienced a reduction in demand due to economic conditions that have not fully recovered.
6. If a reduction from normal winter baseline is required, that baseline should also not be calculated based on 2006 - 2009 when more inclusive outdoor restrictions were in place.
7. Baseline should be determined from 2004 – 2005 winter demand.

At the May 13, 2014 stakeholder meeting, EPD asked for guidance as to how to handle variance requests. CCWA suggests that specifics such as notes 1 – 4 above be taken into consideration in variance determinations.
At the May 13, 2014 stakeholder meeting, EPD also suggested that the rule should:

- Concentrate on systems supplied by Federal projects
- Reduce reduction requirements if systems are meeting EPD audit requirements
- Allow less reduction if system owns reservoirs

We agree with these suggestions.

Please contact me to update rule status or if further discussion is needed.

Guy Pihera
Water Production Manager
Clayton County Water Authority
770 603-5611 ext 11

Quality Water, Quality Service

Cash, Tim

From: Nguyen, Kathy <Kathy.Nguyen@cobbcounty.org>
Sent: Monday, June 02, 2014 9:52 AM
To: Cash, Tim
Cc: McCullers, Steve; Judy Jones; gpage@ccmwa.org
Subject: Cobb County's Drought Plan Comments
Attachments: Comments for Consideration on the Drought Rule Making 2014.docx

Tim,

Attached are the comments by Cobb County Water System for consideration in the drafting of Drought Rules. We appreciate the opportunity to provide input and look forward to continued participation as the rule making process moves forward. Feel free to contact me with any questions or needed clarification. Again thank you for allowing us to provide our perspective.

Kathy Nguyen
Senior Project Manager
Cobb County Water System
770-419-6244

Comments for Consideration on the Drought Rule Making

Prepared for CCWS by

Kathy Nguyen, Senior Project Manager

Kathy.nguyen@cobbcounty.org

770-419-6244

We appreciate the opportunity to comment prior to the development of Updated Drought Rules. Without a draft to comment on, our suggestions will be focused on big picture suggestions and process.

Process: Cobb County Water System feels strongly that the anticipated timeline for the development of a draft set of drought rules is too short. To take comments by June 3, 2014, and to develop a draft by mid to late summer 2014 seems ambitious. Given the breadth of anticipated comments and the significantly varying positions of affected stakeholders, this timeline is unlikely to produce a representative, inclusive, and comprehensive draft rule.

Also Cobb Water strongly encourages GAEPD to consider using the successful process of convening a small representative group of subject matter experts to be led by and work in concert with GAEPD to develop a draft of the rule. That draft can then be released for wider comments and follow the required public process. This process may take longer, but the end result is likely to be more widely accepted and may result in less needed revisions. In fact, it may produce a more streamlined overall process since it should result in less back end delays, which in the past have completely stopped the update process. This process has been successful in developing water system water loss guidance and draft water use and efficiency reporting, and it is currently being used on septage disposal and water reuse. The draft drought rules could be formulated using the same process. The Georgia Water Wise Council currently has a makeup of these various stakeholders and might be a place to begin looking for participants.

One important element missing from the outline and the discussion at the meeting is a clear statement of the purposes of the revised rules. EPD must articulate the environmental or economic results EPD intends to achieve in adopting and implementing the rule. Many, if not all, of the upcoming rule writing decisions can be made only after evaluating each decision in terms of the purposes of the rule revisions. For example, if a rule purpose is to maximize the amount of instream flows during droughts by reducing the amount of water withdrawn, then the rule should encompass all water withdrawals, including agriculture. But if this is not a purpose, the scope of the rule need not include all withdrawals.

EPD should issue a clear statement of the rule purposes. (Achieving a stakeholder's group consensus on rule purposes is highly desirable, but may not be possible). EPD can effectively engage the stakeholders in developing the rule only after stating the purposes of the rule.

Drought Rule Considerations:

- The rules should not be too complicated. In the initial meeting there was a lot of talk about individualized approaches. The drought rules address a crisis situation. Though the "one size punish all approach" of the past will not work and additional consideration must be given, the rules need to maintain a consistent structure. Those providing water and those working with water should not have completely different restrictions in neighboring jurisdictions. The variances must fit into a framework. Also, the rules have to be enforceable and be able to be monitored by GAEPD.
- There are not enough drought and non-drought water use data; therefore, we are often making water management decisions in the dark. In the kickoff meeting, there was a mention of reporting and establishing baselines. GAEPD, working with a small group of technical experts, has developed three levels of water use and efficiency reporting documents. These are currently being piloted by systems all over the state. It would seem to make the most sense to utilize the same reports. One is a baseline report that allows the flexibility for establishing the baseline that utilities were asking for in the meeting. The other forms include a simple form that provides the volume of water sold by sector and the third form is a more comprehensive report. This report could certainly be required during drought periods. We are strong advocates of reporting consumption in a more comprehensive and aggregated matter. We just cannot see the wisdom of setting up two separate reporting protocols instead of incorporating work already being done.
- Baselines are a good direction, as Cobb suffered when mandated reductions were called for by the Governor because we already had a comprehensive and ongoing efficiency program. We would say you cannot use the last 5 years. The climate extremes and economic collapse have created an artificially low consumption. Many of us are seeing consumptions that we saw in the 1990s. We would again recommend the baseline reporting guidance and documents that were created by GAEPD in 2012 and are being piloted. We imagine this would be used in the upper levels of drought when supplies are stretched and certain hydrological triggers are set and then exceeded.
- Variances should be outlined in the plan. We would recommend, for consistency sake and for the ease of GAEPD's management, that the variances also have levels, and that both the requirements for achieving a certain level of variance and the allowances within these variance levels are both spelled out in the rule. This would allow those seeking a variance to understand what requirements they need to get the level of variance they want. It would also allow the affected water users (citizens and businesses) to understand what is allowed and prohibited under their current variance level.
- The exemptions in the Water Stewardship Act should be seriously reconsidered for extreme drought conditions. In the 2007-2009 drought, CCMWA, Cobb's water supplier, actually enacted level 4 in advance of the state. In spite of being at Drought Level 2, Allatoona Lake was not able to handle our demand and the extreme climate conditions. Under the Water Stewardship Act the exemption for recreational turf is significant, and it is unlikely we would be able to allow this and sustain adequate supply for domestic use and especially for fire flow. That exemption needs to be looked at in the most extreme levels of droughts. Perhaps it could be stepped back to once a week watering with specific hours. Right now it is a seven day a week, 24 hours a day exemption, and that is not sustainable in a severe drought condition.
- In the meeting, there was some discussion about varying rules based upon classifications of drought (Meteorological, Agricultural, Hydrological, and Socioeconomic). This does not seem like a valid way to designate drought response. The last classification is typically termed

socioeconomic because severe curtailments have impacted both the economy, by limiting certain businesses or even closing them, and quality of life, by stopping certain activities regularly enjoyed in non-drought times. The fact is triggers are what classify drought into these categories, and a drought moves through them as it worsens. Though you might use them to further clarify the triggers. For example, a reduction in rainfall of 20% of normal might be a sign of a meteorologic drought, where a 20% percent reduction in soil moisture would be a sign of agricultural drought and would follow a reduction in precipitation. On their own these classifications provide little to no specificity, and, as the drought progresses, it encompasses the characteristics of the drought class/classes which precede it.

- Some built in leniency for the voluntary adoption of efficient technology is a viable approach. For example, incorporating WaterSense labeled controllers or high efficiency sprinkler technology like rotators or pressure regulated heads may be a good idea. It is likely it would need to jump off an existing program: USEPA WaterSense, SWAT protocols, or standards recently undertaken by ICC. Using an established standard would be preferable to the state coming up with new standards. There is already duplication of efforts in this arena.
- To whom should drought rules apply? All users. This means industrial and agricultural sector should also have requirements and be a part of the drought plan. It is unfair to place the entire burden upon municipal systems and those dependent upon those systems. The water resources are shared so should be the responsibility to protect them during an emergency.
- The state exemption that allows the withdrawal of 100,000 gallons of water a day from a stream, river, well, or lake as long as the person is on or adjacent to the source is devastating to resource management during extreme droughts (Modified Riparian Rights Law). Successful drought management will be difficult as long as this is acceptable state law. Not to mention, we do not know how to monitor if the withdrawals are below the threshold if there are no permits or accounting requirements.

Cash, Tim

From: Steve Davis <SDavis@cwwga.org>
Sent: Monday, June 02, 2014 4:36 PM
To: Cash, Tim
Subject: drought management comments
Attachments: 20140602163009236.pdf

Tim,
Columbus Water Works comments relative to changes to drought management. Steve

Columbus
Water
Works

Serving our Community
Protecting the Environment

June 2, 2014

Mr. James A. Capp
Chief, Watershed Protection Branch, EPD
2 Martin Luther King, Jr. Drive, Suite 1152 East
Atlanta, Georgia 30334

Re: Drought Management Rule – Stakeholder Meeting #1

Dear Mr. Capp:

In reviewing the PowerPoint presented at the EPD's May 13, 2014 Stakeholder meeting, Columbus Water Works offers several comments. The two primary comments are related to achieving site specific and effective results to secure drought relief for the local water sources.

The first of these two comments is that the water resource drought management emphasis should be focused sharply on **consumptive use measurement, monitoring and control,** where site specific conditions dictate. For publically sewered areas, the primary focus becomes outdoor water use management.

The second primary comment is that drought management efforts should be directed to **areas where the most significant consumptive uses are occurring relative to the size of the source water.** For example; daily, weekly and monthly surface water consumptive uses calculated on average daily basis should be measured and reported on a basis of percentage of surface flow consumed during the specified time periods.

For example; maximum daily consumptive use may approach 15-20% of the surface water flow; weekly 10-15% and monthly 5-10% during summer and fall months when stream water quality is most vulnerable. Appropriate ranges would need to be determined. This would establish upper limits for consumptive uses that would insure the long term sustainability of flows.

Consumptive use calculation methodology could be developed as an extension or future amendment to the Water Stewardship Act.

Other comments:

- For agricultural groundwater use, areas that have the highest potential impact on surface waters should be closely measured, monitored and managed, possibly requiring high efficiency (≥ 80%) irrigation equipment and limitations to lower water demanding crops.

- In order to avoid negative impact on economic development, industrial water use management should be addressed site specifically in regards to consumptive use and source impact.

- Development of per capita residential water use should be focused on septic tank areas supported by surface waters that are under consumptive use stress.

Please keep my name on the notification list for future meetings or communications on this topic.

Sincerely,

Steve Davis
President
Columbus Water Works

Cash, Tim

From: David Word <davidword@joetanner.com>
Sent: Thursday, May 22, 2014 12:35 PM
To: Cash, Tim
Cc: jac.capp@dnr.state.ga.us
Subject: Drought Managment Rules
Attachments: Suggestions for Preparation of the Drought Management Rules.docx

Tim,

Excellent meeting. I have one suggestion which is attached.

Dave

Suggestions for Preparation of the Drought Management Rules

The outline distributed by the Environmental Protection Division (EPD) at the May 13, 2014 stakeholders meeting is a good road map for preparation of the revisions of the drought management rules. The outline scope is appropriate and the outline identifies important upcoming decisions which will be made in revising the rules.

One important element is missing from the outline and the discussion at the meeting. This element is a clear statement of the purposes of the revised rules. In other words, EPD must articulate the environmental or economic results EPD intends to achieve in adopting and implementing the rule. Many, if not all, of the upcoming rule writing decisions can be made only after evaluating each decision in terms of the purposes of the rule revisions. For example, if a rule purpose is to maximize the amount of instream flows during droughts by reducing the amount of water withdrawn, then the rule should encompass all water withdrawals, including agriculture. But if this is not a purpose, the scope of the rule need not include all withdrawals.

EPD should solicit ideas from the stakeholders on the rule revision purposes and intended results of the rule revision. EPD should carefully consider these suggestions and issue a clear statement of the rule purposes. (Achieving a stakeholder's group consensus on rule purposes is highly desirable, but may not be possible). EPD can effectively engage the stakeholders in developing the rule only after stating the purposes of the rule.

The following rule purposes are suggested for consideration:

1. A purpose of the rule is to assure that all public drinking water systems have sufficient water to meet public health needs during droughts.
2. A purpose of the rule is to maximize instream river flows during a drought to protect aquatic life and habitat.
3. A purpose of the rule is to maximize instream flows during a drought of those rivers receiving treated wastewater. This would reduce the impacts of the wastewater discharge on the water quality of the stream.
4. A purpose of the rule is to maximize instream river flows and lake levels during a drought to protect instream economic uses (recreation, boating, fishing)
5. A purpose of the rule is to be sure the "pain" associated with less water availability is shared equally amongst all water users.
6. A purpose of the rule is to protect the urban agriculture industry (nurseries, landscapers) from economic harm during droughts. An associated purpose is to protect

this industry from a local water utility which desires to reduce its water withdrawals by limiting outdoor water usage.

7. A purpose of the rule is to maximize instream flows of rivers flowing into neighboring states by reducing withdrawals inside Georgia.
8. A purpose of the rule is to reduce the withdrawals from groundwater sources to preserve those sources for sustained use during a prolonged drought.
9. A purpose of a rule is to protect the revenue generated by water utilities during droughts.
10. A purpose of the rule is to reduce the water demands at water utilities so that the water treatment and water distribution facilities are not overtaxed and that drinking water is properly and safely treated and distributed.
11. A purpose of the rule is to reduce peak water supply demands to avoid the cost of expansion of existing facilities to meet such increased peak demands.
12. A purpose of the rule is to inconvenience water users in Georgia as little as possible during droughts.
13. A purpose of the rule is to instill a water conservation ethic and practice in Georgia that will extend beyond drought periods. A purpose is to use droughts for behavior change.
14. A purpose of the rule is to insure uniformity in water use during droughts. If one local government imposes restrictions on its customers, all local governments in that area or basin should have the same restrictions.
15. A purpose of the rule is to implement all OCGA drought related water use provisions, especially the Water Stewardship Act.
16. A purpose of the rule is simply to reduce water withdrawals by local governments. No need to consider the instream flow or public health benefits of such reductions.

Of these suggestions, the following appear to be absolutely necessary:

1. A purpose of the rule is to assure that all public drinking water systems have sufficient water to meet public health needs during droughts.
15. A purpose of the rule is to implement all OCGA drought related water use provisions, especially the Water Stewardship Act.

These suggestions would mold the rule to focus only on streams and aquifers which are used by public water systems and only on those streams and aquifers which have the predicted potential to become insufficient to meet drinking water supply needs during droughts. These purposes would also mold the rule to mandate that EPD declare droughts

only in those areas or specific locations with potential not to have sufficient water supplies instead of broad brush drought declarations. For example, if a local government has invested in a reservoir which can meet the local water needs during a drought, the local government would not be subject to water use restrictions. Finally, the water use restrictions for local governments which are threatened during droughts would be tailored to the types of water use in that local government and not be a one-size-fits-all rule requirement.

The following suggestions appear to be consistent with the mission of EPD:

2. A purpose of the rule is to maximize instream river flows during a drought to protect aquatic life and habitat.
3. A purpose of the rule is to maximize instream flows during droughts of those rivers receiving treated wastewater. This would reduce the impacts of the wastewater discharge on the water quality of the stream.

If these purposes are selected, then the rule would be crafted to set a process to identify critical low flows in streams and to identify those water withdrawals that threaten these critical low flows and to impose water use restrictions on all the withdrawals affecting such stream flows. This includes municipal, industrial and agricultural water users. If groundwater withdrawals affect critical stream flows, withdrawals from groundwater would also be included in the rule. Note that these purposes may contradict other potential rule purposes, such as (6) protection of the urban agriculture business or (12) reducing the inconvenience to citizens.

The following suggestions may not be part of EPD's mission, but may be consistent with some objectives of the Water Stewardship Act.:

4. A purpose of the rule is to maximize instream river flows and lake levels during a drought to protect instream economic uses (recreation, boating, and fishing).

6. A purpose of the rule to is to protect the urban agriculture industry (nurseries, landscapers) from economic harm. An associated purpose is to protect this industry from a local water utility which desires to reduce its water withdrawals by limiting outdoor water usage.

These two purposes are at odds with each other. Number 4 mandates leaving water in streams and lakes and number 6 mandates taking it out for the use of the urban agriculture industry and their customers. Number 6 relates to the current variance procedure for water use restrictions proposed by local governments.

The remaining suggestions do not appear to be appropriate for this rule making process, despite the fact that each one has some merit. However, they do deserve thought and consideration by the stakeholders and EPD since some stakeholders may support some of these suggestions.

In summary, EPD should determine the purposes and intended results of the rule revisions and make these know to the stakeholders. These purposes should then be used by the stakeholders and EPD to evaluate the upcoming rule revision decisions identified by EPD. Each requirement of the rule should clearly provide an environmental or economic result consistent with the purposes of the rule. If a proposed requirement does not provide such a result, it should not be in the rule.

Cash, Tim

From: Dieter Franz <cdfranz@comcast.net>
Sent: Sunday, June 01, 2014 5:15 PM
To: Cash, Tim
Subject: Subject: Drought Management Rule - Stakeholder Meeting #1

General Comment

Georgia has two very distinct regions regarding water resources and the drought management strategy should respect that.

The Coastal Plain Region, generally below the Fall Line relies almost exclusively on Groundwater. To my knowledge, there are only two exceptions, the Brier Creek WTP and the Savannah I&D WTP. These two exceptions should not change the general issue. The two critical areas are Southwest Georgia and the Coastal zone around Savannah. Both areas are already receiving a lot of attention. The remaining area relies on groundwater supply that is not affected by typical droughts of a few years but as long as the overall withdrawal stays within known bounds, there should not be a need for area wide drought management.

The critical area is north of the Fall line, mainly the Piedmont region. This area relies on surface water for water supply. Groundwater is available from surficial acquifers in relative small amounts and may not be available during severe droughts. Prior to 1977, I understand that the typical yield of a water source was simply the 1-day low flow in the well documented 1954 drought. In 1977 Georgia required that only flows above a certain minimum (the 7-Q-10 flow at the time) were available for water supply. This of course immediately triggered the need for reservoirs to bridge the period when flows are below the minimum.

Any withdrawal permits issued after 1977 are based on an analysis that shows that the system has sufficient storage to bridge low flow periods (or can rely on a supply from a federal reservoir). Further, the systems have to provide the State with a Drought Management Plan. However, there are still systems in the Piedmont that have grandfathered withdrawal permits that do require minimum flow maintenance. And the first systems that show distress in a severe drought are those that were issued permits before 1977.

Sorry for the long introduction, but now a State Drought Management Strategy needs to consider this background and break down systems into at least three categories:

1. Systems that have grandfathered withdrawal permits
2. Systems that rely on federal reservoirs, and
3. Systems that have their own reservoirs and an approved drought management plan.

It seems logical that a system that has invested large amounts of capital to drought-proof itself should not be held to the same standard than a system that has no or very little reservoir capacity. The Georgia EPD should then be required to enforce the individual drought management plans.

Dieter Franz, P.E.

Cash, Tim

From: Bryan Tolar <btolar@ga-agribusiness.org>
Sent: Friday, May 30, 2014 4:56 PM
To: Cash, Tim
Cc: mpisciotta@ga-agribusiness.org
Subject: GAC comments on drought planning
Attachments: GAC comments on the draft drought management plan - 53014.pdf

Tim –
Sorry to get these to you so late on a Friday. Hope you have a good weekend. Please let me know if we can be of assistance.
Regards,
Bryan

Bryan Tolar, President
GA C GEORGIA AGRIBUSINESS COUNCIL
Leading Georgia's Strongest Industry since 1966

GEORGIA AGRIBUSINESS COUNCIL

COUNCIL MISSION: "To advance the business of agriculture through economic development, environmental stewardship and education to improve the quality of life for all Georgians."

May 30, 2014

James A. Capp, Chief, Watershed Protection Branch,
EPD
2 Martin Luther King Jr. Drive, Suite 1152 East
Atlanta, GA 30334

RE: Drought Management Rule – Stakeholder Meeting #1

Dear Mr. Capp:

The Georgia Agribusiness Council would like to take this opportunity to submit comments regarding the draft State Drought Management Rule contemplated by the Georgia EPD Watershed Protection Branch.

We recognize and promote efforts to enhance environmental stewardship, and water conservation is certainly an essential component of stewardship. We would like to offer the following comments for your consideration as the rulemaking process takes shape.

First, while the document references successes of the 2006 – 2009 drought, it is worth noting that Georgia's agriculture and landscape industry suffered greatly during this period. Kneejerk reactions to limit or prohibit outdoor water use saw Georgia's $8 billion urban agriculture industry lose more than $2 billion in economic activity in 2007 according to UGA. The urban agriculture industry is comprised of turfgrass, ornamental, and nursery plant production as well as outdoor landscape and recreational turfgrass management. In addition to economic loss, these businesses eliminated more than 40% of the workforce – or 35,000 Georgia jobs during this same period. Numerous cities and counties across North Georgia went beyond level 4 drought restrictions by either seriously curtailing or completely eliminating outdoor water use, even when state exemptions were provided for new plant installations. During this drought, and at any time of rainfall shortage, water purveyors target outdoor water use as the sole or primary initiative to reduce water usage. Much of the decision making is made by local authorities with no input from affected industries or consideration of the economic hardships created by such reductions. In 2009, even when state leadership encouraged local water providers to relax the drought restrictions and allow limited outdoor watering to help our landscapes and landscape industry recover, local authorities rejected them in the name of accelerated water conservation. Georgia turfgrass and horticulture growers were stuck with inventory they could not move due to consumer fears of watering these plant materials. We must all conserve and exercise stewardship of our natural resources, but to crush an industry along with many individuals' livelihoods in the name of conservation is foolhardy at best. Many of those in the urban agriculture industry have not yet fully recovered from the 2006-2009 drought, and likely never will.

Second, there seems to be interest by water purveyors to seek reductions in uses considered to be consumptive over non-consumptive. Such approaches would greatly hinder uses for plant materials and have a severely negative impact on properties utilizing septic tanks. This would serve as another attack on outdoor water use, and would also further penalize communities statewide that do not have access to county/city water and sewer facilities. Treating such uses as criminal in the eyes of the public would be truly unfair to the urban agriculture industry and numerous communities across our state.

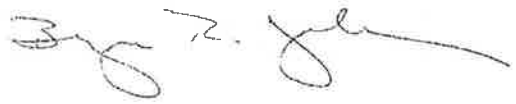
P. O. BOX 119 • 1655 SOUTH ELM STREET • COMMERCE, GA 30529 • 706/336-6830 • 800/726-2474 • FAX 706/336-6898

Third, EPD must establish measurable criteria for purveyors requesting to be more restrictive as well as a list of set objectives for such steps. The should include analysis of reservoir(s), stream flows, groundwater as well as information on system water loss, balanced approach to prescribed water use reductions and stated goal of compliance (i.e. reduce water use by 10%, 20% etc.). The document "Guidance for Drought Response Modification Petition Process" dated May 27, 2008, is a good reference tool, however it targets only outdoor water use reductions as methods to meet water conservation objectives. Such a tiered conservation structure could be beneficial.

Finally, withdrawals that do not require a permit should not be included in water use reductions. Small, personal wells below the permitted threshold should be treated as personal property and not subject to reductions in use. In addition, all agricultural and farm use permitted systems should be continue to be monitored for best management practices, but not subject to use restrictions except in the case of an extreme emergency.

Thank you for your consideration of our comments and please feel free to contact me if we can be of assistance.

Sincerely,



Bryan R. Tolar
President

Cash, Tim

From: Jeffrey Harvey <jaharvey@gfb.org>
Sent: Monday, June 02, 2014 2:41 PM
To: Cash, Tim
Cc: Capp, James; Jon Huffmaster; Tas Smith; Matthew Smith; Pennington, Russ
Subject: Drought Management Rule- Stakeholder Meeting #1
Attachments: Comments,DroughtRule,6-2-14.pdf

Mr. Cash:
Please find the attached Drought Rule Meeting comments from President Duvall included in this email. If you have additional questions please feel free to contact me anytime.

Thank you,

Jeffrey

Jeffrey A. Harvey
Assistant Director, Legislative
Georgia Farm Bureau Federation
478-474-0679 Ext. 5282
229-425-0958-Cell
jaharvey@gfb.org

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June 2, 2014

Mr. James A. Capp
Chief, Watershed Protection Branch, EPD
2 Martin Luther King Jr. Drive, Suite 1152 East
Atlanta, Ga. 30334

RE: Drought Management Rule - Stakeholder Meeting #1

Dear Mr. Capp:

We appreciate the opportunity to comment on the creation of a drought management rule for OCGA 12-5-7 and 12-5-8. Georgia Farm Bureau is the state's largest general farm organization, and our primary purpose is to be the "Voice of Georgia Farmers" in the legislative and regulatory arenas. Our members have a vested interest in this issue.

As a first step, we recommend the creation of a formal stakeholder group to evaluate and draft the proposed rules. Stakeholders should be a diverse group representing various interests that are affected by the drought rule.

The economic ramifications of any proposed rule should be given strong consideration. A primary concern should be how the development of a rule might affect the profitability of stakeholders. The rule should be fair and not punish outdoor water users.

At the meeting in Atlanta on May 13, there was discussion that any drought management rule should include possible limitations on both surface and ground water for agricultural irrigation. We find that to be an extremely worrisome proposal and would oppose such a rule. Farmers make tremendous investments in irrigation equipment to survive the effects of drought. Without these irrigation tools, the state's largest economic industry will be severely handicapped.

Farmers are good stewards of land and water. Irrigation efficiency has improved greatly over the years and will continue to improve. Senate bill 213, which passed earlier this year and was supported by Georgia Farm Bureau, included additional mandatory irrigation efficiency standards.

Thank you for the opportunity to provide these comments.

Sincerely,

Zippy Duvall
President

P.O. Box 7068 • Macon, Georgia 31209-7068
1620 Bass Road • Macon, Georgia 31210 • 478-474-8411

Cash, Tim

From: Sherry Morris <sherry@ggia.org>
Sent: Monday, June 02, 2014 2:26 PM
To: Cash, Tim
Subject: Drought Management Rule - Stakeholder Meeting #1
Attachments: Drought Management Letter0002.pdf

Importance: High

-----Original Message-----
From: Sherry Morris [mailto:sherry@ggia.org]
Sent: Friday, May 30, 2014 1:14 PM
To: 'tim.cash@dnr.state.ga.us'
Cc: chriswilliams@landscapesofthesouth.com; donalnichols@gmail.com; griner@thunderwoodfarms.com; wayne@asktheplantdoc.com; bjernigan@mccorklenurseries.com; chris@ggia.org
Subject: Drought Management Rule - Stakeholder Meeting #1

Mr. Cash:

Attached you will find the comments from the Georgia Green Industry Association regarding the Drought Management Rule Stakeholder Meeting and rule making process that is underway with EPD.

Thank you for the opportunity to make comments.

Sherry

Sherry Morris, Executive Director
Georgia Green Industry Association
PO Box 369
Epworth, GA 30541
706.632.0100
706.455.1039 cell

GGIA
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Mr. Tim Cash
Georgia Environmental Protection Division
Floyd Towers East
2 Martin Luther King Jr. Dr. SE
Atlanta, GA 30334

May 30, 2014

Mr. Cash:

GGIA appreciates the opportunity to comment prior to the development of an Updated Drought Rule and for the opportunity to attend, even on such short notice, the May 13, 2014 Drought Management Rule (DMR) Stakeholder Meeting. The DMR is, without a doubt, a significant regulation that severely impacted our members and industry in the past costing thousands of people to lose their jobs, many businesses to fail and requiring other of our member companies to alter their business plans in order to remain viable. We hope that the effects from a new DMR can be more equitably distributed across all water use segments. We are thus relieved we are able to provide comments and hope that our concerns and essential industry needs are addressed in any DMR outcome.

GGIA understands this is a complicated issue. Therefore the process used to develop the DMR is important for acceptance and consensus among those whom the DMR significantly affects. As experience has shown it is important that any DMR considerations involve stakeholders in the process. There are many qualified and knowledgeable experts from our industry as well as other segments of water users such as local government, hospitality, construction, energy, agriculture, manufacturing, education, etc., that can work in concert with EPD to develop a draft DMR that is effective, equitable and efficient. This can then be circulated for wider comments, and having already been vetted by knowledgeable stakeholders, be more readily acceptable to affected parties. This process has proven successful in the plans developed by the Regional Water Councils as orchestrated the last few years by EPD.

Without having any draft or other documents on which to comment other than the info garnered at the May 13 meeting, our comments on specific issues within a DMR will be limited to what GGIA has experienced in previous years as well as our perceptions regarding this current version.

1. The communication channel between EPD and stakeholders needs to be open and effective. GGIA and several other stakeholders, such as the Georgia Water Wise Council and Georgia Farm Bureau, only found out about the May 13 meeting a few days in advance, and then only from third party persons. Future communications should be direct to those stakeholders and this appears to be addressed by the contacts EPD took during registration at the May 13 meeting. However, there appear to be some stakeholder segments that were not in attendance at the meeting and may be unaware of the new DMR development.

2. As stated previously, any DMR must take into account the economic impact any ruling may have, so as to not devastate any one industry as it did in the past. Any rule must allow for shared consequences among all water users while achieving the goal of water savings. The brunt cost in jobs, production, revenues and even business failures

cannot be borne by one segment alone such as the green industry.

3. Rules should reward efficient use of water that are already in place due to previous efforts to install conservation methods. Efficiencies in our industry such as drip irrigation, recycling water for evaporative coolers in institutional settings, or using waterless urinals should be credited to such users allowing them to meet less stringent criteria or go further into drought level reductions than those not using such efficiencies.

4. The exemptions in the Water Stewardship Act as outlined in 12-5-7 are there as statutory law and cannot be ignored or modified without creating new law. Any changes to the WSA cannot be at the discretion of regulatory agencies such as EPD.

*Any proposed changes to the DMR cannot be based on perceived conflict between the Water Stewardship Act and HB1281. HB1281 had a sunset date of July 2009 and therefore does not come into play in this discussion. The Water Stewardship Act of 2010 supersedes HB1281.

5. Water rules must be consistent across jurisdictional lines. Business and individuals cannot be confused by varying rules that are difficult to communicate.

6. The last drought showed that completely eliminating outdoor watering has significant environmental and economic downfalls and cannot be repeated.

7. The process for coming out of drought and determining that timing was more difficult than going into the drought. The process for restoring full water access needs to be planned as part of the process for coming out of a drought just the same as making the determination of drought levels going into the drought.

8. Baseline considerations developed using the past five to eight years water use data will not allow for reasonable determinations for reductions in current and future use.

On behalf of the hundreds of companies and thousands of individuals who are in the GGIA family working hard to protect and enhance our environment across the state, we thank you for the opportunity to comment on the initial process of this DMR. Please know that we are available to offer any help, knowledge or other assistance in any manner we can to help EPD develop a good DMR for everyone.

Sincerely,

Chris Williams Sherry Morris

Chris Williams, Chair Sherry Morris, Executive Director

For further information, contact:
Chris Butts, GGIA Legislative and Public Affairs Director, chris@ggia.org (706) 540-2813
Sherry Morris, GGIA Executive Director, sherry@ggia.org (706) 632-0100
Tim Thoms, GGIA Legislative Council Chair, tim@thomstrees.com, (770) 461-6013

Cash, Tim

From: Thomas Q. Gehl <tgehl@gmanet.com>
Sent: Friday, May 09, 2014 3:17 PM
To: Cash, Tim
Cc: Catherine Fleming
Subject: Drought Meeting # 1

Hi Tim,

I hope you're well.

I won't be able to attend the first meeting of the drought management rule stakeholder process next week and I don't have an available staff person to attend either. However, I am very interested in participating and hope to catch-up at meeting #2.

Generally I like the approach you all are taking and appreciate the acknowledgement of the lessons learned from previous droughts, particularly the need for more discrete, targeted responses and increasing flexibility of systems to work to mitigate any drought situation in their jurisdiction.

I've got a few thoughts off of the top of my head to share.

On the pre-drought mitigation strategies input request, I am hesitant to endorse new measures to require permittees to take any additional steps to mitigate *potential* drought situations.

On indicators & triggers, in addition to those possible approaches you list, each water utility should be able to ascertain the risks to their supply and make a separate determination of indicators based on their distinct situation. Systems in "drought" areas or conditions which are in close proximity may be in completely different circumstances when it comes to deciding whether they're in drought conditions. Also, interconnections between systems should be a factor too. For instance, as a hypothetical, the City of Jefferson may be in a drought situation, but if Commerce has an abundant supply and

On declarations, EPD can help with overall publicity in major droughts impacting large areas of the state, but the water users will largely be hearing from the local governments about specific actions they may be directed to take to minimize nonessential water use. Not using a meat cleaver approach is important, but drought declarations imposed by climatic divisions or regional water planning regions could still have a sweeping impact analogous to a smaller meat cleaver – not too unlike the one imposed in the 2007 drought (the blanket north Georgia 10% reduction order). I'd suggest a system-by-system approach, understanding that it will take more EPD staff time to do this. Surface water and ground water are treated differently in Code, and they should also be treated differently in this process moving forward.

For the response committee input, I would suggest that the group's purpose should be less about "advice" on drought response strategies, since the group would be pulled together only when a drought is underway, and more about reporting to the group on EPD's potential courses of action with various stakeholders/permittees. I probably would like to hear more thoughts on how this group would really engage in a drought situation if in fact EPD will be more targeted rather than "global" in the future.

I'd like more information on the applicability approaches. I don't really know how many permittees would be impacted, how much water savings there would be cumulative, and who this could impact. Also, what about different treatment for permittees which have direct impacts on other permittees nearby. The thought that comes to mind in is cities like

Sasser or Tifton or Doerun which are surrounded by massive GW pumping which causes the water table to drop below their GW intake. Should permittees which are impacting drinking water systems have different considerations?

I'm not familiar with current reporting of usage required now, but I'd caution you not to set up some type of reporting regime in which you're buried with reports/numbers when it may not demonstrate a pressing need. I've also got questions about the baseline approaches EPD may use and inflexibility with meeting numeric "baseline" targets.

Industrial, commercial and agricultural permittees should be part of the solution during times of drought too, and I'd like to hear more about ideas on how any water use reductions would be imposed on these stakeholders.

On variance procedures, the language in statute which gives cities the ability to show EPD why they don't need as stringent actions was a direct result of the one-size-fits-all 10% reduction order by Perdue/EPD during the 2007 drought. I got more calls from cities with plenty of supply, water to sell and bills/bonded indebtedness to pay than I did from struggling cities. EPD has shown that it is very responsive to cities which see a need to impose restrictions when their supplies are threatened, but there wasn't a process for the reverse until this statutory change.

I hope this quick feedback is somewhat useful, and I am sorry I can't attend the first meeting. Do you have a time-line for this process (beside possible proposed rule in the Fall)? Our GMA Annual Convention is around the corner, and it is likely something that we would like to cover in our Environment & Natural Resources Policy Committee discussions.

Thanks,
Tom

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GEORGIA POWER
A SOUTHERN COMPANY

June 3, 2014
CERTIFIED MAIL

Mr. James A. Capp
Chief, Watershed Protection Branch, EPD
2 Martin Luther King Jr. Drive, Suite 1152 East
Atlanta, GA 30334

RE: Drought Management Rule – Stakeholder Meeting #1

Dear Mr. Capp:

Georgia Power Company (GPC) appreciates the Environmental Protection Division's (EPD) commitment to work with stakeholders across the state on its proposal to develop a new drought management rule. As you know, GPC provides electricity to more than 2.4 million Georgia residents and numerous businesses, not-for-profit entities, and government facilities throughout the state. Our unique role as a corporate citizen, that depends on both a vibrant economy and sufficient water resources to generate electricity to meet state-wide demand, puts us in a position to understand the complex ways that a new drought management rule could affect our state.

At this early stage in the process, we believe that EPD should take into account several broad considerations before it decides on the content of a new drought management rule, if one is to be promulgated. Below we offer several concerns that we hope EPD will factor into this rule-making process.

- Whether the current framework that governs drought management is adequate to address the water management needs of the state, whether the current framework -- if insufficient to meet those needs -- could be modified to do so, or whether a wholesale re-write of the drought management regime is truly necessary to meet the requirements.

- The amount of flexibility which would be required under any drought management rule as the diversity of interests affected is tremendous.

- The extent to which economic impacts associated with a drought management rule -- including the potential costs to productivity, job growth, industrial and agricultural output, natural resources recovery, and energy generation -- should factor into what is reasonable under the rule.

- The extent to which a drought management rule should defer to the role of the Army Corps of Engineers on highly regulated water bodies and to other federal agencies with regulatory authority over other water bodies.

- The availability of variances, waivers, and exemptions for emergencies, and/or for industries of particular importance to the public health, safety, and welfare.

As the rulemaking process proceeds, GPC expects to be actively engaged in the formulation of thoughtful drought management policies which are balanced to meet the diversity of interests affected. Again, we are appreciative of the approach that EPD has taken with respect to providing an open dialogue on this important issue. We look forward to providing additional input as the process moves forward.

Sincerely,

Alicia J Williams

for Burns Wetherington, P.E.
Environmental Affairs Supervisor

AFW

Cash, Tim

From: Chris Manganiello <chris@garivers.org>
Sent: Tuesday, June 03, 2014 9:15 AM
To: Cash, Tim
Cc: chris@garivers.org
Subject: Drought Management Rule - Stakeholder Meeting #1
Attachments: GWC_Drought Management Rule - Stakeholder Meeting #1.pdf

Dear Mr. Cash:

The attached comments are submitted on behalf of the Georgia Water Coalition in response to the Environmental Protection Division's (EPD) request for input following the May 13, 2014 stakeholder meeting regarding the pending revision to Georgia's Drought Management Rule.

The Georgia Water Coalition (GWC) is a group of more than 200 organizations representing well over a quarter of a million Georgians including farmers, homeowner and lake associations, business owners, sportsmen's clubs, conservation organizations, professional associations and religious groups. The GWC's mission is to protect and care for Georgia's water resources, which are essential for sustaining Georgia's prosperity, providing clean and abundant drinking water, preserving diverse aquatic habitats for wildlife and recreation, and strengthening property values. A list of coalition members is attached to this letter.

We thank EPD for the opportunity to provide comment ahead of a formal rule making process. If you have any further questions, please contact me.

Sincerely,

Chris

Chris Manganiello, Ph.D.
Policy Director

Georgia River Network
126 South Milledge Avenue, Suite E3
Athens, GA 30605
Office: 706-549-4508
Fax: 706-549-5491

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GEORGIA WATER COALITION

June 3, 2014

James A. Capp
Chief, Watershed Protection Branch
Environmental Protection Division
Suite 1152 East Tower
2 Martin Luther King Jr. Drive
Atlanta, GA 30334

Submitted via email to: tim.cash@dnr.state.ga.us

SUBJECT: Drought Management Rule – Stakeholder Meeting #1

Dear Mr. Capp and Mr. Cash:

These comments are submitted on behalf of the Georgia Water Coalition in response to the Environmental Protection Division's (EPD) request for input following the May 13, 2014 stakeholder meeting regarding the pending revision to Georgia's Drought Management Rule.

The Georgia Water Coalition (GWC) is a group of more than 200 organizations representing well over a quarter of a million Georgians including farmers, homeowner and lake associations, business owners, sportsmen's clubs, conservation organizations, professional associations and religious groups. The GWC's mission is to protect and care for Georgia's water resources, which are essential for sustaining Georgia's prosperity, providing clean and abundant drinking water, preserving diverse aquatic habitats for wildlife and recreation, and strengthening property values. A list of coalition members is attached to this letter.

We are pleased that EPD is revisiting the Drought Management Plan and rulemaking at a time when the state is not experiencing significant meteorological drought conditions.

The GWC recognizes EPD staff faced a complicated situation in 2007-2009, and again in 2010-2012. We would have liked to have seen EPD staff act more quickly and earlier in response to developing meteorological and hydrologic drought conditions. In the first drought period, Georgians arrived at a complicated intersection of climatic conditions (drought) and worsening economic conditions (Great Recession). EPD's drought response alone cannot be blamed for the urban agricultural ('green') industry's economic hardship that dovetailed with a failing housing market and a reduction in consumers' discretionary spending. Furthermore, these hardships, industry transition and consumer choices were not isolated to Georgia.

The public has many perceptions about water quantity and use, and they are willing to alter behavior in interesting ways to meet water challenges according to results from two different surveys. The first, summarized by the Carl Vinson Institute of Government and EPD staff among others, analyzes the results of a 2009 survey of Georgia residents. One hundred percent of respondents indicated that "clean drinking water is either very important (94%) or important (6%);" no other category scored as important as clean drinking water. And half of the respondents (48%) expect prolonged drought to occur in the future. Slightly more than one-fifth (22%) think future water quantity is "definitely a problem." When asked how survey participants have adjusted their behavior to conserve water, 67% indicated they changed how often they water lawns; 40% adopted new in-home technologies like low-flow fixtures; and 24% changed the way they landscaped their yards.[1]

In a second and more recent national public opinion poll, the results indicate people think the most important uses of water are for drinking (and in the home), the natural environment and agriculture (to produce food). Respondents considered industrial, recreation and landscaping water uses less important. Municipal landscaping was the least important use of water. Participants also did "not believe that the economy is more important than the environment in water planning." And, the poll discovered people "would rather conserve water than risk negatively affecting" agricultural production if food prices will increase as a result. Nearly 55% of those polled believe that droughts are more common and more severe.[2]

Combined, these polling data indicate the public thinks drought is more common; believes that the best use of water is for drinking and agricultural food production; categorizes drinking water use for landscaping as inappropriate; and identifies the government as responsible for prioritizing and directing water users to conserve.

Below, you will find our initial input and thoughts on the "Concepts for Consideration in Drought Management Rule" presentation. More detailed comments will come after we can review actual proposed draft language.

Pre-Drought Mitigation Strategies

EPD should form a **Drought Response Committee** with a membership that is diverse geographically, by permit holders and by end users. This would include water utilities, agricultural, industrial, commercial, and non-governmental organizations (including conservation and environmental non-profits). But before we could fully endorse this body, the GWC would need more information as to how the committee would function and what authority the committee might wield.

Because drought can be defined in multiple ways, EPD should consider adopting **different drought categories**—such as meteorological, hydrologic (including natural and human-induced as in the Flint and Oconee River), urban and agricultural drought. Doing so would enable EPD to target specific regional areas, hydrologic units, user classes and permitees, and would provide EPD with more flexibility in identifying, mitigating and responding to drought conditions with greater precision.

EPD should encourage the U.S. Army Corps of Engineers to develop **adaptive drought response** measures for the Apalachicola-Chattahoochee-Flint (ACF) and Alabama-Coosa-Tallapoosa (ACT) river basins. EPD staff have provided support for the Corps' on-going development of the Savannah River Basin Drought Plan. The ACF Stakeholders, Inc. process may also provide productive avenues and guidance for such responses.

A variety of potential water utility practices could fall into the category of pre-drought mitigation strategies. For example, although utilities statewide have made significant progress in recent years on water efficiency and conservation in a number of ways, efforts focused specifically on **peak demand management** would make many utilities even better prepared to manage customer water demand during the warm months of the year. Managing peak demand, which occurs in the summer months for most water utilities in Georgia, becomes especially important in drought years. One method of managing peak demand is through retail water pricing; seasonal pricing is one example.

More broadly, EPD should utilize the 2010 Georgia Water Conservation Implementation Plan (WCIP) to help identify specific pre-drought mitigation strategies. The WCIP lists specific benchmarks for various water-use sectors, many for completion generally in the 2010-2012 timeframe. EPD should work with partners in various sectors to check on progress toward all of the benchmarks in the WCIP, all of which will help the state be better prepared for future droughts.

Drought Indicators and Triggers

EPD should consider more **drought indicators and triggers** in addition to precipitation, reservoirs levels, groundwater levels and stream flow already included in the Drought Management Plan (2003). The drought management plan should include clear and quantifiable metrics that would trigger a drought declaration or the rescinding of a drought declaration. For example, if stream flow or reservoirs levels reach '*x*,' then EPD declares drought level/response '*y*.' EPD must institute a scientific and objective process to declare drought to avoid any politicization of the declaration.

In general, we recommend that EPD staff **review drought planning in other states**, and confer with drought-related experts in state and federal agencies in other regions when formulating Georgia's Drought Management Rule. (The National Drought Mitigation Center now has a web page, "Drought Planning Resources, by State" that is a useful starting point for comprehensive research into others states' drought planning.)

For example, in Texas a Drought Preparedness Council comprised of state agency and commission officials considers a number of **quantifiable metrics and conditions** to assess meteorological, agricultural, hydrologic and socioeconomic drought. For example, the Council considers a number of factors when determining if a drought exists, such as:[3]

- meteorological conditions and forecasts
- hydrological conditions and forecasts
- water use and demand forecasts

- water supply conditions and forecasts
- the potential impacts of the water shortage on the public health, safety, and welfare; economic development; and agricultural and natural resources

The Texas Drought Preparedness Council has developed a comprehensive State Drought Preparedness Plan, and requires public water systems to "have a contingency plan ready in case of drought or similar water shortages." Utilities are required to identify **quantifiable triggers** that are based on the utility's specific supply, demands, needs and vulnerabilities. Utilities are also required to include specific quantifiable targets for water use reductions. Georgia's Drought Rule should require EPD staff to specifically use very targeted tools much as Texas requires to evaluate physical conditions. Those tools include:

- SPI – Standardized Precipitation Index (already used in Georgia)
- KBDI – Keetch–Byram Drought Index (a fire prediction index)
- CMI – Crop Moisture Index
- VT – Satellite Vegetation Health Index
- PDSI – Preliminary Palmer Drought Severity Index (a good long term index)

Additionally, to access agricultural conditions, Texas officials specifically evaluate:

- Soil moisture conditions
- Crop conditions
- Pasture and range conditions
- Livestock sales
- U.S. Department of Agriculture drought declarations

Finally, the proposed drought rule should specifically require EPD to consult with staff from the National Weather Service, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, and other agencies participating in the National Integrated Drought Information System (NIDIS), and require EPD to utilize specific tools, forecasts and other data to assess Georgia's drought conditions.

Georgia should continue to utilize reservoir and stream flows as triggers and indicators, but EPD should collect more **in-stream flow data** in critical tributaries and install additional **groundwater monitoring wells** in critical areas to fully assess: surface flow conditions in main stem rivers; groundwater conditions; and the hydrological connection between surface and groundwater where relevant. EPD should invest in additional stream gages. Staff from the U.S. Geological Survey have indicated to the GWC that the cost (estimated in 2014) of installation is roughly $24,000 and that this fee can be waived in certain circumstances. The annual operating cost for a single gage is approximately $13,600 (as of 2014). We would be happy to provide additional information on USGS gage management.

Drought declaration process

For over a century, Georgians have encountered drought. For just as long, state officials have identified Georgia's geologic and hydrologic diversity as a challenge to statewide water management. Droughts have historically affected specific river basins and water users differently.[4]

For example, the 1924-27 drought affected the Altamaha and Coosa river basins. In the Chattahoochee River basin, metro Atlanta residential and industrial consumers were asked to curtail energy and water consumption. And the 1950-57 drought affected the entire state with more intense impacts in north and south Georgia. That drought event resulted in one of the state's first forays into regional water planning at the state and federal levels, and convinced farmers to begin investing significant resources in irrigation technologies.

The Blue Ridge, Piedmont and Coastal Plain have had—and will continue to have—different 'water problems.' The GWC respects EPD's intent to assess and declare drought with more geographic specificity and to have more flexibility in the process. The GWC also respects statue and the necessity of harmonizing this diversity in a coherent statewide drought management plan. An effective and comprehensive plan that is applicable to all users in a given river basin must treat upstream and downstream water users equitably.

From a geographical perspective, the GWC recommends that EPD consider the viability of declaring drought based on the boundaries of the state's fourteen major basins and watersheds. These physical and geographical boundaries have not changed and will not change, while the factors used to identify the climatic divisions will change over time. EPD could utilize the existing regional water planning boundaries. But, these are political boundaries that are also subject to future change.

One possible approach would require empowering Georgia's regional water councils with more authority. After the drought of 1970-71, the Florida legislature passed and the governor signed the Water Resources Act (1972). This act established Florida's five semi-autonomous water management districts, which remain under the oversight of the Florida Department of Environmental Protection. The districts have the independent authority to issue water use restrictions, and "local governments have the right to impose even stronger restrictions." If a local government "does not have its own restrictions," residents are required to adhere to their water management district's requirements.[5]

Applicability

The drought rule should apply to all groundwater and surface water permit holders. EPD should develop different definitions and management strategies for meteorological, hydrologic, urban and agricultural drought so that EPD can more accurately target specific water users in the affected area(s). Energy utilities and agricultural users must be subject to the rule's requirements and provisions. Thermoelectric and agricultural water withdrawals combined have historically exceeded seventy-five percent of total withdrawals. While the total volume of thermoelectric returns is significant, the environmental and downstream effects of thermoelectric returns intensify during drought events.[6]

Record Keeping, Reporting & Baseline

At least two water utility representatives expressed the following during the stakeholder meeting: "the more data we get the better decisions we can make." The GWC agrees with this sentiment.

The GWC agrees "Uniform water use recording and reporting during drought and non-drought is critical in monitoring the condition of water supplies and assessing performance." We support, as water utility representatives in attendance suggested, that EPD collect this data, and more of it, irrespective of drought or non-drought conditions to make better policy decisions. We recommend that EPD collect withdrawal and consumptive data from all permit holders to ascertain a complete picture of water use and return.

To establish a baseline, we strongly urge EPD to use more than five years-worth of data. Five-years is a short period of time, and recent weather and economic patterns may not adequately capture useable water withdrawal and consumption data.

We encourage EPD to consider reducing the threshold volume at which a water withdrawal permit is required (water withdrawal permits are required only for users that withdraw more than 100,000 gallons per day). Doing so would enable EPD to capture more data on actual withdrawals, consumption and returns, and provide EPD with the necessary data to make sound decisions and evaluate basin-wide water supplies.

Drought Response Strategies

As is the case with pre-drought mitigation strategies, in drought conditions there are a number of demand management strategies available to water utilities that can be more nuanced and system-specific than outdoor watering restrictions. Whether or not such strategies were to be codified in rules, EPD can work with the state's water utilities to increase utilities' ability to manage customers' water use in drought in ways that will be useful at a water system-specific level. Along with using the Georgia Water Conservation Implementation Plan for pre-drought mitigation strategies, EPD can use the WCIP to identify certain sector-specific practices to be sure to implement during drought if they have not been implemented or accomplished already. Further, the American Water Works Association's (AWWA) Drought Resource Community web pages contain much useful information, including AWWA's Drought Preparedness and Response manual of practice published in 2011.

In the realm of pricing, one example practice which is used in many areas of the country, is to incorporate drought surcharges into a utility's rate structure. Drought surcharges typically serve a dual purpose: they help manage demand by sending a price signal to customers that water is especially precious at the present time when a surcharge is activated, and they provide needed revenue to help the utility cope with the financial impacts of drought.

Further, some Georgia municipal water utilities, such as those in the upper Flint and upper Oconee, have significant storage capacity but respond differently to drought. In some cases, early and strong response to drought conditions serve to stabilize supplies. In other jurisdictions, virtually no drought response is exercised, and while supplies have never 'run out', they have certainly been shown to be very, very low and therefore destabilizing. In both scenarios, volumes of water that are conserved in storage could be used to support downstream instream flows and other uses. With additional proposals afoot for increased storage, specifically to support flows, certainly it makes sense to first optimize use in and from existing storage those

volumes already paid for by taxpayer and ratepayer dollars, triggering an option for rewriting release prescriptions for these impoundments. Rulemaking provides such an opportunity.

Finally, the 1988 EPD policy of "no returns" to the upper Flint must be reversed integral to any drought management in Georgia, operationalizing a new "return" policy with direct state investment supporting by rulemaking. Any drought management strategy must further examine returns policies (e.g. return IBTs, retirements of LAS) as integral to any overall drought mitigation strategy. Rulemaking provides this opportunity.

Variance Procedures

For variance requests to EPD to approve actions less stringent than required, EPD should require detailed descriptions of proposed restrictions, with explanations, along with analysis of the effect on storage and streamflow, as proposed for variances for actions more stringent than required. A water system's fitness to withstand a drought with adequate supply is not the only metric to assess in relation to water availability in that community or for its downstream neighbors. In addition, EPD may find it necessary to include in its assessment of such variance requests an analysis of whether confusion could result from having differing drought response levels in place in neighboring or nearby communities.

Conclusion

We thank EPD for the opportunity to provide comment ahead of a formal rule making process. If you have any further questions, please contact Chris Manganiello, Policy Director, Georgia River Network (chris@garivers.org).

Sincerely,

The Georgia Water Coalition

Enclosure (1):

Stoutenborough and Vedlitz, "Public Attitudes Toward Water Management and Drought in the United States," *Water Resources Management* 28 no. 3 (February 2014): 697-714

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[1] Jason Evans, Jon Calabria, Warren Brown, Alice Miller Keyes, and Mark Risse, *Water Issues in Georgia: A Survey of Public Perceptions and Attitudes about Water*, Carl Vinson Institute of Government, the University of Georgia, April 2011, http://extension.uga.edu/publications/detail.cfm?number=B1385.

[2] James W. Stoutenborough and Arnold Vedlitz, "Public Attitudes Toward Water Management and Drought in the United States," *Water Resources Management* 28 no. 3 (February 2014): 697-714.

[3] Texas Department of Public Safety, State Drought Preparedness Council, http://www.txdps.state.tx.us/dem/CouncilsCommittees/droughtCouncil/stateDroughtPrepCouncil.htm.

[4] Nancy L. Barber and Timothy C. Stamey, *Droughts in Georgia*, U.S.G.S. Open File Report 00-380 (October 2000), http://pubs.usgs.gov/of/2000/0380/pdf/ofr00-380.pdf, last accessed June 3, 2014.

[5] Florida Department of Environmental Protection, http://www.dep.state.fl.us/drought/management.htm.

[6] U.S. Geological Survey, *Water Use in Georgia by County for 2005; and Water-Use Trends, 1980-2005*, Scientific Investigations Report 2009-5002, p. 6, http://pubs.usgs.gov/sir/2009/5002/pdf/2005_water_use_book_508_V4.pdf.

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Blue Heron Nature Preserve
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Broad River Watershed Association
BSA Troop 1134
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Central Savannah River Land Trust
Chattahoochee Hill Country Conservancy
Chattahoochee Nature Center
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Citizens for Clean Air and Water
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Clean Coast
Clear Rivers Chorus
Coastal Environmental Organization of Georgia
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Druid Hills Garden Club
Earthkeepers & Company
Earth Ministry, NW Unitarian Universalist Congregation
East Atlanta Community Association
Eco-Scrub Carpet & Floor Care
Ens & Outs, Unitarian Universalist Congregation of Atlanta
Environment Georgia
Environmental Community Action, Inc.
Environmental Defense Fund- SE Region
Ewing Irrigation - Covington
Fall-line Alliance for a Clean Environment
Flint Riverkeeper
Fox Environmental
Friends of Barber Creek
Friends of Georgia, Inc
Friends of McIntosh Reserve
Friends of the Apalachee
Friends of the Chattahoochee
Friends of the Savannah River Basin
Friends of South Newport River, Inc.
Garden Club of Georgia, Inc.
Garden*Hood
Georgia Bass Chapter Federation
Georgia Canoeing Association, Inc.
Georgia Coalition for the People's Agenda
Georgia Coalition of Black Women
Georgia Conservancy
Georgia Forest Watch
Georgia Interfaith Power and Light
Georgia Kayak Fishing
Georgia Lakes Society
Georgia Land Trust
Georgia Onsite Wastewater Association
Georgia Poultry Justice Alliance
Georgia River Fishing
Georgia River Network
Georgia River Survey
Georgia Rural Urban Summit
Georgia Wildlife Federation
Georgia Women's Action for New Direction
Glynn Environmental Coalition
Graci's Garden Center
Greening Forward
GreenLaw
Green Plate
Harrison Design Associates
Hiwassee River Watershed Coalition
Hydro Logical Solutions, LLC
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Lake Blackshear Watershed Association
Lake Hartwell Association
Lake Homeowners Alliance
Lake Lanier Association
Lake Oconee Property Owners' Association
Lake Oconee Water Watch
Lake Yonah Association
League of Women Voters of Georgia
Litter Control, Inc
Little Mountain Water Association
Little Tennessee Watershed Association
Lula Lake Land Trust
Lumpkin Coalition
McIntosh High School Adopt-A-Stream
Melaver McIntosh
Middle Chattahoochee River Stewards
Minds Eye Scenic Arts/Knottalotta Entertainment
Mountain Park Watershed Preservation Society
National Wildlife Federation
Neighborhood Planning Unit – W Atlanta
Netlink IP Communications
New Echota Rivers Alliance
NOCRAP (Newly Organized Citizens Requesting Aquifer Protection)
Norris Lake Community Benefits Corporation
North American Native Fishes Association
North Georgia Trout Online
Nuclear Watch South
Oceana
Oconee River Land Trust
Off Grid Expeditions & River Guardians
Ogeechee Audubon Society
Ogeechee Riverkeeper
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One Entertainment Productions
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Presbytery of Greater Atlanta
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Rain Harvest Company, Inc.
Richmond Hill Garden Club
Ryan Taylor Architects
Sapelo Sea Farms
Satilla Riverwatch Alliance & Satilla Riverkeeper
Sautee-Nacoochee Community Association
Savannah-Ogeechee Canal Society, Inc.
Savannah Riverkeeper
Savannah Tree Foundation
Save Lake Oconee's Waters (SLOW)
Save Our Rivers, Inc.
Scenic Georgia, Inc.
Sierra Club- Georgia Chapter
Small Carpenters at Large
Snake Nation Press, Inc.
Solomon's Minds
Soque River Watershed Association
South Atlantans for Neighborhood Development
South Fork Conservancy
Southeast Green
Southeastern Horticultural Society
Southeastern Natural Sciences Academy
Southern Alliance for Clean Energy
Southern Conservation Trust
Southern Environmental Law Center
Southern Wings Bird Club
Southface Energy Institute
South River Watershed Alliance
SouthWings: Conservation through Aviation
Spring Creek Watershed Partnership
St. Marys EarthKeepers, Inc.
Storm Water Systems
Surfrider Foundation - Atlanta/Georgia Chapter
Sustainable Atlanta
Tallulah River Watershed Protection Committee
The Concerned Citizens of Shell Bluff
The Dolphin Project
The Erosion Company (TEC)
The Nature Conservancy
The Original Rainwater Pillow
The Outside World
The Rain Barrel Depot
The Rain Saver
The Wilderness Society
Trout Unlimited - Georgia Council
Turner Environmental Law Clinic
Unicoi Outfitters
United Nations Association – Atlanta
Upper Etowah River Alliance
Upper Oconee Watershed Network
Upper Tallapoosa Watershed Group
US Green Building Council – Atlanta
US Green Building Council – Savannah
Watershed Alliance of Sandy Springs
Wayne Morgan Artistry
West Atlanta Watershed Alliance
West Point Lake Advisory Council
West Point Lake Coalition
White Oak Hills Neighborhood Association
World Wildlife Fund
WOWash
WWALS Watershed Coalition
Yellow Bluff Plantation
Yellow River Water Trail

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Public Attitudes Toward Water Management and Drought in the United States

James W. Stoutenborough · Arnold Vedlitz

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Abstract Water management is becoming increasingly salient as climate change continues to alter the environment, resulting in more severe and frequent droughts. To address water management issues, large-scale projects may be needed. However, public support is often a prerequisite for governments at all levels to enact such projects. Given the growing importance of these issues, there are few recent studies that explore public attitudes, preferences, and risk assessments about water-related resource allocations. Will the public act to constrain the actions of their elected officials? Is the public ready to begin considering policies, regulations, and expenditures that address the potential impacts of increased drought frequency on local, state and national water resources? This research reports the results of two national public opinion surveys in the United States that focused on water management and drought issues. The results indicate that the public is willing to support government efforts to manage water, but not if they negatively affect the environment or agriculture.

Keywords Drought issues · Water management · Public attitudes · Policy preferences

1 Introduction

As climate change continues, humans will need to adapt to their ever-changing environment. In addition to eventualities like rising sea levels and more extreme weather events, scientists expect that many parts of the world are more likely to experience longer, more intense droughts (e.g. Intergovernmental Panel on Climate Change 2007). These droughts have the potential to alter radically the way of life for those living in affected regions.

Governments, whether they want to or not, will eventually need to become more involved in water management activities. However, in democratic countries like the United States, public support is often a necessary ingredient for political action. Studies consistently find that policymaker actions reflect public preferences (e.g. Burstein 2010). In short, if the public is not on board, it is very difficult for elected officials to find the will to act even if they know it is in the best interest of their country, state, or town.

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Understanding public sentiments toward an issue is a necessary step toward legislating on that issue. Given the importance of issues like water management and drought, there is a surprising scarcity of studies that explore public attitudes toward these issues.[1] Will the public act to constrain the actions of their elected officials? Is the public ready to begin considering policies, regulations, and expenditures that address the potential impacts of droughts on their water supply?

In the United States, responsibilities for managing and protecting water assets are split between several layers of government. State and local governments have a primary responsibility for water delivery and waste water removal. They also participate in the building of reservoirs and in the management of some flooding and coastal inundation. The federal government shares in the delivery of water and the building of dams and reservoirs on public lands and in the management of water assets that may cut across state boundaries as well as having a key role in forest fire prevention, fighting, and recovery. Through its U.S. Army Corps of Engineers, the national government also plays a major role in construction and maintenance of major dams, levees, and other flood control infrastructures. In addition, the national government is a major insurer of personal and agricultural damage caused by floods and droughts. So, since all levels of government have important roles in water management and damage recovery, views of citizens at the national, regional, and state scales have much to tell us about acceptable policy solutions and resource allocations for water management activities.

This paper reports the results of two large national public opinion surveys that focused on water management and drought issues. This project proceeds in three parts. First, the survey is described. Second, the results of the survey are presented by focusing on public attitudes toward several water management and drought issues. Third, the implications of this project are discussed.

2 Research Methods

Two national public opinion surveys of adults in the United States were conducted. The first survey was in the field 21 February 2013 to 12 March 2013 and resulted in 1,313 completed surveys for a 56 % completion rate. The second survey, which asked identical questions, was in the field from 2 April 2013 through 16 April 2013 and resulted in 1,311 completed surveys for a 55.5 % completion rate. Both surveys were administered on-line by GfK Custom Research, LLC (GfK, formerly Knowledge Networks).[2] The two unique samples were drawn from GfK's KnowledgePanel, a probability-based web panel designed to be representative of the United States for adults age 18 and over. Descriptive statistics for the demographic characteristics of the samples can be found in Appendix A.[3] The median survey completion

[1] Since 2000, studies of public attitudes toward water-related issues have focused primarily on a single issue – most frequently water reuse (e.g. Dolnicar and Schäfer 2009; Marks et al. 2006; Menegaki et al. 2007) – or a relatively narrow community (e.g. Hurd et al. 2006; Willis et al. 2011). Other studies focus on water quality (e.g. Clay et al. 2007), and not on water management or drought. Finally, many of these studies rely upon a relatively small number of respondents (e.g. Menegaki et al. 2007; Willis et al. 2011).

[2] The survey was fielded twice due to a coding issue with one of the battery stems in the initial sampling, which was corrected prior to the second sampling. The minor coding issue on the first sampling does not affect the integrity of the dual survey results reported here as that particular battery stem is not part of this data analysis nor related to any items in this analysis.

[3] An examination of the demographic characteristics of the two samples indicates that both samples are likely representative of the general population, as they reflect levels that are consistent with Census data. For instance, reflective of recent partisan shifts found in other national public opinion polls (e.g. Gallup), the results show that a larger proportion of the respondents identify as Democrat than Republican. Additionally, as is common in survey research, these samples do have a higher proportion of white respondents. However, it is unclear within the literature the extent to which racial differences influence attitudes toward drought and water management.

time was 27 min. As there were no major water-related focusing events between the two surveys, the pooled results are reported to simplify the presentation of the findings.

3 Comparing Water to Other Issue Domains

Water issues are contextualized from two perspectives. First, respondents were asked to identify their level of concern for a number of different issue domains on a 0 to 10 scale. Unless otherwise noted, the scaling for all of the survey questions is from lowest to highest. Specific question wording can be found in Appendix B. The mean levels of concern for each of the ten issue domains are illustrated in Fig. 1. As indicated, three issue domains–jobs and economic growth, government spending/national debt, and health care–weigh most heavily on the public. The data shows that water quality and availability is the fifth most concerning issue, though it is clustered around three other issues. On average, the public rates water issues a 6.80 on this scale. This suggests the public is certainly more concerned than not about water issues and is generally more concerned about water than many of the other issues. On the whole, this indicates that water quality and availability is a fairly important issue for the public.

The second contextualization perspective relates to perceptions of responsibility. Who is responsible for handling a given policy domain? In our federal system, there are realistically only four types of institutions that can handle a major public issue—the federal government, state governments, local governments, and the private sector. On a 0 to 10 scale, respondents were asked to indicate how responsible each institution is for handling four policy domains—public education, homeland security, energy, and water. As presented in Fig. 2, the public believes water policy is the responsibility of all levels of government, but assigns state and local governments the highest responsibility. This differs from issues like homeland security and energy where responsibility begins with the federal government and decreases with each lower level of government until it bottoms out in the private sector. Overall, this suggests that attitudes concerning water issues are particularly applicable to state and local governments and their policy making processes.

3.1 General Water Perceptions

The public's perceptions on water use were examined. Which water uses does the public find to be more important? Using a 0 to 10 scale, respondents were asked about eight water uses. The results are presented in Fig. 3. What emerges is a clear gap. The public views drinking, household use, natural environment, and agriculture as the most important uses of water. On the other hand, industrial use, recreation, and landscaping uses are clearly of lower importance. Indeed, municipal landscaping is viewed as the least important use of water and is the only use that is in the lower half of the scale.

Respondents were also asked about their perceptions of water availability and their willingness to conserve water, using a five-point scale. The results of this battery of questions can be found in Table 1. The results show that the public is generally optimistic about the current and future water needs of their state. The public does not believe that the economy is more important than the environment in water planning. They generally believe that fish and wildlife habitats and the economy are of equal

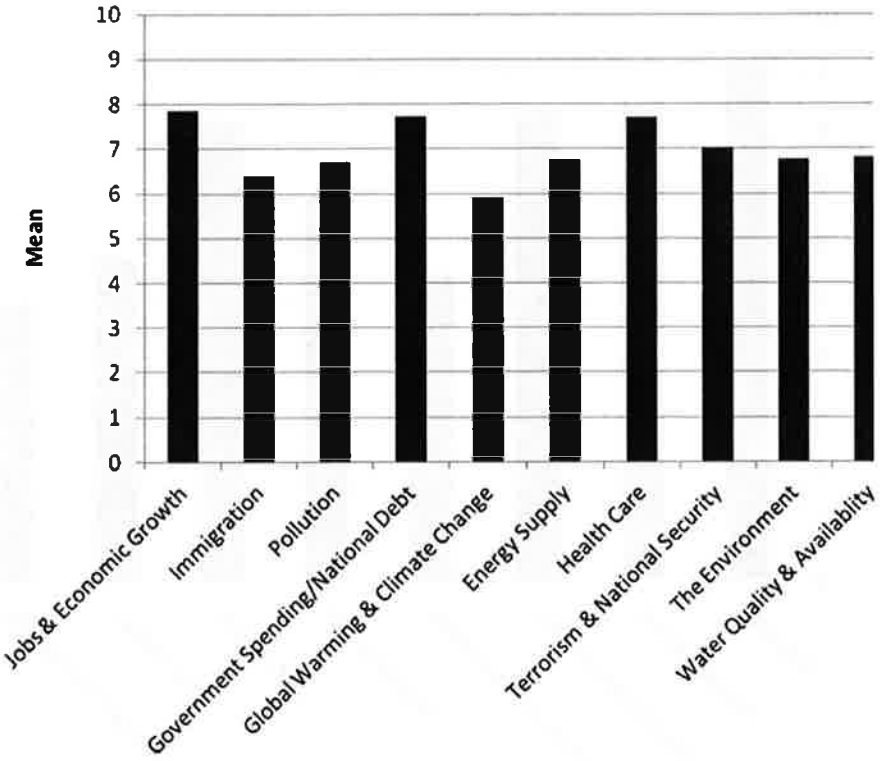

Fig. 1 Comparing public concern for water quality & availability against other issue domains

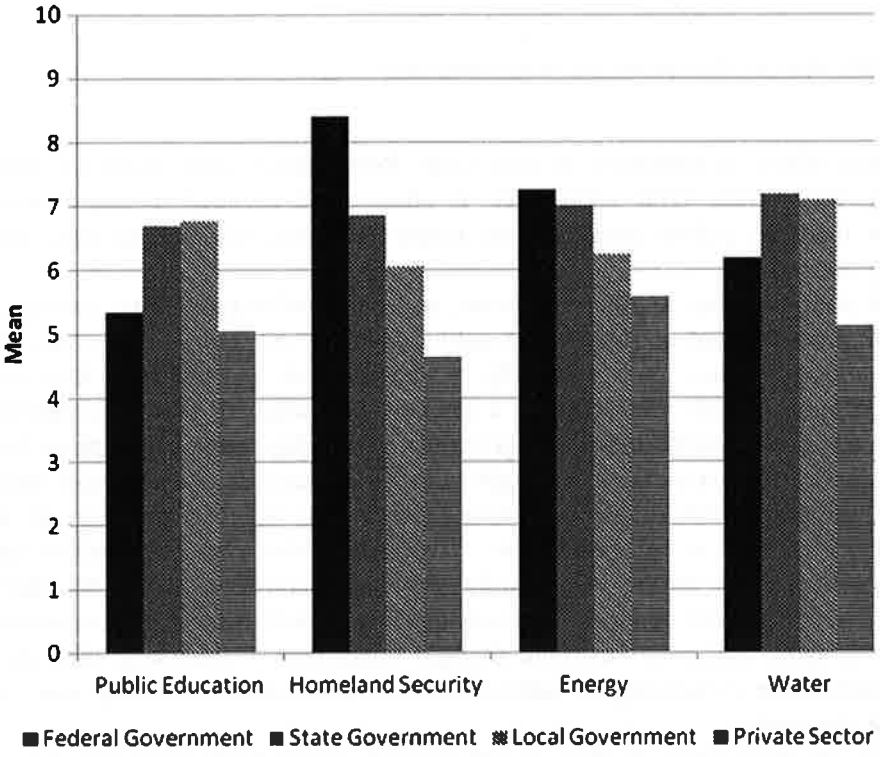

Fig. 2 Comparing perceptions of responsibility for water policy against other policy domains

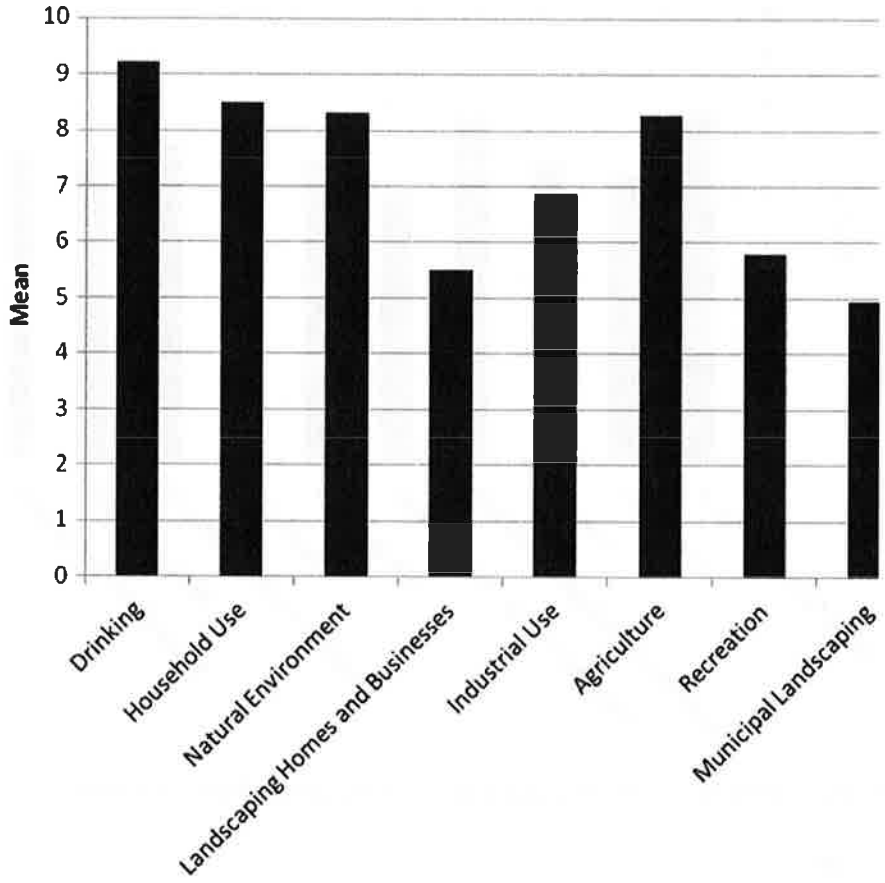

Fig. 3 Public views on the importance of various water uses

importance when conservation is necessary. Respondents also disagreed with cities diverting water from rural areas even if cities were in need of more water. This suggests that the public would much rather conserve water than risk negatively affecting agriculture.

Is the public willing to conserve water, and under what conditions are they willing to do so? Also depicted in Table 1, the public generally recognizes that issues related to water availability affect them personally, which suggests that this is at least somewhat salient to them, which may indicate a greater likelihood of action. Interestingly, on average, the public would rather the government mandate water restrictions than leave it up to them to act responsibly through voluntary measures, even though they generally believe that conservation is not inconvenient. This suggests that they do not trust their fellow citizens to act responsibly. The results also show that when framed in several manners, the public is generally willing to conserve water. Specifically, on average, the public will conserve to lower their water bill, protect the environment, for agricultural uses, and under extreme drought conditions. Conversely, they are almost evenly divided on conserving for industrial uses, with the public barely more likely to conserve than not.

Finally, to place these in their proper context, respondents were asked to identify what they believe to be the most important water related issue. The results of this

Table 1 Public perceptions of water availability and willingness to conserve water

	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree	Mean
There is enough water in my state to meet current needs	4.17	13.87	25.57	44.11	12.28	2.46
There is enough water in my state to meet future needs	6.79	17.99	35.01	31.50	8.70	2.17
In water planning, the economy is more important than the environment	11.16	30.91	39.70	14.39	3.85	1.68
Water conservation for fish/wildlife habitat and economic growth are equally important	1.98	10.08	31.60	44.63	11.71	2.54
Cities should be able to divert water from rural areas if they need more water	8.41	26.41	41.72	20.41	3.04	1.83
The issues related to the conservation and availability of water do not affect me	26.29	37.23	26.52	7.42	2.54	1.11
Household water restrictions should be voluntary rather than mandated by the government	8.10	28.00	34.06	21.51	8.33	1.93
Making efforts to conserve water is inconvenient	10.63	40.38	28.00	18.77	2.22	1.61
I am willing to conserve water to lower my water bill	0.97	2.83	21.08	55.28	19.84	2.90
I am willing to conserve water to protect the environment	1.09	3.75	20.37	54.61	20.18	2.89
I am willing to conserve water for industrial uses	4.60	19.72	47.31	24.28	4.09	2.03
I am willing to conserve water for agricultural uses	1.13	4.49	28.09	53.14	13.15	2.72
I am willing to conserve water under extreme drought conditions	0.62	1.13	11.15	43.50	43.61	3.28

Values are percentages, except the mean. The mean is calculated using a coding scheme from 0 (strongly disagree) to 4 (strongly agree)

question are illustrated in Fig. 4. The results show that 20.64 % of the public believes water distribution, or providing enough water, is the most important issue. 34.68 % of respondents indicated that they believe water quantity, or drought, is the most important issue. Finally, 44.69 % feel that water quality/pollution is the most important issue. Clearly, the public is more concerned about water quality than quantity or, not surprisingly, distribution.

3.2 Drought Opinions

Having placed water attitudes in their proper context, public perceptions on droughts are now considered. Given the likelihood of increased frequency and intensity (e.g. Intergovernmental Panel on Climate Change 2007), droughts are likely to become a greater water management concern.

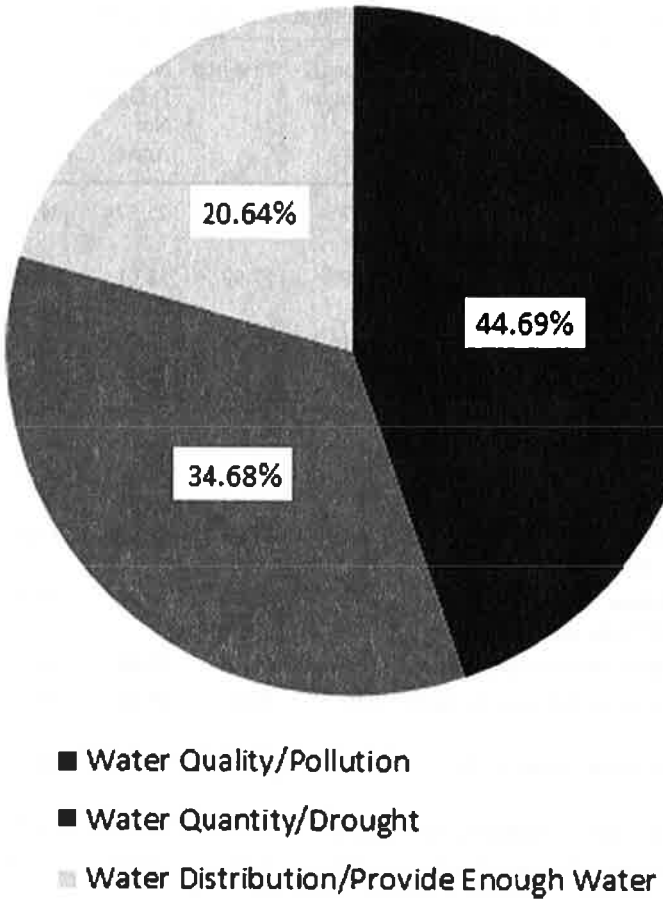

Fig. 4 The most important water related issue

A necessary step toward gaining public support is to ensure that they are properly informed on the issue. Studies regularly indicate that knowledge is an essential component of the problem solving process (e.g. Hmelo-Silver 2004). Delli Carpini and Keeter (1996) argued that knowledge influences the quality of the public's debate and resulting policy suggestions on a given issue. Ostrom (2007) argued that imperfect information results in the increased likelihood of selecting improper strategies to solve a problem.

This project analyzed how closely public attitudes mirror those outlined by the Intergovernmental Panel on Climate Change (2007). Does the public believe droughts are becoming more common and more severe? Table 2 presents the results of two questions to

Table 2 Public perceptions on drought occurrence and severity

	Less	Same	More	Mean
Are droughts in your region becoming more common, less common, or continuing to occur at the same rate?	7.42	61.72	30.86	1.23
Are droughts in your region becoming more severe, less severe, or continuing to occur with the same severity?	8.04	68.30	23.66	1.15

Values are percentages, except the mean. The mean is calculated using a coding scheme from 0 (Less) to 2 (More)

ascertain these positions. The majority of the public believes that droughts are just as frequent and severe as they have always been. However, a substantial minority, 30.86 %, do believe droughts are more common, and 23.66 % believe they are more severe.

Droughts have also been linked to several water related risks. To what extent does the public recognize the likelihood of these risks as a result of drought? Respondents were asked to evaluate the likelihood of eight drought related risks, which can be found in Table 3. The results show that the public is, on average, largely unsure about the likelihood of three drought related risks—disruption of water supplies, loss of recreational activities, and reduced water quality. The public views the remaining five risks—increased food prices, increased water prices, damage to animal and plant species, increased fires, and increased water user conflicts—on average, as likely. In particular, the public recognizes that when droughts occur, food and water prices increase.

3.3 Government Response to Drought

Ultimately, it is the responsibility of government to prepare and/or respond to drought conditions. As noted, public support is a necessary component for government action. What actions then, will the public support?

The first step toward understanding the public's preferences for government response is to determine which water user should be the first to conserve when the water supply shrinks. As illustrated in Fig. 5, a plurality, 35.81 % of the public, believes that they, themselves, should be the first to reduce water use when faced with a drought. In a close second, 31.84 % of the public feels that industry should be the first to reduce water use. Interestingly, despite viewing municipal landscapes as being the least important use of water (see Fig. 3), only 28.27 % of the public believes cities should decrease their water usage first. Finally, consistent with several previous question batteries, only 4.08 % of respondents feel that agriculture should be the first to reduce their water use.

When faced with a drought, cities are often limited in their range of potential responses unless they have planned well. What actions will the public support in response to a short-term drought? Fig. 6 presents the public's favorability toward four potential strategies. The public is

Table 3 Public perceptions of the likelihood of drought risks

	Very Unlikely	Somewhat Unlikely	Unsure	Somewhat Likely	Very Likely	Mean
Disruption of water supplies	8.71	17.61	43.92	23.05	6.72	2.01
Increased food prices	3.54	4.32	22.21	39.75	30.18	2.88
Increased water costs	4.70	5.87	25.33	38.69	25.41	2.74
Loss of recreational activities	7.99	17.93	40.47	25.18	8.42	2.08
Damage to animal and plant species	5.59	11.83	38.79	30.68	13.11	2.33
Reduced water quality	8.63	17.07	42.69	23.72	7.89	2.05
Increased fires	5.75	11.73	34.21	30.60	17.71	2.42
Increased water user conflicts	6.12	9.92	39.30	30.93	13.72	2.36

Values are percentages, except the mean. The mean is calculated using a coding scheme from 0 (very unlikely) to 4 (very likely)

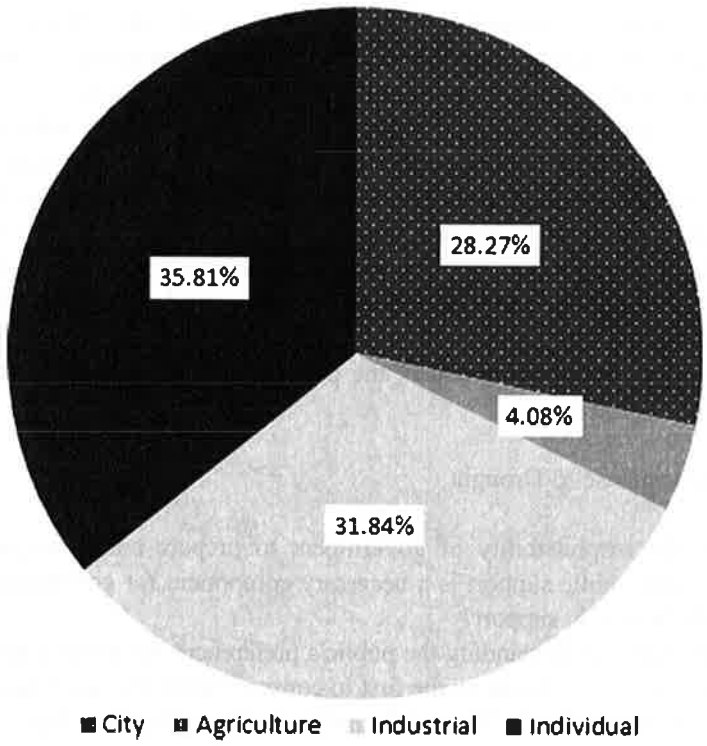

Fig. 5 Which water use should be reduced first?

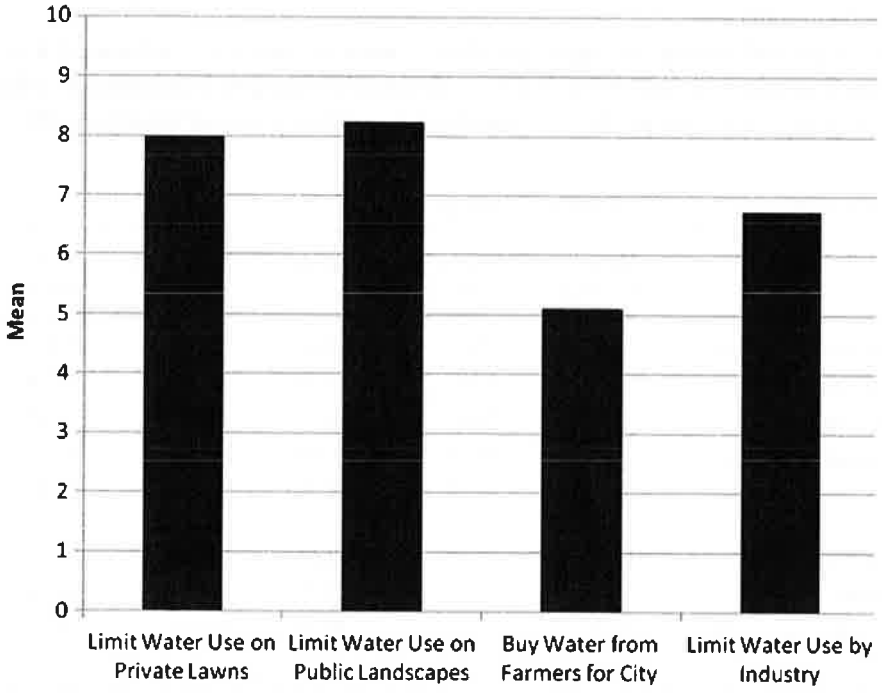

Fig. 6 Favorability of short-term drought strategies by cities

generally in favor of limiting the use of water on private and public lawns. This is also consistent with what the data shows in Fig. 3. They are also solidly in favor of limiting water use by industry. Even in short-term situations, the public is far less favorable toward diverting water from agriculture to use in a city.

It is also important to understand the public's favorability toward strategies that will prepare cities for future droughts. These results are found in Fig. 7. Overall, favorability toward these strategies is much lower than those for short-term responses. The public is generally in favor of all of these strategies except permanently transferring water from agricultural use and increasing water rates. The most popular long-term strategy is reusing treated waste water for landscaping, followed closely by requiring water conservation. The public is much more divided, but still generally supportive, in terms of the other strategies—limiting urban sprawl, building dams and reservoirs, and piping water from other regions.

Previously discussed strategies were framed in terms of city drought responses. It is possible respondents were not in favor of cities taking responsibility for these projects. Therefore, strategies were framed in terms of policy options not associated with any particular level of government, except for one that is framed with the national government. Will the public support or oppose adopting policies to deal with water issues?

The results of the policy support battery can be found in Table 4. Generally, the public is supportive of all the policy alternatives. The public most strongly supports a policy that would protect some water resources to preserve wildlife and fishery habitats. There is also fairly strong support for policies that require lawn watering using reclaimed/reused water instead of drinking water, that give tax incentives for the installation of water-saving equipment, that conduct campaigns for voluntary water conservation, and that require low water use landscaping. The public is also more supportive than not for building infrastructure to support water demand during droughts, providing tax cuts to

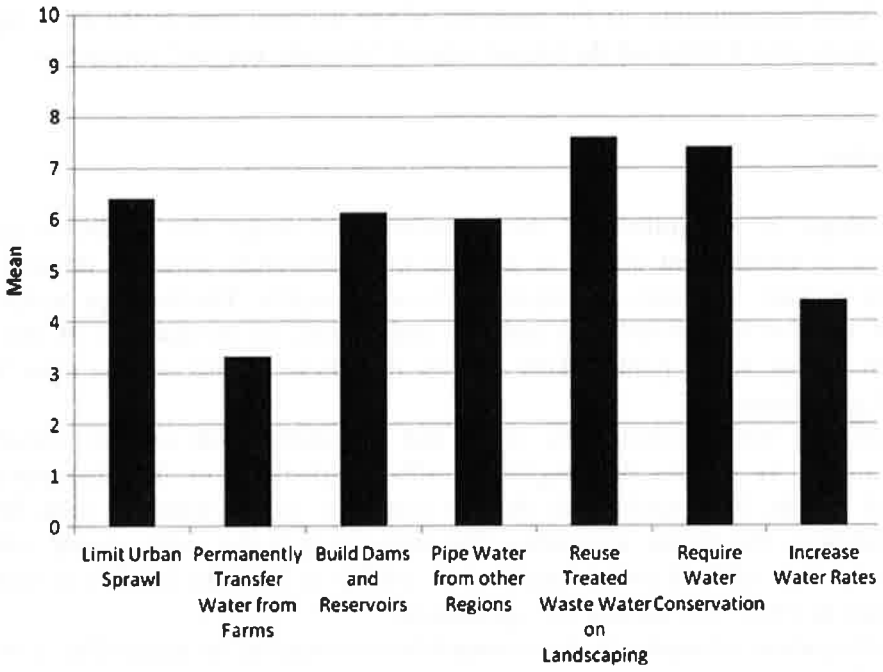

Fig. 7 Favorability of future drought strategies by cities

Table 4 Public support for water policy proposals

	Strongly Oppose	Oppose	Unsure	Support	Strongly Support	Mean
Build infrastructure (dams, reservoirs, pipelines) to support water demands during a drought	1.54	5.48	34.67	45.05	13.25	2.62
Conduct campaigns for voluntary water conservation	1.70	3.36	30.71	49.33	14.90	2.72
Require mandatory water conservation	4.31	13.92	39.36	32.99	9.41	2.29
Give tax incentives for the installation of water-saving equipment	1.78	4.46	25.71	49.80	18.25	2.78
Develop a comprehensive national plan for allocating water across state borders	5.89	9.45	45.65	30.28	8.74	2.26
Provide state tax cuts to companies that reduce their water use	2.76	6.55	32.12	47.87	10.69	2.57
Require low water use landscaping	2.14	6.61	26.48	47.19	17.58	2.71
Protect some water resources to preserve wildlife and fishery habitats	0.83	2.57	23.10	51.54	21.96	2.91
Require that lawn watering use reclaimed/reused water instead of drinking water	1.86	4.62	28.07	42.91	22.54	2.79

Values are percentages, except the mean. The mean is calculated using a coding scheme from 0 (strongly oppose) to 4 (strongly support)

companies to reduce their water use, requiring mandatory water conservation, and developing a comprehensive national plan for allocating water across state borders. The public is consistent in its belief that the federal government is less responsible than state or local governments, as the proposal of the national plan is the least supported policy option, and it received the largest rate of "strongly oppose" responses.

4 Discussion

First, perhaps in recognition of the importance of water, the public is generally supportive of government efforts to manage water resources during a drought and to put plans in place to reduce the impact of future droughts. The findings indicate quite a bit of support for government policies and action. In recognition of the results presented in Fig. 2, the public likely expects that these actions will be done by state or local governments.

Second, the results consistently show that the public will support virtually any effort so long as it does not negatively affect agriculture or the environment. As presented in Fig. 5, agriculture is the last place the public wants to look for water supply savings. The public recognizes that disruptions in the water supply will likely increase the cost of food and is much more willing to bear the burden of conserving water than to place this burden on agriculture.

A similar pattern is found with views toward the environment. As seen in Fig. 3, the public identifies the natural environment as the third most important use of water. In fact, its mean was slightly larger than that for agriculture (8.32 and 8.28, respectively). The public

generally believes that fish and wildlife habitats are just as important as the economy when considering water conservation (Table 1). Individual respondents were also highly likely to agree or strongly agree (74.79 %) that they would conserve water to protect the environment (Table 1). The results show that the public recognizes that droughts are likely to damage animal and plant species (Table 3). Finally, 73.50 % of the respondents support or strongly support a policy that would protect some water resources to preserve wildlife and fishery habitats (this was also the most supported policy proposal). It appears the public wants to protect the environment from water shortage issues even if that means they are forced to conserve water to do so.

Third, public attitudes toward voluntary or mandatory conservation are inconsistent. The public is generally in favor of the government requiring conservation. However, the public would rather support a policy that conducts a campaign for voluntary conservation than a policy that mandates conservation. Additionally, the public seems more comfortable with a mandate if it comes from their city.[4]

Fourth, the level of support for recycling waste water for irrigation purposes is somewhat surprising. The results show that the public is quite supportive of recycling water and sees this as one of the best ways to limit the impact of future droughts (Fig. 7), which is consistent with examinations of acceptance in Australia (e.g. Dolnicar and Schäfer 2009). While the survey questions focused on using the recycled water for irrigation purposes, it is not clear how well the public would support using this water for potable uses, though Marks et al. (2006) found that Australians prefer using recycled water for non-potable purposes.

Finally, it appears that if a city or state government wants/needs to act to preserve its water supply, the public will generally be supportive of their actions. That said, according to the results presented in Table 1, the government will need to explain why a given action is necessary. Certainly, if it is in response to a severe drought, the public will follow. In non-drought conditions, it appears as though the public will support water management projects if they protect the environment or agriculture assets.

5 Conclusion

The findings presented here illustrate clearly that citizen attitudes about drought-related concerns are robust and related to their policy choices in this content area. Citizen understanding of scientific findings, their assessments of risk, and their personal and political decisions are an important context within which local, state and national decisions and resource allocations on water issues will be made. Understanding this context is important for decision makers in framing policies, selecting implementation strategies and providing citizen education opportunities. Additionally, this context may shed light on the nature of water conflicts in the United States (see Gunasekara et al. 2014) and other water management issues facing the country (e.g. Deitch et al. 2013; Mays 2013).

[4] Both variables were rescaled to make their scales from 0 to 40. The long-term city strategy was originally coded from 0 to 10, so we multiplied each observation by 4. The un-named policy was originally coded 0 to 4, so each observation was multiplied by 10. Using a *T*-Test, the means of the two measures were compared and the difference between the two was statistically significant ($p<0.0000$). This indicates that the support for the city strategy is significantly higher than support for the un-named policy.

Appendix A

Table 5 Descriptive statistics

	Survey 1	Survey 2	Combined
Gender			
Male	50.34	47.83	49.09
Female	49.66	52.17	50.91
Education			
Less than High School	7.77	9.38	8.57
High School	29.70	28.76	29.23
Some College	30.31	29.44	29.88
Bachelor's Degree or Higher	32.22	32.42	32.32
Race			
White	76.77	75.97	76.37
Black	6.70	8.31	7.51
Hispanic	10.59	10.37	10.48
Multiracial	3.35	3.05	3.20
Other	2.59	2.29	2.44
Age			
18–24	9.60	7.86	8.73
25–34	14.17	14.87	14.52
35–44	14.93	14.65	14.79
45–54	18.51	17.24	17.87
55–64	20.56	22.43	21.49
65–74	15.84	16.02	15.93
75+	6.40	6.94	6.67
Income			
Less than $15,000	8.39	8.63	8.51
$15,000–$29,999	12.03	13.80	12.92
$30,000–$49,999	18.74	18.76	18.75
$50,000–$74,999	18.74	19.99	19.36
$75,000–$99,999	15.00	14.80	14.9
$100,000–$149,999	18.51	16.48	17.49
More than $150,000	8.61	7.55	8.08
Party Identification			
Democrat	34.35	36.08	35.21
Republican	30.39	28.07	29.23
Independent	31.30	32.34	31.82
Number of Observations	1,313	1,311	2,624

All values are percentages

Appendix B

Table 6 Variable definitions

	Question Wording	*n*
Figure 1		
Battery Prompt	"On a scale from 0 to 10, with 0 indicating not at all concerned and 10 indicating extremely concerned, how concerned are you about each of the following issues?"	
Jobs & Economic Growth	"Jobs and economic growth"	2604
Immigration	"Immigration"	2589
Pollution	"Pollution"	2600
Government Spending & National Debt	"Government spending/national debt"	2605
Global Warming & Climate Change	"Global warming and climate change"	2606
Energy Supply	"Energy supply"	2599
Health Care	"Health care"	2598
Terrorism & National Security	"Terrorism and national security"	2603
The Environment	"The environment"	2583
Water Quality & Availability	"Water quality and availability"	2601
Figure 2		
Public Education Battery Prompt	"Different levels of government claim responsibility for specific policy areas. Using the following 0 to 10 scale with 0 being Not at all Responsible and 10 being Completely Responsible please indicate which group you believe should be responsible for managing public education policy."	
Federal Government	"Federal Government"	2579
State Government	"State Government"	2579
Local Government	"Local Government"	2584
Private Sector	"Private Sector"	2579
Homeland Security Battery Prompt	"Different levels of government claim responsibility for specific policy areas. Using the following 0 to 10 scale with 0 being Not at all Responsible and 10 being Completely Responsible please indicate which group you believe should be responsible for managing homeland security policy."	
Federal Government	"Federal Government"	2555
State Government	"State Government"	2537
Local Government	"Local Government"	2540
Private Sector	"Private Sector"	2541
Energy Battery Prompt	"Different levels of government claim responsibility for specific policy areas. Using the following 0 to 10 scale with 0 being Not at all Responsible and 10 being Completely Responsible please indicate which group you believe should be responsible for managing energy policy."	
Federal Government	"Federal Government"	2567
State Government	"State Government"	2561
Local Government	"Local Government"	2556

Table 6 (continued)

	Question Wording	*n*
Private Sector	"Private Sector"	2564
Water Battery Prompt	"Different levels of government claim responsibility for specific policy areas. Using the following 0 to 10 scale with 0 being Not at all Responsible and 10 being Completely Responsible please indicate which group you believe should be responsible for managing water policy."	
Federal Government	"Federal Government"	2571
State Government	"State Government"	2577
Local Government	"Local Government"	2577
Private Sector	"Private Sector"	2573
Figure 3		
Battery Prompt	"On a scale from 0 to 10, with 0 indicating Not at all Important and 10 indicating Extremely Important, rate how important each of the following water uses is to you?"	
Drinking	"Water for drinking"	2588
Household Use	"Water for household use (e.g. showers, laundry, and toilets)"	2586
Natural Environment	"Water for the natural environment such as fish and wildlife habitat"	2579
Private Landscaping	"Water for landscaping homes and businesses"	2586
Industrial Use	"Water for industrial use (e.g. manufacturing, mining and energy generation)"	2588
Agriculture	"Water for agriculture (e.g., crops and livestock)"	2579
Recreation	"Water for recreation (e.g., pools and boating)"	2580
Municipal Landscaping	"Water for municipal landscaping (e.g., parks and golf courses)"	2591
Table 1		
Battery Prompt	"Please indicate whether you Strongly Disagree, Disagree, Neither Disagree Nor Agree, Agree, or Strongly Agree with each of the following statements."	
Water to Meet Current Needs	"There is enough water in my state to meet current needs."	2589
Water to Meet Future Needs	"There is enough water in my state to meet future needs."	2562
Economy vs. Environment	"In water planning, the economy is more important than the environment."	2572
Fish/Wildlife vs. Economy	"Water conservation for fish/wildlife habitat and economic growth are equally important."	2570
Cities Divert from Rural Areas	"Cities should be able to divert water from rural areas if they need more water."	2567
Conservation Affects Me	"The issues related to the conservation and availability of water do not affect me."	2560
Voluntary Conservation	"Household water restrictions should be voluntary rather than mandated by the government."	2557
Conserve: Inconvenient	"Making efforts to conserve water is inconvenient."	2568
Conserve: Lower Water Bill	"I am willing to conserve water to lower my water bill."	2576
Conserve: Environment	"I am willing to conserve water to protect the environment."	2562
Conserve: Industrial Use	"I am willing to conserve water for industrial uses."	2566
Conserve: Agriculture	"I am willing to conserve water for agricultural uses."	2563

Table 6 (continued)

	Question Wording	*n*
Conserve: Drought Conditions	"I am willing to conserve water under extreme drought conditions."	2575
Figure 4		
Most Important Water Issue	"What do you think is the most important water related issue in your state?" 1) "Water Quality/Pollution;" 2) "Water Quantity/Drought in areas;" 3) "Water Distribution/Provide enough water to all users"	2578
Table 2		
Drought Frequency	"Are droughts in your region becoming more common, less common, or continuing to occur at the same rate?"	1753
Drought Severity	"Are droughts in your region becoming more severe, less severe, or continuing to occur with the same severity?"	1754
Table 3		
Battery Prompt	"How likely are the following drought impacts to occur in your region in the next five years?" Very Unlikely, Somewhat Unlikely, Unsure, Somewhat Likely, or Very Likely	
Disruption of Water Supply	"Disruption of Water Supply"	2573
Increased Food Prices	"Increased Food Prices"	2571
Increased Water Costs	"Increased Water Costs"	2574
Loss of Recreational Activities	"Loss of Recreational Activities"	2577
Damage to Animals & Plants	"Damage to Animal and Plant Species"	2578
Reduced Water Quality	"Reduced Water Quality"	2572
Increased Fires	"Increased Fires"	2575
Increased Water Use Conflicts	"Increased Water Use Conflicts"	2580
Figure 5		
Which Use Should be Reduced First	"Which of the following water uses should be reduced first to lessen the impacts of drought?" 1) "City use;" 2) "Agricultural use;" 3) "Industrial use;" or 4) "Individual use"	2575
Figure 6		
Battery Prompt	"During times when water availability is limited due to a short–term drought (lasting less than two years), a city may adopt several strategies to ensure it has enough water. Please rate the strategies that a city might consider on a scale of 0 to 10 with 0 being Not Favored by you and 10 being Highly Favored by you."	
Limit Use on Private Lawns	"Limiting water use on private lawns"	2582
Limit Use on Public Lawns	"Limiting water use on public landscapes"	2579
Buy Water from Farmers	"Buying water from farmers to use in cities"	2576
Limit Water Use by Industry	"Limiting water use by industry"	2579
Figure 7		
Battery Prompt	"Increasing population means that cities will need more water for the long run (more than 10 years in the future). Listed below are several possible strategies that a city might consider to ensure adequate water supplies in the future. Please rate the strategies on a scale of 0 to 10	

Table 6 (continued)

	Question Wording	*n*
	with 0 being Not Favored by you and 10 being Highly Favored by you."	
Transfer Water from Farms	"Permanently transferring water from farms to the city"	2570
Build Dams & Reservoirs	"Building dams and reservoirs"	2565
Pipe Water	"Constructing pipelines to bring water from other regions"	2567
Reuse Treated Waste Water	"Reusing treated waste water on lawns and landscapes"	2567
Require Conservation	"Requiring water conservation"	2565
Limit Urban Sprawl	"Limiting urban sprawl"	2559
Increase Water Rates	"Increasing water rates"	2564
Table 4		
Battery Prompt	"A number of policy options have been proposed to manage water resources. Please indicate whether you Strongly Oppose, Oppose, Support, or Strongly Support each of the following options." Respondents were also allowed to choose "Unsure."	
Build Infrastructure	"Build infrastructure (dams, reservoirs, pipelines) to support water demands during a drought"	2535
Voluntary Conservation	"Conduct campaigns for voluntary water conservation"	2530
Require Conservation	"Require mandatory water conservation"	2528
Tax Incentives	"Give tax incentives for the installation of water-saving equipment"	2532
Comprehensive National Plan	"Develop a comprehensive national plan for allocating water across state borders"	2530
State Tax Cuts	"Provide state tax cuts to companies that reduce their water use"	2534
Low Water Use Landscaping	"Require low water use landscaping"	2526
Protect Wildlife & Fish Habitat	"Protect some water resources to preserve wildlife and fishery habitats"	2532
Reuse Treated Waste Water	"Require that lawn watering use reclaimed/reused water instead of drinking water"	2533

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Cash, Tim

From: Nguyen, Kathy <Kathy.Nguyen@cobbcounty.org>
Sent: Monday, June 02, 2014 1:21 PM
To: Cash, Tim
Cc: 'Chris'; Joy Hinkle; 'Marilyn.Hall@athensclarkecounty.com'; Pam Burnett; 'Jack Dozier'; 'Heather.Moody@gwinnettcounty.com'; Tom Shannon; 'Brian.Skeens@CH2M.com'
Subject: GWWC Drought Rule Update Comments
Attachments: 2014 Drought Rule Comments (GWWC) (2).docx

Tim,

Georgia Water Wise Council (GWWC) appreciates the opportunity to provide initial comments on the drought rule update process. As you know GWWC has a diverse membership of water and green industry professionals as well as NGOs. These comments reflect key points that our diverse stakeholders agree are crucial. If you have any questions or require any clarification I am happy to speak with you or you can contact our Chair, Chris Butts at chris@ggia.org.

Thank you again for the opportunity to participate in this important process for the state of Georgia. GWWC looks forward to working on this project as it moves toward completion.

Kathy Nguyen
Senior Project Manager
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Mr. Tim Cash
Georgia Environmental Protection Division
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May 30, 2014

Mr. Cash:

The Georgia Water Wise Council (GWWC) is a Section of the Georgia Association of Water Professionals, which brings water industry and green industry professionals, as well as Environmental NGOs together to promote sound water efficient policy and practices in Georgia. We are pleased to have the opportunity to provide some comments that are supported by our diverse membership regarding the current process to update Georgia's Drought Rules. We recognize that the staff of GAEPD has been given a difficult task to accomplish, incorporating so many varying interests with an overriding goal of preserving economic viability and natural resources simultaneously, in the event of a resource emergency. We also recognize EPD's staff constraints and the tight timeline that has been outlined.

GWWC convened a conference call with representatives of all of our member categories to discuss drought planning and come to a consensus on some key considerations we feel will make the drought plan stronger. First, we would strongly encourage EPD to ensure communication channels remain open and inclusive of the many interested and affected stakeholders during the rule update process. Many of the call participants had not been included in initial communications about the drought rule revision. The drought rule will be stronger if the stakeholders are a part of the process and their sector specific knowledge is utilized to make a realistic and enforceable plan.

Georgia is fortunate that many states have gone before us and have updated drought rules and plans. Recently the National Drought Mitigation Center has updated their website to include a drought resource planning by state webpage. This makes researching other state's plans much easier. The resource can be found at: http://drought.unl.edu/Planning/PlanningInfobyState.aspx. GWWC strongly recommends the EPD review some of the recent updates to drought plans, for example Texas, when preparing Georgia's draft drought rules. Some of these plans have a comprehensive system of climatic and hydrological triggers that are incorporated into their plans, and may serve to inform Georgia's process of determining appropriate triggers.

The Drought Response Committee is essential to the successful evaluation and declaration process during a drought. GWWC recommends the structure of the drought response committee be reevaluated during the rule update. We would recommend a committee with regional representation, based upon watersheds or river basins rather than political jurisdictions. This regional representation is consistent with state water planning and would result in more accurate declarations. We would also recommend that the committee reflect the sectors affected by drought in each region. We realize this might make the committee more difficult for EPD to convene and manage but there are options. If drought is only affecting a portion of the state only those representing the affected area would need to participate. If the entire committee needed to be convened then a conference call with some web based meeting application would be a viable option.

Drought Response strategies should be clearly defined and should apply to the basin or watershed affected, and not delineated solely along political boundaries. Additionally, all stakeholders should be taken into account by the drought response plan, including power generation, industrial permittees, and agriculture, as well as the municipal sector. The resources affected by drought are shared resources and therefore, preserving them during drought is a shared responsibility. The past drought rules placed all of the plan implementation and mitigation strategies solely upon municipal providers and those that depend upon municipal supply. This causes a disproportionate amount of harm to those entities, while not providing a comprehensive resource-wide response strategy.

Regarding the drought triggers, GWWC would again recommend reviewing examples from other states. In addition, it is important that the triggers are evaluated on a timely basis. The prompt evaluation, coupled with climate projections, can be utilized to make drought declaration decisions. Ideally the review process would allow for an advanced notification system that would allow the affected communities to prepare information and implement mitigation strategies and drought level plans prior to the level being implemented. In the past the committee has convened and the drought level has been activated immediately. We would recommend that during times of decreased rainfall the triggers are closely monitored allowing drought levels to be predetermined, with enough time to permit communication about the conditions and the results. This might be a one-three week window, depending upon conditions. Advanced notice would also give those systems seeking a variance time to apply in advance to lessen the confusion of implementing two separate levels in their area within a few weeks. When considering triggers we would also recommend evaluating the triggers for stepping back drought levels after the crisis. In the previous plan it required all triggers to be in the normal range for three consecutive months. When drafting new rules perhaps consideration could be given to a more incremental improvement process that results in levels being partially stepped back.

GWWC does understand variances are needed and some flexibility is required in the drought plan. We would recommend that the variance procedure is spelled out, both what is required to gain a variance and what is allowed within the variance. Though we understand that this is necessary, we would recommend that there is a need for some consistency within the process. It is a challenge for those who depend upon municipal supply for their business activities to have significantly different restrictions "across the street "from each other.

Lastly GWWC feels strongly that communication of the drought plan, drought declarations, and the current drought status and impacts should be more robust. Perhaps EPD could identify a few key people in each region to communicate about drought. The notification process for drought declaration needs to be formalized. More advanced notice before triggering the response would allow for this process to occur. GWWC is unique because of the varied perspectives represented within the organization. We would be willing to assist EPD with drought communications. As the state-wide organization representing conservation and efficiency in the state and with our varied participation, as well as our position within the Georgia Association of Water Professionals, we are an available resource to EPD on this issue and are willing and prepared to assist.

Again we appreciate and value the opportunity to be able to participate in this vital process.

Sincerely,

The Georgia Water Wise Council

Cash, Tim

From: Nguyen, Kathy <Kathy.Nguyen@cobbcounty.org>
Sent: Monday, June 02, 2014 1:21 PM
To: Cash, Tim
Cc: 'Chris'; Joy Hinkle; 'Marilyn.Hall@athensclarkecounty.com'; Pam Burnett; 'Jack Dozier'; 'Heather.Moody@gwinnettcounty.com'; Tom Shannon; 'Brian.Skeens@CH2M.com'
Subject: GWWC Drought Rule Update Comments
Attachments: 2014 Drought Rule Comments (GWWC) (2).docx

Tim,

Georgia Water Wise Council (GWWC) appreciates the opportunity to provide initial comments on the drought rule update process. As you know GWWC has a diverse membership of water and green industry professionals as well as NGOs. These comments reflect key points that our diverse stakeholders agree are crucial. If you have any questions or require any clarification I am happy to speak with you or you can contact our Chair, Chris Butts at chris@ggia.org.

Thank you again for the opportunity to participate in this important process for the state of Georgia. GWWC looks forward to working on this project as it moves toward completion.

Kathy Nguyen
Senior Project Manager
Cobb County Water System
770-419-6244

Georgia WaterWise Council
www.gwwc.org
A SECTION OF THE GEORGIA ASSOCIATION OF WATER PROFESSIONALS

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Mr. Tim Cash
Georgia Environmental Protection Division
Floyd Towers East
2 Martin Luther King Jr. Dr. SE
Atlanta, GA 30334

May 30, 2014

Mr. Cash:

The Georgia Water Wise Council (GWWC) is a Section of the Georgia Association of Water Professionals, which brings water industry and green industry professionals, as well as Environmental NGOs together to promote sound water efficient policy and practices in Georgia. We are pleased to have the opportunity to provide some comments that are supported by our diverse membership regarding the current process to update Georgia's Drought Rules. We recognize that the staff of GAEPD has been given a difficult task to accomplish, incorporating so many varying interests with an overriding goal of preserving economic viability and natural resources simultaneously, in the event of a resource emergency. We also recognize EPD's staff constraints and the tight timeline that has been outlined.

GWWC convened a conference call with representatives of all of our member categories to discuss drought planning and come to a consensus on some key considerations we feel will make the drought plan stronger. First, we would strongly encourage EPD to ensure communication channels remain open and inclusive of the many interested and affected stakeholders during the rule update process. Many of the call participants had not been included in initial communications about the drought rule revision. The drought rule will be stronger if the stakeholders are a part of the process and their sector specific knowledge is utilized to make a realistic and enforceable plan.

Georgia is fortunate that many states have gone before us and have updated drought rules and plans. Recently the National Drought Mitigation Center has updated their website to include a drought resource planning by state webpage. This makes researching other state's plans much easier. The resource can be found at: http://drought.unl.edu/Planning/PlanningInfobyState.aspx. GWWC strongly recommends the EPD review some of the recent updates to drought plans, for example Texas, when preparing Georgia's draft drought rules. Some of these plans have a comprehensive system of climatic and hydrological triggers that are incorporated into their plans, and may serve to inform Georgia's process of determining appropriate triggers.

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Again we appreciate and value the opportunity to be able to participate in this vital process.

Sincerely,

The Georgia Water Wise Council

Cash, Tim

From: tara brown <tara.brown@hcwsa.com>
Sent: Tuesday, June 03, 2014 3:12 PM
To: Cash, Tim
Cc: tony carnell; scott sage
Subject: Comments on Modifications to Drought Management Rule
Attachments: Comments on Drought Mgmt Rule 2014.pdf

Mr. Cash,

On behalf of the Henry County Water Authority, please take the attached comments into consideration.

Feel free to contact me with any questions.

Thanks,

Tara Brown
Environmental Compliance Coordinator
Henry County Water Authority
100 Westridge Industrial Blvd
McDonough, Georgia 30253
Office: (678) 583-3810

Henry County Water Authority

Engineering Department
100 Westridge Industrial Blvd.
McDonough, GA 30253
(770) 914-3688 (770) 914-3359 Fax

June 2, 2014

James A. Capp
Chief, Watershed Protection Branch, EPD
2 Martin Luther King Jr. Drive, Suite 1152 East
Atlanta, GA 30334

RE: Comments on Drought Management Rule

Dear Mr. Capp:

As a stakeholder, Henry County Water Authority appreciates the opportunity to provide comments on possible modifications to the Drought Management Rule. The Henry County Water Authority may have a slightly different opinion to drought management than some utilities in the metro Atlanta area. As you may know, HCWA has incurred a substantial amount of debt in order to build an extensive system of reservoirs that are independent of water withdrawals from the Chattahoochee basin.

During past periods of drought, multiple rule changes were made that confused our consumers. The rules tend to be fairly complex and difficult for both the public and the regulated community to follow and understand. They also require a substantial amount of administration that neither the State EPD nor local water systems have the resources to administer.

Previous state-mandated restrictions and water reductions not only impacted HCWA, but also had a substantial financial and operational impact on local businesses during 2007-2009. While having an ample water supply, it was often challenging to enforce mandated water restrictions and communicate with businesses such as landscapers and nursery owners. These businesses had already incurred financial burdens with the downfall of the economy, and were subsequently pleading with HCWA not to enforce restrictions that could have essentially put them out of business.

HCWA also has concerns about additional reporting requirements. From past experiences, these tend to be cumbersome. Additionally, the possibility of the State utilizing information from the reports to assess punitive fees for failure to meet targets is disconcerting.

HCWA strives to maintain compliance with all EPD rules and requirements and will continue to be committed to fostering water conservation in our county. However, it is the opinion of HCWA that consideration be given to those who have gone to great expense to effectively plan and implement a way to manage drought conditions and comments be considered during the drafting of the new Drought Management Rule.

Sincerely,

Tony V. Carnell

Tony V. Carnell, P.E.
Engineering Division Manager
Henry County Water Authority

Cash, Tim

From: Metro Water District Chairman <chairman@northgeorgiawater.com>
Sent: Tuesday, June 03, 2014 4:37 PM
To: Cash, Tim
Cc: Katherine Zitsch; Danny Johnson; Bennett Weinstein
Subject: Drought Management Rule – Stakeholder Meeting #1
Attachments: District Input on EPD Drought Rule Concepts_6.3.14.pdf

Mr. Cash:
Please find attached the Metropolitan North Georgia Water Planning District's input on EPD's drought management rule concepts.

The District looks forward to continuing its work with EPD during the development of the draft drought rule.

Thank you for your consideration of these comments.

Sincerely,

Mayor Boyd Austin
District Chair

James A. Capp
Chief, Watershed Protection Branch, EPD
2 Martin Luther King Jr. Drive, Suite 1152 East
Atlanta, Ga 30334

June 3, 2014

Re: Drought Management Rule – Stakeholder Meeting #1

Dear Mr. Capp:

Thank you for the opportunity to provide input on EPD's drought management rule concepts. As you know, the Metropolitan North Georgia Water Planning District's member governments and water providers are on the front line of water stewardship and drought management and will be significantly impacted by this rule. We appreciate your consideration of these comments.

The District agrees that drought management planning is best undertaken during times of adequate rainfall like we are now experiencing. EPD should continue its deliberative approach to the development and refinement of the proposed drought rule concepts to ensure it does not lose touch with stakeholder perspective and input. The following input is provided to assist EPD as the current drought rule concepts are refined. The District looks forward to continuing its work with EPD during the development of the draft drought rule.

Drought Response Committee

EPD's concepts regarding the drought response committee lack detail, as such there are only two items upon which meaningful feedback can be provided.

First, it is unclear what it means for the drought response committee to advise on drought response strategies. The set of concepts EPD is seeking input on includes both "predrought mitigation strategies" as well as "drought response strategies." However, the materials detailing these concepts do not reflect a role for either the drought response committee or any advice it might provide the Director. Second, the concept language suggests a great deal of Director's discretion as to why and when the Director might convene such a committee not to mention what might ultimately be done with any advice the committee provides. The lack of a requirement to consult with any specific entity, much less local water providers, puts the Director at risk of missing an opportunity to systematically coordinate with those who have first hand, on the ground information.

If EPD retains the concept of a drought response committee to advise the Director, it should strive to provide adequate clarity and notice to the regulated community. To accomplish this, the rule at a minimum should clarify who sits on the committee; why and when the Director would convene the committee; and the role the committee's advice would play in the implementation of any of the strategies required by the rule.

Drought Indicators and Triggers

EPD's concepts regarding drought indicators and triggers suggest the Director would be solely responsible for monitoring drought conditions. EPD's preferred approach should instead include opportunities for meaningful consultation with water providers regarding local conditions and the potential implementation of drought triggers.

EPD's draft list of indicators and conditions appears sound, though non-exhaustive. The draft rule however, should clearly define what EPD means by the terms "climactic predictions" and "climactic indicators." In doing so EPD should avoid reliance on modeling that might not stand up to scrutiny thereby undermining the implementation of the rule.

Finally, the concept of separate droughts (i.e. meteorological vs. hydrologic vs. agricultural) requires more information and consultation with stakeholders before presenting that information in a draft rule.

Drought Declaration Process

EPD's current concept language reflects a great deal of Director's discretion regarding drought declaration. As noted above, the lack of a requirement to consult with local water providers risks the missed opportunity to systematically coordinate with those who have first hand, on the ground information. For the same reasons as noted above, if EPD is considering a rule that allows for flexibility at the local level with regard to implementing water restrictions, it makes sense to involve local officials at all steps of drought planning, especially at the outset.

The concept that a drought declaration could be based on climactic indicators or water supply conditions has merit. Likewise, a declaration that could differ by source, geography or service area is in line with the lessons learned from the last several droughts. These lessons illustrate that conditions vary based on local conditions including a system's water supply. The rule should target drought management approaches in the right places, while avoiding unreasonable restrictions on those systems not anticipated to experience the full impacts of drought.

Equally important to a sound drought declaration process is a transparent and systematic process for declaring an end to a drought and its associated restrictions. As we have seen, it takes some time for water use to rebound after a set of restrictions are put in place. Therefore, sensible drought management allows for the easing of restrictions as drought conditions diminish, with the full knowledge that water use will remain depressed for some time.

Predrought Mitigation Strategies

EPD's conceptual definition of predrought mitigation strategies are those "longer term actions implemented before drought is declared." Because existing conservation measures play such an important role in water stewardship, the rule should (as required by the Georgia Code) acknowledge the extensive investments in water efficiency implemented to date both by the District and statewide. Beyond the measures already in place, EPD should be cautious about the costs and unintended consequences associated with any new requirements. The rule should, however reflect the role of existing predrought planning, for example the drought contingency plans permittees are already required to prepare.

Applicability

We appreciate that EPD is considering the potential range of water withdrawers and providers that might be subject to updated drought requirements. Based on experience with recent droughts, the District anticipates its member governments and water providers will be significantly impacted by this rule. This is appropriate because these providers play an important role in water stewardship and drought management. However, these providers should not be the only entities subject to this rule.

All water use matters -- especially during a drought. Additionally, the location of those withdrawals and water use matters as well. Given these important factors, both the cumulative impact of non-permitted withdrawals operating below the state's permitting threshold of 100,000 gallons per day as well as uses that might be traditionally exempted should play a role in the temporary water use reductions implemented drought response.

The current lack of clarity on applicability highlights the need for EPD to continue to meaningfully engage stakeholders in the development of these concepts prior to producing a draft rule. We look forward to working with EPD in the coming months on these important matters.

Record Keeping, Reporting and Baseline

1) Record keeping and reporting

Without additional detail as to applicability of the rule and how the state intends to use the information provided, it is difficult to assess if EPD's record keeping and reporting concepts are appropriate. The rule EPD ultimately proposes should be clear as to what data is required, who is to provide it, how EPD will manage it, the limited purposes and uses of the data as well as what triggers EPD would rely on to modify the record keeping and reporting requirements. Furthermore, water withdrawal and drinking water system permittees are currently subject to multiple reporting requirements. We recommend the rule recognize, use and build on that body of knowledge prior to establishing new record keeping and reporting requirements.

2) Baseline

The District is concerned with EPD's concept of the water use baseline as presented. It appears the current concept may be better suited for consideration in context of a water conservation rule.

EPD's current water use baseline concept is problematic because in proposing a baseline based on a (presumably rolling) period immediately prior to a current drought, EPD is using a drought rule to inadvertently memorialize water use rates (and attendant water efficiencies) that occurred during the extraordinary circumstances of prior drought response. The drought rule should be focused on achieving temporary reductions to mitigate the impacts of drought, and should not seek to codify long term water use trends. To the degree those long term trends are considered, EPD should address those in the water conservation rule briefly discussed at the stakeholder meeting.

In order to identify the amount of temporary reductions needed to effectively respond to drought conditions, the baseline should reflect the time period before the last drought of record, not the period after a drought when required temporary reductions hadn't yet fully phased out. A baseline developed in this manner will be successful in avoiding the trap of hardwiring in past water use reductions intended to be temporary. A baseline appropriately conceived in this fashion might seek to establish a baseline equivalent to the highest average monthly use in the decade preceding the last drought of record. This would allow for a realistic assessment of water use and the types of reductions that would be both necessary and achievable during temporary drought response. Drought of record should be defined in the rule as the most recent period in which the Director took formal action under the rule and required temporary water use reductions to mitigate the impacts of drought.

<u>Drought Response Strategies</u>

1) Role of the "Drought Response Committee"

As noted above, if EPD moves forward with a drought response committee to advise the Director on "drought response strategies," the rule must provide adequate notice to the regulated community as to the role this advice would have on any required drought response strategies.

2) Numeric water use reductions based on drought severity level

In concept, EPD's suggestion to require specific temporary water use reductions based on drought severity is sound. However some of the details reflected in the concepts presented at the May 13th stakeholder meeting may be based on faulty assumptions, seem overly burdensome to water users and providers and as such do not represent viable strategy for responding to drought.

As explained above, EPD's baseline concept needs refinement. Any planned drought response – particularly temporary water use reductions -- based on a flawed baseline would yield requirements that are both unrealistic and unachievable. However, use of a baseline such as the alternative suggested above recognizes the temporary nature of previous drought restrictions, does not create an artificially depressed water use record and in doing so allows for achievable temporary water use restrictions.

3) Adjustment of water use reductions based on water loss audit results or viability of water supply

The concept of modifying predetermined temporary water use reductions based on demonstrated system efficiency or, if applicable, the viability of a system's water supply has some merit. This is particularly true for systems that have invested in supplies they manage or that withdraw from sources such as large rivers less susceptible to the impacts of drought. EPD should continue to advance the concept of recognizing that these types of systems must not be subject to the same types of water use restrictions as those systems that have not made similar investments.

On the other hand, EPD's concept for using the water loss audits in a drought management context needs refinement. The audits represent a promising approach to providing systems a new tool for understanding system efficiency. As improvement of the audits continues, EPD should develop and provide incentives tied to demonstrable progress on audit results for those systems investing in system efficiency.

However, there are significant limitations to using the audits in this context, primarily because they were not designed to inform the degree of temporary reductions a system should implement during a drought. For example, no water audit data exists for many water systems in Georgia because only those systems serving populations over 3,300 are subject to the requirements. Furthermore, experience using the audit software has revealed operational constraints that limit its reliability for smaller systems. Given these limitations and that EPD has not presented the results of any technical analysis indicating this tool can – and should -- be adapted ex-post facto to this new purpose, EPD should reconsider using the water loss audits for this purpose.

Even if analysis indicates this tool might be appropriately adapted to inform temporary water reductions during a drought, the audits are so new and still very much in the early stages of development that important questions exist regarding not only their utility, but also their accuracy. Obviously, any tool regardless of its presumed potential must be subject to scrutiny and refinement before risking inappropriate application. Using the results of a process as new as the water loss audits in a context for which it was not designed represents an application with significant risk of creating unnecessary burdens and costs while misguiding the important reductions needed to mitigate the impacts of drought.

4) Water use reduction measures and system flexibility to select those measures

We appreciate EPD's recognition of the role of local system flexibility in water management. EPD should continue to further refine this concept to facilitate timely implementation of temporary water use reductions in response to drought conditions.

EPD's refinement of this concept should result in a rule that clearly articulates the set of detailed water use reduction measures that a system could choose from. The rule should also provide the expected water savings associated with those practices. This approach to local system flexibility in the context of a set of state preferred approaches has several important benefits. First, it increases the likelihood that the right approaches are being taken to achieve the intended reductions. Second, it provides the

necessary transparency both water providers and their customers need to properly plan for and anticipate the actions to be taken in the event of a drought. This approach would also allow for rapid implementation (so important when it comes to drought response) because any measure actually implemented will have been subject to consideration both through the rulemaking process as well as any predrought planning the system undertakes. Finally, because this would not be an exhaustive menu of options, this recommended approach preserves EPD's apparent goal of promoting the role of local system flexibility in water management.

In lieu of articulating this type of detail in rule, which should be the preferred approach because it allows for the appropriate input from the regulated community, EPD could opt to develop guidance referenced by the rule and published concurrently with the rule that sets out those appropriate measures available to local systems. Any such guidance should also provide the expected water use reductions intended to result from the listed measures.

Variance Procedures

EPD's concept for a transparent, duly promulgated variance process for requests to both approve actions more or less stringent than required has merit. Doing so would appropriately allow for localized application of drought response strategies. Furthermore, it would provide important clarity as to how water providers might use this tool and to what ends. However, EPD's concept for a "water supply and demand analysis" needs further clarification.

As presented, requiring such a detailed technical analysis at best represents a significant burden to those providers with the resources to undertake it. For the less sophisticated providers it would simply put the attainment of a variance out of reach. As the variance concept is refined, we recommend that EPD provides more detailed information to the regulated community. EPD should provide this information prior to the release of a draft rule in order to allow for continued discussion of concepts prior to formalizing a burdensome approach without sufficient input from impacted systems.

Again, we appreciate your consideration of these comments. As noted at the outset, EPD should continue to meaningfully engage stakeholders such as the District in the development of drought rule concepts before producing draft rule language. The District looks forward to continuing its work with EPD during the development of the draft drought rule.

Sincerely,

Mayor Boyd Austin
District Chair

Katherine Zitsch, PE, BCEE
District Manager

40 Courtland St., NE ♦ Atlanta, Georgia 30303-2538
Telephone: (404) 463-3256 ♦ Facsimile (404) 463-3254

Cash, Tim

From: Tim Thoms <tim@thomstrees.com>
Sent: Wednesday, May 28, 2014 3:47 PM
To: Cash, Tim
Subject: Drought Management Rule- Stakeholder Meeting #1
Attachments: Tim Thoms' Comments for Consideration on the Drought Management Rule5-29-14.docx

Following and attached are my comments on the Drought Management Rule.

Comments for Consideration on the Drought Management Rule

Tim Thoms
tim@thomstrees.com 770-461-6013

Having been deeply involved in Georgia's water policy as an interested stakeholder for almost 30 years, I appreciate the opportunity to comment prior to the development of an Updated Drought Management Rule and for the opportunity to attend, even on such short notice, the May 13, 2014 Drought Management Rule Stakeholder Meeting . The DMR is, without a doubt, a significant regulation that severely impacted me, my business, my former employees and my family in the past. I hope that the effects from a new DMR can be more equitably distributed across all water use segments.

I certainly understand this is a complicated issue. I currently sit on the North Georgia Metropolitan Water District Governing Board, have served in various officer roles, including President, of the Georgia Water Wise Council as well as being a founding member of GWWC and also serve as a charter member and governing Board Member of the ACFS Stakeholders. It will take great collaboration to solve issues involving our water resources. This makes me even more certain that the process used to develop the DMR is important for acceptance and consensus among those whom the DMR significantly affects. As experience has shown it is important that any DMR considerations involve stakeholders in the process. There are many qualified and knowledgeable experts from all segments of water users such as local government, hospitality, construction, energy, agriculture, manufacturing, education, etc., that can work in concert with EPD to develop a draft DMR that is effective, equitable and efficient. This can then be circulated for wider comments, and having already been vetted by knowledgeable stakeholders, be more readily acceptable to affected parties. This process has proven successful in the plans developed by the Regional Water Councils as orchestrated the last few years by EPD.

Without having any draft or other documents on which to comment other than the info garnered at the May 13 meeting which I attended, my comments on specific issues within a DMR will be limited to what I perceive is happening in the DMR process and my experience in previous EPD attempts in this area.

1. The communication channel between EPD and stakeholders needs to be open and effective. Future communications should be direct to those stakeholders and this appears to be addressed by the contacts EPD took during registration for the May 13 meeting. However, there appear to be some stakeholder segments that were not in attendance at the meeting and may be unaware of the new DMR development.

2. As stated previously, any DMR must take into economic considerations so as to not devastate any one industry as it did in the past. Any rule must allow for shared consequences among all water users while achieving the goal of water savings. The brunt cost in jobs, production, revenues and even business failures cannot be borne by one segment alone such as the green industry. In addition the economic impact and loss of revenue to water sellers has to be addressed.

3. It has been shown across the nation that economic considerations, i.e., cost of water, is the most effective tool to promote water conservation and reduce water use. An idea could be to increase water unit cost to users during declared drought.

4. Rules should reward efficient use of water that are already in place due to previous efforts to install conservation methods. Efficiencies in our industry such as drip irrigation, recycling water for evaporative coolers in institutional settings, or using waterless urinals should be credited to such users allowing them to meet less stringent criteria or go further into drought level reductions without effects than those not using such efficiencies.

5. Water users (such as agriculture or recreation) who need to increase their water use in drought periods because of lack of rainfall must be considered juxtaposed against those water users (mostly inside) whose needs are not directly related to drought or depend on rainfall.

6. The exemptions in the Water Stewardship Act as outlined in 12-5-7 are there as statutory law and cannot be ignored or modified without creating new law. These are not discretional by regulatory agencies such as EPD.

7. Water rules must be consistent across jurisdictional lines. Business and individuals cannot be confused by varying rules that are difficult to communicate. This said, a one-size-fits-all approach needs to be avoided as systems in some jurisdictions have better infrastructure, more capacity, and are less impacted by drought than others. The reference to built-in variance procedures is a good idea.

8. The last drought showed that completely eliminating outdoor watering has significant environmental and economic downfalls. It also singles out a highly visible source rather than sources that are not visible with equal or greater impact.

9. The process for coming out of drought and determining that timing was more difficult than going into the drought. The process for restoring full water access needs to be planned as part of the process for coming out of a drought just the same as making the determination of drought levels going into the drought. Determination of type of drought is important. We may have a rainfall drought without having a supply drought. It is also important to take into consideration short and long term weather forecast in declaration of drought. Drought declarations need to be proactive and not reactive.

10. Baseline considerations developed using the past five to eight years water use data will not allow for reasonable determinations for reductions in current and future use.

On behalf of my family, my business and myself, I thank you for the opportunity to comment on the initial process of this DMR. Please know that I am available to offer any help, knowledge or other assistance in any manner I can to help EPD develop a good DMR for everyone.

I may be reached at 770-461-6013 or via email at tim@thomstrees.com.

Tim Thoms

Thoms Trees and Plants, Inc
770-461-6013
www.thomstrees.com

URBAN AG COUNCIL
GEORGIA

Our industry worked very hard with Governor Perdue's staff to recommend exemptions for outdoor water use to be included in the 2010 Water Stewardship Act. These recommended exemptions were put in place to protect both commerce and the environment, and we ask you to consider these when drafting a revised drought rule.

Second, there seems to be interest by water purveyors to seek reductions in uses considered to be consumptive over non-consumptive. Such approaches would greatly hinder uses for plant materials and have a severely negative impact on properties utilizing septic tanks. This would serve as another attack on outdoor water use, and would also further penalize communities statewide that do not have access to county/city water and sewer facilities. Treating such uses as criminal in the eyes of the public would be truly unfair to the urban agriculture industry and numerous communities across our state.

Third, EPD must establish measurable criteria for purveyors requesting to be more restrictive as well as a list of set objectives for such steps. The should include analysis of reservoir(s), stream flows, groundwater as well as information on system water loss, balanced approach to prescribed water use reductions and stated goal of compliance (i.e. reduce water use by 10%, 20% etc.). The document "Guidance for Drought Response Modification Petition Process" dated May 27, 2008, is a good reference tool, however it targets only outdoor water use reductions as methods to meet water conservation objectives. Such a tiered conservation structure could be beneficial.

Finally, care should be taken regarding withdrawals that do not require a permit when considering water use reductions. Small, personal wells below the permitted threshold should be treated as personal property and not subject to reductions in use. In addition, all agricultural and farm use permitted systems should be continue to be monitored for best management practices, but not subject to use restrictions except in the case of an extreme emergency.

Thank you for your consideration of our comments and please feel free to contact me if we can be of assistance.

Mary Kay Woodworth

Mary Kay Woodworth
Executive Director, Georgia Urban Ag Council

mkw@georgiauac.com

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June 2, 2014

James A. Capp, Chief, Watershed Protection Branch, EPD
2 Martin Luther King Jr. Drive, Suite 1152 East
Atlanta, GA 30334

RE: Drought Management Rule – Stakeholder Meeting #1

Mr. Capp:

The Georgia Urban Ag Council I would like to take this opportunity to submit comments regarding the draft State Drought Management Rule contemplated by the Georgia EPD Watershed Protection Branch.

We recognize and promote efforts to enhance environmental stewardship, and water conservation is certainly an essential component of stewardship. We would like to offer the following comments for your consideration as the rulemaking process takes shape.

First, while the document references successes of the 2006 – 2009 drought, it is worth noting that Georgia's agriculture and landscape industry suffered greatly during this period. Sudden and sometimes arbitrary reactions to limit or prohibit outdoor water use saw Georgia's $8 billion urban agriculture industry lose more than $2 billion in economic activity in 2007 according to UGA. The urban agriculture industry is comprised of turfgrass, ornamental, and nursery plant production as well as outdoor landscape and recreational turfgrass management. In addition to economic loss, these businesses eliminated more than 40% of the workforce – or 35,000 Georgia jobs during this same period.

Numerous cities and counties across North Georgia went beyond level 4 drought restrictions by either seriously curtailing or completely eliminating outdoor water use, even when state exemptions were provided for new plant installations. During this drought, and at any time of rainfall shortage, water purveyors target outdoor water use as the sole or primary initiative to reduce water usage. **Much of the decision making is made by local authorities with no input from affected industries or consideration of the economic hardships created by such reductions.** In 2009, even when state leadership encouraged local water providers to relax the drought restrictions and allow limited outdoor watering to help our landscapes and landscape industry recover, local authorities rejected them in the name of accelerated water conservation. Georgia turfgrass and horticulture growers were stuck with inventory they could not move due to consumer fears of watering these plant materials.

We recognize that we must all conserve and exercise stewardship of our natural resources, but to crush an industry along with many individuals' livelihoods in the name of conservation is foolhardy at best. Many of those in the urban agriculture industry have not yet fully recovered from the 2006-2009 drought, and likely never will.

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Cash, Tim

From: Capp, James
Sent: Monday, June 02, 2014 5:20 PM
To: Cash, Tim
Subject: FW: Drought rules comments
Attachments: 2014 Drought Rule revision.pdf

In case this didn't get to you.

From: Mary Kay Woodworth [mailto:mkw@georgiauac.com]
Sent: Monday, June 02, 2014 4:19 PM
To: Capp, James
Subject: Drought rules comments

Please find attached from Georgia Urban Ag Council.

Thank you,

Mary Kay

Mary Kay Woodworth
Executive Director

Direct: 770-359-7337
Office: 800-687-6949

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